THE HISTORY OF INFANT FEEDING 1500-1800

BY

VALERIE FILDES

THESIS SUBMITTED FOR THE DEGREE
OF
DOCTOR OF PHILOSOPHY

UNIVERSITY OF SURREY
DEPARTMENT OF HUMAN BIOLOGY AND HEALTH
JANUARY, 1982
Abstract

This thesis comprises an interdisciplinary study of infant feeding practices in the British isles between 1500 and 1800. Detailed analysis of medical texts and manuscripts, many previously unexplored for this purpose, provide medical recommendations and opinions which are compared with evidence of actual feeding practices from diaries, autobiographical and literary works; paintings, engravings, medical illustrations, and other forms of art; and relevant artefacts. Modern research in the fields of paediatric medicine, nutrition, anthropology, psychology and demography are used to interpret the findings, in the context of current thinking about the social, medical and family history of pre-industrial Britain. In identifying trends and changes in feeding practices, interest is principally focused on the effects on the health of a) the child b) the mother c) the mother-child relationship.

The five areas examined are maternal breastfeeding; wet nursing; mixed feeding; artificial feeding; and weaning. A further chapter traces the development of feeding vessels from the iron age to 1800. Appendices give biographical information about medical and theological authors; a descriptive list of infant food recipes; and additional data on wet nursing.

It is concluded that two periods of change occurred, at c1670 and particularly c1748. The former was related to other changes in English and Scottish medicine in the late 17th century. That in the 1740's was associated with industrialisation; the first well-publicised experiments with a) dry nursing at the London Foundling Hospital and b) early maternal breastfeeding at the Lying-in Hospital. A further factor was the publication of William Cadogan's Essay which, although not original in content, consolidated changes in medical ideas and presented them readably to the general and medical public. Major changes at this time included decreased popularity of wet nurses accompanied by increased incidence of maternal breastfeeding among the wealthy; allowing the child to suck colostrum rather than discarding it; changes in preparation of infant foods, particularly
the non-boiling of milk; the adoption of hand feeding as the feeding method of choice after maternal breastfeeding; the medical discussion of hand feeding and the development of better substitute foods, and more suitable vessels for administering them; a significantly earlier weaning age. Between 1500 and 1800 the principal medical trend was a decreasing concern for the health and well-being of the infant. This was replaced in the 18th century by increased attention to that of the mother, from which infants may have benefited indirectly. Several aspects of infant nutrition were associated with increased morbidity and death therefore the effect of different infant feeding practices should be taken into account in all investigations and discussion of infant mortality rates. Neither literary sources nor medical texts can be used in isolation to construct a reliable assessment of past infant feeding practices since many aspects of parental practice differed from medical discussion on infant nutrition.
I wish to thank my supervisor, Professor P R Davis, for his interest and guidance during the course of this investigation; his willingness to allow me considerable latitude in my pursuit of obscure subject matter and its subsequent presentation has resulted in a more wide-ranging and complete thesis than would otherwise have been possible.

Many people from a variety of institutions have given freely of their time and expertise, some going to considerable trouble to clarify points within their own specialties which I wanted to relate to my particular study. In particular, Dr W Bynum and Ms D Dwork, Wellcome Institute; Dr P Crawford, University of Western Australia; Dr A Cunningham, Wellcome Unit, University of Cambridge; Professor M MacDonald, University of Wisconsin; for assistance with history: Dr R Finlay, University of Manchester; Professor J Knodel, University of Michigan; Dr R Wall, Cambridge Group, for assistance with historical demography: and Dr R Schofield of the Cambridge Group, for providing demographic data. I am also grateful to Professor Knodel for information about non-breastfeeding areas in different parts of Europe, and to him and Dr D McLaren for clarifying the current ideas on the contraceptive effect of lactation and its relation to breastfeeding in the past.

Drs R Palmer, Wellcome Institute, and A Wilson, Wellcome Unit, University of Cambridge, gave me much information about the feeding and care of foundlings in Italy and England respectively. Dr. J. Donnison, North East London Polytechnic, enhanced my understanding of midwifery in the 18th century and pointed out to me the value of including midwifery texts in this study.

Dr J Shaw, University College Hospital, was extremely informative on many aspects of neonatal medicine, nutritional aspects of milk feeds, and current theories about rickets.

Dr H McGurk, University of Surrey, clarified several points on the
early psychology of the child and maternal-infant bonding; Professor Dickerson, University of Surrey, gave me assistance with aspects of nutrition.

For tracing illustrations, and discussion of their relevance, and the caution with which they should be interpreted, I am grateful to Dr R Burgess, Wellcome Institute; Dr E Sears, Warburg Institute; Dr E Langmuir, University of Sussex; Mrs Ginsburg, Victoria and Albert Museum; Dr W Eckart, Institut für theorie und geschichte der medizin, Munster; Dr K-D Fischer, Institut für geschichte der medizin, Berlin. For photographic provision and assistance I am indebted to the Victoria and Albert Museum, London; Cow & Gate Ltd; the National Gallery, London; the National Portrait Gallery; The Herzog August Bibliothek, Wolfenbüttel, W. Germany; The Wellcome Institute; and particularly to Mrs J Drage; Mr K Wilkinson; and Dr W Schupbach, Wellcome Institute.

For information about feeding vessels I am indebted to those concerned with cataloguing and arranging the Wellcome collection at the Science Museum, particularly Drs C Lawrence; R Driscoll; R De Peyer; A Ineson; and also Dr J Shephard of the Wellcome Institute. I also received much help from Messrs R Opie and Gunnel of Cow and Gate, Ltd and from Mr R Hutchings who was responsible for building up the Cow and Gate feeding bottle collection.

Mr R Brettell assisted me with translations from French; Dr C Dickerman, University of Wisconsin, gave me anthropological information and references; Dr J Geyer-Kordes, Institut für theorie und geschichte der medizin, Munster, discussed aspects of breastfeeding and midwives in Germany; Mr & Mrs C Hickman suggested references from English literature; Dr P Collins, University of Cambridge, and Drs G Edge and P Boulton, University of London, gave me much support throughout as well as assistance with physiological and immunological details.

At an early stage I was assisted by the following infant food and feeding vessel manufacturers: Boots, Ltd; Glaxo Ltd., Heinz & Co. Ltd;
This study would have been impossible without the facilities offered by the libraries of the following institutions, and the interest and assistance given by their staff:

British Library, London; Cambridge Group for the History of Population and Social Structure, Cambridge; Institute for Child Health, London; London Borough of Harrow libraries, Grant Road Branch; Royal College of Obstetricians and Gynaecologists, London; Royal College of Physicians, London; Society of Friends, London; University of London, Senate House; and particularly the Wellcome Institute for the History of Medicine, London.

I wish to thank Mrs J Dillingham, Mrs E Hall, and Mrs C McLachlan who have typed papers arising from this study and especially Mrs C Joel who has typed this thesis. I was able to undertake this research only because of the willingness of friends and family to assist with childcare and I particularly wish to acknowledge the active help, advice and interest of my husband.
## Contents

<table>
<thead>
<tr>
<th>List of tables</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>12</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>List of figures</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>18</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 1:</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction and methodology</td>
<td>22</td>
</tr>
<tr>
<td>Introduction</td>
<td>23</td>
</tr>
<tr>
<td>Review of the literature</td>
<td>26</td>
</tr>
<tr>
<td>Method</td>
<td>38</td>
</tr>
<tr>
<td>Critique of method</td>
<td>47</td>
</tr>
<tr>
<td>Introduction to results</td>
<td>48</td>
</tr>
<tr>
<td>Abbreviations used</td>
<td>50</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Chapter 2:</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal breastfeeding</td>
<td>51</td>
</tr>
<tr>
<td>Sources</td>
<td>52</td>
</tr>
<tr>
<td>A: The neonatal period</td>
<td>55</td>
</tr>
<tr>
<td>Introduction and properties of colostrum</td>
<td>55</td>
</tr>
<tr>
<td>Neonatal mortality</td>
<td>68</td>
</tr>
<tr>
<td>Maternal-infant relationships</td>
<td>71</td>
</tr>
<tr>
<td>Conclusions</td>
<td>74</td>
</tr>
<tr>
<td>B: The incidence and practice of maternal breastfeeding</td>
<td>75</td>
</tr>
<tr>
<td>Historical background</td>
<td>75</td>
</tr>
<tr>
<td>1. Incidence in different parts of society</td>
<td>76</td>
</tr>
<tr>
<td>Reasons why mothers did not breastfeed</td>
<td>79</td>
</tr>
<tr>
<td>The contraceptive effect of breastfeeding</td>
<td>89</td>
</tr>
<tr>
<td>Acceptable reasons for women not breastfeeding</td>
<td>92</td>
</tr>
<tr>
<td>2. Medical and religious ideas and recommendations about maternal breastfeeding</td>
<td>96</td>
</tr>
<tr>
<td>Reasons for preferring maternal breastfeeding</td>
<td>100</td>
</tr>
<tr>
<td>3. The technique of breastfeeding</td>
<td>111</td>
</tr>
<tr>
<td>The time and frequency of suckling</td>
<td>112</td>
</tr>
<tr>
<td>The quantity of breast milk</td>
<td>115</td>
</tr>
<tr>
<td>4. The problems of lactation</td>
<td>117</td>
</tr>
<tr>
<td>Insufficient breast milk</td>
<td>117</td>
</tr>
<tr>
<td>Too much milk</td>
<td>123</td>
</tr>
</tbody>
</table>
Chapter 4: Mixed feeding

A: The foods used for mixed feeding
   1. The constituents of infant foods
      Pap
      Panada
      Infant food recipes similar to pap and panada
      Changes in composition over three centuries
      Conclusions
   2. The method of preparation
      Pap
      Panada
      Infant foods similar to pap and panada
      Total infant food recipes
      Conclusions

B: Ideas and opinions about the foods used for mixed feeding
   Recommended foods
   Foods commonly given
   Condemned foods
   Alcoholic drinks and opiates
   Pre-chewed foods
   Conclusions

C: The practice of mixed feeding
   1. The age or time when foods other than breast milk were introduced
   2. The quantity of food given
      1500-1747 Frequency of mixed feeding
      The quantity of food
<table>
<thead>
<tr>
<th>2. Manufactured vessels</th>
<th>329</th>
</tr>
</thead>
<tbody>
<tr>
<td>Round jug-shaped vessels</td>
<td>329</td>
</tr>
<tr>
<td>Boat-shaped vessels</td>
<td>350</td>
</tr>
<tr>
<td>Upright sucking bottles</td>
<td>359</td>
</tr>
<tr>
<td>Size and capacity of feeding vessels</td>
<td>374</td>
</tr>
<tr>
<td>Pap-boats</td>
<td>374</td>
</tr>
<tr>
<td>Sucking bottles</td>
<td>375</td>
</tr>
<tr>
<td>Bubby-pots and feeding cans</td>
<td>375</td>
</tr>
<tr>
<td>B: Medical discussion of feeding vessels</td>
<td>378</td>
</tr>
<tr>
<td>The horn</td>
<td>378</td>
</tr>
<tr>
<td>The boat</td>
<td>379</td>
</tr>
<tr>
<td>The spoon</td>
<td>380</td>
</tr>
<tr>
<td>The bubby-pot</td>
<td>380</td>
</tr>
<tr>
<td>Other vessels/sucking bottles</td>
<td>382</td>
</tr>
<tr>
<td>Cleanliness of feeding vessels</td>
<td>383</td>
</tr>
</tbody>
</table>

Chapter 7: Weaning

Sources 399

I. The age of weaning 403
   A: Specific age 403
      1. The recommended age 403
      2. The common age 406
      3. The actual age 407
         Derivation of the sample 408
         The sample of named children 421
         The method of feeding 422
         Sex differences in weaning 423
         The effect of including families of several children 425
         The earlier age of weaning in the 18th century 428
   B: Factors other than age 432
   C: Late and early weaning 435
      Late or delayed weaning 435
      Early weaning 438
      Conclusions 440
<table>
<thead>
<tr>
<th>II: Weaning practices</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>A: The method of weaning</td>
<td>442</td>
</tr>
<tr>
<td>Sudden or abrupt practices</td>
<td>442</td>
</tr>
<tr>
<td>Gradual methods</td>
<td>447</td>
</tr>
<tr>
<td>Conclusions</td>
<td>450</td>
</tr>
<tr>
<td>B: The weaning diet</td>
<td>451</td>
</tr>
<tr>
<td>1. Weaning foods</td>
<td>451</td>
</tr>
<tr>
<td>2. Drinks to replace breast milk</td>
<td>458</td>
</tr>
<tr>
<td>Conclusions</td>
<td>462</td>
</tr>
<tr>
<td>C: Diseases associated with weaning</td>
<td>463</td>
</tr>
<tr>
<td>'Teething' (a synonym for weaning)</td>
<td>463</td>
</tr>
<tr>
<td>Rickets</td>
<td>465</td>
</tr>
<tr>
<td>The weaning disease/gastro-intestinal upsets</td>
<td>465</td>
</tr>
<tr>
<td>Leanness and small growth</td>
<td>466</td>
</tr>
<tr>
<td>Conclusion</td>
<td>467</td>
</tr>
</tbody>
</table>

Conclusions: Concluding discussion 468
Principal conclusions 474

Glossary 476

References and bibliography 479

Appendix I: Biographical details of authors in alphabetical order 516

Appendix II: Recipes for pap, panada, and similar substances used for infant feeding 1500-1800 555

Appendix III: Wet nursing impedimenta 576
1. Typical advertisements from The Times 1793-1794 577
2. The 'Arcutio' 578

Publications 580
<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1</td>
<td>Categories of books and manuscripts studied</td>
</tr>
<tr>
<td>2.1</td>
<td>The proportion (p) of 46 medical authors who recommended a first food for neonates 1500-1800</td>
</tr>
<tr>
<td>2.2</td>
<td>The proportion (p) of 46 medical authors who recommended a first food for neonates before and after 1748</td>
</tr>
<tr>
<td>2.3</td>
<td>The proportion (p) of 21 medical authors who said the following first foods were commonly given 1500-1800</td>
</tr>
<tr>
<td>2.4</td>
<td>The proportion (p) of 21 medical authors who said the following first foods were commonly given before and after 1748</td>
</tr>
<tr>
<td>2.5</td>
<td>The proportion (p) of 49 medical authors who recommended and/or said the following first foods were commonly given before and after 1748</td>
</tr>
<tr>
<td>2.6</td>
<td>The proportion (p) of 20 medical authors who stated reasons for administering purges/medicines 1500-1800</td>
</tr>
<tr>
<td>2.7</td>
<td>The proportion (p) of 11 medical authors who gave reasons for not feeding colostrum to neonates 1500-1800</td>
</tr>
<tr>
<td>2.8</td>
<td>Total (0-12 months) and endogenous (0-28 days) infant mortality and percentage change 1680's-1875</td>
</tr>
<tr>
<td>2.9</td>
<td>Infant mortality (0-12 months) of the British aristocracy 1650-1824</td>
</tr>
<tr>
<td>2.10</td>
<td>The proportion (p) of 32 authors who stated some common reasons why women did not breastfeed their own children 1500-1800</td>
</tr>
<tr>
<td>2.11</td>
<td>The proportion (p) of 34 authors who stated acceptable reasons for mothers not breastfeeding 1500-1800</td>
</tr>
<tr>
<td>2.12</td>
<td>The proportion (p) of 65 medical and religious writers who stated opinions about maternal breastfeeding 1500-1800</td>
</tr>
<tr>
<td>2.13</td>
<td>The proportion (p) of 29 medical and religious writers who recommended alternatives to maternal breastfeeding 1500-1800</td>
</tr>
<tr>
<td>2.14</td>
<td>The proportion (p) of 29 authors who gave examples in support of maternal breastfeeding 1500-1800</td>
</tr>
<tr>
<td>2.15</td>
<td>The proportion (p) of 42 medical and religious writers who stated the reasons why mothers should breastfeed their own children 1500-1800</td>
</tr>
<tr>
<td>2.16</td>
<td>The proportion (p) of 11 writers who listed the benefits of maternal breastfeeding 1500-1800</td>
</tr>
<tr>
<td>Table</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>-------------</td>
</tr>
<tr>
<td>2.17</td>
<td>The proportion (p) of 25 authors who described the adverse consequences of mothers not breastfeeding their own children 1500-1800</td>
</tr>
<tr>
<td>2.18</td>
<td>The proportion (p) of 46 medical, religious and moralist authors who discussed the advantages of maternal breastfeeding with the relative benefits to maternal and child health, and the maternal-infant bond 1500-1800</td>
</tr>
<tr>
<td>2.19</td>
<td>The proportion (p) of 46 medical, religious and moralist authors who discussed the advantages of maternal breastfeeding with the relative benefits to maternal and child health, and the maternal-infant bond before and after 1748</td>
</tr>
<tr>
<td>2.20</td>
<td>The proportion (p) of 23 medical authors who recommended the times at which infants were to be breastfed before and after 1748</td>
</tr>
<tr>
<td>2.21</td>
<td>The proportion (p) of 17 medical authors who prescribed the following major ingredients of internal remedies for a poor milk supply 1500-1800</td>
</tr>
<tr>
<td>2.22</td>
<td>The proportion (p) of 19 medical writers who prescribed methods for increasing the supply of breast milk 1500-1800</td>
</tr>
<tr>
<td>2.23</td>
<td>The proportion (p) of 12 midwifery writers who gave methods for drying up breast milk 1500-1800</td>
</tr>
<tr>
<td>2.24</td>
<td>The proportion (p) of 27 medical writers who described problems of the breasts and nipples in nursing women 1500-1800</td>
</tr>
<tr>
<td>3.1</td>
<td>Money payments made to wet nurses between 1500-1800</td>
</tr>
<tr>
<td>3.2</td>
<td>The proportion (p) of 58 mainly medical authors who gave the qualities to be looked for when choosing a good wet nurse 1500-1800</td>
</tr>
<tr>
<td>3.3</td>
<td>The proportion (p) of 31 medical authors who described the qualities required for a nurse's breast milk 1500-1800</td>
</tr>
<tr>
<td>3.4</td>
<td>The proportion (p) of 21 medical writers who described conditions which precluded employment as a wet nurse 1500-1800</td>
</tr>
<tr>
<td>3.5</td>
<td>The proportion (p) of 26 medical authors who described infantile diseases caused by the nurse's milk 1500-1800</td>
</tr>
<tr>
<td>3.6</td>
<td>The proportion (p) of 23 authors describing infantile diseases which were said to be contracted from contact/exposure to a diseased wet nurse 1500-1800</td>
</tr>
</tbody>
</table>
3.7 The proportion (p) of 44 mainly medical authors who described infantile diseases transmitted by, or contracted from, the wet nurse 1500-1800

3.8 The proportion (p) of 24 medical authors who discussed the treatment of diseases in infants at nurse 1500-1800

3.9 The proportion (p) of 27 medical writers who gave reasons for changing a wet nurse 1500-1800

4.1 The derivation of 73 infant food recipes

4.2 The proportion (p) of 40 pap recipes which contained the following groups of main ingredients

4.3 The proportion (p) of 14 panada recipes which contained the following types of ingredients

4.4 The proportion (p) of 19 alternative infant food recipes which contained the following main groups of ingredients

4.5 The proportion (p) of 73 infant food recipes which contained the following main ingredients

4.6 The proportion (p) of 40 pap recipes in which milk or other liquids were boiled at some point during preparation

4.7 The proportion (p) of 22 pap recipes containing milk in which the milk was boiled

4.8 The proportion (p) of 14 panada recipes in which milk or other liquids were boiled at some point during preparation

4.9 The proportion (p) of 2 panada recipes containing milk in which the milk was boiled

4.10 The proportion (p) of 19 alternative infant food recipes in which milk or other liquids were boiled during preparation

4.11 The proportion (p) of 10 18th century alternative infant food recipes containing milk in which the milk was boiled

4.12 The proportion (p) of 73 infant food recipes in which milk or other liquids were boiled at some point during preparation

4.13 The proportion (p) of 34 infant food recipes containing milk in which the milk was boiled

4.14 The proportion (p) of 13 18th century infant food recipes containing milk and water in which these ingredients were boiled
Table

4.15 The proportion (p) of 5 16th century authors who recommended, condemned, or said foods were commonly used for mixed feeding  
4.16 The proportion (p) of 12 17th century authors who recommended, condemned, or said foods were commonly used for mixed feeding  
4.17 The proportion (p) of 35 18th century authors who recommended, condemned, or said foods were commonly used for mixed feeding  
4.18 The proportion (p) of 40 medical writers who recommended particular foods for mixed feeding 1500-1800  
4.19 The proportion (p) of 35 medical writers who described the foods commonly given to infants for mixed feeding 1500-1800  
4.20 The proportion (p) of 33 medical writers who condemned particular foods as unsuitable for young infants 1500-1800  
4.21 The proportion (p) of 20 medical authors who recommended the age at which mixed feeding should begin 1500-1800  
4.22 The proportion (p) of 29 medical authors who described the factors to be considered when beginning mixed feeding 1500-1800  
4.23 The proportion (p) of 15 medical writers who discussed the problem of overfeeding 1748-1800  
4.24 The proportion (p) of 31 medical authors who associated particular disorders and diseases with mixed feeding in the 17th and 18th centuries  
4.25 The proportion (p) of 14 medical authors who associated particular disorders or diseases with the feeding of pap in the 17th and 18th centuries

5.1 Reasons for artificial feeding and the children who were affected  
5.2 The mortality in some European foundling homes/hospitals in the 18th century related, where possible, to the principal method of infant feeding  
5.3 Method of feeding the first three intakes of London foundlings, March to May 1741  
5.4 The mortality of London foundlings 1756-57 and their method of feeding  
5.5 Infant mortality in four London workhouses 1757-63
<table>
<thead>
<tr>
<th>Table</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>5.6</td>
<td>Infant mortality at St. George's, Middlesex, in the year 1765/66</td>
</tr>
<tr>
<td>5.7</td>
<td>St. Giles workhouse records 1765 showing the disposal of infants</td>
</tr>
<tr>
<td>5.8</td>
<td>Medical advice upon artificial feeding and its consequences 1579-1800</td>
</tr>
<tr>
<td>5.9</td>
<td>The proportion (p) of 13 medical authors who gave circumstances in which they advised artificial feeding 1706-1800</td>
</tr>
<tr>
<td>5.10</td>
<td>The proportion (p) of 13 medical authors who gave reasons for not advising artificial feeding 1579-1800</td>
</tr>
<tr>
<td>5.11</td>
<td>The proportion (p) of 12 medical writers who described conditions said to be a consequence of artificial feeding in the 18th century</td>
</tr>
<tr>
<td>5.12</td>
<td>Foods recommended, condemned, and said to be commonly given as substitutes for breast milk 1700-1800</td>
</tr>
<tr>
<td>6.1</td>
<td>The development of infant feeding vessels c2000 BC - 1800 AD</td>
</tr>
<tr>
<td>7.1</td>
<td>The age of weaning children from the breast recommended by medical writers 1500-1800</td>
</tr>
<tr>
<td>7.2</td>
<td>The age of weaning in the ancient world</td>
</tr>
<tr>
<td>7.3</td>
<td>The age of weaning said by medical writers to be common 1500-1800</td>
</tr>
</tbody>
</table>
| 7.4   | The age at weaning from the breast of a sample of named children 1500-1800  
   a) 16th and 17th centuries | 407 |
<p>|       | b) 18th century | 408 |
| 7.5   | The social composition of the sample of named children 1500-1800 | 409 |
| 7.6a  | The age of weaning in Britain 1500-1799 (British writers and children only) | 411 |
| 7.6b  | The age of weaning 1500-1799 (using additional sources translated into English) | 411 |
| 7.7a  | The age of weaning 1700-1799 (British writers and children only) | 412 |
| 7.7b  | The age of weaning 1700-1799 (using additional sources translated into English) | 412 |
| 7.8   | The method of feeding employed for the sample of 42 children | 422 |
| 7.9   | The length of suckling in infants fed by their mothers and those fed by wet nurses | 422 |</p>
<table>
<thead>
<tr>
<th>Table</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>7.10</td>
<td>The age at weaning from the breast of children in three different families, fed under different circumstances</td>
<td>426</td>
</tr>
<tr>
<td>7.11</td>
<td>The weaning age in 12 rural and 10 urban societies from different parts of Africa</td>
<td>430</td>
</tr>
<tr>
<td>7.12</td>
<td>The proportion (p) of 22 medical authors who considered factors other than age when weaning a child from the breast</td>
<td>432</td>
</tr>
<tr>
<td>7.13</td>
<td>The proportion (p) of 9 medical authors who stated factors to be considered when weaning a child early</td>
<td>438</td>
</tr>
<tr>
<td>7.14</td>
<td>The proportion (p) of 11 medical authors who described abrupt methods employed in weaning 1500-1800</td>
<td>443</td>
</tr>
<tr>
<td>7.15</td>
<td>The proportion (p) of 25 medical authors who recommended gradual methods of weaning and/or said that they were commonly practised 1500-1800</td>
<td>447</td>
</tr>
<tr>
<td>7.16</td>
<td>The proportion (p) of 17 medical writers who recommended the following weaning foods 1500-1800</td>
<td>451</td>
</tr>
<tr>
<td>7.17</td>
<td>The proportion (p) of 7 medical writers who recommended suitable foods for children after weaning 1500-1800</td>
<td>453</td>
</tr>
<tr>
<td>7.18</td>
<td>The proportion (p) of 9 medical authors who listed foods forbidden to the newly-weaned child</td>
<td>453</td>
</tr>
<tr>
<td>7.19</td>
<td>The proportion (p) of 14 medical writers who recommended suitable drinks for newly-weaned children 1500-1800</td>
<td>459</td>
</tr>
<tr>
<td>7.20</td>
<td>The proportion (p) of 11 medical authors who listed drinks forbidden to newly-weaned children 1500-1800</td>
<td>459</td>
</tr>
<tr>
<td>7.21</td>
<td>The proportion (p) of 14 medical writers who associated specific diseases with weaning in the 18th century</td>
<td>463</td>
</tr>
</tbody>
</table>
## List of figures

<table>
<thead>
<tr>
<th>Figure</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1a Purges recommended and/or in common use for the newborn 1500-1800</td>
<td>61</td>
</tr>
<tr>
<td>2.1b Percentage of writers recommending early breast-feeding with colostrum and the percentage fall in a) mortality (0-28 days) and b) overall infant mortality 1630-1840</td>
<td>69</td>
</tr>
<tr>
<td>2.2 Brass rubbing of memorial inscription to Benjamin Brand and wife (d. 1636) in Edwardstone Parish Church, Suffolk</td>
<td>78</td>
</tr>
<tr>
<td>2.3 Diagrams of stiffened, tight-fitting corsets worn by women in the 16th, 17th and 18th centuries</td>
<td>83</td>
</tr>
<tr>
<td>2.4 Sucking glass or breast pump illustrated in Reiff, 1545</td>
<td>133</td>
</tr>
<tr>
<td>2.5 Sucking glass or breast pump, illustrated in Paré, 1575 and 1634</td>
<td>134</td>
</tr>
<tr>
<td>2.6 Sucking glass or breast pump in use, illustrated in Ferrarius, 1577</td>
<td>135</td>
</tr>
<tr>
<td>2.7 Sucking glass or breast pump, illustrated in Mauriceau, 1673</td>
<td>136</td>
</tr>
<tr>
<td>2.8 Nipple shield, illustrated in Reiff, 1545</td>
<td>139</td>
</tr>
<tr>
<td>2.9 Nipple shields, illustrated in Paré, 1575 and 1634</td>
<td>140</td>
</tr>
<tr>
<td>2.10 Nipple shields, illustrated in Mauriceau, 1673</td>
<td>141</td>
</tr>
<tr>
<td>2.11 Nipple shields and caps, sucking glass, etc. illustrated in Dionis, 1719</td>
<td>142</td>
</tr>
<tr>
<td>2.12 Silver nipple protector, hallmarked 1751</td>
<td>143</td>
</tr>
<tr>
<td>2.13 Wooden nipple shield c1830. Also extant c1800</td>
<td>144</td>
</tr>
<tr>
<td>4.1 William Hogarth's <em>Gin Lane</em>, 1751</td>
<td>247</td>
</tr>
<tr>
<td>5.1 The poor kitchen by P. Bruegel, 1563</td>
<td>279</td>
</tr>
<tr>
<td>5.2 The rich kitchen by P. Bruegel, 1563</td>
<td>280</td>
</tr>
<tr>
<td>5.3 Feeding a baby by direct suckling by a goat Late 18th/early 19th century</td>
<td>284</td>
</tr>
<tr>
<td>5.4 Feeding a baby by direct suckling by a goat 19th century</td>
<td>285</td>
</tr>
<tr>
<td>5.5 Parrot's system of feeding syphilitic children on asses milk by the direct method. Late 19th century</td>
<td>286</td>
</tr>
<tr>
<td>Figure</td>
<td>Description</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
</tbody>
</table>
| 6.1    | Terracotta feeding horn and anthropomorphic jug  
|        | Ancient Egyptian |
| 6.2    | Small feeding horn held in Virgin's right hand.  
|        | Statue of Virgin and Child, 13th century  
|        | French or Spanish |
| 6.3    | Feeding an infant with milk from a horn, 13th century  
|        | French manuscript |
| 6.4    | Feeding horn in the right hand of Virgin  
|        | Ivory statue of Virgin and Child  
|        | Mid-14th century French |
| 6.5    | Feeding a child by means of a cow's horn  
|        | Detail from P. Bruegel The poor kitchen, 1563 |
| 6.6    | Cradle with a sucking-horn and sucking-horn holder  
|        | Made in Finland in 1815 |
| 6.7    | Neolithic jug-shaped feeders from France and  
|        | the Sudan |
| 6.8    | Terracotta anthropomorphic vase for holding milk  
|        | Ancient Egypt, 18th dynasty |
| 6.9    | Feeding jug from 'protogeometric' grave of a babygirl  
|        | in the Athenian agora, c1000 BC |
| 6.10   | Feeding vessels from Cyprus, ?10th century BC and  
|        | Southern Italy, 4th/3rdcentury BC |
| 6.11   | Greek infant feeding vessel, pottery, 5th century BC |
| 6.12   | Terracotta strainer for infant feeding, ?Attic Greek,  
|        | ?5th century BC |
| 6.13   | Terracotta biberon with non-spill design, ?Southern  
|        | Italian, latter half of 4th century BC |
| 6.14   | Roman glass feeding vessels, ?1st century AD |
| 6.15   | Roman rough buff-ware infant feeding vessel  
|        | 2nd century AD |
| 6.16   | Terracotta feeding vessel with strainer in lid  
|        | ?Roman, ?c150-200 AD |
| 6.17   | Roman glass vessel ? used for feeding infants |
| 6.18   | Roman black terracotta feeding vessel in the shape  
|        | of a human head |
| 6.19   | Glass feeding vessel from Iran, 10th century AD |
| 6.20   | Elizabethan feeding bottle found in London |
| 6.21   | Globular spouted feeding vessel. Illustrated in  
|        | the 1549 edition of H. von Louffenberg Regiment der gesundheit |
| 6.22   | Metal feeding can. Detail from an oil painting  
|        | by Jan Steen (1625-1679) |
| 6.23   | Pewter feeding can, probably an early version of the  
|        | bubbly-pot. English, 18th century |
6.24 Pewter bubby-pot invented by Dr. Hugh Smith
   English, 1775 .................................................. 347
6.25 Tin feeding can used by German immigrants to
   Pennsylvania in the late 18th century .......................... 348
6.26 Spouted feeding cups used for weaning babies from
   breast or bottle. English, 1981 .................................. 349
6.27 Boat-shaped feeding vessels from the late bronze-
   early iron age in Germany and Austria .......................... 351
6.28 Greek boat-shaped feeding vessel inscribed MAMO,
   probably from a Greek colony in Southern Italy or Sicily .... 352
6.29 Roman clay biberon ........................................... 353
6.30 Roman clay biberon ........................................... 354
6.31 Boat-shaped sucking bottle held by child on altar-
   piece at Wismar church, Germany, c1420/1430 .................. 355
6.32 Silver pap-boat. English, early 18th century ................ 356
6.33 Boat-shaped infant feeding bottles and pap-boats
   produced by the Staffordshire potteries; including Spode,
   Devonport and Wedgewood. Late 18th/early 19th century .... 357
6.34 Glass boat-shaped feeding bottle. English, 1950 .............. 358
6.35 Upright sucking bottle illustrated in
   H. von Louffenberg Versehung des leibs, 1491 ................. 359
6.36 Wooden upright feeding bottle. Painting
   Geburt Mariae by Marx Reichlich (1460-1520) .................. 360
6.37 Glass and wooden upright feeding bottle. Detail
   from early 16th century oil painting .......................... 361
6.38 Wooden upright feeding bottle held by a child
   of 15 weeks. Oil painting by an unknown English
   artist, 1593 .................................................. 362
6.39 Dutch glass feeding bottles designed not to fall
   over and probably used when weaning from the breast. 17th century 363
6.40 Glass and metal feeding bottle, illustrated in
   Curioser spiegel 1690 ........................................ 364
6.41 Pewter sucking bottle. English, 1750 .......................... 365
6.42 Pewter flask-shaped sucking bottle. English, 18th century .... 366
6.43 Pewter sucking bottle. European, 18th century ................ 367
6.44 Design of the feeding bottle invented by
   Filippo Baldini c1784 ...................................... 368
<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>6.45</td>
<td>Filippo Baldini's feeding bottle in use, illustrated in Baldini, 1784</td>
<td>370</td>
</tr>
<tr>
<td>6.47</td>
<td>Summary of feeding vessels in use in different periods, from prehistory until the end of the 18th century</td>
<td>373</td>
</tr>
<tr>
<td>7.1a</td>
<td>Histograms showing recommended weaning ages compared with actual weaning ages 1500-1800, and the effect of non-British writers</td>
<td>415</td>
</tr>
<tr>
<td>7.1b</td>
<td>Histogram showing the common age of weaning 1500-1800 and the effect of non-British writers</td>
<td>416</td>
</tr>
<tr>
<td>7.2</td>
<td>Diagram showing the median recommended, common and actual weaning age in Britain 1500-1799 (with recommendations of non-British writers 1500-1649 given for comparison)</td>
<td>418</td>
</tr>
<tr>
<td>7.3</td>
<td>Ages at which a sample of 42 British children were weaned from the breast between 1500 and 1800: showing the change over three centuries</td>
<td>420</td>
</tr>
<tr>
<td>7.4</td>
<td>Histograms showing the ages at which a sample of 17 boys and 18 girls were weaned 1500-1800</td>
<td>424</td>
</tr>
<tr>
<td>III.1</td>
<td>The Florentine Arcutio</td>
<td>579</td>
</tr>
</tbody>
</table>
CHAPTER 1

INTRODUCTION AND METHODOLOGY
The aim of this thesis is to examine the methods of feeding infants in Britain during the period 1500 to 1800.

The year 1500 was chosen as an approximate starting date because the late 15th century marked the beginning of printed books and many of those rolling off the newly discovered printing press were popular medical texts: significantly, the very first book of this type printed in the vernacular (rather than in the Latin which would have confined its use to the scholarly) was a treatise on paediatrics and childcare (Metlinger, 1473). The 16th century also saw the beginning of detailed records of baptisms, marriages and deaths in parish registers (1538), and the publication of Bills of Mortality for the capital city which, however crude, made possible some estimation of infant morbidity and mortality (1529).

1800 was selected as the finishing date because it marked the approximate end of the pre-industrial period of British history whilst including the early changes of industrialisation, some of which were relevant to infant care (for example the mass production of feeding bottles by the Staffordshire potteries); but preceded the major medical discoveries of the 19th century relevant to infant feeding (particularly those of Liebig and Pasteur).

This is a period during which there has been no detailed examination of infancy (as opposed to childhood) but, most important, it was a period which interested the present author and promised virgin territory for an investigation of the type she wished to undertake.
Today, infant feeding is primarily the province of the mother, assisted by midwives, health visitors, and, to a much lesser extent, the general practitioner and paediatrician. But the consequences of infant feeding may involve not only professional nurses, midwives, paediatricians, nutritionists and surgeons, but the physical anthropologist (concerned with growth and development); the psychologist (who relates it to emotional and physical development); the sociologist/social worker (who is interested in the general welfare of infants in the context of the family and the community); the social anthropologist (investigating differences between cultures); and the medical statistician or demographer (interested in questions such as fertility in breast feeding mothers and the morbidity and mortality of infants). Thus, the most notable feature of studies of infant feeding is their inter- or multi-disciplinary nature. For this reason this author believes any study of its history should also involve these varied aspects.

The area studied is the British Isles (i.e. England, Wales, Scotland and Ireland) although the mass of evidence relates to England. In the 18th century many physicians and surgeons, whose writings are referred to, had lived and/or been trained for several years in Scotland, particularly in Edinburgh, and they refer to Scottish examples and case histories as well as those from England. Throughout the whole period studied English and Scottish physicians were not trained entirely or, in some cases, even partly in Britain (see Appendix I) but gained their medical degrees, experience, and ideas from European Universities such as Padua, Montpellier, Rheims and, especially, Leyden. Thus medical ideas relating to young children were more frequently cosmopolitan than parochial. In contrast, literary sources relate to the strictly local or regional practices and ideas, although among the upper classes, who travelled between London and their country houses in all parts of the British Isles, the care of infants related to the social class of the parents rather than the place of habitation.

In some aspects of infant feeding there were major differences between Britain and other regions or nationalities (for example, in
artificial feeding and wet nursing) and in these cases evidence of French, German and other European or colonial practices have been employed for comparison, and to illustrate and clarify the differences. Similarly, any differences between social classes within Britain are detailed.

To contemporaries of the 16th to 18th centuries, infant feeding was of such import that it is rare to pick up a book, play, novel or picture of the period which does not refer somewhere to the feeding of babies. With such a large body of potential material it was impossible to go into the maximum detail in each aspect of feeding (each of which would merit an individual thesis). Therefore it has been necessary to select some topics for greater attention than others, more interest being paid to those areas which had not previously been investigated by any published writer, for instance neonatal feeding, the foods used for mixed feeding, and the age of weaning). A point was also made of including some of the problems associated with infant feeding from the woman's point of view (for example, the physical problems of breast feeding).

In the interpretation of the historical data, particularly in identifying possible trends and changes, attention was focussed on three main points:
1) The concern for, and effect on, the child
2) The concern for, and effect on, the mother
3) The concern for, and effect on, the mother-child relationship.

Modern research on infant feeding and associated care from all parts of the world, and published predominantly in the specialist fields of paediatrics, nutrition, social anthropology and developmental psychology were used to aid interpretation, against the background of current ideas in historical demography, and social and family history.

The critical question throughout this thesis is "How did mothers manage to feed their babies in the past?"
Review of the existing literature on the history of infant feeding

Introduction

Because of the diversity of the subject and the long time span most authors have concentrated either upon one aspect of feeding over varying lengths of time, or have discussed several facets of infant nutrition during one short period of history. In general, there is a dearth of information about the 16th century, somewhat more for the 17th century, whilst the 18th century, particularly the latter half, has received much greater attention from researchers.

The number of publications does not reflect the amount of original investigation into the topic since many (particularly medical) writers have merely summarised the findings of the few pioneers in the field.

It should be noted that many of the publications mentioned are not specifically concerned with infant feeding but are histories of the family, childhood, paediatrics, or antiques. The coverage of feeding practices is normally minimal and derivative. For example Aries devotes less than one page to feeding habits in his 400+ page history of childhood from medieval times.

General histories of infant feeding

Only two writers (Forsyth, 1911; Wickes, 1953) have presented a general discussion of infant feeding practices based on original research: Wickes from ancient times to the present and Forsyth from the Elizabethan era to the present.

Rurhah (1925) and Still (1931) include a great deal of information about the writings of the early paediatric authors on infant feeding in their general works on the history of paediatrics from Ancient Greece to the end of the 18th century.

The majority of other writers have used one or more of these four
publications as the basis for their own general surveys (Lyon, 1933; Powers, 1935; Mettler, 1947; Goldbloom, 1954; Blue & Davison, 1956; Drummond & Wilbraham, 1957; Cone, 1976 and, to some extent, Ryerson, 1960).

Mixsell (1916) based his short description of infant feeding from the 16th century to the present on so few original references that he offers nothing of value to the subject.

Surveys of paediatrics in the Bible (Radbill, 1963) and Mesopotamia (Radbill, 1973) contain brief information about general infant care including feeding practices. Ideas of the Elizabethan era have been briefly described (O'Hara May, 1977) and general surveys of 18th century infant feeding practices in England (Drake, 1930; Rendle-Short, 1960), France (Drake, 1935 & 1937) and Colonial America (Cone, 1976) have been published.

Two authors (Ryerson, 1960; Beekman, 1977) have surveyed 'advice books' written by medical men for the general public from the 16th to the 20th centuries, all of which include information about infant feeding.

There is one failing common to all of these publications. They are entirely based upon the writings of physicians, apothecaries, midwives or other learned men and women concerned with one or more aspects of medicine. Basically they consist of a chronological description of the medical bibliography on infant feeding. Therefore the history presented is really one of medical recommendations and educated opinions. Since the vast majority of the population, at least before the 19th century, did not consult physicians and there is no way of knowing how many people had access to these books, or how many could read or obey them if they did obtain a copy, it is likely that any view of infant feeding practices presented exclusively from these sources is either biassed or wrong.

Two writers (Caulfield (1952) on Colonial America and De Mause (1976) on Europe and America) avoid this bias by considering literary evidence and information from inventories and advertisements.
(Caulfield, 1952) in an attempt to show actual feeding habits but De Mause presents a muddled view based partly on recommendations and partly on evidence of actual children, but not clearly differentiating the two.

It is very rare for authors to offer any interpretation or to draw conclusions from the information they offer. Wickes (1953) and Drummond & Wilbraham (1957) make some attempt to interpret the rise of rickets in the 17th century and Forsyth (1911) to explain the declining age of weaning throughout his 300 year period, but only Ryerson (1960) endeavours to interpret her findings (in the light of modern psychological theories on childrearing).

Any findings from these general surveys of the subject are included in the following detailed sections.

**Breast feeding**

a) **The first food of infants**
   Although some writers mention in passing that a purge was given after birth before breast feeding commenced (Wickes, 1953; Rendle-Short, 1960; Ryerson, 1960) there has been no study or assessment of the effect of this practice upon the child or the mother.

b) **Maternal breast feeding**
   A number of writers have discussed breast feeding in the past (Stone, 1965; Demos, 1971/72; Hunt, 1972; Schnucker, 1974; Lorence, 1974; Shorter, 1977a; Stone, 1977; Hanawalt, 1977; Trumbach, 1978; McLaren, 1978).

Writers presume that most babies were breast fed by their mother or a wet nurse (Forsyth, 1911; Mixsell, 1916; Still, 1931; Lyon, 1933; Mettler, 1947; Caulfield, 1952; Wickes, 1953; Drake, 1956; Drummond & Wilbraham 1957; Adams, 1959; Ryerson, 1960; Stone, 1965; Demos, 1971/72; Hunt, 1972; Lorence, 1974; De Mause, 1976; Cone, 1976; Shorter, 1977a;
There is agreement that, among the upper and upper middle classes, there was a change from a well-established practice of using wet nurses to maternal suckling although the time of this change is not agreed upon. Stone (1965) puts it in the 17th century among the English aristocracy; Trumbach (1978) says the mid-18th century among the English aristocracy; Lorence (1974) and Shorter (1977a) say it was well established among the middle classes by the mid-18th century in Europe, whilst Stone (1977) believes that maternal suckling was rapidly established in the late 18th century in England.

The reasons given for this change are dissatisfaction with wet nurses (Trumbach, 1978; Stone, 1965), growth of the companionate marriage (i.e. marriage based upon close relations of companionship and respect rather than the formal distant relationship said to exist in the 16th/17th century marriages) (Stone, 1977), the publication of Rousseau's *Emile* in 1762 (Shorter, 1977a) and the development of a different view of the child as the modern family evolved (Shorter, 1977a).

There has been no study of the effects of this change on the health of the mother or child although it has been said that more affection between mothers and children probably resulted from the change (Shorter, 1977a; Stone, 1977).

It has been suggested that maternal breast feeding, particularly in the 17th century, was more likely to occur among Puritans (Schnucker, 1974; Stone, 1977) to whom it was presented as a religious duty.

McLaren (1978) in a detailed study of families in two parishes in 17th century Oxfordshire has shown that aristocratic and gentlewomen did not usually breast feed their own children whilst the wives of yeomen and husbandmen did when they were able. Because of the period of amenorrhoea which is normally present
when full breast-feeding is in progress (lactation amenorrhoea) this was a means of limiting the families of the latter. She presumes that they did not know of the contraceptive effect of breast feeding.

Wet nursing

Wet nursing has been widely discussed in the literature although most writers concentrate upon the 18th century.

It is generally stated that the aristocracy and gentry in Britain either put their children out to nurse or employed a wet nurse in their home (Forsyth, 1911; Mixsell, 1916; Rurhah, 1925; Still, 1931; Lyon, 1933; Drake, 1940 & 1956; Wickes, 1953; Stone, 1965; De Mause, 1976; Finlay, 1976 & 1979; Shorter, 1977a; Stone, 1977; Trumbach, 1978).

Orphans, bastards and destitute infants in the charge of the parish or in foundling institutions were also put out to nurse (Forsyth, 1911; Still, 1931; Wickes, 1953; Cunningham, 1977).

It has been suggested (Stone, 1977) that one reason for wet nursing was that it made the high infant mortality easier for parents to bear. Hunt (1972) has suggested that, in France, it was for the convenience of the husband. It has been said that it was a form of infanticide (Wickes, 1953).

Mothers in the New England Colonies, particularly in Boston, used wet nurses occasionally (Caulfield, 1952) although wet nursing was never well established in Colonial America (Cone, 1976).

In France, wet nursing was highly organised with employment bureaux and national and local legislation governing their choice, employment and pay (Drake, 1940; Sussman, 1974; 1975; 1977a; 1977b; Hufton, 1979).
In France and many parts of Europe children from all levels of society were put to nurse, and in far greater numbers than in England (Drake, 1940; Mettler, 1947; Aries, 1973; Lorence, 1974; Chamoux, 1974; De Mause, 1976; Shorter, 1977a; Hufton, 1979), for example only 1/30 of children born in Paris in 1780 were said to be fed by their own mothers (Drake, 1937). Aries (1973) suggests that putting children out to nurse in the country, as opposed to taking a nurse into the home, began in the 17th century in France.

Evidence of the high mortality of nurse children in parishes around London has been found in Parish Registers (Finlay, 1979) and the use of wet nurses by the rich is said to be associated with the shorter birth intervals and higher fertility of some upper class women in the late 16th and 17th centuries (McLaren, 1978 & 1979; Finlay, 1979). It has been suggested that wet nursing other women's children could have been used as a method of family limitation by wives in the artisan class in the parish of Chesham (McLaren, 1979).

Dissatisfaction with wet nurses in the 17th century has been connected with the fashion of hand feeding infants which developed among the English aristocracy in the 1680's (Trumbach, 1978).

As with other aspects of infant feeding, publications about wet nursing are descriptive rather than interpretive and no real attention has been paid to the consequences of the practice other than occasional mention of the presumed fate of the wet nurse's own child (Still, 1931; Wickes, 1953) or the inconvenience to her husband (Hunt, 1972).

Forsyth (1911) and Wickes (1953) suggest that wet nurses were found in England in the 18th century by contacting Lying-in Hospitals and accoucheurs who kept 'nurse-books' containing the names of suitable women.

Drake in particular has presented pictorial evidence of wet nursing in England and France (Drake, 1930; 1935; 1937; 1940).
Mixed feeding

Only one study has concentrated on the foods which were introduced early on to supplement breast milk. Drake has described the composition, preparation, use and abuse of paps and panadas as given by medical authors in France and England from 1565 (Drake, 1931).

Paps were said to date from the mid-15th century and consisted of flour or breadcrumbs cooked in water or milk whilst panadas were of very ancient origin and consisted of bread, broth, sometimes with legumes or oil or butter, but more often milk. Sometimes eggs were added. He also described Van Helmont's panada of bread in beer or wine with meal or sugar added.

Other writers (Forsyth, 1911; Wickes, 1953; Hutchings, 1958; Rendle-Short, 1960; Hunt, 1972) have mentioned the paps, panadas, gruels and bouillie in passing but no analysis of their possible nutritional value has been offered, although writers tend to agree with the condemnations of contemporary authors regarding their use as infant foods.

Only Trumbach (1978) has offered a recipe for pap which was actually used and was from a non-medical source. This consisted of breadcrumbs in milk and water.

Weaning

There has been no study on the subject of weaning although Forsyth (1911) notes the decline in recommended times for weaning from 2 years in the Elizabethan era to the present 6 - 9 months and postulates that this could be due to an inherent change in woman's ability to suckle her children.

Ryerson (1960) notes that the advised length of time for suckling was reduced after 1750 and has suggested that this was partly because diseases such as rickets and scurvy were under control at this time which made earlier weaning possible. This argument cannot be given credence because there is no evidence that the incidence of rickets
or infantile scurvy declined or was effectively treated or prevented before the early 20th century.

The small (25) list of weaning times compiled by De Mause (1976) is of little value as it is derived from many different countries, spans 22 centuries, mixes recommended times given by physicians with actual weanings and those said to be common. In some instances it is inaccurate.

Several writers mention weaning times recommended by individual authors (Rurhah, 1925; Still, 1931; Wickes, 1953) and others mention individual children (Plumb, 1975; De Mause, 1976) but these are not put into the context of other children or opinions of the period. The result is that presumptions about weaning have been made on the basis of very little evidence (Forsyth, 1911; Plumb, 1975; Stone, 1977).

MacFarlane (1970) has studied the Josselin family living in the 17th century and concluded from the length of the birth intervals that pregnancy was not the reason for Mrs. Josselin's decision to wean her children.

**Artificial feeding**

One study has been done of artificial feeding from the ancient world to the present (Bracken, 1956). This is based entirely on medical texts and is mainly concerned with American practices in the 19th and 20th centuries. She gives examples of hand feeding from birth on milk and barley flour pap in Germany, Switzerland and France, and suggests that artificial feeding became more frequent in the 18th century at about the same time as wet nursing began falling into disrepute.

Other writers have described areas of Germany (Knodel, 1977) and Italy (Shorter, 1977a) where for centuries it was customary for women not to breast feed at all and all infants were hand fed from birth.
Drake (1937) has referred to the existence of hand fed infants in Paris in 1780 and several writers have described the practice of direct suckling from animals particularly in France (Still, 1931; Drake, 1937; Wickes, 1953; Snelling, 1955; Bracken, 1956).

One writer has studied the change in infant feeding methods among some families of the English aristocracy in the 18th century (Trumbach, 1978). He suggests that handfeeding became fashionable among them in the 1680's and that it was preferred to the employment of wet nurses until about 1750, when aristocratic women began breast feeding their own children. He says that the father normally chose the method of infant feeding before 1750 and that after this date the decision tended to be made by male physicians.

Trumbach's view is that the decline of infant mortality among the English aristocracy after 1750 was not due to changes in feeding methods but was due to better attachment between mother and child. A reason for this better attachment was that the hand fed child was supervised by the mother and thus became used to one mother figure in his early life whereas, with wet nursing, the child became attached to the nurse. This theory is suspect since Trumbach bases it on the modern premise that there is no psychological difference for the child between bottle feeding and breast feeding. He fails to note that methods of hand feeding in the early 18th century were totally different from the bottle feeding of today.

It has been noted that physicians tended to prefer hand feeding to wet nurses after 1750 (Ryerson, 1960) and advised the former as the method of choice after maternal suckling (Ryerson, 1960; Trumbach, 1978).

**Feeding vessels**

Several writers have described, with copious illustrations, the history and development of the feeding bottle (Still, 1931; Rosenthal, 1936; Drake, 1956; Drummond & Wilbraham, 1957; Hutchings, 1958) and there is general agreement that round or globular vessels and
boat-shaped vessels have existed since the time of the Ancient Greeks.

The vessels described were of clay or glass in ancient times; of wood, pressed leather or pewter from the middle ages to the 17th century; whilst pewter, glass, porcelain, pottery, silver and gold were used from the 18th century onwards.

The earliest sucking bottles known in Europe came from parts of Germany and Italy (Rosenthal, 1936) but they were known in England in the 16th century (Snelling, 1955) and in France, Holland, Germany, Italy and England from the 17th century (Still, 1931; Drake, 1956; Hutchings, 1958). Pewter sucking bottles were used in Colonial America in the 17th century and pewter and silver versions in the 18th century (Caulfield, 1952).

Archeologists have written about small selections of feeding vessels from the late Bronze - early Iron Age in Europe (Lacaille, 1950) and the Roman to British-Medieval period (Tubbs, 1947). Kern (1957) and Bartsocas (1978) have described Greek feeding cups from the 4th and 5th centuries BC.

Glass oriental vessels from 10th century Iran have been found (Leibowitz, 1976).

Feeding vessels in the 18th century have been described, often by antique specialists and collectors, in porcelain (Drake, 1932; 1933; 1956; Crellin, 1969; Bennion, 1979), pewter (Still, 1931; Drake, 1941; Hutchings, 1958), Delftware (Drake, 1938) and silver (Drake, 1932/33; Bennion, 1979).

A tin feeding can unique to the German immigrants in 18th century Pennsylvania has been described (Dittrick, 1939).

The major vessels said to be in use in the 18th century were the feeding horn (Still, 1931; Wickes, 1953; Drake, 1956; Hutchings, 1958), the pap boat (Still, 1931; Wickes, 1953; Snelling, 1955;
Drake, 1956; Hutchings, 1958; Crellin, 1969; Bennion, 1979), the bubbypot (Still, 1931; Wickes, 1953; Drake, 1956; Hutchings, 1958; Crellin, 1969; Bennion, 1979) and sucking bottles (Drake, 1956; Still, 1931; Hutchings, 1958). Drake (1956) also described a pap-spoon dating from about 1800.

Other aspects of feeding

A study based entirely on medical texts has surveyed the use of vegetables in infant feeding from Biblical times to present-day America (Adams, 1959). She finds that vegetables were rarely mentioned before the middle ages. The potato was the first specific vegetable mentioned, in 1697, and some physicians began advising vegetables in the 18th century, but during this period vegetables were generally thought to be harmful.

The strong influence of the Roman Writers on paediatrics, particularly Soranus, on the medical authors of the 16th and 17th centuries has been noted (Foote, 1920; Still, 1931) and the influence of Arabic writers on later European authors (Lemay, 1978).

Beaver (1977) has suggested that the fall in infant mortality from the 18th to the early 20th century was associated with the greater availability of milk in the towns so that infants were better fed.

It has been postulated that infant care, particularly feeding practices, was associated with the general change of personality among the population in the 18th century (Rattray-Taylor, 1973); from puritanism, associated with maternal breast-feeding, harsh weaning and a dominant father figure, to romanticism associated with wet nursing or dry nursing and the development of the mother figure as of prime importance.

Samuel Johnson's childhood illnesses have been discussed (McHenry & Mackeith, 1966) and the likelihood that his scrofula was derived not, as he supposed, from his wet nurse but from later feeding with cows milk.
Extracts from his physician's diary have described the infant care of Louis XIII (Marvick, 1974). His physician's belief that the Dauphin was being starved resulted in a new wet nurse being employed and supplementary feedings being given by several other wet nurses.

Passages from William Hunter's diary which concern the birth of Queen Charlotte's children have been published (Hunter, 1908) and give information about the early feeding and employment of wet nurses for the royal children.

Rickets (the main disease associated with infant and child feeding practices) was said by contemporaries to have been a new disease which first appeared about 1620 (Rurhah, 1925; Still, 1931; Wickes, 1953; Drummond & Wilbraham, 1957). Pictorial evidence has been used to demonstrate that this disease was widely known in Europe before 1650 (Foote, 1927).

Drummond and Wilbraham (1957) suggest that its appearance was due to a lack of phosphorus and calcium in the diet whilst Wickes (1953) associated it with a time of high wheat prices, excessively cold winters, and the employment of young children inside the home for long periods of the day.
Method

To gain a proper understanding of past infant feeding practices it is necessary to have both good and comprehensive historical records, and an up to date knowledge of different feeding practices and their relationship to infant diseases and mortality. Thus a study of this kind necessarily requires an interdisciplinary approach. From the historical sources two main types of information were sought:

1. Medical and other educated opinions and recommendations written during this period.
2. The opinions and practices of people living at the time.

1. The books and manuscripts

Initially, Still's *History of Paediatrics* was read and a list compiled of all works on paediatrics or which included a substantial section on the care and diseases of children from the time of Hippocrates. It was considered essential to read the Ancient and Arabian writers because so much of 16th and early 17th century scientific thought was directly based upon these. It also helped to put the study into its correct historical context.

Secondly, the subject catalogue of the Library of the Wellcome Institute for the History of Medicine was examined under all categories related to paediatrics, child welfare, infant feeding and feeding bottles and a list of secondary sources was compiled. From these a supplementary list of medical texts was derived.

Throughout the study, information about other medical writings was obtained from *Current Work in the History of Medicine*, the current subject catalogue of the Wellcome Institute library and, occasionally, references from newly published papers.

During the period being considered, infant care was thought to be the province of the midwife rather than the physician, and most midwifery texts contained chapters on childcare and/or diseases of children. For this reason a list of midwifery texts published
between 1500 and 1800 was compiled from the subject catalogues of the libraries of the Royal College of Obstetricians and Gynaecologists, London, and the Wellcome Institute.

The Catalogue of Western Manuscripts in the Wellcome Institute was examined for manuscripts concerned with paediatrics or midwifery. Further manuscripts were found in the subject catalogue of the Royal College of Obstetricians and Gynaecologists' library.

As some books went through up to 20 editions during a period of 200 years it was clearly an impossible task to look at every book published. It was therefore decided that the first available edition of each author written in English would be examined unless there was a definite reason for looking at a later edition (e.g. a new supplement on hand feeding). The aim of reading every author writing in English on the topic of infant feeding between 1500 and 1800 was further modified by the availability of books. Only those which could be found in the following London libraries were studied.

1. Library of the Wellcome Institute for the History of Medicine.
2. Library of the Royal College of Obstetricians and Gynaecologists.
3. Library of the Royal College of Physicians.
4. The British Library.
5. University of London Library, Senate House.

In fact there were only about ten titles for which no copy in English could be traced.

The first English translation of European books on midwifery and paediatrics were included in the study on the grounds that, if they were on sale in the English language, they could have influenced feeding practices in this country. In addition they could provide material for comparison between countries.

Where a text was written in Latin in the 16th century and was not translated into English until the 18th century, it was regarded as a work of the century in which it first appeared, on the grounds that it reflected the practices and opinions of that century and that
all educated people could read the Latin in which it was originally written.

In a few instances, where a European text contained a first statement of importance in the history of infant feeding and no English translation was published, the short translations contained in Still (1931) and Rurhah (1925) were used.

A small sample of theological and some educational texts was derived primarily from the bibliography of Schnucker (1974) (for Puritans) and Powell (1972) (for popular domestic writers).

Biographical information was derived principally from the Dictionary of National Biography (1975); Still (1931) and Spencer (1927).

The list of books eventually analysed fell into eight general categories.
<table>
<thead>
<tr>
<th>Publications/Manuscripts</th>
<th>Principally written by</th>
<th>Intended readership</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Paediatric texts</td>
<td>physicians; apothecaries</td>
<td>medical and/or general public</td>
</tr>
<tr>
<td>2. Midwifery texts</td>
<td>man-midwives; midwives; occasionally physicians</td>
<td>midwives; physicians; general public</td>
</tr>
<tr>
<td>3. General medical works (which included information about infant care)</td>
<td>physicians; apothecaries surgeons</td>
<td>physicians; apothecaries; surgeons</td>
</tr>
<tr>
<td>4. Popular medical works (including some dietaries of the 16th century)</td>
<td>physicians; non-medical authors</td>
<td>general public</td>
</tr>
<tr>
<td>5. Advice books on childrearing</td>
<td>physicians; apothecaries; midwives</td>
<td>general public particularly mothers and nurses</td>
</tr>
<tr>
<td>6. Manuscripts of notes taken at midwifery/infant care lectures in Edinburgh and London</td>
<td>student physicians; trainee man-midwives</td>
<td>-</td>
</tr>
<tr>
<td>7. Educational texts</td>
<td>paedogogues: educated men</td>
<td>general public particularly parents</td>
</tr>
<tr>
<td>8. Theological texts (including printed sermons &amp; domestic conduct books)</td>
<td>puritans; protestant clergy; archbishops of Canterbury</td>
<td>general public, particularly married couples</td>
</tr>
</tbody>
</table>
Method of analysis of medical and other learned books

Each work was studied and notes and quotations taken, not only from the chapters directly concerned with infant feeding but also from any case histories or references to nurses, breast care and infants and their diseases in the remainder of the text.

The study divided naturally into five major areas:
1. Maternal breast feeding
2. Wet nursing
3. Mixed feeding
4. Artificial feeding
5. Weaning

Each was analysed separately in the following manner:
1. A separate list and/or chart was made for each topic.
2. Each item of information on a particular topic was listed together with every author who discussed it, in chronological order.
3. Similar statements were grouped together. For example all recommendations for the feeding horn were grouped together in a file concerned with recommendations of feeding vessels, under the general heading of artificial feeding. In this way, major trends and changes were immediately apparent and writers who were "ahead of their time" could be easily identified.
4. From this raw data tables and graphs were constructed to summarise the major findings in three groups for comparison:
   1. Recommendations of writers
   2. Practices said by writers to be common
   3. Some 'actual' examples from case histories.

2. Literary sources

Examples of actual feeding practices from contemporary literature were initially traced from bibliographies on the History of Childhood published in the History of Childhood Quarterly and in De Mause (Ed) The History of Childhood.
Additional examples were found by going through the indexes of 18th century newspapers and journals, such as *The Tatler*, *The Gentleman's magazine*, and *The Spectator*, and following up references connected with infant care, wet nurses, infant mortality, and the duties of mothers with regard to breast feeding.

References to infant feeding in novels and plays were gained from discussion with English literature specialists, as well as examination of possible texts already known to the author.

Apart from some manuscript letters in the Friends' House Library, London, only printed sources were used which were obtainable from the following libraries:
- The British Library
- University of London Library, Senate House,
- The Public Library System.

The literary sources of information eventually examined fell into the following categories:
1. Letters
2. Memoirs
3. Diaries
4. Autobiographies/biographies
5. Newspapers/journals
6. Novels and plays

These provided information about the feeding of actual children (often named) which were added to those obtained from medical and learned books. They were also used to discover supplementary information about attitudes to infant feeding, and statements from foreigners about what they observed to be common in England.

3. **Pictorial evidence**

Pictorial evidence of infant feeding practices was sought throughout the study. Woodcuts and figures in medical books were examined as well as the text.
The folders of photographs of illustrations in the Wellcome Institute for the History of Medicine on subjects concerned with infant feeding were examined, and representative photographs obtained.

Art galleries and specialist museums and collections were visited, in particular the Victoria and Albert Museum, and photographs obtained where possible.

Churches were visited to examine inscriptions and rubbings were obtained where possible.

An attempt was made to find as many different types of pictorial evidence as possible, including woodcuts, sculptures, woodcarvings, monumental brasses, paintings and drawings. Again, these gave information about the feeding practices of actual people of this period.

4. Data on feeding vessels

This was approached initially by examining specialist books about nursery antiques, antique medical ceramics and surgical instruments, and archeological publications.

The Wellcome Museum and the Cow and Gate collection of feeding vessels was visited early in the study and, when the Wellcome Collection was transferred to the Science Museum, permission was obtained to examine the new catalogue of feeding vessels which includes photographic information. Permission was also obtained to examine many of the specimens in the museum collection, particularly those dating from before 500 A.D. Photographs were obtained of selected examples.

These artefacts were compared with the pictorial evidence of feeding vessels in use, and the information from the medical and literary sources, to provide a comprehensive study of the development of the feeding bottle.
5. Additional sources

For parts of this study it was necessary, for reasons of finance, time, geography and linguistic ability, to rely on lengthy correspondence and discussion with people who had conducted research into specific areas. These included:

1. Detailed study of parish registers for evidence of nurse children (demographic historians working with parish registers - mainly in the London area).

2. Feeding practices in parts of Europe other than France which are not published in English (demographic and social historians).

3. Details of infant mortality trends and general demographic information about the 16th, 17th and 18th centuries (Cambridge Group for the History of Population and Social Structure).

4. Assistance in interpreting factors involved with maternal/infant bonding (psychologist working in this field).

5. Assistance in interpreting rare nutritional states (nutritionist).

6. Details of dress relating to maternal breast feeding and to possible nutritional deficiencies (Assistant Keeper of Dress, Victoria and Albert Museum).

7. Assistance with
   (a) modern interpretation of some causes of death given in the Bills of Mortality under the heading of convulsions
   (b) effects of different milks on very young infants
   (c) general discussion of very young infants and their diseases, especially those related to nutrition (consultant paediatrician).

From secondary sources a general study was made of infant mortality from 1550; the history of the family; the history of childhood; history of nutrition; psychological theories about breastfeeding; and information about infant feeding in pre-industrial societies today, in order that this study could be applied to problems concerned with infant mortality, maternal-infant bonding and general maternal-infant health.

In addition, secondary sources were used for comparison of feeding
practices in Britain (as found in this study) with those of other parts of the world, most notably France, Germany, and Colonial America.

6. Historical background

Historical background for this study was obtained from extensive reading of standard books and journals on social and medical history, particularly those concerned with the history of childhood. In order to make it of value to historians, as well as to those with a medical background, discussion, correspondence and active assistance and criticism from social, medical and demographic historians were an essential part of this research project.
Critique of method

1. Books on the subject of infant feeding and paediatrics written in Greek and Latin (the language used by all educated people in the 16th and 17th centuries) were omitted from the study. It is not known whether these would have altered or confirmed the findings.

2. It is not known how many people read the books of medical authors or, if they did so, whether they followed the recommendations or heeded the opinions of the author.

3. It is not known how typical the views of medical authors were compared with other medical opinions of the day.

4. Use of mainly printed literary sources means that some material relevant to the study could have been 'edited out' as being of no interest to the general reader. This is particularly applicable to those published in the 19th century.

5. Letters and memoirs, especially, tend to be confined to the upper social classes so that the care of their infants, and their opinions about this, may be quite different from those of the rest of the population.

6. Employing as many different types of sources as possible, and analysing them quantitatively, does mean that a truer picture could be obtained than if a very narrow group of sources was used descriptively.

7. This study would have been improved by looking at parish registers of selected parishes since this would have enabled some estimate of the scale of 'nursing' in the parish and the consequence in terms of mortality. It was necessary to substitute for this the very few studies of this type done by other researchers when trying to assess the extent of nursing.
Introduction to results

The results, discussion and conclusions are divided into the following 5 sections

1. Maternal breastfeeding
2. Wet nursing
3. Mixed feeding
4. Artificial feeding
5. Weaning

A note on the figures and tables presented in this study.

As will be immediately apparent, there was a great difference in the number of texts studied in each century. This does not reflect the interest in the subject of infant feeding but is a function of the total number of books published in Britain during the period 1500 to 1800 (Bennett, 1965; Bennett, 1970; Plant, 1974). Publication of books in English increased during the 17th century and escalated in the 18th century so that, by the last fifty years covered by this investigation, almost as many texts were available for consideration as the total number studied in the preceding two hundred and fifty years.

In order to make comparisons, the number of published writers discussing infant feeding in each period has been taken as representative of views in that century although the conclusions drawn from a smaller number of writers must be more tentative (Siegal, 1956; Bishop, 1968).

Because of this great discrepancy in the number of texts, and the differences in period, background and daily lives of both writers and the population as a whole, as well as the nature of the data, it was not considered possible or valid to apply statistical analysis to the figures obtained. Therefore, except in the rare cases where large numbers of reliable figures were available (e.g. infant mortality
rates) all results are presented in the form of the proportion of writers in each century who made particular observations or recommendations.

The disparate sizes of the samples in different centuries greatly reduces the validity of comparisons which can be made between them. However certain gross trends show up when such comparison is made, and may have some degree of significance.
Abbreviations used*

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Art. feed:</td>
<td>Artificial feeds for the young infant, 1980</td>
</tr>
<tr>
<td>Cat:</td>
<td>Catalogue</td>
</tr>
<tr>
<td>Comp. Mid. Pract.</td>
<td>Complete midwife's practice, 1680</td>
</tr>
<tr>
<td>DNB:</td>
<td>Dictionary of national biography, 1976</td>
</tr>
<tr>
<td>Eng. Mid. Enl:</td>
<td>English midwife enlarged, 1682</td>
</tr>
<tr>
<td>Found. Hosp:</td>
<td>Foundling hospital, 1749</td>
</tr>
<tr>
<td>Full View:</td>
<td>Full view of all the diseases incident to children, 1742</td>
</tr>
<tr>
<td>Gent. Mag:</td>
<td>Gentleman's Magazine, 1765</td>
</tr>
<tr>
<td>Lad. Dispens:</td>
<td>Ladies dispensatory, 1740</td>
</tr>
<tr>
<td>Lad. Phys. Dir:</td>
<td>Ladies physical directory, 1739</td>
</tr>
<tr>
<td>OED:</td>
<td>Oxford English dictionary</td>
</tr>
<tr>
<td>Pract. Mid:</td>
<td>Practice of midwifery, 1783</td>
</tr>
<tr>
<td>Pres. Day Pract:</td>
<td>Present-day practice in infant feeding, 1974</td>
</tr>
<tr>
<td>Rec. Intakes:</td>
<td>Recommended intakes of nutrients for the United Kingdom, 1973</td>
</tr>
<tr>
<td>Trace Elem:</td>
<td>Trace elements in human nutrition, 1973</td>
</tr>
</tbody>
</table>

* Full details of these publications are given in the references and bibliography.
CHAPTER 2

MATERNAL BREASTFEEDING

A: THE NEONATAL PERIOD

B: THE INCIDENCE AND PRACTICE OF MATERNAL BREASTFEEDING
The following texts and manuscripts were analysed to obtain data on maternal breastfeeding.

16th century

Erasmus, 1526; Elyot, 1534; Roesslin, 1540; Vives, 1540; Bullinger, 1541; Phaire, 1545; Boorde, 1547; Petrus Hispanus, 1550; Becon, c1550; Tansillo, 1566; Boaistuau, 1566; Paré, 1575; Jones, 1579; Guazzo, 1581; Batty, 1581; Ste Marthe, 1584; Muffet, 1584; Bullein, 1595; Smith, 1597.

Total = 19

17th century

Guillemeau, 1612; Perkins, 1612; Burton, 1621; Gouge, 1622; Clinton, 1622; Brathwaite, 1631; Griffith, 1633; Glisson, 1651; Sowerby, 1652; Culpeper, 1653; Quillet, 1655; Johnstone, 1657; Wolveridge, 1671; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Culpeper, 1676; Comp. Mid. Pract. 1680; Eng. Mid. Enl. 1682; McMath, 1694; Newcome, 1695; Pechey, 1697; Ettmueller, 1699; Barrett, 1699.

Total = 24

18th century

Baynard, 1706; Dionis, 1719; Defoe, 1728/29; Nurses Guide, 1729; Maubray, 1730; Arbuthnot, 1732; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Hoffmann, 1740; Full View, 1742; Hurlock, 1742; Astruc, 1746; James, 1746; Sloane, 1748; Cadogan, 1748; Burton, 1751; Exton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Gent. Mag., 1765; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; Thomson, 1772-85; White, 1773; Smith, 1774; Mackenzie, 1774; Hunter, 1775; Rosenstein, 1776; Osborne and Denman, 1776; Brown, 1777; Foster, 1781; Moss, 1781; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Mears, 1797; Young, late 18th.

Total = 46

Total = 89
Additional sources

Ancient and medieval societies

Plutarch, 1533; Paulus Aeginata, 1844-47; Aristotle, 1910; Rosaria, 1917; Wallis Budge, 1925; Feldman, 1927; Gellius, 1927; Brim, 1936; Deruisseau, 1940; Galen, 1951; Jonckheere, 1955; Soranus, 1956; Avicenna, 1966; Radbill, 1973; Pomeroy, 1975; Power, 1975; Holy Bible.

Maternal breastfeeding/wet nursing in Britain

Shakespeare, 1611; Brand, 1636; Rous, 1672; Gailhard, 1678; Steele, 1711; Birch, 1744; Brooke, 1766; Cholmley, 1787; Hutchinson, 1822; Dee, 1842; Bramston, 1845; Newcome, 1852; Thornton, 1875; Fretwell, 1877; Ferrier, 1878; Coke, 1889; Newdigate, 1898; Newdigate-Newdegate, 1898; Evelyn, 1908; Freke, 1913; Greene, 1929; Verney, 1930; Conway, 1930; Sibbald, 1932; Morris, 1934; Drake, 1946; Leinster, 1949-57; Fitzgerald, 1949; Wake, 1953; Winchester, 1955; Pearson, 1957; Emmison, 1964; Stone, 1965; McHenry and MacKeith, 1966; Rattray-Taylor, 1973; Schnucker, 1974; Lane, 1975; Hedley, 1975; Josselin, 1976; Stone, 1977; Trumbach, 1978; McLaren, 1978 and 1979; Osborn, 1979.

Maternal breastfeeding/wet nursing in France and other areas in Europe


Maternal breastfeeding in colonial America

Caulfield, 1952; Ryerson, 1960; Fox, 1966; Cone, 1976; 1979b.

Others

Reiff, 1545; Rueff, 1550; Ferrarius, 1577; Allen, 1733; Clark, 1751; Pract. Mid. 1783; Lowder, late 18th.
The findings of this author broadly agree with those of other writers (Stone, 1977; Shorter, 1977; Trumbach, 1978) that there was a trend during the 18th century for upper and middle class mothers, who in previous centuries would have used wet nurses, to reject the latter in favour of breast feeding their own children. Many factors were involved in this change, particularly changes in medical ideas about the value of colostrum (see Part A following) and the increasing social and medical acceptability of artificial feeding (see chapter on artificial feeding) both of which began in the last decades of the 17th century.

Inevitably there is considerable "overlap" in the discussion of maternal breastfeeding and that of wet nursing, since the reasons why women did not suckle their own children were inextricably linked with the reasons for the existence and continued employment of wet nurses. Therefore the topic of breast-feeding - who performed it at different periods; and why - permeates all parts of this thesis. Where they were part of other changes in infant nutrition, major changes in maternal breastfeeding practices are discussed in the context of the former. This section is principally concerned with the age at which infants were put to the breast for the first time; the incidence of maternal breastfeeding in different sections of the population; possible reasons for these class differences; the attitudes of contemporaries towards them; and the techniques and problems of breastfeeding.
Part A

The neonatal period

Introduction and properties of colostrum

The idea that the mother's first milk or colostrum is a "bad" substance which should be expressed and discarded before the child is allowed to suck is prevalent in pre-industrial societies in many parts of the world (Ploss et al, 1935; Mead 1963; Mondot-Bernard, 1977; Jelliffe & Jelliffe, 1978), and this section will show that it was also a feature of neonatal feeding in pre-industrial Europe. The "taboo" against colostrum is probably related to its appearance which differs in colour and consistency from later breast milk. But it also has important protective and nutritive functions and, in order to emphasise and clarify how any change in ideas and/or practice in early feeding may affect the neonate, its properties are enumerated below.

1. It has a proteolytic effect which aids the evacuation of meconium from the neonate's intestine.
2. It contains concentrations of antibodies, particularly against bacterial gut infections.
3. The newborn infant has no secretory IgA in his intestine for the first 6 weeks of life; colostrum helps to remedy this deficiency and thus protects the neonate against intestinal infections.
4. Lactoferrin, which has a strong bacteriostatic action that is particularly effective against pathogenic strains of *E. Coli* is in very high concentrations.
5. It is believed to be effective against *Candida albicans*, the organism causing thrush.
6. It contains an anti-staphylococcal factor.


Colostrum is replaced by more normal-looking breast milk about the 3rd or 4th day after delivery but this retains certain properties until the infant is approximately 2 weeks of age:
1) It has a high cellular content. These cells have a phagocytic action in the gut and liberate secretory IgA, lysozyme, lactoferrin, and interferon, all of which have a protective function especially against intestinal diseases in the newborn.

2) It has concentrated amounts of nutrients, notably zinc, which has been shown to be very important in protecting against neonatal infections. Lack of zinc disturbs future zinc metabolism and may lead to stunted growth (Jelliffe & Jelliffe, 1978).

---

Results and discussion

49 medical writers recommended the first food of neonates and/or described the common practice (Rueff, 1550; Paré, 1575; Ste Marthe, 1584; Guillemeau, 1612; Johnston, 1657; Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract., 1680; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Barrett, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Arbuthnot, 1732; Allen, 1733; Bracken, 1737; Hoffman, 1740; Full View, 1742; Astruc, 1746; Cadogan, 1748; Exton, 1751; Clark, 1751; Burton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Gent. Mag., 1765; Buchan, 1769; Mackenzie, 1770; Smith, 1774; Mackenzie, 1774; Thomson, 1772-85; Rosenstein, 1776; Foster, 1781; Moss, 1781; Pract. Mid., 1783; Spence, 1784; Underwood, 1784; Aitken, 1786; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Mears, 1797; Lowder, late 18th; Young, late 18th). These are summarised in tables 2.1 - 2.5 and detailed below. For clarity these are given by century and also before and after 1748. This reflects a natural dividing line in ideas and practice which apparently was associated with the publication of Cadogan's Essay in 1748.
### Table 2.1: The proportion ($p$) of 46 medical authors who recommended a first food for neonates 1500-1800

<table>
<thead>
<tr>
<th>First food</th>
<th>16th century (n=3)</th>
<th>17th century (n=9)</th>
<th>18th century (n=34)</th>
<th>Total (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge and/or colostrum</td>
<td>$p$</td>
<td>$p$</td>
<td>$p$</td>
<td>$p$</td>
</tr>
<tr>
<td>Colostrum only</td>
<td>-</td>
<td>0.33</td>
<td>0.44</td>
<td>0.39</td>
</tr>
<tr>
<td>Purge only</td>
<td>0.67</td>
<td>0.44</td>
<td>0.09</td>
<td>0.20</td>
</tr>
<tr>
<td>Purge/colostrum + food</td>
<td>-</td>
<td>-</td>
<td>0.15</td>
<td>0.11</td>
</tr>
<tr>
<td>Purge + medicinal substance</td>
<td>-</td>
<td>0.11</td>
<td>0.03</td>
<td>0.04</td>
</tr>
<tr>
<td>Medicinal substance</td>
<td>0.33</td>
<td>-</td>
<td>-</td>
<td>0.02</td>
</tr>
<tr>
<td>Breastmilk, not colostrum</td>
<td>-</td>
<td>0.11</td>
<td>-</td>
<td>0.02</td>
</tr>
</tbody>
</table>

### Table 2.2: The proportion ($p$) of 46 medical authors who recommended a first food for neonates before and after 1748

<table>
<thead>
<tr>
<th>First food</th>
<th>1500-1747 (n=21)</th>
<th>1748-1800 (n=25)</th>
<th>Total (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge and/or colostrum</td>
<td>$p$</td>
<td>$p$</td>
<td>$p$</td>
</tr>
<tr>
<td>Colostrum only</td>
<td>0.05</td>
<td>0.36</td>
<td>0.22</td>
</tr>
<tr>
<td>Purge only</td>
<td>0.43</td>
<td>-</td>
<td>0.20</td>
</tr>
<tr>
<td>Purge/colostrum + food</td>
<td>-</td>
<td>0.20</td>
<td>0.11</td>
</tr>
<tr>
<td>Purge + medicinal substance</td>
<td>0.10</td>
<td>-</td>
<td>0.04</td>
</tr>
<tr>
<td>Medicinal substance</td>
<td>0.05</td>
<td>-</td>
<td>0.02</td>
</tr>
<tr>
<td>Breastmilk, not colostrum</td>
<td>0.05</td>
<td>-</td>
<td>0.02</td>
</tr>
</tbody>
</table>
Table 2.3: The proportion (p) of 21 medical authors who said the following first foods were commonly given 1500-1800

<table>
<thead>
<tr>
<th>First foods</th>
<th>16th century (n=1)</th>
<th>17th century (n=2)</th>
<th>18th century (n=18)</th>
<th>Total (n=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Purge + food</td>
<td>-</td>
<td>-</td>
<td>0.22</td>
<td>0.19</td>
</tr>
<tr>
<td>Purge + medicinal substance</td>
<td>-</td>
<td>0.50</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td>Food only</td>
<td>-</td>
<td>-</td>
<td>0.17</td>
<td>0.14</td>
</tr>
<tr>
<td>Purge + food + medicinal substance</td>
<td>-</td>
<td>-</td>
<td>0.06</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Table 2.4: The proportion (p) of 21 medical authors who said the following first foods were commonly given before and after 1748

<table>
<thead>
<tr>
<th>First foods</th>
<th>1500-1747 (n=8)</th>
<th>1748-1800 (n=13)</th>
<th>Total (n=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge</td>
<td>p</td>
<td>p</td>
<td>0.48</td>
</tr>
<tr>
<td>Purge + food</td>
<td>0.75</td>
<td>0.31</td>
<td>0.19</td>
</tr>
<tr>
<td>Purge + medicinal substance</td>
<td>0.25</td>
<td>0.08</td>
<td>0.14</td>
</tr>
<tr>
<td>Food only</td>
<td>-</td>
<td>0.23</td>
<td>0.14</td>
</tr>
<tr>
<td>Purge + food + medicinal substance</td>
<td>-</td>
<td>0.08</td>
<td>0.05</td>
</tr>
</tbody>
</table>

To assess the frequency with which each substance appeared, all references to the first food given after delivery, whether a recommendation or a substance said to be commonly given, were examined with the results shown in table 2.5.
Table 2.5: The proportion (p) of 49 medical writers who recommended and/or said the following first foods were commonly given, before and after 1748

<table>
<thead>
<tr>
<th>First foods</th>
<th>1500-1747 (n=21)</th>
<th>1748-1800 (n=28)</th>
<th>Total (n=49)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Purge and/or colostrum</td>
<td>0.33</td>
<td>0.39</td>
<td>0.37</td>
</tr>
<tr>
<td>Purge only</td>
<td>0.57</td>
<td>0.11</td>
<td>0.31</td>
</tr>
<tr>
<td>Colostrum only</td>
<td>0.05</td>
<td>0.32</td>
<td>0.20</td>
</tr>
<tr>
<td>Purge/colostrum + food</td>
<td>-</td>
<td>0.29</td>
<td>0.16</td>
</tr>
<tr>
<td>Purge + medicinal substance</td>
<td>0.19</td>
<td>0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>Food only</td>
<td>-</td>
<td>0.11</td>
<td>0.06</td>
</tr>
<tr>
<td>Purge + food + medicinal substance</td>
<td>-</td>
<td>0.04</td>
<td>0.02</td>
</tr>
<tr>
<td>Medicinal substance</td>
<td>0.05</td>
<td>-</td>
<td>0.02</td>
</tr>
<tr>
<td>Breastmilk, not colostrum</td>
<td>0.05</td>
<td>-</td>
<td>0.02</td>
</tr>
</tbody>
</table>

1. A purge only was recommended by 9 writers (Pare', 1575; Ste Marthe, 1584; Johnstone, 1657; Mauriceau, 1673; Culpeper, 1676; Pechey, 1697; Nurses Guide, 1729; Arbuthnot, 1732; Bracken, 1737) and said to be commonly given by 10 writers (Pare', 1575; Mauriceau, 1673; Dionis, 1719; Nurses Guide, 1729; Hoffmann, 1740; Astruc, 1746; Mackenzie, 1774; Spence, 1784; Downman, 1788; Mears, 1797).

2. A purge + a medicinal substance was recommended by 2 writers (Comp. Mid. Pract. 1680; Full View, 1742) and said to be commonly given by 3 authors (McMath, 1694; Maubray, 1730; Buchan, 1769). A medicinal substance only was recommended by Rueff (1550).

3. Guillemeau (1612) advocated breastmilk early on but not colostrum (i.e. the infant was to be fed by another woman delivered sometime previously).
4. 14 writers recommended a purge if colostrum was not given (i.e. as an alternative to colostrum) (McMath, 1694; Maubray, 1730; Hoffmann, 1740; Cadogan, 1748; Burton, 1751; Smellie, 1752; Nelson, 1753; Buchan, 1769; Smith, 1774; Mackenzie, 1774; Foster, 1781; Hamilton, 1792; Mears, 1797; Lowder, late 18th); whilst 18 recommended a purge as an alternative or in addition to colostrum (McMath, 1694; Ettmueller, 1699; Barrett, 1699; Dionis, 1719; Maubray, 1730; Hoffmann, 1740; Astruc, 1746; Cadogan, 1748; Clark, 1751; Burton, 1751; Nelson, 1753; Smith, 1774; Mackenzie, 1774; Foster, 1781; Spence, 1784; Hamilton, 1792; Mears, 1797; Lowder, late 18th).

5. Colostrum only was recommended by 10 medical writers (Allen, 1733; Brouzet, 1755; Mackenzie, 1770; Thomson, 1772-85; Rosenstein, 1776; Pract. Mid. 1783; Aitken, 1786; Downman, 1788; Lara, 1791; Young, late 18th).

6. The addition of food to the purge and/or colostrum was recommended by 5 authors (Exton, 1751; Smellie, 1752; Memis, 1765; Buchan, 1769; Baudelocque, 1790) whilst 4 said that a purge/medicinal substance and food was commonly given (Cadogan, 1748; Gent. Mag., 1765; Moss, 1781; Baudelocque, 1790; Hamilton, 1792) and 3 said that it was common to give food only (Nelson, 1753; Smith, 1774; Underwood, 1784).

The purge referred to here was not normally a single dose but was repeated at frequent intervals, sometimes for 2 days (Hunter, 1908). The purges recommended and/or said to be in common use at different times during this 300 year period are shown in fig. 2.1a. The most popular and enduring was butter/oil of sweet almonds combined with sugar/honey/syrup. This combination was very ancient; it is mentioned in the Old Testament (Isaiah 7, 14) and was recommended by Soranus in the 1st/2nd century AD. Wine or sugared wine was probably given more frequently in continental Europe than in Britain (Hoffmann, 1740).
Figure 2.1a: Purges in common use and/or recommended for the newborn 1500 – 1800
(named firstly by Paré (1575) and lastly by Baudezecue (1790). )
--- indicates purges discussed by the ancient medical/religious writers

<table>
<thead>
<tr>
<th>Purge</th>
<th>Period of use</th>
</tr>
</thead>
<tbody>
<tr>
<td>Almond oil</td>
<td></td>
</tr>
<tr>
<td>Almond oil &amp; syrup of</td>
<td></td>
</tr>
<tr>
<td>Honey</td>
<td></td>
</tr>
<tr>
<td>Butter</td>
<td></td>
</tr>
<tr>
<td>Butter &amp; Honey</td>
<td></td>
</tr>
<tr>
<td>Sugar</td>
<td></td>
</tr>
<tr>
<td>Almond oil &amp; sugar</td>
<td></td>
</tr>
<tr>
<td>Sugared wine</td>
<td></td>
</tr>
<tr>
<td>Wine</td>
<td></td>
</tr>
<tr>
<td>Butter &amp; sugar</td>
<td></td>
</tr>
<tr>
<td>Syrup of roses/violets</td>
<td></td>
</tr>
<tr>
<td>Pharmaceutical purges*</td>
<td></td>
</tr>
<tr>
<td>Others**</td>
<td></td>
</tr>
<tr>
<td>Rhubarb</td>
<td></td>
</tr>
<tr>
<td>Sugared water</td>
<td></td>
</tr>
</tbody>
</table>

* includes mithridate, balsam hystericum, manna, magnesia, diascordium, cassia, senna, venice treacle, castor oil, cream of tartar, herb waters: either alone or mixed with the above substances.

** includes salt-water, castile soap in caudle, punch, caudle, gruel.
20 medical authors gave reasons for administering purges or medicines (Rueff, 1550; Paré, 1575; Ste Marthe, 1584; Johnstone, 1657; Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract. 1680; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Nurses Guide, 1729; Maubray, 1730; Arbuthnot, 1732; Bracken, 1737; Astruc, 1746; Exton, 1751; Clark, 1751; Mackenzie, 1774; Moss, 1781; Baudelocque, 1790). These are listed in table 2.6 and detailed below.

Table 2.6 The proportion (p) of 20 medical authors who stated reasons for administering purges/medicines 1500-1800

<table>
<thead>
<tr>
<th>Reason</th>
<th>16th century (n=3)</th>
<th>17th century (n=7)</th>
<th>18th century (n=10)</th>
<th>Total (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td>To remove meconium</td>
<td>P 0.67</td>
<td>P 0.71</td>
<td>P 0.90</td>
<td>P 0.80</td>
</tr>
<tr>
<td>To prevent diseases</td>
<td>0.33</td>
<td>0.57</td>
<td>0.20</td>
<td>0.35</td>
</tr>
<tr>
<td>To clear mouth/throat/lungs</td>
<td>-</td>
<td>0.29</td>
<td>0.30</td>
<td>0.25</td>
</tr>
</tbody>
</table>

The purge, medicinal substance and the first milk or colostrum (if used as a purge) were given to remove the meconium from the child's stomach and intestines (Paré, 1575; Ste Marthe, 1584; Johnstone, 1657; Mauriceau, 1673; Culpeper, 1676; Pechey, 1697; Ettmueller, 1699; Nurses Guide, 1729; Maubray, 1730; Arbuthnot, 1732; Bracken, 1737; Astruc, 1746; Exton, 1751; Clark, 1751; Mackenzie, 1774; Baudelocque, 1790).

Less important functions were the prevention of diseases such as leprosy and falling sickness (Rueff, 1550; Johnstone, 1657; Comp. Mid. Pract. 1680; McMath, 1694; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730); and clearing the mucus from the child's mouth and lungs by making him cough and vomit (Mauriceau, 1673; Comp. Mid. Pract. 1680; Nurses Guide, 1729; Astruc, 1746; Moss 1781).
These findings show that there was a slow change in medical ideas about colostrum (i.e. putting the baby to the mother's breast within the first few days of birth) dating from the end of the 17th century. Before this time mothers were advised not to breastfeed their child for up to a month after delivery. Some of the recommended and/or common times for first putting an infant to his mother's breast (or, in some cases, that of the wet nurse) are listed below:

3-4 weeks  (Guillemeau, 1612; Mauriceau, 1673; quoting their contemporaries).

8-9 days  (Guillemeau, 1612; Mauriceau, 1673; McMath, 1694; Maubray, 1730).

5-7 days  (Paré, 1575; Eng. Mid. Enl. 1682).

4 days  (Jones, 1579; quoting Aetios, 1950).

Not immediately/several days  (Roesslin, 1540; Rueff, 1550).

2-4 days  (Smellie, 1752; Moss, 1781; Young, late 18th).

Within 24 hours  (Barrett, 1699; Astruc, 1746; Cadogan, 1748; Nelson, 1753; Mackenzie, 1774; Thomson, 1772-85; Pract. Mid., 1783; Aitken, 1786; Baudelocque, 1790; Young, late 18th).

There were 4 main reasons why infants were not to be put to the mother's breast in the first days after birth,

2 affecting the child:

1. The mother's first milk or 'beestings' was regarded as unpurified and bad for the child (McMath, 1694; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730).

8 writers said that colostrum was harmful to the child, or was thought to be so by their contemporaries (Roesslin, 1540; Jones, 1579; Mauriceau, 1673; McMath, 1694; Nurses Guide, 1729;
Bracken, 1737; Hoffmann, 1740; Astruc, 1746).

2. The baby would come to harm if he was given milk whilst still passing meconium (it was believed that the milk and meconium would coagulate in the intestines)(Pare', 1575; Mauriceau, 1673; McMath, 1694; Nurses Guide, 1729; Maubray, 1730; Astruc, 1746; Exton, 1751; Young, late 18th).

2 affecting the mother:

3. The mother was not 'rested' or fit enough to feed. She needed to recover from her labour (Pare', 1575; Guillemeau, 1612; Mauriceau, 1673; McMath, 1694; Nurses Guide, 1729; Maubray, 1730).

4. The mother was not cleansed (i.e. she could not feed until the lochia had stopped flowing and she had been 'churched' (Guillemeau, 1612; McMath, 1694).

These findings are tabulated in table 2.7 to show that the major concern of the 11 authors who gave the above reasons was for the health of the newborn child.

Table 2.7: The proportion (p) of 11 medical authors who gave reasons for not feeding colostrum to neonates 1500-1800

<table>
<thead>
<tr>
<th>Reason</th>
<th>16th century (n=2)</th>
<th>17th century (n=4)</th>
<th>18th century (n=5)</th>
<th>Total (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reasons affecting child</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Reasons affecting the mother</td>
<td>1.0</td>
<td>0.75</td>
<td>1.0</td>
<td>0.91</td>
</tr>
<tr>
<td></td>
<td>0.50</td>
<td>0.75</td>
<td>0.40</td>
<td>0.55</td>
</tr>
</tbody>
</table>

Before the child could be safely breastfed the mother had to draw off and discard her first milk. This could be done by other women (Guillemeau, 1612; Mauriceau, 1673; Nurses Guide, 1729); with sucking glasses (Guillemeau, 1612; Mauriceau, 1673; Nurses Guide, 1729); by a "lusty" older child (Mauriceau, 1673; Thomson, 1772-85);
or by a puppy-dog (Guillemeau, 1612). Meanwhile, once thoroughly purged, the child could be suckled by other women whose milk was 'older' (Roesslin, 1540; Mauriceau, 1673; Pechey, 1697; Maubray, 1730).

A change in ideas about the value of colostrum began in the British medical literature in 1672/3 with the translation of Mauriceau's The accomplisht midwife. This change is outlined below.

Pre-1673 All writers condemned colostrum as harmful and undesirable.

1673 Mauriceau reported that some people believed colostrum had a purgative effect, but did not recommend it.

1694 McMath repeated this belief.

1699 Ettmueller was the first to recommend colostrum in place of the traditional purge.

1719 Dionis was the first to recommend colostrum as more nourishing than any other milk.

1733 Allen recommended colostrum as nourishing for some days.

c1740 Hoffmann said that experience had shown that people were wrong to advise against the first milk.

1746 Astruc was the last writer to advise against feeding infants with new milk.

1748 Cadogan published his Essay and recommended that no child should be given anything whatsoever until he was put to the breasts: harm would come to any infant denied colostrum.

1748-1800 No writer considered that colostrum was a bad or harmful substance. The first milk was recommended as good for the child (Cadogan, 1748; Rosenstein, 1776); as an alternative or addition to the traditional purge (Cadogan, 1748;
Clark, 1751; Burton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Buchan, 1769; Smith, 1774; Mackenzie, 1774; Rosenstein, 1776; Lara, 1791; Hamilton, 1792; Mears, 1797; Young, late 18th); and as a preventative against milk fever in the mother (Nelson, 1753; Armstrong, 1771; Smith, 1774; Thomson, 1772-85; Rosenstein, 1776; Underwood, 1784; Downman, 1788; Baudelocque, 1790; Lara, 1791; Young, late 18th).

1753 The advantages of early maternal breastfeeding in the prevention of milk fever were first mentioned (Nelson, 1753).

1776 Feeding the child with mother's milk from the beginning prevented many infantile disorders was first stated by Rosenstein (1776).

It is difficult to assess how far this change in medical ideas was reflected in practice. In the 16th and 17th centuries it is unlikely that mothers who had grown up with the familiar age-old taboos against feeding colostrum would have gone against these in any great number as few mothers would have deliberately wished to harm their newborn child. Certainly the rich, who were most influenced by physicians and also used wet nurses, followed the customary procedure of purging for several days before sending the child to nurse (Mauriceau, 1673); the wet nurse was not newly-delivered so that infants could not obtain colostrum from the breasts of their foster mother (see chapter on wet nursing).

Whilst physicians and man-midwives may have been able to influence those women rich enough to pay their fees, it would have taken much longer for the poorer sections of society to have discovered or been informed of new ideas and then persuaded that these could benefit either themselves or their offspring. There were three ways in which these new ideas could have spread among the middle classes and the poor in the 18th century.

1. About 1750 William Hunter, in an attempt to reduce the morbidity
and mortality from milk fever in the Lying-in Hospital, Brownlow Street, proposed that infants should be put to their mother's breast within 24 hours of delivery instead of after 3-4 days as had been the custom. This reduced the formerly very high incidence of milk fever to negligible proportions (Nelson, 1753). Milk fever occurred several days after delivery in women who did not breastfeed. The milk stagnated in the breasts and became a focus for infection and abscesses, which were often exacerbated by vain attempts to 'draw' the breasts by well-meaning helpers. It was characterised by a high fever and significant maternal mortality, and in the 17th and 18th centuries was dreaded as much as puerperal fever (Nelson, 1753; Leinster, 1949-57). Experiments in the lying-in hospitals hastened the understanding that breastfeeding infants from the first day protected mothers from contracting milk fever. Since the lying-in hospitals and Royal Maternity Charity catered for respectable poor women (Donnison, 1977), it was the poor rather than the richer women in society who were subjected to this change in medical ideas and thus first benefited from them. It is probable that his finding would have spread slowly among the poor by word of mouth.

2. The lying-in hospitals and wards were responsible for training physicians and midwives who, on obtaining their licence, went elsewhere to practice midwifery (Donnison, 1977), so that young physician/man-midwives and particularly midwives would also have spread this new teaching among the poorer classes. It is likely that women would have been much more ready to adopt a new practice in infant feeding which was beneficial to their own health and safety during childbearing, than one which was said (without evidence) to be good for their child, which might have taken longer to become established practice.

3. The aristocracy, who were turning from artificial feeding and/or wet nursing at about the same time (Trumbach, 1978; see chapter on artificial feeding), would also have been aware of the reduction in maternal morbidity in the lying-in hospitals (Trumbach, 1978) as well as forming (together with the gentry and middle-
the readership of the new 'advice on babycare' books which began to appear in the second half of the 18th century and advised putting infants to the breast as soon as possible (e.g. Nelson, 1753; Buchan, 1769; Smith, 1774; Leinster, 1949; Trumbach, 1978).

Neonatal mortality

If the new idea of putting infants to the mother's breast within 24 hours of birth was practised, and did spread gradually through British society from the end of the 17th century and particularly after c1750, then this should be reflected in the neonatal mortality rate. Since its major function is protective, lack of colostrum (particularly if unsuitable substances were given from unclean spoons and dishes in the interim) could be expected to result in a high incidence of neonatal infections, especially of the gastro-intestinal tract. As will be shown throughout this study, the evidence from medical writers in the period 1500 to 1800 is that the most common illness among infants was 'gripes', 'looseness', and 'green stools'. Moss (1781) confirmed that this was the case in the neonatal period. He observed that nearly all newborn infants had gripes and looseness but this stopped when they were put to the breast after 2-4 days; those who were to be handreared continued to suffer.

Colostrum is protective for the first six weeks of life (Jelliffe & Jelliffe, 1978) so that the infant mortality rate (0-1 year) would be less sensitive to any change than mortality in the first month of life. Infant mortality figures from a large sample of parishes (Schofield, 1979) show that, while overall infant mortality fell slightly from the 1680's onwards, the endogenous mortality (0-28 days) fell considerably more sharply from the 1680's until about 1840 (beginning of Registrar-General's returns) when it levelled off and remained relatively unchanged and independent of changes in the overall infant mortality rate until at least 1875 (see table 2.8 &fig. 2.1b)
Table 2.8: Total (0-12 months) and endogenous (0-28 days) infant mortality and percentage change 1680's - 1875, (from figures provided by Schofield, 1979, personal communication)

<table>
<thead>
<tr>
<th>Date</th>
<th>Overall infant mortality</th>
<th>Mortality 0-28 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per 1000 % difference</td>
<td>Per 1000 % difference</td>
</tr>
<tr>
<td>1680's</td>
<td>204 -11</td>
<td>88</td>
</tr>
<tr>
<td>1730's</td>
<td>181 -9</td>
<td>74 -16</td>
</tr>
<tr>
<td>1780's</td>
<td>165 -9</td>
<td>51 -31</td>
</tr>
<tr>
<td>1840(Registrar General)</td>
<td>150 -9</td>
<td>23 -55</td>
</tr>
<tr>
<td>1875</td>
<td>169 +13</td>
<td>22 -4</td>
</tr>
</tbody>
</table>

Figure 2.1b: Percentage of writers recommending early breastfeeding with colostrum (---) and the percentage fall in (a) mortality 0-28 days (-----) and (b) overall infant mortality (-------), 1630 - 1840
The infant mortality rate (0-1 year) of the British aristocracy fell gradually from 1675, and more significantly from 1750 (Hollingsworth, 1957; Wrigley, 1968; Trumbach, 1978; see table 2.9) which is rather earlier and more noticeable than the fall in infant mortality in more remote parishes such as Colyton in Devon (Wrigley, 1968) and the fen villages of Leake and Wrangle (West, 1974). It seem reasonable to suppose that as in the larger sample shown in table 2.8, a significant part of the fall in these infant mortality figures was also due to a fall in mortality (0-28 days), and that this may reflect a more gradual change in neonatal feeding practices among rural parishes than among the rich and fashionable, who would always have had the most up to date information and thus have benefited in advance of most of the population.

Table 2.9: Infant mortality (0-12 months) of the British aristocracy 1650-1824 (from Hollingsworth, 1957)

<table>
<thead>
<tr>
<th>Date</th>
<th>Infant mortality per 1000</th>
<th>% difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>1650-74</td>
<td>210</td>
<td></td>
</tr>
<tr>
<td>1675-99</td>
<td>196</td>
<td>-7</td>
</tr>
<tr>
<td>1700-24</td>
<td>169</td>
<td>-14</td>
</tr>
<tr>
<td>1725-49</td>
<td>166</td>
<td>-2</td>
</tr>
<tr>
<td>1750-74</td>
<td>102</td>
<td>-39</td>
</tr>
<tr>
<td>1775-99</td>
<td>85</td>
<td>-17</td>
</tr>
<tr>
<td>1800-24</td>
<td>82</td>
<td>-4</td>
</tr>
</tbody>
</table>

Some hypotheses for the fall of infant mortality in the 18th century have been proposed (including advances in preventive medicine, improved nutrition and social conditions, increased consumption of cow's milk, and improved maternal care (Mckeown & Brown, 1955; Beaver, 1973; Glass & Eversley, 1974; Trumbach, 1978; Mckeown, 1978)) but none of these satisfactorily explain why the major part of the
fall in infant mortality was due to many more infants surviving the first month of life. (Nor were improvement in 18th century midwifery sufficiently dramatic to have contributed significantly (Donnison, 1977).) It is suggested by this author that changes in neonatal feeding practices had a major positive effect on infant mortality (0-28 days). This theory must be viewed with reservation, as there may have been further unknown factors acting simultaneously, but in the absence of any other factor that can be identified as relevant, sufficiently effective, and showing change in the same period, it seems reasonable to attribute the improvement in neonatal survival between the late 17th and early 19th century to changes in ideas and practice of neonatal feeding, particularly early maternal breastfeeding.

Maternal-infant relationships

Modern research has shown that there is a critical time after childbirth when 'bonding' occurs between the mother and her new child (Jelliffe & Jelliffe, 1978). This maternal-infant bond is well-known among many mammalian species and separation of the mother from the newborn at this critical time leads to rejection of the young, and sometimes to its destruction by the mother. Preliminary studies have associated lack of bonding in humans with rejection and/or battering of the infant either physically or emotionally (Jelliffe & Jelliffe, 1978; H. McGurk, 1980, personal communication). The critical time for maternal instinct to be established in man is thought to begin in the first minutes after birth and last for about 12 hours; the longer the separation, especially on the first day of life, the greater the chance of emotional rejection of the child by his mother. Early separation has been proposed as a cause of proneness to depression in infants, and emotional coldness or in difference in the mother, whilst the child may grow up unaware of the proper way in which to react to children or how to rear them satisfactorily. Breastfeeding has been shown to be a major mechanism in the maternal-infant bonding process (Jelliffe & Jelliffe, 1978).

The historical situation may be clarified by relating this modern
knowledge to neonatal feeding practices. Newly-delivered mothers who did not see their infants for hours, or sometimes days (Hunter, 1908), would have had no opportunity to form any emotional bond so that the child who was fed with physick or food from a spoon for several days, possibly in a different room (Hedley, 1975), would have been a stranger to the mother when finally she was allowed to feed him. First-time mothers in particular experienced problems in learning the technique of breastfeeding (Underwood, 1784; Leinster, 1949-57) and, with the additional difficulties which distended breasts presented after several days of non-suckling, they would not have been in an ideal state to enjoy their new child. It is therefore not surprising that some mothers, especially in the 16th and 17th centuries, were apparently indifferent, and content to put their offspring out to nurse (see part B and chapter on wet nursing). In contrast, women who did breastfeed their infants early on had great love for their children and experienced hopeless grief at their deaths (Willoughby, 1844; Thornton, 1875).

During the 18th century, when gradually more infants were put to the breast within a few hours of birth, the expected result would be greater maternal love and more concern for children than previously; and, as generation succeeded generation of early breast-fed children, for the imprinting of maternal instinct and behaviour to be reflected in the childrearing practices of the late 18th and 19th centuries. As noted above, early maternal breastfeeding was beginning to be recommended, and possibly practised, in the last years of the 17th century. Increasing concern for infant and child welfare began two decades later (Pinchbeck & Hewitt, 1969) and associated philanthropy was a feature of the 18th century, concurrent with a growing concept of children being different from adults (Bayne-Powell, 1939; Rodgers, 1949; Ariës, 1973; Stone, 1977; Trumbach, 1978).

There were undoubtedly other factors at work in this period, but the change in neonatal feeding practices cannot be disregarded as
one factor in the change of attitude of British society towards its children which is said to have occurred in the 18th century.

(N.B. The observed decrease in morbidity and mortality from breast diseases and milk fever in the lying-in hospitals (Nelson, 1753) should be apparent in maternal mortality figures for the later 18th century. Since the necessary figures were not available, this author has been unable, as yet, to confirm that the expected decrease in maternal mortality did occur in the group of parishes used above to demonstrate the fall in neonatal mortality).
Conclusions

1. In pre-industrial Britain, feeding neonates with physick and/or food rather than colostrum, and denying the mother and child the physiological and emotional benefits of early breastfeeding, was a cause of 1) a high neonatal mortality, mainly from gastrointestinal complaints 2) milk fever and breast disorders in the mother 3) probable failure of maternal-infant bonding in the first few days of life.

2. Change towards early maternal breastfeeding during the 18th century contributed to a notable decline in mortality (0-28 days) and a probable decrease in maternal morbidity and mortality from milk fever. The change incidentally provided more ideal conditions for the maternal instinct to become established and consequently may have been a factor in the improved emotional attitudes towards infants and their welfare noted during the 18th century.
Part B

The incidence and practice of maternal breastfeeding

The historical background

For at least 2000 years before this study begins, there had been controversy over who should suckle young babies; the mother or a hired wet nurse. Wet nurses appear to have been well-established in most ancient societies (Wallis Budge, 1925; Feldman, 1927; Deruisseau, 1940; Jonckheere, 1955; Radbill, 1973) but were particularly notable in the Greek and Roman civilisations where the ready availability of slave women to act as wet nurses to the (even moderately) wealthy reduced problems of supply and demand (Rosaria, 1917; Gellius, 1927; Soranus, 1956; Pomeroy, 1975). The practice spread throughout the Greek and, particularly, the Roman Empires and it is possible that wet nursing was introduced into this country during the occupation of Britain by the Romans. Certainly it was well-established during the medieval period for women of the upper classes to employ wet nurses. Not only royal and aristocratic infants but also the children of wealthy merchants and those women who ran businesses were wet-nursed, to free the mother from the chores of childrearing (Power, 1975).

Philosophers, physicians, and some theologians repeatedly condemned mothers who did not breastfeed their own children (for example, Plutarch, 1533; Gellius, 1927; Galen, 1951; Soranus, 1956) but this had little discernable effect on the behaviour of wealthy women. Because of the continuing concern of physicians, moralists and theologians, the subject of "maternal breastfeeding versus wet nursing" received more attention in all types of the literature included in this study than other aspects of infant nutrition; particularly important being the sermons and written works of puritans during the late 16th and 17th centuries.
1. The incidence of maternal breastfeeding in different parts of society

There is no doubt that some, possibly a substantial number, of mothers in early modern England did not breastfeed their own children. Evidence has been found to show that wives of the aristocracy, gentry, wealthy merchants, wealthy farmers, scholars, lawyers, physicians, and some clergymen regularly used wet nurses throughout the period 1500 to 1800 (Jones, 1579; Clinton, 1622; Defoe, 1729-29; Hurlock, 1742; Rous, 1672; Birch, 1744; Sloane, 1748; Brooke, 1766; Cholmley, 1787; Dee, 1842; Bramston, 1845; Newcome, 1852; Thornton, 1875; Fretwell, 1877; Ferrier, 1878; Newdigate, 1898; Newdigate-Newdegate, 1898; Evelyn, 1908; Freke, 1913; Greene, 1929; Verney, 1930; Conway, 1930; Sibbald, 1932; Morris, 1934; Leinster, 1949; Wake, 1953; Winchester, 1955; Pearson, 1957; Emmison, 1964; Lane, 1975; Hedley, 1975). Their use apparently increased during the 17th century, and by the early 18th century women whose husbands had a relatively modest income (such as shopkeepers) were not feeding their own children (McHenry & Mackeith, 1966; Lane, 1975).

Although there was increasing concern from the early 17th century that this custom of the wealthy was spreading to women of lower station (Clinton, 1662; Newcome, 1695; Full View, 1742; Downman, 1788), no evidence has been found to suggest that wet nursing flourished in all classes of society on the same great scale as in France and parts of central Europe (Drake, 1935; 1937; 1940; Sussman, 1974; 1975; 1977; Shorter, 1977a, 1978; Hufton, 1974, 1979; Flandrin, 1979).

It is clear that wet nursing was an ancient, deeply ingrained and widely accepted social more, and that wealthy women who decided to nurse their own babies were very exceptional and attracted comment (often adverse) both from close friends and relatives and from their wider circle. In the late 16th and 17th century such women who breastfed excited the disapproval of friends, particularly males (Newdigate, 1898; Shakespeare, 1611; Newcome, 1695); referred to the fact with pride in letters (Newdigate, 1898); had it engraved upon their tombstones (Brand, 1636, (see fig. 2.2); Stone, 1977); and left extra
money in their wills to those children who were breastfed by their mother at the expense of those put out to nurse (Greene, 1929). It was well-known that there was a much closer relationship between mothers and the children they suckled than existed between mothers and those children they put to nurse (Gailhard, 1678; Hutchinson, 1822; Thornton, 1875; Coke, 1889; Newdigate, 1898).
Figure 2.2: Brass rubbing of memorial inscription to
Benjamin Brand and wife (d.1636) in
Edwardstone Parish Church, Suffolk. Elizabeth
Brand had exceptionally breastfed all twelve
of her own children. (rubbing by author; photograph by
J. Drage).
Condemnation of women who did not suckle was minimal during most of the 16th century. It seems to have begun on a small scale after the reformation and, by the early 17th century, puritan theologians in particular were devoting sermons and large tracts of popular conduct books to the evils of non-breastfeeding mothers (Becon, c1550; Smith, 1597; Perkins, 1612; Gouge, 1622; Griffiths, 1633; Schnucker, 1974). The lone aristocratic woman who condemned wet nursing in print was from a family holding puritan beliefs (Clinton, 1622; Caulfield, 1932). The women of the stricter protestant sects during the late 16th and 17th centuries apparently were more likely to breastfeed their own children than women of the same station who did not subscribe to such extreme religious views as those held by puritans and quakers. (Clinton, 1622; Meade, 1684; Newcome, 1695; Thornton, 1875; Caulfield, 1952; Schnucker, 1974; Josselin, 1976). A similar fact has been noted for Germany in the same period where pietists, a strict protestant sect, also saw maternal breastfeeding as a religious duty (Geyer-Kordesch, 1979).

Despite this exception the major part of the upper and educated classes were using wet nurses during the 16th and 17th centuries and their employment only began to decline during the 18th century when changes in other areas of infant feeding made their continued use undesirable and avoidable (see Part A and chapter on artificial feeding). It is emphasised that throughout this section, unless otherwise stated, the discussion is confined to the upper strata of British society. Although absolute proof is lacking, the impression gained throughout this study is that the great majority of infants were breastfed at home by their own mothers.

Reasons why mothers did not breastfeed

The reasons why women did not breastfeed were manifold. Authors of all types enumerated the common excuses or objections which were raised against suckling (Erasmus, 1526; Becon, c1550; Tansillo, 1566; Paré, 1575; Guazzo, 1581; Smith, 1597; Guillemeau, 1612; Perkins, 1612; Gouge, 1622; Clinton, 1622; Griffiths, 1633; Sharp, 1671; Mauriceau, 1673; McMath, 1694; Newcome, 1695; Barrett, 1699;
Baynard, 1706; Dionis, 1719; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Full View, 1742; Astruc, 1746; Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Smith, 1774; Brown, 1777; Moss, 1781; Underwood, 1784; Downman, 1788; Lara, 1791; Hamilton, 1792).

Table 2.10: The proportion (p) of 32 authors who stated some common reasons why women did not breastfeed their own children 1500-1800

<table>
<thead>
<tr>
<th>Reason</th>
<th>16th century (n=6)</th>
<th>17th century (n=10)</th>
<th>18th century (n=16)</th>
<th>Total (n=32)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother's health/shape/dress</td>
<td>p 0.33</td>
<td>p 0.60</td>
<td>p 0.44</td>
<td>p 0.47</td>
</tr>
<tr>
<td>Husband's influence</td>
<td>p 0.33</td>
<td>p 0.50</td>
<td>p 0.25</td>
<td>p 0.34</td>
</tr>
<tr>
<td>The fashion or custom</td>
<td>p 0.33</td>
<td>p 0.20</td>
<td>p 0.38</td>
<td>p 0.31</td>
</tr>
<tr>
<td>Mother's (social) pleasures</td>
<td>- 0.50</td>
<td>0.31</td>
<td></td>
<td>0.31</td>
</tr>
<tr>
<td>Religious factors</td>
<td>- 0.50</td>
<td>-</td>
<td></td>
<td>0.16</td>
</tr>
<tr>
<td>Mother's lack of skill/care motherliness</td>
<td>- 0.30</td>
<td>0.06</td>
<td></td>
<td>0.13</td>
</tr>
<tr>
<td>Persuasion of others</td>
<td>- 0.20</td>
<td>0.06</td>
<td></td>
<td>0.09</td>
</tr>
<tr>
<td>Contraception</td>
<td>- 0.10</td>
<td>-</td>
<td></td>
<td>0.03</td>
</tr>
<tr>
<td>Other factors affecting mother*</td>
<td>0.17</td>
<td>0.50</td>
<td>0.56</td>
<td>0.47</td>
</tr>
<tr>
<td>Others+</td>
<td>- 0.20</td>
<td>0.19</td>
<td></td>
<td>0.16</td>
</tr>
</tbody>
</table>

* These included: laziness (Clinton, 1622; Baynard, 1706; Dionis, 1719; Astruc, 1746; Smith, 1774); because it was troublesome (Clinton, 1622; Lad. Dispens., 1740; Cadogan, 1748; Lara, 1791); to ensure undisturbed nights (Gouge, 1622; Griffiths, 1633; Newcome, 1695); and want of luxury (Newcome, 1695; Dionis, 1719; Lad. Phys. Dir., 1739).

+ included: gain, because it was cheaper to put out a child to nurse than to breastfeed at home and hire help (Gouge, 1622); ignorance of the harm it caused (Lad. Phys. Dir., 1739); because it was considered indecent (Smith, 1774); and that taking a nurse into
the home justified the mother not feeding (Lara, 1791).

Discussion

The most frequently repeated statement was that women did not breastfeed because it would have adverse effects on their health, figure and beauty; believing that suckling would make them look old before their time. It involved restraints in dress; women could not dress fashionably and what clothes they did wear they believed would become soiled. Perhaps most were concerned to retain good-shaped breasts. (Erasmus, 1526; Guazzo, 1581; Gouge, 1622; Clinton, 1622; Griffiths, 1633; Mauriceau, 1673; McMath, 1694; Newcome, 1695; Baynard, 1706; Lad. Phys. Dir., 1739; Full View, 1742; Astruc, 1746; Cadogan, 1748; Smith, 1774; Brown, 1777).

That fears about sagging and scarred breasts were a reality for all women during this period, is evidenced by the many pages which midwifery writers devoted to diseases of the breasts and nipples and their remedies. It was apparently not unusual for women who breastfed to lose their nipples completely, either because of repeated cuts which became infected and left disfiguring scar-tissue, or because hungry, older children (equipped with teeth) chewed them off (Sharp, 1671; Mauriceau, 1673; McMath, 1694).

Some mothers were said to pretend they had no (i.e. inverted) nipples, no milk or other related problems which rendered them unable to suckle (Gouge, 1622; Griffiths, 1633; Brown, 1777), but religious authors complained that only the rich were afflicted with insufficient breast-milk (Smith, 1597; Perkins, 1612; Gouge, 1622; Newcome, 1695). Smith (1597) agreed that women could not suckle if they had no milk "But whose breasts have this perpetual drought? Forsoothe it is like the goute, no beggars may have it, but citizens or Gentlewomen. In the ninth chapter of Hosea, drie breasts are named for a curse: what lamentable happe have Gentlewomen to light upon this curse more than other? Sure if their breasts be drie, as they, say, they should fast and pray together that this curse may bee removed from them".
There is a possibility that women in this period were more prone to inverted nipples than is the case today. Fashionable clothes were underpinned by corsets made of leather, metal or bone, most of which flattened the breasts (Cunnington, 1966; Green & Cassin-Scott, 1975; Buck, 1979) (see fig. 2.3). Young girls were put into these corsets or stays from the age of 2½ or 3 years (Ewing, 1977; Cunnington & Buck, 1978) and were thereafter tightly laced throughout their waking lives (so tightly laced that some fatalities were recorded in very young girls as a result of fractured ribs being forced into their lungs (quoted in Stone, 1977). Any woman whose nipples had a tendency to be inverted or otherwise misshapened would be further handicapped, in regard to breastfeeding, by this clothing.
Figure 2.3: Diagrams of stiffened, tight-fitting corsets worn by women in the 16th, 17th, and 18th centuries which covered and flattened the breasts. (Drawn from examples in Green & Cassin-Scott, 1975; Ewing, 1978).
By the late 17th century some medical writers had begun to make a connection between this problem and women's clothing (Eng. Mid. Enl., 1682; Baynard, 1706; White, 1773; Moss, 1781). For example Baynard (1706) complained about women who wanted to be fashionable whose nipples and breasts were 'squashed and flattened' and "sometimes worse accidents attend these hard lacings, as cancers, scirrhous, and hard tumours in the breast".

Charles White stated in 1773 that "The small flat nipple which lies buried in the breast is generally occasioned by the tight dress, which has for some centuries been so constantly worn in this island, by the female sex of all ages, and of almost all ranks, the most laborious and necessitous alone being excepted. This dress by constantly pressing upon the breast and nipple reduces it to a flat form, instead of that conical one, with the nipple in its apex, which it ought to preserve; and the nipple is buried in the breast. By being constantly kept in this position, it contracts adhesions; it is prevented from coming out; the whole breast is deprived both of its beauty and use ---- The tightness of the stays is alone sufficient to do much harm, but they are also often made hard and unpliant by pack thread and whalebone, which must greatly increase the mischief ---- Hence it will appear evident why women of rank, and those in the middle stations of life meet with difficulty in giving suck to children ---- [and] ---- why hard working, labouring women, who are obliged to go very loose about their breasts generally make good nurses, and that too with very little trouble".

It was probably true that many women did use wet nurses simply because it was the custom or fashion, without thinking very deeply about it; in the same, often unthinking, way that many women today employ bottle feeding (Erasmus, 1526; Tansillo, 1566; McMath, 1694; Newcome, 1695; Lad. Phys. Dir., 1739; Smith, 1774; Moss, 1781; Underwood, 1784; Downman, 1788; Lara, 1791; Newson & Newson, 1974; Pres. day pract., 1974). But a significant reason why they flourished was the attitude of men; many husbands simply forbade their wives to breastfeed (Becon, c1550; Paré, 1575; Guillemeau, 1612; Gouge, 1622; Clinton, 1622; Mauriceau, 1673; Newcome, 1695; Lad. Phys. Dir., 1739; Cadogan, 1748; Nelson, 1753; Smith, 1774. Also see Willughby,
A few authors complained that some women only used this as an excuse; that they persuaded their husbands to send the child to nurse so that they could avoid the chores of breastfeeding (Guillemeau, 1612; Steele, 1711; Rousseau, 1762), but the following examples demonstrate that men did have strong views on who was to feed their children:

1) When Anne Newdigate (née Fitton) decided to nurse her own child in 1598, her father wrote "I am sorry that yourself will needs nurse her". And the godfather, Sir Godfrey Knollys, wrote "I should like nothing that you play the nurse if you were my wife". (Newdigate, 1898).

2) In *The Winter's Tale* (c1611) William Shakespeare had Leontes say to his wife "Give me the boy. I am glad you did not nurse him".

3) William Gouge (1622) said "husbands for the most part are the cause that their wives nurse not their owne children. If husbands were willing that their wives should performe this dutie, and would perswade and encourage them thereto, and afford them what helps they could, where one mother now nurseth her child twenty would doe soe".

4) Elizabeth Clinton (1622), the Countess of Lincoln, said that she had not fed her own children because "partly I was over-ruled by another's authority, partly deceived by some ill-counsel and partly I had not so well considered of my duty in this motherly office".

5) Newcome (1695) said "Very oft the father is unwilling that his wife should undertake this office ---- I have known some fathers at first very averse to their wives nursing, who after experience of those pleasing diversions that are to be found in the constant company of a little babe, would not on any terms lose the repetition of that pleasure, by turning the next abroad to a strange nurse". (This last comment was probably a reference to himself.)
After putting his first child out to a wet nurse he felt sufficiently guilty about it to write a book-length persuasive to mothers to breastfeed their own children (Newcome, 1852).

6) Nelson (1753) said "... a man cannot be conversant with life and not see that many a sensible woman, many a tender mother, has her heart yearning to suckle her child, and is prevented by the misplac'd authority of a husband".

7) In 1792, Mary Wollstonecroft in A vindication of the rights of women still believed the father's desire for sexual relations was the reason for wet nursing surviving. "There are many husbands so devoid of sense and parental affection that during the first effervescence of voluptuous fondness, they refuse to let their wives suckle their children" (cited in Stone, 1977).

Modern writers have ascribed the antipathy of husbands towards their wives breastfeeding to a "taboo" against sexual intercourse during the period of lactation (Hunt, 1972; Stone, 1977; Flandrin, 1979) said to have originated from Galen (Stone, 1977). However, although in the 2nd century AD Galen (1951) said "I order all women who are nursing babies to abstain completely from sex relations", by the 16th and 17th centuries this injunction appears to have been applied only to wet nurses employed in the child's home. No evidence has been found during this study to indicate that this was a "taboo" which was considered either by British parents or by medical and theological authors writing in English.

In some circumstances wet nurses were forbidden the company of their husbands for fear they would become pregnant, as a result of which their milk would deteriorate or dry-up and the child suffer (Pare', 1575; Jones, 1579; Guillemeau, 1612; Sharp, 1671; Comp. Mid. Pract. 1680; Eng. Mid. Enl., 1682; Nurses Guide, 1729). There was not general agreement about this point even for employed wet nurses, some authors referred to the fact that poor women slept with their husbands without harm to the child (Mauriceau, 1673; Eng. Mid. Enl., 1682; Dionis, 1719; Brouzet, 1755). Hunt (1972) believes the
"taboo" (if it existed) was not observed in 17th century France, and the evidence from this study tends to show a similar non-observance in Britain.

An interesting point is that, for several centuries before the 18th century, Catholic doctrine regarding the "taboo" on sexual intercourse during lactation was to put the child out to nurse "to provide for the frailty of her husband by paying the conjugal due". Catholic theologians did not condemn the practice of wet nursing but recommended it as the solution for the incompatibility of breastfeeding and conjugal functions (Flandrin, 1979). As has been seen, this teaching was in direct contrast to the doctrine of the strict protestant sects from the late 16th century onwards in England and Germany. This difference in religious teaching provides a possible explanation for the very widespread practice of wet nursing in Catholic France and some other parts of Europe compared to the relatively low incidence in protestant England.

Mothers were influenced also by other members of their family and by midwives (Clinton, 1622; Newcome, 1695; Lad. Phys. Dir., 1739; Fitzgerald, 1949; Trumbach, 1978) as described by the anonymous author of the *Ladies Physical Directory* (1739):

"The first thing that many midwives and nurses, who are recommended to persons of quality, endeavour to find out, is how their women's inclinations for managing their children stand; if they find out they are the least inclin'd either to a wet nurse, or to the bringing them up by hand, they immediately encourage it, and give several instances of very fine children who have been brought up in that way, without in the least mentioning the many, many more who were that way lost ---- For one lady who is really too sickly and weakly to undertake this good and pleasant office [of breastfeeding] for her infant, there are five who are impos'd upon by those about them in that respect, and are persuaded they are not able to suck their own children, when they are".

By the 1770's it was more acceptable for upper class women to breastfeed although young mothers had to overcome opposition from older women
who had been brought up in the tradition of wet nursing (Leinster, 1949; Trumbach, 1978). In 1776 Lady Louise Conolly described the problem which faced the young Duchess of Leinster when she expected her first baby:

"I will let you into the secret that she intends nursing her child. William [her husband] at first was afraid she was too delicate; but upon my opinion that barring accidents it will do her good instead of harm, he comes into it; but I have advised her not to say a word about it, for fear of a combination against her. Lady Kildare[her husband's grandmother] I am sure will toss up her nose and say "Lord, Ma'am, what a fancy! How should she know how to nurse a child?" Nancy Burgh and twenty more, I dare say, will make an outcry about it, so that she does not mean to tell anybody of it, but do it; if she is well ---- I encourage them both as much as possible in it. Dear Lady Kildare is what I most fear about it, but I hope she won't make a point of her not doing it" (Leinster, 1949).

This shows that by the late 18th century the climate of opinion was much more in favour of maternal suckling than had been the case just two or three generations earlier, when great strength of purpose was needed by upper class women who were determined to go against the cultural norm:

"I have observed that those ladies, who contrary to this prevailing custom [wet nursing] have undertaken the nursing of their own babes, have oft met with unhandsome reflections and bitter taunts from others of the contrary practice ---- A lady that will condescend to be a nurse, though to her own child, is become as unfashionable and ungenteel as a gentlemen that will not drink, swear and be profane ---- and if ever you saw the modesty of such an one assaulted by the railery and scorn of a company of debauchees, when he happens to fall among them; you may imagine the need those few ladies have of courage and resolution, who by nursing their own children, expose themselves to the taunts and derision of the many, who decline that office" (Newcome, 1695).

But the fashion towards more women feeding their own children in the later 18th century was not necessarily a happy circumstance for some mothers who (like some who had used wet nurses) suckled against their will. Stone (1977) quotes the following reminiscences of the 1770's
and 1780's from the novel Belinda:
"It was the fashion in that time for fine mothers to suckle their own children; so much the worse for the fine brats. Fine nurses never made fine children. There was a prodigious point made about the matter; a vast deal of sentiment and sympathy, and compliments and enquiries. But after the novelty was over, I became heartily sick of the business; and at the end of three months my poor child was sick too ---- I don't much like to think of it - it died. If I had put it out to nurse I should have been thought by my friends an unnatural mother; but I should have saved its life".

During the 17th and 18th centuries there was greater censure of mothers than was apparent in the 16th century. Writers gave the impression (either directly or by implication) that women were not breastfeeding mainly to suit their own social life and had little love either for their children or for God. This may be only a reflection of the strict religious views particularly of the 17th century, since most of the authors who complained of mothers disregarding God's duty and having a giddy social life at the expense of their children were from the 17th and early 18th century (Perkins, 1612; Gouge, 1622; Clinton, 1622; Griffiths, 1633; McMath, 1694; Newcome, 1695; Barrett, 1699; Lad. Phys. Dir., 1739; Full View, 1742; Nelson, 1753; Downman, 1788; Lara, 1791).

The contraceptive effect of breastfeeding

It is now well established that women who breastfeed their infants regularly and frequently and give no supplementary foods have a period of lactation amenorrhoea, during which ovulation is suppressed (Short, 1976; Frisch, 1977; Knodel, 1977; Jelliffe & Jelliffe, 1978). This period of infertility is of varying lengths in different women and in different societies, and is affected by the dietary state of the mother, the frequency of lactation, and the strength with which the child sucks (Frisch, 1977; Jelliffe & Jelliffe, 1978). Ovulation tends to return when additional foods are given and if the child is fed at statutory infrequent times (as in most modern western cultures) rather than on 'demand' (Jelliffe & Jelliffe, 1978). Lactation has
been recognised as an important natural form of contraception in traditional societies; Short (1976) stating that "Throughout the world as a whole, more births are prevented by lactation than all other forms of contraception put together".

It has been assumed that women in pre-industrial Britain were unaware of the contraceptive advantages of breastfeeding although the evidence that women in one Buckinghamshire Parish completed their families and then continued breastfeeding for up to eleven years by wet nursing other women's children appears to negate this assumption (McLaren, 1978 & 1979). It is very unlikely that women in general, and midwives in particular, were unaware that the return of menstruation was delayed if they breastfed. It is the kind of information which mothers would pass on to their daughters and for this reason would not appear in written records. References to the relationship between breastfeeding and temporary infertility are infrequent but sufficient have been found in the medical and religious literature to make it clear that the significance of lactation amenorrhoea was known, not only to women but also to men (Holy Bible, Hosea 1:8; Batty, 1581; Petty, 1623-81, quoted in McLaren, 1978; Newcome, 1695; Dionis, 1719; Brouzet, 1755; Smith, 1774; Underwood, 1784; Downman, 1788; Aristotle, 1910; Brim, 1936).

The comments relating to this subject between 1500 and 1800 were of three types:

1) That the wish to have more children quickly was a valid reason for a woman not breastfeeding (Batty, 1581).

2) That women who breastfed had fewer pregnancies (Petty, 1623-81 in McLaren, 1978; Newcome, 1695; Dionis, 1719; Brouzet, 1755; Underwood, 1784; Downman, 1788).

3) That women should breastfeed in order to avoid pregnancy (Dionis, 1719; Smith, 1774; Downman, 1788).

The remarks of Newcome (1695) suggest that the effect of breastfeeding was well known, rather than being confined to the medically educated:
"So vain is that popular pretense that nursing is an impediment to fruitfulness, and to be declin'd by great persons for the better securing of succession, by a numerous posterity: for if those bear faster who dry up their breasts, they that nurse their children commonly bear longer, and bring more up to maturity".

Other comments were patently based upon personal observation. Pierre Dionis (1719), speaking of France where maternal breastfeeding was rarer than in Britain (and incidentally the average family size was greater (Shorter, 1977a & 1978) ) noted that married women usually had a child every year but those that suckled had only two or three. He advised women to breastfeed to avoid pregnancy, since pregnant women commonly died whereas death was rare in nursing mothers.

Also referring to France, Brouzet (1755) suggested getting rid of all wet nurses and suckling mothers (and handfeeding infants instead) so that the whole of women's fertile years would be used and the population increase, since for two thirds of the time of suckling women were barren.

Smith (1774) thought that breastfeeding would prevent miscarriages by delaying conception:
"When it is confined all together to the breast ---- the mother, under these circumstances, would not again conceive so quickly, and miscarriages would thereby be in great measure prevented" (A view which is supported by modern research (Myles, 1975) ).

Similarly Downman (1788) promoted suckling as a means of protecting mothers from the exhausting effects of repeated childbearing as "the nursing time was meant by wisest Nature, as a stay".

In 1783 Lord John Cavendish visited his great niece, Georgiana, whom the Duchess of Devonshire was suckling herself. The Duchess said "Lord John teased me with saying ---- that a dairy-maid was a better nurse than a fine lady" but her husband had explained to her that what made his uncle "abuse suckling is their impatience for my having a son and their fancying I shan't so soon if I suckle" (quoted in
Only one reference has been found of a woman referring directly to the prevention of conception by breastfeeding. Fox (1966) quoted the 18th century American colonial example of Elizabeth Drinker who, whilst her elder daughter, Sally, was in labour with her 6th child, reminded her that she was so close to the menopause that suckling might well make this her last pregnancy. "She was now in her 39th year, and that this might possibly be the last trial of this sort, if she could suckle her baby for 2 years to come, as she had several times done heretofore".

The way in which male authors promoted the contraceptive advantages of breastfeeding and yet tried to reconcile them with the wishes of the upper classes to obtain numerous offspring (Batty, 1581; Newcome, 1695; Brouzet, 1755; Downman, 1788) suggests that the knowledge of temporary barrenness during lactation was known to all classes in society and was one reason why the practice of wet nursing was perpetuated. Despite the part which may have been played by "taboos" on sexual intercourse during the nursing period, this was clearly not the only reason why wealthy women were persuaded by husbands and by custom to employ wet nurses. When the wishes of the rich for many children were matched by the wishes of their social inferiors for family limitation (Shorter, 1977a & 1978), then the ideal situation existed for the practice and perpetuation of wet nursing.

Acceptable reasons for women not breastfeeding

Despite condemnation of the objections raised by women it was accepted that there were valid reasons why certain women from all classes were genuinely unable to breastfeed their own children. Some women may have fained ill-health or problems with nipples but these incidents were undoubtedly much more common, and far more serious, than they are today, when adequate ante- and post-natal care and a wide range of effective treatments are available (Shorter, 1977b; and see end of this section).
34 mainly medical writers discussed the circumstances in which it was better for a woman to employ a wet nurse than to breastfeed (Roesslin, 1540; Bullinger, 1541; Tansillo, 1566; Jones, 1579; Batty, 1581; Ste Marthe, 1584; Smith, 1597; Guillemeau, 1612; Perkins, 1612; R. Burton, 1621; Gouge, 1622; Clinton, 1622; Griffith, 1633; Sharp, 1671; Culpeper, 1676; McMath, 1694; Newcome, 1695; Barrett, 1699; Baynard, 1706; Nurses Guide, 1729; Lad. Phys. Dir., 1739; Cadogan, 1748; Burton, 1751; Nelson, 1753; Smellie, 1752; Memis, 1765; Buchan, 1769; Armstrong, 1771; Rosenstein, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Downman, 1788; Hamilton, 1792).

Table 2.11: The proportion (p) of 34 authors who stated acceptable reasons for mothers not breastfeeding 1500-1800

<table>
<thead>
<tr>
<th>Reason</th>
<th>16th century (n=7)</th>
<th>17th century (n=11)</th>
<th>18th century (n=16)</th>
<th>Total (n=34)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factors affecting mother</td>
<td>p 0.71</td>
<td>p 0.91</td>
<td>p 0.88</td>
<td>p 0.85</td>
</tr>
<tr>
<td>Factors affecting breasts/nipples/milk</td>
<td>0.57</td>
<td>0.64</td>
<td>0.44</td>
<td>0.53</td>
</tr>
<tr>
<td>Factors affecting child</td>
<td>0.14</td>
<td>-</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>Others *</td>
<td>0.29</td>
<td>0.09</td>
<td>-</td>
<td>0.09</td>
</tr>
</tbody>
</table>

* These included: another pregnancy immediately (Jones, 1579); if the parents were in a hurry to have another child (Batty, 1581); any natural impediment (Barrett, 1699).

The major factors affecting the mother were:
1) Sickness and ill-health (Roesslin, 1540; Jones, 1579; Batty, 1581; Ste Marthe, 1584; Guillemeau, 1612; Perkins, 1612; Gouge, 1622; Clinton, 1622; Griffith, 1633; Sharp, 1671; Culpeper, 1676; McMath, 1694; Newcome, 1695; Barett, 1699; Lad. Phys. Dir., 1739; Burton, 1751; Nelson, 1753; Memis, 1765; Armstrong, 1771; Rosenstein, 1776; Spence, 1784; Underwood, 1784; Downman, 1788; Hamilton, 1792).
2) Weakness or delicacy (Bullinger, 1541; Jones, 1579; Guillemeau, 1612; Sharp, 1671; McMath, 1694; Barrett, 1699; Baynard, 1706; Nurses Guide, 1729; Lad. Phys. Dir., 1739; Burton, 1751; Smellie, 1752; Buchan, 1769; Rosenstein, 1776; Spence, 1784; Hamilton, 1792).

3) Proneness to nervous disorders, low spirits, etc. (Nelson, 1753; Buchan, 1769; Rosenstein, 1776).

4) Suffering from consumption (at that time believed to be hereditary) or other hereditary disease (which could affect her milk and thus be transmitted to the child) (Rosenstein, 1776; Downman, 1788; Hamilton, 1792).

5) If she was not in her right mind (Clinton, 1622).

Factors affecting the breasts, nipples or milk were:

1) Lack of good nipples (Baynard, 1706; Armstrong, 1771; Rosenstein, 1776).

2) Sore nipples (Gouge, 1622; Rosenstein, 1776).

3) Sore or infected breasts (Roesslin, 1540; Sharp, 1671; McMath, 1694; Cadogan, 1748).

4) Corrupted milk (Roesslin, 1540; McMath, 1694).

5) Insufficient, or lack of, milk (Tansillo, 1566; Jones, 1579; Smith, 1597; Perkins, 1612; Gouge, 1622; Clinton, 1622; Griffiths, 1633; McMath, 1694; Newcome, 1695; Baynard, 1706; Rosenstein, 1776; Moss, 1781; Spence, 1784; Downman, 1788).

Only Ste Marthe (1584) thought that sickness in the child was an acceptable reason.

Discussion

Today, sickness or ill-health of the mother is rarely accepted as a reason for not breast-feeding (it is contra-indicated only in a few very serious conditions, such as congestive cardiac failure, eclampsia, typhoid, and puerperal mania) (Jelliffe & Jelliffe, 1978) but it must be remembered that severe illnesses in women were very much more common
before the 20th century (Shorter, 1977b) and many of those associated with childbirth, such as puerperal fever and milk fever, were accompanied by hyperpyrexia and delirium. Also many women probably had insufficient iron, calcium, and vitamins A and D in their diet to support several pregnancies (Drummond & Wilbraham, 1957; Appleby, 1979) so that conditions such as iron-deficiency anaemia would have been relatively common (Drummond & Wilbraham, 1957; Shorter, 1977b) particularly in upper class women who endured many more pregnancies than the rest of the female population (McLaren, 1978; Laslett, 1971). Thus the frequent references to weakness and delicacy in wealthier women, as compared to the poorer classes in England, may have been accurate reporting. The diet of most of the population was quite different from, and in many ways was better balanced and healthier than, that of the wealthy (Drummond & Wilbraham, 1957; Wilson, 1976; Appleby, 1979). If the average number of children born was four or five per family (Laslett, 1971; McLaren, 1978 and 1979) then the drain on the mineral and vitamin stores of the average mother was considerably less than on a woman from the wealthier classes, for whom families of ten or twelve were common (for example, Brand, 1636; Thornton, 1875) and instances of up to thirty pregnancies per woman were not unknown (McLaren, 1978; Hollingsworth, 1974). In these circumstances breastfeeding may well have been medically inadvisable.

Similarly, conditions affecting the nipples and breasts are treatable today and (except in the case of breast abscesses caused by antibiotic-resistant bacteria) are not medical indications for ceasing to breastfeed (Jelliffe & Jelliffe, 1978). But when mechanical breast pumps, antiseptic conditions and antibiotics were not available to treat these conditions, then the wisest counsel was indeed to rest the nipple or breast and thus prevent the child from ingesting infected milk.

Prolonged breastfeeding is still contra-indicated in the event of a new pregnancy (Jelliffe & Jelliffe, 1978) and poor health of the child may make suckling difficult or impossible. For example, such conditions as jaundice, prematurity, cerebral birth injury and cleft palate (Jelliffe & Jelliffe, 1978). As will be seen later, hand feeding was often employed for these children before 1800 (Guillemeau, 1612; Willughby, 1863; Sloane, 1748).
2. Medical and religious ideas and recommendations about maternal breastfeeding

65 writers had opinions or theories about maternal suckling (Roesslin, 1540; Vives, 1540; Bullinger, 1541; Becon, c1550; Tansillo, 1566; Boaistuau, 1566; Paré, 1575; Jones, 1579; Batty, 1581; Ste Marthe, 1584; Muffet, 1584; Smith, 1597; Guillemeau, 1612; Perkins, 1612; Burton, 1621; Gouge, 1622; Clinton, 1622; Brathwaite, 1631; Griffith, 1633; Quillet, 1655; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Newcome, 1695; Pechey, 1697; Barrett, 1699; Baynard, 1706; Dionis, 1719; Defoe, 1728/9; Nurses Guide, 1729; Maubray, 1730; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Full View, 1742; Astruc, 1746; James, 1746; Cadogan, 1748; Exton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Gent. Mag., 1765; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; White, 1773; Smith, 1774; Hunter, 1775; Rosenstein, 1776; Brown, 1777; Foster, 1781; Moss, 1781; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Mears, 1797).

Table 2.12: The proportion (p) of 65 medical and religious writers who stated opinions about maternal breastfeeding 1500-1800

<table>
<thead>
<tr>
<th>Opinion</th>
<th>16th century (n=12)</th>
<th>17th century (n=16)</th>
<th>18th century (n=37)</th>
<th>Total (n=65)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother is the best nurse</td>
<td>1.0</td>
<td>0.94</td>
<td>1.0</td>
<td>0.99</td>
</tr>
<tr>
<td>Mother is not always the best nurse</td>
<td>0.08</td>
<td>0.06</td>
<td>0.11</td>
<td>0.09</td>
</tr>
<tr>
<td>Mother is not the best nurse</td>
<td>-</td>
<td>0.06</td>
<td>-</td>
<td>0.02</td>
</tr>
</tbody>
</table>
The lone writer who was against mothers feeding their own children was Robert Burton (1621) on the grounds that mothers had their faults as well as nurses and there was a greater choice of the latter. A good nurse could correct the child's "ill-disposed temperature which he had from his parents".

29 writers gave alternatives to the mother's breast if she was unable or unwilling to feed (Roesslin, 1540; Bullinger, 1541; Tansillo, 1566; Ste Marthe, 1584; Guillemeau, 1612; Perkins, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Baynard, 1706; Defoe, 1728/29; Nurses Guide, 1729; Maubray, 1730; Lad. Phys. Dir., 1739; Exton, 1751; Smellie, 1752; Nelson, 1753; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Brown, 1777; Moss, 1781; Aitken, 1786; Lara, 1791; Mears, 1797).

Table 2:13: The proportion (p) of 29 medical and religious writers who recommended alternatives to maternal breastfeeding 1500-1800

<table>
<thead>
<tr>
<th>Alternative</th>
<th>16th century (n=4)</th>
<th>17th century (n=8)</th>
<th>18th century (n=17)</th>
<th>Total (n=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet nurse</td>
<td>P 1.0</td>
<td>P 1.0</td>
<td>P 0.59</td>
<td>P 0.76</td>
</tr>
<tr>
<td>By hand at home</td>
<td>-</td>
<td>-</td>
<td>0.24</td>
<td>0.14</td>
</tr>
<tr>
<td>By hand if no wet nurse</td>
<td>-</td>
<td>-</td>
<td>0.18</td>
<td>0.10</td>
</tr>
<tr>
<td>By hand if the child is strong</td>
<td>-</td>
<td>-</td>
<td>0.06</td>
<td>0.03</td>
</tr>
</tbody>
</table>

This shows the change in possible feeding methods which occurred in the 18th century. Before this time it was well recognised that there was really no safe alternative to the wet nurse, but the increasing incidence of hand feeding in the 18th century (see chapter on artificial feeding) made possible the demise of the wet nurse without involving the mother in breastfeeding.
To reinforce and support their recommendations for maternal suckling, authors of all types cited examples from

1) Nature (Erasmus, 1526; Vives, 1540; Tansillo, 1566; Boaistuau, 1566; Ste Marthe, 1584; Smith, 1597; Guillemeau, 1612; Perkins, 1612; Clinton, 1622; Griffith, 1633; Sharp, 1671; Nurses Guide, 1729; Lad. Phys. Dir., 1739; Buchan, 1769; Smith, 1774).

2) The mythology and literature of the ancient world (Tansillo, 1566; Guillemeau, 1612; R. Burton, 1621; Brathwaite, 1631; Sharp, 1671; Culpeper, 1676; Eng. Mid. Enl., 1682; Newcome, 1695; Nurses Guide, 1729; Lara, 1791).

3) The Bible (Becon, c1550; Tansillo, 1566; Muffet, 1584; Smith, 1597; Perkins, 1612; Gouge, 1622; Clinton, 1622; Griffith, 1633; Eng. Mid. Enl., 1682; Newcome, 1695; Dionis, 1719).

4) Specific people or races who breastfed their own children (Becon, c1550; Tansillo, 1566; Guillemeau, 1612; Burton, 1621; Clinton, 1622; Newcome, 1695; Dionis, 1719; Defoe, 1728/9; Bracken, 1737; Brouzet, 1755; Mantell, 1787).

Table 2.14: The proportion (p) of 29 authors who gave examples in support of maternal breastfeeding 1500-1800

<table>
<thead>
<tr>
<th>Examples</th>
<th>16th century (n=8)</th>
<th>17th century (n=11)</th>
<th>18th century (n=10)</th>
<th>Total (n=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>From Nature</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>From the Bible</td>
<td>0.75</td>
<td>0.45</td>
<td>0.40</td>
<td>0.52</td>
</tr>
<tr>
<td>Breastfeeding peoples</td>
<td>0.50</td>
<td>0.55</td>
<td>0.10</td>
<td>0.38</td>
</tr>
<tr>
<td>Classical &amp; legendary</td>
<td>0.25</td>
<td>0.36</td>
<td>0.50</td>
<td>0.38</td>
</tr>
</tbody>
</table>
Popular examples quoted were:

1) The Lacedemonians' choice of the youngest son to be King because he was the only one suckled by his own mother (Sharp, 1671; Culpeper, 1675-6; Newcome, 1695; Nurses Guide, 1729).

2) Spanish-born Blanche of Castile who was the mother of St Louis of France (1215-1270 AD) and refused to let anyone but herself breastfeed her son (Guillemeau, 1612; Burton, 1621; Brouzet, 1755).

3) The Virgin Mary (Becon, c1550; Tansillo, 1566; Smith, 1597; Perkins, 1612; Clinton, 1622).

4) Old Testament women, particularly Eve, Sarah, Rachel, Rebecca, the wife of Samuel, the mother of David (Becon, c1550; Muffet, 1584; Smith, 1597; Perkins, 1612; Gouge, 1622; Clinton, 1622; Griffith, 1633; Dionis, 1719).

The example of other animals suckling their young was repeated throughout this period as the natural method of feeding; women being reproached as the only mothers in Nature who did not feed their own offspring. Constant reference was made to maternal breastfeeding being the natural method of feeding:

1) Mothers were not true mothers if they refused to suckle their own children (Erasmus, 1526; Becon, c1550; Tansillo, 1566; Paré, 1575; Nurses Guide, 1729; Downman, 1788).

2) It was unnatural and inhumane to send a child away to another woman to be fed (Muffet, 1584; Smith, 1597; Perkins, 1612; Eng. Mid. Enl., 1682; Barrett, 1699; Baynard, 1706; Nurses Guide, 1729; Lad. Dispens., 1740; Astruc, 1746; Smith, 1774; Hunter, 1775).

3) There was no difference between a woman who refused to suckle and one that killed her child in the womb (Guillemeau, 1612; Lad. Dispens., 1740).
Some writers presented maternal suckling as a God-given duty (Becon, c1550; Perkins, 1612; Gouge, 1622; Tillotson, 1728; Dionis, 1719; Lad. Dispens., 1740). Others presented it at length as the duty or job of mothers, although not necessarily prescribed by God (Becon, c1550; Tansillo, 1566; Smith, 1597; Guillemeau, 1612; Perkins, 1612; Gouge, 1622; Clinton, 1622; Eng. Mid. Enl., 1682; Newcome, 1695; Barrett, 1699; Cadogan, 1748; Buchan, 1769; Smith, 1774; Mantell, 1787; Lara, 1791).

Reasons for preferring maternal breastfeeding

42 writers gave reasons for their recommendations (Erasmus, 1526; Roesslin, 1540; Boaistauau, 1566; Paré, 1575; Batty, 1581; Smith, 1597; Guillemeau, 1612; Gouge, 1622; Clinton, 1622; Brathwaite, 1631; Glisson, 1651; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Newcome, 1695; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Hurlock, 1742; Astruc, 1746; James, 1746; Cadogan, 1748; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Gent. Mag., 1765; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Mantell, 1787; Downman, 1788; Hamilton, 1792; Mears, 1797).

Table 2.15 The proportion (p) of 42 medical and religious writers who stated the reasons why mothers should breastfeed their own children, 1500-1800

<table>
<thead>
<tr>
<th>Reasons</th>
<th>16th century (n=6)</th>
<th>17th century (n=11)</th>
<th>18th century (n=25)</th>
<th>Total (n=42)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Qualities of mother's milk</td>
<td>0.50</td>
<td>0.55</td>
<td>0.64</td>
<td>0.60</td>
</tr>
<tr>
<td>Related to mother's health</td>
<td>-</td>
<td>0.09</td>
<td>0.60</td>
<td>0.38</td>
</tr>
<tr>
<td>Related to child's health</td>
<td>0.17</td>
<td>0.27</td>
<td>0.48</td>
<td>0.38</td>
</tr>
<tr>
<td>Mother/child relationship</td>
<td>0.17</td>
<td>0.36</td>
<td>0.24</td>
<td>0.26</td>
</tr>
<tr>
<td>Quality of mother's care</td>
<td>0.50</td>
<td>0.45</td>
<td>0.12</td>
<td>0.26</td>
</tr>
<tr>
<td>Religious factors</td>
<td>-</td>
<td>0.18</td>
<td>0.08</td>
<td>0.10</td>
</tr>
<tr>
<td>Others*</td>
<td>0.33</td>
<td>0.27</td>
<td>0.16</td>
<td>0.21</td>
</tr>
</tbody>
</table>
* These included: because women have breasts for the sole purpose of feeding children (Boaistau, 1566; Smith, 1597; Guillemeau, 1612; Gouge, 1622); because the lower classes who breastfeed were healthier than the rich (Cadogan, 1748); because mothers could bring their children up as they wished (Guillemeau, 1612); to obey the laws of nature (Nelson, 1753); to make amends to her own children because she had not suckled them herself (Clinton, 1622).

Mother's milk was generally thought to be better than milk from any other source (Erasmus, 1526; Roesslin, 1540; Paré, 1575; Gouge, 1622; Brathwaite, 1631; Glisson, 1651; Sharp, 1671; Culpeper, 1676; McMath, 1694; Nurses Guide, 1729; Maubray, 1730; Lad. Phys. Dir., 1739; Astruc, 1746; James, 1746; Cadogan, 1748; Brouzet, 1755; Gent. Mag. 1765; Mackenzie, 1770; Smith, 1774; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Mantell, 1787; Hamilton, 1792; Mears, 1797). The qualities of different milks were frequently discussed particularly during the 16th and 17th centuries. Two important beliefs were associated with milk:

1) That the characteristics of the woman or animal were transmitted through their milk into the child (Gouge, 1622; Brathwaite, 1631; Nurses Guide, 1729; Astruc, 1746; Rosenstein, 1776; Strong, 1953).

2) That breast milk was the blood which had fed the child in the womb and was converted into white blood in the breasts once the child was born. Thus the mother's milk was the same blood which had nourished the child in the womb, with which he was familiar, and which obviously suited him; therefore it was best for the child to continue to be nourished by the same blood (Tansillo, 1566; Roesslin, 1540; Vives, 1540; Paré, 1575; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Ettmueller, 1699; Nurses Guide, 1729).

Suckling was said to benefit the mother

1) By ensuring her good health and recovery after childbirth (Gouge, 1622; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Cadogan, 1748;
Smellie, 1752; Smith, 1774; Spence, 1784; Underwood, 1784; Downman, 1788; Hamilton, 1792).

2) By preventing women's diseases (Lad. Dispens. 1740; Memis, 1765; Armstrong, 1771; Rosenstein, 1776).

3) By making mothers happier (Nelson, 1753).

4) By giving them pleasure and satisfaction (Nurses Guide, 1729; Cadogan, 1748; Nelson, 1753; Smith, 1774).

5) By carrying less likelihood of her dying (Moss, 1781).

In addition to preserving general good health (Erasmus, 1526; Guillemeau, 1612; Cadogan, 1748; Smellie, 1752; Smith, 1774; Rosenstein, 1776; Mantell, 1787; Downman, 1788; Hamilton, 1792), the child breastfed by his mother was less likely to develop rickets (Glisson, 1651); have less trouble when he began teething (Dionis, 1719; Hurlock, 1742; Astruc, 1746); would avoid numerous ailments and stunted growth (Astruc, 1746) and was less likely to die (Gouge, 1622; Lad. Phys. Dir., 1739; Gent. Mag., 1765; Smith, 1774).

The mother/child relationship would be strengthened by breastfeeding since suckling was;

1) A means of the mother expressing natural love for the child (Batty, 1581; Gouge, 1622; Mauriceau, 1673; McMath, 1694; Maubray, 1730).

2) Laying down bonds of affection, love, respect and attachment between mother and child (Gouge, 1622; Clinton, 1622; Mauriceau, 1673; McMath, 1694; Nurses Guide, 1729; Nelson, 1753; Brouzet, 1755; Smith, 1774; Downman, 1788).

The quality of the mother's care for her own child was said to be greater than that of a hired nurse (Erasmus, 1526; Pare, 1575; Batty, 1581; Gouge, 1622; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl.)
The findings of table 2.15 are reinforced by looking at what were said to be the benefits for mother and child when maternal breastfeeding was undertaken. These were discussed by 11 writers (Tansillo, 1566; Batty, 1581; Guillemeau, 1612; Clinton, 1622; Brathwaite, 1631; Newcome, 1695; Dionis, 1719; Lad. Phys. Dir., 1739; Smith, 1774; Underwood, 1784; Downman, 1788).

Table 2.16: The proportion (p) of 11 writers who listed the benefits of maternal breastfeeding, 1500-1800

<table>
<thead>
<tr>
<th>Benefits</th>
<th>16th century (n=2)</th>
<th>17th century (n=4)</th>
<th>18th century (n=5)</th>
<th>Total (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>For mother</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>p</td>
</tr>
<tr>
<td>For mother/child relationship</td>
<td>0.50</td>
<td>1.0</td>
<td>1.0</td>
<td>0.91</td>
</tr>
<tr>
<td>For child</td>
<td>-</td>
<td>-</td>
<td>0.40</td>
<td>0.18</td>
</tr>
</tbody>
</table>

The main benefits for the mother were said to be:

1) Pleasure and enjoyment (Tansillo, 1566; Guillemeau, 1612; Clinton, 1622; Lad. Phys. Dir., 1739).

2) Beauty (Clinton, 1622; Newcome, 1695; Downman, 1788).

3) Good health (Dionis, 1719; Underwood, 1784; Downman, 1788).

4) Fewer children (Dionis, 1719; Smith, 1774; Underwood, 1784).

The mother/child relationship would be closer, and last into adult life (Batty, 1581; Guillemeau, 1612; Brathwaite, 1631; Dionis, 1719).

The child would benefit by resisting disease (Smith, 1774) and death (Lad. Phys. Dir., 1739).
The effects on the mother, the child, and the mother/child relationship were also discussed in the context of women who did not breastfeed their own children. The adverse consequences of maternal nonsuckling were discussed by 25 authors (Erasmus, 1526; Vives, 1540; Becon, c1550; Tansillo, 1566; Guazzo, 1581; Ste Marthe, 1584; Smith, 1597; Guillemeau, 1612; Gouge, 1622; Clinton, 1622; Griffith, 1633; Sharp, 1671; Eng. Mid. Enl. 1682; Newcome, 1695; Dionis, 1719; Maubray, 1730; Lad. Phys. Dir., 1739; Lad. Dispens. 1740; Full View, 1742; Astruc, 1746; Cadogan, 1748; Osborne & Denman, 1776; Smith, 1774; Downman, 1788; Lara, 1791).

Table 2.17: The proportion (p) of 25 authors who described the adverse consequences of mothers not breastfeeding their own children 1500-1800

<table>
<thead>
<tr>
<th>Consequences</th>
<th>16th century (n=7)</th>
<th>17th century (n=7)</th>
<th>18th century (n=11)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On mother/child relationship</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>On the mother</td>
<td>0.71</td>
<td>0.71</td>
<td>0.73</td>
<td>0.72</td>
</tr>
<tr>
<td>Problem of nurse/child relationship</td>
<td>0.43</td>
<td>0.43</td>
<td>0.64</td>
<td>0.52</td>
</tr>
<tr>
<td>On the child</td>
<td>0.29</td>
<td>0.29</td>
<td>0.36</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Adverse consequences for the mother/child relationship were:

1) Loss of ties of affection, respect, love and obedience especially in later life (Erasmus, 1526; Vives, 1540; Tansillo, 1566; Guazzo, 1581; Smith, 1597; Guillemeau, 1612; Griffith, 1633; Sharp, 1671; Eng. Mid. Enl., 1682; Newcome, 1695; Dionis, 1719; Maubray, 1730; Lad. Dispens., 1740; Full View, 1742; Astruc, 1746; Smith, 1774; Downman, 1788; Lara, 1791).

2) Happiness and relationships within the family suffered as a result of brothers and sisters being fed by different women
Related to this was the fact that children fed by wet nurses normally preferred their nurse to their biological mother, especially when they were older (Vives, 1540; Guazzo, 1581; Guillemeau, 1612; Newcome, 1695; Dionis, 1719; Maubray, 1730; Lad. Dispens., 1740; Full View, 1742).

Consequences for mothers who did not suckle were said to be

1) Poor health or disease (Erasmus, 1526; Tansillo, 1566; Gouge, 1622; Newcome, 1695; Dionis, 1719; Lad. Phys. Dir., 1739; Astruc, 1746; Cadogan, 1748; Smith, 1774; Osborne & Denman, 1776; Lara, 1791).

2) An early death (Erasmus, 1526; Smith, 1774).

3) Loss of beauty (Smith, 1774)

4) Repeated childbirth (Downman, 1788).

5) She missed all the pleasures of seeing her child grow and develop (Ste Marthe, 1584; Clinton, 1622).

The child not fed by his mother was more likely to die in infancy (Erasmus, 1526; Becon, c1550; Lad. Phys. Dir., 1739).

To summarise, the main reasons for recommending maternal breastfeeding were the qualities of the mother's milk, the health of the mother and the child, with less attention paid to the maternal/child relationship and the superior quality of a mother's care. The main benefits were to the mother's health and, to a much lesser extent, the mother/child relationship. The major consequence of mothers not feeding their children was the non-formation or breakdown of the maternal-child bond, during infancy and in later life, with the other main effect being on the health and well-being of the mother. The relative concern about each of these factors appears to have changed during the 300 year period under consideration, particularly in the 18th century.
The 16th century

16th century writers and preachers wanted the mother to breastfeed because her milk was more suited to the child and because she was likely to look after her own baby much better than a hired nurse. Both of these factors were concerned with the welfare of the infant, the health of the mother not being considered at all although the main benefits of breastfeeding were to the mother's health, and a good maternal-child relationship. The principal consequence of non-suckling was thought to be the lack of the mother-child bond and, to a lesser extent, the mother's health and happiness.

The 17th century

The 17th century was not markedly different except that more emphasis was laid upon the maternal-infant bond when trying to persuade mothers to breastfeed. The emphasis was still upon the child rather than the mother, although the latter was still seen as the principal beneficiary in terms of health. The major adverse consequence of non-suckling was still thought to be a poor maternal-child relationship.

The 18th century

The 18th century showed a quite different emphasis. Although the quality of the mother's milk was still important, a major reason for recommending maternal suckling was the preservation of the mother's health, and, to a lesser extent, the health of the child. The superior quality of a mother's care was no longer emphasised. The health of the mother and (much less) the health of the child benefited from maternal breastfeeding, with the adverse effects being on the mother-child relationship and the mother's health.

Thus the 18th century writers were much more concerned with the health of the mother than was the case in the 16th and 17th centuries, and (apparently) with the health of the child. But the latter is balanced by the preference in the 1500's and 1600's for the superior care which was said to be given to infants by their own mothers, since this also
may be taken as concern for the infants wellbeing. (For example, consider such statements as "Children nursed by their mothers are for the most part more cleanly, and neatly brought up, freer from diseases; not so many die". (Gouge, 1622).

The emergence of the mother as a major consideration in the discussions, arguments and persuasions of the 'mother versus wet nurse' debate, is a feature of the second half of the 18th century. To confirm this, and to clarify the relative importance given to the three major arguments (i.e. the mother; the child; the maternal-child relationship), all the statements and discussion given in the preceding results section have been summarised; firstly by century in table 2.18, and then in the two periods 1500-1747 and 1748-1800 (table 2.19). 1748 has been taken as a natural dividing line, indicating the changes which occurred at about this date, particularly associated with the publication of Cadogan's Essay. They are based upon the writings of 46 predominantly medical and religious authors (Erasmus, 1526; Vives, 1540; Becon, c1550; Tansillo, 1566; Paré, 1575; Guazzo, 1581; Batty, 1581; Ste Marthe, 1584; Smith, 1597; Guillemeau, 1612; Gouge, 1622; Clinton, 1622; Brathwaite, 1631; Griffith, 1633; Glisson, 1651; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Newcome, 1695; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Hurlock, 1742; Full View, 1742; Astruc, 1746; Cadogan, 1748; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Gent. Mag., 1765; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Osborne & Denman, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Mantell, 1787; Downman, 1788; Lara, 1791; Hamilton, 1792).
Table 2.18: The proportion (p) of 46 medical, religious and moralist authors who discussed the advantages of maternal breastfeeding with the relative benefits to maternal and child health, and the maternal-infant bond 1500-1800

<table>
<thead>
<tr>
<th>Advantages/benefits</th>
<th>16th century (n=9)</th>
<th>17th century (n=12)</th>
<th>18th century (n=25)</th>
<th>Total (n=46)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother/child relationship</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Health and wellbeing of mother</td>
<td>0.67</td>
<td>0.83</td>
<td>0.44</td>
<td>0.59</td>
</tr>
<tr>
<td>Health and wellbeing of child</td>
<td>0.33</td>
<td>0.42</td>
<td>0.76</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>0.44</td>
<td>0.58</td>
<td>0.60</td>
<td>0.57</td>
</tr>
</tbody>
</table>

Table 2.19: The proportion (p) of 46 medical, religious and moralist authors who discussed the advantages of maternal breastfeeding and child health, and the maternal-infant bond before and after 1748

<table>
<thead>
<tr>
<th>Advantages/benefits</th>
<th>1500 - 1747 (n=29)</th>
<th>1748 - 1800 (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mother/child relationship</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Health and wellbeing of mother</td>
<td>0.76</td>
<td>0.29</td>
</tr>
<tr>
<td>Health and wellbeing of child</td>
<td>0.45</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>0.59</td>
<td>0.53</td>
</tr>
</tbody>
</table>

Discussion

These tables confirm that a definite change in emphasis occurred in the discussion of maternal breastfeeding during the 18th century, and particularly after 1748. The health and wellbeing of the baby received much the same amount of attention throughout the period 1500 to 1800, but there was a marked increase in concern for the health and happiness
of the mother accompanied by a considerable decline of interest in the quality of the relationship between a breastfeeding mother and her child.

This change could be related to the fact that all the works after 1748 were medical texts whilst the period 1500-1747 included 11 non-medical works (see Appendix I) whose authors may have been more interested in promoting ties between mother and child. It seems unlikely that this greatly influenced the results since the medical authors were in a majority throughout, and writers of all types of work in each period have been shown to have had similar views on maternal breastfeeding.

It is more likely that medical writers realised the most persuasive argument to a mother was the preservation of her own health and life, particularly after experiments at the lying-in hospitals had demonstrated this to be true (see Part A). During the mid- to late 18th century these same authors were advising handfeeding as the preferred alternative to breastfeeding (see table 2.13 and chapter on artificial feeding) and there was a general climate of opinion against wet nurses (Trumbach, 1978; and see chapter on wet nursing) so that emphasis of the maternal-infant relationship may not have carried so much weight with women as formerly. The problem of close nurse-child relationships, at the expense of maternal-infant affection, which had characterised the 16th and 17th centuries need not be a consideration in a period when it was possible for mothers to supervise the handfeeding of their children at home. The change of emphasis may thus have reflected current practice in both periods; the problems of close nurse-child relationships and lack of affection towards parents in later life was widely apparent at least until the early years of the 18th century, and thus received most attention; by the second half of this century it was established that women could avoid breast problems and diseases such as milk fever if they breastfed so that it was politic for authors to accentuate this advantage to the detriment of others.

A further point is that there was probably a changing readership in the 18th century. After 1750 writers of popular medical books ad-
dressed themselves directly to mothers, whereas before 1750 they addressed themselves to midwives, nurses, or no-one in particular. If books were to be read by mothers then primarily the advantages to mothers needed to be emphasised. There is some evidence (Fitzgerald, 1949; Trumbach, 1978) that by the mid-18th century women themselves were deciding by which method their babies should be fed, where previously it had been fathers who made this decision, or had exercised the power of veto (see preceding discussion; Trumbach, 1978). Fathers may have been more concerned by the degree of respect and affection accorded to them by their children and thus more open to arguments which emphasised the value of maternal breastfeeding in forming these ties. This again indicates that the form of persuasion written and preached at different periods was probably related to the practice of the time, and adjusted according to changes in social attitudes.

Stone (1977) and Trumbach (1978) have postulated a change of attitude towards wives in the 18th century, with the latter becoming the close and sometimes loving companions of their husbands, in contrast to rather distant marital relations before this period. If this view is correct then it clarifies the new accent upon the mother's health and happiness observable in written persuasives for maternal breastfeeding.

These findings do not support the view of modern writers who perceive a marked change for the better in attitudes towards infants and children in the 18th century (Ariès, 1973; Shorter, 1977a & 1978; Stone, 1977; Trumbach, 1978). The degree of concern for the health and wellbeing of the baby (at least in discussions about breastfeeding) increased only slightly between the 16th and 18th centuries, and in written works the infant was paid considerably more attention than the mother before 1700, and notably less in the later 18th century. Quite clearly any increased attention the new baby received among the upper and middle classes in regard to maternal breastfeeding was secondary to that paid to the mother, and related to the close bonding which would be afforded by a certain period of maternal breastfeeding (Jelliffe & Jelliffe, 1978; and Part A).
3. The technique of breastfeeding

Comparatively few writers showed any interest in the technique of breastfeeding, presumably because it was considered to be the province of women and midwives. The care and preparation of the breast and nipples for breastfeeding was mentioned by only 12 authors, most of whom were practitioners in midwifery (Ste Marthe, 1584; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Barrett, 1699; Ettmueller, 1699; Bracken, 1737; White, 1773; Brown, 1777; Thomson, 1772-85).

Three instructed women to wash the nipples before (Sharp, 1671; Culpeper, 1676) and after (Ste Marthe, 1584) feeding, and when preparing other food or after working (Ste Marthe, 1584). But the main worry was to prevent problems arising in the nipples and breasts, by frequent washing with alum solutions or hardening with spirits (Barrett, 1699; Bracken, 1737; Brown, 1777; Thomson, 1772-85), or with the protective use of nipple shields or special cloths (Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Ettmueller, 1699; Barrett, 1699).

The method of breastfeeding; exactly how it was to be accomplished and in which position the child should be held, was discussed by 13 authors (Guillemeau, 1612; Sharp, 1671; Culpeper, 1676; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Hoffmann, 1740; Cadogan, 1748; Nelson, 1753; Smith, 1774; Rosenstein, 1776; Brown, 1777).

When the child was first put to the breast women were advised to spurt some milk into his mouth to encourage him to suck (Guillemeau, 1612; McMath, 1694; Nurses Guide, 1729) and to offer the breast frequently to encourage the supply of milk (Nurses Guide, 1729; Smith, 1774) although the child was to be restrained from taking too much (Guillemeau, 1612; Hoffmann, 1740). Both breasts were to be given at each feeding (Sharp, 1671; Culpeper, 1676; Pechey, 1697; Rosenstein, 1776) otherwise the child would become accustomed to using only one hand (Pechey, 1697) or would "grow crooked" (Rosenstein, 1776).
Nelson (1753) thought that the mother should suckle in whichever position she preferred, although when in bed the child was to take the breast lying down so that the mother would not have to sit up in bed and become fatigued. This was contrary to the view of Dionis (1719) who insisted that women should sit up at night when breast-feeding for fear they would fall asleep and overlay the child. Cadogan (1748) also thought that the child should not lie down whilst being fed. Nelson (1753) complained that during feeding "The child should yield to the mother, not the mother to the child. That distorted posture so commonly seen in suckling gives great pain to the back, and cramps all the limbs". But only Brown (1777) gave detailed (and accurate) instructions on position: "When you give an infant the breast, put its arm under yours, and hold the child quite close to you, and let the feet come close to your side; then they can take fast hold at once".

The time and frequency of suckling

Slightly more interest was shown in the frequency of breastfeeding; 27 authors discussed the times at which infants should be given the breast (Roesslin, 1540; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Pechey, 1697; Barrett, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Hoffmann, 1740; James, 1746; Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Brown, 1777; Moss, 1781; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Hamilton, 1792).

The time of feeding was to be decided either by the child (demand feeding) or the mother (scheduled feeding). A striking observation is the complete change of medical opinion about this point in the mid-18th century. Whereas children had generally been fed on demand by their wet nurses, and most physicians had agreed with this practice, when more mothers began to suckle their own children those same mothers began to be advised to strictly control both the number of feeds and the time at which their infants were fed.
Table 2.20: The proportion (p) of 23 medical authors who recommended the times at which infants were to be breastfed before and after 1748

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>1500-1747 (n=13)</th>
<th>1748-1800 (n=10)</th>
<th>Total (n=23)</th>
</tr>
</thead>
<tbody>
<tr>
<td>On demand</td>
<td>p 1.0</td>
<td>p 0.40</td>
<td>p 0.74</td>
</tr>
<tr>
<td>At stated times</td>
<td>-</td>
<td>0.60</td>
<td>0.26</td>
</tr>
</tbody>
</table>

Demand feeding was endorsed by 17 writers (Roesslin, 1540; Ste Marthe, 1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Hoffmann, 1740; James, 1746; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Hamilton, 1792) and was said to be common by Dionis (1719) and Cadogan (1748).

Fixed times for feeding were recommended by 6 writers, (Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Smith, 1774; Rosenstein, 1776; Moss, 1781); were said to be practised by Brouzet (1755) and Moss (1781), and were condemned by Baudelocque (1790) and Hamilton (1792).

Whichever type of feeding was employed 7 authors were very averse to feeding babies during the night, mainly because this disturbed the mother's sleep (Cadogan, 1748; Nelson, 1753; Armstrong, 1771; Smith, 1774; Brown, 1777; Mantell, 1787; Downman, 1788).

Discussion

It is doubtful whether scheduled feeding was ever widely practised although a certain number of women did employ it: Moss (1781) said "it is the custom in some places to try and confine the child to regular feeding times" although he thought this was not always possible. Brouzet (1755) recorded that "women ... are afraid of being slaves to
their children ... but some of them are such slaves to their pleasures, that they won't suffer the wenches to bring them the squalling brat, on any account whatsoever, to receive the breast, if it is not his hour". In her popular advice book of 1767, Sarah Pennington showed that scheduled feeding may have been the only way in which wealthier women could reconcile their social responsibilities with breastfeeding whatever their personal wishes. "Whatever may be your own inclinations, such is your situation in life, and such the customs of the world you must live in, that it will not be in your power to have your children always with you; should you suckle them, they will be brought to you only at stated times, and left at others to the care of a servant".

The fashion for scheduled feeding may have been fleeting since, after 1748, those who opposed it and favoured demand feeding were all writing in the period 1787-1792, and Hamilton (1792) stated emphatically that he was against feeding "only at stated periods ---- those children are most healthy and thriving who are least restricted and permitted to take the breast at pleasure". Almost certainly the change in medical views was associated with the trend of upper class women feeding their own children and (as first generation mothers) needing advice on how to do this. It is significant that four out of the six writers who proposed scheduled feeding addressed themselves to a lay rather than a medical readership (Cadogan, 1748; Nelson, 1753; Smith, 1774; Moss, 1781).

If the advice to breastfeed according to schedule was carried out then this could have been frustrating for the child since being fed on demand is said to fulfill a primary psychological need in the child (Musson, 1963). It also could have affected the fertility of the mothers. Although more upper class women began to breastfeed, the fact that they may have employed infrequent scheduled feeding rather than frequent demand feeding would reduce the contraceptive effect of lactation (Knodel, 1977; Frisch, 1977; Jelliffe & Jelliffe, 1978); this, plus the earlier age of weaning which was also a feature of the second half of the 18th century (see chapter on weaning), would have reduced any contraceptive advantage which these women might have gained by suckling their own children.
Some physicians discussed the number of feeds to be given each day. The ancient medical writers, such as Paulus Aeginata (7th century) and Avicenna (10th century), had recommended suckling only two or three times a day and these frequencies were referred to by Roesslin (1540), Jones (1579) and Guillemeau (1612). Hoffmann (1740) described the usual practice in the late 17th century:

"For the most part the breast is given in the first months every two hours; after three or four months, six or seven times a day; and at length only twice or thrice a day, till the year be completed".

Dionis (1719) thought that once every two hours and once or twice at night was sufficient in the early months, whilst Mantell (1787) believed it did not matter how many times a day the child was put to the breast so long as too much milk was not given each time.

The above writers all advocated demand feeding. Those who proposed a strict timetable for suckling suggested 4 to 6 times during 24 hours (Cadogan, 1748; Brouzet, 1755; Smith, 1774). For example, Smith (1774) suggested the following schedule for giving breast feeds:

6 - 7 a.m.
1 hour after the mother has breakfasted (about 9 - 10a.m. in this period).
Just before the mother's dinner 'if she pleases' (about 2 - 3p.m.)
5 - 6 p.m. "being 2 or 3 hours after dinner".
10 - 11p.m. Just before mother goes to bed.

This timetable of approximately 4-hourly feeds is therefore very similar to that employed today for young babies in institutions of the western world (Jelliffe & Jelliffe, 1978).

The quantity of breast milk

The few writers who discussed the matter left the quantity of milk to the desires and growing needs of the child (Ste Marthe, 1584; Guillemeau, 1612; Mauriceau, 1673; McMath, 1694; Maubray, 1730; Dionis, 1719), or to the good judgement of the mother or nurse.
(Jones, 1579). Some warned about overfeeding infants with breast milk (Roesslin, 1540; Jones, 1579; Ste Marthe, 1584; Mauriceau, 1673; McMath, 1694; Pechey, 1697; Barrett, 1699; Maubray, 1730; Mantell, 1787) since this could result in problems such as vomiting (Ste Marthe, 1584; Mauriceau, 1673; McMath, 1694; Maubray, 1730; Mantell, 1787) wind (Mauriceau, 1673; Ettmueller, 1699) obesity (McMath, 1694) and excessive crying (Mantell, 1787). The consensus was to give moderate amounts fairly frequently (Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; McMath, 1694; Nurses Guide, 1729; Maubray, 1730; James, 1746) and giving too much was preferable to giving too little (Jones, 1579). In contrast, it is interesting that William Cadogan (1748), the first advocate for scheduled feeding, advised "letting it have as much as it will take out of both breasts at each time" four times in twenty four hours.

Thus within reason the demand fed child could have as much milk as he required, as frequently as he requested it, and this fact is confirmed by the warnings about overfeeding. Therefore, the 16th and 17th century infant largely had control of his food supply and consequently his mother or nurse. The post-1748 child ideally had his food supply controlled completely by his mother or nurse. He could have as much as he wanted at each feed, but only when the woman decided to make it available. This additionally illustrates that from the mid-18th century the mother, rather than the infant, was the main object of consideration.
4. Problems of lactation

When an ample supply of good quality breast milk was the only reliable means of feeding a young baby, it was essential to maintain a sufficient amount to nourish the child and to avoid extremes of breast discomfort in the mother. This fact is emphasised by the large amount of space which midwifery writers in particular devoted to problems of breast milk supply and the health of the breasts and nipples during lactation. It is notable that 16th and 17th century physicians and midwives paid more attention to this subject than those of the 18th century. This possibly reflects the fact that the alternative of handfeeding was available in the 18th century (see chapter on artificial feeding) but also may be related to the diversification of textbooks on medical subjects. From the 1730's books which treated the subjects of paediatrics and infant management began to be published separately from texts on midwifery, therefore problems of lactation may have been confined more to the latter and escaped inclusion in this study.

It was common for many pages of recipes and remedies to be given for conditions of the breast. As the following discussion is concerned with the general principles of care and treatment rather than pharmacology, only the type of treatment advised or used and, where relevant, the main ingredients of suggested remedies will be given.

Problems of lactation were not confined to wealthy women, although writers were obviously referring to the latter in connection with problems of drying up the milk when they did not want to breastfeed. Therefore most of the following applied to all women who breastfed their own, or someone else's, children.

Insufficient breastmilk

Reasons for a declining supply of breastmilk and methods for increasing it were discussed by 19 authors (Elyot, 1534; Roesslin, 1540; Phaire, 1545; Boorde, 1547; Culpeper, 1653; Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680; Ettmueller, 1699; Nurses Guide, 1729; Arbuthnot, 1732; Hoffmann, 1740; Lad. Dispens., 1740;
Burton, 1751; Rosenstein, 1776; Brown, 1777; Moss, 1781; Baudelocque, 1790).

Reasons for insufficient breast milk were said to be:

1) Too much fasting, hunger, and thirst (Roesslin, 1540; Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680).

2) Extraordinary evacuations (of stool, urine, sweat, etc.) (Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680; Ettmueller, 1699).

3) Sickness in the mother (Roesslin, 1540; Johnstone, 1657; Comp. Mid. Pract., 1680; Ettmueller, 1699) especially high fevers (Sharp, 1671; Culpeper, 1676).

4) Something wrong with the ability of the breasts to make milk (Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680).

5) Strong emotions (fear, anger, grief, worry, etc.) (Sharp, 1671; Culpeper, 1676; Ettmueller, 1699).

6) Great weakness of the child so that he does not suck the breasts properly or sufficiently hard (Sharp, 1671; Culpeper, 1676; Ettmueller, 1699).

7) Too much hard labour, resulting in excessive sweating (Sharp, 1671; Culpeper, 1676).

8) Too little blood (i.e. anaemia) (Sharp, 1671; Culpeper, 1676).

9) Disease in the breast (Roesslin, 1540).

10) Compression of the breasts (Ettmueller, 1699).

11) Drinking 'acid liquors' or 'austere wine' (Ettmueller, 1699).
12) Women not knowing how to manage themselves (i.e. maintain a milk supply) (Brown, 1777).

Three types of treatment were used to increase the milk supply:

1. Internal remedies (Elyot, 1534; Roesslin, 1540; Phaire, 1545; Boorde, 1547; Culpeper, 1653; Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680; Ettmueller, 1699; Nurses Guide, 1729; Arbuthnot, 1732; Hoffmann, 1740; Lad. Dispens., 1740; Rosenstein, 1776; Brown, 1777; Baudelocque, 1790).

A massive number of these were prescribed and included more than 65 different ingredients, but certain substances recurred as particularly superior lactogogues:

i) The seed or root of fennel, either alone or with other herbs or liquids (Roesslin, 1540; Phaire, 1545; Boorde, 1547; Culpeper, 1653; Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680; Ettmueller, 1699; Nurses Guide, 1729; Hoffmann, 1740; Rosenstein, 1776).

ii) Anis or aniseed (Elyot, 1534; Roesslin, 1540; Phaire, 1545; Boorde, 1547; Sharp, 1671; Culpeper, 1676; Ettmueller, 1699; Hoffmann, 1740).

iii) Powdered crystal (Roesslin, 1540; Phaire, 1545; Boorde, 1547; Johnstone, 1657; Sharp, 1671; Culpeper, 1676; Comp. Mid. Pract., 1680; Ettmueller, 1699).

iv) Parts of the body, or the products, of cows (e.g. powdered dugs, udders or hoofs; broth of the tongue; milk, butter and cheese) (Roesslin, 1540; Phaire, 1545; Culpeper, 1653; Sharp, 1671; Arbuthnot, 1732; Rosenstein, 1776; Baudelocque, 1790).

v) Powdered earthworms (Phaire, 1545; Johnstone, 1657; Culpeper, 1676; Comp. Mid. Pract., 1680; Ettmueller, 1699).

vi) Dill (Roesslin, 1540; Phaire, 1545; Sharp, 1671; Culpeper, 1676; Ettmueller, 1699).
vii) Parsnip (Roesslin, 1540; Phaire, 1545; Sharp, 1671; Culpeper, 1676).

viii) Lettuce (Elyot, 1534; Roesslin, 1540; Phaire, 1545; Sharp, 1671).

ix) Rocket (Culpeper, 1653; Sharp, 1671; Culpeper, 1676).

Different substances were preferred in different periods. Preferred lactogogues in the 16th century were aniseed, fennel, lettuce and powdered crystal: in the 17th century fennel, powdered crystal and powdered earthworms, with aniseed, dill and rocket relatively favoured; fennel was still approved in the 18th century, together with products of cows.

Table 2.21: The proportion (p) of 17 medical authors who prescribed the following major ingredients of internal remedies for a poor milk supply, 1500-1800

<table>
<thead>
<tr>
<th>Ingredient</th>
<th>16th century (n=4)</th>
<th>17th century (n=6)</th>
<th>18th century (n=7)</th>
<th>Total (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fennel</td>
<td>0.75</td>
<td>1.0</td>
<td>0.43</td>
<td>0.71</td>
</tr>
<tr>
<td>Aniseed</td>
<td>1.00</td>
<td>0.50</td>
<td>0.14</td>
<td>0.47</td>
</tr>
<tr>
<td>Powdered crystal</td>
<td>0.75</td>
<td>0.83</td>
<td>-</td>
<td>0.47</td>
</tr>
<tr>
<td>Products of cows</td>
<td>0.50</td>
<td>0.33</td>
<td>0.43</td>
<td>0.41</td>
</tr>
<tr>
<td>Powdered earthworms</td>
<td>0.25</td>
<td>0.67</td>
<td>-</td>
<td>0.29</td>
</tr>
<tr>
<td>Dill</td>
<td>0.50</td>
<td>0.50</td>
<td>-</td>
<td>0.29</td>
</tr>
<tr>
<td>Parsnip</td>
<td>0.50</td>
<td>0.33</td>
<td>-</td>
<td>0.24</td>
</tr>
<tr>
<td>Lettuce</td>
<td>0.75</td>
<td>0.17</td>
<td>-</td>
<td>0.24</td>
</tr>
<tr>
<td>Rocket</td>
<td>-</td>
<td>0.50</td>
<td>-</td>
<td>0.18</td>
</tr>
</tbody>
</table>

2. Local applications (Roesslin, 1540; Phaire, 1545; Sharp, 1671; Culpeper, 1676; Ettmüller, 1699). These consisted of plaisters or fomentations to be applied to the breast, again consisting of
many different ingredients, but it is notable that the most popular ingredients to be given internally (fennel and aniseed) were considered equally effective when applied locally.

3) Sucking or drawing the breasts, either by another person or with an instrument, was advised to encourage milk secretion (Roesslin, 1540; Burton, 1751; Brown, 1777).

Other remedies included rubbing the breasts with the hand (Roesslin, 1540) and cold sea bathing (Moss, 1781) although the Ladies Dispensatory (1740) thought that mothers with a weak constitution who could not tolerate a 'high diet' might do better to wean the child or put him to another nurse. Rosenstein (1776) said that it was no use trying to increase the milk supply if the woman was pregnant.

Table 2.22: The proportion (p) of 19 medical writers who prescribed methods for increasing the supply of breast milk 1500-1800

<table>
<thead>
<tr>
<th>Method</th>
<th>16th century (n=4)</th>
<th>17th century (n=6)</th>
<th>18th century (n=9)</th>
<th>Total (n=19)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal remedies</td>
<td>P 1.0</td>
<td>P 1.0</td>
<td>P 0.78</td>
<td>P 0.90</td>
</tr>
<tr>
<td>Local applications</td>
<td>0.50</td>
<td>0.50</td>
<td>-</td>
<td>0.26</td>
</tr>
<tr>
<td>Drawing the breasts</td>
<td>0.25</td>
<td>-</td>
<td>0.22</td>
<td>0.16</td>
</tr>
<tr>
<td>Other treatments</td>
<td>0.25</td>
<td>-</td>
<td>0.11</td>
<td>0.11</td>
</tr>
</tbody>
</table>

**Discussion**

Now that the physiological mechanism of lactation has been elucidated it has been established that the principal reasons for a failing milk supply are:

1) Poor sucking in the infant, due to such factors as weakness, pre-
maturity, low birth weight, and neonatal conditions such as jaundice.

2) Emotional interference with the 'let-down' reflex in the mother which is related particularly to lack of knowledge and confidence, socio-cultural uncertainties and environmental psycho-social stress.

3) Problems with technique, which may be related to circumstances in (2).

Hunger and thirst and loss of body fluids, unless prolonged (as in famine conditions), probably have only a temporary effect on the supply of breast milk (Jelliffe & Jelliffe, 1978).

Thus, without the benefits of modern physiological knowledge, 17th century midwives were well aware of the main causes of lactation failure; particularly the English writers Jane Sharp (1671) and Nicholas Culpeper (1676) and the German, Michael Ettmueller (1699). But they do not appear to have related remedies to causes. The most important factor in improving the milk supply is to increase the frequency and intensity of the sucking stimulus on the nipple, which stimulates the secretion of prolactin in the anterior pituitary gland. Without this stimulus other methods are ineffective (Jelliffe & Jelliffe, 1978).

If the major problem lies in psycho-social factors affecting the mother then it is possible that such visible efforts on her behalf as internal and local remedies would help her relax sufficiently to enable her to breastfeed successfully. The effectiveness of such remedies would however depend greatly upon the degree of reassurance administered at the same time (Jelliffe & Jelliffe, 1978). If by breastfeeding upper class mothers were going against the cultural norm then, unless they were particularly self-confident and determined, they may well have had to deal with considerable emotional strain. It has been established that "cultural confusion inhibits lactation" (Jelliffe & Jelliffe, 1978) so that problems of a failing milk supply
could have been more of a problem among wealthy women going against
the fashion of wet nursing before the early 1700's; and (later in
the 18th century) among those who attempted against their inclinations
to follow the new fashion of maternal breastfeeding. The latter may
have had the additional problem of relatively infrequent scheduled
feeding which offers less frequent, and often less intense, stimulus
from the sucking infant (Leach, 1976; Jelliffe & Jelliffe, 1978).

It is unclear why certain substances were thought to increase milk
production. Some were related to moistness in plants which were be­
thieved to increase moisture (i.e. milk) in the body 'by sympathy'
(Sharp, 1671). Others, such as the strong belief in the efficacy of
fennel as a lactogogue (which survived until the 20th century) was a
folk-belief in many parts of the world (Funk & Wagnall, 1972). In
many areas of the world various white substances such as milkthistle
(Sharp, 1671) and milk stones are thought to aid lactation (McDaniel,
1948) probably by association of the properties of milk (whiteness,
moistness, nourishment) with the production of breast milk. The in­
gestion of different parts of the cow was undoubtedly related to the
cow's reputation as a prolific milk-producer. This is confirmed by
Jane Sharp's (1671) comment: "Some prescribe the hoofs of a cow's
forefeet dried and powdered, and a dram taken every morning in ale:
I think it should be the hoofs of the hinder feet, for they stand
nearest the udder, where milk is bred".

Too much milk

Oversecretion of milk was attributed to women having too much blood
(Johnstone, 1657; Culpeper, 1676) or a "strong lactificall faculty"
(Johnstone, 1657) and to the child sucking too much (Sharp, 1671;
Culpeper, 1676). Some 17th century writers gave methods for reducing
the amount of milk secreted but presumably this problem was much less urgent
than a lack of milk and very few midwives gave remedies.

Specific herbs were said to be good for repelling milk. These in­
cluded mints, calamints, smallage, Agnus Castus and coriander
(Johnstone, 1656; Sharp, 1671; Culpeper).

Other remedies were:
1) Local applications such as poultices and cataplasms (Johnstone, 1657; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694).

2) Venesection, cupping or bleeding (Johnstone, 1657; Culpeper, 1676).

3) Eating very little (Culpeper, 1694; McMath, 1694).

4) Sucking the breast using a glass or a puppy (Culpeper, 1676).

5) Keeping the belly open (Eng. Mid. Enl. 1682).

Jane Sharp (1671) had the best solution: "Some women ---- are so well tempered to increase milk that they can suckle a child of their own, and another for a friend; and it will not hurt their own child".

Discussion

Engorgement of the breasts is one of the commonest problems in breastfeeding and is normally associated with inadequate emptying, particularly in the neonatal period when babies suck relatively small amounts (Jelliffe & Jelliffe, 1978). This would have been a problem to wet nurses who had been lactating for several weeks or months and suddenly changed from feeding a hungry older child to a newborn baby (Baudelocque, 1790).

The remedy is to empty the breasts by expression or by utilising a breast-pump, as was recognised by Sharp (1671) and Culpeper (1676). Although the various 'reducing' remedies suggested probably had little effect, local applications, especially when warmed, can provide comfort and are still used by midwives and nursing mothers today (Spock, 1973; Myles, 1975).

Drying up the breast milk

Related to the problem of dealing with excessive breast milk was that of drying up the milk, either soon after birth because the woman was not going to breastfeed or because the child had to be weaned suddenly. 16th and 17th century writers were again more concerned
with this topic than those of the 18th century; 12 gave methods for
drying up breast milk (Petrus Hispanus, 1550; Phaire, 1545; Sharp,
1671; Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract., 1680;
Eng. Mid. Enl., 1682; McMath, 1694; Lad. Dispens., 1740; Burton,
1751; Thomson, 1772-85; Young, late 18th).

Table 2.23: The proportion (p) of 12 midwifery writers who gave
methods for drying up breastmilk 1500-1800

<table>
<thead>
<tr>
<th>Method</th>
<th>16th century (n=2)</th>
<th>17th century (n=6)</th>
<th>18th century (n=4)</th>
<th>Total (n=12)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Local applications +</td>
<td>1.0</td>
<td>1.0</td>
<td>0.50</td>
<td>0.83</td>
</tr>
<tr>
<td>Purging or cleansing</td>
<td>-</td>
<td>0.33</td>
<td>0.50</td>
<td>0.33</td>
</tr>
<tr>
<td>Reducing food and drink</td>
<td>-</td>
<td>0.17</td>
<td>0.50</td>
<td>0.25</td>
</tr>
<tr>
<td>Bleeding or cupping</td>
<td>0.50</td>
<td>0.33</td>
<td>-</td>
<td>0.25</td>
</tr>
<tr>
<td>Drawing the breasts</td>
<td>-</td>
<td>0.17</td>
<td>0.50</td>
<td>0.25</td>
</tr>
<tr>
<td>Stop drawing the breasts</td>
<td>-</td>
<td>0.33</td>
<td>-</td>
<td>0.17</td>
</tr>
<tr>
<td>Internal remedies</td>
<td>-</td>
<td>-</td>
<td>0.25</td>
<td>0.08</td>
</tr>
<tr>
<td>Other *</td>
<td>-</td>
<td>0.17</td>
<td>-</td>
<td>0.08</td>
</tr>
</tbody>
</table>

+ Includes ointments, plaisters, cataplasms, fomentations, a major
  ingredient of which were mintes.

* Given by Mauriceau (1673) "I know some women who hold it for a very
great secret, and most certain and fit to drive the milk effec-
tually back; and that is to put on her husband's shirt yet warm
immediately after he hath taken it off and wear it until the milk
be gone: but in case the milk doth in the meantime vanish, 'tis
superstitious to believe that this shirt is the cause of it".
and "I have sometimes seen women apply to their breasts, with no
small success, the linnen-covers of salt-butter pots; it is a
drying remedy, and fit to soak up the moisture of these parts
and may be used; provided the remedies before mentioned have
discursed the milk".
Discussion

In recent times various methods have been used to dry up women's milk including firm bandaging, administration of male sex hormones and reduction of fluids but the most usual treatment at present is to do nothing. Without the stimulus of sucking the milk supply ceases without any interference although some discomfort may ensue for a few days (Jelliffe & Jelliffe, 1978). Drawing the breast would stimulate production of more breast milk as was recognised by Mauriceau (1673) and in the English Midwife Enlarged (1682), but the principle remedies offered would again have offered localised comfort which is important, particularly during the puerperium. Other remedies were related to 'reducing' the body fluids and although by themselves these would not have dried up the milk, they would not have affected the natural decrease in milk production which occurs in the absence of the sucking stimulus on the nipple (Jelliffe & Jelliffe, 1978).
Problems with the breasts and nipples

This subject attracted much attention particularly from surgeons and midwives, who were likely to be consulted when such problems arose (Petrus Hispanus, 1550; Boorde, 1547; Sowerby, 1652; Johnston, 1657; Sharp, 1671; Wolveridge, 1671; Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Ettmueller, 1699; Baynard, 1706; Dionis, 1719; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Burton, 1751; Memis, 1765; White, 1773; Smith, 1774; Mackenzie, 1774; Brown, 1777; Moss, 1781; Spence, 1784; Thomson, 1772-85; Young, late 18th).

<table>
<thead>
<tr>
<th>Problem</th>
<th>16th century (n=2)</th>
<th>17th century (n=10)</th>
<th>18th century (n=15)</th>
<th>Total (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sore or infected nipples</td>
<td>P 0.50</td>
<td>P 0.70</td>
<td>P 0.87</td>
<td>P 0.78</td>
</tr>
<tr>
<td>General problems of breast</td>
<td>0.50</td>
<td>0.50</td>
<td>0.47</td>
<td>0.48</td>
</tr>
<tr>
<td>Hard and swollen breasts</td>
<td>1.00</td>
<td>0.60</td>
<td>0.20</td>
<td>0.41</td>
</tr>
<tr>
<td>Curdled/clotted milk in breast</td>
<td>0.50</td>
<td>0.80</td>
<td>0.13</td>
<td>0.41</td>
</tr>
<tr>
<td>Inflammation of breast</td>
<td>0.50</td>
<td>0.50</td>
<td>-</td>
<td>0.22</td>
</tr>
<tr>
<td>Ulcers or abscess of breast</td>
<td>1.00</td>
<td>0.20</td>
<td>0.13</td>
<td>0.22</td>
</tr>
</tbody>
</table>

At all periods (including the present) (Jelliffe & Jelliffe, 1978) the major problem for breastfeeding women has been sore or infected
nipples, usually the result of small cracks becoming infected. Many difficulties with the breasts apparently caused less worry in the 18th century than in the preceding 200 years: probably as a result of the general knowledge that these could be largely prevented if suckling was commenced within a few hours of birth (see Part A). Whereas the incidence of sore, cracked and infected nipples would be unaffected by such a change, a reduction would be expected in the incidence of swollen, engorged, lumpy and inflamed breasts. This is confirmed by the findings of the Lying-in hospitals (Nelson, 1753).

The types of problem which affected the nipples were:

1) Soreness (especially in first time mothers) (Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Bracken, 1737; Thomson, 1772-85).

2) Cracks, clefts and fissures (Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Bracken, 1737; Mackenzie, 1774).

3) Ulcers and loss of the nipples (Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Bracken, 1737; Lad. Dispens., 1740; Brown, 1777).

4) Nipples obstructed or deformed by scar tissue from suckling a previous child (Sharp, 1671; Mauriceau, 1673; Culpeper, 1676).

Some reasons were given for the apparent high incidence of sore nipples, the main one being that hungry children who were frustrated by getting insufficient milk, or were not getting it easily, were liable to bite and 'mump' the nipple. Whether or not the child had teeth this led to sores which eventually could develop into ulcers and consequent loss of the nipple (Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Bracken, 1737; Burton, 1751).

Infants who suffered from conditions such as thrush, aphthae, and the pox were said to cause sore nipples in their nurses (Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Burton, 1751) and those resulting
from the pox were said to be very difficult to heal (Mauriceau, 1673). Other writers blamed prolonged suckling (Memis, 1765), not suckling for several days and allowing attendants to draw the nipples (Smith, 1774), and small or scarred nipples which frustrated the child (Sharp, 1671; McMath, 1694).

Remedies for sore and infected nipples were given by 17th and some 18th century writers. Minor cracks and fissures were treated with local applications, particularly ointments (Petrus Hispanus, 1550; Sharp, 1671; Wolveridge, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Ettmueller, 1699; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Burton, 1751; Mackenzie, 1774; Brown, 1777; Thomson, 1772-85; Young, late 18th). But the most important treatment was to stop the child sucking at the affected breast so that it had a chance to heal (even though this might involve weaning the child early) (Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Bracken, 1737; Lad. Dispens., 1740; Burton, 1751; Thomson, 1772-85; Young, late 18th).

Instructions were given on how to reconstruct a new nipple if a woman wanted to nurse again after the resulting ulcer had healed. "When the nipples are quite lost it is very difficult to give a child longer suck; because it can take no hold to suck the milk, and also the small holes of the nipple are closed up by the ulcers. But if she shall desire to give suck, another woman must by degrees make her new nipples, after the ulcer shall be perfectly healed, whose sucking with her mouth will draw them out, and by this means unstop the root of the old nipples; or using a fit instrument of glass ---- with which the woman herself may also suck them five or six times a day; and to shape them and so preserve them, being thus drawn out, from sinking into the breast again, let her put upon them a small cap of wood, or other matter ---- and doing so by degrees after the nipples are quite form'd and unstopp'd, she may again give her child suck" (Mauriceau, 1673). Similar instructions were given by the English Midwife Enlarged (1682) and McMath (1694).

That such instructions were given demonstrates that such severe
problems as loss of a nipple as a result of breastfeeding were not
infrequent in the 17th century, and there was probably a high inci-
dence of infections of all degrees of severity until very recent
times.

Not allowing the child to suck at the affected breast was also the
principle treatment recommended for various breast problems, although
excess milk was to be drawn by other means to prevent milk accumula-
ting in the breasts and causing further difficulties (Johnstone, 1657;
Sharp, 1671; Mauriceau, 1673; Comp. Mid. Pract., 1680; Eng. Mid.
Enl., 1682; McMath, 1694; Ettrtmueller, 1699; Lad. Dispens., 1740;
Mackenzie, 1774). Local applications such as plaisters and poultices
were also widely used (Boorde, 1547; Petrus Hispanus, 1550; Sowerby,
1652; Johnstone, 1657; Sharp, 1671; Wolveridge, 1671; Mauriceau,
1673; Culpeper, 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl.,
1682; McMath, 1694; Ettrtmueller, 1699; Memis, 1765; Mackenzie, 1774),
and these would have had the important function of providing obvious
attention and comfort to the woman.

Today, conditions of the breast are rarely a reason for women to
stop breastfeeding. But before antiseptics and antibiotics were
available, the child would have been adversely affected by ingesting
milk from an infected breast so that the safest remedy was that sug-
gested: to draw off excess milk mechanically and to put the child
only to the unaffected breast, to another nurse, or to wean him pro-
vided he was not too young.
5. Instruments connected with breastfeeding

Specially designed instruments to facilitate breastfeeding were made at least from the mid-16th century and although the earliest mention or illustration found during this study dates from 1545 (Reiff, 1545), such instruments, or improvisations of them, must have been used earlier since the problems for which they were employed had existed since mothers first put children to the breast. Very few examples survive since items such as breast pumps were made of easily-breakable glass, and nipple-shields made of metals such as tin, lead and pewter could be melted down and re-used. There is the additional point that they were used only by women and (unlike feeding bottles) were not particularly attractive or 'collectable'. The evidence given in this section is derived from descriptions and illustrations in medical texts and from surviving artefacts.

Two types of instrument were employed:
1) Sucking glasses
2) Nipple shields

1) Sucking glasses or breast pumps

These were used to relieve engorgement or to express milk when the breasts were inflamed or infected or the nipples were cracked. All the descriptions refer to glasses and no evidence has been found to show that they were made of any other material. No surviving examples have been identified by this author.

Sucking glasses were mentioned and/or illustrated by the following 16 authors (Reiff, 1545; Paré, 1575; Ferrarius, 1577; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Ettmüller, 1699; Dionis, 1719; Nurses Guide, 1729; Bracken, 1737; Lad. Dispens. 1740; Memis, 1765; Thomson, 1772-85; Young, late 18th). Whatever the country of origin, all the illustrations show the same basic design although only that by Ferrarius (1577) shows a sucking glass in use (see fig. 2.6). Comparison of Ferrarius'
(1577) illustration and the description 150 years later in the *Nurses Guide* (1729) shows that there was no change in basic design.

"This instrument of glass ---- has two openings, one of which is wide and flat, to be apply'd to the breasts; and the other like a neck or gullet, long and narrow at the end, that it may be put into the mouth".

Medical writers thought their main advantage was that women could suck their own breasts rather than having to resort to children, puppies or attendants to draw off excess milk (Pare, 1575; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694). If she did not possess such a sophisticated sucking glass, a woman could use a small glass or glass vial which had been warmed in hot water; this was applied to the breast until it filled with milk and the process was repeated as often as necessary (Pare, 1575; Dionis, 1719).
Figure 2.4: Sucking glass or breast pump, illustrated in Reiff, 1545.

By courtesy of the Wellcome Trustees.
The forme of a little glasse, which being put on the nipple, the woman may sucke her owne breasts.

Figure 2.5: Sucking glass or breast pump, illustrated in Pare, 1575 and 1634.

'By courtesy of the Wellcome Trustees'
Figure 2.6: Sucking glass or breast pump in use, illustrated in Ferrarius, 1577.
'By courtesy of the Wellcome Trustees'
Figure 2.7: Sucking glass or breast pump, illustrated in Mauriceau, 1673.

'By courtesy of the Wellcome Trustees'
2) Nipple shields and caps

Small numbers of these have survived (Drake, 1946; Bidault & Lepart, 1972; Bennion, 1979; Cow & Gate cat., undated; Wellcome Collection cat.). They were made of lead, pewter, tin, horn, bone, ivory, wood, silver, or glass and had three main functions:

i) to raise inverted or retracted nipples or to help in the formation of new nipples after ulceration had occurred. In these cases they were used in conjunction with sucking glasses (Gouge, 1622; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Bracken, 1737; Thomson, 1772-85).

ii) to prevent sore or ulcerated nipples (Paré, 1575; Sharp, 1671; Culpeper, 1676; Ettmueller, 1699; Dionis, 1719).

iii) in the treatment of sore, cracked or infected nipples (Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Lad. Dispens., 1740; Mackenzie, 1774; Thomson, 1772-85).

They also prevented soiling of the clothes by excess breast milk (Drake, 1946) and by the early 19th century were used as a base for attaching an artificial nipple or cow's teat (Drake, 1946).

There was very little difference in basic design between 16th century nipple shields and those in use today, and there is no reason to believe that they were any less effective than those of the 20th century (Jelliffe & Jelliffe, 1978) although their greater weight may well have made them less comfortable to wear.

Improvised nipple shields were made from hollowed nutmegs (Reiff, 1545; Ettmueller, 1699; Thomson, 1772-85) and mention was also made of "little wax caps, or leaden ones.... which must have several small holes in them" (Mauriceau, 1673). Wax nipple caps were referred to by other midwifery writers (Sharp, 1671; Culpeper, 1676; Eng. Mid.
Enl., 1682; McMath, 1694) and were probably devices which could easily be made at home with candle wax.

To prevent sore nipples, and in their treatment, the nipple shield was applied to the breast before the child was allowed to suck (Paré, 1575; Sharp, 1671; Culpeper, 1676; Mackenzie, 1774), it also functioned by keeping dressings in place whilst allowing milk to escape through the holes (Lad. Dispens., 1740; Eng. Mid. Enl., 1682). To correct lost, inverted or retracted nipples it was to be worn all the time to keep the nipple out and only removed to feed the baby (Mauriceau, 1673; McMath, 1694; Dionis, 1719; Bracken, 1737).
Figure 2.8: Nipple shield, illustrated in Reiff, 1545.

'By courtesy of the Wellcome Trustees'
The figure of leaden Nipples to be put upon the Nipple or Teat of the Nurse when it is ulcerated.

Figure 2.9: Nipple shields, illustrated in Paré, 1575 and 1634. 'By courtesy of the Wellcome Trustees.'
Figure 2.10: Nipple shields, illustrated in Mauriceau, 1673.

'By courtesy of the Wellcome Trustees'
Figure 2.11: Nipple shields and caps, sucking glass, etc. illustrated in Dionis, 1719.

*By courtesy of the Wellcome Trustees*

A: Small cap made of box to put on nipples after they have been drawn out by another woman; only taken off when the woman suckles.

B: A better version of A; the brim prevents it hurting the breast.

C: Small cupping glass to draw off milk from nipple. Put it in boiling water till hot, then place over the nipple and it sticks to the breast and fills; use several times.

D: Sucking pipe for the woman to draw off her own excess milk.

E: Put over nipple.

F: Put in woman's mouth.

G: Lancet for cutting swellings, apostumes, etc.

H: Plaister for sore breast; replaced three to four times a day whenever matter is discharged from it.

(Dionis, 1719)
Figure 2.12: Silver nipple protector, hallmarked 1751.
(Cow & Gate cat. undated).
Figure 2.13: Wooden nipple shield c1830. (Cow & Gate cat. undated). Also extant c1800 (Bennion, 1979).
Instruments were probably referred to by Gouge (1622) when he complained that some women "are themselves the cause of wanting milk because they will not let it be drawne downe; or because they will not use meanes (for meanes there are) to get and increase milke. There are meanes also to raise nipples where the breasts are very flat".

And also by Ralph Josselin (1976) who in 1642 recorded "it pleased God my wives breasts were sore which was a grievance and a sore cutt to her but with use of meanes in some distance of time they healed up".

Sarah, sister of the Duchess of Leinster suffered from retracted nipples and instruments were used for some time after her delivery in an effort to raise them. Six days after the birth of Sarah's child in December 1768 her sister wrote "her milk is come and her breast frequently drawn, but as yet the child has not strength to suck, her milk not coming free enough".

Four days later: "This is her tenth day, but alas the nursing scheme fails, and what is worse, the child neither feeds kindly nor can they get it to suck now; --- It has all along been provoking, for Sal has abundance of milk but the nipple would never come out, till now by drawing it various ways she has brought it about, and the child won't take it".

Nine days later: "The nursing scheme would not do; she had quantities of milk ---- but her nipple could not be drawn out without the greatest difficulty, and the child not being strong would not do it" (Leinster, 1949-57).

This aptly illustrates the failure to breastfeed in an obviously determined, upper-class, first-time mother due to the joint factors of inverted nipples and the weak sucking of the baby. At a time when doctors were complaining about the prevalence of inverted nipples among upper and middle-class women (see Part B I) the nipple shield and sucking glass were indispensable items of equipment for such women who wished to attempt breastfeeding their own babies.
Conclusions

1. Until the late 18th century it was a social norm for upper and middle class mothers to employ wet nurses rather than feed their own children. Although this custom was greatly criticised by protestant theologians after the reformation it had little effect in practice, except upon puritan women for whom breastfeeding was regarded as a religious duty.

2. Reasons for women not breastfeeding included regard for their health, figure and dress; the influence of husbands; general custom; and the busy social life of the mother.

3. In many cases these reasons were probably real, due to the physical restraints and effects of tight corsetting; the prevalence of breast and nipple injury and disease; the tradition of husbands deciding upon feeding methods; the influence of the woman's family; and of current fashion.

4. The so-called "taboo" on sexual intercourse during lactation was probably not observed in Britain and hence was not a real consideration in the decision whether or not to breastfeed.

5. The contraceptive effect of breastfeeding was certainly known to educated men, and probably by word of mouth was known to women. Knowledge of this may have played a part in the continued practice of wet nursing.

6. Acceptable reasons for women not breastfeeding included sickness, weakness, and sore or infected nipples, all of which were fairly common, particularly among wealthy women who had had many pregnancies.

7. Medical and religious writers consistently believed that the mother made the best nurse for her child and gave many arguments to support this opinion, but failing this ideal most regarded a
wet nurse as the best substitute. In the 18th century a small number preferred the substitute of hand feeding.

8. Reasons for preferring the mother to breastfeed included the superior qualities of her milk, the benefits to the health of mother and child, and concern for the maternal-child relationship.

9. Maternal breastfeeding was said to benefit the mother much more than the mother-child relationship or the child. If mothers did not breastfeed this was chiefly seen to have an adverse effect on the mother-child relationship, and to a lesser extent the mother's health and beauty; it also resulted in later problems with close nurse-child relationships.

10. The mid-18th century saw a change in emphasis in the discussions and persuasives about breastfeeding with the major advantages stated to be the good health of the mother, whereas in the 16th and 17th centuries the main concern was for a good mother-child relationship. This may have been due to medical writers realising that preservation of her own health (backed up by evidence from the lying-in hospitals) was more likely to affect a mother's decision; the increasingly popular alternative of handfeeding; the emergence of books written to and for mothers after 1750; and the increasing part played by mothers in the decision about the method of feeding babies.

11. The degree of concern for the health of the child, in relation to breastfeeding, increased only slightly between 1500 and 1800; the infant was paid considerably more attention than the mother before 1700, and much less after that date. Any increased attention paid to the child in the 18th century was secondary to that paid to the mother.

12. Demand feeding was the most usual method of breastfeeding until c1748, when strictly scheduled suckling 4-6 times a day was first introduced, although it was probably never widely practised except
by wealthy society women. By the end of the 18th century medical writers were again advocating demand feeding.

13. Before 1748 the quantity and timing of breastfeeds was in the hands of the child whereas after 1748 these were ideally under the control of the mother.

14. Problems associated with lactation were very common, the most serious being insufficient breast milk. The principle causes of lactation failure were understood in the 17th century but suggested remedies may have had only limited effect. An added cause may have been the emotional strain upon upper class mothers who tried to go against the current fashion, of wet nursing in the 16th and 17th century, and maternal breastfeeding in the late 18th century.

15. Various conditions of the breasts and nipples resulting from suckling were a great problem, the most frequent being sore or infected nipples, for which the suggested abstention from feeding would have been an effective treatment.

16. Instruments used to facilitate breastfeeding included glass breast pumps for expressing excess milk, and nipple shields, made usually of metal, both of which were used throughout this period. The design of nipple shields has not varied since at least 1575 and they were used in the treatment of inverted, cracked or infected nipples; in the prevention of sore nipples; and for the formation of 'new' nipples.
CHAPTER 3

WET NURSING

A. WET NURSING AS A SOCIAL INSTITUTION

B. MEDICAL (AND SOME RELIGIOUS) IDEAS AND OPINIONS ABOUT WET NURSING
The following texts and manuscripts were analysed to obtain data on wet nursing:

16th century

Elyot, 1523; Erasmus, 1526; Roesslin, 1540; Vives, 1540;
Bullinger, 1541; Phaire, 1545; Wurtz, 1563; Boaistuau, 1566;
Tansillo, 1566; Pare, 1575; Jones, 1579; Batty, 1581;
Guazzo, 1581; Ste Marthe, 1584; Muffet, 1584; Smith, 1597.
Total = 16

17th century

Guillemeau, 1612; Perkins, 1612; Burton, 1621; Gouge, 1622;
Clinton, 1622; Brathwaite, 1631; Griffith, 1633; Glisson, 1651;
Pemell, 1653; Quillet, 1655; Johnstone, 1657; Wolveridge, 1671;
Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Culpeper, 1676;
Comp. Mid. Pract, 1680; Eng. Mid. Enl., 1682; Harris, 1689;
McMath, 1694; Newcome, 1695; Pechey, 1697; Ettmueller, 1699;
Barret, 1699; Willughby, 1863.
Total = 25

18th century

Floyer, 1706; Baynard, 1706; Steele, 1709a; Steele, 1711;
Dionis, 1719; Cheyne, 1724; Defoe, 1728-29; Nurses Guide, 1729;
Maugray, 1730; Arbuthnot, 1732; Allen, 1733; Bracken, 1737;
Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Hoffman, 1740; Full
View, 1742; Hurlock, 1742; Astruc, 1746; La Motte, 1746; James,
1746; Sloane, 1748; Cadogan, 1748; Found. Hosp., 1749; Burton, 1751;
Clark, 1751; Exton, 1751; Smellie, 1752; Nelson, 1752; Brouzet,
1755; Memis, 1765; Cooke, 1765; Buchan, 1769; Mackenzie, 1770;
Armstrong, 1771; White, 1773; Smith, 1774; Mackenzie, 1774;
Hunter, 1775; Rosenstein, 1776; Denman and Osborne, 1777/8;
Foster, 1781; Moss, 1781; Pract. Mid., 1783; Spence, 1784;
Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788,
Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Mears, 1791; Young, late
18th.
Total = 53
Total = 94
Additional sources

Ancient sources

Paulus Aeginata, 1844-47; Still, 1931; Mettler, 1947; Galen, 1951; Soranus, 1956; Avicenna, 1966; Plutarch, 1966; Radbill, 1973.

Wet nursing of particular children or groups of children

Shakespeare, c1594; Brooke, 1766; Trusler, 1786; Cholmeley, 1787; Dee, 1842; Bramston, 1845; Newcome, 1852; Thornton, 1875; Fretwell, 1877; Wentworth, 1883; Ferrier, 1898; Thiselton-Dyer, 1898; Hunter, 1908; Evelyn, 1908; Freke, 1913; Greene, 1929; Conway, 1930; Caulfield, 1931; Sibbald, 1932; Morris, 1934; Leinster, 1949; Hopkirk, 1953; Wake, 1953; Winchester, 1955; Emmison, 1964; McHenry and Mackeith, 1966; Fox, 1966; Lane, 1975; Finlay, 1976 and 1979; De Mause, 1976; Stone, 1976; Stone, 1977; Shorter, 1977a and 1978; Jones, 1978; Trumbach, 1978; McLaren, 1978 and 1979; Lloyd Hart, 1979; Wilson, 1979a; Osborn, 1979, 1980a and 1980b.
There is a considerable body of research on the subject of wet nursing in Europe, particularly in France where it was a highly organised industry controlled by the state from the 13th century (Drake, 1930, 1935, 1937, 1940; Chamoux, 1973; 1974; Sussman, 1974, 1975, 1977a, 1977b; Hufton, 1974, 1979; Shorter, 1977, 1978; Flandrin, 1979). In contrast, the study of the British wet nurse has suffered virtually total neglect; the two historians who have investigated aspects of this phenomenon in the late 16th and 17th centuries (Finlay, 1976; McLaren, 1979) came across evidence almost by accident whilst examining other, wider, issues. Due in part to this neglect, and because wet nursing was such a widespread social institution throughout Europe, historians have tended to assume that wet nursing was more or less the same wherever it occurred and Britain has been lumped together with the rest of Europe when discussing the qualities, terms of employment and conditions of the wet nurse, and particularly the abuses of which she was supposedly guilty (for example, De Mause, 1976; Stone, 1976; Shorter, 1977a, 1978). The following description and discussion will concentrate on wet nursing in the British Isles.

The reasons for their employment and the parts of society they served were discussed in the preceding chapter. This chapter will be concerned primarily with describing the women employed, terms of employment, desirable qualities, and the problems which arose from the practice of wet nursing in Britain.

Before proceeding it must be emphasised that the wet nurse under discussion throughout this chapter was employed by women from the middle and upper strata of society whose reluctance or inability to breast feed was discussed in the previous chapter. The wet nurse employed to nurse the infant poor who were the responsibility of the English parish was a totally different type of woman from a different class of society: the parish nurse will be fully discussed in the chapter on artificial feeding. (The failure to distinguish between the privately-employed wet nurse and those engaged by the Parish may
well have led to the generalised inclusion of British wet nurses when discussing European wet nursing).

After 1740 a third type of wet nurse was employed in England. She worked for the newly-established Foundling Hospital and her selection and employment was regulated by the Hospital Governors. The Foundling Hospital nurses (as far as they are the concern of this study) are principally discussed in the chapter on artificial feeding although their terms of employment may occasionally be used here for the purposes of comparison.
1. The type of women chosen

The women who were privately employed as wet nurses in Britain were usually from the lower, but not the poorest, classes of rural society. McLaren's (1979) investigation of one Buckinghamshire parish between 1578 and 1601 showed that Chesham women who took in nurse-children from London (approx. 27 miles) and Oxford (approx. 28 miles) were frequently the wives of artisans. The occupations of their husbands included wood-turners (a prominent local trade), weavers, tailors, tilers, a glover, and a miller. Several men whose occupations were not stated employed "servants". The occupation of one wet nurse before her marriage was described as "servant". (Interestingly, the occupation of one London nurse-child's father was "Haberdasher"). She makes the point that, because of their occupations, the husbands of Chesham wet nurses would have had regular economic or trade links with London and other large towns and could have acted as intermediaries in the availability and placing of nurse-children.

In the same period John Dee, mathematician and philosopher, of Mortlake in Surrey employed wet nurses from the neighbouring parishes of Barnes, Barne Elms and Petersham (which took in nurse-children from London (approx. 10 miles) (Thiselton-Dyer, 1898) as did nearby Putney and Richmond (Finlay, 1976).) In his diary, Dee gives most of these women the prefix "nurse" as if this was their usual occupation. When he had to find temporary replacements to suckle his children in 1581 and 1591 he refers to them as "Goodwife" rather than "nurse" and appears to have paid them slightly more. This indicates that the temporary nurses were not normally wet nurses (in the occupational sense) but were either helping him out while another regular wet nurse was found, or were prepared to suckle another child occasionally - at a price.

In 1622, William Gouge said those commonly chosen to be nurses were
"poore countrie women which have much work to doe and little help" and maintained their home by "nursing other folks children."

A century later Daniel Defoe (1728) referred to women such as dairymaids, woollcombers and cookmaids being employed by the gentry, or often "a farmer's wife, or a plowman's wife, for such we are fond of because they are what they call wholesome and sound." However he also referred to wet nurses being the meannest of the labouring poor. According to Richard Steele (1711) in *The Spectator* women said they wanted to be wet nurses because of "having an ill husband, and that she must make shift to live"; and later medical authors referred to nurses being "common countrie people" (Nelson, 1753) and as being "generally poor" (Lara, 1791).

The discrepancy between the findings for the late Tudor and Stuart periods and the statements of theological and medical writers may be due to the latter exaggerating the poorness and meanness of wet nurses to reinforce their arguments in favour of maternal suckling, especially since, during the same period, John Evelyn's nurse in 1620 was the wife of a tenant farmer (Evelyn, 1908); Henry Newcome's child in 1649 was nursed at the home of a tanner (Newcome, 1852); the wet nurse acquired in an emergency for the Prince of Wales in 1688 was the wife of a brickmaker (Hopkirk, 1953) as was the nurse of Samuel Johnson in 1709 (Lane, 1975). In a popular novel of 1766 a wet nurse was described as the "robust wife of a neighbouring farmer" (Brooke, 1766).

If the incidence of wet nursing did increase throughout the 17th and early 18th centuries, as has been suggested (Forsyth, 1911; Wickes, 1953; Mettler, 1947), parents may have had to resort to women from poorer classes than those of artisans and tenant farmers to find nurses. But there may be some confusion here with parish nurses who were often themselves on parish relief (Marshall, 1969; Wales, 1981 - see chapter on artificial feeding), or with the specific problem of finding good wet nurses inside large towns, especially London. Several references were made to the latter difficulty (Willughby, 1863; Armstrong, 1771; Moss, 1781) although James
McMath, (1694) of Edinburgh said "Nor are good nurses hard to be got, and with all the laudable properties".

In the second half of the 18th century wet nurses could be obtained in an emergency from the Lying-in hospitals (Forsyth, 1911; Wickes, 1953). For example, in 1760, when Lady George had not employed a wet nurse in preparation for the birth of her daughter "one was to be got from the lying-in hospital yesterday. They must, you know, in that case take what they can get, and a nurse got in such a hurry and in London, I'm afraid the chance (of the child doing well) is much against" (Leinster, 1949; Trumbach, 1978). Despite the misgivings of the above writer, Lady Caroline Fox, the lying-in hospitals in this period only delivered respectable poor women who had obtained in advance a written character reference (Donnison, 1977) so that again they would not be the lowest women in society.

Forsyth (1911) said that in the 18th century it became fashionable to choose wet nurses who had borne illegitimate children, especially first-time mothers. Unfortunately he does not state where he obtained this information and this author has been unable to confirm it, although, as he suggests, it could be one explanation for the increased concern at this time for the wet nurse's own child, with some physicians (particularly Dr Thomas Denman and Dr Richard Croft, the royal accoucheur) trying to establish an institution for the children of wet nurses (also referred to by Underwood, 1784).

This suggests that accompanying industrialisation may have been a change in the wet nursing industry. The system of sending children to nurses many miles outside large towns was obviously a highly developed and important social institution in the 16th and 17th centuries (Thiselton-Dyer, 1898; Finlay, 1976; McLaren, 1979), and there must have been regular links between cities (especially London) and the surrounding villages, with some degree of organisation either by individuals in the parish (Thiselton-Dyer, 1898) or possibly within the town itself. The wives of men with a reason to travel and thus the means to establish contacts (as noted by McLaren, 1979) were therefore in a good position to be wet nurses, not least
because of the technical difficulties which might arise over regular payments. In the 18th century with increased movement from the countryside into the towns; some improvement of roads and means of transport; and the growth of newspapers which were used as a means of advertising both by and for wet nurses (Trusler, 1786; The Times, 1790's), these links may have become less important or have broken down.

Certainly an institution for the children of wet nurses would have been unnecessary for the family circumstances so far discovered in the 16th and 17th centuries, as nearly all the examples found in this period were married women, living with their husband and having children of their own (for example Cholmeley, 1787; Dee, 1842; Bramston, 1845; Thornton, 1875; Ferrier, 1898; Evelyn, 1908; Greene, 1929; Morris, 1934; Emmison, 1964; Lane, 1975). Nurses who were employed within the child's home may have been either widows or unmarried, but this was not always the case (Montagu, cited in Stone, 1977).

2. Where the child was nursed

It was rare for nurses to be employed in the child's own home except in the case of royalty and the higher aristocracy. However the royal wet nurses were normally themselves members of the aristocracy or higher gentry and so must be considered separately from wet nurses in general (for example, Newdigate, 1898; Hopkirk, 1953; Waldman, 1972; Hedley, 1975; Osborn, 1979, 1980a, 1980b). Some parents employed a nurse in the house for some of their children and put others out to nurse. It may therefore have depended upon the family commitments of the available wet nurse as much as the wishes of the parents (Newcome, 1852; Thornton, 1875).

The most usual method was for parents living in towns to send their children out to the surrounding villages (Cholmeley, 1787; Thiselton-Dyer, 1898; Winchester, 1955; Finlay, 1976) and for families living in the country to use women from nearby villages (Cholmeley, 1787; Dee, 1842; Ferrier, 1898; Evelyn, 1908; Freke, 1913; Greene, 1929;
Emmison, 1964). Hugh Cholmeley was living in London when his first child was born in 1624 and he was sent out to a wet nurse in Wateringbury, Kent (approx. 28 miles). When his son, Hugh, was born in 1632 he was living in Yorkshire and the child was sent out to a local woman (Cholmeley, 1787).

Because of the distances and the state of the roads it is highly unlikely that town parents visited their children regularly, if at all. It should also not be assumed that children nursed within a short distance of their own home were visited any more frequently. The cases of Samuel Johnson and Jane Austen, who were visited by their mothers every day, are well-documented (Lane, 1975; Stone, 1976) but these appear to be exceptional. The children of John Dee were apparently visited by one of their parents only once every 1 - 2 months in the late 16th century whilst others went several months or even a year or more without seeing their parents (Cholmeley, 1787; Freke, 1913). Contemporary accounts indicate that a message was sent to the parents if the child was sick or dying although parents often arrived too late (for example, Baynard, 1706).

From the late 17th century medical writers urged parents and especially mothers to visit their children at nurse (preferably without warning so that they could see the true care given to their child) (Comp. Mid. Pract., 1680; Eng. Mid. Enl. 1682; Barret, 1699; Nelson, 1753; Moss, 1781; Downman, 1788; Hamilton, 1792) which confirms that regular parental visits or close supervision were the exception rather than the norm. A further confirmation lies in the oft-repeated warnings about changelings and children changed at nurse which would hardly have been remained undetected by a mother who visited frequently and regularly (Brathwaite, 1631; Sharp, 1671; Newcome, 1695; Nurses Guide, 1729).

3. The pay of wet nurses

It is difficult to discover how much wet nurses were paid since this is very rarely mentioned in diaries or newspapers or by authors who discussed wet nursing. (Possibly the best source would be account
books although these were beyond the scope of the present study).
There was probably an arrangement between each woman and the parents of the child as to the exact amount of money, in addition to any payment in kind such as candles, soap, tea or sugar.

Where records of payment have been found they are given as weekly, monthly, quarterly or annual amounts so that the frequency of payment must also have been arranged between parents and nurse. Judging from the Dee family in the late 16th century, different nurses either merited or demanded different amounts of money in the same neighbourhood during the same period. These ranged from 4/- to 12/- a month plus soap and candles between 1580 and 1592 (Dee, 1842). With the 10d a week paid to an Essex wet nurse (Emmison, 1964) these are the only payments found so far for privately-employed wet nurses in the 16th century, whilst only two definite amounts have been discovered for the 17th century (Gouge, 1622; McLaren, 1981).

A greater proportion have been revealed for the 18th century and these varied greatly between geographical location and over time. For example, the Somerset physician Claver Morris paid 4/- a week for his son to be wet-nursed near Wells in 1706, while an identical sum was said to be the usual amount paid to keep a child at nurse near London in 1786 (Trusler, 1786; Morris, 1934). Yet Cadogan (1748) quoted £25 a year as the price required for a good wet nurse, in the same decade as Elizabeth Montagu paid £50 a year to the woman who suckled her child (cited in Stone, 1977). Forsyth (1911) (again without stating where he obtained his information) said that, in the 18th century, nurses were paid on a sliding scale; from 10 guineas for the first quarter, 16 guineas for two quarters and 25 guineas for a year, plus a supply of tea and sugar.

In order to give an outline of the range of payments made to wet nurses, those so far discovered are listed in table 3.1. Two things about these payments should be noted:
1. Wet nursing was a comparatively lucrative occupation. Dry nurses in the same period were paid half as much: and indoor servants even less (Dee, 1842; Sloane, 1748; Nihell, 1760; Trusler,
1786) (cf. Dee paid his dry nurse 11½d a week in 1596; a London maid cost under 2/- a week in 1786, and a family servant less than 6d a week (Trusler, 1786).

2. Privately employed wet nurses were paid considerably more than parish 'wet nurses' especially during the 18th century (see chapter on artificial feeding), while wet nurses employed by the Foundling Hospital received a sum between the two (Jones, 1978).

Therefore, apart from any physiological advantages in the form of contraception (see chapter on maternal breast feeding), the occupation of privately-employed wet nurse was clearly a desirable one for women in the pre-industrial period, a fact which appears to have been overlooked by researchers concerned with women's work. For example, in the Working life of women in the seventeenth century, Alice Clark hardly mentions wet nursing, and certainly does not consider it as an occupation. This may be because of its apparently short-lived nature but, apart from the fact that women nursed many children successively over a period of years (Thiselton-Dyer, 1898; McLaren, 1979), a nurse employed by the wealthier members of society could frequently look forward to continuing concern and care from her employer and/or foster child when her suckling duties were completed. Gifts in later life or in wills were not infrequent (Osborn, 1979), and the provision of housing and sometimes a pension were not confined to royal nurses (for example, Sibbald, 1932). A detailed study of wet nursing as a significant female occupation is clearly beyond the bounds of this thesis, but is worthy of more attention than it has yet received.
For ease of comparison these have all been converted to weekly amounts. (N.B. Although not specified here, additional payment in kind was frequent, sometimes doubling the actual payment (See Dee, 1842))

<table>
<thead>
<tr>
<th>Date</th>
<th>Amount per week*</th>
<th>Location (where known)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1550</td>
<td>10</td>
<td>Essex</td>
<td>Emmison, 1964</td>
</tr>
<tr>
<td>1580</td>
<td>9½</td>
<td>Surrey</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>1582</td>
<td>1 4½</td>
<td>Surrey</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>1583</td>
<td>1 4</td>
<td>Surrey</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>1590</td>
<td>1 4½</td>
<td>Surrey</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>1591</td>
<td>2 9½</td>
<td>Surrey</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>1592</td>
<td>2 3</td>
<td>Surrey</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>1622</td>
<td>2 6</td>
<td>-</td>
<td>Gouge, 1622</td>
</tr>
<tr>
<td>1650</td>
<td>7 9</td>
<td>Somerset</td>
<td>McLaren, 1981</td>
</tr>
<tr>
<td>1679</td>
<td>**5 0</td>
<td>Essex</td>
<td>MacFarlane, 1970</td>
</tr>
<tr>
<td>1706</td>
<td>4 0</td>
<td>Somerset</td>
<td>Morris, 1934</td>
</tr>
<tr>
<td>1711</td>
<td>3 0</td>
<td>Probably London</td>
<td>Steele, 1711</td>
</tr>
<tr>
<td>1737</td>
<td>2 0 4½</td>
<td>Royal wet nurse</td>
<td>Caulfield, 1931</td>
</tr>
<tr>
<td>1742</td>
<td>19 2</td>
<td>-</td>
<td>Stone, 1977</td>
</tr>
<tr>
<td>1748</td>
<td>9 7</td>
<td>-</td>
<td>Cadogan, 1748</td>
</tr>
<tr>
<td>1757-60</td>
<td>3 6</td>
<td>Foundlings, Herts.</td>
<td>Jones, 1978</td>
</tr>
<tr>
<td>1786</td>
<td>4 0</td>
<td>London</td>
<td>Trusler, 1786</td>
</tr>
<tr>
<td>18th cent.</td>
<td>10 0</td>
<td>-</td>
<td>Wickes, 1953</td>
</tr>
<tr>
<td>18th cent.</td>
<td>12 0</td>
<td>-</td>
<td>Garrison, 1923</td>
</tr>
<tr>
<td>Late 18th/ early 19th</td>
<td>10 1</td>
<td>-</td>
<td>Forsyth, 1911</td>
</tr>
</tbody>
</table>

**It is probable but not certain that this was a wet nurse.**

*The increase over 300 years also reflects inflation particularly in the late 16th century and during the 18th century.*
Conclusions

1. Wet nursing was a well established social institution in Britain by the 16th century and, despite a decline in popularity in the 18th century, remained so at least until 1800. While no attempt has been made to quantify the frequency of wet nursing it was clearly not confined solely to the aristocracy and upper gentry.

2. The women employed were normally married, living with their husband, had children of their own, and came from the lower but not the poorest classes of rural society. Their husbands were frequently artisans or tenant farmers who would have had trade links with large towns, which would have facilitated the placing of nurse children.

3. It is possible, but not certain, that there was an increase in the incidence of wet nursing in the late 17th and early 18th century and a poorer class of woman, or mothers of illegitimate children, may have been employed during the 18th century.

4. Children were normally sent out to be nursed in the nurse's house. It was relatively rare for nurses to be employed within the child's home.

5. Children from large towns were sent up to 40 miles away to be nursed in country parishes, whilst families living in the country sent their babies to nearby villages. In neither case were they necessarily visited frequently, or at all, by their parents.

6. Pay of wet nurses varied greatly and was probably decided between employer and nurse for each child; payment was in money and in kind.

7. Privately employed wet nurses were paid considerably more than those employed by the parish and the Foundling Hospital in the same period; and more than dry nurses and indoor servants, therefore this must have been a lucrative and desirable occupation for women in pre-industrial Britain.
Medical (and some religious) ideas and opinions about wet nursing

Medical writers referred repeatedly to wet nurses and gave copious advice on their choice, qualities, uses and abuses until the mid-18th century. After this date wet nursing as a topic in midwifery and paediatric texts was sparingly dealt with, and sometimes completely omitted. This could indicate that wet nurses were declining in popularity and were less frequently employed than in the two preceding centuries. But it is important that medical authors are not used as the sole index of the behaviour of the female population. As will be seen later (see chapter on artificial feeding) medical writers did not begin discussing artificial feeding until the late 18th century but evidence from other sources shows that it was practised in Britain before this date. In the case of wet nursing, the evidence from sources such as diaries and memoirs tends to confirm the impression that, although they were still common in British society and easily obtainable, the popularity of wet nursing as a means of infant feeding was waning in the last decades of the 18th century, and being gradually superseded by maternal breastfeeding and/or artificial feeding.

1. The qualities of a wet nurse

To be a good wet nurse a woman had to have certain qualities of stature, size, colouring and behaviour, in addition to plenty of milk with specific qualities of consistency, colour, taste and smell. These requisites were listed in books on medicine, surgery, midwifery, child-care, early education, household management and some dietaries between 1500 and 1800, and the basic qualities remained unchanged from society to society, from the ancient world until the 20th century. They were probably first fully described in a medical text by Soranus of Ephesus in the 1st/2nd century AD (Soranus, 1956). His requirements were
essentially unchanged in 19th century textbooks of medicine/paediatrics (Hamilton, 1821; Underwood, 1846).

58 mainly medical writers described the qualities to be looked for when choosing a wet nurse. These are summarised in table 3.2 and detailed below, together with the reasons which some authors gave for their requirements (Elyot, 1523; Roesslin, 1540; Vives, 1540; Bullinger, 1541; Phaire, 1545; Wurtz, 1563; Paré, 1575; Jones, 1579; Batty, 1581; Muffet, 1584; Ste Marthe, 1584; Guillemeau, 1612; Burton, 1621; Quillet, 1655; Wolveridge, 1671; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Culpeper, 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Barrett, 1699; Baynard, 1706; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Hoffmann, cl740; La Motte, 1746; James, 1746; Cadogan, 1748; Burton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Armstrong, 1771; Mackenzie, 1774; Smith, 1774; Hunter, 1775; Rosenstein, 1776; Denman & Osborne, 1777/8; Foster 1781; Moss, 1781; Pract. Mid., 1783; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Young, late 18th century).
Table 3.2: The proportion (p) of 58 mainly medical authors who gave the qualities to be looked for when choosing a good wet nurse 1500-1800

<table>
<thead>
<tr>
<th>Qualities</th>
<th>16th century (n=11)</th>
<th>17th century (n=13)</th>
<th>18th century (n=34)</th>
<th>Total (n=58)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Behaviour/way of life</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Health</td>
<td>0.91</td>
<td>1.0</td>
<td>0.91</td>
<td>0.93</td>
</tr>
<tr>
<td>Age</td>
<td>0.55</td>
<td>0.85</td>
<td>0.88</td>
<td>0.81</td>
</tr>
<tr>
<td>Breasts and nipples</td>
<td>0.46</td>
<td>0.69</td>
<td>0.71</td>
<td>0.66</td>
</tr>
<tr>
<td>Complexion/colouring/hair colour</td>
<td>0.36</td>
<td>0.62</td>
<td>0.62</td>
<td>0.59</td>
</tr>
<tr>
<td>Body size/stature</td>
<td>0.73</td>
<td>0.85</td>
<td>0.27</td>
<td>0.48</td>
</tr>
<tr>
<td>Facial appearance</td>
<td>0.27</td>
<td>0.46</td>
<td>0.35</td>
<td>0.36</td>
</tr>
<tr>
<td>Speech/education</td>
<td>0.36</td>
<td>0.62</td>
<td>0.06</td>
<td>0.24</td>
</tr>
<tr>
<td>General appearance</td>
<td>0.18</td>
<td>0.31</td>
<td>0.21</td>
<td>0.22</td>
</tr>
</tbody>
</table>

1. Behavioural qualities and her way of life

1. She must be amiable, cheerful, lively and good humoured with strong nerves; not fretful, peevish, quarrelsome, sad or timorous and free of passions and worries (Roesslin, 1540; Phaire, 1545; Pare', 1575; Muffet, 1584; Guillemeau, 1612; Burton, 1621; Wolveridge, 1671; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Culpeper, 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Barrett, 1699; Baynard, 1706; Dionis, 1719; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; La Motte, 1746; Burton, 1751; Nelson, 1753; Brouzet, 1755; Armstrong, 1771; Rosenstein, 1776; Denman & Osborn, 1777/8; Foster, 1781; Moss, 1781; Spence, 1784; Underwood, 1784; Lara, 1791).

2. She should be sober and temperate; not a drunkard or a glutton (Vives, 1540; Bullinger, 1541; Phaire, 1545; Wurtz, 1563; Pare', 1575; Batty, 1581; Muffet, 1584; Guillemeau, 1612; Wolveridge,
3. She should have children of her own, preferably two or three (Wurtz, 1563; Paré, 1575; Jones, 1579; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Nurses Guide, 1729; Lad. Dispens., 1740; Hoffmann, 1740; Smellie, 1752; Brouzet, 1755; Hunter, 1775; Rosenstein, 1776; Moss, 1781; Pract. Mid. 1783; Spence, 1784; Downman, 1788; Young, late 18th century), because:

a) Experience with children was important (Wurtz, 1563; Mauriceau, 1673; Smellie, 1752; Rosenstein, 1776; Moss, 1781; Pract. Mid., 1783; Spence, 1784; Young, late 18th century).

b) She was likely to have a greater flow of breast milk for longer (Nurses Guide, 1729; Moss, 1781).

c) Menstruation would recommence sooner after a first than a subsequent child (Young, late 18th century).

4. She must be chaste, not indulging in light, wanton behaviour, and not lecherous (Roesslin, 1540; Vives, 1540; Phaire, 1545; Paré, 1575; Batty, 1581; Muffet, 1584; Guillemeau, 1612; Quillet, 1655; Wolveridge, 1671; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Barrett, 1699; Dionis, 1719; Hoffmann, 1740). This factor was connected with worries about menstruation and pregnancy and will be discussed in more detail later in this section.

5. She should have good manners and behaviour, be civil, polite and
6. She should be vigilant and careful of the child, conscientious, and watchful at night (Mauriceau, 1673; Culpeper, 1675; Eng. Mid. Enl., 1682; McMath, 1694; Barrett, 1699; Dionis, 1719; Armstrong, 1771; Moss, 1781; Underwood, 1784; Aitken, 1786).

7. She should not live in poverty or in a servile condition; her home should be clean and comfortable and she should have the necessities of life, otherwise she could not care properly for the child and her milk would be of poor quality (Elyot, 1523; Batty, 1581; Wolveridge, 1671; Sharp, 1671; Culpeper, 1675; Eng. Mid. Enl., 1682; La Motte, 1746; Brouzet, 1755; Buchan, 1769; Downman, 1788).

8. She must be wise, discreet, prudent, sensible, and not be foolish or silly (Batty, 1581; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Culpeper, 1676; McMath, 1694; Dionis, 1719; Lad. Phys. Dir., 1739) in order to know why the child cried and how to treat him (Guillemeau, 1612).

9. She should always be laughing, singing and playing or amusing her own child (Paré, 1575; Jones, 1579; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; McMath, 1694; Pechey, 1697; Denman & Osborn, 1777/8).

10. She should be honest (Bullinger, 1541; Phaire, 1545; Wurtz, 1563; Batty, 1581; Burton, 1621; Dionis, 1719; Lad. Phys. Dir., 1739; Buchan, 1769); godly and virtuous (Bullinger, 1541; Wurtz, 1563; Rosenstein, 1776) and of good reputation and moral character (Maubray, 1730; Moss, 1781; Downman, 1788; Baudelocque, 1790; Hamilton, 1792).

11. Preferably she should be a country woman because they were healthier.
and had more milk (Moss, 1781; Downman, 1788; Hamilton, 1792) although she should not be regularly engaged in heavy, toiling work (Wurtz, 1563; Muffet, 1584).

12. She should like children (Sharp, 1671; Culpeper, 1675; Underwood, 1784).

b) Health

She must be healthy, strong and active and free from all diseases (Elyot, 1523; Paré, 1575; Jones, 1579; Batty, 1581; Ste Marthe, 1584; Muffet, 1584; Guillemeau, 1612; Burton, 1621; Sharp, 1671; Wolveridge, 1671; Mauriceau, 1673; Culpeper, 1675; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Barrett, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; Hoffmann, 1740; James, 1746; Cadogan, 1748; Burton, 1751; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Armstrong, 1771; Smith, 1774; Mackenzie, 1774; Rosenstein, 1776; Denman & Osborne 1777/8; Foster, 1781; Moss, 1781; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Young, late 18th century) so that she could endure the labour and fatigue of nursing the child (Dionis, 1719) and be able to 'toss and play' with the child when necessary (Brouzet, 1755). If she was unhealthy it would affect her milk and the child (Muffet, 1584; Culpeper, 1675; Harris, 1689; Barrett, 1699) but a healthy nurse was able to recover a sick child and correct any bad humours of its mother (Muffet, 1584; Burton, 1621; Sharp, 1671).

In particular a nurse must not suffer from

1. Itch, scab, scurf, scurvy or running sores (Paré, 1575; Mauriceau, 1673; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Bracken, 1737; Brouzet, 1755; Rosenstein, 1776; Denman & Osborne, 1777/8).

2. Any deformity, limp or crump-shoulder (Elyot, 1523; Guillemeau, 1612; Sharp, 1671; Burton, 1741).
3. Scrofula (Brouzet, 1755; Spence, 1784; Young, late 18th century).

4. Falling sickness (Bracken, 1737; Spence, 1784) because the child would not be safe in her arms (Bracken, 1737).

5. Consumption (Brouzet, 1755; Moss, 1781).

Her family's health

Neither the nurse nor her husband should have any venereal infection because this could be communicated to the child (Mauriceau, 1673; Comp. Mid. Pract., 1680; Brouzet, 1755; Mackenzie, 1774; Rosenstein, 1776; Spence, 1784).

Her husband, family, parents and lineage in general should be healthy and free of (what were believed to be) hereditary diseases such as gout, leprosy, falling sickness, King's Evil, consumption and bladder stone (Paré, 1575; Guillemeau, 1612; Mauriceau, 1673; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Lad. Dispens., 1740; La Motte, 1746). One surgeon/midwife disagreed with this point. Henry Bracken (1737) thought the child would not be affected if the nurse's parents suffered from gout, the stone or falling sickness.

c) Her age

Although there was apparently much variation in the ages given, most writers wanted a woman not too old or too young; the idea of what age was 'young' or 'middle-aged' seemed to vary from period to period. It also depended upon which ancient source was used by the author (i.e. Soranus and Aetios favoured women of 20-40 years while Paulus Aeginata and Avicenna preferred them to be 25-35 years). The optimum age ranges given were all within 18-40 years:

1. 18 or 20-40 years (Wolveridge, 1671; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Eng. Mid. Enl., 1682; McMath, 1694; Burton, 1751).
2. 20 or 23-33 or 35 years (Jones, 1579; Maubray, 1730; Lad. Dispens. 1740).

3. 20 or 22-28 or 30 years (Elyot, 1523; Wolveridge, 1671; Sharp, 1671; Culpeper, 1676; McMath, 1694; Dionis, 1719; Hoffmann, 1740; La Motte, 1746; Cadogan, 1748; Brouzet, 1755; Smith, 1774; Rosenstein, 1776).

4. 25-35 years (Paré, 1575; Guillemeau, 1612; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Nurses Guide, 1729; Bracken, 1737; Young, late 18th century).

Vague statements were, that she be young (Muffet, 1584; Nelson, 1753; Foster, 1781; Moss, 1781; Underwood, 1784; Aitken, 1786); middle-aged (Ste Marthe, 1584; Buchan, 1769; Machenzie, 1774; Baudelocque, 1790); in the flower of her age (James, 1746); the same or close to the mother's age (Baynard, 1706; Downman, 1788).

At the optimum age the woman was thought to be at her strongest, healthiest and most temperate; her body had finished growing (Paré, 1575; Guillemeau, 1612; Mauriceau, 1673) and she would have more milk of a better quality (Cadogan, 1748; Smith, 1774).

A woman who was too young would have insufficient milk (Cadogan, 1748); would be too careless, and sleep too sound at night to hear the child (La Motte, 1746), and would not be prudent or sensible enough to be trusted (Downman, 1788; Young, late 18th century). If too old she would have less milk of a poorer quality (La Motte, 1746; Cadogan, 1748; Downman, 1788; Young, late 18th century) because after 35 years "the menstrual flow ceases in many" therefore they must be assumed to have less nutrient for children (Paré, 1575; Mauriceau, 1673).

d) Breasts and nipples

The breasts of a wet nurse should be a good medium size, not too large or small but full, and containing plenty of milk (Roesslin, 1540; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Sharp, 1671;
Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract., 1680; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Dispens. 1740; La Motte, 1746; Burton, 1751; Smellie, 1752; Brouzet, 1755; Armstrong, 1771; Rosenstein, 1776; Denman & Osborne, 1777/8; Foster, 1781; Moss, 1781; Pract.Mid., 1783; Spence, 1784; Underwood, 1784; Aitken, 1786; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Young, late 18th). If they were too big it made it difficult for the child to suck (Pare, 1575) hurt his gums (Jones, 1579) and might make the child develop a crooked nose from being constantly pressed to one side (Pare, 1575; Jones, 1579; Nurses Guide, 1729). La Motte (1746) thought large breasts did not contain much milk. Breasts that were too small made it difficult for the child to suck and hurt his jaws (Pare, 1575; Jones, 1579).

Some writers preferred large, broad-breasted women (Pare, 1575; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Wolveridge, 1671; Mauriceau, 1673; Eng. Mid. Enl., 1682; Pechey, 1697; Nurses Guide, 1729; Lad. Dispens., 1740; Burton, 1751) because there was more room for the milk to be made (Mauriceau, 1673), although these were not essential since a small breast could contain as much milk as a large one (Wolveridge, 1671; Eng. Mid. Enl., 1682).

The breasts ideally felt firm and fleshy, were not hard or contracted, and not too soft, hanging or "flaggy" (Roesslin, 1540; Pare, 1575; Mauriceau, 1673; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Dispens. 1740; Burton, 1751; Brouzet, 1755). They were not to be scarred lumpy or wrinkled (Mauriceau, 1673; McMath, 1694; Lad. Dispens., 1740; Burton, 1751) and the blue veins on the breasts were not to be too large or small as this indicated too much or too little milk (Pare, 1575; Jones, 1579).

Other requirements were that they be equal-sized (Burton, 1651); pear-shaped (Brouzet, 1755) or round (Underwood, 1784). Brouzet (1755) said that they should be positioned so that an equilateral triangle was formed between the nipples, and between each nipple and the "dimple of the clavicle". (Presumably the suprasternal fossa).
Good nipples were sound and of moderate size, not too large or too small, so that the child could suck easily (Wolveridge, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Burton, 1751; Smellie, 1752; Brouzet, 1755; Rosenstein, 1776; Downman & Osborne, 1777/8; Moss, 1781; Spence, 1784; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Young, late 18th century). If they were too large, they hurt the child's gums and made it difficult to swallow the milk (Jones, 1579; Eng. Mid. Enl., 1682; Nurses Guide, 1729). If too small or depressed, they were difficult for the child to grasp (Paré, 1575; Jones, 1579; Eng. Mid. Enl., 1682; Nurses Guide, 1729).

The nipples should be well-perforated with holes so that milk flowed out in several streams upon gentle pressure (Mauriceau, 1673; McMath, 1694; Pechey, 1697; Dionis, 1719; Maubray, 1730; Burton, 1751; Baudelocque, 1790). They should not be hard or gristly (Mauriceau, 1673; McMath, 1694); not sunk into the breast (Mauriceau, 1673; Pechey, 1697); and not cracked (McMath, 1694; Burton, 1751; Spence, 1784).

e) Complexion, colouring and hair colour

The complexion/colouring referred to in this context is that related to the humoral theory which originated with the Greeks and was an important part of medical theory until the late 17th century. Thus the complexion of the nurse was of far greater importance to writers in the 16th and 17th centuries than in the 18th century (see table 3.2). The four complexions were:

1) Phlegmatic (cold and moist)
2) Melancholic (cold and dry)
3) Choleric (hot and dry)
4) Sanguine (hot and moist)

Children were believed to have varying degrees of hotness and moistness (i.e. sanguine characteristics). Therefore the ideal woman to feed him would have a sanguine complexion, manifested by a brown,
ruddy complexion with light brown or chestnut hair (Elyot, 1523; Roesslin, 1540; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Wolveridge, 1671; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; La Motte, 1746; Brouzet, 1755). The mention of a "good complexion" was probably also a reference to the complexion of the woman being suitable or matching that of the child (Phaire, 1545; Batty, 1581; Muffet, 1584; Burton, 1621; Burton, 1751).

In addition to agreeing best with the nature of young infants, a sanguine nurse was said to have a better quality and quantity of milk than women of other complexions (Elyot, 1523; Paré, 1575; Sharp, 1671), whilst the milk of other complexions did not agree with children (Sharp, 1671). Sanguine women were usually disease-free and without undesirable qualities (Sharp, 1671; Culpeper, 1675).

A few authors believed the complexion of the nurse should be as close as possible to that of the mother (Sharp, 1671; Culpeper, 1676; Baynard, 1706; Rosenstein, 1776; Downman, 1788), so that her milk would 'agree' with the child (Baynard, 1706); or the same as that of the child (Muffet, 1584; Eng. Mid. Enl., 1682); or as close as possible to the complexion the parents wished the child to have (Comp. Mid. Pract., 1680; Barrett, 1699).

The colour of the hair was apparently a major indicator of the nurse's complexion so that extreme colours such as black, white or red hair were frowned upon (Sharp, 1671; Mauriceau, 1673; Comp. Mid. Pract., 1680; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; La Motte, 1746; Baudelocque, 1790) and red haired nurses with freckles were particularly dangerous (Paré, 1575; Guillemeau, 1612; Mauriceau, 1673; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; Nurses Guide, 1729; La Motte, 1746; Hunter, 1775) because they had a bad, rank, strong smell and sour, stinking milk (Mauriceau, 1673; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; Hunter, 1775); had a bad accent which children would imitate (Mauriceau, 1673; Eng. Mid. Enl., 1682); caused thrush in the child (Mauriceau, 1673); and
generally prejudiced the child's health (La Motte, 1746). This prejudice against red haired nurses originated in the ancient world (possibly with Hippocrates) and appears to have been particularly strong in France. It is notable that the requirement of a certain complexion and/or hair colour in the 18th century was confined mainly to non-British writers (Dionis, 1719; La Motte, 1746; Brouzet, 1755; Rosenstein, 1776; Baudelocque, 1790). British medical authors questioned the reasons for the common objection to red-haired women (Bracken, 1737; Smellie, 1752; Spence, 1784; Lara, 1791). Bracken (1737) stated that it was "a French idea" that their milk was harmful.

f) Body size and stature

The best nurse was of medium height and weight with a good medium-sized body, not too fat or too thin (Roesslin, 1540; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Wolveridge, 1671; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Hoffmann, 1740; Burton, 1751; Brouzet, 1755; Denman & Osborne, 1777/8; Downman, 1788; Baudelocque, 1790) because she would perform all functions "more perfectly" (Mauriceau, 1673) and be better able to endure sleepless nights and caring for the child (Paré, 1575). If she was too thin, this indicated choler or melancholy so that she would be a wayward or angry nurse (Jones, 1579) whilst, if obese, she would be sluggish and sleepy in her movements (Jones, 1579) and probably would have less milk in her breasts (Nurses Guide, 1729). However, if the choice was limited, it was better for a wet nurse to be too fat rather than too thin (Dionis, 1719; Rosenstein, 1776).

Some authors believed she should be long-necked but gave no reason for this preference (Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612).

g) Facial appearance

Her skin should be clear with no spots and not pock-marked (Muffet,
1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Lad. Dispens., 1740; Hunter, 1775; Hamilton, 1792), but most important was the condition of her teeth and mouth. Her teeth should be strong and white with no rotten teeth or bad breath (Pare, 1575; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Comp. Mid. Pract., 1680; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Dispens., 1740; La Motte, 1746; Burton, 1751; Brouzet, 1755; Hunter, 1775; Denman & Osborne, 1777/8; Underwood, 1784; Baudeloque, 1790) whilst bad teeth and stinking breath could be communicated to the child's lungs when he breathed it in (Mauriceau, 1673; Comp. Mid. Pract., 1680; Nurses Guide, 1729; La Motte, 1746) as well as being communicated when the nurse pre-chewed the child's pap (La Motte, 1746) (see chapter on mixed feeding).

Her eyes were to be clear with no evident soreness (Guillemeau, 1612; Mauriceau, 1673; Comp. Mid. Pract., 1680; McMath, 1694; Maubray, 1730; Burton, 1751), no 'goggle-eyes' (Jones, 1579) and, especially, no squint as the child would become squint-eyed by imitation, and by transmission through her milk (Jones, 1579; Guillemeau, 1612; Sharp, 1671; Comp. Mid. Pract., 1680; McMath, 1694; Nurses Guide, 1729; Hamilton, 1792).

Her nose should be straight and not misshapen in any way and with no unpleasant smell since, as with bad breath, the child could breathe it into his lungs (Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Comp. Mid. Pract., 1680; La Motte, 1746).

To some writers it was important that she be comely or pretty (Jones, 1579; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; McMath, 1694).

h) Speech and education

Concern about the nurse's speech and education was because she was the first person from whom the child learnt to speak and he would 'pick up' any bad habits of speech (Elyot, 1544; Guazzo, 1566; Pare'...
1575; Batty, 1581; Mauriceau, 1672). Therefore the nurse must be well-educated (Sharp, 1671; Culpeper, 1675; Culpeper, 1676; Barrett, 1699) with distinct, plain speech and good conversation (Roesslin, 1540; Paré, 1575; Batty, 1581; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Burton, 1751) and no stammer or speech impediment (Guillemeau, 1612; Burton, 1751).

Batty (1581) added that she should not be a foreigner or use foul language (Vives, 1540), whilst Elyot (1544) thought that nurses should speak good Latin to the child from an early age. Downman (1788) was concerned that her voice should not be too harsh.

i) General appearance

This seems to have been of relatively minor importance, only 13 writers insisting that she should be clean and neat in her appearance (Batty, 1581; Ste Marthe, 1584; Wolveridge, 1671; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Bracken, 1737; Cadogan, 1748; Burton, 1751; Buchan, 1769; Armstrong, 1771; Hunter, 1775; Underwood, 1784).

2. The milk of the wet nurse

The quality of the nurse's milk was discussed in detail by 31 authors (Roesslin, 1540; Phaire, 1545; Paré, 1575; Jones, 1579; Muffet, 1584; Ste Marthe, 1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Dispens., 1740; La Motte, 1746; Burton, 1751; Smellie, 1752; Brouzet, 1755; Mackenzie, 1770; Mackenzie, 1774; Hunter, 1775; Rosenstein, 1776; Denman & Osborne, 1777/8; Foster, 1781; Spence, 1784; Underwood, 1784; Baudelocque, 1790; Lara, 1791).
Table 3.3: The proportion (p) of 31 medical authors who described the qualities required in a nurse's breast milk 1500-1800

<table>
<thead>
<tr>
<th>Qualities</th>
<th>16th century (n=6)</th>
<th>17th century (n=7)</th>
<th>18th century (n=18)</th>
<th>Total (n=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct consistency</td>
<td>p 1.0</td>
<td>p 0.86</td>
<td>p 0.94</td>
<td>p 0.94</td>
</tr>
<tr>
<td>Good colour/appearance</td>
<td>1.0</td>
<td>1.0</td>
<td>0.83</td>
<td>0.90</td>
</tr>
<tr>
<td>Pleasant sweet taste</td>
<td>1.0</td>
<td>0.86</td>
<td>0.72</td>
<td>0.81</td>
</tr>
<tr>
<td>Good smell</td>
<td>0.67</td>
<td>1.0</td>
<td>0.33</td>
<td>0.55</td>
</tr>
</tbody>
</table>

a) The consistency

This had been the most important criterion when judging good quality breast milk since the Greeks. The majority of writers thought the ideal was a medium consistency, not too thick and sticky or too thin and watery (Roesslin, 1540; Phaire, 1545; Paré, 1575; Jones, 1579; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Brouzet, 1755; Mackenzie, 1774; Baudelocque, 1790). Reasons for this preference were that thick milk was unnatural and evil, indicated that something was wrong with the blood (Phaire, 1545; Paré, 1575), and was difficult for the child to digest (Sharp, 1671; Dionis, 1719) so that he became lean and feverish (La Motte, 1746). Milk that was too thin and serous was regarded as 'raw' and passed too quickly through the child without nourishing him sufficiently (Sharp, 1671; Dionis, 1719; Burton, 1751).

In the 18th century different ideas developed and milk of medium consistency was no longer regarded as the ideal. That of a thick consistency was preferred by two writers (Lad. Dispens., 1740; Burton, 1751), but several late 18th century physicians said that thin milk was the best (La Motte, 1746; Rosenstein, 1776; Denman & Osborne, 1777/8; Foster, 1781; Underwood, 1784; Lara, 1791).
Tests for consistency

Several tests were used to determine the consistency of the woman's milk, the most popular and enduring being the "nail test" which according to Pliny (1601) and Soranus (1956) was used in Rome at least as early as the 1st century AD. It involved placing a small drop of breast milk on a fingernail and moving the finger slightly to one side. If the milk droplet did not move it was too thick; if it ran off the finger nail it was too thin; ideally it should move only slightly (Pliny, 1601; Soranus, 1956; Paulus Aeginata, 1844; Roesslin, 1540; Phaire, 1545; Paré, 1575; Ste Marthe, 1584; Muffet, 1584; Sharp, 1671; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Nurses Guide, 1729; La Motte, 1746; Smellie, 1752; Mackenzie, 1770; Mackenzie, 1774; Rosenstein, 1776; Denman & Osborne, 1777/8; Baudelocque, 1790).

Variations of this test were:

i) to milk drops into the hand and see whether they ran off when the hand was turned to one side (Mauriceau, 1673; McMath, 1694; Dionis, 1719; Burton, 1751; Brouzet, 1755).

ii) to drop milk onto a looking glass and incline it slightly (Guillemeau, 1612; Sharp, 1671; Culpeper 1676; McMath, 1694).

iii) to drop milk onto a plate and see if it would run off when moved (Burton, 1751).

A second type of test was to express some breast milk into a glass, add rennet or myrrh and, after mixing the two together, allowing it to 'set' or coagulate. The ideal milk had equal quantities of the 'cheese' and serous parts. If the solid part was greater, then the milk should be rejected as too thick. If the serous part predominated then the milk was too thin. This test, described as early as the 4th century AD by Oribasius in Rome (Paulus Aeginata, 1844; Still, 1931), was equally enduring although less popular with later physicians than the nail test (Paulus Aeginata, 1844; Aetios, 1950; Avicenna, 1966;
Rosenstein (1776) and Spence (1784) gave a variation of this; expressing milk into a glass, leaving it to stand for several hours and judging if there was too much cream. Rosenstein (1776) also suggested weighing it (the lighter it weighed, the more cream it contained).

One test dating at least from the 6th century AD (Aetios, 1950) was described only by James McMath (1694). This involved placing a hair into some expressed breast milk to see if the milk would stick to the hair when it was withdrawn. If the milk ran off it was not to be used. The best milk would cling to the entire length of the hair.

A final test was to drop breast milk into the eyes to see whether it would sting (Brouzet, 1755; Rosenstein, 1776). Women's milk had been used for centuries as a treatment for sore eyes in both adults and children (Tomsak, 1978) so that this test reflected an additional use of the wet nurse.

b) The colour and appearance

Throughout most of this period the ideal colour of human breast milk was believed to be white (Roesslin, 1540; Phaire, 1545; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Pechey, 1697; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Lad. Dispens. 1740; Burton, 1751; Brouzet, 1755; Rosenstein, 1776; Baudelocque, 1790). A woman whose milk was streaked or entirely coloured with black, grey, blue, red or, particularly, yellow was never to be selected (Roesslin, 1540; Phaire, 1545; Jones, 1579; Muffet, 1584; Guillemeau, 1612; Eng. Mid. Enl., 1682; Dionis, 1719; Lad. Dispens., 1740; Burton, 1751; Smellie, 1752; Brouzet, 1755; Mackenzie, 1774; Denman & Osborne, 1777/8; Spence, 1784) because this was a sign of some unnatural default in the blood (Phaire, 1545; Paré, 1575) or a tendency towards complexions other than the desirable sanguine (for example, yellow milk was indicative of choler (Paré,
1575; Guillemeau, 1612; Dionis, 1719), blue of melancholy (Guillemeau, 1612) and pale milk of the phlegmatic (Pare', 1575). Probably the aversion to coloured milks was related to the fact that infections in the breast, particularly breast abscesses, result in pus (of varying shades of yellow, green and black) and blood which may colour the milk. Absence of colours therefore indicated a healthy breast.

At the same time as they began to prefer milk of a thinner consistency, physicians in the later 18th century also specified that milk should be bluish or bluish/white in colour rather than white (McMath, 1694; Smellie, 1752; Rosenstein, 1776; Spence, 1784; Underwood, 1784; Lara, 1791). Since human milk is thinner in consistency and bluer in colour than the milk of other common animals such as cows and goats, this change in preference may reflect the more detailed and scientific observations of milk which were made in the 18th century, particularly after Thomas Young's definitive study De lacte in 1761.

c) The taste

The milk was to have a sweet pleasant taste (Roesslin, 1540; Phaire, 1545; Pare', 1575; Jones, 1579; Ste Marthe, 1584; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Maubray, 1730; Lad. Dispens., 1740; La Motte, 1746; Burton, 1751; Smellie, 1752; Brouzet, 1755; Mackenzie, 1774; Rosenstein, 1776; Foster, 1781; Spence, 1784; Underwood, 1784; Baudelocque, 1790; Lara, 1791). Milk with any of the following tastes was to be rejected:

i) Salty (Roesslin, 1540; Phaire, 1545; Jones, 1579; Muffet, 1584; Sharp, 1671; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Brouzet, 1755; Rosenstein, 1776; Spence, 1784; Lara, 1791) because it was un-wholesome (Phaire, 1545).

ii) Sour (Roesslin, 1540; Phaire, 1545; Jones, 1579; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Culpeper,
1676; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Burton, 1751) because it would affect the child's stomach (Sharp, 1671; Dionis, 1719).

iii) Bitter (Phaire, 1545; Jones, 1579; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Culpeper, 1676; McMath, 1694; Rosenstein, 1776) because it was un-wholesome and 'corrupts the stomach' (Phaire, 1545; Sharp, 1671).

iv) Sharp, brackish, hot, or any strong or strange taste. (Roesslin, 1540; Jones, 1579; Muffet, 1584; Guillemeau, 1612; Mauricel, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Dionis, 1719; Brouzet, 1755).

The proper method of tasting was described by La Motte (1746). "To taste the milk rightly, you must cleanse your mouth well with water, get some of the milk upon a plate, and take several mouthfuls, a little of it not being sufficient to make a right judgement".

Again, avoidance of milk which had unpleasant or unusual tastes was equivalent to avoiding women with infections of any degree of severity, particularly in the breast.

d) The smell

'Bad' or infected breast milk would be detected by an unpleasant strong odour so only women with pleasant smelling milk were to be selected (Pare, 1575; Jones, 1579; Ste Marthe, 1584; Muffet, 1584; Guillemeau, 1612; Sharp, 1671; Mauricel, 1673; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Burton, 1751; Rosenstein, 1776; Spence, 1784; Baudelocque 1790). A good smell was a sign of a good temperament (Mauricel, 1673) whilst sharp or sour smells indicated a hot, choleric or cold and melancholic nature (Pare, 1575).
The quantity of breast milk

This was much more difficult to judge and most authors contented themselves with saying the breasts should feel full although some suggested that the nurse should have milk left in her breasts after she had suckled (Guillemeau, 1612; Mauriceau, 1673; Dionis, 1719; La Motte, 1746) and the child should have passed urine (Guillemeau, 1612; Mauriceau, 1673). Burton (1751) suggested examining the child's clouts because strong urine would stain them and indicate insufficient and/or bad milk, whereas plenty of light-coloured urine from the child would show that he was receiving plenty of milk.

Too much milk was not thought to be a good thing, because if there was more than the infant required it could cause problems by stagnating in the breasts (Paré, 1575; Mauriceau, 1673; Eng. Mid. Enl., 1682; Nurses Guide, 1729) and might weaken the nurse (Nurses Guide, 1729); but it was better to have too much milk than too little since in the latter case the child would suffer (Paré, 1575; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694) and the excess could always be given to another child (Paré, 1575; Sharp, 1671; Mauriceau, 1673).

The nurse's own child and the 'age' of her milk

As described earlier, the ideal nurse had had 2 or 3 children of her own but there were also specifications about the sex, health and age especially of her most recent child. The relative importance of these requirements varied at different periods between the 16th and 18th centuries.

Her child had to be born at full term (Paré, 1575; Guillemeau, 1612; Mauriceau, 1673; McMath, 1694; Nurses Guide, 1729; Bracken, 1737) and not have miscarried (Mauriceau, 1673), as this was proof of bad blood (Nurses Guide, 1729); not born prematurely since this was evidence of some default in the nurse's body (Paré, 1575; Guillemeau, 1612); or have been stillborn which, unless due to an accident during delivery, indicated some fault in the nurse's constitution (Hamilton,
1792). Dionis (1719) agreed that a woman whose child was dead should not be allowed to suckle other children because it was not safe for the child, but if she wanted to be a wet nurse she had to use a sucking tube or have her breasts sucked by a puppy for some days, after which she was presumed fit for employment.

Whatever the sex of the child to be wet-nursed, the preferred sex of the nurse's child was male (Roesslin, 1540; Phaire, 1545; Paré, 1575; Jones, 1579; Guillemeau, 1612; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Nurses Guide, 1729) because the mother of a boy was believed to have better milk (Paré, 1575; Guillemeau, 1612) and make a healthier, stronger nurse (Paré, 1575; Mauriceau, 1673; Nurses Guide, 1729). There was also a general belief in the 16th and 17th centuries that the sex of the wet nurse's child would affect her milk and thus her nurseling. If she had a female child this would make a male nurseling more effeminate and vice versa (Eng. Mid. Enl., 1682). However some thought the nurse's child should ideally be the same sex as the child she was to nurse, so that her milk would be a correct match for the child (Jones, 1579; Sharp, 1671; Culpeper, 1675).

After the 1730's neither the term of gestation nor the sex of the nurse's child was regarded as important enough to mention (Bracken (1737) thought the preference for a boy to be "a vulgar error"); the main concern in the later 18th century was that the nurse's own child was thriving and healthy, and thus a good advertisement for his mother's milk and the quality of her care (Hunter, 1775; Moss, 1781; Spence, 1784; Downman, 1788; Hamilton, 1792).

Of major interest was the age of the nurse's own child and therefore the age of her breast milk. The preferred distance of the wet nurse from her own last delivery is particularly interesting since it offers some confirmatory evidence for the new ideas about neonatal feeding in the 18th century (see chapter on maternal breastfeeding). Until the 1740's medical writers specified that wet nurses should not be employed until their own child was at least 1 - 2 , and preferably at least 2 months old so that she had recovered from the birth, her
lochia had stopped, and her milk was purified (Roesslin, 1540; Phaire, 1545; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Dionis, 1719; Maubray, 1730; Lad. Dispens., 1740; Cadogan, 1748); but the majority of 18th century writers emphasised either that her milk/child should be the same age as the child to be nursed (McMath, 1694; Brouzet, 1755; Hunter, 1775; Spence, 1784), or should be recently delivered, because the newer (and thinner and more purgative) her milk the better it was for the child (Bracken, 1737; Smellie, 1752; Nelson, 1753; Memis, 1765; Smith, 1774; Mackenzie, 1774; Hunter, 1775; Foster, 1781; Moss, 1781; Mantell, 1787; Lara, 1791).

The maximum age of the nurse's milk was specified although there were differing opinions about the matter. The following authors said that the nurse's child/milk should not be older than:

- 3 - 4 months (Nurses Guide, 1729; Bracken, 1737)
- 5 - 6 months (Mauriceau, 1673; Nelson, 1753; Baudelocque, 1790)
- 7 - 8 months (Guillemeau, 1612; Maubray, 1730)
- 10 months (Sharp, 1671; Culpeper, 1676)

The reasons for not employing a woman who had been lactating for several months were:

1. Breast milk became thicker and more indigestible the longer a woman lactated until it stopped altogether (Nurses Guide, 1729; Nelson, 1753; Rosenstein, 1776; Lara, 1791).

2. The breast milk decreased in quantity the longer she suckled so that a woman who had been lactating for several months would be unlikely to have sufficient to nurse another child for the required length of time, and the child would have to be weaned early, or a second nurse might have to be employed later (Guillemeau, 1612; Mauriceau, 1673; Dionis, 1719; Cadogan, 1748; Nelson, 1753; Baudelocque, 1790).

3. The quality of breast milk declined after about a year (Cadogan,
1748; Nelson, 1753; Baudelocque, 1790).

4. Old milk did not agree with the newborn (Brouzet, 1755; Lara, 1791).

This factor was evidently not always, or even frequently, observed. McMath (1694) said that matching the age of the nurse's milk to the age of the nurse-child "is mostly neglected, so that one and the same nurse is sometimes continued still for the next child also". Hurlock (1742) described a wet nurse who maintained her milk supply by secretly suckling a child at night in order to offer herself as wet nurse to the next child of her mistress. William Cadogan (1748) said "It is a common thing for a woman to suckle two or three children successively with the same milk". And in the same year Hans Sloane wrote, "I think the difference of the age of a wet nurses milk is not to be so much regarded, having in my own family had one wet nurse suckle four children successively, who have been and now are healthy and well".

McLaren's (1979) investigation into wet nursing in the parish of Chesham in the late 16th century shows that successive suckling was obviously practised by several women although sometimes, as in the case of Alice Thornton and her brother in the early 17th century (Thornton, 1875), the nurse might have another child between the two sucklings. Clearly, if a family found a good, careful and reliable wet nurse they would continue to employ her for later children, regardless of the age of her milk. For example, Jane Austen was the 7th of the 8 children in her family to be suckled by the same wet nurse (Stone, 1976). Physicians knew it was rare to find a newly delivered wet nurse, "in most common cases, [she] has suckled her own infant eight or nine months, and always too long for her milk to be perfect" (Brouzet, 1755); and "many children do well when nursed by those who have given suck a year" (Bracken, 1737). The nurse of Hugh Cholmley's first child in 1624 had milk that was 2 years old, and in 1709 Samuel Johnson's wet nurse weaned her own child at 18 months in order to suckle the newborn Samuel (Lane, 1975; McHenry & Mackeith, 1966).
Although William Hunter (1908) recorded that Prince William's wet nurse in 1765 "still kept her own child", doctors did not believe that most women would have sufficient milk to nurse her own child in addition to one, two or more others, or to given them sufficient attention (Cadogan, 1748; Moss, 1781; Lara, 1791), and this was one indication for supplementing the breast milk with other foods. Moss (1781) insisted "care must be taken that the nurse does not give suck to her own child after this time; and that (to prevent it) he be entirely weaned, or put to nurse with another person; as very few women can have milk sufficient for two children, or attend them in other respects as they ought to do". Despite physiological evidence that one woman can suckle several children adequately (Jelliffe & Jelliffe, 1978), this belief is fairly widespread in pre-industrial societies. For example, in the case of twins, the mother is often expected to suckle only one, the second being given to a wet nurse (Ploss et al, 1935).

3. **Women who should not be employed**

Women with certain characteristics were not to be considered for employment as a wet nurse, and 21 medical writers defined these (Phaire, 1545; Pare', 1575; Ste Marthe, 1584; Guillemeau, 1612; Mauriceau, 1673; Culpeper, 1675; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Ettmueller, 1699; Dionis, 1719; Nurses Guide, 1729; La Motte, 1746; Burton, 1751; Brouzet, 1755; Hunter, 1775; Rosenstein, 1776; Denman & Osborne, 1777/8; Moss, 1781; Pract. Mid., 1783; Hamilton, 1792).
Table 3.4: The proportion (p) of 21 medical writers who described conditions* which precluded employment as a wet nurse 1500-1800

<table>
<thead>
<tr>
<th>Condition/characteristic</th>
<th>16th century (n=3)</th>
<th>17th century (n=7)</th>
<th>18th century (n=11)</th>
<th>Total (n=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy</td>
<td>0.67</td>
<td>0.71</td>
<td>0.27</td>
<td>0.48</td>
</tr>
<tr>
<td>Menstruation</td>
<td>-</td>
<td>0.57</td>
<td>0.46</td>
<td>0.43</td>
</tr>
<tr>
<td>Red hair/freckled face</td>
<td>0.33</td>
<td>0.57</td>
<td>0.27</td>
<td>0.38</td>
</tr>
<tr>
<td>Hereditary disease</td>
<td>-</td>
<td>0.29</td>
<td>0.27</td>
<td>0.24</td>
</tr>
<tr>
<td>&quot;The whites&quot;</td>
<td>-</td>
<td>0.29</td>
<td>0.27</td>
<td>0.24</td>
</tr>
<tr>
<td>Diseased or sickly</td>
<td>-</td>
<td>0.18</td>
<td>0.18</td>
<td>0.14</td>
</tr>
<tr>
<td>Not having had small pox/measles</td>
<td>-</td>
<td>-</td>
<td>0.18</td>
<td>0.10</td>
</tr>
<tr>
<td>Addiction to tobacco/alcohol</td>
<td>-</td>
<td>-</td>
<td>0.18</td>
<td>0.10</td>
</tr>
</tbody>
</table>

* 'The pox' or venereal infection, if detectable, was also a forbidden condition. This is discussed later in this section and in the chapter on artificial feeding.

1. Pregnancy

In all periods physicians and midwives strongly advised parents not to employ pregnant women (Phaire, 1545; Ste Marthe, 1584; Guillemeau, 1612; Mauriceau, 1673; Culpeper, 1675; Eng. Mid. Enl., 1682; McMath, 1694; Burton, 1751; Brouzet, 1755; Rosenstein, 1776) and, if a nurse became pregnant whilst suckling, advised that the child be weaned (if old enough) or the nurse be changed immediately (Glisson, 1651; Ettmueller, 1699; Astruc, 1746; Sloane, 1748; Brouzet, 1755; Spence, 1784). Brouzet (1755) thought it was preferable for the child to suck an animal than a pregnant woman. McMath (1694) was more moderate, providing the nurse became pregnant by her own husband, but still believed it was best if she stopped breastfeeding once she knew she was pregnant.
The main reason given for this advice was that a pregnant woman had less milk of a poorer quality (Tansillo, 1566; Paré, 1575; Glisson, 1651; Dionis, 1719; Bracken, 1737; La Motte, 1746; Brouzet, 1755; Smith, 1774) and this adversely affected, or was the direct cause of illness in, the child (Tansillo, 1566; Culpeper, 1675; Allen, 1733; Bracken, 1737; Astruc, 1746). Glisson (1651) believed that suckling by a pregnant woman was one cause of congenital rickets.

Only the more enlightened Henry Bracken (1737) could not "see the reason why people should fancy that if a child suck a nurse who happens to be with child herself, such child will be distemper'd and out of order a long time afterwards", saying that the nurse child suffered only in proportion to the growth of the foetus "not by reason of any noxious particles and hurtful principles in the milk itself, but because 'tis thin in substance, and small in quantity".

In fact some women did carry on suckling until the birth of the next child (Moss, 1781; Thornton, 1875) with no evidence that the child being breastfed suffered in any way, although Hugh Cholmley (b. 1690) said he suffered for many years as a result of his wet nurse not revealing her pregnancy. Today, breastfeeding is usually not advised during a subsequent pregnancy mainly because of the nutritional demands which are made upon the mother (Myles, 1975). The foetus always has first claim on the mother's bodily resources so that a woman, particularly if she is in poor health or undernourished, would probably have less breast milk for her child as her pregnancy advanced but her milk, as Bracken stated, would not contain any harmful substance. The first person to suffer in such a tryad would be the woman; thus the medical advice of the time unintentionally protected the wet nurse.

**Menstruation**

Employment of a wet nurse who had recommenced menstruation was absolutely forbidden by 9 writers (Guillemeau, 1612; Mauriceau, 1673; Comp. Mid. Pract., 1680; McMath, 1694; Dionis, 1719; Burton, 1751; Brouzet, 1755; Denman & Osborne, 1777/8; Pract. Mid. 1783) and if a wet nurse started to menstruate parents were advised to change her
for another nurse (Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Spence, 1784), or not to allow her to breastfeeding on those days when she was menstruating (Rosenstein, 1776; Lara, 1791). If the woman had been nursing the child for several months then, if the child was in good health and she still had sufficient milk, it was alright for her to continue breastfeeding (Dionis, 1719; Brouzet, 1755), and La Motte (1746) said that some children had been observed to do well even though the nurse menstruated.

There were two principal reasons for this worry about menstruation:

1. It 'spoilt' and reduced the quantity of the breast milk (Mauriceau, 1673; Comp. Mid. Pract., 1680; McMath, 1694; Hoffmann, 1740; Burton, 1751) so that children were less inclined to suckle, received less nourishment, and tended to develop gripes (Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; Dionis, 1719; La Motte, 1746; Rosenstein, 1776; Moss, 1781; Spence, 1784). The woman's body was said to be 'altered' for 2 or 3 days before menstruation which also affected the child (Hunter, 1775; Denman & Osborne, 1777/8).

2. The woman was more likely to become pregnant with its accompanying problems of poor milk and bad effects on the child (Comp. Mid. Pract., 1680; La Motte, 1746).

The reasoning behind the prejudice was that all the blood which normally was lost during menstruation was removed to the breasts during pregnancy and lactation and converted to milk for feeding the child. Thus, menstruation "never happens to good nurses.... (in whom) all the blood which is retained is dedicated to the nourishment of the infant" (Comp. Mid. Pract., 1680). Given this belief, menstruation naturally meant that some milk was lost to the infant. Dionis (1719) made the interesting observation that early onset of menstruation in wet nurses employed in the child's home was often due to their having a better diet than they could normally afford at home.

Nurses not infrequently tried to hide the fact that their menses
had returned in order to retain their employment for longer (Spence, 1784) and royal nurses were apparently examined regularly to ensure that they were not menstruating (Osborn, 1980).

Some interesting letters were written by Lord Conway in 1659 about an unspecified problem with a wet nurse which eventually resulted in her being changed. Given the concern demonstrated above, it seems quite possible (since it recurred at roughly monthly intervals) that the 'danger' referred to was a menstruating nurse. On 17 May 1659, when his child was 3½ months old, Lord Conway wrote to his brother: "The child is very well, and hath passed over the same danger which the nurse had before without any disturbances; but, however, my wife is informed that to suck of such a woman is dangerous and brings with it many diseases, and therefore I believe she will wean the child much sooner than she intended".

One month later, on 14 June, he wrote "We .... are staying here ourselves somewhat longer than we thought of, to provide another nurse. This having injured the child three times, we cannot think it permissible to be borne any longer, and so all my wife's friends advise her" (Conway, 1930). This also illustrates that problems with wet nurses were discussed, and therefore information about them was disseminated, among women by word of mouth (cf. The contraceptive effect of breastfeeding in the preceding chapter). It is relevant to note here that the so-called 'taboo' on intercourse for nurses living in the child's home was because of the belief that intercourse caused menstruation and thus spoiled the nurse's milk and harmed the child (Paré, 1575; Jones, 1579; Eng. Mid. Enl., 1682; Harris, 1689; Nurses Guide, 1729; Allen, 1733; Bracken, 1737; Full View, 1742).

Although no evidence has been found to show that the quantity of breast milk does decline during menstruation, breastfeeding mothers today sometimes observe that their children are less inclined to suck, or may become fretful at this time (Spock, 1973). Such behaviour by infants may have contributed to beliefs in the past that it was harmful for a child to feed at the breast of a menstruating
Prejudice against red-haired, freckle-faced wet nurses and those suffering from diseases was described above (see Qualities of a wet nurse).

'The whites' was any type of vaginal discharge and was regarded as a sign of a bad constitution or bad health in the nurse (Mauriceau, 1673; McMath, 1694; Dionis, 1719; Burton, 1751; Denman & Osborne, 1777/8).

Advice to reject any nurse who had not had the smallpox and measles was a protective measure, because she might contract these illnesses and communicate them to the baby (Hunter, 1775; Hamilton, 1792). Although immunological benefits of breast milk were not understood, the nurse who had had these diseases may have given her nurseling some temporary passive immunity against them (Davis et al, 1973).

4. The wet nurse as the cause of infantile diseases and death

It seems almost obligatory for modern writers to see the wet nurse as the 'ogress' of the pre-industrial period (see particularly Shorter, 1977a & 1978; De Mause, 1976) and some of the examples given for rural peasant women in certain areas of France and Germany (Shorter, 1977a & 1978) may justify this view. England, too, has some contemporary horror stories about wet nurses (Bramston, 1845; Harris, 1689; Barrett, 1699; Baynard, 1706) some of which are discussed later in this chapter, but these stories are normally quoted out of the context of medical and popular ideas of the period. Any surrogate mother (witness the traditional wicked stepmother) provides an ideal scapegoat when there is blame to be assigned, but to understand why contemporary writers blamed wet nurses for everything from bladder stone to bewitchment, some explanation of their role in relation to infant feeding is necessary.

Before 1800, the wet nurse (or the breastfeeding mother) did not just provide nourishment for the baby; she injected herself, together with her ideas, beliefs, intelligence, intellect, diet, speech,
and all her physical, mental and emotional qualities, into the child. Effectively she was seen to be reproducing herself; the child was the nurse; an exterogestate foetus. What affected the nurse thus affected the child equally. Giving food to the nurse was giving that food to the child. Administering physick to the nurse was administering physick to the child. Therefore, when anything (good or bad) happened to the child, no one other than the nurse could be responsible. As in all circumstances, ancient and modern, the bad and sensational effects were reported more frequently than the good and unextraordinary (especially when arguments were needed to support pleas for maternal breastfeeding).

There were four ways in which the wet nurse transmitted herself and her good and bad qualities to the child:

1. Through her milk.
2. Through her diet (and then through her milk).
3. By direct contact, such as touching her skin and inhaling her breath.
4. By 'imitation'.

1. Transmission of the nurse's qualities through her milk

This idea was very ancient and widespread (Soranus, 1956; Paulus Aeginata, 1844-7; Avicenna, 1966; Radbill, 1973) and was the reason for the long list of ideal qualities that the nurse should possess. It was specifically mentioned by 31 authors between 1500 and the mid-18th century, after which time more enlightened medical authors began to question its validity (Elyot, 1523; Erasmus, 1526; Roesslin, 1540; Phaire, 1545; Boaistua, 1566; Tansillo, 1566; Paré, 1575; Jones, 1579; Guazzo, 1581; Muffet, 1584; Bullein, 1595; Smith, 1597; Guillemeau, 1612; Burton, 1621; Gouge, 1622; Brathwaite, 1631; Griffith, 1633; Quillet, 1655; Sharp, 1671; Mauriceau, 1673; Eng. Mid. Enl., 1682; Newcome, 1695; Dionis, 1719; Defoe, 1728/9; Nurses Guide, 1729; Maubray, 1730; Bracken, 1737; Lad. Phys. Dir., 1739; Lad. Dispens., 1740; La Motte, 1746; Astruc, 1746). In support of this theory, such examples were given as humans
who were suckled by animals and grew up with the characteristics of the latter (Paré, 1575; Guillemeau, 1612; Burton, 1621; Sharp, 1671); of the Emperor Tiberius who was suckled by an alcoholic wet nurse and grew up to become a noted drunkard (Boaistuau, 1566; Jones, 1579; Burton, 1621; Newcome, 1695; Nurses Guide, 1729; Maubray, 1730); and of the Emperor Caligula, remarkable for his cruelty, who had been suckled by a bloodthirsty wet nurse who not infrequently daubed her nipples with blood (Boaistuau, 1566; Jones, 1579; Burton, 1621; Newcome, 1695; Nurses Guide, 1729; Maubray, 1730).

The natural reaction to this belief was that stated in the English Midwife Enlarged of 1682, "If, then the qualities of the milk pass into those that suck them .... surely, then, we ought to take no less care of the nurse than of her child; as in her diet, exercise, physick, etc., since whatsoever conduceth to the benefit of the nurse tends to the good and welfare of the infant".

As late as 1728, men such as Daniel Defoe were stating categorically that nurture, in the form of breast milk, had more influence on the shaping of the child and his future than all the generating powers of the parents. It was not until Bracken's publication of 1737 that this idea was questioned in the English medical and religious literature. "I cannot acquiesce in this opinion of the Ancients, seeing ---- it will not bear a scrutiny, neither does experience in the least confirm it ---- for a physician to argue that there is so much to be attributed to the milk, as most of them pretend, is much folly and mere quackery". He believed the child acquired characteristics of the nurse by imitation and habit, and supported his argument by giving the example of unhealthy nurses rearing healthy children:

"It is so far from the milk's having an ill-effect upon children ---- that I have observed several times those children who suck'd dis-temper'd nurses, very healthy, more particularly in the ague; nothing is more common in Lancashire (among the poorer sort) than for them to let their children suck even for years, altho' this troublesome distemper keep its periodical returns, and notwithstanding the nurse looks like a ghost, the child shall appear as a cherub". He was firmly of the opinion that nature (in the form of the child's parents)
was of far greater influence than nurture (in the form of the nurse's milk).

In the later 18th century the transmission of the nurse's qualities through her milk was barely mentioned, yet evidence that the underlying idea was still accepted by physicians and midwives is shown by their concern about the nurse's state of mind. In the last decade of the 18th century medical authors were still warning that "passions" (i.e. worries, shock, grief, anger, etc.) of the nurse would badly affect her milk and cause diseases in the child particularly epilepsy and convulsions (Roesslin, 1540; Sharp, 1671; Culpeper, 1676; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Maubray, 1730; Hoffmann, 1740; James, 1746; Brouzet, 1755; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Young, late 18th).

A variety of other diseases were believed to be caused directly by the wet nurse's milk because the latter was faulty in some way, either in quantity or, more frequently, in consistency or quality (Roesslin, 1540; Phaire, 1545; Ste Marthe, 1584; Pemell, 1653; Johnstone, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Dionis, 1719; Cheyne, 1724; Nurses Guide, 1729; Maubray, 1730; Allen, 1733; Bracken, 1737; Hoffmann, 1740; Full View, 1742; Astruc, 1746; Exton, 1751; Mackenzie, 1774; Rosenstein, 1776; Underwood, 1784; Hamilton, 1792; Mears, 1797).
Table 3.5: The proportion \((p)\) of 26 medical authors who described infantile diseases caused by the nurse's milk, 1500-1800

<table>
<thead>
<tr>
<th>Diseases</th>
<th>16th century (n=3)</th>
<th>17th century (n=8)</th>
<th>18th century (n=15)</th>
<th>Total (n=26)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro-intestinal* conditions</td>
<td>(p = 0.67)</td>
<td>(p = 0.75)</td>
<td>(p = 0.53)</td>
<td>(p = 0.62)</td>
</tr>
<tr>
<td>All or most infant diseases</td>
<td>(p = 0.33)</td>
<td>(p = 0.25)</td>
<td>(p = 0.27)</td>
<td>(p = 0.27)</td>
</tr>
<tr>
<td>Thrush; mouth &amp; gum infections</td>
<td>(p = 0.33)</td>
<td>(p = 0.50)</td>
<td>(p = 0.07)</td>
<td>(p = 0.23)</td>
</tr>
<tr>
<td>Scabs, ulcers, scales, etc. on head</td>
<td>(p = 0.33)</td>
<td>(p = 0.38)</td>
<td>(p = 0.07)</td>
<td>(p = 0.19)</td>
</tr>
<tr>
<td>Watchings/startings/fears/nightmares</td>
<td>-</td>
<td>(p = 0.38)</td>
<td>(p = 0.13)</td>
<td>(p = 0.19)</td>
</tr>
<tr>
<td>Leanness, failure to thrive</td>
<td>-</td>
<td>(p = 0.25)</td>
<td>(p = 0.07)</td>
<td>(p = 0.12)</td>
</tr>
<tr>
<td>Infections &amp; fevers (including meningitis; tonsillitis)</td>
<td>-</td>
<td>(p = 0.38)</td>
<td>-</td>
<td>(p = 0.12)</td>
</tr>
<tr>
<td>Convulsions &amp; falling sickness</td>
<td>-</td>
<td>(p = 0.13)</td>
<td>(p = 0.13)</td>
<td>(p = 0.12)</td>
</tr>
<tr>
<td>Others +</td>
<td>(p = 0.33)</td>
<td>(p = 0.13)</td>
<td>(p = 0.27)</td>
<td>(p = 0.23)</td>
</tr>
</tbody>
</table>

* Includes colic, gripes, diarrhoea, vomiting, costiveness
+ Includes cough, hiccoughs, excessive urination, suppression of urine, red gum, yellow gum or jaundice.

2. Diseases caused by the nurse's diet

Eating unsuitable foods (particularly highly spiced foods, onions, garlic and fish) was believed to affect the nurse's milk adversely and this was then transmitted to the child. (Phaire, 1545; Pemmell, 1653; Johnstone, 1657; Sharp, 1671; Comp. Mid. Pract., 1680; Pechey, 1697; Arbuthnot, 1732; Hoffmann, 1740; Armstrong, 1771; Mantell, 1787). The diseases caused most frequently were again those affecting the gastro-intestinal tract, mainly costiveness but
also the 'watery gripes'. (Pemell, 1653; Johnstone, 1657; Sharp, 1671; Comp. Mid. Pract., 1680; Pechev, 1697; Hoffman, 1740; Armstrong, 1771). Also mentioned were infections such as smallpox and measles (Phaire, 1545; Pemell, 1653; bladder stone (Johnstone, 1657); one cause of rickets (Mantell, 1787); infantile diseases in general (Arbuthnot, 1732).

3. Diseases contracted directly from a diseased nurse

Physicians believed that if a nurse suffered from any disease, whether or not she was aware of it, this would be contracted by the child who was in close daily contact with her. Thus, one risk of putting the child out to a wet nurse was exposure to diseases which might not be apparent when the nurse was employed (Boaistuau, 1566; Ste Marthe, 1584; Guillemeau, 1612; Quillet, 1655; Dionis, 1719; Maubray, 1730; Downman, 1788). To some extent this category overlapped with transmission by the nurse's milk; it was discussed by 23 authors (Boaistuau, 1566; Tansillo, 1566; Muffet, 1584; Guillemeau, 1612; Burton, 1621; Quillet, 1655; Mauriceau, 1673; McMath, 1694; Newcome, 1695; Floyer, 1706; Baynard, 1706; Defoe, 1728; Maubray, 1730; Arbuthnot, 1732; Allen, 1733; Bracken, 1737; Hoffmann, 1740; Astruc, 1746; Nelson, 1753; Smith, 1774; Rosenstein, 1776; Moss, 1781; Spence, 1784).
Table 3.6: The proportion (p) of 23 authors describing infantile diseases which were said to be contracted from contact/exposure to a diseased wet nurse 1500-1800

<table>
<thead>
<tr>
<th>Disease</th>
<th>16th century (n=3)</th>
<th>17th century (n=6)</th>
<th>18th century (n=14)</th>
<th>Total (n=23)</th>
</tr>
</thead>
<tbody>
<tr>
<td>'The Pox' (venereal infection)</td>
<td>1.0</td>
<td>1.0</td>
<td>0.29</td>
<td>0.57</td>
</tr>
<tr>
<td>Rickets</td>
<td>-</td>
<td>-</td>
<td>0.57</td>
<td>0.35</td>
</tr>
<tr>
<td>Consumption</td>
<td>-</td>
<td>-</td>
<td>0.21</td>
<td>0.13</td>
</tr>
<tr>
<td>Epilepsy/convulsions</td>
<td>-</td>
<td>-</td>
<td>0.21</td>
<td>0.13</td>
</tr>
<tr>
<td>Thrush/aphthae</td>
<td>-</td>
<td>-</td>
<td>0.14</td>
<td>0.15</td>
</tr>
<tr>
<td>Other*</td>
<td>-</td>
<td>-</td>
<td>0.29</td>
<td>0.17</td>
</tr>
</tbody>
</table>

* Includes convulsive cough, jaundice, King's Evil, lice.

If the three ways in which a wet nurse was believed to cause disease in her infant are combined, some indication can be obtained of the relative incidence of infantile conditions in children at nurse.

44 writers discussed the problem (Roesslin, 1540; Phaire, 1545; Boaistuau, 1566; Tansillo, 1566; Muffet, 1584; Ste Marthe, 1584; Guillemeau, 1612; Burton, 1621; Pemell, 1653; Quillet, 1655; Johnstone, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1671; Ettmueller, 1699; Floyer, 1706; Baynard, 1706; Dionis, 1719; Cheyne, 1724; Defoe, 1728; Nurses Guide, 1729; Maubray, 1730; Arbuthnot, 1732; Allen, 1733; Bracken, 1737; Hoffmann, 1740; Full View, 1742; Astruc, 1746; Exton, 1751; Nelson, 1753; Armstrong, 1771; Mackenzie, 1774; Smith, 1774; Rosenstein, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Mantell, 1787; Hamilton, 1792; Mears, 1797).
Table 3.7: The proportion (p) of 44 mainly medical authors who described infantile diseases transmitted by, or contracted from, the wet nurse 1500-1800

<table>
<thead>
<tr>
<th>Disease</th>
<th>16th century (n=6)</th>
<th>17th century (n=13)</th>
<th>18th century (n=25)</th>
<th>Total (n=44)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro-intestinal conditions</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>'The Pox' (venereal infection)</td>
<td>0.33</td>
<td>0.69</td>
<td>0.40</td>
<td>0.48</td>
</tr>
<tr>
<td>Rickets</td>
<td>-</td>
<td>-</td>
<td>0.38</td>
<td>0.20</td>
</tr>
<tr>
<td>Thrush/mouth &amp; gum infections</td>
<td>0.17</td>
<td>0.31</td>
<td>0.12</td>
<td>0.18</td>
</tr>
<tr>
<td>All or most infant diseases</td>
<td>0.17</td>
<td>0.15</td>
<td>0.20</td>
<td>0.18</td>
</tr>
<tr>
<td>Convulsions/epilepsy</td>
<td>-</td>
<td>0.08</td>
<td>0.20</td>
<td>0.14</td>
</tr>
<tr>
<td>Scabs/ulcers/scales on head</td>
<td>0.17</td>
<td>0.23</td>
<td>0.04</td>
<td>0.11</td>
</tr>
<tr>
<td>Watching/starting/fear/nightmares</td>
<td>-</td>
<td>0.23</td>
<td>0.08</td>
<td>0.11</td>
</tr>
<tr>
<td>Infections/fevers</td>
<td>0.17</td>
<td>0.23</td>
<td>-</td>
<td>0.09</td>
</tr>
<tr>
<td>Leanness/failure to thrive</td>
<td>-</td>
<td>0.15</td>
<td>0.04</td>
<td>0.07</td>
</tr>
<tr>
<td>Consumption</td>
<td>-</td>
<td>-</td>
<td>0.12</td>
<td>0.07</td>
</tr>
<tr>
<td>Other*</td>
<td>0.17</td>
<td>0.15</td>
<td>0.28</td>
<td>0.23</td>
</tr>
</tbody>
</table>

*Includes cough, hiccoughs, excessive urination, suppression of urine, red gum, yellow gum, or jaundice, bladder stone, convulsive cough, King's Evil, lice.

Conditions caused 'by imitation' were essentially confined to obvious physical deformities in the nurse such as squints, lameness, hump backs, etc. These were normally avoided by such women not being employed as wet nurses.

4. Treatment of diseases in infants at the breast

Given these contemporary theories about their aetiology, the treat-
ment of diseases in infants at nurse was, logically,

1. To treat the nurse by administering a purge, physick or other internal remedy (Phaire, 1545; Ste Marthe, 1584; Pemell, 1653; Johnstone, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMATH, 1694; Pechey, 1697; Ettmueller, 1699; Nurses Guide, 1729; Allen, 1733; Bracken, 1737; Hoffmann, 1740; Astruc, 1746; Clark, 1751; Rosenstein, 1776; Spence, 1784).

2. To correct the nurse's diet (Roesslin, 1540; Phaire, 1545; Pemell, 1653; Johnstone, 1657; Sharp, 1671; Mauriceau, 1673; Comp. Mid. Pract., 1680; Pechey, 1697; Maubray, 1730; Clark, 1751; Rosenstein, 1776; Foster, 1781).

3. To adjust the nurse's milk (usually by correcting her diet) (Roesslin, 1540; Ste Marthe, 1584; Pemell, 1653; Sharp, 1671).

Table 3.8: The proportion (p) of 24 medical authors who discussed the treatment of diseases in infants at nurse 1500-1800

<table>
<thead>
<tr>
<th>Treatment</th>
<th>16th century (n=3)</th>
<th>17th century (n=11)</th>
<th>18th century (n=10)</th>
<th>Total (n=24)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Treat the nurse</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Adjust the nurse's diet and thereby her milk</td>
<td>0.67</td>
<td>1.0</td>
<td>0.80</td>
<td>0.88</td>
</tr>
<tr>
<td></td>
<td>1.0</td>
<td>0.55</td>
<td>0.40</td>
<td>0.54</td>
</tr>
</tbody>
</table>

(In line with his disbelief that breast milk transmitted the qualities of the nurse, Bracken (1737) also disagreed with the practice of 'purging and dosing' nurses in order to treat their infants, which he believed had no effect).

If the above remedies were not effective then the final resort was to change the nurse or to wean the child from the breast.
Reasons for changing the nurse once she had begun suckling were always connected either with illness in the baby which had not responded to treatment of the nurse (particularly gastro-intestinal upsets, leanness and failure to thrive) (Pemell, 1653; Johnstone, 1657; Sharp, 1671; Culpeper, 1676; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Hoffmann, 1740; Astruc, 1746; Memis, 1765; Rosenstein, 1776); or some obvious illness or defect in the nurse or her milk (especially an infection or fever, menstruation or pregnancy) (Roesslin, 1540; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Glisson, 1651; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Nurses Guide, 1729; Lad. Dispens., 1740; Hoffmann, 1740; La Motte, 1746; Astruc, 1746; Sloane, 1748; Nelson, 1753; Armstrong, 1771; Rosenstein, 1776; Spence, 1784; Hamilton, 1792).

Table 3.9: The proportion (p) of 27 medical writers who gave reasons for changing a wet nurse 1500-1800

<table>
<thead>
<tr>
<th>Reasons</th>
<th>16th century (n=4)</th>
<th>17th century (n=11)</th>
<th>18th century (n=12)</th>
<th>Total (n=27)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illness or defect in nurse or her milk</td>
<td>p 1.0</td>
<td>p 0.82</td>
<td>p 0.92</td>
<td>p 0.89</td>
</tr>
<tr>
<td>Illness in the child</td>
<td>-</td>
<td>0.64</td>
<td>0.33</td>
<td>0.41</td>
</tr>
</tbody>
</table>

As can be seen from table 3.9 the principal reason for changing the wet nurse throughout this period was some problem with the nurse or her milk, because of the threat this posed to the health of the child. Changing a wet nurse was not easy (Nurses Guide, 1729; Brouzet, 1755; Armstrong, 1771; Rosenstein, 1776) particularly when the child had been fed by one woman for several months; and weaning early was also known to be dangerous for the child (see chapter on weaning), but neither was thought to be so life-threatening as allowing an infant to be suckled by a diseased or otherwise undesirable wet nurse.

The methods which might have to be employed when changing to another
nurse were described in 1729:

"The child will easily take [to her breasts] if he be not above seven months old: but if he be old enough to discern the change, he will not easily admit of her. Wherefore 'tis convenient that the new nurse should give him suck for a while in some dark place, 'till he become acquainted with her. But if notwithstanding all her secrecy, and the darkness of the place, he still refuses her milk, she may put a little powder'd sugar on her nipple, and put it to his mouth so often, 'till at last he takes it; or else she may spirt some of her milk upon his mouth, 'till the sweetness of it at last prevails upon him to taste, and swallow it" (Nurses Guide, 1729).

Sometimes, if the nurse was satisfactory and had only a temporary disability, she was not dismissed but had to cease breastfeeding for a short period. For example, in 1727 when the son of the 3rd Earl of Cardigan was about 6 months old his nurse, who was employed in the house, fell "and broke both the bones of her own arm about three inches above her right hand. I sent immediately for Dr. Foyer who came and set it before eight. We do not suffer Master Robert to suck for these five or six days, for these things are always attended with a fever". Robert was cared for by two women of the household and presumably dry-nursed because three days later the Earl's steward wrote, "The nurse is entirely free from pain and has not been at all feverish --- so that in a day or two the child may suck without any manner of danger. Master Robert has borne the loss of the pap with a great deal of patience". And, within a day or so, "Master Robert sucks again for the nurse is very well" (Wake, 1953). These events illustrate very clearly that a feverish wet nurse was not allowed to suckle (and probably the recognisably more dangerous method of hand-feeding was preferred) in order to protect the child from harm.

A disease which was particularly feared in wet nurses, and was a reason for immediately changing her, was 'the pox' and references to infants contracting this from their nurses and passing it to their families occur in the medical literature, as well as the problems of an affected child infecting a formerly healthy wet nurse (Tansillo, 1566;
Another disease for which the nurse was an easy scapegoat was rickets, especially if an apparently healthy baby was sent out to nurse soon after birth and rickets developed in the period during which he lived with her. This was quite likely since rickets was observed to occur after the age of about 9 months (Glisson, 1651; Hunter, 1775; Pract. Mid. 1783) and would become very evident about the time the child began to walk. Francis Glisson (1651) and most other physicians after 1650 observed that rickets was more common among the rich than the poor, and there may well have been some pre-disposing factor involved in wealthy women who had up to 20 or 30 pregnancies and a diet which contained little calcium or vitamin D (Drummond & Wilbraham, 1957; Wilson, 1976; Appleby, 1979). Glisson (1651) certainly believed that some infants had congenital rickets, and recent research among Asian women living in British cities (Shaw, 1979; Art. Feed, 1980) shows that this could have been an accurate statement.

It must be emphasised that there are problems in extrapolating modern information about diseases to previous centuries since the nature and severity of some conditions changes over time.

This is probably more relevant when discussing diseases caused by bacteria, rickettsiae and viruses, in which the organism itself may change (Davis et al, 1973) than in diseases caused primarily by a dietary deficiency, but even in the latter case the body's ability to adapt to such deficiencies may change (Appleby, 1979).

A factor of possibly greater relevance in the 17th and 18th centuries is that mention of rickets probably increased because physicians were
more aware of it, and therefore it was discussed and possibly diagnosed more frequently after Glisson's definitive description, De rachitide, was published in 1650. It was, however, known to ordinary men and women; from 1637 it appeared regularly in the Bills of Mortality as a cause of death (Graunt, 1676) and was designated as such, not by qualified medical practitioners, but by the unqualified 'searchers' employed to ascertain causes of death. In 1656 Alice Thornton of Yorkshire blamed her daughter's rickets on the 'bad milk' of two wet nurses.

There is the possibility that use of a wet nurse who had been lactating for several years, and whose diet was inadequate, could have contributed towards rickets in the early months of life, since the amount of vitamin D present in breast milk would to some extent depend upon the woman's overall dietary state (Shaw, 1979). In addition a bad wet nurse may have concealed the fact that she had little or no breast milk and fed the child on non-milk substitutes. But, given the climate of opinion of the time, it is more likely that in many cases the wet nurse was simply the obvious scapegoat.

A good example of such contemporary thinking is that of Samuel Johnson, born in Lichfield in 1709. His family, and Johnson himself, believed that he had contracted his general poor health, particularly his poor eyesight and the King's Evil, from his wet nurse, Mrs. Marklew. The latter was well known to the family, her husband having been employed by Johnson's father, and she had breastfed her own child uneventfully for 18 months so presumably the Johnsons knew the state of health of the woman and her child before employing her. Mrs. Johnson visited her son every day whilst he was at Mrs. Marklew's so that she was under constant, concerned supervision. Although he was wet nursed for only 2½ months before being weaned and brought home, Mrs. Marklew was firmly believed to be the cause of all Johnson's infantile (as well as his lifelong) ailments (Lane, 1975; McHenry & Mackeith, 1966). In a modern investigation of Johnson's childhood illnesses (McHenry & Mackeith, 1966), Mrs. Marklew has been fairly conclusively exonerated from blame, yet so ingrained was the prejudice about the milk of a wet nurse that her use as a convenient scapegoat was 'normal' in the
18th century, and was not really questioned for $2\frac{1}{2}$ centuries.

5. **Death of infants at nurse**

Undoubtedly there were bad wet nurses as well as good, in the same way as there are good and bad mothers, and the contemporary complaints that more children died at nurse than in their own homes was probably accurate. (Although, again, this may have been over-stated to support arguments for maternal suckling) (Erasmus, 1526; Tansillo, 1566; Paré, 1575; Guillemeau, 1612; Gouge, 1622; Clinton, 1622; Sharp, 1671; Harris, 1689; McMath, 1694; Newcome, 1695; Baynard, 1706; Steele, 1711; Dionis, 1719; Allen, 1733; Lad. Phys. Dir., 1739; Full View, 1742; Cooke, 1768; Buchan, 1769; Smith, 1774; Moss, 1781; Mantell, 1787; Downman, 1788).

**Overlaying**

A major cause of death in infants at nurse was said to be 'overlaying'; where an apparently healthy baby was discovered to be dead in the morning. This was normally said to be due to nurses (who often slept in the same bed as their children, for convenience of suckling, and warmth, as well as for lack of a cradle) falling asleep on top of their charges and suffocating them. The Bills of Mortality recorded at least 100 deaths a year from this cause (Graunt, 1676; Gentleman's Magazine, 1740-) and between 1701 and 1776 almost 4000 infants were described as overlaid (Mettler, 1947). This was said to occur more rarely when mothers nursed their own children (Wolveridge, 1671; Newcome, 1695).

'Overlaying' was mentioned by relatively few medical writers (Paré, 1575; Guillemeau, 1612; Willughby, 1663; Mauriceau, 1673; Eng. Mid. Enl., 1682; Pechey, 1697; Baynard, 1706; Dionis, 1719; Cheyne, 1724) although it was referred to in contemporary novels such as Richardson's *Pamela* (1740) and by parents (Thornton, 1875; Evelyn, 1908). For example, John Evelyn recorded on 26 March 1664, "It pleased God to take away my son Richard, now a month old, yet without any sickness or danger perceivably, being to all appearances a most likely child;
we suspected much the nurse had overlain him; to our extreme sorry, being now reduced to one" (Evelyn, 1908).

When a child died in such unexplained circumstances away from home it was natural to assume that he had been smothered (although modern research has shown that it is virtually impossible to overlay or suffocate a young baby unless the mother/nurse is drunk, drugged, or otherwise sleeping in an abnormally heavy manner) (Jolly, 1981 quoted by Edge, 1981). Some of these infant deaths may have been due to nurses consuming alcohol and falling heavily asleep on top of the child, but accounts of these deaths sound remarkably like the "sudden infant death syndrome" or "cot deaths" of today. A similar association has been made for the sudden deaths by "overlaying" of North American slave children in the 19th century (Savitt, 1975) and this author suggests that a sizeable proportion of deaths attributed to "overlaying at nurse" in 17th and 18th century Britain may have been what today are called "cot deaths".

A suggestion has also been received (Shaw, 1979) that a proportion of the sudden deaths in young infants may have been due to infections of rapid onset affecting the respiratory apparatus which are frequently undetectable even a few hours before they cause death.

It has been said, in some cases very positively, (Wickes, 1953; De Mause, 1976; Shorter, 1977a; Stone, 1977) that wet nursing was a form of infanticide, and that nurses could be employed to overlay their charges. However this is probably an example where the type of wet nurse being discussed in this section is being confused with 'wet nurses' employed by the parish, or with those occasionally employed by families wishing to get rid of unwanted infants (Wrightson, 1975).

Apart from the fact that upper class families were desperate for heirs (and used wet nurses as a means of obtaining more children rather than for disposing of those they already had (see previous chapter) ), a wet nurse employed by a family of the stature of John Evelyn, for example, could have no motivation for overlaying his
in the employ of one family than to seek re-employment and have to establish breast-feeding with a new infant, whose family she might find much less amenable. The argument that the wet nurse was more interested in the money than in the child and could easily find a new position does not necessarily mean that it was in the interests of most privately-employed wet nurses to "dispose" of their charges after only a few weeks of nursing. Some of the wet nursing 'horror stories' produced as evidence (De Mause, 1976; Stone, 1977) in fact arose because the nurse tried either to treat or to conceal a disease or injury in order to maintain herself in employment (Hurlock, 1742; Bramston, 1845; Freke, 1913).

The fact that a nurse tried to treat her charge is surely evidence of care, even though it might have been misplaced. It is as easy to find examples of children with good wet nurses who were revered (indeed some parents complained of their greater love for their nurses than themselves) (Shakespeare, c1594; Sibbald, 1932; Brook, 1766; Ferrier, 1898), as it is to find stories of unhappiness, maltreatment and death at nurse.

The mortality of infants, and especially nurse children, was said to be particularly great in the parishes around London and other large towns (Gouge, 1622; Harris, 1689; Baynard, 1706; Full View, 1742; Mantell, 1787). In 1622 William Gouge said "It hath been observed in many countrie villages, that the most part, that from time to time die there, are nurse children".

In 1689 Walter Harris provided this oft-quoted example: "An observation —— was made not long ago by a worthy divine, rector of a parish 12 miles from London, who with great grief of mind told me seriously, that his parish which was not small either in its bounds or number of inhabitants, and was situated in a very wholesome air, was, when he first came to it, filled with sucking infants, and yet in the space of one year, that he had buried them all except two, and
one of his own, whom being weakly he had happily committed to my care from his very birth, and that the same number of small infants being soon twice supplied, according to the usual custom of hireling nurses from the very great and almost inexhaustible city, he had committed them all to their parent earth in the very same year. He went on to warn of the "dangers of mercenary nurses, who are greedy only of the profuse rewards bestowed on them at the christening, and slight the small weekly income that follows; and so being weary of the present employment, perform it negligently, while they are looking out for a new prey". (This example is one of those used to prove that nurses cared little for their charges and wished them an early demise in order to look for re-employment. But in fact this was presented by Harris as part of an argument in favour of maternal suckling).

In 1787, Thomas Mantell said that the same proportion of infants in the population died whether in town or country, but more infants died in the parishes near large towns than in the parishes within such towns because of the "numbers being continually sent to be nursed in the adjacent country".

There is abundant independent evidence from parishes taking in nurse children from London and Oxford (Finlay, 1976 & 1979; McLaren, 1979; Wall, 1980) that a proportion of burials (ranging from 2.3 - 8.6% of all burials in the 70-year period 1580-1650) were nurse children (Finlay, 1976). Since it is not known what proportion of the parish population consisted of nurse children, it is impossible to know whether more wet nursed infants died than infants nursed by their own mothers. Even Harris' famous example implied that nearly all infants died, not just those who were wet nursed. There is no way of knowing if the year specified was a typical year in the life of the parish, or was being quoted by the Rector because it was an abnormal event for so many to die. An epidemic of whooping cough or scarlet fever, for example, would not discriminate between infants nursed by their mothers or by hired nurses.

If more infants did die at nurse than when breastfed by their own
mother, then reasons other than carelessness, ignorance, self-interest, and murder, proposed by contemporaries (Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; Harris, 1689; Barrett, 1699; McMath, 1694; Baynard, 1706) and by modern authors (particularly Shorter, 1977a & 1978) are worthy of examination:

1. Physiological and immunological factors
2. Psychological factors

5. Physiological and immunological factors relating to morbidity and mortality at nurse

a) Lack of colostrum

The circumstances of wet nursing meant that the newborn infant was unlikely to be put to the breast of the mother (although some mothers did attempt to breastfeed for a few days (Thornton, 1875; Leinster, 1949) and thus would normally receive none of the protective and nutritional benefits of colostrum (listed in the chapter on maternal breastfeeding). It has been shown that it was unusual for a wet nurse to be employed within a few days of her own delivery; thus the infant received no colostrum from the wet nurse. If he was breastfed from the first day with breast milk which was several months, or even several years, old (i.e. the woman had not been delivered of a child for several years), then the protective value of this breast milk in terms of the antibodies it contained would be much less than the milk of a woman delivered within a few weeks of the child's birth (Jelliffe & Jelliffe, 1978).

If he was fed with physick and/or food for a short period before being breastfed by a wetnurse then not only would he not receive the benefits of colostrum but he was also exposed to the danger of infection from unsuitable and probably unclean foods and utensils.

b) Transplacental protection

During pregnancy many antibodies and antitoxins of both major and
minor diseases to which the mother has been exposed pass into the foetus via the placenta. Thus every child is born with a temporary passive immunity, acquired from his mother, to those infections which have at some time affected his mother. This applies not only to major diseases but also to the potentially pathogenic organisms which commonly occur in the mother's immediate environment or within her body (particularly her intestine) and to which she has developed some measure of immunity (Davis et al, 1973). If the child remains with his mother in the same environment, these will offer him a similar degree of immunity to these organisms for a period of several weeks.

If the child were wet nursed at home (i.e. in the same general environment) he would be protected against organisms in that environment but not necessarily against those within or upon the body of the wet nurse, who might have travelled from a considerable distance and have been exposed to a different set of micro-organisms. Thus, organisms to which she was regularly exposed and had become immune would be potentially pathogenic to her nurse-child.

If the child was sent many miles away into the country, to a completely different community, with a different eco-system, where different (or at least different strains) of organisms existed, then the temporary immunity acquired from his mother during uterine life would not protect him against organisms to which his mother had never been exposed. In this case there was also the factor of a journey of up to 40 miles which in winter was quite likely to take more than one day, thus exposing a recently-born infant to a whole range of infections en route, in addition to possible extremes of external temperature. There are also sufficient contemporary references to the wet nurse's home being less clean and warm than the child's home (for example, Cadogan, 1748; Buchan, 1979) to raise the possibility of increased danger of infection from such things as bedding, clothing and kitchen-ware.

Therefore the newborn baby sent out to be wet nursed was unprotected from diseases to which his wet nurse, but not his mother, had been
or was currently exposed; did not receive the protective, nutritional and immunological substances in colostrum either from his mother or his wet nurse; and had to face the mechanical dangers of changes of temperature and encountering a microbial environment different from that for which his mother's body prepared him in utero. Since a major function of colostrum is to protect the infant against diseases of the gastro-intestinal system (Jelliffe & Jelliffe, 1978), the absence of this, together with any effective protection against gut bacteria present in the nurse and her family and environment, gives one obvious explanation for gastro-intestinal infections being the major condition mentioned in wet-nursed children.

When the nurse-child returned to his parents 6 months to 3 years later (see chapter on weaning) he would have developed his own resistance to organisms and diseases of the community within which he lived, but not necessarily to those in the home environment to which he returned. The danger at this age would be less than to a neonate, but could partly explain the high incidence of illness (especially gastro-intestinal upsets) associated with weaning (see chapter on weaning).

6. Psychological factors

Psychological factors in relation to mortality are much more difficult to assess; although some attempt has been made, particularly by Trumbach (1978), to show that mortality of aristocratic infants was reduced when the incidence of wet nursing decreased in favour of maternal suckling and/or dry nursing in the later 18th century.

Problems must have been associated with a close emotional and physical attachment to a wet nurse, initiated and sustained by breast feeding (Jelliffe & Jelliffe, 1978), which was broken, sometimes for ever, when the child was weaned and returned home. There are examples where nurses were loved by their nurse-children and were cared for into their old age (Henry VIII; Sibbald, 1932); most regarded them as their true mother, disliking or disregarding their biological mother, an extreme example being a Scottish child in the 1740's who
was so strong-willed that, despite the ridicule of his siblings, he refused to return to live with his parents but insisted upon living in the poor cottage of his nurse until he was well into his teens (Ferrier, 1898). Jane Sharp (1671) advocated that children should be encouraged to repay the nurture of their wet nurse by caring for them in later life.

This situation of 2 homes and 2 mothers must have caused conflict in the child but this was more likely to affect him at or after weaning than as a small infant. The evidence produced by modern authors, that infants would have been less attached to wet nurses than their mothers because the former did not care for, or about, them (Shorter, 1977a & 1978; Trumbach, 1978) is not borne out by writings of the period. Some 17th century authors said that nurses did not want to part with their nurse children and would go to great lengths in order to keep them, this being one reason for not disclosing that their milk supply had declined or otherwise become unsuitable (Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682; Barrett, 1699). A similar wish by nurses to keep their nurse children has been noted in Foundling Hospital nurses in the 18th century (Jones, 1978; Wilson, 1979a).

The contemporary medical complaints that nurses fed their infants with unsuitable foods and gave them medicines and spirits are not necessarily indicative either of poor care or poor emotional relations between nurse and child. Nurses may well have thought they were doing their best for the child; and surely there is little difference between modern mothers who give gripe water, aspirin, and phenergan to their fretful sleepless infants and the nurses and mothers who administered the 17th and 18th century equivalent - gin, brandy, and poppy-juice. In addition, it is not infrequently observed by health professionals today that children who are considered to have been abused or uncared for nevertheless may have a close loving relationship with their mother or foster mother.

The evidence for poor psychological attachment between wet nurses and their charges is therefore very tenuous, and is not considered by this author to be sufficiently strong to account alone for any
fall in infant mortality once wet nursing went out of fashion (as suggested by Trumbach, 1978). A more plausible explanation seems to be the physiological benefits to the child of being fed by his own mother, or at least remaining in an environment against which he had some immunological protection; and avoidance of the physical contrasts between the homes of his two 'mothers', which were said to differ so much in social status, diet, temperature, clothing, activity and cleanliness.
Conclusions

1. Discussion of wet nursing decreased, and in some cases was not included, in paediatric and midwifery texts after the mid-18th century. Together with evidence from diaries and memoirs, this indicates that wet nursing as a means of feeding the wealthier infants in British society was declining in popularity, and by the end of the 18th century was gradually being superseded by maternal breastfeeding and/or artificial feeding.

2. The main qualities looked for in a good wet nurse were satisfactory behavioural qualities and way of life; good health; ages varying between 18 and 40 years with a majority between 20 - 30; and good-sized, healthy breasts and nipples. Of lesser importance were a medium stature and size; good facial appearance; clear speech and good conversation; neatness and cleanliness. In the 16th and 17th century a sanguine complexion was an important requisite since this matched the child's hot and moist temperament.

3. The nurse's milk was required to be white and of medium consistency until the late 18th century when thin, bluish milk began to be preferred, probably as a result of greater scientific knowledge about milk. Several tests were used to determine consistency, the most popular being the 'nail test'. Women with milk which was 'coloured', with a bad smell or taste (all of which are indicative of infection) were never to be employed as wet nurses.

4. The nurse's most recent child ideally was male, born at full-term, and at least 2 months old, because she would have the best milk; after the 1730's these requirements were no longer mentioned, the main criteria being that her child was thriving and either recently delivered or the same age as the child to be nursed. The latter was infrequently observed since parents tended to keep a good wet nurse to feed several of their children successively.

5. Conditions which precluded employment as a wet nurse included
pregnancy, venereal infection, women who had recommenced menstruation, and those having red hair and freckles, although the latter was of more concern to French writers. All were said to have bad milk which would adversely affect the child; in the case of venereal infection the child could contract the disease.

6. The nurse-child was regarded as an extero-gestate foetus to whom the nurse's milk carried all her physical and mental qualities, her emotions, her food and drink, and her diseases; the nurse was therefore seen as the cause of most infantile diseases and any treatment was given to her rather than the child, since it would pass to him through her milk. The child was also believed to contract diseases by direct contact with the nurse.

7. The infantile diseases most frequently transmitted by, or contracted from, wet nurses were said to be gastro-intestinal infections, syphilis, rickets, thrush, convulsions, and most infant diseases.

8. Illness or defect in the nurse or her milk was the most common reason for changing a wet nurse. This was done for the safety of the child even though it was recognised to be difficult to replace a woman who had fed a child for several months.

9. In some cases of illness or death of a child at nurse the wet nurse was probably used as a scapegoat. Although there must have been bad wet nurses, most would have little motivation to get rid of the nurse-children which were their livelihood. The readiness of modern authors to accept the few 'horror stories' about wet nurses, recounted by contemporaries, as applying generally to privately-employed wet nurses in Britain has resulted in a biassed, and probably false, picture of the majority of these women.

10. Many deaths attributed to 'overlaying at nurse' may have been due to what today are called 'cot deaths'; a proportion may have been caused by respiratory infections of rapid onset. It is
unlikely that the upper and upper-middle classes sent their children out to nurse as a means of infanticide since this was incompatible with their desire to conceive more heirs.

11. If mortality in infants at nurse was higher in Britain than that of infants fed by their own mother, this may have been related to lack of the protective benefits of colostrum, and the probable inappropriateness of the temporary passive immunity, acquired from the mother, when a very young baby was taken to a new and distant environment and fed by a woman who had been exposed to different infections from the mother.

12. Psychological factors associated with wet nursing included close nurse-child relationships which were broken when the child had to be returned to his own home, although some children loved and cared for their wet nurses for the rest of their lives. There is no evidence that the majority of wet nursed infants were maltreated or formed poor psychological attachments to their nurses; therefore the fall in infant mortality at the same time as wet nurses were going out of fashion is unlikely to have been due to improved emotional attachment alone, but is more probably related to immunological and environmental factors.
CHAPTER 4

MIXED FEEDING

A. THE FOODS USED FOR MIXED FEEDING

B. IDEAS AND OPINIONS ABOUT THE FOODS USED FOR MIXED FEEDING

C. THE PRACTICE OF MIXED FEEDING
Sources

The following texts and manuscripts were analysed to obtain data on mixed or supplementary feeding:

16th century

Wurtz, 1563; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Muffet, 1584.

Total = 5

17th century

Guillemeau, 1612; Glisson, 1651; Johnston, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Harris, 1689; McMath, 1694; Newcome, 1695; Pechey, 1697; Ettmueller, 1699; Barrett, 1699.

Total = 12

18th century

Baynard, 1706; Dionis, 1719; Cheyne, 1724; Nurses Guide, 1729; Maubray, 1730; Arbuthnot, 1732; Allen, 1733; Bracken, 1737; Lad. Dispens. 1740; Hoffman, cl740; Full View, 1742; Hurlock, 1742; Astruc, 1746; La Motte, 1746; James, 1746; Sloane, 1748; Cadogan, 1748; Clark, 1751; Exton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Gent. Mag., 1765; Cooke, 1768; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Osborne & Denman, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Hamilton, 1792; Mears, 1797; Young, late 18th century.

Total = 40

Total = 57
Additional sources

Additional sources used in this section only, in order to obtain a larger sample of infant food recipes, were the translations given by Drake (1931) of pap and/or panada recipes by:

1. De Vallambert, S. 1565  *Cinq livres de la manière de nourrir et gouverner les enfants des leur naissance*. Poictiers (who gave the first known recipes of both pap and panada and was thus regarded as an important addition to this part of the study).


Two recipes from Colonial America given by Cone (1977 & 1979b) were not included in the analysis as it was unclear whether these were intended for infants or as invalid food for adults.

Recipes from literary sources used for comparison with those given by learned authors were:

1. Those said by contemporaries to have been given to James Edward, Prince of Wales, in 1688 (Hopkirk, 1953; Orrery, 1903).


3. The general references to the paps given to George, Prince of Wales, in 1762 (Hunter, 1908; Hedley, 1953).
Part A

The foods used * for mixed feeding

The main foods used for mixed feeding during the period 1500-1800 were pap and panada, or variants of these substances. These have been briefly described by Drake (1931) who found that pap was said to date from the mid-15th century and consisted of flour or bread crumbs cooked in water or milk, whilst panada was of very ancient origin and consisted of bread, broth, (sometimes with legumes, oil or butter) or milk. Eggs were occasionally added. To some extent these terms were interchangeable. The purpose of this section is to confirm the ingredients and method of preparation of these infant foods and to make some assessment of attitudes towards their use.

Results and discussion

From the above sources the following recipes for infant foods were obtained:

<table>
<thead>
<tr>
<th>Recipe</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap</td>
<td>40</td>
</tr>
<tr>
<td>Panada</td>
<td>13</td>
</tr>
<tr>
<td>Alternatives</td>
<td>19 (These were similar substances but not specifically named as pap or panada).</td>
</tr>
</tbody>
</table>

One recipe for panada was included for both the 17th century (when it originated) (Van Helmont, 1662) and the 18th century, when it was first described in the paediatric literature (Brouzet, 1755).

This gave a total of 73 infant food recipes from England and France which were analysed to discover
1. The principal constituents
2. Whether boiling was employed during preparation.

*Paps and panadas were also used for artificial feeding and occasionally as a weaning food.
Authors often gave more than one recipe. For example de Vallambert (1565) gave one recipe for pap and four different ways of making panada; McMath (1694) gave three versions of pap, and Smellie (1752) two versions of panada. Thus the 73 recipes were derived in the following manner.

Table 4.1: The derivation of 73 infant food recipes

<table>
<thead>
<tr>
<th>Century</th>
<th>No. of authors</th>
<th>No. of recipes given</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>17th</td>
<td>7</td>
<td>14</td>
</tr>
<tr>
<td>18th</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>Total: 1565-1807</td>
<td>38</td>
<td>73</td>
</tr>
</tbody>
</table>

A full descriptive list of all the recipes is given in Appendix II.

1. The constituents of infant foods

(NB: As will be seen in Appendix II, quantities and proportions of ingredients and/or the amount of food actually given to children was rarely stated, therefore it is not possible to assess the calori­fic/metabolic value taken in by the child.)

Pap

40 recipes were given by 22 authors (Vallambert, 1565; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Johnston, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Ettmueller, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Bracken, 1737; James, 1746; Nelson, 1753; Brouzet, 1755; Raulin, 1769; MacKenzie, 1770; Armstrong, 1771; Moss, 1781; Baudelocque, 1790).
Table 4.2: The proportion (p) of pap recipes which contained the following groups of main ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>16th century (n=4)</th>
<th>17th century (n=12)</th>
<th>18th century (n=24)</th>
<th>Change over time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk or milk + water</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>decreased</td>
</tr>
<tr>
<td>Broth</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>-</td>
</tr>
<tr>
<td>Other liquids*</td>
<td>-</td>
<td>0.33</td>
<td>0.54</td>
<td>increased</td>
</tr>
<tr>
<td>Flour or meal+</td>
<td>0.75</td>
<td>0.58</td>
<td>0.37</td>
<td>decreased</td>
</tr>
<tr>
<td>Forms of bread or breadcrumbs</td>
<td>0.25</td>
<td>0.42</td>
<td>0.63</td>
<td>increased</td>
</tr>
<tr>
<td>Sugar or honey</td>
<td>0.50</td>
<td>0.33</td>
<td>0.50</td>
<td>-</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>0.50</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Egg yolk</td>
<td>0.25</td>
<td>0.17</td>
<td>-</td>
<td>decreased</td>
</tr>
<tr>
<td>Butter/fat/oil</td>
<td>0.50</td>
<td>0.33</td>
<td>0.25</td>
<td>decreased</td>
</tr>
</tbody>
</table>

* Other liquids were water; ale; and wine + water.
+ The flour or meal was wheat, barley or oats depending upon the common cereal used in the area at the time.

From this analysis it appears that pap, whether of the kind recommended by physicians or said to be in common use by nurses, had three major components:

1. A liquid, most frequently milk
2. A cereal
3. Additives

The additives may be further divided into those which were added for flavouring, such as spice or sugar; and those which had a significant protein and/or fat content, such as eggs.
14 recipes were given by 9 authors (Vallambert, 1565; Van Helmont, 1662; Smellie, 1752; Brouzet, 1755; De Claubry, 1783; Spence, 1784; Underwood, 1784; Alphonse Leroy, 1807; Gardien, 1807).

Table 4.3: The proportion \((p)\) of 14 panada recipes which contained the following types of ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>16th century (n=4)</th>
<th>17th century (n=1)</th>
<th>18th century (n=9)</th>
<th>Change over time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk or milk + water</td>
<td>0.25</td>
<td>-</td>
<td>0.11</td>
<td>decreased</td>
</tr>
<tr>
<td>Meat or pulse broth/broth + water</td>
<td>0.50</td>
<td>-</td>
<td>0.44</td>
<td></td>
</tr>
<tr>
<td>Other liquids *</td>
<td>0.25</td>
<td>1.0</td>
<td>0.44</td>
<td>increased</td>
</tr>
<tr>
<td>Breadcrumbs</td>
<td>1.0</td>
<td>1.0</td>
<td>1.0</td>
<td></td>
</tr>
<tr>
<td>Sugar or honey</td>
<td>-</td>
<td>1.0</td>
<td>0.67</td>
<td>increased</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>-</td>
<td>0.22</td>
<td>increased</td>
</tr>
<tr>
<td>Egg yolk/egg</td>
<td>1.0</td>
<td>-</td>
<td>0.11</td>
<td>decreased</td>
</tr>
<tr>
<td>Butter/fat/oil</td>
<td>1.0</td>
<td>-</td>
<td>0.11</td>
<td>decreased</td>
</tr>
</tbody>
</table>

*Other liquids were smallbeer; milk of sweet almonds; and water.

Like pap, panada appears to have had three major components but these were less varied in type:
1. A liquid, most frequently broth
2. Breadcrumbs
3. Additives a) flavouring
   b) nourishing
Infant food recipes similar to pap and panada

17 out of 19 of these recipes were described in the 18th century (after 1748) when there was a general disapproval of pap and panada as they were generally said to be made and administered (discussed later in this chapter). The alternative recipes given were very similar in composition to those named pap and panada in the 16th and 17th centuries.

19 recipes were given 14 authors (Ste Marthe, 1584; Johnston, 1657; Cadogan, 1748; Smellie, 1752; Gent. Mag., 1765; Cooke, 1768; Buchan, 1769; Rosenstein, 1776; Osborne & Denman, 1776; De Claubry, 1783; Underwood, 1784; Mantell, 1787; Downman, 1788; Young, late 18th).

Table 4.4: The proportion (p) of 19 alternative infant food recipes which contained the following main groups of ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>16th century (n=1)</th>
<th>17th century (n=1)</th>
<th>18th century (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk or milk + water</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Broth or bouillon</td>
<td>-</td>
<td>-</td>
<td>0.58</td>
</tr>
<tr>
<td>Flour</td>
<td>1.0</td>
<td>1.0</td>
<td>0.41</td>
</tr>
<tr>
<td>Bread/breadcrumbs/rusks/rolls</td>
<td>-</td>
<td>-</td>
<td>0.06</td>
</tr>
<tr>
<td>Rice, bread or farinaceous substance</td>
<td>1.0</td>
<td>1.0</td>
<td>0.59</td>
</tr>
<tr>
<td>Sugar or honey</td>
<td>-</td>
<td>-</td>
<td>0.29</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>-</td>
<td>0.18</td>
</tr>
</tbody>
</table>

After 1748 recipes often gave alternatives for the cereal or grain component, the most common being forms of bread or rice.
The proportion of the above authors who mentioned some variety of bread as an alternative or sole ingredient was 0.88 and the proportion mentioning rice as an alternative ingredient to bread was 0.41.

The main components of these recipes were:
1. A protein-containing liquid
2. A cereal or grain
3. Flavouring additives

Additives such as eggs or butter were not mentioned by any author giving these recipes.

All the infant food recipes discovered between 1565 and 1807 were then considered in order to obtain an idea of the gross changes in nutritional composition over three centuries.

73 infant food recipes given by 38 authors (pap + panada + alternatives).

Table 4.5: The proportion (p) of 73 infant food recipes which contained the following main ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>16th century (n=9)</th>
<th>17th century (n=14)</th>
<th>18th century (n=50)</th>
<th>Change over time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk or milk + water</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>decreased</td>
</tr>
<tr>
<td>Broth or bouillon</td>
<td>0.33</td>
<td>0.07</td>
<td>0.24</td>
<td>decreased</td>
</tr>
<tr>
<td>Other liquids *</td>
<td>0.11</td>
<td>0.36</td>
<td>0.34</td>
<td>increased</td>
</tr>
<tr>
<td>Flour or meal</td>
<td>0.33</td>
<td>0.50</td>
<td>0.20</td>
<td>decreased</td>
</tr>
<tr>
<td>Bread or breadcrumbs</td>
<td>0.67</td>
<td>0.50</td>
<td>0.68</td>
<td>-</td>
</tr>
<tr>
<td>Rice or bread or farinaceous substances</td>
<td>-</td>
<td>-</td>
<td>0.12</td>
<td>-</td>
</tr>
<tr>
<td>Sugar or honey</td>
<td>0.22</td>
<td>0.36</td>
<td>0.42</td>
<td>increased</td>
</tr>
<tr>
<td>Spice</td>
<td>0.44</td>
<td>0.43</td>
<td>0.06</td>
<td>decreased</td>
</tr>
<tr>
<td>Egg yolk/egg</td>
<td>0.56</td>
<td>0.14</td>
<td>0.02</td>
<td>decreased</td>
</tr>
<tr>
<td>Butter/fat/oil</td>
<td>0.33</td>
<td>0.29</td>
<td>0.14</td>
<td>decreased</td>
</tr>
</tbody>
</table>

*Other liquids were milk of sweet almonds; ale; smallbeer; wine + water; and water.
The main components of all the recipes were:
1. A liquid, most frequently containing milk or broth.
2. A cereal or grain, most frequently bread or breadcrumbs.
3. Additives a) flavouring
   b) nourishing

Changes in composition over three centuries

The changes which were of most significance to the health of the child apparently began in the 17th century when liquids of little food value such as ale or water were used in place of the protein-containing liquids, such as milk or meat broth, which had been more usual in the 16th century. This trend continued into the 18th century when a third of all the infant food recipes contained no milk or other nourishing liquid.

At the same time the use of eggs or egg yolks as an additive, and the inclusion of butter or other fat in infant foods greatly declined. The decreased use of dairy foods or 'white meats' is significant because these would have been the main sources of vitamins A and D, first class protein, calcium and, in the case of eggs, iron (McCance & Widdowson, 1978).

The cereal component, whether bread or meal, was not highly-processed in this period (Drummond & Wilbraham, 1957) so that protein, calcium and iron would have been obtained from this source, but the fat-soluble vitamins A and D are not present in the other constituents of these recipes. This would not have been a problem for children who were still receiving breast milk but, for those who were fed on paps or panadas as a substitute for milk, or who received only small quantities of breast milk from a woman with a failing milk supply, it could eventually have led to vitamin-deficiency diseases such as rickets. The use of meat or pulse broths rather than milk would not have rectified this deficiency since neither meat nor legumes contain significant amounts of vitamins A or D (McCance & Widdowson, 1978).
Rickets was a disease first recognised in England about 1620 (Glisson, 1651) and possibly, partly because it was diagnosed or named more frequently, became an increasing problem during the 17th and 18th centuries (Still, 1931; Vahlquist, 1975). The incidence of rickets during the 17th and 18th centuries was probably partly related to the infant diet since by the 18th century only just over 40% of these infant foods contained a food which was a source of vitamin D although this would have been more of a problem where the pap was used as a replacement rather than as a supplement for breast milk.

The incidence of 'the stone' was high in pre-industrial England and was a problem in all age groups from infancy to old age, but small children were particularly affected (Ellis, 1969). Since the incidence of bladder stones has been connected with a diet high in calcium and low in vitamin A (Drummond & Wilbraham, 1957), and with diets low in animal products but high in vegetable proteins (Ellis, 1969), in the opinion of this author the use of predominantly cereal-containing foods in infancy may well have been a contributory factor to this condition.

Scurvy was endemic in the winter months during the 16th and 17th centuries (Drummond & Wilbraham, 1957; Wilson, 1976) and infantile scurvy was also well-known (Glisson, 1651; Still, 1935), and it is clear that none of the ingredients listed in the above tables were good sources of vitamin C. Only the milk of cows and goats which had been fed on grass during the summer months would have contained vitamin C (Drummond & Wilbraham, 1957; McCance & Widdowson, 1978). The variable amounts of the vitamin in the milk would have been reduced if the milk was not used when fresh, or if it was boiled during preparation (McCance & Widdowson, 1978). As shown in the following section, before the mid-18th century most of the infant food recipes were boiled so that, although the use of milk rather than other liquids was more common in the 16th and 17th centuries, the amount of vitamin C available to the child was possibly insufficient in the summer months and absent from October to March (McCance & Widdowson, 1978). Any such deficiency would probably not have been improved if the child was still being suckled because the amount of
vitamin C present in human milk is dependent upon the dietary intake of the mother (Jelliffe & Jelliffe, 1978). At a time when the diet of the mass of the population contained little or no fruit or vegetables during the winter (Drummond & Wilbraham, 1957; Wilson, 1976; O'Hara-May, 1977) and many adults suffered from at least mild degrees of scurvy (Drummond & Wilbraham, 1957), it is unlikely that during the winter months lactating women would have secreted milk which contained significant amounts of vitamin C.

It is unlikely that there was any deficiency of the B group of vitamins associated with the intake of these infant foods since these water-soluble vitamins are present in cereal foods and yeast, both of which were always common ingredients. (Although the prolonged cooking which some recipes demanded (see Appendix II) may have destroyed up to 50% of the vitamins contained in the uncooked cereals (McCance & Widdowson, 1978). Unlike rickets and scurvy, diseases such as beri-beri and pellagra do not feature in the history of medicine in Britain (Drummond & Wilbraham, 1957).

The increased use of breadcrumbs in preference to meal was partly a reflection of the adult diet; breadcrumbs were the most popular thickening agent at this time (Drummond & Wilbraham, 1957; Wilson, 1976). Uncooked flour or meal was frowned upon because it was thought to be indigestible (Ettmueller, 1699; Maubray, 1730; Baudelocque, 1790) and although the use of flour for making pap was retained in France (Dionis, 1719; Brouzet, 1755; Baudelocque, 1790), bread or associated products such as rolls or rusks were preferred in Britain (Cadogan, 1748; Armstrong, 1771; Moss, 1781).

The introduction of rice or other farinaceous substances, such as tapioca, after 1748 may have been due to the increased availability of such grains in this period (Drummond & Wilbraham, 1957). An alternative explanation is that it was suggested (possibly as a personal preference) by William Cadogan (1748) whose views were then repeated for the next half century (Cooke, 1768; Mantell, 1787). It is note-worthy that no evidence has been found that children actually had rice in broth, or that it was commonly given, it appears only as a recommended infant food.
The increased use of sweetening agents may have reflected adult tastes since sweet puddings were a feature of the adult British diet and after the 16th century, when honey was the main sweetening ingredient, sugar became cheaper and more widely available (Wilson, 1976).

The decreased use of spices could have been associated with the move towards simplicity in infant foods, advocated by Locke (1693) and vehemently recommended by Cadogan (1748), although this explanation is weakened by the fact that the addition of sugar to paps and panadas was condemned just as greatly as the addition of spice. (Cadogan, 1748; Nelson, 1753; Moss, 1781.)
Conclusions

1. Three main types of infant foods were used for mixed feeding in the period 1500 to 1800. (1) Pap consisted of a liquid (usually milk), a cereal, and additives for flavouring or adding nourishment. (2) Panada consisted of a liquid (usually broth), breadcrumbs, and various additives. (3) 18th century alternative recipes contained a protein-containing liquid, a cereal or grain, and various flavourings.

2. 16th century infant foods were apparently relatively nutritious substances since the only nutrient consistently absent or poorly supplied was vitamin C. Panadas made with meat or pulse broths rather than milk or dairy products were deficient in vitamins A and D.

3. The foods described in the 17th century were slightly less nutritious due principally to the reduced use of eggs and meat broths.

4. In the 18th century there was a definite decline in the nutritional value of infant foods when compared to the 16th century, with 58% containing no milk or dairy products and, of these, 34% containing no animal protein, vitamins A, D or C, and possibly low in fat, calcium and iron.

5. It is suggested that the foods recommended or commonly given to infants, sometimes from birth (Nelson, 1753; Hopkirk, 1953; Hedley, 1975), and often as a substitute for the breast (Nelson, 1753; Moss, 1781; Hopkirk, 1953), became less nutritious over three hundred years, and that this could have been associated with the apparently increased incidence of rickets, the continuing incidence of infantile scurvy, and high incidence of bladder stone in young children.
2. The method of preparation

The full method for preparing each recipe is given in Appendix II. The question discussed in this section is whether or not infant foods were boiled, either as a whole or at any point during their preparation, and whether changes occurred in this practice during the period considered.

Pap

Table 4.6: The proportion (p) of 40 pap recipes in which milk or other liquids were boiled at some point during preparation

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Sometimes boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=4)</td>
<td>0.75</td>
<td>-</td>
<td>0</td>
<td>0.25</td>
</tr>
<tr>
<td>17th (n=12)</td>
<td>0.67</td>
<td>0.08</td>
<td>-</td>
<td>0.25</td>
</tr>
<tr>
<td>18th (n=24)</td>
<td>0.63</td>
<td>-</td>
<td>-</td>
<td>0.38</td>
</tr>
</tbody>
</table>

Those recipes containing milk (n=22) were then examined to discover whether the milk itself was boiled.

Table 4.7: The proportion (p) of 22 pap recipes containing milk in which the milk was boiled

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Sometimes boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=4)</td>
<td>0.75</td>
<td>-</td>
<td>0</td>
<td>0.25</td>
</tr>
<tr>
<td>17th (n=8)</td>
<td>0.63</td>
<td>0.13</td>
<td>-</td>
<td>0.25</td>
</tr>
<tr>
<td>18th (n=10)</td>
<td>0.10</td>
<td>-</td>
<td>0.40</td>
<td>0.50</td>
</tr>
</tbody>
</table>
Table 4.8: The proportion (p) of 14 panada recipes in which milk or other liquids were boiled at some point during preparation

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=4)</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17th (n=1)</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18th (n=9)</td>
<td>0.78</td>
<td>-</td>
<td>0.22</td>
</tr>
</tbody>
</table>

Table 4.9: The proportion (p) of 2 panada recipes containing milk in which the milk was boiled

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=1)</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17th (n=0)</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>18th (n=1)</td>
<td>-</td>
<td>1.0</td>
<td>-</td>
</tr>
</tbody>
</table>

Infant foods similar to pap and panada

Table 4.10: The proportion (p) of 19 alternative recipes in which milk or other liquids were boiled during preparation

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=1)</td>
<td>1.0</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>17th (n=1)</td>
<td>-</td>
<td>-</td>
<td>1.0</td>
</tr>
<tr>
<td>18th (n=17)</td>
<td>0.59</td>
<td>0.12</td>
<td>0.29</td>
</tr>
</tbody>
</table>
Of these, 10 recipes from the 18th century contained milk.

**Table 4.11:** The proportion (p) of 10 18th century alternative infant food recipes containing milk in which the milk was boiled.

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>18th (n=10)</td>
<td>P 0.20</td>
<td>P 0.40</td>
<td>P 0.40</td>
</tr>
</tbody>
</table>

**Total infant food recipes**

The total of 73 recipes was then examined.

**Table 4.12:** The proportion (p) of 73 recipes in which milk or other liquids were boiled during preparation

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Sometimes boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=9)</td>
<td>P 0.89</td>
<td>-</td>
<td>-</td>
<td>0.11</td>
</tr>
<tr>
<td>17th (n=14)</td>
<td>0.64</td>
<td>0.07</td>
<td>-</td>
<td>0.29</td>
</tr>
<tr>
<td>18th (n=50)</td>
<td>0.64</td>
<td>-</td>
<td>0.04</td>
<td>0.32</td>
</tr>
</tbody>
</table>

Of these 73 recipes 34 contained milk.

**Table 4.13:** The proportion (p) of 34 infant food recipes containing milk in which the milk was boiled

<table>
<thead>
<tr>
<th>Century</th>
<th>Boiled</th>
<th>Sometimes boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th (n=5)</td>
<td>P 0.80</td>
<td>-</td>
<td>-</td>
<td>0.20</td>
</tr>
<tr>
<td>17th (n=8)</td>
<td>0.63</td>
<td>0.13</td>
<td>-</td>
<td>0.25</td>
</tr>
<tr>
<td>18th (n=21)</td>
<td>0.14</td>
<td>-</td>
<td>0.43</td>
<td>0.43</td>
</tr>
</tbody>
</table>
In addition, the 13 18th century recipes which contained milk and water were investigated to see whether it was only the milk, or liquids in general, which were not boiled.

**Table 4:14 The proportion (p) of 13 18th century infant food recipes containing milk and water in which these ingredients were boiled**

<table>
<thead>
<tr>
<th></th>
<th>Boiled</th>
<th>Not boiled</th>
<th>Not specified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>0.69</td>
<td>-</td>
<td>0.31</td>
</tr>
<tr>
<td>Milk</td>
<td>0.15</td>
<td>0.62</td>
<td>0.23</td>
</tr>
</tbody>
</table>

N.B. The recipes have been strictly listed under 'Not specified' unless it was explicitly stated that boiling occurred, although it is clear from the context of some recipes that boiling probably took place at some point during the preparation. For example, where broths were used, the usual method of cooking would have included simmering for long periods over a fire (Moss, 1781). Therefore the proportion of recipes boiled was possibly higher than that shown in the above tables.

From these results it is apparent that, in the 16th and 17th centuries, the majority (at least 64 - 89%) of the infant foods discovered were boiled during preparation, and that no discrimination was made between boiling milk or boiling any other liquid ingredient. In the 18th century this situation changed quite radically. At least 64% of all recipes were boiled, but when milk was part of the food it was rarely boiled, usually being added after the water or water and cereal had been boiled. In only 14% of the 21 18th century baby foods described here was the milk boiled. Since boiling is the simplest effective method of destroying micro-organisms in food, although not completely sterilising most substances (Hawker et al, 1967) its
employment during food preparation in the past can be taken to provide a very approximate estimate of the "cleanliness" of infant foods. There are several pitfalls in attempting to assess how far infant foodstuffs were responsible for transmitting diseases such as tuberculosis or particularly gastro-intestinal infections to small babies before the need for sterilisation began to be understood in the 19th century. There is no doubt that gastro-intestinal upsets were extremely common in infants, and often led to death, since almost all medical authors alluded to the problem (for example, Nelson, 1753; Smith, 1774; Moss, 1781) but how much this was due to lack of knowledge, care and cleanliness in preparation of the food itself can only be guessed at, despite the assumption of some writers on infant feeding that these foods, dismissed (without real study) as totally bad and unsuitable, were the cause of infantile 'tummy upsets' (Forsyth, 1911; Lyon, 1933; Drake, 1933; Drummond & Wilbraham, 1957; Schwab, 1979).

Other unknown factors to be taken into account before such judgements are made include:

1. The degree of cleanliness of the utensils used to store and/or administer the foods to babies.
2. The length of time which elapsed between boiling the food and its administration to the infant.
3. The degree of freshness and freedom from bacterial contamination of the milk used in making paps, etc., whether or not it was boiled.
4. How far boiling the water (known by contemporaries to be generally contaminated (Guillemeau, 1612; Drummond & Wilbraham, 1957) ) was effective in destroying those pathogenic organisms carried in water.

The above factors are likely to have been different for each child. Whilst cleanliness was upheld as something desirable among the upper and, later, the middle classes (Furnivall, 1868; Mantell, 1787) and among women involved in dairy work (Crawford, 1980), the scrubbing and washing of utensils would have been of little use if the water
used was contaminated; and among the very poor there is no evidence of such conventions of cleanliness. Similarly, insisting that a recipe should contain 'new milk' (Jones, 1579; Dionis, 1719) was of small effect if the cow was infected with tuberculosis or brucellosis. In recipes which specified that pap be made 'in bulk', and small amounts used as needed (Bonet, 1684; Trumbach, 1978) contamination of the food may have occurred between its preparation and its being administered to the child, particularly in hot weather.

Therefore no firm conclusions can be drawn from the knowledge that infant foods were generally boiled during the 16th and 17th centuries but not in the 18th century. The most which can be said is that, if the food was given soon after preparation, was given in a receptacle thoroughly washed in fresh spring water rather than river water, and contained fresh milk from a disease-free animal, it is less likely to have transmitted disease organisms to the child in the 16th century than in the 18th century. It is also possible that the 16th and early 17th century baby was more likely to be given fresh milk than an infant in the 18th century, when the individual ownership of cows was less and the milk supply in towns was known to be very poor, inefficient, and was usually sour, skimmed and contaminated (Moss, 1781; Trusler, 1786; Drummond & Wilbraham, 1957).

It might be expected that such an important change in preparation, if generally observed, would be accompanied by a rise in infant mortality. In fact no rise has been noted after 1748 (Glass & Eversley, 1974; Schofield, 1979) but this does not necessarily mean that there was no increased mortality from this cause since any rise could have been counteracted by other factors, such as decreased use of wet nurses; improvements in maternal nutrition; changes in neonatal feeding practices; and unknown environmental changes.

The boiling of milk

The idea that the milk component of infant foods should not be boiled seems to have originated in the medical literature with William Cadogan (1748), the basis of his opinion being that milk was changed
in some way by boiling and that boiled milk would therefore be harmful
to infants. Like the rest of his opinions on infant feeding, most of
which were sound, this belief was repeated throughout the 18th century.
Only a few physicians towards the end of the 18th century began to
say that it was alright for mothers and nurses to boil milk (Smith,
1774; Osborne & Denman, 1776). Significantly, Hugh Smith (1774)
said that milk could be boiled especially if the child had gripes so,
apparently, some physicians had noted that boiling milk prevented
or cured 'the gripes', thus implying that the use of unboiled milk
in infant foods was related to some cases of gastro-intestinal upsets.

Conclusions

1. The great majority of infant foods were boiled during preparation
in the 16th and 17th centuries but in the 18th century (apparently
from Cadogan's belief that boiled milk was changed in composition
and could harm infants) the milk used in infant foods was not
boiled, usually being added after the cereal and water had been
boiled.

2. Because of various unknown factors, no firm conclusions as to
the effects of this practice on infants can be made, although
it is possible that 18th century infants could have suffered
more gastro-intestinal problems because of this practice than
their 16th and 17th century counterparts.
Ideas and opinions about the foods used for mixed feeding

Although the previous section dealt with specific types of baby foods these were not the only foods recommended, or necessarily given, to all infants. Physicians in particular had strong opinions about which substances were suitable and which were not, and from these recommended foods, and those which were condemned as unsuitable for infants, it is possible to gain a picture of what some infants were given for their first solid food.

Results and discussion

In order to give a clear view of opinions throughout the period 1500 to 1800, the results in this section are first given for each of the three centuries.

The 16th century

Five authors discussed the foods used for mixed or supplementary feeding (Wurtz, 1563; Pare', 1575; Jones, 1579; Ste Marthe, 1584; Muffet, 1584).

Table 4.15: The proportion (p) of 5 16th century authors who recommended, condemned, or said foods were commonly used for mixed feeding

<table>
<thead>
<tr>
<th>Food</th>
<th>Recommended</th>
<th>Said to be common</th>
<th>Condemned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Broth</td>
<td>0.60</td>
<td>1.0</td>
<td>0.20</td>
</tr>
<tr>
<td>Bread in broth</td>
<td>0.20</td>
<td></td>
<td>-</td>
</tr>
<tr>
<td>Bread</td>
<td>-</td>
<td>0.20</td>
<td>-</td>
</tr>
<tr>
<td>Foods like milk</td>
<td>0.40</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Meat</td>
<td>0.20</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Pre-chewed foods</td>
<td>-</td>
<td>0.20</td>
<td>-</td>
</tr>
<tr>
<td>Sweet foods</td>
<td>-</td>
<td></td>
<td>0.20</td>
</tr>
</tbody>
</table>
The 17th century

12 authors discussed the foods used for mixed feeding (Guillemeau, 1612; Glisson, 1651; Johnston, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675; Harris, 1689; McMath, 1694; Newcome, 1695; Pechey, 1697; Ettmueller, 1699; Barrett, 1699).

Table 4.16: The proportion (p) of 12 17th century authors who recommended, condemned, or said foods were commonly used for mixed feeding

<table>
<thead>
<tr>
<th>Food</th>
<th>Recommended</th>
<th>Said to be common</th>
<th>Condemned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap</td>
<td>0.68</td>
<td>0.33</td>
<td>0.33</td>
</tr>
<tr>
<td>Panada</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Broth</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bread in broth</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bread</td>
<td>0.17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Gruel</td>
<td>0.17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Milk/milk + water</td>
<td>0.33</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Milk mixtures</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Foods like milk</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Meat</td>
<td>0.17</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Pulse</td>
<td>0.08</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Fruit</td>
<td>-</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Prechewed foods</td>
<td>-</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Alcoholic drinks</td>
<td>-</td>
<td>0.08</td>
<td>0.08</td>
</tr>
<tr>
<td>Others</td>
<td>0.08</td>
<td>-</td>
<td>0.17</td>
</tr>
</tbody>
</table>

The 18th century

35 authors discussed the foods used for mixed feeding in the 18th century (Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Arbuthnot,
1732; Allen, 1733; Bracken, 1737; Ladies Dispensatory, 1740; Hoffman, 1740; Full View, 1742; Astruc, 1746; La Motte, 1746; James, 1746; Sloane, 1748; Cadogan, 1748; Exton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Gent. Mag., 1765; Cooke, 1768; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Osborne & Denman, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Hamilton, 1792; Mears, 1797).
Table 4.17: The proportion (p) of 35 18th century authors who recommended, condemned, or said foods were commonly used for mixed feeding

<table>
<thead>
<tr>
<th>Food</th>
<th>Recommended P</th>
<th>Said to be common P</th>
<th>Condemned P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap</td>
<td>0.34</td>
<td>0.54</td>
<td>0.29</td>
</tr>
<tr>
<td>Panada</td>
<td>0.23</td>
<td>0.17</td>
<td>-</td>
</tr>
<tr>
<td>Foods similar to pap</td>
<td>-</td>
<td>0.23</td>
<td>0.20</td>
</tr>
<tr>
<td>Broth</td>
<td>0.29</td>
<td>-</td>
<td>0.06</td>
</tr>
<tr>
<td>Bread/rice in broth</td>
<td>0.17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Bread</td>
<td>0.17</td>
<td>0.03</td>
<td>0.11</td>
</tr>
<tr>
<td>Gruel</td>
<td>0.06</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Milk/milk + water</td>
<td>0.09</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Milk mixtures</td>
<td>0.17</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Foods like milk</td>
<td>0.03</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Meat</td>
<td>0.09</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Fruit</td>
<td>0.03</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>Vegetables</td>
<td>0.03</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Biscuits/cakes/ pastries/puddings</td>
<td>-</td>
<td>0.03</td>
<td>0.06</td>
</tr>
<tr>
<td>Sweetmeats</td>
<td>-</td>
<td>-</td>
<td>0.06</td>
</tr>
<tr>
<td>Sugar</td>
<td>-</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>0.03</td>
<td>0.09</td>
</tr>
<tr>
<td>Pre-chewed foods</td>
<td>-</td>
<td>0.06</td>
<td>0.09</td>
</tr>
<tr>
<td>Whatever mother/ nurse eats</td>
<td>-</td>
<td>0.09</td>
<td>-</td>
</tr>
<tr>
<td>Alcoholic drinks</td>
<td>-</td>
<td>0.14</td>
<td>0.14</td>
</tr>
<tr>
<td>Opiates</td>
<td>-</td>
<td>0.09</td>
<td>-</td>
</tr>
<tr>
<td>Other foods</td>
<td>0.17</td>
<td>-</td>
<td>0.17</td>
</tr>
</tbody>
</table>

These tables show that although increasing numbers of foodstuffs were mentioned, there was no close relationship in the 16th, 17th or 18th century between the substances recommended by medical writers and those said to be in common use in the same period.
The foods recommended, said to be commonly used, and condemned as unsuitable were then considered separately in an attempt to see which were the most favoured substances for mixed feeding both for each century and in entirety.

**Recommended foods**

40 medical writers recommended foods for mixed feeding (Paré, 1575; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Johnston, 1657; Sharp, 1671; Mauriceau, 1673; Culpeper, 1676; McMath, 1694; Pechey, 1697; Ettmueller, 1699; Barret, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Bracken, 1737; Hoffman, 1740; Full View, 1742; James, 1746; Cadogan, 1748; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Gent. Mag., 1765; Cooke, 1768; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Osborne & Denman, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Hamilton, 1792; Mears, 1797; Young, late 18th).
Table 4.18: The proportion (p) of 40 medical writers who recommended particular foods for mixed feeding 1500-1800.

<table>
<thead>
<tr>
<th>Food</th>
<th>16th century (n=3)</th>
<th>17th century (n=9)</th>
<th>18th century (n=28)</th>
<th>Total (n=40)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Pap</td>
<td>1.0</td>
<td>0.89</td>
<td>0.43</td>
<td>0.58</td>
</tr>
<tr>
<td>Panada</td>
<td>-</td>
<td>0.11</td>
<td>0.29</td>
<td>0.23</td>
</tr>
<tr>
<td>Broth</td>
<td>0.33</td>
<td>0.11</td>
<td>0.36</td>
<td>0.30</td>
</tr>
<tr>
<td>Bread/Rice in broth</td>
<td>0.33</td>
<td>0.11</td>
<td>0.21</td>
<td>0.20</td>
</tr>
<tr>
<td>Bread</td>
<td>-</td>
<td>0.22</td>
<td>0.21</td>
<td>0.20</td>
</tr>
<tr>
<td>Gruel</td>
<td>-</td>
<td>0.22</td>
<td>0.07</td>
<td>0.10</td>
</tr>
<tr>
<td>Milk/milk + water</td>
<td>-</td>
<td>0.44</td>
<td>0.11</td>
<td>0.18</td>
</tr>
<tr>
<td>Milk mixtures</td>
<td>-</td>
<td>0.11</td>
<td>0.21</td>
<td>0.18</td>
</tr>
<tr>
<td>Foods like milk</td>
<td>0.67</td>
<td>0.11</td>
<td>0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>Meat</td>
<td>0.33</td>
<td>0.22</td>
<td>0.11</td>
<td>0.15</td>
</tr>
<tr>
<td>Pulse</td>
<td>-</td>
<td>0.11</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>Fruit</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Vegetables</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Other foods*</td>
<td>-</td>
<td>0.11</td>
<td>0.21</td>
<td>0.18</td>
</tr>
</tbody>
</table>

*Includes clear whey; gruels

Foods commonly given

35 medical writers said certain foods were commonly given to infants (Wurtz, 1563; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Muffet, 1584; Guillemeau, 1612; Glisson, 1651; Johnston, 1657; Mauriceau, 1673; Harris, 1689; McMath, 1694; Ettmueller, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Allen, 1733; Hoffman, 1740; Full View, 1742; Hurlock, 1742; Astruc, 1746; La Motte, 1746; Sloane, 1748; Cadogan, 1748; Exton, 1751; Nelson, 1753; Brouzet, 1755; Gent. Mag., 1765; Cooke, 1768; Mackenzie, 1770; Moss, 1781; Spence, 1784; Underwood, 1784; Mantell, 1787; Baudelocque, 1790; Hamilton, 1792).
Table 4.19: The proportion (p) of 35 medical writers who described
the foods which were commonly given to infants for
mixed feeding 1500-1800

<table>
<thead>
<tr>
<th>Food</th>
<th>16th century (n=5)</th>
<th>17th century (n=7)</th>
<th>18th century (n=23)</th>
<th>Total (n=35)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Panada</td>
<td>-</td>
<td>-</td>
<td>0.26</td>
<td>0.17</td>
</tr>
<tr>
<td>Similar to pap</td>
<td>-</td>
<td>-</td>
<td>0.35</td>
<td>0.23</td>
</tr>
<tr>
<td>Broths and bread</td>
<td>0.20</td>
<td>-</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>Bread</td>
<td>0.20</td>
<td>-</td>
<td>0.14</td>
<td>0.06</td>
</tr>
<tr>
<td>Sugar</td>
<td>-</td>
<td>-</td>
<td>0.17</td>
<td>0.11</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.03</td>
</tr>
<tr>
<td>Wines/spirits</td>
<td>-</td>
<td>0.14</td>
<td>0.22</td>
<td>0.17</td>
</tr>
<tr>
<td>Opiates</td>
<td>-</td>
<td>-</td>
<td>0.13</td>
<td>0.09</td>
</tr>
<tr>
<td>Pre-chewed foods</td>
<td>0.20</td>
<td>0.14</td>
<td>0.09</td>
<td>0.11</td>
</tr>
<tr>
<td>Whatever nurse/mother eats</td>
<td>-</td>
<td>-</td>
<td>0.13</td>
<td>0.09</td>
</tr>
<tr>
<td>Meat</td>
<td>-</td>
<td>0.14</td>
<td>0.13</td>
<td>0.11</td>
</tr>
<tr>
<td>Fruit</td>
<td>-</td>
<td>0.14</td>
<td>-</td>
<td>0.03</td>
</tr>
<tr>
<td>Pastries/puddings</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
<td>0.03</td>
</tr>
</tbody>
</table>

Condemned foods

33 medical writers condemned some foods as unsuitable for mixed
feeding (Pare, 1575; Ste Marthe, 1584; Guillemeau, 1612; Johnstone,
1657; Mauriceau, 1673; Harris, 1689; McMath, 1694; Newcome, 1695;
Pechey, 1697; Etmmueiller, 1699; Nurses Guide, 1729; Maubray, 1730;
Arbuthnot, 1732; Bracken, 1737; Hoffmann, 1740; Full View, 1742;
James, 1746; Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Gent.
Mag. 1765; Cooke, 1768; Buchan, 1769; Mackenzie, 1770; Smith, 1774;
Rosenstein, 1776; Moss, 1781; Spence, 1784; Underwood, 1784;
Mantell, 1787; Baudelocque, 1790; Hamilton, 1792; Mears, 1797).
The fact that certain substances were singled out as being unsuitable for young babies indicates that these particular foods must have been in fairly common use. In some cases an author condemned the use of a food which he said was in common use. For example, Nelson (1753), an anonymous writer in the Gentleman's Magazine (1765) and Cooke (1768) all decried the use of the water-pap which they said was normally given to infants. So, to some extent, the following table can be used in conjunction with the preceding one of common foods when assessing what children were actually given.

Table 4.20: The proportion (p) of 33 medical writers who condemned particular foods as being unsuitable for young infants 1500-1800

<table>
<thead>
<tr>
<th>Food</th>
<th>16th century (n=2)</th>
<th>17th century (n=8)</th>
<th>18th century (n=23)</th>
<th>Total (n=33)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pap</td>
<td>P 0.50</td>
<td>P 0.50</td>
<td>P 0.44</td>
<td>P 0.46</td>
</tr>
<tr>
<td>Similar to pap</td>
<td>-</td>
<td>-</td>
<td>0.30</td>
<td>0.21</td>
</tr>
<tr>
<td>Bread</td>
<td>-</td>
<td>-</td>
<td>0.17</td>
<td>0.12</td>
</tr>
<tr>
<td>Biscuits/puddings/cakes</td>
<td>-</td>
<td>-</td>
<td>0.09</td>
<td>0.06</td>
</tr>
<tr>
<td>Sweetmeats</td>
<td>0.50</td>
<td>-</td>
<td>0.09</td>
<td>0.09</td>
</tr>
<tr>
<td>Sugar</td>
<td>-</td>
<td>-</td>
<td>0.22</td>
<td>0.15</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>-</td>
<td>0.13</td>
<td>0.09</td>
</tr>
<tr>
<td>Broths, etc.</td>
<td>-</td>
<td>-</td>
<td>0.09</td>
<td>0.06</td>
</tr>
<tr>
<td>Meat</td>
<td>- 0.13</td>
<td>-</td>
<td>0.17</td>
<td>0.15</td>
</tr>
<tr>
<td>Fruit</td>
<td>- 0.13</td>
<td>-</td>
<td>0.04</td>
<td>0.06</td>
</tr>
<tr>
<td>Pre-chewed food</td>
<td>- 0.13</td>
<td>-</td>
<td>0.13</td>
<td>0.12</td>
</tr>
<tr>
<td>Alcoholic drinks</td>
<td>- 0.13</td>
<td>-</td>
<td>0.22</td>
<td>0.18</td>
</tr>
<tr>
<td>Other foods*</td>
<td>- 0.25</td>
<td>-</td>
<td>0.26</td>
<td>0.24</td>
</tr>
</tbody>
</table>

*Include tea; caudle; opiates.
It is clear from these findings that throughout this 300 year period the most common food given to infants was pap (or a substance very similar to it) and although 16th century authors thought this was a very suitable food, as time passed increasing numbers of medical writers condemned its use and ceased to recommend it as a baby food. By the late 18th century more and more alternatives were suggested to pap, as it was said to be commonly made, the most popular of which were bread or rice in broth and panada, which (as was seen in Part A) was usually a bread and broth mixture. Despite this recommendation, broth was not apparently in common use and panada, although increasingly recommended over time, does not seem to have been a very popular food at any period compared to pap.

Since the nutritional composition and preparation of pap has been shown to have deteriorated after the 16th and early 17th centuries, it is probable that the increasing condemnation of this substance by concerned medical authors was linked to this fact, especially since those writing from Cadogan (1748) onwards gave recipes for milk mixtures and broth mixtures which were more like the paps of the 16th century (see Part A and Appendix II).

The remaining substances were frequently mentioned by only one or two authors and reflect more the individual preferences of the men concerned, particularly in the 18th century, than the diet of actual children. Hunter (1908), Heber (1936), Hopkirk (1953), Hedley (1975) and Trumbach (1978) all described late 17th and 18th century children who were fed on various forms of pap as their first solid food. Possible exceptions to this were pre-chewed foods and the concern with alcoholic drinks and opiate drugs used for sedating infants such as Godfrey's cordial.

Alcoholic drinks and opiates

The consumption of easily available and very cheap gin during the 18th century was a severe social problem among the poor (George, 1966; Marshall, 1969; Jarrett, 1974) and, as can be seen on the far right of Hogarth's *Gin Lane* (fig. 4.1), it was obviously not uncommon for infants to be given tots of gin to keep them quiet.
James Nelson said in 1753 "There is a practice among the vulgar still more shocking.....that of giving drams to the children themselves, even while infants; they ---- pour the deadly poison down the poor babe's throat even before it can speak."

And William Buchan (1769) said "Some parents teach their children to guzzle ale, and other strong liquors, at every meal" but, in a time when water was not commonly drunk (Drummond & Wilbraham, 1957) he approved of "fine smallbeer, or a little wine mixed with water". Both of these were of low alcoholic content and were 'watered-down' versions of what the adult population normally drank (Drummond & Wilbraham, 1957; Wilson, 1976).

Walter Harris (1689) had been the first to draw attention to this practice when he complained about the monthly nurses (women who cared for the mother and infant for the first month after delivery) who "make no scruple to give wine or even brandy sweetened with sugar to newborn infants as often as they cry immoderately, to pacify them, as they say, and keep themselves easy." He also complained that children were commonly given opiates in the form of cordials, "which are less safe, nay downright noxious to children."

John Cooke made a similar complaint in 1768 when he referred to "that wicked custom of forcing opiates.....down their throats, to compel them to lie quiet, while the lazy nurse may sleep and forget them."
Figure 4.1: William Hogarth's *Gin Lane* 1751
Pre-chewed foods

The pre-chewed foods said to be in common use were foods, often of the adult diet, which were chewed by the nurse or mother to a fine consistency before being placed in the infant's mouth. This was an ancient and very widespread practice and may have been so common that it was not considered worthy of mention by most authors.

Pre-chewed food was discussed by several ancient medical writers beginning with Soranus of Ephesus in the 1st/2nd century AD. It must have been a common custom since he condemned the habit for "the morsels which the wet-nurse has formed by munching are harmful because of being combined with phlegm" (Soranus, 1956). However, Galen, in the next century, recommended pre-chewing and again indicated that it was a common practice, "as women taught by experience do: first bread and then vegetables and meat and other such things, grinding them before putting them into the babies mouths" (Galen, 1951). Avicenna also recommended pre-chewing in the 10th century (Avicenna, 1966), as did the medieval midwife Trotula of Salerno (Trotula, 1940).

Wurtz (1563) described the method when used for pap. "In some places children are fed in this manner; they take a spoonful of pap out of the pan, put it into the mouth, then put it again into the spoon, then they give it to the child."

In Colonial America, a minister stated in 1750 that "the nurse puts the meat first into her own mouth and chews and feeds her child with it" (Caulfield, 1952).

Brouzet (1755) said that foods were pre-chewed because it was believed that infants were incapable of chewing, and that it was common "in many countries very distant from each other: it is used in Italy, in Turkey, and in almost all Asia; it is also found in America, and is used in the Caribee Islands, at Canada, etc." Brouzet's main complaint was that "the saliva of nurses is sometimes vicious, many of them have rotten and stinking teeth, foul gums, etc." (quite possibly due to scurvy).
Despite increasing condemnation, this practice survived at least until the 19th century in England and is still general in many parts of the world today (Mead, 1963; Ploss, Bartels & Bartels, 1935; Mondot-Bernard, 1977).

Pre-chewing foods of the adult diet would have mechanically reduced the size of the food particles and produced a slight degree of pre-digestion of starches by mixture with the ptyalin in the saliva of the nurse, the actual food value of the substance remaining unchanged. The idea of pre-chewing paps and foods, although distasteful to modern western societies, is widely accepted as normal among less developed peoples (Mead, 1963; Mondot-Bernard, 1977). It may have jeopardised the health of the infant if the mother or nurse was, as Brouzet stated (1755), diseased or had an infection of the mouth and gums, but was probably a lesser source of infection than feeding a baby with an unwashed or poorly-cleaned feeding vessel.

If pap and pre-chewed foods of the adult diet were the substances most commonly given to infants as their first solid foods, then the nutritive value of those given to each child would have varied greatly, depending upon:

1. The particular recipe and method employed in making the pap.
2. The quality of the diet of the family concerned.
3. Whether only certain foods were selected from the adult diet to be pre-chewed for infants, or whether the baby partook of all the foods eaten by the family. (Brouzet (1755) said that women gave them most of the foods they ate themselves and Hurlock (1742) said that he was told by the mother of a young child that "at about a quarter old she would begin to give them anything that she ate or drank herself, and that her children care not for spoon victuals").

Given such variables it can only be concluded that the nutritional value of infant foods reflected the diet and material circumstances of the family in which the child lived for the first months of his life.
Conclusions

1. There was no close relationship between the foods recommended by medical writers and those said to be in common use in the same period.

2. The most common food given to infants was pap. 16th century writers thought this a suitable food but after the 17th century many medical authors condemned its use and ceased to recommend it, preferring alternative recipes of bread or rice in broth or panada. This change in attitude may have been related to the changing composition and method of making pap.

3. It was apparently common to give infants alcoholic drinks (particularly gin or brandy) especially during the late 17th and the 18th century. This practice was condemned by medical writers.

4. Some, possibly many, infants were given foods pre-chewed by the nurse or mother, a custom which excited increasing dis­approval from medical writers.

5. Many unknown factors relating to the methods of preparing foods, the quality of the family diet, and the variation of diet given to infants, make impossible any detailed assessment of the nutritional quality of the foods given to babies.
Part C

The practice of mixed feeding

Three factors will be discussed in this section.
1. The age at which foods other than breast milk were introduced.
2. The amount of food given.
3. Disorders and diseases which were associated with the introduction of foods.

1. The age or time when foods other than breast milk were introduced

This was not a topic with which medical authors were particularly concerned, possibly because it was assumed that women would give additional foods either when a child appeared ready for them or according to the custom among their family and friends.

Apart from two heirs to the throne (Hunter, 1908; Hunt, 1972; Hedley, 1975; Marvick, 1974) no evidence has been discovered for the beginning of mixed feeding among actual children. This section is therefore confined to the recommendations of medical authors.

Results and discussion

29 writers discussed the introduction of mixed feeding (Jones, 1579; Ste Marthe, 1584; Pare, 1575; Guillemeau, 1612; Sharp, 1671; Mauriceau, 1673; Culpeper, 1675/6; McMath, 1694; Pechey, 1697; Barret, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Hoffman, c1740; James, 1746; Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Armstrong, 1771; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Hamilton, 1792; Mears, 1797; Young, late 18th).

The two main factors which these authors thought were important when discussing the time to begin mixed feeding were:
1. The age of the child.
2. The appearance of the first incisor teeth.
20 mentioned a certain age at which infants should be given additional foods (Jones, 1579; Ste Marthe, 1584; Mauriceau, 1673; McMath, 1694; Pechey, 1697; Barret, 1699; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Cadogan, 1748; Nelson, 1753; Buchan, 1769; Armstrong, 1771; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Young, late 18th).

Table 4.21: The proportion (p) of 20 medical authors who recommended the age at which mixed feeding should begin 1500-1800

<table>
<thead>
<tr>
<th>Age (months)</th>
<th>16th century (n=2)</th>
<th>17th century (n=4)</th>
<th>18th century (n=14)</th>
<th>Total (n=20)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>2 - 3</td>
<td>-</td>
<td>0.75</td>
<td>0.21</td>
<td>0.30</td>
</tr>
<tr>
<td>3 - 4</td>
<td>-</td>
<td>-</td>
<td>0.36</td>
<td>0.25</td>
</tr>
<tr>
<td>4 - 5</td>
<td>-</td>
<td>-</td>
<td>0.14</td>
<td>0.10</td>
</tr>
<tr>
<td>5 - 6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>6 - 7</td>
<td>-</td>
<td>-</td>
<td>0.07</td>
<td>0.05</td>
</tr>
<tr>
<td>7 - 8</td>
<td>0.50</td>
<td>-</td>
<td>0.07</td>
<td>0.10</td>
</tr>
<tr>
<td>8 - 9</td>
<td>0.50</td>
<td>-</td>
<td>0.07</td>
<td>0.10</td>
</tr>
<tr>
<td>Some months</td>
<td>-</td>
<td>0.25</td>
<td>-</td>
<td>0.05</td>
</tr>
<tr>
<td>Nearing a year</td>
<td>-</td>
<td>-</td>
<td>0.07</td>
<td>0.05</td>
</tr>
</tbody>
</table>

Thus, although 7 - 9 months was the favoured time to introduce mixed feeding in the 16th century, there was a change in the late 17th and 18th centuries towards much earlier introduction of additional food. 65% of 17th and 18th century writers thought that this should be given at 2 - 5 months, with the majority favouring 2 - 4 months.

The age of the child was not the only criterion of the majority of authors. The factors to be taken into account were often several, as shown in the following table:
Table 4.22: The proportion (p) of 29 medical authors who described the factors to be considered when beginning mixed feeding 1500-1800

<table>
<thead>
<tr>
<th>Factors</th>
<th>16th century (n=3)</th>
<th>17th century (n=7)</th>
<th>18th century (n=19)</th>
<th>Total (n=29)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age only</td>
<td>p</td>
<td>p</td>
<td>p</td>
<td>p</td>
</tr>
<tr>
<td>Teeth only</td>
<td>-</td>
<td>0.14</td>
<td>0.05</td>
<td>0.07</td>
</tr>
<tr>
<td>Age + teeth</td>
<td>0.33</td>
<td>0.14</td>
<td>0.11</td>
<td>0.14</td>
</tr>
<tr>
<td>Age + other factors*</td>
<td>-</td>
<td>-</td>
<td>0.26</td>
<td>0.17</td>
</tr>
<tr>
<td>Factors* other than age and teeth</td>
<td>0.33</td>
<td>0.29</td>
<td>0.21</td>
<td>0.24</td>
</tr>
</tbody>
</table>

*Occasions when food could be given regardless of the age of the child and whether or not he had cut his first teeth included, in order of importance:

1. If the milk supply of the nurse or mother was insufficient (Paré, 1575; Hoffmann, 1740; Cadogan, 1748; Brouzet, 1755; Baudelocque, 1790).

2. To get the child used to other foods early (Armstrong, 1771; Rosenstein, 1776; Hamilton, 1792; Mears, 1797).

3. If the child was particularly lusty and strong (Sharp, 1671; Culpeper, 1675-6; Underwood, 1784).

4. If the child was unable to suck (Hoffmann, 1740).

5. If the nurse was menstruating** (Rosenstein, 1776).

**See chapter on wet nursing.

The idea that the appearance of the child's first teeth was the signal for mixed feeding to begin went back at least as far as the 2nd century AD, when Galen suggested it (Galen, 1951), and was repeated by Avicenna in the 10th century (Avicenna, 1966). Soft
foods such as pap were probably given earlier and the cutting of the first teeth (with the implication that the child was then able to chew) was the sign that more varied foods than paps or panadas could begin to be given in preparation for weaning). Similarly, the authors who thought it a good idea to get the child used to foods early on had in mind the eventuality that early weaning might be necessary (Armstrong, 1771; Rosenstein, 1776; Hamilton, 1792; Mears, 1797).

Two definite references from Europe have been found to verify this. Hieronymus Mercurialis, an Italian physician from Padua, is quoted as saying in 1552 that Nature intended milk to last into the second or third year but he was "bound to admit that these modern women do start giving sopped bread as early even as the third month" (Still, 1931). Hunt (1972) quotes de Vallambert (1565) as saying "Long before the first teeth appear, even before the age of three months ---- the women of the countryside, and the poor women of the towns (give bouillie to their children) because if the latter took no other nourishment beside milk, they would not be able to go so long without sucking as they do, during the time when mothers are absent and held down by their work, ----. Because of their continued labour and poor life (these mothers) do not have a lot of milk, so that they would not be capable of feeding the child if he did not take other nourishment in addition to milk from the breast". This was also reported to be the case in 17th century Scotland. "There are many women who give pap to their children as soon as they are born, and nurses who have little milk ordinarily do so, to hinder their crying as they will do when they are hungry" (McMath, 1694).

The problem of an inadequate supply of breastmilk was not confined to the very poor since pap was also given to the future King Louis XIII in 1601, at the age of 18 days, because his physician thought the nurses had insufficient milk to satisfy his hunger (Hunt, 1972; Marvick, 1974).

The only indication of general practice in the late 18th century comes from Thomas Young who admitted that although breastmilk only was
usually advised for 8 - 9 months, women "oft begin to give it much earlier nowadays"; and in 1762, the future George IV was given pap in addition to milk from his wet nurse within a few days of his birth (Hunter, 1908; Hedley, 1975). This seems to have been a normal custom since there is no indication that it was an exceptional procedure, or that his wet nurse had insufficient breastmilk.

In view of these comments, the late age recommended by Jones (1579) and Ste Marthe (1584) probably bore little relation to the practice of the majority of mothers and nurses and, if age was ever taken as an absolute requirement, the much earlier age advised from the late 17th century onwards was probably closer to reality. It is similar to that advised and practised today in Britain (Present day practice, 1974), although modern pre-industrial societies vary in the time at which they begin giving additional food, ranging from 0 - 4 months to 12 months and over, depending upon the custom of their particular society or ethnic group (Mondot-Bernard, 1977).

In pre-industrial Britain, women probably took into account several factors when deciding to supplement their breastmilk, not least their own ability to satisfy their child's hunger. The recommendations of physicians would not have reached the mass of the population, although possibly they influenced the upper and middle classes (Nelson, 1753; Trumbach 1978), so that this decision was undoubtedly made by each individual woman according to the needs of herself, her child, and her family, and related to the common practices she observed around her.

2. The quantity of food given

Evidence for how much and how often additional foods were given to infants proved difficult to find since few writers before the 18th century mentioned this point, and those who were concerned with the quantity or frequency of feeding tended to have individual and differing opinions from which a coherent picture of practice could not be composed.
There was a division of recommendations, and possibly practice, from c1748 following the appearance of Cadogan's (1748) treatise, so the periods discussed here will be:
1. 1500 - 1747
2. 1748 - 1800

Results and discussion

1. 1500 - 1747

Frequency of mixed feeding

9 authors discussed this point (Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Mauriceau, 1673; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730; Hurlock, 1742).

The majority suggested that additional food be given only once a day at first (Guillemeau, 1612; Mauriceau, 1673; McMath, 1694; Dionis, 1719; Nurses Guide, 1729; Maubray, 1730). Maubray (1730) specified that the morning was the best time, whilst The Nurses Guide (1729) suggested feeding the child at noon. This could then be increased to twice a day (Guillemeau, 1612; McMath, 1694; Maubray, 1730) although The Nurses Guide (1729) warned against giving pap too often. Jones (1579) was exceptional in recommending that children be fed at meal times, presumably indicating three times a day (Drummond & Wilbraham, 1957).

Two authors recommended frequent or demand feeding of foods (Ste Marthe, 1584; Hurlock, 1742) although Ste Marthe said that this was only if the child really was crying for food. As a variant of demand feeding, McMath (1694) suggested that the frequency of feeding could be varied according to the needs of the individual child.

The quantity of food

This was rarely discussed although Mauriceau (1673) said only a little
should be given at first, and five writers warned against over-feeding the child (Ste Marthe, 1584; Johnston, 1657; McMath, 1694; Cheyne, 1724; Hurlock, 1742). Harris (1689) said that feeding infants with meat too early was inseparable from over-feeding.

Over-feeding very young infants was not said to be common during this long period. Hurlock (1742) alone quoted an example. A child who, throughout her first year, frequently had calf's head, pig, turkey, etc., and "for a good part of the summer had half a handsome chicken daily dressed for dinner; the flesh of which, was all, except for the skin and sinews, constantly eat up by the child, and liked better roasted than boiled: besides which, she eat her pannikin of milk victuals for breakfast; again, at the Nurses Breakfast time, tea with toast and butter; and about eleven in the morning some bread and butter, or else broth; these with the addition of the several feedings between noon and night etc. may well be supposed to have bred ill juices in the blood of so young a child." This description was presented as exceptional, the result of the ignorance of the parents about dieting young infants according to Hurlock.

The warnings of others against over-feeding were because of the diseases it was said to cause. These included vomiting, indigestion, distension and pain in the belly (Ste Marthe, 1584; Johnston, 1657; McMath, 1694), gripes, colic and diarrhoea (McMath, 1694; Cheyne, 1724), difficulty in breathing (Johnston, 1657; McMath, 1694) and ultimately death (Ste Marthe, 1584; McMath, 1694). These would even today be the expected consequences of gross over-feeding, but there is no evidence that these were anything but warnings against over-indulgence rather than reflections of actual practice.

(NB. Many of these are also symptomatic of salmonella and other gastro-intestinal infections as well as protein-calorie deficiency (Kwashiokor) so that there may have been factors here other than simple over-feeding).

From the lack of interest by medical writers in the frequency and quantity of additional foods which were to be given to infants, this
was apparently a matter left to the women involved in child care and the mother or nurse used her own judgement and/or experience based upon what she observed as usual around her.

2. 1748-1800

**Frequency of mixed feeding**

11 authors discussed how often food was to be given to the child (Cadogan, 1748; Brouzet, 1755; Gent. Mag., 1765; Cooke, 1768; Buchan, 1769; Armstrong, 1771; Moss, 1781; Underwood, 1784; Mantell, 1787; Hamilton, 1792; Mears, 1797).

As in the preceding period it was suggested that infants should be fed only once or twice a day at first (Cadogan, 1748; Buchan, 1769; Armstrong, 1771; Mantell, 1787; Hamilton, 1792), and that by the age of 5 or 6 months infants should be fed 2-3 times a day (Cadogan, 1748; Underwood, 1784; Mantell, 1787; Hamilton, 1792), and not more than four times in 24 hours (Gent. Mag., 1765; Cooke, 1768).

Armstrong (1771) thought that feeds should be frequent at first and Brouzet (1755) indicates that this may have been common practice since he said nurses gave food whenever their babies cried. Again, this may have been related to a woman's milk supply since Moss (1781) said additional food could be given as often as necessary when the nurse or mother had insufficient milk.

In this period the first mention was made of adhering to set times when feeding very young infants (Cadogan, 1748) and authors were very concerned that they should not be fed at night (which suggests that this may have been a fairly common occurrence) (Cadogan, 1748; Gent. Mag., 1765; Cooke, 1768; Mears, 1797). However, Armstrong (1771) disagreed and recommended that additional foods should first be given only at night so that the mother's rest was not disturbed. Moss (1781) thought that there was nothing wrong in this advice to stick to regular feeding times but said that it was difficult to accomplish in practice.
The quantity of food

Again this was rarely mentioned. Cadogan (1748) said that the quantity given should be ruled by the child's appetite whilst Underwood (1784) thought that it depended upon the strength and circumstance of the child. Mantell (1787) stated that the quantity of food given should be gradually increased.

No medical attention was paid to the balance of the different foods in the child's diet and it is possible that small children could have suffered malnutrition by being over-fed with certain foodstuffs (such as waterpap) whilst not receiving sufficient of all essential nutrients. A less likely possibility (given the concern about overfeeding) is that subnutrition frequently occurred.

The main concern of authors in the second half of the 18th century was over-feeding. 15 authors discussed this problem (Cadogan, 1748; Clarke, 1751; Nelson, 1753; Brouzet, 1755; Cooke, 1768; Buchan, 1769; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Mantell, 1787; Downman, 1788; Hamilton, 1792; Mears, 1797).

Table 4.23: The proportion (p) of 15 medical writers who discussed the problem of over-feeding 1748-1800

<table>
<thead>
<tr>
<th>Statements</th>
<th>Proportion of writers (n=15)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warned against overfeeding</td>
<td>p</td>
</tr>
<tr>
<td>Stated overfeeding was common</td>
<td>0.73</td>
</tr>
<tr>
<td>Gave adverse effects of overfeeding</td>
<td>0.60</td>
</tr>
</tbody>
</table>
The adverse effects of over-feeding were said to be:

1. Gastro-intestinal disorders, such as vomiting, distended painful belly, indigestion, gripes and colic (Cadogan, 1748; Clark, 1751; Buchan, 1769; Armstrong, 1771; Smith 1774; Moss, 1781).

2. Death (Clark, 1751; Moss, 1781; Underwood, 1784; Downman, 1788).

3. Nearly all childhood diseases (Cadogan, 1748; Downman, 1788).

4. Difficulty in breathing (Rosenstein, 1776).

5. Fevers and convulsions (Clark, 1751).

These differed little from the ill-effects noted by earlier writers. The addition of childhood diseases, fevers, etc. was a reflection of the current views of the aetiology of children's disorders such as rickets, in which over-feeding was thought to be a major causative factor (Glisson, 1651).

The over-feeding of infants has been presented as a problem by writers discussing infant feeding in the past (Drummond & Wilbraham, 1957), but it is important to note that, throughout the 300 year period, this was the subject within mixed feeding with which the fewest number of writers was concerned. Only 20 writers (i.e. 35% of those discussing mixed feeding) thought it worthy of mention. Therefore, although it may have been a problem which increased, or became more apparent, in the second half of the 18th century this is by no means certain.

Those discussing it were almost all physicians with practices among the fashionable and wealthy (see Appendix I), among whom over-feeding may well have been a problem; it is unlikely that it was among the poor (Marshall, 1969; Hufton, 1974). Also, with the exception of Clark (1751) and Cooke (1768), they were all major writers on infant feeding and gave a very full discussion of the different aspects of infant nutrition, of which over-feeding was only one. Thus it is suggested that overfeeding was not necessarily
as prevalent as has been assumed since, as one topic within the whole subject of infant feeding, it received relatively little attention, and probably applied only to the children of the rich and to those whose nurses and families could afford to indulge their infants.

This opinion may be reinforced by the fact that, whilst evidence from the present day indicates that young babies fed on the large amounts of food described by 18th century authors rapidly become visibly overweight (Present day practice, 1974; Jelliffe & Jelliffe, 1978), portraits, caricatures, and other pictorial evidence of the period, very rarely depict young babies or children as obese, or even moderately plump.
The relative lack of interest in the actual practice of mixed feeding by both medical and non-medical authors (the latter ignored the subject), was almost certainly because it was considered to be outside the realm of physicians or midwives and among the wealthy was also outside the family. When a child was newly-born, midwives, men-midwives and sometimes physicians would all be involved around the time of the birth and the puerperium. They would thus be concerned with such matters as neonatal feeding, whether the child was to be put out to nurse or stay within the family home. In wealthy homes, once the child had left the lying-in chamber and either entered the home of a wet nurse or been consigned to a distant nursery, his care became the responsibility of women; and the midwives, surgeons and physicians (who wrote the books) were no longer involved.

Similarly, the time of weaning was one which was discussed and noted by diarists and scholarly writers because it was a time of some anxiety, and marked the transition from infancy to childhood. If he was wet nursed, it also marked the child's return home. Thus it was a subject important enough for discussion.

What happened in the period between birth and weaning was the concern of women and was therefore rarely recorded unless something abnormal occurred. It is suggested that acceptance of mixed feeding as being the province of women is the reason why so little information was given about the frequency and amount of supplementary foods, and the age at which they were introduced. Quite simply, the men did not know, and did not regard it as their concern.
3. Diseases and disorders associated with the introduction of mixed feeding

In the 17th and 18th centuries medical writers increasingly associated the intake of foods other than breast milk (particularly pap) with the occurrence of certain diseases.

31 authors discussed this (Guillemeau, 1612; Glisson, 1651; Johnston, 1657; Mauriceau, 1673; Culpeper, 1675/6; Harris, 1689; McMath, 1694; Ettmueller, 1699; Baynard, 1706; Nurses Guide, 1729; Maubray, 1730; Allen, 1733; Bracken, 1737; Ladies Dispensatory, 1740; Full View, 1742; Astruc, 1746; Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Cooke, 1768; Buchan, 1769; Smith, 1774; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Spence, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Hamilton, 1792; Young, late 18th century).

Table 4.24: The proportion (p) of 31 medical authors who associated particular disorders and diseases with mixed feeding in the 17th and 18th centuries

<table>
<thead>
<tr>
<th>Condition</th>
<th>17th century (n=8)</th>
<th>18th century (n=23)</th>
<th>Total (n=31)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro-intestinal disorders</td>
<td>0.38</td>
<td>0.61</td>
<td>0.55</td>
</tr>
<tr>
<td>Worms</td>
<td>0.38</td>
<td>0.17</td>
<td>0.23</td>
</tr>
<tr>
<td>Convulsions</td>
<td>-</td>
<td>0.22</td>
<td>0.16</td>
</tr>
<tr>
<td>Rickets</td>
<td>0.25</td>
<td>0.09</td>
<td>0.13</td>
</tr>
<tr>
<td>Thrush</td>
<td>-</td>
<td>0.13</td>
<td>0.10</td>
</tr>
<tr>
<td>Leanness</td>
<td>-</td>
<td>0.09</td>
<td>0.07</td>
</tr>
<tr>
<td>Fatness (bloatedness)</td>
<td>-</td>
<td>0.09</td>
<td>0.07</td>
</tr>
<tr>
<td>Other conditions*</td>
<td>0.38</td>
<td>0.13</td>
<td>0.19</td>
</tr>
<tr>
<td>Death</td>
<td>0.25</td>
<td>0.22</td>
<td>0.23</td>
</tr>
</tbody>
</table>

*Includes hiccoughs, swooning, lethargy, children's disorders generally.
Most authors only specified "improper foods" as causative agents, but 14 indicted pap - particularly if it was not properly cooked and/or was given at too early an age (Johnston, 1657; Mauriceau, 1673; McMath, 1694; Ettmueller, 1699; Nurses Guide, 1729; Allen, 1733; Bracken, 1737; Ladies Dispensatory, 1740; Nelson, 1753; Brouzet, 1755; Smith, 1774; Rosenstein, 1776; Moss, 1781; Hamilton, 1792).

Table 4.25: The proportion (p) of 14 medical authors who associated particular disorders or diseases with the feeding of pap in the 17th and 18th centuries

<table>
<thead>
<tr>
<th>Condition</th>
<th>Proportion of writers (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro-intestinal disorders</td>
<td>0.79</td>
</tr>
<tr>
<td>Rickets</td>
<td>0.07</td>
</tr>
<tr>
<td>Leanness</td>
<td>0.07</td>
</tr>
<tr>
<td>Hiccoughs</td>
<td>0.07</td>
</tr>
<tr>
<td>Lethargy</td>
<td>0.07</td>
</tr>
<tr>
<td>Children's disorders</td>
<td>0.07</td>
</tr>
<tr>
<td>Death</td>
<td>0.21</td>
</tr>
</tbody>
</table>

The only other foods singled out as causative agents were:

1. Sugar as a cause of looseness (Moss, 1781)

2. Eating flesh meat too early as a cause of worms (Harris, 1689; Allen, 1733; Full View, 1742) and children's disorders (Harris, 1689).

3. Sweet foods, cakes and sweetmeats as a cause of worms (Astruc, 1746) and a cause of death (Cadogan, 1748).

4. Alcoholic drinks as a cause of convulsions (Baynard, 1706).
These were essentially the foibles of individual physicians. Although worms could have been taken in by eating contaminated pork (the meat most commonly eaten by the poor) (Drummond & Wilbraham, 1957), Harris (1689) and his followers were more concerned that infants should not eat meat before they had cut their first teeth and thus tended to blame all childhood ills on its consumption.

**Gastro-intestinal disorders**

Gastro-intestinal upsets, particularly gripes and looseness were the main problem which these authors associated with mixed feeding and this has a modern parallel in the condition known in the Third World as "Weanling Diarrhoea". This condition was originally investigated and named in the Punjab, India, in 1963 and several confirmatory studies have been done, particularly in Latin America, which have established it as an epidemiological entity (Jelliffe & Jelliffe, 1978). It is diarrhoea in infants which is closely connected with the introduction of foods other than breastmilk and is thought to be the result of several interacting factors during the early weaning period including:

1. Enteral infection, associated with a sudden change in intestinal microflora or with large doses of environmental bacterial contamination.

2. The effects of malnutrition, such as diminished intestinal enzymes.

3. A diet of indigestible, ill-cooked foods which may be poorly absorbed or irritant (Jelliffe & Jelliffe, 1978).

In the Punjab, the observed death rate was relatively low in the first 6 months of life (20.6 per 1000), more than doubled in the second 6 months of life (53.6 per 1000), and decreased thereafter until children were completely weaned from the breast by the beginning of the third year of life (Jelliffe & Jelliffe, 1978).

Since, in the 17th and 18th centuries, all three of these contributory
factors would have been present among the poor, especially in times of poor harvests and famine (Appleby, 1973), and at least two (1 and 3) among the more well fed infants, it seems that there existed a similar, if not identical, condition to the "weanling diarrhoea" of the 20th century. This condition would not only explain the reported gastro-intestinal symptoms and deaths, but possibly the cases of convulsions were also the result of diarrhoea and consequent hypernatraemia (Shaw, 1979).

Rickets

The association of mixed feeding with rickets was first explicitly stated by Glisson in his definitive treatise of 1650/1. He observed that children were not affected while they were fed on breast milk alone, thus implicating mixed feeding and weaning from the breast as one cause of the disease. However, Guillemeau (1612) made the observation that "to give him any other nourishment than milk or dishmeate, before he hath teeth, ---- often times doe cause the child to have bunches, or contusions, about his backbone and ribs". He attributed a similar observation to Avicenna in the 10th century and Soranus of Ephesus also noted this phenomenon (Soranus, 1956). This has been taken as an early reference to the disease of rickets as known in the 17th century (Glisson, 1651).

Brouzet (1755) made the interesting comment that rickets was very common in Paris where infants were normally fed on pap but was rare in Languedoc, where the usual food given was panada. He attributed this to the use of malted flour in the preparation of the latter, but probably a more relevant factor was that infants in Languedoc were possibly exposed to more sunlight than in urban Paris, and that (as has been seen in Part A) panada was more likely than pap to contain milk, especially in a country region.

The very few references to leanness (Nurses Guide, 1729; Buchan, 1769) and fatness or bloatedness (Nelson, 1753; Smith, 1774) in connection with mixed feeding implies that protein-calorie malnutrition, such as is seen in some pre-industrial societies today (Jelliffe &
Jelliffe, 1978), was not a great problem in pre-industrial Britain except possibly at times of severe famine (Appleby, 1973), but insufficient evidence has been found to confirm or refute this point.

The fact that 16th century authors did not relate mixed feeding to infantile disorders was probably a reflection of the general lack of interest in the treatment of children's ailments in that period (Rurhah, 1925; Still, 1931), when physicians rarely were consulted by children (McDonald, 1980), and books devoted specifically to children's diseases were rare (Phaire, 1545; Still, 1931). Although there may have been a lower incidence of gastro-intestinal upsets because the foods offered were more suitably prepared (see Part A), this is a less plausible explanation given the general level of hygiene at the time since, as shown in other parts of this study, the connection between infant management and feeding and the health of children was increasingly made as medical interest in the causes and treatment of the diseases of children increased.
Conclusions

1. In the 16th century the ideal age for introducing mixed feeding was 7 - 9 months, but during the late 17th and 18th century the much earlier age of 2 - 4 months was favoured. The age at which foods other than breastmilk were first given was probably earlier than the time recommended by physicians and midwives, depending upon the custom of each woman.

2. Age and the cutting of the first teeth were the two main considerations when starting infants on a mixed diet.

3. Medical authors made few references to the frequency and quantity of additional foods probably because this was thought to be the concern of women. In the second half of the 18th century there was some discussion of over-feeding although this was almost certainly confined to the children of the wealthy.

4. 16th century authors did not relate infantile disorders to the introduction of mixed feeding but those of the 17th and 18th centuries described several conditions which resulted from giving "improper foods", particularly pap. The level of concern of medical authors in this aspect of feeding reflected the increased interest of physicians in childhood diseases, especially in the 18th century.

5. Disorders of the gastro-intestinal tract were a major problem; these were probably a variety of the disease which today is recognised as 'Weanling Diarrhoea'. Other conditions mentioned by relatively few writers, included rickets and worms.
CHAPTER 5

ARTIFICIAL FEEDING

A: THE INCIDENCE OF, AND REASONS FOR, HANDFEEDING

B: MEDICAL IDEAS AND OPINIONS ABOUT ARTIFICIAL FEEDING
Sources

The following texts and manuscripts were analysed to obtain data on artificial feeding. This subject was not fully discussed before the 18th century but, for the sake of completeness, texts making any reference at all to artificial feeding before 1700 were included.

16th century

Wurtz, 1563; Jones, 1579; Guazzo, 1581; Muffet, 1584.

Total = 4

17th century

Guillemeau, 1612; Gouge, 1622; Quillet, 1655; Willughby, 1863; McMath, 1694.

Total = 5

18th century

Baynard, 1706; Maubray, 1730; Lad. Phys. Dir., 1739; Hoffmann, c1740; James, 1746; Cadogan, 1748; Sloane, 1748; Found. Hosp., 1749; Exton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Nihell, 1760; Memis, 1765; Gent. Mag., 1765; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Hunter, 1775; Rosenstein, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Aitken, 1786; Mantell, 1787; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Young, late 18th.

Total = 30

Total = 39
Evidence of artificial feeding of actual children was obtained from the following:

Meade, 1686; Steele, 1709a; Steele, 1709b; Defoe, 1728-29; Stukeley, 1882; Wentworth, 1883; Orrery, 1903; Heber, 1936; Hughes, 1940; Rodgers, 1949; Hopkirk, 1953; Trumbach, 1978.

Additional information about the feeding of foundlings in Europe, and the use of artificial feeding in colonial America and continental Europe, was obtained from:

Boemus, 1555; Pennington, 1767; Forsyth, 1911; Feldman, 1927; Drake, 1937; Caulfield, 1952; Wickes, 1953; Bracken, 1956; Knodel & van der Walle, 1967; Knodel, 1968; Chamoux, 1973; Cunningham, 1977; Cone, 1976; Knodel, 1977; Cone, 1979b; Knodel, 1980a; Knodel, 1980b; Palmer, 1981.
Part A

The incidence of, and reasons for, handfeeding

Introduction

Medical writers paid less attention to artificial feeding than to all other aspects of infant feeding, and it has been wrongly assumed that this indicates that artificial feeding was not practised before the late 18th or 19th centuries (Forsyth, 1911; Ryerson, 1960; Cone, 1976; Cone, 1979b). This section will show, by using a variety of sources rather than medical texts alone, that artificial feeding was well known, and was used to rear certain groups of children throughout this 300 year period.

To give a more complete picture, and to put British practices into context, a considerable amount of information about artificial feeding in other European countries is included.

NB. Artificial feeding was known to contemporaries as dry nursing, handfeeding, hand rearing, finger feeding, rearing by the spoon and breeding up by hand. These terms are used interchangeably throughout.

Results and discussion

Four main reasons for raising infants by hand have been found and these will be considered in turn.

Table 5.1: Reasons for artificial feeding and the children who were affected

<table>
<thead>
<tr>
<th>Reasons</th>
<th>The children affected</th>
</tr>
</thead>
<tbody>
<tr>
<td>Custom</td>
<td>All social groups</td>
</tr>
<tr>
<td>Necessity</td>
<td>All social groups</td>
</tr>
<tr>
<td>Institutions</td>
<td>Foundlings; the very poor</td>
</tr>
<tr>
<td>Current fashion</td>
<td>Wealthier social groups</td>
</tr>
</tbody>
</table>
1. **Custom**

In certain regions of Europe infants were rarely or never breastfed by their mothers or by wet nurses, but were raised by artificial means from birth. This practice dated at least from the 15th century in Southern Germany (Knodel & van der Walle, 1967) and from the pictorial evidence (particularly in the churches of these regions (Rosenthal, 1936) ) it was probably of more ancient origin.

The areas concerned included:


3. **The Basel region of Switzerland** (Wurtz, 1563; Bracken 1956).

4. **Parts of Austria and Northern Italy,** particularly the Tyrol (Ploss et al, 1935; Knodel, 1977; Shorter, 1977a; Knodel, 1980b).

5. **Parts of Holland** (Knodel, 1980b).

6. **Some regions of Scandinavia,** particularly in Sweden and Finland (Rosenstein, 1776; Zglinicki, 1979; Knodel, 1980b; Lithell, 1981).

7. **Parts of Russia,** particularly round Moscow (Brouzet, 1755; Chamoux, 1973).

8. **Iceland** (Brouzet, 1755).

The reasons for this ancient custom are obscure although it could have arisen as a means of allowing peasant women to return to their work in the fields unencumbered by a nursing infant. In the Tyrol it was said to be related to the tight-fitting dresses worn by all
classes of women (Ploss et al, 1935) (cf chapter on maternal breastfeeding). Certainly it was a deeply-ingrained social more and any woman who attempted to breastfeed her child was reviled by other women. Knodel and van der Walle (1967) cite such an example from the Oberbayern district of Bavaria: "A woman who came from Northern Germany and wanted according to the customs of her homeland to nurse her infant herself was openly called swinish and filthy by the local women. Her husband threatened he would no longer eat anything she prepared, if she did not give up this disgusting habit".

The food used in place of breast milk in the middle European areas was 'meal pap' (Knodel & van der Walle, 1967; Knodel, 1977). Bracken (1956) quoted an early 18th century writer who said that in Germany, Switzerland and France pap made of cows or sheeps milk and barley flour was given every four hours, with intermediate feedings of water, in which raspings of deer horn or ivory or anise seeds had been boiled.

It is not known how many infants died as a direct result of artificial feeding from birth. Nor is it certain that any more infants died in these non-breastfeeding regions than in those where maternal breastfeeding, or wet nursing, was the norm. Some 18th century contemporaries thought the former children did better. For example, Brouzet (1755) said that in Muscovy and Iceland "it is universally allowed that these people are stronger, and less subject to disease, than the Southern nations. This does not prove that they owe these advantages to the nourishment they receive in their infancy; but it, at least, evidently proves, that this food is not prejudicial".

Children in these northern areas were fed on animal milk rather than the meal pap used elsewhere. "The practice of giving women's milk to infants is wholly unknown in Muscovy and Iceland. Soon after they are born infants are left all day, by their mothers, lying on the ground, near a vessel filled with milk or whey, in which is put a tube, the upper extremity of which the infant knows how to find, and putting his mouth to it, sucks whenever he is oppressed with hunger or thirst ---- the infants of this savage
country much more frequently escape the dangers of infancy, than amongst us — it is certainly true that their method of feeding children with the milk of animals, is evidently not dangerous, and that it is, at least, attended with as happy effects as that of giving them women for wet-nurses" (Brouzet, 1755). Chamoux (1973) also noted that, in the mid-18th century, muscovites successfully reared their babies on cows milk. In Basel, where foundling infants were fed on pap made from milk and flour, with water to drink, they did not die any more frequently than those brought up differently, nor were their diseases any more dangerous (Bracken, 1956).

Knodel (1980a) used mortality figures from a later period to assess the effects of breastfeeding versus artificial feeding in different areas of Bavaria and noted that, although infant mortality was higher in the non-breastfeeding regions, the child mortality was much lower. This perhaps indicates that in non-breastfeeding areas "survival of the fittest" occurred. Infants exposed from birth to a variety of organisms transmitted in food and drink either succumbing early on, or rapidly developing a resistance to such organisms. The maternally breastfed child, initially protected by passive immunity acquired from his mother (see chapter on wet nursing) would meet the disease organisms associated with taking in contaminated foods at a later date, when weaning commenced.

In addition, an area with a centuries-long tradition of artificial feeding would have discovered by 'trial and error' the best methods of preparing and administering substitute foods. For example, it is notable that all the foods used consisted partly or entirely of milk, and it was usual for drinking water for small infants to be boiled in Germany and Switzerland (Metlinger, 1473; Bracken, 1956).

The climate of these regions may also be related to the success of artificial feeding, especially when milk-based foods were used. All the non-breastfeeding regions so far discovered are in Northern Europe, have a cold dry climate, and many are in mountainous terrain. Artificial feeding would be more likely to succeed in this type of climate than in warm temperate zones or in hot mediterranean countries,
where milk and other foods would rapidly become sour and contaminated, thus making infants more susceptible to gastro-intestinal disease. Brouzet (1755) noted that climate may have been a factor in the success of these hand rearing peoples, and his opinion that wet nurses were more harmful to infant lives was also pertinent. Wet nursing was virtually non-existent in these non-breastfeeding areas (Brouzet, 1755; Knodel, 1980b) so that each infant remained under the care of the parents and was therefore not prey to any of the bad practices said to be perpetrated by wet nurses in continental Europe (Shorter, 1977a & 1978).

(An interesting historical note relating to this practice was given by Johannes Boemus in 1555. He described the rearing of the children of the Amazon race. "The children as soon as they were borne, were delivered to the men to nouryshe up with milke, and suck other things as theyr tendrenes required ---- if a wench [was born] they streight scarred ye pappes, that they might not growe to hindre them in the warres. Therefore the Grecians called them Amazones, as ye would saie, Pappeless").
2. Necessity

Four situations made artificial feeding essential for children from any strata of society.

i) Lack of breast milk
ii) Congenital defect or birth injury
iii) Prematurity
iv) Congenital or acquired infantile syphilis

i) Lack of breast milk (for discussion of causes etc. see chapter on maternal breastfeeding).

Some children were raised by hand because their mother died in childbirth or soon after, or her milk did not 'come in' and there was no other lactating woman who could wet nurse the child. This was more likely to occur in a colonial or shipboard situation where there were relatively few females (Caulfield, 1952) than in an English village where there were almost certain to be some lactating women who could wet nurse a child, at least for a short time (Dee, 1842; McLaren, 1979).

Caulfield (1952) describes such a case from Maryland in 1658. Lucy Stratton gave birth to a bastard and "She most unnaturally dried up her milke through which actione, the infants life mought have bin in danger". The father then asked a neighbour to suckle his child. She was unable to agree as she thought she was pregnant but said "if hee would have it drie nurst she would do her best endeavour for it". The father decided that if anyone "could bring it up by hand Lucie Stratton should" and the said Lucie received thirty lashes as punishment for her "unnatural behaviour". (This illustrates that lack of breast milk could be tantamount to infanticide and also shows the opinion of a puritan community towards such an action in the mid-17th century).

Caulfield (1952) thinks that in the American colonies many infants must have been dry nursed for lack of breast milk, as evidenced by
the thriving trade in sucking bottles in the 17th and 18th centuries, and the occasional diary references to handfeeding among English colonists. Related to this factor was the occurrence of multiple births, when a mother may have had insufficient milk for more than one child. For example, the loss of two milch cows was a problem in 1736 for the father of 10 children under 17 plus 2-month old triplets, "Cows on which we had considerable dependence for the support of my family, and especially my infants" (Caulfield, 1952).

Localised or national famine may have been an additional reason for women having insufficient milk to breastfeed a child. Such dearths occurred in parts of Northern England (Appleby, 1973) and Scotland (Cunningham, 1980) during the 16th and particularly the 17th century and would have affected most seriously the poorer members of society. It may be significant that the first specific mention of artificial feeding in the British medical literature (by James McMath of Edinburgh) was published soon after a severe famine had occurred in the Edinburgh area (Cunningham, 1980). Graphic contemporary illustration of the effects of famine or extreme poverty on the ability of women to breastfeed is shown in Breugel's drawings of 1563 (see Figs. 5.1 and 5.2). These may be compared with 'Oxfam pictures' of the 20th century which show a starving child sucking vainly at the shrunken breasts of his mother.
Figure 5.1: The poor kitchen by P. Bruegel. 1563 (Brown, 1975)
Figure 5.2: The rich kitchen by P. Bruegel. 1563 (Brown, 1975)
ii) **Congenital defect or birth injury**

If a baby had any deformity or injury involving the face, mouth or palate which meant that he was unable to suck normally, then the only alternative was to spoon feed or bottle feed the child; either with expressed breast milk or with substitute foods such as pap. The most common deformity was probably hair lip and/or cleft palate* (Guillemeau, 1612) but it should also be remembered that the craft of midwifery, as practised in pre-industrial England, probably resulted in more facial injuries during difficult deliveries than would be the case today (Willughby, 1863; Donnison, 1977).

Unless some form of surgical correction was performed these hand fed infants usually died, as Guillemeau described in 1612. "I have seen little children that have been nourished by a sucking bottle, the space of two or three moneths: but at length they have died: because the milke ran out by the nose, it being a very hard thing to make an artificial pallet, that should keep it from going forth: Nevertheless, I would counsaille the chirurgion to make one, and to fit it with a little spunge tyed to it, which shall be put handsomely into the said cleft with the pallet: and it must be put in when the child would sucke, and then taken out againe when he hath done. And this I have practized with good success".

In 1748, Hans Sloane said the lives of some of these children could be saved by giving "breast milk with a spoon ---- by which, in some cases, where children had their tongue, lips, or noses obstructed, either by diseases or accidents, before or in the birth, their lives have been saved by receiving the same proper nourishment[.of breast milk]though not by suckling" (Sloane, 1748).

* (Modern incidence in Western Europe 1:600 live births. Since environment appears to have little influence on its occurrence this incidence has probably changed little in the past few centuries (Davis & Dobbing, 1974) ).
iii) Prematurity

It is unlikely that premature or very underweight babies survived for long without the specialised care which has only been available within the last century (Marx, 1968). However some infants in this category were fed by hand for short periods because they were too weak to suck. Percivall Willughby described the delivery of twins in 1667 in which "the weake-born childe lived but could not suck. It was fed with boiled milk, thickened with white bread and sweetened with sugar" (Willughby, 1863). This case had a successful outcome as he recorded "I saw the mother Anno 1669. She said that her son lived and was able to go [walk] about the house". But a baby of only six months gestation survived barely 24 hours in 1669 despite attempts at spoon feeding. The child would suck milk and water mixed together from a spoon, and died .... the next morning" (Willughby, 1863).

iv) Congenital or acquired infantile syphilis

Syphilis was a new epidemic disease of 'plague' proportions in Europe at the end of the 15th century, and throughout the 16th century was a serious problem among all social classes and all age groups (Garrison, 1929; Singer & Underwood, 1962). For this reason the problem of infants with congenital syphilis infecting their nurses, and thereby introducing the infection to others in her family, was particularly discussed (Pare, 1575; Still, 1931).

In Verona in the 1580's it was relatively common for the wet nurses of foundlings to apply to the hospital governors for treatment for the syphilis which they allegedly contracted from their nurselings. Sometimes they also obtained free treatment for other sucklings, and for their husbands who had been infected by their wet nursing wives (Palmer, 1981).

The opposite circumstance also prevailed: infants were infected by syphilitic nurses. Ambroise Paré (1575) described a relatively common occurrence: "A certaine very good citizen of this citie of
Paris granted to his wife being a very chaste woman, that she shoulde nurse her owne childe of which she was lately delivered, shee should have a nurse in the house to ease her of some part of the labour: by ill hap, the nurse they tooke was troubled with this disease; wherefore she presently infected the childe, the child the mother, the mother her husband, and hee two of his children [aged three and four] who frequently accompanied him at bed and board, being ignorant of that malignity wherewith he was inwardly tainted.

The increasing incidence and public fear of syphilis in this period led to women refusing to feed infants with congenital or acquired syphilis for fear of contracting the disease. As a result, a different form of artificial feeding was developed for these particular infants - direct suckling from the udders of animals such as cows, asses and most frequently goats. For example, Guillemeau (1612) said that if a child had already infected one nurse and "you cannot find a nurse, that will venter to give the childe sucke, instead thereof, you shall cause him to sucke a goat; which I have caused some to do".

Direct suckling of infants by animals was a very ancient practice and many famous legends depicted abandoned infants raised by wolves (Romulus and Remus), goats (Jupiter and Aegysthus) and mares (Pelias). But (as will be seen in the next section) it was used most frequently for foundlings in institutions, and then only in certain countries; particularly France. Faced with the "new plague" of syphilis, Frenchmen in particular recommended suckling goats as a better means of preserving infected infants than handfeeding with pap (Pare', 1575; Guillemeau, 1612; Mauriceau, 1673). It may have become fairly common practice during the 16th century since reference was made by an Italian in 1581 to the "custome of divers women in France, who bring up their infants only with the milk of beasts" (Guazzo, 1581). This method of feeding syphilitic children continued to be used in France until late in the 19th century (see figs 5.3 - 5.5) but no evidence has been found to show that it was ever widely used in Britain.
Figure 5.3: Feeding a baby by direct suckling by a goat. Late 18th/early 19th century. (illustrated in Brüning, 1908).
Figure 5.4: Feeding a baby by direct suckling by a goat.
19th century. (illustrated in Brüning, 1908).
Figure 5.5: Parrot’s system of feeding syphilitic children on asses milk by the direct method. Late 19th century. (illustrated in Bókay, 1922).
Contemporary beliefs about direct suckling of animals

Many ancient legends described infants suckled by other mammals but this method, although probably safer than other forms of artificial feeding, was never generally approved of by physicians because of the widespread belief that the infant acquired the characteristics of the animal who suckled him (Guazzo, 1581; Muffet, 1584; Guillemeau, 1612; Quillet, 1655; Maubray, 1730; Rosenstein, 1776). 16th century writers in particular were concerned; infants fed on animal milk were fierce and not like men (Guazzo, 1581), and children fed on goats milk became very swift and nimble (Guillemeau, 1612), goatish and lecherous (Muffet, 1584). Romulus and Polyphemus were said to have been so cruel because they were nursed by she-wolves (Muffet, 1584; Quillet, 1655), whilst Pelias was brutish as a result of sucking an unhappy mare (Muffet, 1584).

The idea that animal milk passed animal characteristics into the child was still being repeated in the late 18th century (Rosenstein, 1776), and it was for this reason that it was used only in cases of necessity. Its apparently greater use in France than in other lands may have been because Frenchmen did not share, or disregarded, this belief but probably they were more realistic in assessing the value to the child of direct suckling. Proof of the efficacy of the method could be seen in the French countryside, as Brouzet (1755) observed: "I have known in the country .... some peasants who have no other nurses but ews, and these peasants were as strong and vigorous as others". In Paris in 1780, a report to the Queen by the Lieutenant Governor of Police stated "one sees in society numerous strong and well constituted men who have been fed by goats or nourished by the milk of other animals; one sees many who have never been suckled" (Drake, 1937).

The following quotation, which relates conditions in late 19th century Kansas, shows why direct suckling was a safer method of artificial feeding than conventional dry nursing. Quite simply, it severely reduced the number of opportunities when contamination could occur:
"If you could see our cows, or barn, the milk pail and cans, and our lack of facilities for keeping milk cold, you would doubtless have been convinced that no baby could survive such unsanitary milk. It is my belief that I could have survived being fed on milk contaminated with stable filth. It was the cloth strainer which a baby could not compete by his defence mechanisms. We rinsed the strainer after pouring the morning's milk through it, and hung it up to dry. In summer fifty or more flies would alight on it within a minute and feed upon the milk residues, speckling it with fly-specks. In the evening, the fresh milk was poured through this fly-excrement laden cloth. A baby could scarcely ever fail, when fed such contaminated milk, to suffer from diarrheal infection and die" (Jelliffe & Jelliffe, 1978).

Direct suckling of animals was briefly introduced into Germany during the early 19th century, but never became popular (Feldman, 1927) although goats and asses were still kept on the premises of some French hospitals, for this purpose, at the beginning of the 20th century (Budin, 1907). As late as 1927, direct suckling of animals was said to be fairly widespread in the southern states of America and in parts of India (Feldman, 1927).

The direct suckling of young mammals by lactating women was also known. In pre-industrial Europe rich women used puppies, mainly to relieve distension in their breasts before beginning, and in the early stages of breastfeeding (see chapter on maternal breastfeeding) but in some cultures baby animals were reared by lactating women: puppies in ancient Hawaii, piglets in the New Guinea Highlands, and deer in Guyana (Jelliffe & Jelliffe, 1978).
3. Institutions

Two social institutions employed dry nursing during this period; foundling hospitals (including general hospitals which took in foundlings) and (in England) the parish.

Foundling hospitals

The first English foundling hospital was not founded until the mid-18th century but in many (predominantly Catholic) European countries and their colonies these institutions were well-established (Radbill, 1955). The first is said to have been founded in 787 AD in Milan (Feldman, 1927; Radbill, 1955), and many more were established between the 11th and 15th centuries (Radbill, 1955).

The most usual method of feeding these abandoned infants was by the employment of wet nurses. Either the wet nurses lived within the hospital or hospice and breastfed the children in one large room, or the infants were assigned to outside wet nurses who took them into their own homes for varying lengths of time. Some children were returned to the hospital when they were weaned from the breast, others (for example, in Venice) remained with their nurses until the age of 12 years (Palmer, 1981).

However, there are many reasons for believing that this ideal method of nutrition was not always carried out. The wet nurses were often poor women, and the pay was not very good, so that shortages frequently occurred. For example, in Verona in 1581 there were only 2 wet nurses to feed 18-20 infants (Palmer, 1981) and in 1584 the general paucity of wet nurses forced the authorities to raise the pay to attract more women (Palmer, 1981). In nearby Brescia twenty years earlier the records show that children were dying for lack of wet nurses (Palmer, 1981).

If no wet nurses could be found, or there were insufficient to feed the large numbers of foundlings, then some form of dry-nursing must have been used to supplement or replace breast milk. Direct evidence
of this practice comes from Treviso where, in 1581, the hospital board decided to pay a goat keeper 7 soldi a month for the hire of goats to feed the foundlings because they were so short of wet nurses (Palmer, 1981).

In 1531, feeding bottles or horns were said to be in use at the Hôtel Dieu in Paris (Chamoux, 1973), and feeding horns (cornets) were part of the equipment which accompanied each foundling from Paris (1702) and Rheims (1780) to the home of a wet nurse (Chamoux, 1973). Although these may have been intended for weaning the child, they also provided a ready means for dry-nursing if the nurse did not wish to breastfeed, or had insufficient breast milk.

In 1634, when the feeding of foundlings in Paris was discussed, it was decided that goats should be brought into the hospice since their milk was adjudged to be superior to that of cows (Chamoux, 1973). In 1680, the committee for foundlings at the Hôtel Dieu discussed whether the infants could be brought up by hand as they had heard was done in England and Germany. (An early reference to the use of artificial feeding in England). Partly this was related to fear of syphilitic infection but in July 1680 the practice of raising some foundlings by hand, on pap made from wheat and water, was established (Chamoux, 1973).

Throughout the 17th and 18th centuries in France, different ways of raising foundlings were discussed in the various city foundling hospitals. Increasing experimentation led to some institutions using pap, or a similar substance, to dry nurse their infants while others preferred direct suckling by goats (Chamoux, 1973). The latter really became well-established after 1775. In that year the administrators of the foundling hospital at Aix applied to the medical faculty in Paris for assistance in saving their infants, who were dying in large numbers (Drake, 1930). Alphonse Leroy was sent to conduct an investigation and concluded that the deaths were due to the "vital principle" in milk being lost as soon as milk (whether human or animal) came into contact with air. He decided that this was why "it is impossible to rear infants with animal milk or with milk which has been expressed from the woman's breast". He recommended "the nourishment
of these infants at the udder of the goat — since that time the cribs are arranged in a large room in 2 ranks. Each goat which comes to feed enters bleating and goes to hunt the infant which has been given to it, pushes back the covering with its horns and straddles the crib to give suck to the infant. Since that time they have raised very large numbers in that hospital" (Drake, 1930).

Mortality may have dropped significantly at Aix after Leroy's experiment but the death rate of foundlings in such institutions was universally high. Some figures have been published and, although it has not been possible for the author to verify personally the accuracy of these, they are collected together here to give some indication of the mortality in European foundling institutions. In many instances the principal method of feeding is known and can thus be related to the mortality (see Table 5.2).
Table 5.2: The mortality in some European foundling homes/hospitals in the 18th century related, where possible, to the principal method of infant feeding

<table>
<thead>
<tr>
<th>Date</th>
<th>Hospital</th>
<th>% No.of mortality where known</th>
<th>Principal feeding method</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>1741 (1st year)</td>
<td>London</td>
<td>48.5 (66)</td>
<td>dry nursing</td>
<td>Found. Hosp. 1749</td>
</tr>
<tr>
<td>1741-59</td>
<td>London</td>
<td>56.0 (7833)</td>
<td>country wet nursing</td>
<td>Jones, 1978</td>
</tr>
<tr>
<td>1771-73</td>
<td>Paris (Hôtel Dieu)</td>
<td>62.5-75.0</td>
<td>out to wet nurse</td>
<td>Flandrin, 1979</td>
</tr>
<tr>
<td>1773-77</td>
<td>Paris (all foundlings)</td>
<td>80.0 (25476)</td>
<td>out to wet nurse</td>
<td>Chamoux, 1973</td>
</tr>
<tr>
<td>1775-96</td>
<td>Dublin</td>
<td>99.6 (10227)</td>
<td>dry nursed within hospital</td>
<td>Forsyth, 1911</td>
</tr>
<tr>
<td>1779-</td>
<td>Rheims</td>
<td>45.0 (360)</td>
<td>out to wet nurse</td>
<td>Chamoux, 1974</td>
</tr>
<tr>
<td>1797-1801</td>
<td>Dept. of Eure</td>
<td>80.0 (560+)</td>
<td>dry nursed (died for lack of wet nurses)</td>
<td>Shorter, 1977a</td>
</tr>
<tr>
<td>Late 18th century</td>
<td>Moscow</td>
<td>80.0- (1600-90.0 1800)</td>
<td>(probably) dry nursed within hospice</td>
<td>Ransel, 1976</td>
</tr>
<tr>
<td>Late 18th century</td>
<td>St. Petersburg</td>
<td>80.0- (1200-90.0 1400)</td>
<td>(probably) dry nursed within hospice</td>
<td>Ransel, 1976</td>
</tr>
<tr>
<td>Late 18th century</td>
<td>Rouen</td>
<td>90.0</td>
<td>out to nurses</td>
<td>Flandrin, 1979</td>
</tr>
<tr>
<td>No date</td>
<td>Lyons</td>
<td>33.7</td>
<td>out to wet nurse</td>
<td>Wickes, 1953</td>
</tr>
<tr>
<td>No date</td>
<td>Paris</td>
<td>50.3</td>
<td>wet nursed inside hospice</td>
<td>Wickes, 1953</td>
</tr>
<tr>
<td>No date</td>
<td>Rheims</td>
<td>63.9</td>
<td>out to dry nurse</td>
<td>Wickes, 1953</td>
</tr>
</tbody>
</table>
(No figures have been traced for foundling mortality before the 18th century but records of the foundling hospital in Florence in the years 1445-1451 show that, of the foundlings who died in the first year of life (n not given), 58% were boarded out with a wet nurse and 42% were being reared within the hospice (Trexler, 1973)).

It cannot be assumed that the method of feeding was the only factor involved in the high mortality of foundlings. The state of health and nutrition of the infant when he was abandoned was particularly relevant since a baby who was reasonably healthy would have been more likely to survive the rigours of a foundling institution than one who was already half-starved or very weak.

Children who remained in an institution (often containing hundreds of infants) would be much more vulnerable to infectious diseases, such as measles, smallpox or dysentery, and to cross-infection from bedding, nursing personnel and feeding equipment. This is demonstrated by the Moscow foundling home where all infants were kept within the building. The year in which the highest mortality was recorded (1767) was also the year in which a smallpox epidemic had raged in the town and 98% of the 1089 children died (Ransel, 1976).

Similarly, children sent out to wet nurses would have fared in direct relationship to the quality of care each woman offered. For example, the mortality of foundlings from Paris put out to rural wet nurses in the years 1771-1773 varied according to the provinces which received the babies (Flandrin, 1979). In many areas of France the quality of care given by wet nurses was very poor (Shorter, 1977a; Flandrin, 1979) and it is probable that, even when infants were fostered out to wet nurses, they were at least partially dry-nursed (Shorter, 1977a).

In several regions of France in this period, the mortality of infants breastfed by wet nurses was double that of infants breastfed by their own mothers (many of whom were equally poor) (Shorter, 1977a; Flandrin, 1979), so that

1. The exact method of feeding while the foundling was 'wet nursed'
is not known for certain.

2. The quality of general infant care given by the wet nurse is unknown.

In contrast, the care and feeding given by wet and dry nurses employed within the hospital or home was supervised, and presumably standardised, within each institution by a board or committee (Chamoux, 1973; Palmer, 1981).

These factors may explain some of the apparent discrepancies between methods of feeding and mortality in Table 5.2. Although in most cases where artificial feeding is known to have been used, such as Dublin and Moscow, the mortality was very high, it is comparable to areas such as Rouen and Paris (1773-77) where infants are known to have been put out to country wet nurses. But, despite the many other factors which must be taken into consideration, there can be no doubt that foundlings as a group were often dry-nursed, and where this was undertaken inside an institution the mortality rate was likely to be higher than when breastfeeding by wet nurses was employed. The exceptions to this were institutions which utilised direct suckling by animals rather than conventional dry nursing (Drake, 1930; Wickes, 1953).

The London Foundling Hospital

As can be seen from Table 5.2, the only English foundling hospital achieved a lower mortality rate than most of the other institutions considered here. This may be related to the fact that it was established at a later date (1739) than those in European countries and therefore was able to draw upon both the good and bad experience of the latter in feeding their infants. The governors took particular note of the information obtained from foundling homes in Paris, Amsterdam, Lisbon and Venice although finding none of their methods exactly suited to the London situation (Found. Hosp., 1749).

A second factor may have been that the London hospital planned a smaller, closely supervised intake of foundlings (Found. Hosp.,
1749) rather than employing the static or revolving cradle or 'tour' which was the normal feature of European hospitals. The latter meant that an unwanted baby could be placed in a special box or cradle outside the hospital which then revolved through 180° and deposited the child irretrievably inside the hospital, allowing whoever had abandoned the infant to depart unseen (Radbill, 1955).

The third factor (after an initial period of experimentation) was the careful selection and supervision by an inspectorate of suitable country women to act as wet nurses to the foundlings until they were old enough to return to the main hospital (Found. Hosp., 1749; Jones, 1978; Wilson, 1979a; Lloyd Hart, 1979). As a result the quality of care given by country wet nurses was closely monitored and was more standardised than that given by rural wet nurses in France (particularly those who suckled foundlings from Paris and Rouen) (Shorter, 1977a; Flandrin, 1979).

The early years of the London Foundling Hospital are of particular interest in the discussion of artificial feeding because, initially, the governors decided to experiment in bringing up all or most of the foundlings by hand, due to the difficulty they envisaged in finding sufficient numbers of healthy and suitable wet nurses (Found. Hosp., 1749; Brownlow, 1847). Hans Sloane, in particular, was against this experiment and wrote at length to the Governors in 1748, setting out the relative mortality of the foundlings reared by dry and wet nurses during 1741 (Sloane, 1748).

In the first three months the hospital took in 30 foundlings a month, and these were assigned to dry or wet nurses, as shown in Table 5.3.
Table 5.3: Method of feeding the first three intakes of London foundlings, March to May 1741 (Sloane, 1748; Found. Hosp., 1749)

<table>
<thead>
<tr>
<th>Date of intake</th>
<th>No. of children</th>
<th>Wet nursed</th>
<th>Died</th>
<th>Dry nursed</th>
<th>Died</th>
<th>Total deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>25 March 1741</td>
<td>30</td>
<td>2</td>
<td>0</td>
<td>28</td>
<td>15</td>
<td>15</td>
</tr>
<tr>
<td>17 April 1741</td>
<td>30</td>
<td>7</td>
<td>1</td>
<td>23</td>
<td>11</td>
<td>12</td>
</tr>
<tr>
<td>8 May 1741</td>
<td>30</td>
<td>17</td>
<td>4</td>
<td>13</td>
<td>8</td>
<td>12</td>
</tr>
<tr>
<td>Total</td>
<td>90</td>
<td>26</td>
<td>5</td>
<td>64</td>
<td>34</td>
<td>39</td>
</tr>
</tbody>
</table>

The mortality for the whole of the first year was 48.5% (66 out of a total intake of 136 infants) and the governors attributed this "to the endeavouring to bring them up by hand, which they had been advised to make tryal of" (Found. Hosp., 1749). They also noted that, whatever the type of feeding, far fewer died when they were nursed in the country:

Of 80 children sent to the country 29 died within the year.
Of 56 children kept in London 45 died within the year.
"which was not owing to any want of care, but probably from the air of London being less pure, and especially in a place where numbers of nurses and children were kept in so small a compass" (Found. Hosp. 1749).

As a result of this experimental first year, the governors declared that "Experience shewed [wet nurses] to be the only safe method of nursing children" and resolved to send all the foundlings to the country until they were three years old "and all such as would suck, should be nursed by wet nurses only. These facts are mentioned to caution persons against bringing up children by hand; and rather to have them nursed in the country than the town" (Found. Hosp., 1749).

A small number of foundlings continued to be dry nursed, presumably because of a shortage of wet nurses, or because infants would not,
Figures for 1756-57 show that of 1487 deaths only 163 (11%) of these were dry nursed, yet this was a large proportion of the comparatively small number who were handfed (see table 5.4).

Table 5.4: The mortality of London foundlings 1756-57 and their method of feeding (Lloyd Hart, 1979)

<table>
<thead>
<tr>
<th>Method of feeding</th>
<th>No. of children</th>
<th>No. of deaths</th>
<th>% mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total no. of children boarded out</td>
<td>3300</td>
<td>1487</td>
<td>45</td>
</tr>
<tr>
<td>No. of children sent to wet nurses</td>
<td>2904</td>
<td>1324</td>
<td>46</td>
</tr>
<tr>
<td>No. of children sent to dry nurses</td>
<td>396</td>
<td>163</td>
<td>41</td>
</tr>
</tbody>
</table>

\( \chi^2 = 2.76 \): no significant difference in mortality between wet nursed and dry nursed infants.

NB. This mortality appears to compare favourably with the contemporary estimates of infant mortality in the Bills of Mortality (in which half to two thirds of the children christened did not reach their second birthday (Smith, 1774; Drake, 1930), but an exact comparison cannot be made because some records give infant mortality as 0-12 months; some as 0-2 years (e.g. Bills of Mortality) and occasionally 0-3 years (e.g. Hanway's figures for London workhouses). Also the accuracy of the Bills of Mortality in particular is doubtful, and only included the children christened in the established church (Graunt, 1676)).

The mortality rates of the English foundlings were consistently lower than those in European institutions but varied from year to year, possibly reflecting local patterns of nutrition and disease, the varying numbers admitted, and the health of the abandoned infants. Probably the highest mortality was 66% in 1757, the year when general reception of all infants was instituted and the intake of children was greatly increased (Jones, 1978). It can only be
concluded that this relative success in raising foundlings was related to:

1. Careful selection and supervision of wet nurses (for example, if a wet nurse lost two children at the breast she was no longer employed by the hospital as a wet nurse) (Jones, 1978; Wilson, 1979a).

2. The realisation that rearing infants as individuals within country families was more likely to succeed than feeding many babies within one building in a town (Found. Hosp., 1749).

3. The near-abandonment of dry-nursing as a means of nourishing infants after a preliminary trial had demonstrated that it compared unfavourably with the breast (Found. Hosp., 1749; Brownlow, 1847; Lloyd Hart, 1979).

(NB. The original aims and method of running the London Foundling Hospital changed over the years; it had varying intakes, from a small set number per month in 1741, to a large national intake in 1757, then back to a smaller intake after 1770 (Jones, 1978). The details of its history are included in this thesis only where they illustrate the use of artificial feeding/wet nursing as a means of nurturing abandoned children).

The parish

In England the parish was the body responsible for poor relief, and this included any infants born or abandoned within the parish boundaries who had no relatives living or able to rear them. Boarding out these infants with families in the parish was first mentioned in the Poor Law Act of 1536 and was the usual means of rearing such children from the second half of the 16th century (Pinchbeck & Hewitt, 1969).

The quality of care given to infants varied from parish to parish and between town and country (Marshall, 1969; Pinchbeck & Hewitt, 1969). In some parishes (such as Westbury-on-Trym during the 17th
century) the infant mortality of the parish poor was no greater than that expected within the parish as a whole (Marshall, 1969). In others the death rate was higher than for other infants because the pay of the parish nurses was inadequate or was not regularly paid, as a result of which the child suffered (Pinchbeck & Hewitt, 1969). In towns, even where there was a parish workhouse, infants were frequently boarded out in the same way rather than reared within the workhouse (Marshall, 1969; Pinchbeck & Hewitt, 1969).

The women who undertook to nurse these babies were usually poor women, often themselves receiving parish relief (Marshall, 1969), who took in several infants at a time as a means of earning a living. This author believes it is unlikely that the parish nurses were wet nurses. Although it is physiologically possible for women to provide sufficient breast milk to feed three or four infants at a time, it requires a nourishing high-calorie diet and a minimum amount of rest and sleep (Jelliffe & Jelliffe, 1978). It also occupies a great deal of time. Poor women who needed to take in infants for a livelihood are unlikely to have had a sufficiently high-calorie intake over the long periods of time in which they were supposedly lactating (Drummond & Wilbraham, 1957). They normally had young children of their own (Marshall, 1969) and (if she was lactating) at least one of these was an infant. In addition, what ever her degree of poverty, she had to run her home which included time-consuming chores such as cooking, laundering and spinning. Therefore it is unrealistic to believe that these women spent most (or even a significant amount) of their time breastfeeding. Parish infants, boarded out in these circumstances, must have been partially or totally raised by hand.

The average wage of the parish nurse was quite good in the 17th century (about 1/6d a week) but this wage tended to remain static until late in the 18th century when the cost of living had risen considerably. Thus, by the second half of the 18th century it was often insufficient to keep an infant (wages were particularly low for taking in children under two years of age) with the result that many died, usually from starvation (Marshall, 1969; Pinchbeck & Hewitt,
There were abuses by parish officials from the late 16th century; quarter sessions records show that some women had to go to court to extract their promised wages from the parish (Pinchbeck & Hewitt, 1969). Other court records show women being prosecuted for starving and murdering several infants entrusted to their care (Marshall, 1969).

Conditions in London were very different and much worse than in other parts of England, especially in the 18th century. In the capital (where many parishes had a workhouse) infants were either reared within the workhouse by female inhabitants who were designated as nurses (Pinchbeck & Hewitt, 1969) or were boarded out to poor women within the parish (Marshall, 1969; Pinchbeck & Hewitt, 1969). Whichever method was used, nearly all the infants left to the care of London parishes died within a few months.

There were many reforms of the system during the 18th century following the researches and petitions of Jonas Hanway (1712-1786) who was particularly concerned about the vast infant mortality in the London parish workhouses (Caulfield, 1931; Marshall, 1969; Pinchbeck & Hewitt, 1969). Some samples of the infant mortality described by Hanway are shown in Tables 5.5 - 5.7 (the absolute accuracy of his figures may be in doubt due to his enthusiasm for reform (Pinchbeck & Hewitt, 1969) but the fact that mortality of parish infants in some London parishes was as high as 100% was recounted by other writers (Sloane, 1748; Nihell, 1760) who linked it directly to the use of artificial feeding).
Table 5.5: Infant mortality in four London workhouses 1757-63 (tabulated from information given in Pinchbeck & Hewitt, 1969)

<table>
<thead>
<tr>
<th>Parish</th>
<th>No. of infants born or received</th>
<th>No. removed from workhouse soon after birth</th>
<th>No. remaining</th>
<th>Of the children remaining</th>
<th>No. of infants dying under 3 years</th>
<th>No. of infants surviving</th>
<th>% Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>St. Lukes Middlesex</td>
<td>53</td>
<td>0</td>
<td>53</td>
<td>53</td>
<td>0</td>
<td>0</td>
<td>100</td>
</tr>
<tr>
<td>St. Giles</td>
<td>415</td>
<td>228</td>
<td>187</td>
<td>169</td>
<td>18</td>
<td>7</td>
<td>90</td>
</tr>
<tr>
<td>St. Martins in the field</td>
<td>312</td>
<td>147</td>
<td>165</td>
<td>158</td>
<td>7</td>
<td>7</td>
<td>96</td>
</tr>
<tr>
<td>St. George's Hanover Square (one of the best houses)</td>
<td>288</td>
<td>115</td>
<td>173</td>
<td>137</td>
<td>36</td>
<td>79</td>
<td></td>
</tr>
</tbody>
</table>

Table 5.6: Infant mortality at St. Georges, Middlesex in the year 1765/66 (from information given in Pinchbeck & Hewitt, 1969)

<table>
<thead>
<tr>
<th>No. admitted</th>
<th>No. taken out of workhouse</th>
<th>No. remaining</th>
<th>Dead within 50 days</th>
<th>Dead within 9 months</th>
<th>No. Surviving</th>
<th>% Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>19</td>
<td>3</td>
<td>16</td>
<td>12</td>
<td>4</td>
<td>0</td>
<td>100</td>
</tr>
</tbody>
</table>
Table 5.7: St. Giles workhouse records 1765, showing the disposal of infants. (The overseers of this workhouse preferred raising infants within the workhouse rather than boarding them out with nurses). (From information given in Pinchbeck & Hewitt, 1969)

<table>
<thead>
<tr>
<th>No. of infants born or received</th>
<th>No. of infants out of workhouse to mother after cl month</th>
<th>No. of infants received at end of year not included</th>
<th>No. of infants remaining</th>
<th>Of 67 remaining Died after cl month</th>
<th>No. surviving</th>
<th>% Mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>133</td>
<td>54</td>
<td>12</td>
<td>67</td>
<td>53</td>
<td>14</td>
<td>79</td>
</tr>
</tbody>
</table>

In his *Earliest appeal for mercy to the children of the poor* (1766) Hanway showed why the care and feeding of infants within the workhouses of the mid-18th century was unsuccessful. It was not simply that they were handfed but (as was recognised by the foundling hospitals) the conditions in which they were fed, and the general lack of care, which killed them. "To attempt to nourish an infant in a workhouse, where a number of adults are assembled in one room, and consequently the air becomes putrid, be these nurses ever such proper persons, I will pronounce, from the most intimate knowledge of the subject, is but small remove from slaughter, for the child must die"; and "these children were put into the hands of indigent, filthy or decrepit women, three or four to one woman, and sometimes sleeping with them. The allowance to these women being scanty, they are tempted to take part of the bread and milk intended for the poor infants. The child cries for food, and the nurse beats it because it cries. Thus with blows, starving and putrid air, with the addition of lice, itch, filthiness he soon receives his quietus". (Pinchbeck & Hewitt, 1969). Although Hanway preferred the system of boarding out parish infants, many of these fared no better. The parish of St. Clement Dane entrusted one nurse, Mary Poole, with 23 children for whom she was paid 2/- per week each. The fate of these children was:
18 died 'after a month or so'
2 discharged
3 still alive at the end of the year
(Pinchbeck & Hewitt, 1969)

Hanway was not the only man to suggest a deliberate policy of killing unwanted parish infants (Harris, 1689; Sloane, 1748; Nihell, 1760) either by starvation or the administration of opiates: "would not any man in his senses conclude, after the death of three or four children in one woman's hands, that the nurse was very unfortunate; and after five or six, that she was very ignorant or very wicked? But when in so short a period, the mortality of seven or eight had happened, would it not create a suspicion that she starved them, or gave them sleeping potions? And would not the same common sense and candour lead one to think, that upon seeing the eighteenth child brought within this parish nurse's den, that those who sent them preferred that they should die? And what is preferring that a child should die, but something to shocking to mention or think of? But it has been said and continues, in many parishes, to be so common a practice, that this violence on humanity ---- is become as familiar in these renowned cities, as the use of the bowstring in Morocco for those who offend the Emperor" (Hanway, 1767, quoted in Caulfield, 1931).

The use of dry nurses from the poorest part of urban society must have been a major contributory factor to infant deaths. In 1748 Hans Sloane confirmed the use of dry nurses in London parishes: "Infants, which by the management of parish nurses, in giving them ---- opiates to quiet them when fretting with diseases occasioned by their bad nourishment ---- and the want of the breast by wett nurses, scarce ever live to two years old ---- as may be seen at St. Giles parish, there being no wett nurses provided, but being bred up by hand, that out of foundling or other children sent thither, scarce one in seven lived ---- At the Temple and at Chelsea, I am assured there dyes above one half of the foundling children" (Sloane, 1748).

Elizabeth Nihell (1760) confirmed the use of dry nursing for parish infants and suggested that artificial feeding "is almost entirely as
yet confined to the very poor, that is to say, to newborn babes thrown upon the public charity for their sustenance —— As proper wet nurses, from the difficulty in procuring them, might be dearer than dry ones; the cheapest method is preferred, and forms a kind of passive interest or saving economy". She said that death by starvation was the usual result and made the additional important point that artificial feeding was less likely to engender affection for the child. "In the very act of lactation there is, by nature, generated such an endearment of the suckled child to the nurse, as that she who began it perhaps only for hire, finds herself engaged by a growing affection to supply in some measure the place of the mother to the orphan or deserted babe. The rearing by the spoon is so far from inspiring any such dearness, that the innocent babe is considered only as an imbarassment, of which the quicker the riddance, in the death of the brat, so much the better" (Nihell, 1760).

This observation (which, bearing in mind 18th century methods, is confirmed by modern research) (Jelliffe & Jelliffe, 1978) may be relevant to the relative success in rearing infants from the London Foundling Hospital. Although the fact that infants were nursed in the country rather than in the capital was an important factor, the careful selection and supervision of the Foundling Hospital nurses did ensure that they were wet nurses in fact and not only in name (Jones, 1978; Wilson, 1979a). In contrast some European 'wet nurses' were known to dry nurse their charges rather than breastfeed them (Shorter, 1977a). Inefficient and unsuitable artificial feeding methods may have been the principal reason for the death of so many dry nursed infants, but the lack of any affection for an unknown child taken in only for gain, must have been a significant factor; particularly in the parishes where women took in large numbers of parish children each year.

Boarding out to a parish nurse could be successful. In the year 1764/5, Mrs. Howes of St. Mary's, Whitechapel, took in 18 infants at 2/6d a week each (a comparatively good wage) and only two of these died. But in London and its environs she was exceptional (Pinchbeck & Hewitt, 1969).
In 1763 an experiment by the parish of St. James, Westminster, demonstrated that parish infants could be successfully reared provided the conditions were controlled and the nurses were rewarded for keeping babies alive. The pauper children were sent to cottagers on Wimbledon Common who were paid 3/- a week for each of the 5 or 6 children they took in. A local surgeon or apothecary was overseer of the children's health and the nurses were paid a bonus for good care; for successful nursing through certain infectious diseases; and if the child survived his first birthday (Pinchbeck & Hewitt, 1969). If women were taking in 5 or 6 children at a time it is highly unlikely that they were being breastfed although, if the children were of varying ages, occasional wet nursing may have occurred. Thus partial or complete raising by hand apparently could be performed successfully by the poor in the mid-18th century, if the conditions and incentives were right.

In 1767, Hanway's petitions resulted in an Act of Parliament which enforced upon all London parishes a similar system of country nursing, good pay, and a bonus for the survival of parish infants. This was estimated to have reduced their mortality by 1500 lives a year (Pinchbeck & Hewitt, 1969). This may have been due to an increased number being breastfed rather than dry nursed, and to the healthier country environment, but almost certainly a significant number of the parish poor were still being fed artificially at the end of the 18th century (Armstrong, 1771; Smith, 1774).

Christ's Hospital

This institution, founded in the 16th century, took in illegitimate and destitute children to be fed, clothed and educated at the expense of the city of London. A study has been done on the mortality for the years 1563 to 1583 (Cunningham, 1977) which relates that the deathrate was particularly high among infants who were put out to nurses in their first year of life (she estimates probably over 500 per 1000). Many babies were not nursed in the country but boarded out with women living in the city of London who were paid 8d - 1/- a week.
Like parish nurses of the 17th and 18 centuries (Marshall, 1969; Pinchbeck & Hewitt, 1969) women took in 2 or 3 infants at the same time and Cunningham (1977) suggests that the high mortality was a reflection of the poor standard of care, and the fact that the wet nurses may have had insufficient milk to feed several infants simultaneously, resulting in malnutrition. There are many parallels with parish nursing in 18th century London where dry nursing was definitely employed, especially the fact that some women were allowed to take in infant after infant (ranging from a few days to several weeks of age) over a period of years, very few of whom survived (Cunningham, 1977). Therefore, this author suggests that, particularly where women took in two or more infants at a time, these babies were not wet nursed but were partially or totally dry nursed.
4. Current fashion

In England in the last quarter of the 17th century there was apparently a radical change in ideas and practice of infant feeding among some of the upper classes. Families who previously would have employed wet nurses began to reject both wet nurses and the idea of maternal breastfeeding in favour of bringing up their children by hand from birth. As the progress, development and effects of this change among the aristocracy during the 18th century has been extensively documented by Trumbach (1978), this section will only outline the evidence and extent of this change in fashion and suggest possible reasons for it.

The earliest isolated reference to a wealthy father refusing to have his newborn child suckled by a wet nurse was described by Willughby (1863): in 1658 Sir Tenebs Evanks of Middlesex said "that he scorned that his child should suck any pocky nurse in, or about London. Hee well knew many unworthy women in that, and other places". As a result of his attitude the child died after 10 days.

References have been found throughout the 1680's to rearing infants by hand, by physicians (Browne, 1681, quoted in Bryant, 1936; Hopkirk, 1953) and by families (Meade, 1686; Stukeley, 1882). The most significant was the decision of King James II in 1688 to raise his son and heir by hand rather than by a high-born wet nurse, which was the usual method of feeding royal infants (Foxcroft, 1902; Orrery, 1903; Hopkirk, 1953). This decision was made because several of the King's previous children had suffered convulsions and died whilst being wet nursed (Hopkirk, 1953). The Prince of Wales was dry nursed for 7 weeks before coming so close to death that James overruled his medical advisers and sent to the nearest village for a wet nurse upon whose milk the royal infant thrived and survived to maturity (Hopkirk, 1953).

From the accounts of contemporaries (some of whom were very unhappy about this method of feeding (Orrery, 1903)) several important points emerge:

1. This was a procedure recommended and instigated by the royal
physicians, and they had a free hand in decreeing the child's diet from day to day (Orrery, 1903).

2. The physicians recommended dry nursing because they thought it was preferable to a bad wet nurse (Hopkirk, 1953).

3. The physicians apparently had not found it difficult to persuade the royal parents to rear the most precious infant in the kingdom by artificial means rather than on breast milk (Hopkirk, 1953).

4. Rearing a child by hand was not regarded as sufficiently uncommon for it to have aroused widespread comment or censure in 1688 (Foxcroft, 1902; Hopkirk, 1953).

5. From the comments of foreign diplomats at the English court, a similar practice had not been adopted elsewhere in Europe (Hopkirk, 1953). (Although this disagrees with the findings given earlier in this chapter).

6. It preceded by several years the first specific mention (by McMath, 1694) of artificial feeding in the English medical literature.

Thus, by the late 1680's, the concept of raising infants by hand must have been relatively well established among important or influential physicians and some of the aristocracy, although it is difficult to know how far it was approved by physicians in general, and to what extent it was practised by other classes in the population. Trumbach (1978) confines his discussion to the aristocracy but well-to-do families in Yorkshire (Stukeley, 1882) and Essex (Meade, 1686) were also raising their infants by hand, and by the early 18th century the practice was being satirised by Richard Steele (1709a & 1709b) and recommended to the gentry by Daniel Defoe (1728/9). It would be expected that some families would follow the royal example of James II and bring up their own infants by hand, and it is suggested that there may have been an increase in the number of infants who were reared by hand at this time, and that this may be related to the observed increase in infant mortality in the last decades of the 17th century,
particularly noticeable in the 1680's (Personal communication, R. Wall, 1980).

The change in preferred feeding methods from wet nursing to handfeeding is said to have been due to the aristocracy's dissatisfaction with wet nurses (Trumbach, 1978), and this author has noted increased criticism by medical authors of wet nurses in the late 17th century (see chapter on wet nursing), but there may have been other reasons for fathers preferring to experiment with dry nursing rather than employ a wet nurse. (At this period husbands rarely contemplated or allowed their own wives to breastfeed (Willughby, 1863; Wentworth, 1883; Hughes, 1940; Trumbach, 1978; see chapter on maternal breastfeeding).

1. Royalist families who had lived in Europe for several years before the restoration in 1660 may have observed infants being successfully reared by hand in some areas of Northern Europe and brought the custom back to England. Similarly, travellers may have visited those areas where it was customary not to breastfeed children and later experimented with their own infants.

2. At a time of scientific experimentation the views of the chemist Johann van Helmont (1579-1644) may have had some influence in England. Van Helmont did many experiments on the physiology of digestion and had revolutionary ideas on the feeding of infants; these were translated into English and appeared in his "Oriatrike, or Physick refined" in 1662. He condemned the use of milk, particularly breast milk, because it easily soured, transmitted diseases and the vices of the nurse to the infant, because nurses did not stop suckling when they became pregnant, and because they usually had to supplement their milk. All nurses, he thought, were exposed to passions, violence, terrors and melancholy which affected the quality and quantity of their milk. Van Helmont's alternative was to feed all babies by hand with a panada of "bread, slightly boiled in smallbeer and sweetened with clarified honey or sugar". This could be further diluted with smallbeer for the child to drink.
Although no reference has been found in English medical works to van Helmont's (1662) theories prior to Brouzet's translated discussions of 1755, it is suggested that this (at that period) completely alien idea of infant feeding, originally suggested early in the 17th century, could have been influential.

The preference of the aristocracy and gentry for artificial feeding continued until the mid-18th century, after which some mothers were beginning to breastfeed their own children in preference to both wet nurses and handfeeding (Trumbach, 1978; see chapter on maternal breastfeeding). This change coincided with the increasing number of books written by physicians in which handfeeding was frequently stated to be better than a wet nurse if the mother could not breastfeed (Trumbach, 1978; see Part B of this chapter). By the 1780's artificial feeding was established as the method of choice if the mother could not feed her own children (Underwood, 1784; Trumbach, 1978). In 1789, one wealthy woman wrote "I ever had a great objection to a wet nurse and, had I not been able to persevere in nursing my girls myself, I would have brought them up by hand" (Heber, 1936).

As a result of the experimentation by wealthy fathers in the late 17th and early 18th centuries, artificial feeding rapidly gained social acceptance. The diversity of feeding vessels which became available from this period (see chapter on feeding vessels) and the development and medical discussion of more suitable substitute foods (see Part B) were apparently a direct consequence of this change in fashion; due to consumer demand by a wealthy and influential section of the population.
Conclusions

1. Although there was very little discussion of artificial feeding in the medical literature for most of the period 1500-1800, evidence from other sources shows that it was practised for different reasons in most countries in Europe, including Britain.

2. Four major reasons for raising infants by hand have been identified: 1) Local custom, particularly in Northern Europe. 2) Necessity, such as lack of breast milk, congenital defect, prematurity, and infantile syphilis. 3) For feeding abandoned infants in foundling institutions and in the English parish particularly when there was a shortage of wet nurses. 4) As a result of fashion among the wealthier social classes, associated with a growing dislike of wet nursing.

3. Direct suckling from animals was employed as a form of artificial feeding particularly for syphilitic infants and some foundlings, but this was more popular in France than in other European countries and there is little evidence of its use in Britain.

4. The death rate of dry nursed infants generally was much greater than that of breastfed infants, probably related to unsuitable foods and feeding vessels, but a contributory factor among foundlings could have been their initially poor state of health.

5. Although parish infants and babies taken in by Christ's Hospital were supposedly wet nursed, it is suggested that in fact many of these children were at least partially dry nursed, and this could have contributed to the high mortality of some of these infants particularly in towns.

6. Aristocratic and other wealthy families in the late 17th and early 18th century experimented with artificial feeding which resulted in its becoming the socially acceptable alternative to maternal breastfeeding by the second half of the 18th century. Direct consequences of this were: 1) The diversification of feeding vessels 2) The development of more suitable substitute foods 3) Increased medical discussion of handfeeding.
Part B

Medical ideas and opinions about artificial feeding

Although dry nursing was practised by various groups in British and European society throughout this period, it was not discussed in the British medical literature until the 18th century.

Two early authors (Jones, 1579; Gouge, 1622) referred to it very briefly as an unsuitable means of rearing children. The suggestion of Johann van Helmont (1577-1644), that infants should be nourished on his version of panada (given in Appendix II) rather than wet nursed, was translated into English in 1662 (Helmont, 1662). James McMath gave the first direct reference to "finger-fed infants" in 1694. In the following half century those authors who referred to the use of dry nursing did so only to the extent of recommending it, condemning it, or describing the consequences of giving unsuitable foods. Full discussion of artificial feeding, giving methods, foods, feeding vessels, and opinions for and against its use, did not begin until 1755 (Brouzet, 1755), and only four medical writers subsequently devoted a significant amount of space to the topic (Armstrong, 1771; Smith, 1774; Moss, 1781; Underwood, 1784).

This fact, taken in conjunction with the preceding section, illustrates the importance of looking at sources other than those of medical writers since, in this aspect of infant feeding, written medical opinion appears to have followed experimentation and practice among both physicians and populace. A possible reason for the publication of detailed instructions and advice on handfeeding in the late 18th century was to fulfill a need or demand for expert knowledge by the patients and colleagues of these early paediatric writers. It may be significant that two of these authors attended the wealthy and fashionable (Smith, 1774; Underwood, 1784) and two were particularly concerned with treating the urban poor (Armstrong, 1771; Moss, 1781), the two groups in society which were most likely to employ handfeeding.
Results and discussion

(N.B. In the following figures there is some 'overlap' of advice since, for example, some authors advised hand feeding in some circumstances and not others (Armstrong, 1771; Moss, 1781), or gave both good and bad consequences (Moss, 1781).

Table 5.8: Medical advice upon artificial feeding and its consequences 1579-1800

<table>
<thead>
<tr>
<th>Advice</th>
<th>Date</th>
<th>No. of authors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Handfeeding advised</td>
<td>1706-1800</td>
<td>13</td>
</tr>
<tr>
<td>Handfeeding not advised</td>
<td>1579-1800</td>
<td>13</td>
</tr>
<tr>
<td>Dire consequences observed</td>
<td>1694-1800</td>
<td>12</td>
</tr>
<tr>
<td>Good consequences observed</td>
<td>1752-1800</td>
<td>4</td>
</tr>
</tbody>
</table>

Those who advised or recommended artificial feeding (Baynard, 1706; Maubray, 1730; Hoffmann, c1740; Exton, 1751; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Armstrong, 1771; Smith, 1774; Moss, 1781; Spence, 1784; Aitken, 1786; Mantell, 1787) did so only for certain reasons or in specific situations.
### Table 5.9: The proportion (p) of 13 medical authors who gave circumstances in which they advised artificial feeding 1706-1800 (some gave more than one)

<table>
<thead>
<tr>
<th>Circumstances in which handfeeding advised</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>When no breast milk available</td>
<td>0.46</td>
</tr>
<tr>
<td>As an alternative/superior to a bad wet nurse</td>
<td>0.46</td>
</tr>
<tr>
<td>When the infant is unable to suck</td>
<td>0.23</td>
</tr>
<tr>
<td>Only in dire necessity</td>
<td>0.16</td>
</tr>
<tr>
<td>As an experiment</td>
<td>0.16</td>
</tr>
<tr>
<td>When necessary to change nurse or mother suddenly</td>
<td>0.08</td>
</tr>
<tr>
<td>Better than milk of any kind</td>
<td>0.08</td>
</tr>
</tbody>
</table>

The 13 authors who did not recommend artificial feeding (Jones, 1579; Gouge, 1622; Lad. Phys. Dir., 1739; James, 1746; Cadogan, 1748; Sloane, 1748; Exton, 1751; Smellie, 1752; Buchan, 1769; Armstrong, 1771; Moss, 1781; Lara, 1791; Young, late 18th) frequently gave their reasons.

### Table 5.10: The proportion (p) of 13 medical authors who gave reasons for not advising artificial feeding 1579-1800 (some gave more than one reason)

<table>
<thead>
<tr>
<th>Reasons given</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Condemned outright</td>
<td>0.23</td>
</tr>
<tr>
<td>Dangerous + many ill-effects</td>
<td>0.23</td>
</tr>
<tr>
<td>No substitute for breast milk</td>
<td>0.23</td>
</tr>
<tr>
<td>When a child is unhealthy</td>
<td>0.23</td>
</tr>
<tr>
<td>Should not experiment</td>
<td>0.08</td>
</tr>
<tr>
<td>Further experiment is necessary</td>
<td>0.08</td>
</tr>
</tbody>
</table>
The dire consequences said to result from dry nursing included several specific conditions but almost all said that death was the most frequent outcome.

Table 5.11: The proportion (p) of 12 medical writers who described conditions said to be a consequence of artificial feeding in the 18th century

<table>
<thead>
<tr>
<th>Condition</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Death</td>
<td>0.92</td>
</tr>
<tr>
<td>Illnesses in general</td>
<td>0.33</td>
</tr>
<tr>
<td>Griping, looseness, green stools</td>
<td>0.17</td>
</tr>
<tr>
<td>Wasting, inanition, starvation</td>
<td>0.17</td>
</tr>
<tr>
<td>Convulsions</td>
<td>0.08</td>
</tr>
<tr>
<td>Rickets</td>
<td>0.08</td>
</tr>
<tr>
<td>(possibly) the King's Evil</td>
<td>0.08</td>
</tr>
</tbody>
</table>

Three authors gave an estimate, based upon their own observations and experience, of how many dry nursed infants died.

At least 5 out of 6 (Lad. Phys. Dir., 1739)
More than 2 out of 3 (Cadogan, 1748)
2 out of 3 (Sloane, 1748)
More than 6 out of 7 (among parish infants) (Sloane, 1748).

Four authors said that some handfed infants thrived very well (McMath, 1694; Smellie, 1752; Brouzet, 1755; Moss, 1781) but since all except McMath favoured artificial feeding in certain circumstances, this may have been mentioned to support their recommendation.

18 authors recommended specific foods to be used in dry nursing (Hoffmann, 1740; James, 1746; Smellie, 1752; Nelson, 1753; Brouzet, 1755; Memis, 1765; Gent. Mag., 1765; Buchan, 1769; Mackenzie, 1770; Armstrong, 1771; Smith, 1774; Rosenstein, 1776;
Moss, 1781; Underwood, 1784; Aitken, 1786; Mantell, 1787; Baudelocque, 1790; Hamilton, 1792).

10 authors described foods which were commonly given to dry nursed infants (Hoffmann, 1740; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Mackenzie, 1770; Smith, 1774; Moss, 1781; Underwood, 1784; Hamilton, 1792; Young, late 18th).

9 authors condemned the use of certain foods as substitutes for breast milk (Hoffmann, 1740; Brouzet, 1755; Buchan, 1769; Mackenzie, 1770; Smith, 1774; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Baudelocque, 1790).

Medical opinions about the foods used to feed infants by hand in the 18th century are summarised in Table 5.12.

Table 5.12: Foods recommended, condemned, and said to be commonly given as substitutes for breast milk 1700-1800

<table>
<thead>
<tr>
<th>Foods</th>
<th>Flour/bread + water</th>
<th>Broths &amp; gravies</th>
<th>Milk</th>
<th>Milk + water</th>
<th>Milk mixtures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended (proportion of 18 recommendations)</td>
<td>0.22</td>
<td>0.39</td>
<td>0.72</td>
<td>0.17</td>
<td>0.72</td>
</tr>
<tr>
<td>Said to be commonly given (proportion of 10 such statements)</td>
<td>0.60</td>
<td>-</td>
<td>0.30</td>
<td>-</td>
<td>0.20</td>
</tr>
<tr>
<td>Condemned (proportion of 9 condemnations)</td>
<td>0.56</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>0.11</td>
</tr>
</tbody>
</table>

Dates when under discussion

| Dates when under discussion | 1700-1800 | 1752-1792 | 1746-1800 | 1753-1781 | 1792 |

The above results show that medical opinion on artificial feeding was divided. Although some physicians recommended it, most did so only in cases of necessity or as an alternative to a bad wet nurse. It is
clear that even those who favoured this method thought it was a dangerous and often fatal undertaking and gave copious instructions on its management (particularly Armstrong, 1771; Smith, 1774; Moss, 1781).

Undoubtedly the frequent references to illness and death were related to the lack of knowledge about
a) Suitable foods
b) Sterilisation of both foods and utensils
c) The unsuitability of some feeding vessels (see chapter on feeding vessels). This is demonstrated by the stated relationship (well-known today in Third World countries (Jelliffe & Jelliffe, 1978; Chetley, 1979) between dry nursing and gastro-intestinal complaints and starvation. The latter was frequent among both rich (Wentworth, 1883) and poor (Sloane, 1748) and was probably due to infants being fed on water pap, or similar foods which contained little or no milk.

It is clear from Table 5.12 that bread and water pap was the most common food given to handfed infants: the fact that it was so strongly condemned indicates that it was frequently used (see Appendix II for description of the paps given to the dry nursed Prince of Wales in 1688). Babies fed on milk, or milk mixtures such as bread and milk or panada, may have fared better nutritionally but were possibly more liable to gastro-intestinal upsets, especially if the milk was not boiled (see chapter on mixed feeding).

The recommendation of milk, milk and water, or milk mixtures in the later 18th century reflects the greater scientific understanding of the value of milk (Young, 1761; Still, 1931; see chapter on mixed feeding) and some writers (Nelson, 1753; Smith, 1774; Moss, 1781) were beginning to recommend diluting cow's milk to make it more like human milk.

The most common foods given to handfed children were apparently bread and water pap, milk, or milk mixtures. No evidence has been found to show that the meat broths and diluted milk recommended by physicians after c1750 were ever given to children. Although un-
diluted milk was evidently given to some drynursed infants, it is likely that most mothers and nurses prepared the same foods for artificial feeding as they did for mixed feeding.
Conclusions

1. Artificial feeding was discussed by a small minority of medical writers in the 2nd half of the 18th century. It was seen as a dangerous and frequently fatal undertaking and was recommended only in necessity, although increasingly regarded as the method of choice after maternal breastfeeding.

2. Recommended substitute foods contained milk and/or meat broths but those most commonly fed to infants were bread and water pap and (in the later 18th century) milk. It is probable that the foods used by mothers/nurses for dry nursing were not substantially different from those used for mixed feeding.

3. The observed association between gastro-intestinal conditions, starvation, and artificial feeding was related to lack of knowledge about foods, utensils, and sterilisation, and has parallels in some Third World countries today.
CHAPTER 6

THE DEVELOPMENT OF FEEDING VESSELS

A. ARTEFACTS AND PICTORIAL EVIDENCE

B. MEDICAL DISCUSSION OF FEEDING VESSELS
Part A

Artefacts and pictorial evidence

Introduction

Various forms of feeding vessels have existed at least since the late bronze/early iron age in Northern Europe (Lacaille, 1950) and the neolithic period in Northern Africa (Lacaille, 1950) and artefacts survive from these periods onwards. To begin in 1500 would give a false impression of infant feeding bottles since the years 1500 to 1800 represent only a short time in their overall development. For this reason this section will describe the evolution of different types of feeding vessels from the earliest known date until the late 18th/early 19th centuries.

Examples from all over the known world are included to show that development of specific shapes was not localised or confined to particular countries, although minor modifications in basic designs occurred in different regions, for example in upright sucking bottles. In addition, feeding bottles were imported and exported and their design subsequently incorporated into the importing country. For instance England imported sucking bottles from Germany and Italy in the 16th century (Rosenthal, 1936), and vessels from England and Holland were exported to the American colonies in the 17th century (Caulfield, 1952).

Results and discussion

The results of this section are given mainly in the form of pictorial evidence. As far as possible care has been taken to show shapes and designs which were representative rather than exceptional, and in most cases other vessels of similar design in the same period have been identified. Where they are known the measurements of vessels are given.
Feeding vessels were made from the following materials:

1. Naturally occurring structures, for example animal horns adapted for feeding.

2. Manufactured, initially from local materials and later from a variety of substances. These included:
   - Pottery - from the neolithic period (see figs. 6.7 and 6.27).
   - Glass - from Roman times (see figs. 6.14 and 6.17).
   - Wood - at least from the 15th century (see fig. 6.36).
   - Pressed leather - at least from the 16th century (Rosenthal, 1936).
   - Bone and horn - (Moss, 1781).
   - Metals such as pewter, tin, silver - at least from the early 17th century (see fig. 6.22).
   - Porcelain - at least from the early 18th century (Bennion, 1979).

1. Naturally occurring structures

Horns
Animal horns were probably the oldest form of feeding vessel since they were widely available to peoples who hunted animals for food and to those who domesticated animals such as cows and goats. Only one example has been found of a manufactured version of an animal horn for infant feeding (Leca, 1971). This is a terracotta version from Ancient Egypt (see fig. 6.1).

By its nature the shape of the horn remained static and a separate entity from other feeding vessels, although it is possible that both upright and boatshaped vessels could have evolved from it. Figs. 6.1 - 6.6 show examples of the horn from Pharaonic Egypt until 1815.
Figure 6.1: Terracotta feeding horn and anthropomorphic jug (12 cm high) used for holding infant's food. Ancient Egyptian, in the Louvre, Paris. (Leca, 1971).
Figure 6.2: Small feeding horn held in Virgin's right hand. Statue of Virgin and Child, 13th century French or Spanish.

'Victoria and Albert museum, Crown copyright'
Figure 6.3: Feeding an infant with milk from a horn. 13th century
French manuscript.
"By courtesy of the Wellcome Trustees"
Figure 6.4: Feeding horn in the right hand of the Virgin. Ivory statue of Virgin and Child, mid-14th century French. 'Victoria and Albert museum, Crown copyright'
Figure 6.5: Feeding a child by means of a cow's horn. Detail from P. Bruegel The poor kitchen, 1563. (Brown, 1975)
Figure 6.6: Cradle with a sucking-horn and sucking-horn holder.
Made in Finland in 1815, in Museovirasto, Helsinki.
(Zglinicki, 1979).
2. Manufactured vessels

Two distinct forms of man-made feeding vessels have existed since prehistoric times:

1. Round jug-shaped vessels

2. Boat-shaped vessels

A third type developed much later, this was the upright feeding bottle.

1. Round jug-shaped vessels

The round jug-shape with a sucking spout and, usually, a handle either above, at right angles, or opposite, the spout was in use from the late bronze/early iron age in Northern Europe and the neolithic period in the Sudan (Lacaille, 1950) until the early 19th century, and evolved into the feeding can or 'bubby-pot' (invented by Smith, 1774) and still survives today as the spouted cups which are used by present-day mothers for weaning children from the bottle or breast. Figs. 6.7 - 6.26 show examples from prehistoric times to the early 19th century, and a modern version.
Figure 6.7: Neolithic jug-shaped feeders from France (a) and the Sudan (b). (Drawn from Lacaille, 1950).
Figure 6.8: Terracotta anthropomorphic vase for holding milk. Ancient Egyptian, 18th dynasty. (Leca, 1971).
Figure 6.9: Feeding jug from 'protogeometric' grave of a baby girl in the Athenian agora, c1000 BC. 'By courtesy of the Wellcome Trustees'
Figure 6.10: Feeding vessels from Cyprus, 710th century BC (left) and Southern Italy, 4th/3rd century BC (right).
'By courtesy of the Wellcome Trustees'
Figure 6.11: Greek infant feeding vessel, pottery, 5th century BC.

'By courtesy of the Wellcome Trustees'
Figure 6.12: Terracotta strainer for infant feeding, ? Attic Greek, ? 5th century BC. (6.3cm high; 6.8cm across diameter of outer rim).

By courtesy of the Wellcome Trustees
Figure 6.13: Terracotta biberon with non-spill design, ? South Italian, latter half of 4th century BC.

'By courtesy of the Wellcome Trustees'
Figure 6.14: Roman glass feeding vessels, ?1st century AD. 'By courtesy of the Wellcome Trustees'
Figure 6.15: Roman rough buff-ware infant feeding vessel, 2nd century AD.

'By courtesy of the Wellcome Trustees'
Figure 6.16: Terracotta feeding vessel with strainer in lid, ? Roman, c150-200 AD. (5.9cm x 11cm including handle).

'By courtesy of the Wellcome Trustees'
Figure 6.17: Roman glass vessel used for feeding infants (repairs)
(9.5 cm x 14.2 cm including spout).
'By courtesy of the Wellcome Trustees'
Figure 6.18: Roman black terracotta feeding vessel in the shape of a human head (rare).
(7cm x 7.5cm including handle).
'By courtesy of the Wellcome Trustees'
Figure 6.19: Glass feeding vessel from Iran, 10th century AD.
(Drawn from Leibowitz, 1976).
Figure 6.20: Elizabethan feeding bottle found in London.
(Drawn from Tubbs, 1947).
Die Mutter.
Ich will mein Kindlein fegen ab,
Sein pflegen wol als ich vermagen.

Um leuen sag ich dir surwar:
Wenn nu das Kind eins zweye jar,
Der Frauen bräck hast wol gesogen:
So soln sie jm denn werden zogen.
Jedoched nie all zu swind zu gehe,
Mit zarter speis dasselb geschehe.
Von Zuck er linden erünckelein:
So man jm stetis geben ein.
Auch speis die sich darvet leicht:
Wo aber solchs nicht geschehe:
Und gibst jm speis von grober kost:
Keins ding du denn gewisserhaft:
Denn das jm darvon wechs der Stein:
Der Krampf in henden, füssen und kein.
Man sol jm doch in heissen tagen.

Figure 6.21: Globular, spouted feeding vessel illustrated in the 1549 edition of H. von Louffenberg Regiment der gesundheit. (Still, 1931).
Figure 6.22: Metal feeding can. Detail from an oil painting by Jan Steen (1625–1679) in Staatliche Museen, Berlin. (Zglinicki, 1979).
Figure 6.23: Pewter feeding can, probably an early version of the 'bubby pot'. English, 18th century.

'By courtesy of the Wellcome Trustees'
Figure 6.24: Pewter bubbly pot invented by Dr Hugh Smith.
English, 1775. (Cow & Gate cat. undated).
Figure 6.25: Tin feeding can used by German immigrants to Pennsylvania in the late 18th century. (Drawn from examples in Dittrick, 1939).
Figure 6.26: Spouted feeding cups used for weaning babies from breast or bottle. English, 1981. (Photograph, J. Drage)
2. **Boat-shaped vessels**

The boat-shaped vessel had a sucking spout or hole and, usually, a second larger hole for filling. This design was also in use from the early iron-age in Northern Europe until the 18th century, when it evolved into two different types of feeder:

a) The pap-boat (first appeared 1680-1710 (Bennion, 1979) which survived until the late 19th century.

b) The boat-shaped feeding bottle, which was still in use in England in the 1950's (Cow and Gate Cat. Undated). Figs. 6.27 - 6.34 show boat-shaped vessels from the early iron age until the 19th century, and a recent version.
Figure 6.27: Boat-shaped feeding vessels from the late bronze --
-- early iron age in Germany (a) and Austria (b).
(Drawn from Lacaille, 1950).
Figure 6.28: Greek boat-shaped feeding vessel inscribed MAMO, probably from one of the Greek colonies in Southern Italy or Sicily. In the British Museum. (Drawn from example in Hutchings, 1958).
Figure 6.29: Roman clay biberon, said to be in the Wellcome museum
(Still, 1931)
Figure 6.30: Roman clay biberon.

'By courtesy of the Wellcome Trustees'
Figure 6.31: Boat-shaped sucking bottle held by child on altarpiece at Wismar church, Germany, c1420/30. (Illustrated in Klebe & Schadowaldt, 1955)
Figure 6.32: Silver pap-boat. English, early 18th century.

'By courtesy of the Wellcome Trustees'
Figure 6.33: Boat-shaped infant feeding bottles and pap-boats produced by the Staffordshire potteries; including Spode, Davenport and Wedgewood. Late 18th/early 19th century. "By courtesy of the Wellcome Trustees"
Figure 6.34: Glass boat-shaped feeding bottle.

English, 1950. (Cow & Gate cat. undated).
3. Upright sucking bottles

Upright feeding vessels with a screw top which incorporated an artificial nipple or teat first appeared in the late medieval period. Due principally to national differences in design, there was considerable variation in the outline of these bottles through the next 500 years but these were the precursors of the upright feeding vessel in general use in Britain today.

Figs. 6.35 - 6.46 show examples of upright sucking bottles from the 15th century (the earliest date which the author has identified for this type of vessel) until the late 18th century, and a modern version.
Hieron die künste der maister geyt
das des kindes rechte zeit
Zu seügend sy zwey jar
wie doch es gar dick fürwar
Entwenet wirt von milche ee
hie nach lo sagent die maister mc
Das man das kind entwenen sol
noch vnd noch das thût jm wol

Figure 6.35: Upright sucking bottle illustrated in
H. von Louffenberg Versehung des leibs
1491 edition. (Ruhm, 1925)
Figure 6.36: Wooden upright feeding bottle, in right hand of woman kneeling on extreme right. Painting Gebert Mariae by Marx Reichlich (1460-1520). (Zglinicki, 1979).
Figure 6.37: Glass and wooden upright feeding bottle, on right hand side of table. Detail from early 16th century oil painting. (Zglinicki, 1979).
Figure 6.38: Wooden upright feeding bottle held by a child of 15 weeks. An oil painting by an unknown English artist, 1593.
'By courtesy of the Wellcome Trustees'
Figure 6.39: Dutch glass feeding bottles, designed not to fall over and probably used when weaning from the breast.
17th century.
'By courtesy of the Wellcome Trustees'
Figure 6.40: Glass and metal feeding bottle on table, bottom right, illustrated in Curioser Spiegel 1690. (Zglinicki, 1979).
Figure 6.41: Pewter sucking bottle. English, 1750.
(Cow & Gate cat. undated)
Figure 6.42: Flask-shaped pewter sucking bottle.

English, 18th century.

'By courtesy of the Wellcome Trustees'
Figure 6.43: Pewter sucking bottle. European, 18th century.
'By courtesy of the Wellcome Trustees'
Figure 6.44: Design of the feeding bottle invented by Filippo Baldini c1784. (Baldini, 1786)

'By courtesy of the Wellcome Trustees'
Figure 6.45: Filippo Baldini's feeding bottle in use. Illustrated in Baldini, 1784. (Klebs & Schadewaldt, 1955)
Figure 6.46: Upright feeding bottle. English, 1981.

(photograph by J. Drage).
The feeding vessels found to have been in use in different periods are summarised in figure 6.47. The fact that examples of certain types of vessel have not been found in some periods does not necessarily mean that they were not in use. It is probable that animal horns were utilised throughout since they were easily available and not costly. Particular designs of manufactured vessels may have gone out of fashion temporarily, for example boat-shaped bottles during the 16th and 17th centuries, but equally they may have existed but not been discovered by this author.
Figure 6.47: Summary of feeding vessels in use in different periods, from prehistory to the end of the 18th century.

Sources: Wellcome collection at the Science Museum; Cow & Gate collection of feeding bottles; Drake, 1932-33; 1938; 1941; 1956; Dittrick, 1939; Tubbs, 1947; Lacaille, 1950; Rosenthal, 1956; Hutchings, 1958; Klebe & Schadewaldt, 1956; Peiper, 1966; Crellin, 1969; Leca, 1971; Haskell & Lewis, 1971; Leibowitz, 1976; Bennion, 1979; Zglinicki, 1979; and the paintings and prints shown in this chapter.

<table>
<thead>
<tr>
<th>Period</th>
<th>Horns</th>
<th>Jug-shaped</th>
<th>Boat-shaped</th>
<th>Upright bottles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prehistoric</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ancient Egyptian</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greek</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Roman</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12th-13th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13th-14th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18th century</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Size and capacity of feeding vessels

The infant feeding vessels of the Greek and Roman period fall into two distinct sizes independent of design.

a) a height of 3 - 7cm and a maximum diameter of 6 - 7cm.

b) a height of 9.5 - 12.0cm and a diameter (depending on the design) of 10 - 15cm.

The smaller sized feeders were the type usually found in infant graves (Lacaille, 1950; Drake, 1956). According to Pliny (1st century AD) infants were buried rather than burned until they had teeth (Pliny, 1601).

An explanation for these two different sizes is that the smaller ones were used for feeding neonates before they were put to the breast several days after birth, or for giving extra fluids in the early days of breast feeding. The larger vessels were probably used for mixed feeding the older infant and when weaning the child from the breast.

In the period 1500 to 1800 feeding vessels also varied in size but the author has been able to examine closely very few of the feeders from this period, so only the estimates or measurements of others can be given here.

Pap-boats

Pap-boats of the 18th century have been said to have a capacity ranging from about 60ml up to approximately 300ml (Driscoll, 1981; Gunnel, 1981) and examination of some of the records of the Wellcome Collection at the Science Museum show that pap-boats ranged from 10.5 - 20.8cm in length, and 4.1 - 7.2cm in width. The majority were 10 - 11cm long and 5 - 6cm wide.
Sucking bottles

Sucking bottles in the Cow and Gate Collection are said to vary from 120 - 200ml in capacity (Gunnel, 1981). Examination of some records of the Wellcome Collection show measurements of 9.0 - 17.8cm in height; 4.0 - 10.1cm in width for upright versions. Possibly there were two sizes of these:

a) 9 - 13cm in height and 4 - 6cm in width.

b) 15.5 - 17.5cm in height and 8.0 - 10.5cm in width.

The boat-shaped sucking bottles measured 17.4 - 22.6cm in length; 5.9 - 11.5cm in width.

Bubby-pots and feeding cans

There are very few complete bubbly-pots or feeding cans in the Wellcome Collection, but the measurements found were 8.6 - 10.7cm in height (including spout) and 6.8 - 9.9cm in width (including handle). Hugh Smith (1774) gave the capacity as "little more than a quarter of a pint" (150ml).

The Pennsylvanian feeding cans described by Dittrick (1939) have similar measurements: 10cm in height, and a diameter of 6cm. The average capacity varies from 150 - 170ml, although one larger version has a capacity of 390ml.

From the available material, the size of all designs of feeding vessels in the 17th and 18th centuries appears to have varied much more than in the ancient world; the existence of two distinct sizes not being noted after the Roman period. It is not clear whether this fact has any significance in relation to artificial feeding. Possibly the greater variation in size could reflect greater consumer demand.

(NB. It should be noted that both the Cow and Gate and the Wellcome
Museum specimens (the main sources for this survey) represent the private collections of an individual - N. Hutchings and Henry Wellcome respectively. Thus they may contain a disproportionate number of rare or attractive examples of feeding vessels and not necessarily give a representative idea of the sucking bottles and pap-boats used in the 17th and 18th centuries.

Secondly, in the use of pictorial evidence, there may be representations which are not strictly in keeping with items of the period, since later artists may copy the idea or design of an earlier artist (E. Sears, 1981; E. Langmuir, 1981). To minimise problems arising from these facts, this study has included, wherever possible, confirmatory evidence from literary and medical sources as well as surviving artefacts. See Table 6.1).

There has been some controversy over ancient feeding bottles, some authorities claiming that these vessels were used as lamp fillers or for functions other than infant feeding (Jonckheere, 1955; Drake, 1956). Four factors have been identified to show that many of these controversial items were used for feeding babies.

1. Remnants of food remaining in some vessels have been shown, on analysis, to contain casein (Lacaille, 1950; Drake, 1956).


3. Presence of these vessels in infant graves together with other infantile impedimenta, such as toys, probably intended for any after life (Lacaille, 1950).

4. The small bore of the feeding spouts which were the right size for the mouth of a small baby, but too small for an older child or adult.

Some doubtful specimens, particularly from the Greek and Roman periods, were not included because on examination by the author the structure was such that, if the spout was put into a child's mouth
and the vessel tipped up for drinking, some other part of the utensil would have hit the child on the nose or in the eye, or could have obstructed his breathing. It is possible that these, usually very decorative versions, were used as ornamental gifts or votive offerings and not intended for feeding.

It has been postulated that some of the sucking bottles of the 17th and 18th centuries were not for feeding infants but were used for rearing young animals, such as lambs rejected by their mother (Caulfield, 1952). However, sufficient pictorial, literary and medical evidence is presented in this study to show that many, if not all, of these sucking bottles were intended for administering food to young children.
Part B

Medical discussion of feeding bottles

The method of administering foods to handfed infants was not discussed in the British medical literature until the late 18th century. Nine authors recommended feeding vessels and/or described those in common use between 1755 and the late 18th century. (Brouzet, 1755; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Moss, 1781; Spence, 1784; Underwood, 1784; Mantell, 1787; Young, late 18th century).

Five types of vessel were discussed:

The horn (Armstrong, 1771; Young, late 18th century).
The (pap) boat (Armstrong, 1771).
The spoon (Moss, 1781; Spence, 1784; Mantell, 1787).
The bubbypot (Smith, 1774; Underwood, 1784).
Other vessels, including sucking bottles (Brouzet, 1755; Rosenstein, 1776; Moss, 1781).

The horn

Three authors described the horn as a common feeding vessel (Armstrong, 1771; Smith, 1774; Young, late 18th century).
"The horn made use of for suckling, is a small polished cow's horn which will hold about a gill and a half (225ml). The small end of it is perforated, and has a notch round it to which are fastened two small bits of parchment, shaped like the tip of the finger of a glove, and sewed together in such a manner, as that the food poured into the horn can be sucked through between the stitches. This appears to be a very simple and ingenious contrivance, and is admired by some, who look upon it as a kind of artificial nipple." (Armstrong, 1771).

The disadvantage of the horn was that only thin fluids could pass between the stitches, so that larger quantities had to be given "and hence (the child's) stomach and bowels are too much relaxed, whereby it is in danger of falling into the watery gripes, as was
the case with two of mine, which were fed for some time in that way" (Armstrong, 1771).

Armstrong, who fed three of his children by hand, discovered by trial and error that, when he used the horn, his daughters had constant "gripes" and tummy upsets. When he used the boat instead his children thrived. Although he makes no mention of it, this must have been because the boat was much easier to clean and, being made of materials such as pewter or glazed porcelain, was less likely to harbour pathogenic organisms than the very narrow tip of a cow's horn, covered by absorbent materials such as parchment or cloth (Hawker, 1967).

Smith (1774), in search of a suitable artificial nipple, also said he had seen sucking "inventions of this kind, by means of parchment or leather sewed to the pointed end of an horn".

Young (late 18th) said that in many countries, including Russia, cow's milk was given to infants by "putting the teat to a horn with a hole and lett the child suck."

**The boat**

As seen above the papboat was preferred, rather than the horn, by George Armstrong. His reasons were:

1) That his daughter fed with a boat did not get "gripes" whilst those fed with a horn suffered constantly with gastro-intestinal upsets until fed with a boat.

2) That one daughter fed with the horn seemed constantly hungry because only thin foods could be given, whilst those fed with the boat were more satisfied and content.

3) Thicker and more nourishing foods could be given with the boat and this was more satisfying for the child.

Hugh Smith (1774) disapproved of the boat because large quantities of food were given very quickly. He believed infants should have to
"work" for their food by sucking as they did when sucking at the breast. "Surely it is wrong to put a large boat full of pap into their little mouths, suffering them to swallow the whole of it in the space of a minute; and then perhaps from their cries, to ply them with a second, which is no sooner down than thrown up again."

Underwood (1784) gave a similar reason against using the pap-boat. "The child is tempted to take too much at a time; whilst the nurse in order to quiet it, often forces down a second or third boat full, to put a stop to the cries, which indigestion from the first or second may have occasioned."

The spoon

"Rearing by the spoon" was an early term for artificial feeding which was used by both medical and non-medical writers (Stukeley, 1882; Meade, 1686; Pennington, 1767; Mantell, 1787) and, because it was an everyday piece of cutlery in most households, the spoon was possibly used for feeding infants more frequently than other more specialised and less versatile means.

Sarah Pennington (1767) said "nothing is more unnatural and tormenting, than feeding them with a spoon that must be taken every minute from their mouths to be replenished" but it was recommended as the best method by Moss (1781) and Mantell (1787). Underwood (1784) thought there was as much danger of overfeeding with a spoon as with a pap-boat.

The bubby-pot

This sophisticated version of the feeding can was invented by Dr. Hugh Smith and first described in the 3rd edition of his popular advice book Letters to Married Women in 1774:

"Since this book made its first appearance [1772] I have contrived a milk pot for my own nursery ---- it appears to my family, and to many of my patients, preferable to those now in use and may probably be still further improved ----. This pot is somewhat in form like an
urn; it contains a little more than a quarter of a pint; its handle, and neck or spout, are not unlike those of a coffee pot, except that the neck of this arises from the very bottom of the pot, and is very small; in short, it is upon the same principle as those gravy-pots which separate the gravy from the oily fat. The end of the spout is a little raised, and forms a roundish knob, somewhat in appearance like a small heart; this is perforated by three or four small holes: a piece of fine rag is tied loosely over it, which serves the child to play with instead of the nipple, and through which, by the infants sucking, the milk is constantly strained. The child is equally satisfied as it would be with the breast; it never wets him in the least; he is obliged to labour for every drop he receives in the same manner as when at the breast; and greatly in recommendation of this contrivance, the nurses confess it is more convenient than a boat, and that it saves a great deal of trouble in the feeding of an infant; which is the greatest security to parents, that their servants will use it, when they themselves are not present.

The model of this milk pot is left with Mr. Morrison, at the Three Kings, in Cheapside, for the benefit of the public. The milk-pots are now also made in the Queens-ware, in order that the poor may be accommodated; any person, therefore, at a very trifling expense, may be convinced of their utility by making the experiment."

(This postscript confirms the view that, by the 1770's, sufficient numbers of the poor were hand-feeding their infants, or weaning them very early, to make worthwhile the mass-production of feeding vessels such as the bubbly-pot).

Ten years later, Michael Underwood strongly advocated the use of Smith's Bubby-pot in preference to all other methods of artificial feeding: "The boat, the spoon, and the horn, are in no way comparable to the pot, which is so contrived, not only as to please the child by its resemblance to the nipple, and the milk coming slowly into its mouth, but also to afford the infant some little degree of labour and fatigue, in order to acquire the quantity it needs: which the horn
This, he thought, avoided the problem of over-feeding "as they are [apt] to be overfed by the boat or the spoon, the food of which ---- requiring only the trouble, or rather the pleasure of swallowing, the child is tempted to take too much at a time". Rather than Smith's suggestion of placing a piece of fine rag over the spout, Underwood suggested "a piece of vellum or parchment, ---- is nearly as acceptable to many children as the breast, as I have often been a witness."

Other vessels/sucking bottles

The Swiss surgeon, Feliz Wurtz (1563) referred to "drinking bottles" and Guillemeau (1612) mentioned that sucking bottles were used for feeding infants with a cleft palate.

The devices used in Russia and Iceland, which were described by Brouzet in 1755, were possibly sucking bottles:
"the infant sucks the milk through a tube, fixed to a small spunge, or a bit of linen loosely rolled together." and, "a vessel ---- in which is put a tube, the upper extremity of which the infant knows how to find, and putting his mouth to it, sucks"----.

It is notable that, apart from a fleeting reference by Mantell (1787) no British medical writer has been found who discussed sucking bottles despite the large number of surviving artefacts which are of English manufacture (see Part A).

The only possible allusion was by William Moss (1781) who described "a machine made of horn, or tin, in use with many for feeding children: it is so contrived that the child sucks his food from it as from a breast." Although he preferred the spoon, Moss said, "some children will not, without difficulty take their food with a spoon or boat who will take it more readily with this machine." This may be a reference to a sucking bottle but it could equally well be a reference to a feeding can or bubbly pot, especially since surviving sucking bottles
are made from pewter, glass, silver or porcelain (see Part A).

Hugh Smith (1774) described a Dutch feeding vessel which was probably a sucking bottle:
"The Hollander when they travel, have a small pewter vessel, somewhat in the form of a cone, which is filled with milk, and a piece of sponge covered with a linen cloth is tied over the smaller end. This serves the children very well as an artificial nipple: for it is observed that a Dutch woman seldom or never gives suck to her child before strangers."

Rosenstein (1776) recommended a biberon or sucking bottle which he said was in universal use in the Easter-Bothnia region of Sweden. In fact this sounds very much like an adapted cow's horn rather than a manufactured sucking bottle:
"It is to be made of horn, the smaller end of which may be flattened to a tanned skin of a cow's teat, or if that is not to be procured, we may use any other thin skin pierced with many small holes (cf the description of the horn given by Armstrong (1771) and Smith (1774)).

The discrepancy between the surviving sucking bottles (which must be only a fraction of those produced in the 17th and particularly, the 18th centuries) and their absence from the English medical literature is difficult to explain. It may indicate that sucking bottles were disapproved of by the medical establishment or that they were not used by the wealthy patients of the medical authors. The latter seems unlikely since only the rich could have purchased vessels made in silver or cut glass and silver. Another explanation is that sucking bottles were so common that they were not considered worthy of comment. Certainly the existence of these bottles in many different materials, from the most expensive silver to the cheapest pottery, indicates that they must have been used by all sections of the population, whether or not they were medically recommended.

**Cleanliness of feeding vessels**

The first mention of cleanliness as a factor in artificial feeding
was made by Rosenstein in 1776 when he insisted that the sucking bottle he described "ought always to be kept clean."

In 1784, Underwood said that the bubbly pot "must be carefully cleansed and scalded, at least once every day, and the spout be thoroughly rinsed, lest any sour curds should stick about it."

Thomas Mantell (1787) preferred the spoon for administering food because "the invention of horns, sucking bottles, and many other contrivances for artificial nipples, are too lame and imperfect imitations of nature to be useful.....as these machines cannot be kept perfectly clean, the victuals that hangs about them will be liable to become in a few hours, a very unfit for a nice taste to swallow, or a delicate stomach to digest."

These three comments are the only specific references to cleanliness of feeding vessels which have been found in the period 1500 to 1800. None of the three gave reasons for keeping feeding vessels clean and it is not clear whether these instructions were the personal opinions of the authors, reflected contemporary medical opinion on general cleanliness, or whether experience with the increased practice of dry nursing was beginning to show a link between unclean feeding vessels and the illness or death of hand fed infants. Therefore no conclusions can be drawn from the comments of these writers, especially since it is not known how representative their opinions were of other medical practitioners of the period, or how they related to general practices in infant feeding.

Modern knowledge of the factors which favour the growth of most micro-organisms (i.e. warmth, moisture, food, and absorbent materials (Hawker et al, 1967) suggests that the spoon and papboat were safer utensils than the horn, bubbly pot or sucking bottle. The latter all involved spouts, or similar structures of narrow bore, which were frequently covered with absorbent materials such as linen, sponge, parchment or cow's teats, which are difficult to clean and tend to retain moisture. The hard, open, and thus easily accessible and visible, surfaces of spoons and most types of papboat would mean that
any attempt at washing or cleaning, however primitive or perfunctory, was likely to be more effective than the same procedure performed on vessels with convoluted and hidden interiors, such as the bubbly-pot.

Although washing with contaminated water could have had minimal effect, Underwood's reference to 'scalding' is important since it implies that boiling water was to be used; an instruction which, if followed, would have been a much more effective method of cleaning.
Table 6.1: The development of infant feeding vessels c2000 BC - 1800 AD
(Where known, the country of origin of vessels, pictures and comments is given in capitals)

<table>
<thead>
<tr>
<th>Date</th>
<th>Artefacts*</th>
<th>Illustrations sculptures carvings</th>
<th>Discussed in medical literature</th>
<th>Mentioned by non-medical contemporaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>c2000 BC - 1500</td>
<td>Round: spout: open top. FRANCE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1700 BC - 1900</td>
<td>Round: spout: handle: open top.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c1400 BC</td>
<td>Round: spout: handle. CYPRUS</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Anthropomorph ANCENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Morphic EGYPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>vase for milk.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Earthenware ANCENT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>horn. EGYPT</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c1000 BC</td>
<td>Jug: spout: ATHENIAN handle. AGORA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c1000 BC</td>
<td>Jug: spout: CYPRUS handle.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c1000-400 BC</td>
<td>Round: spout: AFRICA SUDAN</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Unless otherwise stated these were made of earthenware or terracotta.
<table>
<thead>
<tr>
<th>Date</th>
<th>Artefacts</th>
<th>Illustrations sculptures carvings</th>
<th>Discussed in medical literature</th>
<th>Mentioned by non-medical contemporaries</th>
</tr>
</thead>
<tbody>
<tr>
<td>c900 BC</td>
<td>Ovoid: round neck RHENISH for filling: HESSE, SAVOY perforate projection at opposite LOWER AUSTRIA, end: sometimes 3 claw BOHEMIA feet</td>
<td></td>
<td>Mother using a rod and bottle to feed infant. NINEVAH</td>
<td></td>
</tr>
<tr>
<td>500-400 BC</td>
<td>1. round: spout ATTIC GREEK handle.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. round: strainer in lid: spout: ATTIC GREEK handle.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400-300 BC</td>
<td>1. round: spout: S. ITALY GREEK handle:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. cow-shaped: CYPRUS spout. (rare)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. rat-shaped (rare) GREECE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>400-200 BC</td>
<td>round: spout: S. ITALY GREEK handle:</td>
<td></td>
<td></td>
<td>Feeding vessel referred to in a Greek Papyrus.</td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>?BC</td>
<td>boat-shaped: spout: S. ITALY handle: strainer inscribed MAMO.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1st century AD</td>
<td>Round: spout. Glass.</td>
<td>ROMAN</td>
<td>Soranus referred to artificial nipples for giving fluids.</td>
<td></td>
</tr>
<tr>
<td>2nd century AD</td>
<td>1. round: spout.</td>
<td>ROMAN</td>
<td>Moschion described a glass feeding vessel.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. round: spout: handle: strainer.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. round: spout: handle: glass.</td>
<td>COLCHESTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. round: tall ridged round centre: spout.</td>
<td>COLCHESTER</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd-4th century AD</td>
<td>round: handle: spout.</td>
<td>LONDON</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>Pre-500 AD</td>
<td>1. round: very long spout: glass.</td>
<td>ROMAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. shape of a child's head: handle: spout: hole for filling.</td>
<td>ROMAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. boat-shaped: spout: handle: filling hole at one end.</td>
<td>ROMAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>4. boat-shaped: lid: lip for pouring.</td>
<td>ROMAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9th century AD</td>
<td>800. round: jug shaped very short spout &amp; handle: no lid.</td>
<td>SCHLESWIG</td>
<td>Reference to cow's horn</td>
<td>GERMANY</td>
</tr>
<tr>
<td>10th century AD</td>
<td>Cup shaped: long, curved spout: glass.</td>
<td>ISLAMIC, IRAN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>13th century AD</td>
<td>round jug-shaped: no lid:</td>
<td>GERMANY</td>
<td>Reference to cow's horn</td>
<td>FRANCE, ICICELAND</td>
</tr>
<tr>
<td></td>
<td>1. Horn</td>
<td>FRANCE OR SPAIN</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-----------------</td>
<td>----------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>13th century AD</td>
<td>2. Horn</td>
<td>FRANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15th century AD</td>
<td>1420/30 boat-shaped sucking bottle</td>
<td>GERMANY</td>
<td>1473. Reference to</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>nipple nursing flask</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>cylindrical</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Many sucking bottles:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>wooden: upright:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>rounded sides:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Medieval</td>
<td>Round; jug-shaped:</td>
<td>ENGLAND</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>spout: handle.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16th century AD</td>
<td>16th century: glass:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>rounded sides; wooden</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>lid with teat</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-----------------</td>
<td>---------------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>16th century AD</td>
<td>16th century. many sucking bottles; wooden: upright; rounded sides.</td>
<td>c1500. sucking bottle: wooden: rounded sides.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1509. feeding: LUBECK can: lid; spout.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Round: jug-shaped LONDON handle: spout: no lid.</td>
<td>1509. feeding: LUBECK can: round; lid; spout.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Upright bottles: ITALY wooden or pressed &amp; GERMANY</td>
<td>1549. sucking bottle: spherical: GERMANY long spout.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>leather imported into England.</td>
<td>1563. Horn: NETHERLANDS</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1593. Sucking bottle: ENGLAND bulbous base; lid with teat: wooden.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1565. Cow's horn recommended FRANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>1563. Reference to infant's drinking bottles: SWITZERLAND</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-------------------</td>
<td>----------------------------------------------------</td>
<td>----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>16th century AD</td>
<td>16th century. sucking bottle: glass: rounded sides: wooden lid with teat: GERMANY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17th century AD</td>
<td>1640. sucking bottle: rounded sides. FRANCE</td>
<td>1612 Reference to sucking bottle FRANCE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1550-1750</td>
<td>Feeding cup: handle: small spout: half covered top.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1687. Reference to spoon. ENGLAND</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1690. Pewter sucking bottles imported. BOSTON, AMERICA</td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>---------------------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>1601-1800</td>
<td></td>
<td></td>
<td></td>
<td>Pre-1697 Pewter sucking bottles made by John Baker, Pewterer. BOSTON, AMERICA</td>
</tr>
<tr>
<td>18th century AD c1700-1800</td>
<td>1. Pewter sucking bottles: bulbous base: screw top with short spout: FRANCE &amp; EUROPE</td>
<td></td>
<td></td>
<td>1700. Reference to silver sucking bottle. AMERICA</td>
</tr>
<tr>
<td></td>
<td>2. Pewter sucking bottles: bulbous base: screw top with extended and bent narrow bore spout: EUROPE</td>
<td></td>
<td></td>
<td>1710. Reference to sucking bottle: ENGLAND</td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>---------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>c1700-1800</td>
<td>4. Glass sucking bottles: conical screw top with spout made from pewter or silver. GERMANY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5. Earthenware sucking bottle: upright: straight sides. ENGLAND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>6. Pewter sucking bottles: conical shape: screw top: with short spout. BAVARIA</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Boat shaped glass sucking bottle: one opening. VENICE AND ITALY</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1770</td>
<td>Bell shaped sucking bottle: Pewter: ENGLAND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1771-1800</td>
<td>Straight sided sucking bottle: pewter: claw feet: screw cap with short spout. SWITZERLAND OR TYROL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1728-29. Reference to spoon. ENGLAND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1742. Reference to pewter sucking bottle. ENGLAND</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artafacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>--------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>--------------------------------------------------------------------------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>1700-1900</td>
<td>1. Boat-shaped sucking bottles: silver, glass or porcelain: sometimes with glass teat: central filling hole. ENGLAND, FRANCE (1771-1830)</td>
<td></td>
<td>1755. In Iceland and the North, all babies fed with modification of sucking bottle. FRANCE</td>
<td></td>
</tr>
<tr>
<td></td>
<td>2. Upright glass sucking bottle: central filling hole: opening at top.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3. Pap boats:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Gravy boat:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>shape: pewter:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>silver:</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>------------</td>
<td>-------------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>c1750-</td>
<td>Papwarmers: porcelain <strong>ENGLAND</strong> containers for inserting a full papboat for warming.</td>
<td></td>
<td></td>
<td>1767. Suggestion that sucking bottle be invented because the spoon is frustrating. <strong>ENGLAND</strong></td>
</tr>
<tr>
<td>late 18th century</td>
<td>1. Feeding cans <strong>ENGLAND</strong> pewter: silver <strong>HOLLAND</strong> earthenware: and <strong>GERMAN</strong> tin: early <strong>IMMIGRANTS</strong> versions of <strong>TO PENN-</strong> Bubby Pot: up <strong>SYLVANIA</strong>, right-can: <strong>AMERICA</strong> straight sides: long, bent spout from base: usually no lid.</td>
<td></td>
<td>1771. Pap boat recommended. Horn recommended only for thin fluids. <strong>LONDON, ENGLAND</strong></td>
<td>1769. Reference to silver sucking bottle. <strong>AMERICA</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1774. Reference to horn in use and sucking vessel in Holland. Bubby Pot described and recommended. <strong>ENGLAND</strong></td>
<td>1776. Reference to biberon (sucking bottle) universally used in Eastern-Bothnia. Horn sucking bottle recommended with cow's teat. <strong>SWEDEN AND ENGLAND</strong></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-------</td>
<td>---------------------------------------------------------------------------</td>
<td>-----------------------------------</td>
<td>---------------------------------</td>
<td>----------------------------------------</td>
</tr>
<tr>
<td>c1770</td>
<td>2. Bubby Pots: ENGLAND Upright cans or pots: sometimes with rounded sides; long curved spout from base, with tip rounded with several perforations for sucking: lid, sometimes attached, sometimes separate: in pewter, silver, creamware</td>
<td></td>
<td>1781. Spoon recommended: machine of horn or tin said to be common. Reference to boat. LIVERPOOL, ENGLAND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1784. Newly invented feeding glask: spherical extended neck: screw top with sponge for sucking. ITALY</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1784. 1. Bubby Pot recommended. Reference to spoon, boat, horn. ENGLAND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. Spoon recommended. SCOTLAND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1787. Spoon recommended ENGLAND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>1790. Pap boat: china: matching tea-service. ENGLAND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>c1794. Pap boat. ENGLAND</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Date</td>
<td>Artefacts</td>
<td>Illustrations sculptures carvings</td>
<td>Discussed in medical literature</td>
<td>Mentioned by non-medical contemporaries</td>
</tr>
<tr>
<td>-------</td>
<td>-----------</td>
<td>----------------------------------</td>
<td>---------------------------------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>c1800</td>
<td>Pap spoons: <strong>ENGLAND, FRANCE</strong> in pewter or silver, either open or with hollow handle and lidded bowl for blowing contents into child's mouth.</td>
<td></td>
<td>1798. Reference to a sucking bottle. <strong>GERMANY</strong></td>
<td></td>
</tr>
</tbody>
</table>

**Sources**


**Medical literature:** Soranus, 1556; Rosenthal, 1956; Metlinger, 1473; Vallambert, 1545; Wurtz, 1563; Guillemeau, 1612; Brouzet, 1755; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Moss, 1781, Underwood, 1784; Baldini, 1784; Mantell, 1787; Young, late 18th century; Still, 1931.

**Non-medical contemporaries:** Meade, 1686; Defoe, 1728-29; Pennington, 1767; Rawdon, 1868; Wentworth, 1883; Bryant, 1936; Caulfield, 1952; De Mause, 1976.
CHAPTER 7

WEANING

I: THE AGE OF WEANING

A: SPECIFIC AGE
B: FACTORS OTHER THAN AGE
C: LATE AND EARLY WEANING

II: WEANING PRACTICES

A: THE METHOD OF WEANING
B: THE WEANING DIET
C: DISEASES ASSOCIATED WITH WEANING
Sources

The following texts were analysed to obtain data on weaning from the breast:

16th century

Roesslin, 1540; Paré, 1575; Jones, 1579; Ste Marthe, 1584.

Total = 4

17th century

Guillemeau, 1612; translator of Guillemeau, 1612; Glisson, 1651; Pemell, 1653; Sennert, 1657; Sharp, 1671; Culpeper, 1675; Culpeper, 1676; Engl. Mid. Enl., 1682; Blankaart, 1684 in Still, 1931; Pechey, 1697; Ettmueller, 1699.

Total = 12

18th century

Nurses Guide, 1729; Maubray, 1730; Ladies Dispens., 1740; Hoffmann, 1740; Hurlock, 1742; Astruc, 1746; Cadogan, 1748; Sloane, 1748; Burton, 1751; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Armstrong, 1771; Smith, 1774; Rosenstein, 1776; Young, 1780; Moss, 1781; Pract. Midwifery, 1783; Underwood, 1784; Spence, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792; Mears, 1797; Tytler, 1797.

Total = 28

Total = 44
Additional sources

Ancient sources

Paulus Aeginata, 1844; Garrison, 1923; Brim, 1936; Trotula, 1940;
Pickthall, 1948; Radbill, 1973; Galen, 1951; Jonkheere, 1955;
Soranus, 1956; Montet, 1958; Avicenna, 1966; Lindsay, 1963;
Maimonides, 1970/1; Margalith, 1968; The Holy Bible.

For weaning of particular children

Shakespeare, c1594; Dee, 1842; Dee, 1880; Brownlow, 1847;
Stukeley, 1882; Hunter, 1908; Thornton, 1875; Evelyn, 1908;
Greene, 1929; Verney, 1930; Sibbald, 1932; Heber, 1936; Hughes,
1940; Winchester, 1955; Pearson, 1957; McHenry & Mackeith, 1966;
Waldman, 1972; Plumb, 1975; Josselin, 1976; Macfarlane, 1970;

Other sources

Thiselton-Dyer, 1898; Johnston, 1657; Gent. Mag., 1765; Hunter,
1775; Osborne & Denman, 1776; Denman & Osborne, 1777/8; Young's
Midwifery, late 18th; Cullen, 1788; Willoughby, 1844; Still,
1931; Oxinden, 1933; Mondot-Bernard, 1977.
Introduction

Weaning the child from the breast was a subject of great importance from Biblical times until the end of the 18th century, and frequent references were made to it in diaries, journals and plays, many of which were written by men (e.g. Shakespeare, c1594; John Dee, 1842; Ralph Josselin, 1976). In medical texts weaning was normally considered in a section or chapter quite separate from the discussion of other aspects of infant nutrition, such as mixed feeding.

These points demonstrate that weaning was a subject which concerned fathers as much as mothers and nurses, and was a time of considerable anxiety for everyone involved. To contemporaries, weaning was arguably the most dangerous period of infancy, associated as it was with specific 'diseases' and a large mortality. It was a period of change, not only of diet but in station: a suckling was an infant with all that that implied, but once the breast was left for good he was regarded as a child and, as such, became a true member of the family. The upper class child left his wet nurse and returned home to his biological family while, among the poorer classes, he was no longer fed at a different time but ate with the rest of the family.

In this chapter, the various aspects of weaning will be considered in the order of importance assigned to them by contemporaries (as signified by the amount of space each was allotted, and the frequency with which it was discussed). The definition of weaning throughout is the relatively short period during which the child was weaned completely from the breast.
I: The age of weaning

Part A

Specific age

The age at which children were weaned was mentioned by nearly all authors who discussed weaning but not all gave a specific age or considered only one factor. Since many medical writers did recommend a specific age, and some indicated a time at which infants were usually or commonly weaned, an attempt will be made first to show how these medical opinions compared with what happened to a sample of named children. Three types of weaning age were considered:

1. The age recommended by physicians (recommended).
2. The age said to be common (common).
3. The age at which particular children were weaned (actual).

1. The recommended age

Table 7.1 shows the age at which medical authors recommended weaning between the 16th and 18th centuries. Since these were frequently based upon the recommendations of the ancient writers (particularly Aetios, Paulus Aeginata, and Avicenna) Table 7.2 lists the ages of weaning from the ancient world which this author has discovered to date. Comparison of these tables shows that, as late as the 1740's, medical authors were still basing their advice on the length of suckling advised by authorities such as Soranus, Galen and Avicenna.
Table 7.1: The age of weaning children from the breast recommended by medical writers 1500-1800.

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Weaning age (months)</th>
<th>Source (where different from author)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Roesslin</td>
<td>1540</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>A. Pare'</td>
<td>1575</td>
<td>24</td>
<td>Paré, 1634</td>
</tr>
<tr>
<td>Gordonius</td>
<td>pre 1579</td>
<td>36</td>
<td>Jones, 1579</td>
</tr>
<tr>
<td>S. Ste Marthe</td>
<td>1584</td>
<td>24</td>
<td>Ste Marthe, 1710</td>
</tr>
<tr>
<td>J. Guillemeau</td>
<td>1612</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>D. Sennert</td>
<td>1657</td>
<td>21 (18-24)</td>
<td>Still, 1931</td>
</tr>
<tr>
<td>J. Sharp</td>
<td>1671</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>N. Culpeper</td>
<td>1675</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>N. Culpeper</td>
<td>1676</td>
<td>21 (18-24)</td>
<td></td>
</tr>
<tr>
<td>J. Pechey</td>
<td>1697</td>
<td>21 (18-24)</td>
<td></td>
</tr>
<tr>
<td>M. Ettmueller</td>
<td>1699</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>Nurses Guide</td>
<td>1729</td>
<td>19 (18-20)</td>
<td></td>
</tr>
<tr>
<td>J. Maubray</td>
<td>1730</td>
<td>21 (18-24)</td>
<td></td>
</tr>
<tr>
<td>J. Astruc</td>
<td>1746</td>
<td>21 (18-24)</td>
<td></td>
</tr>
<tr>
<td>W. Cadogan</td>
<td>1748</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>H. Sloane</td>
<td>1748</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>J. Nelson</td>
<td>1753</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>H. Smith</td>
<td>1774</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>W. Hunter</td>
<td>1775</td>
<td>8.5 (8-9)</td>
<td></td>
</tr>
<tr>
<td>W. Osborne &amp; T. Denman</td>
<td>1776</td>
<td>9.5 (9-10)</td>
<td></td>
</tr>
<tr>
<td>W. Moss</td>
<td>1781</td>
<td>7 (6-8)</td>
<td></td>
</tr>
<tr>
<td>Practice of Midwifery</td>
<td>1783</td>
<td>8.5 (7-10)</td>
<td></td>
</tr>
<tr>
<td>M. Underwood</td>
<td>1784</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>T. Mantell</td>
<td>1787</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>H. Downman</td>
<td>1788</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>W. Cullen</td>
<td>1788</td>
<td>&lt;9</td>
<td></td>
</tr>
<tr>
<td>B. Lara</td>
<td>1791</td>
<td>8.5 (8-9)</td>
<td></td>
</tr>
<tr>
<td>A. Hamilton</td>
<td>1792</td>
<td>10.5 (9-12)</td>
<td></td>
</tr>
<tr>
<td>T. Young</td>
<td>late 18th</td>
<td>10.5 (9-12)</td>
<td></td>
</tr>
<tr>
<td>Peoples</td>
<td>Author/work or region</td>
<td>Age (months)</td>
<td>Recommended common or actual age</td>
</tr>
<tr>
<td>---------------</td>
<td>-----------------------</td>
<td>--------------</td>
<td>----------------------------------</td>
</tr>
<tr>
<td>Ancient</td>
<td>Pharaonic Egypt</td>
<td>36</td>
<td>Common</td>
</tr>
<tr>
<td>Babylonians</td>
<td>Babylon</td>
<td>36</td>
<td>Common</td>
</tr>
<tr>
<td>Hebrews</td>
<td>The Bible, : Isaac</td>
<td>24</td>
<td>Actual</td>
</tr>
<tr>
<td></td>
<td>: Samuel</td>
<td>36</td>
<td>Actual</td>
</tr>
<tr>
<td>Hebrews</td>
<td>The Talmud</td>
<td>24</td>
<td>Recommended</td>
</tr>
<tr>
<td>Greeks</td>
<td>Greece</td>
<td>6</td>
<td>Actual (wet nursing contract)</td>
</tr>
<tr>
<td>Romans</td>
<td>Roman Egypt : 1</td>
<td>6-36</td>
<td>Common</td>
</tr>
<tr>
<td></td>
<td>: 2</td>
<td>16</td>
<td>Actual (wet nursing contract)</td>
</tr>
<tr>
<td>Greeks</td>
<td>Soranus 1/2nd century</td>
<td>18-24</td>
<td>Recommended</td>
</tr>
<tr>
<td>in Rome</td>
<td>Galen 2nd century</td>
<td>36</td>
<td>Recommended</td>
</tr>
<tr>
<td>Byzantine</td>
<td>Aetios of Amida</td>
<td>20</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Paul of Aegina</td>
<td>24</td>
<td>Recommended</td>
</tr>
<tr>
<td>Islamic</td>
<td>The Koran</td>
<td>24</td>
<td>Recommended</td>
</tr>
<tr>
<td></td>
<td>Avicenna 10/11th century</td>
<td>24</td>
<td>Recommended</td>
</tr>
<tr>
<td>Hebrews</td>
<td>Maimonides</td>
<td>24</td>
<td>Common</td>
</tr>
</tbody>
</table>
2. The common age

The age at which most children were said to be weaned, in fact rather than ideally, is given in Table 7.3. These were obtained from statements such as "some are weaned in the tenth month, and some in the twelfth" (Pechey, 1697); "the ordinary term of nine months" (Cullen, 1788).

Table 7.3: The age of weaning children from the breast said by medical writers to be common 1500-1800

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Weaning age (months)</th>
<th>Source (where different from author)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Roesslin</td>
<td>1540</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>A. Paré</td>
<td>1575</td>
<td>19 (18 - 20)</td>
<td>Paré, 1634</td>
</tr>
<tr>
<td>Mokerus</td>
<td>pre 1579</td>
<td>12</td>
<td>Jones, 1579</td>
</tr>
<tr>
<td>J. Jones</td>
<td>1579</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>J. Pechey</td>
<td>1697</td>
<td>11 (10 - 12)</td>
<td></td>
</tr>
<tr>
<td>H. Sloane</td>
<td>1748</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td>J. Nelson</td>
<td>1753</td>
<td>3.5 (3 - 4)</td>
<td></td>
</tr>
<tr>
<td>N. Brouzet</td>
<td>1755</td>
<td>15.5 (15 - 16)</td>
<td></td>
</tr>
<tr>
<td>T. Denman</td>
<td>1777/78</td>
<td>12</td>
<td>Denman &amp; Osborne, 1777/78</td>
</tr>
<tr>
<td>W. Moss</td>
<td>1781</td>
<td>9 (8 - 10)</td>
<td></td>
</tr>
<tr>
<td>W. Cullen</td>
<td>1788</td>
<td>9</td>
<td></td>
</tr>
<tr>
<td>H. Tytler</td>
<td>1797</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>T. Young</td>
<td>late 18th</td>
<td>13.5 (12 - 15)</td>
<td></td>
</tr>
</tbody>
</table>
3. The actual age

The definite age at which a sample of children are known to have been weaned is given in table 7.4

**Table 7.4:** The age at weaning from the breast of a sample of named children 1500-1800.

*16th and 17th centuries.*

<table>
<thead>
<tr>
<th>Name</th>
<th>Date weaned</th>
<th>Season</th>
<th>Age at weaning (months)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Tudor</td>
<td>1517</td>
<td>Winter</td>
<td>12</td>
<td>Waldman, 1972</td>
</tr>
<tr>
<td>Elizabeth Tudor</td>
<td>1534</td>
<td>Autumn</td>
<td>12+</td>
<td>Tucker, 1976</td>
</tr>
<tr>
<td>Jane Grey</td>
<td>1538</td>
<td>-</td>
<td>18</td>
<td>Pearson, 1957</td>
</tr>
<tr>
<td>Charity Johnson</td>
<td>1545</td>
<td>Autumn</td>
<td>36</td>
<td>Winchester, 1955</td>
</tr>
<tr>
<td>John Jones</td>
<td>pre 1550</td>
<td>-</td>
<td>36</td>
<td>Jones, 1579</td>
</tr>
<tr>
<td>Arthur Dee</td>
<td>1580</td>
<td>Summer</td>
<td>13.5</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>Katherine Dee</td>
<td>1582</td>
<td>Summer</td>
<td>14.5</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>Theodore Dee</td>
<td>1589</td>
<td>Summer</td>
<td>18</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>Madinia Dee</td>
<td>1591</td>
<td>Summer</td>
<td>15.5</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>Francis Dee</td>
<td>1593</td>
<td>Winter</td>
<td>13.5</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>Margaret Dee</td>
<td>1596</td>
<td>Spring</td>
<td>7.5</td>
<td>Dee, 1842</td>
</tr>
<tr>
<td>John Evelyn</td>
<td>1622</td>
<td>Winter</td>
<td>14.5</td>
<td>Evelyn, 1908</td>
</tr>
<tr>
<td>Mary Josselin</td>
<td>1643</td>
<td>Spring</td>
<td>12</td>
<td>Josselin, 1976</td>
</tr>
<tr>
<td>Robert Sibbald</td>
<td>1643</td>
<td>Summer</td>
<td>26</td>
<td>Sibbald, 1932</td>
</tr>
<tr>
<td>Thomas Josselin</td>
<td>1645</td>
<td>Winter</td>
<td>13</td>
<td>Josselin, 1976</td>
</tr>
<tr>
<td>Mary Green</td>
<td>1646</td>
<td>Autumn</td>
<td>6</td>
<td>Greene, 1929</td>
</tr>
<tr>
<td>Jane Josselin</td>
<td>1647</td>
<td>Spring</td>
<td>18</td>
<td>Josselin, 1976</td>
</tr>
<tr>
<td>John Josselin</td>
<td>1653</td>
<td>Spring</td>
<td>19</td>
<td>Josselin, 1976</td>
</tr>
<tr>
<td>Anne Josselin</td>
<td>1655</td>
<td>Autumn</td>
<td>16</td>
<td>Josselin, 1976</td>
</tr>
<tr>
<td>Elizabeth Josselin</td>
<td>1665</td>
<td>Summer</td>
<td>12</td>
<td>Josselin, 1976</td>
</tr>
<tr>
<td>Robert Thornton</td>
<td>1665</td>
<td>Autumn</td>
<td>36</td>
<td>Thornton, 1875</td>
</tr>
<tr>
<td>- Josselin</td>
<td>1674</td>
<td>Winter</td>
<td>12.5</td>
<td>Macfarlane, 1970</td>
</tr>
<tr>
<td>Robert Walpole</td>
<td>1677</td>
<td>-</td>
<td>18</td>
<td>Plumb, 1975</td>
</tr>
<tr>
<td>- Josselin</td>
<td>1679</td>
<td>Summer</td>
<td>9</td>
<td>Macfarlane, 1970</td>
</tr>
<tr>
<td>William Stukeley</td>
<td>1687</td>
<td>Winter</td>
<td>0.25</td>
<td>Stukeley, 1882</td>
</tr>
</tbody>
</table>
### 18th century

<table>
<thead>
<tr>
<th>Name</th>
<th>Date weaned</th>
<th>Age at weaning (months)</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jack Lovatt</td>
<td>1708</td>
<td>12</td>
<td>Verney, 1930</td>
</tr>
<tr>
<td>- Marklew</td>
<td>1709</td>
<td>18</td>
<td>McHenry &amp; Mackeith, 1966</td>
</tr>
<tr>
<td>Samuel Johnson</td>
<td>1709</td>
<td>2.5</td>
<td>McHenry &amp; Mackeith, 1966</td>
</tr>
<tr>
<td>Case history 1:</td>
<td>1733-42</td>
<td>10</td>
<td>Hurlock, 1742</td>
</tr>
<tr>
<td></td>
<td>2:</td>
<td>1733-42</td>
<td>Hurlock, 1742</td>
</tr>
<tr>
<td></td>
<td>3:</td>
<td>1733-42</td>
<td>Hurlock, 1742</td>
</tr>
<tr>
<td>Lord Warkworth</td>
<td>1743</td>
<td>6</td>
<td>Hughes, 1940</td>
</tr>
<tr>
<td>N. Brouzet</td>
<td>pre 1750</td>
<td>18</td>
<td>Brouzet, 1755</td>
</tr>
<tr>
<td>George, Prince of Wales</td>
<td>1763</td>
<td>9</td>
<td>Hedley, 1975</td>
</tr>
<tr>
<td>Prince Frederick</td>
<td>1764</td>
<td>8</td>
<td>Hedley, 1975</td>
</tr>
<tr>
<td>Princess Royal</td>
<td>1767</td>
<td>6.5</td>
<td>Hedley, 1975</td>
</tr>
<tr>
<td>William, Duke of Clarence</td>
<td>1767</td>
<td>4</td>
<td>Hedley, 1975</td>
</tr>
<tr>
<td>- Armstrong</td>
<td>pre 1771</td>
<td>1</td>
<td>Armstrong, 1771</td>
</tr>
<tr>
<td>- Armstrong</td>
<td>pre 1771</td>
<td>1</td>
<td>Armstrong, 1771</td>
</tr>
<tr>
<td>- Armstrong</td>
<td>pre 1771</td>
<td>1.5</td>
<td>Armstrong, 1771</td>
</tr>
<tr>
<td>Princess Sophia</td>
<td>1771</td>
<td>8</td>
<td>Hedley, 1975</td>
</tr>
<tr>
<td>Case history 1:</td>
<td>c1781</td>
<td>37</td>
<td>Moss, 1781</td>
</tr>
<tr>
<td></td>
<td>2:</td>
<td>c1781</td>
<td>Moss, 1781</td>
</tr>
</tbody>
</table>

**Derivation of the sample**

The 42 children were found by examining letters, diaries, and case histories given in medical textbooks. To avoid misleading results (such as the common error of supposing that a child left the wet nurse immediately he was weaned (De Mause, 1976) ) children were only included where weaning was specifically stated to be the reason for leaving the nurse, and where the definite date and age of weaning could be reliably ascertained by the present author. The statements of other writers about weaning ages were only accepted when they were the biographers of the children concerned (e.g. Waldman, 1972; Plumb, 1975).
Most of the children were from the upper strata of society. The type of family to which each belonged is given in table 7.5

Table 7.5: The social composition of the sample of named children 1500-1800

<table>
<thead>
<tr>
<th>Century</th>
<th>Royalty</th>
<th>Aristocracy</th>
<th>Gentry</th>
<th>Educated classes*</th>
<th>Merchants or shopkeepers</th>
<th>Others</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th</td>
<td>3</td>
<td>0</td>
<td>0</td>
<td>7</td>
<td>1</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>17th</td>
<td>0</td>
<td>0</td>
<td>3</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>18th</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>3</td>
<td>1</td>
<td>6</td>
<td>17</td>
</tr>
<tr>
<td>Total</td>
<td>8</td>
<td>1</td>
<td>4</td>
<td>21</td>
<td>2</td>
<td>6</td>
<td>42</td>
</tr>
</tbody>
</table>

*includes physicians, lawyers, clergymen, etc.

The 6 from the final category in the 18th century included poorer members of society, one being the child of a wet nurse (- Marklew) and two described as the children of "a country-woman near Liverpool" (Moss, case histories).

The areas in which they lived included London (1), Leicestershire (1), Essex (7), Surrey (7), Bucks (1), Yorkshire (2), Norfolk (1), Staffordshire (2), Lancashire (2), Scotland (1) and Wales (1). The three case histories of Hurlock and the children of George Armstrong were probably reared in or near London as both were working in that locality at the time described (see Appendix I).

If these are looked at in each century; the 16th century children came from Leicestershire (1), London (1), Wales (1) and Surrey (6). The 17th century children from Surrey (1), Norfolk (1), Scotland (1), Yorkshire (2) and Essex (7). The 18th century children were from Buckinghamshire (1), Staffordshire (2), Lancashire (2) and probably the London area (6). The royal children were atypical. Both Mary and Elizabeth Tudor were moved from place to place during infancy (DNB, 1975). The family of George III mainly lived at Kew (Hedley, 1975).
The findings for the recommended common and actual weanings are summarised in table 7.6b. To clarify changes in the 18th century the results have been divided into two fifty year periods as shown in table 7.7b.
### Table 7.6a: The age of weaning in Britain 1500-1799 (British writers and children only)

<table>
<thead>
<tr>
<th>Weaning age (months)</th>
<th>1500 - 1599</th>
<th>1600 - 1699</th>
<th>1700 - 1799</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Median</td>
<td>No.</td>
</tr>
<tr>
<td>Recommended age</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Actual age</td>
<td>7.5-36</td>
<td>14.5</td>
<td>11</td>
</tr>
<tr>
<td>Age reported to be common</td>
<td>-</td>
<td>12</td>
<td>1</td>
</tr>
</tbody>
</table>

### Table 7.6b: The age of weaning (using additional sources translated into English)

<table>
<thead>
<tr>
<th>Weaning age (months)</th>
<th>1500 - 1599</th>
<th>1600 - 1699</th>
<th>1700 - 1799</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Median</td>
<td>No.</td>
</tr>
<tr>
<td>Recommended age</td>
<td>24-36</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>Actual age</td>
<td>7.5-36</td>
<td>14.5</td>
<td>11</td>
</tr>
<tr>
<td>Age reported to be common</td>
<td>12-20</td>
<td>12</td>
<td>4</td>
</tr>
</tbody>
</table>
Table 7.7a: Age of weaning 1700-1709 (British writers and children only)

<table>
<thead>
<tr>
<th>Weaning ages (months)</th>
<th>1700 - 1749</th>
<th>1750 - 1799</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Median</td>
</tr>
<tr>
<td>Recommended age</td>
<td>8-24</td>
<td>15.5</td>
</tr>
<tr>
<td>Actual age</td>
<td>2.5-24</td>
<td>10</td>
</tr>
<tr>
<td>Age reported to be common</td>
<td>-</td>
<td>12</td>
</tr>
</tbody>
</table>

Table 7.7b: Age of weaning 1700-1799 (using additional sources translated into English)

<table>
<thead>
<tr>
<th>Weaning ages (months)</th>
<th>1700 - 1749</th>
<th>1750 - 1799</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Range</td>
<td>Median</td>
</tr>
<tr>
<td>Recommended age</td>
<td>8-24</td>
<td>19</td>
</tr>
<tr>
<td>Actual age</td>
<td>2.5-24</td>
<td>11</td>
</tr>
<tr>
<td>Age reported to be common</td>
<td>-</td>
<td>12</td>
</tr>
</tbody>
</table>
To see whether the apparent changes were statistically significant (taking the probability level (p) of 0.05 or less) the median test and the chi-square test corrected for continuity (when n was greater than 20) or the Fisher Exact Probability Test (when n was less than 20) were used. These tests were selected as being the most suitable since none of the observed values came from a normal distribution, or from equal size samples (Siegal, 1956).

The findings were:

1. **In the 16th century**
   The recommended age was significantly greater than both the common age \( p = < 0.025 \) and the actual age \( p = < 0.025 \). There was no significant difference between the actual and the common age.

2. **In the 17th century**
   There was no significant difference between the recommended and actual age. Statistical comparison with the common age was not made since only one example of a common age was found.

3. **In the 18th century**
   There was no significant difference between the recommended, common and actual age.

4. **The recommended age**
   In the 16th century was significantly greater than in the 17th century \( p = < 0.05 \), and in the 16th and 17th centuries was greater than in the 18th century \( p = < 0.002 \).

   There was no significant difference between the 17th and 18th centuries.

5. **The actual age**
   There was no significant difference between the 16th and 17th centuries, or between the 17th and 18th centuries, but children in the 16th and 17th centuries were weaned significantly later than those in the 18th century \( p = < 0.01 \).
6. The common age

There was no significant difference between the 16th and 17th centuries and the 18th century.

These results appear to indicate that the age at which children were said to be commonly weaned was similar to the age at which a sample of children were actually weaned, and that the age recommended by physicians in the 16th century was unrelated to actual practice; whilst in the 17th and 18th centuries, when recommendations changed, recommendations were similar to common and actual practice.

However, these results cannot all be taken as evidence of what was happening in Britain. For example, all the recommendations before the second half of the 17th century were given by non-English writers, as were 4 out of the 13 references to common practice. In contrast all but one of the sample of children were from Britain. Figure 7.1 shows how this may bias the results, since the weaning age in France or Germany may well have been different from that in Britain.
Figure 7.1a: Histograms showing recommended weaning ages compared with actual weaning ages 1500 - 1800, and the effect of non-British examples.
(Shaded areas represent writers of non-British origin.)

Recommended age n = 29

Actual age n = 43

months
Figure 7.1b: Histogram showing the common age of weaning 1500 - 1800, and the effect of non-British examples. (Shaded areas represent writers of non-British origin.)

Common age

\[ n = 13 \]

<table>
<thead>
<tr>
<th>months</th>
<th>No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
</tr>
<tr>
<td>9</td>
<td>2</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
</tr>
<tr>
<td>15</td>
<td>2</td>
</tr>
<tr>
<td>18</td>
<td>1</td>
</tr>
<tr>
<td>21</td>
<td>1</td>
</tr>
</tbody>
</table>
To investigate whether a more accurate picture of British practice could be obtained, the European examples were excluded (Roesslin, 1540; Paré, 1575; Ste Marthe, 1584; Guillemeau, 1612; Sennert, 1657; Ettmueller, 1699; Astruc, 1746; Brouzet, 1755).

The way in which this affected results may be seen in tables 7.6a and 7.7a. In addition figure 7.2 shows the median age of weaning in Britain in 50 year periods, with the recommended age of non-British writers given for comparison in the period 1500-1649.
Figure 7.2: Diagram showing the median recommended, common and actual weaning age in Britain 1500 - 1799, with recommendations of non-British writers 1500 - 1650 given for comparison.

- = Weaning age of a sample of children (n=42)
--- = Weaning age reported to be common (n=9)
----- = Weaning age recommended by medical writers (n=21)
---------- = Weaning age recommended by European medical writers translated into English (n=6)

50 year periods

months

24
22
20
18
16
14
12
10
8
6
4
2
1500 1550 1600 1650 1700 1750
1549 1599 1649 1699 1749 1799
Where the number of observations made it possible, the median test and the Fisher Exact Probability or Chi-square test, corrected for continuity, were repeated on the British data with the following results:

1. **The 17th century**
   There was no significant difference between the recommended and actual age.

2. **The 18th century**
   There was no significant difference between the recommended, common and actual age.

3. **The recommended age**
   There was no significant difference between the 17th and 18th centuries.

4. **The actual age**
   There was no significant difference between the 16th and 17th centuries, or the 17th and 18th centuries, but the children in the 16th and 17th centuries were weaned significantly later than those in the 18th century $p < 0.01$ (see fig. 7.3).
Figure 7.3: Ages at which a sample of 42 British children were weaned from the breast between 1500 and 1800, showing the change over three centuries.

- 1700–99: n = 17
- 1600–99: n = 14
- 1500–99: n = 11

Ages in months: 0, 3.5, 6.5, 9.5, 12.5, 15.5, 18.5, 21.5, 24.5, 27.5, 30.5, 33.5, 36.5, 39.
5. **The common age**

The number of these observations was reduced to one in the 16th and one in the 17th century so no comparison was made, but there was no significant difference between the age stated to be common before 1750 and after that date.

6. **Each 50 year period after 1650**

When these were considered separately there was no significant difference between the recommended, common and actual age.

This shows that the main influence of non-British writers was in the 16th century, so that it would be inadvisable to accept a recommendation given by a European writer as being applicable to Britain. Equally it is not certain that the views of British physicians in the 16th century would have been very different from those in continental Europe since, in other aspects of infant feeding and child care, there is similarity between the views of English writers such as Phaire (1545) and Jones (1579) and those of Roesslin (1540) and Paré (1575). All passed on the advice of the ancients.

Much doubt has been expressed (Crawford, 1980) as to whether the comments of physicians can be accepted as having any relation to practice. From the preliminary findings given here it seems, as there was no significant difference in the period 1650-1800 between the recommended, actual and common age of weaning, that the comments of British medical writers may be accepted as representative of the period and country in which they were made. For the preceding 150 year period this is not so. Comments of French and German writers may be representative of weaning practices in their own regions but should not be presumed to be representative of British practice. Until further evidence is found for this period, the range of weaning ages of particular British children is likely to be of more value in assessing the usual length of suckling between 1500 and 1650.

**The sample of named children**

As this study resulted in the collection of the largest known sample
of actual weaning ages in Britain for this period it provided an interesting opportunity for further investigation.

The method of feeding

The majority were wet nursed, either in their own home (the 8 royal children) or put out to nurse in a village near to the family home. At least one (Charity Johnson) who lived in London was nursed at some distance from her home. The method of feeding is shown in table 7.8.

Table 7.8: The method of feeding employed for the sample of 42 children

<table>
<thead>
<tr>
<th>Century</th>
<th>Wet nursed</th>
<th>Breastfed by mother</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th</td>
<td>11</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>17th</td>
<td>4</td>
<td>8</td>
<td>2</td>
</tr>
<tr>
<td>18th</td>
<td>8</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Total</td>
<td>23</td>
<td>15</td>
<td>4</td>
</tr>
</tbody>
</table>

To see whether there was any difference in the length of suckling between wet nursed and maternally breastfed infants, the median and range was calculated (see table 7.9).

Table 7.9: The length of suckling in infants fed by their mothers and those fed by wet nurses (months)

<table>
<thead>
<tr>
<th>Century</th>
<th>Wet nursed Range</th>
<th>Wet nursed Median</th>
<th>Wet nursed No.</th>
<th>Breastfed by mother Range</th>
<th>Breastfed by mother Median</th>
<th>Breastfed by mother No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>16th</td>
<td>7.5-36</td>
<td>14.5</td>
<td>11</td>
<td></td>
<td>0.25-36</td>
<td>14.5</td>
</tr>
<tr>
<td>17th</td>
<td>6.0-26</td>
<td>16.25</td>
<td>4</td>
<td>0.25-36</td>
<td>14.5</td>
<td>8</td>
</tr>
<tr>
<td>18th</td>
<td>2.5-10</td>
<td>7.25</td>
<td>8</td>
<td>1.0-37</td>
<td>18.0</td>
<td>7</td>
</tr>
<tr>
<td>Total</td>
<td>2.5-36</td>
<td>12.0</td>
<td>23</td>
<td>0.25-37</td>
<td>16.0</td>
<td>15</td>
</tr>
</tbody>
</table>
Use of the Median test and Chi-square or Fisher Exact Probability test showed no significant difference between the weaning ages of all the infants fed by their mothers and those who were wet nursed. No comparison could be made for the 16th century, but no significant difference was found when the comparison was made for the 17th and the 18th century. Thus it was concluded that the age of weaning of the children in this sample was not affected by the use or non-use wet nurses.

There may be some bias in the figures for children breastfed by their mother (Mary, Thomas, Jane, John, Anne and Elizabeth Josselin, Robert Thornton, William Stukeley, - Marklew, Hurlock case 2, three daughters of Armstrong (1771) and two case histories of Moss (1781), since they do include some examples which were regarded as extreme or atypical. For example William Moss (1781) gave two examples of children whom he considered were suckled for a long period of time, whilst William Stukeley was weaned after only one week because his mother apparently did not enjoy breast feeding as "she had that peculiarity that she could not show in the common feminine tenderness, so that she scarce in her life kisst any of her chilren" (Stukeley, 1882). Similarly, there is no way of knowing how typical the wet nursed children were. For instance both John Jones (1579) and Robert Sibbald (1932) considered they had been nursed for longer than was usual.

Sex differences in weaning

The sex of 35 of the children was known (it was uncertain in the case of the 2 Josselin grandchildren (1674 & 1679) and the five case histories given by Hurlock (1742) and Moss (1781). The ages at which the 18 girls (median = 12.0, range 1-36 months) and 17 boys (median = 13.5, range 0.25 - 36 months) is shown in figure 7.4.

To investigate the possibility that boys were weaned at a different age from girls the median test and Chi-square or Fisher Exact Probability test were employed. These showed that there was no significant difference between the age of weaning in boys and girls, either in the total sample or within each of the 16th, 17th and 18th centuries.
Figure 7.4: Histograms showing the ages at which a sample of 17 boys and 18 girls were weaned, 1500 - 1800.
The effect of including families of several children

As each century included one family of 5 - 6 members, the above tests were utilised to see whether their inclusion may have affected the overall result. Table 7.10 shows the three families concerned. There was no significant difference between the weaning ages of each family and the remaining children in each century. Thus it is tentatively suggested that the pattern of weaning within a fairly large family in a particular period may be as representative of that era as a sample of unrelated individuals.
Table 7.10: The age at weaning from the breast of children in three different families, fed under different circumstances

<table>
<thead>
<tr>
<th>Family</th>
<th>Class/occupation</th>
<th>Manner of feeding</th>
<th>Children</th>
<th>Date of weaning</th>
<th>Age of weaning (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>John Dee of Mortlake,</td>
<td>Philosopher at court</td>
<td>Out to local wet nurse</td>
<td>Arthur</td>
<td>1580</td>
<td>13.5</td>
</tr>
<tr>
<td>Surrey</td>
<td>of Elizabeth I</td>
<td></td>
<td>Katherine</td>
<td>1582</td>
<td>14.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Theodore</td>
<td>1589</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Madina</td>
<td>1591</td>
<td>15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Frances</td>
<td>1593</td>
<td>13.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Margaret</td>
<td>1596</td>
<td>7.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Range=7.5-18</td>
<td>Median=14.0</td>
</tr>
<tr>
<td>Ralph Josselin of</td>
<td>Church of England</td>
<td>Breastfed by mother</td>
<td>Mary</td>
<td>1643</td>
<td>12</td>
</tr>
<tr>
<td>Earls Colne, Essex</td>
<td>clergyman</td>
<td></td>
<td>Thomas</td>
<td>1645</td>
<td>13</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Jane</td>
<td>1647</td>
<td>18</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>John</td>
<td>1653</td>
<td>19</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Anne</td>
<td>1655</td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Elizabeth</td>
<td>1665</td>
<td>12</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Range=12-19</td>
<td>Median=14.5</td>
</tr>
<tr>
<td>George III</td>
<td>King of England</td>
<td>Suckled by wet nurses in</td>
<td>George, Prince of</td>
<td>1763</td>
<td>9</td>
</tr>
<tr>
<td></td>
<td></td>
<td>their own home</td>
<td>Wales</td>
<td>1764</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Prince Frederick</td>
<td>1767</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Princess Royal</td>
<td>1767</td>
<td>6.5</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>William, Duke of</td>
<td>1767</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Clarence</td>
<td>1771</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Princess Sophia</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Range=4-9</td>
<td>Median=8.0</td>
</tr>
</tbody>
</table>
There was no 'set time' for weaning a child within the families studied; it depended upon the circumstances of each nursing couple. Illness of the child at nurse (Dee, 1842); ill-health or tiredness in the mother (Armstrong, 1771; Josselin, 1976); dissatisfaction with the wet nurse (Dee, 1842); birth of another child (Thornton, 1875) and the mother's distaste for breastfeeding (Stukely, 1882) were some of the reasons for weaning. The decision to wean was often made by both father and mother (Dee, 1842; Josselin, 1976). In the case of wet nursed infants it is not clear how much influence the parents had. The nurse may have made the decision to wean, depending upon her own circumstances (her health, the child's health, declining milk supply, etc), or after consultation with the parents. In the royal family, the physicians and nurses attending the child were involved in the decision (Hunter, 1908; Hedley, 1975).

**Discussion and limitations**

The above findings show the sample to be biased towards one particular group in society, that of the educated (or what later was called the middle) class. To some extent this is not unexpected since this was the very group in society which was most likely to write down the minutiae of day to day living. Further examples from the aristocracy and gentry could probably be found from scrutiny of family records and biographies whilst evidence of approximate ages of weaning may exist in the records of institutions such as the Foundling Hospital, but it is unlikely that a sample of weaning ages could be collected equally from all levels of society.

Geographically, more of the sample was derived from the south of England but London children, who were probably not typical of the country as a whole (Finlay, 1980), were in a minority. Most of the infants were born and spent their early years in small villages or country towns (such as Lichfield, in the case of Samuel Johnson).

The fact that more were wet nursed than suckled by their own mother was atypical of British society as a whole, but not of the particular groups in society to which they belonged (see chapters on maternal
breastfeeding and wet-nursing).

Thus, although this sample is of value in judging the age of weaning in the upper and "middle" classes of society it is not necessarily representative of poorer children. The fact that physicians referred to a common age which, throughout this period, was not significantly different from that of these children might indicate that, in matters such as weaning, there was little difference between different groups in society. There is one indication that the average age of weaning among some parish children in the 17th century was about 12 months (cf Pechey, 1697). The amount paid by the parish officials in Norfolk to women who nursed the infant poor in the first year of life was double the amount paid after they attained their first birth­day (Wales, 1981). This is a sign that until the age of one year infants were presumed to be breastfed since wet nurses were always paid more than dry nurses (Nihell, 1760) and that by the age of 12 months they were expected to be weaned.

The earlier age of weaning in the 18th century

The finding that children in the 18th century were weaned significantly earlier than in the 16th and 17th centuries may be related to other changes in infant feeding practices which occurred during the 18th century, especially after 1750. In particular, the trend towards mothers breastfeeding their own children or rearing them by hand rather than employing a wet nurse (see chapters on artificial feeding and breastfeeding; also Trumbach, 1978).

Upper and middle class women, who in previous centuries would have used wet nurses, may have been unwilling to inconvenience their social life by breastfeeding for as long a period as a woman who was paid for this service. Allied to this, handfeeding was used and was socially acceptable in the 18th century (Heber, 1936; Trumbach, 1978). With the increasing concentration on the development of more suitable substitute foods and feeding vessels (see chapter on artificial feeding) it could be undertaken after a short period of breastfeeding; a good example of this being the three daughters of Armstrong (1771)
who were weaned after 4 - 6 weeks of breastfeeding by their mother. Whereas children in the 16th and 17th centuries were weaned at an age when they could eat a similar diet to the rest of the family, those of the late 18th century could be weaned onto the milk mixtures used for the drynursed infant, and later be "weaned" again onto a more varied diet.

Another factor was the changing social conditions of the 18th century. As a result of land enclosures and the development of manufactories more people were moving away from villages and rural life into rapidly growing towns (Hill, 1976; Trevelyan, 1977). This meant that women were moving away from the traditional child-rearing wisdom of their family and friends, particularly the older women of their community; as well as from any influence of wealthy women who may have visited the poor in a particular neighbourhood.

In modern pre-industrial societies this process of urbanisation is closely linked to much earlier weaning from the breast (Jelliffe & Jelliffe, 1978). Examples of weaning ages from rural societies and urban societies from different parts of Africa are shown in table 7.11 (taken from information in Mondot-Bernard, 1977). This shows that the urban societies weaned their infants at a significantly earlier age (median = 24.1, range 14.4 - 48 months) p =< 0.001. Other parts of the world where this phenomenon has been observed include Central and South America, the Middle East and Asia (Jelliffe & Jelliffe, 1978).
Table 7.11: The weaning age in 12 rural and 10 urban societies from different parts of Africa (tabulated from information in Mondot-Bernard, 1977)

<table>
<thead>
<tr>
<th>Rural communities</th>
<th>Weaning age (months)</th>
<th>Urban communities</th>
<th>Weaning age (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rural Gambia</td>
<td>21 (18-24)</td>
<td>Abidjan</td>
<td>13.5</td>
</tr>
<tr>
<td>Rural Guinea</td>
<td>36</td>
<td>Lagos</td>
<td>12</td>
</tr>
<tr>
<td>Rural Ivory Coast</td>
<td>42 (36-48)</td>
<td>Ibadan</td>
<td>14+</td>
</tr>
<tr>
<td>Rural Nigeria</td>
<td>21 (20-22)</td>
<td>Dakar</td>
<td>18.7</td>
</tr>
<tr>
<td>Inesis, rural</td>
<td>23.2</td>
<td>Brazzaville</td>
<td>18 (12-24)</td>
</tr>
<tr>
<td>Sine, rural</td>
<td>24.3</td>
<td>Leopoldville</td>
<td>18 (12-24)</td>
</tr>
<tr>
<td>Burundi (suburb)</td>
<td>24 (18-30)</td>
<td>Kinshasa (1)</td>
<td>16.8</td>
</tr>
<tr>
<td>Bambara, rural</td>
<td>30 (24-36)</td>
<td>Kinshasa (11)</td>
<td>19 (11-27)</td>
</tr>
<tr>
<td>Highland tribes</td>
<td>27 (18-36)</td>
<td>Baganda, Kampala</td>
<td>14 (12-16)</td>
</tr>
<tr>
<td>Kenya Masai</td>
<td>36</td>
<td>Algeria, urban</td>
<td>11.3</td>
</tr>
<tr>
<td>Somalia (shepherds)</td>
<td>24</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Algeria, rural</td>
<td>14.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>24.1</td>
<td><strong>Median</strong></td>
<td>15.6</td>
</tr>
</tbody>
</table>

Although these Third World urban societies also have modern pressures, such as heavy advertising of low cost weaning foods (Jelliffe & Jelliffe, 1978; Chetley, 1979), the factor of early weaning is particularly associated with the loss of the traditional teaching of older women on infant care when younger women move into towns (Jelliffe & Jelliffe, 1978). It is suggested that the situation in 18th century England, when rapid industrialisation was taking place, may have had a similar effect on child rearing practices as that observed in the urbanisation of pre-industrial societies today:

1. That the period of suckling was reduced
2. That this was associated with women working outside the home
   (Jelliffe & Jelliffe, 1978)
3. That this was related to increased use of artificial feeding (cf Jelliffe & Jelliffe, 1978; Chetley, 1979).

4. That this was connected with, or resulted in, an increase in diseases related to weaning (Jelliffe & Jelliffe, 1978; Fildes, 1980). The last point will be discussed more fully at the end of this chapter.
Part B
Factors other than age

Despite the number of writers who gave a specific age, many said that age alone was not the only factor to be considered when weaning a child (Sharp, 1671; Culpeper, 1675; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Rosenstein, 1776; Moss, 1781; Underwood, 1784; Mears, 1797).

Factors other than age were discussed by 22 medical authors (Paré, 1575; Jones, 1579; Guillemeau, 1612; Sennert, 1657; Sharp, 1671; Culpeper, 1675; Culpeper, 1676; Eng. Mid. Enl., 1682; Pechey, 1697; Ettmueller, 1699; Nurses Guide, 1729; Maubray, 1730; Hurlock, 1742; Brouzet, 1755; Rosenstein, 1776; Osborne & Denman, 1776; Thomson, 1772-85; Moss, 1781; Underwood, 1784; Baudelocque, 1790; Hamilton, 1792; Mears, 1797). These are given in table 7.12.

Table 7.12: The proportion (p) of 22 medical authors who considered factors other than age when weaning a child from the breast

<table>
<thead>
<tr>
<th>Factor</th>
<th>16th century (n=2)</th>
<th>17th century (n=8)</th>
<th>18th century (n=12)</th>
<th>Total (n=22)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health of the child</td>
<td>P</td>
<td>P</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td>Number of teeth</td>
<td>1.0</td>
<td>0.75</td>
<td>0.92</td>
<td>0.86</td>
</tr>
<tr>
<td>Season of the year</td>
<td>0.50</td>
<td>0.50</td>
<td>0.75</td>
<td>0.64</td>
</tr>
<tr>
<td>State of the moon</td>
<td>-</td>
<td>0.63</td>
<td>0.17</td>
<td>0.32</td>
</tr>
<tr>
<td>Health of nurse/mother</td>
<td>-</td>
<td>0.63</td>
<td>0.08</td>
<td>0.27</td>
</tr>
<tr>
<td>State of nurse's milk</td>
<td>-</td>
<td>-</td>
<td>0.50</td>
<td>0.27</td>
</tr>
<tr>
<td>State of infant's bowels</td>
<td>-</td>
<td>-</td>
<td>0.17</td>
<td>0.09</td>
</tr>
<tr>
<td>Ability to digest</td>
<td>-</td>
<td>0.25</td>
<td>-</td>
<td>0.09</td>
</tr>
<tr>
<td>variety of foods</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Concern about the health of the child and the number of teeth he possessed was related to two factors:

1. Weaning was a period of change, and change was traditionally associated with danger and death (Soranus, 1956; Jones, 1579; Pechey, 1697; Burton, 1751; Spence, 1784; Downman, 1788; Hamilton, 1792), therefore the child had to be as healthy as possible when change was contemplated.

2. Teething was associated with disease and death (discussed later in this chapter) and with the ability to chew hard foods, so that possession of teeth meant the child had a) passed some of the dangers of the teething period b) was equipped with the apparatus to deal with solid foods.

The reason for the recommendation, from antiquity until the early 18th century, for weaning to take place at 18 months to 2 years was because this was the age by which most children possessed all their teeth (Soranus, 1956; Paré, 1575; Guillemeau, 1612; Culpeper, 1676; Eng. Mid. Enl., 1682; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730). Even some of the more enlightened authors of the late 18th century could not envisage weaning a child from the breast unless he had at least some teeth (Hurlock, 1742; Brouzet, 1755; Rosenstein, 1776; Underwood, 1784; Mears, 1797). As late as 1790 Baudelocque stated the infant should have cut his first 20 teeth: "it [weaning] is generally done much sooner but many have been very happy to return to the milk of a nurse at that time, because they were become so weakly during the cutting of their last teeth, that they could digest no other food".

Anxiety about gastro-intestinal conditions, particularly at the time of weaning, explains the specific direction that the state of the infant's bowels should be taken into account before weaning was undertaken (Moss, 1781; Underwood, 1784).

The ideal seasons for weaning were spring and autumn, as the extremes of temperature in winter (Pechey, 1697; Hamilton, 1792) and especially
the hot weather and associated gastro-intestinal upsets of the summer months (Guillemeau, 1612; Pechey, 1697; Moss, 1781) could be avoided. Both the season of the year (Guillemeau, 1612; Sharp, 1671; Culpeper, 1676; Pechey, 1697; Ettmueller, 1699; Maubray, 1730) and the state of the moon (Sennert, 1657; Sharp, 1671; Culpeper, 1676; Pechey, 1697; Ettmueler, 1699; Maubray, 1730) were pre-occupations of the 17th century. (Maubray's (1730) views throughout his book are typical of the 17th century rather than the 1730's). As can be seen from table 7.4a, more children were weaned in the winter and summer than in the "ideal" seasons given by physicians.

The idea that the child should be weaned when the moon was waxing was probably related to a folk belief that if one wished a treatment to have an increasing effect then this was aided if the moon was waxing, and vice versa (Funk & Wagnall, 1972). Thus a child weaned when the moon was increasing in size could be expected to increase in size and health, a further aid in the dangerous period of weaning. Pechey (1697) indicated that this was not just a medically recommended view but a more generally held belief by nurses: "some women think, and not without reason, that it is better to wean a child at the increase of the moon, than at the decrease".

Table 7.12 illustrates the increase over 3 centuries in the number of factors to be taken into account when weaning, with many more considered in the 18th century; a major introduction being concern for the health of the mother or nurse and the state of her milk (Hurlock, 1742; Osborne & Denman, 1777/8; Thomson, 1772-85; Moss, 1781; Underwood, 1784; Hamilton, 1792). Whereas 16th century writers were concerned only for the child's age, health and number of teeth, by the 18th century 8 different factors were taken into consideration. Possibly this was due to the greater attention being paid to the problems associated with weaning (discussed later in this chapter) or because, when weaning was attempted at an earlier age, more factors had to be taken into account to ensure a successful outcome.
Part C

Late and early weaning

Some of the above factors were relevant when early or late weaning was discussed.

Late or delayed weaning

Late weaning for 'normal' children began to merit the disapproval of medical writers in the late 17th century but was particularly notable in the last years of the 18th century (Sharp, 1671; Culpeper, 1675; Brouzet, 1755; Mantell, 1787; Downman, 1788; Cullen, 1788; Lara, 1791; Hamilton, 1792) mainly because it was thought to be hurtful to the child (Cullen, 1788; Hamilton, 1792) or the mother (Moss, 1781; Mantell, 1787). Both Culpeper (1675) and Brouzet (1755) said that prolonged breastfeeding was particularly a fault of mothers (although in the sample of children discussed in Part A, no significant difference in the length of suckling was found between mothers and nurses).

The 9 authors who discussed late or delayed weaning gave two main circumstances in which it was advisable:

1. If the child was weak, sickly or diseased (Paré, 1575; Jones, 1579; Guillemeau, 1612; Sharp, 1671; Culpeper, 1675; Nurses Guide, 1729; Rosenstein, 1776; Moss, 1781; Hamilton, 1792).

2. If the child was not eating well from the spoon and/or was not eating hard foods (Paré, 1575; Guillemeau, 1612; Nurses Guide, 1729; Moss, 1781).

Jones (1579) gave four other reasons for delaying weaning:

a) Twins should be breastfed for longer than other children.
b) Males should be weaned later than females.
c) Nobles should be weaned later than other children.
d) If the mother was 'old' at the time of the child's birth he should
suck longer than the child of a young and lusty mother.

Most of these would still be indications for later weaning today, especially in societies were artificial feeding is not a reliable alternative (Jelliffe & Jelliffe, 1978; Chetley, 1979). The protective function of breast milk for the weakly, sick or 'precious' child was recognised by parents of the time. Robert Sibbald (1641-1722) was the fifth child of his parents, the preceding four children having died before reaching the age of four years. He was born a "tender child" and "by the advice of my uncle --- Doctor George Sibbald --- I sucked till I was two years and two months old, and could runn up and down the street, and speake, because my older brothers and sisters had died hectick; which long suckling proved --- a mean to preserve me alive" (Sibbald, 1932).

Similarly, Robert Thornton was the much-loved 7th child of Alice Thornton, only two daughters having survived early infancy, and was suckled by his mother for three years, until two weeks before the next child was born (Thornton, 1875).

The advice that twins and males should be breastfed for a longer period was related to the health and strength of the child. Twins tend to be smaller than singletons and to be born a week or more before full term (Myles, 1975) and one baby is frequently weaker than the other (Myles, 1975; Willughby (1863) gives 17th century examples) and therefore more susceptible to infections than full term single births. Similarly, boys tend to be harder to rear than girls, more males dying in infancy and childhood than females (Stern, 1960).

Although Jones (1579) was the only physician to make these specific recommendations they appear logical in the context of his time, and in relation to the more general concern with the health of the infant. His contention was that males and nobles had to survive to run households and governments and that longer suckling would increase this chance. But from the evidence of the 16th century children in the sample discussed in Part A, boys were not weaned any later than girls and the royal children were not weaned noticeably later. (Mary
and Elizabeth Tudor, who both became Queens of England, had two of the earliest weaning ages in the 16th century, see table 7.4).

Jones himself was weaned late (at 3 years) because his mother was "twenty five and upwards" when he was born. This does not seem a particularly great or dangerous age for women to have borne children (despite the lower life expectancy) and since the average age of marriage in England during this period was the middle to late 20's (Wall, 1980) the majority of children must have been born to women in their late 20's and 30's (despite relatively high illegitimacy rates in this period (Laslett et al, 1980) most children were born in wedlock). Possibly Jones cited this reason to account for his own late weaning (from a wet nurse), or he may have been flattering his mother as he does not give her exact age. An older woman, particularly a primigravida, may have had a prolonged and/or more difficult labour (Myles, 1975) possibly producing a weaker child which would then need the protection of longer suckling.

(N.B. Although older women (40+ years) today are more likely to have babies which suffer from congenital malformations or specific conditions such as Down's Syndrome (Stern, 1960), this cannot be extrapolated to the 16th century because of possible differences in the age of the menarche, the menopause, the life expectancy and environmental factors (Tanner, 1981)).

It is notable that in the 16th and early 17th centuries prolonged breastfeeding did not attract the disapproval of medical writers; this is probably related to the recommended weaning age of this period. As writers recommended an earlier age of weaning, which was similar to that in actual practice (see Part A), they became more intolerant of prolonged suckling (Mantell, 1787; Cullen, 1788; Lara, 1791; Hamilton, 1792) and it is likely that by the end of the 18th century it was no longer culturally acceptable in Britain for women to breastfeed for as long as had been acceptable in the 16th and 17th centuries. Some evidence that there was a change in a cultural or social more was given by Osborne and Denman (1777/8) and Hamilton (1792) who said that the age of weaning depended on "the requirement for suckling" as this was different in different countries. (One
of the distinctive features about weaning today is that it occurs at different and usually identifiable times in different societies (See table 7.11; Mead, 1935; Whiting & Child, 1964; Mondot-Bernard, 1977).

**Early weaning**

As would be expected from the preceding discussion early weaning was not discussed in the 16th century, and was principally the concern of physicians in the 2nd half of the 18th century (Gisson, 1651; Pechey, 1697; Lad. Dispens., 1740; Sloane, 1748; Nelson, 1753; Armstrong, 1771; Moss, 1781; Underwood, 1784; Spence, 1784; Lara, 1791; Hamilton, 1792).

The most noticeable point in the discussion of early weaning is that concern for the child's health (predominant in all other discussions about weaning) is replaced by concern for the well-being of the mother or nurse or her milk. This tends to confirm the suggestion made earlier that women who previously would have used wet nurses were less prepared to suckle for long periods (since this would be reflected in the writings of those authors who were consulted by the wealthier parts of society).

The factors to be considered when a child was weaned early are given in table 7.13.

**Table 7.13:** The proportion (p) of 9 medical authors who stated factors to be considered when weaning a child early

<table>
<thead>
<tr>
<th>Factor</th>
<th>17th century (n=2)</th>
<th>18th century (n=7)</th>
<th>Total (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health of nurse/mother</td>
<td>p 1.0</td>
<td>p 0.86</td>
<td>p 0.89</td>
</tr>
<tr>
<td>State of the milk</td>
<td>-</td>
<td>0.57</td>
<td>0.44</td>
</tr>
<tr>
<td>Health of the infant</td>
<td>-</td>
<td>0.29</td>
<td>0.22</td>
</tr>
</tbody>
</table>
Fright, anxiety, loss of appetite, menstruation, pregnancy, sickness, drunkenness and greediness in the mother or nurse were all indications for early weaning (Glisson, 1651; Pechey, 1697; Lads. Dispens., 1740; Sloane, 1748; Armstrong, 1771; Moss, 1781; Spence, 1784), principally because these would affect the state of the breast milk. The belief that a woman's milk deteriorated during menstruation or strong emotions was very ancient (fully discussed in the chapter on wet nursing) but in the later 18th century was accompanied by a belief that its composition changed and deteriorated after several months of lactation and was no longer good for the child (Hamilton, 1792).

Alexander Hamilton (1792) thought that early weaning was harmful and Underwood (1784) gave some indication of common practice when he stated that "when children are weaned much earlier [than 8-10 months] and are fed from birth with that in view, they may be essentially harmed by it". But the opposite view was given by Moss (1781) and Lara (1791) who said that, provided he was healthy, early weaning was easier for the child. (An opinion also held by modern authorities (Newson & Newson, 1974; Leach, 1974).

The discussion of early weaning by authors such as Armstrong (1771), Moss (1781) and Underwood (1784) confirms the suggestion that the availability and social acceptance of artificial feeding made early weaning from mother or nurse a practical proposition whereas it had not been in the 16th century. For instance, a letter of 1793 described an example of early weaning:

"And that day Mr. Fane and Lady Elizabeth came, their four daughters with them. Augusta is the name of the youngest: she has had three wet nurses and none gave satisfaction, so the old lying-in nurse came here with her, and she is fed with pap made of asses milk and it seems to agree with her for she looks extremely healthy and well" (Heber, 1936). Compare this with the 16th century example of the Dee family where early weaning was not considered. When difficulty arose with a wet nurse when Katherine Dee was 2 months old, another had to be found, and she was suckled by three different women before being weaned at the safer age of 14.5 months (Dee, 1842).
Conclusions

1. The median age of weaning in a sample of British children changed over three centuries from 18 months in the early 16th century to 7.25 months in the late 18th century; and the period for which a child was breastfed in the 18th century was significantly shorter than during the preceding 200 years. This was possibly related to the availability and social acceptability of artificial feeding; the decreased use of wet nurses by the upper and middle classes; and the movement of the population from the countryside into the towns as a result of industrialisation.

2. The median age of weaning said by contemporaries to be common among British children changed relatively little over three centuries and was very similar to the actual weaning age found in a sample of British children.

3. In the period 1650 to 1800 there was no significant difference between the recommended, common and actual age of weaning in Britain. Thus the weaning ages recommended by British medical writers in this period are apparently representative of actual practice.

4. The weaning age recommended by European medical writers translated into English and widely available in the period 1500 to 1650 was significantly later than both the common age and the actual age, as well as the age recommended by British writers in the following 150 year period. This may indicate that the age of weaning was later in France and Germany and should be treated with caution when discussing the British case. But in the absence of evidence from Britain in the same period, these medical views could have been similar to those held by British physicians in the 16th and early 17th centuries.

5. The age of weaning was not significantly affected by the person who breastfed the child (mother or wet nurse).
6. There was no significant difference in the weaning age of males and females.

7. The weaning age within families was as varied as, and was not significantly different from, a sample of unrelated individual children in the same period.

8. The reason for weaning was individual to each nursing couple and no evidence was found of parents or nurses following a set or standard age for weaning.

9. Other factors considered when weaning a child included the health of the child, the number of teeth he possessed, the season of the year and state of the moon (17th century) and the health of the mother (18th century).

10. Late weaning was used for weakly or 'treasured' children but from the late 17th century prolonged suckling attracted the disapproval of medical writers.

11. Early weaning was not mentioned in the 16th century but by the 18th century this had become a more viable proposition due to the availability and acceptability of artificial feeding. Factors to be considered when weaning a child early included the health of the nurse or mother, the state of her milk and the health of the infant.
II: Weaning practices

Part A

The method of weaning

The method of weaning children from the breast was discussed by 30 medical authors (Roesslin, 1540; Paré, 1575; Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Sharp, 1671; Culpeper, 1676; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Cadogan, 1748; Burton, 1751; Brouzet, 1755; Buchan, 1769; Armstrong, 1771; Smith, 1774; Hunter, 1775; Rosenstein, 1776; Denman & Osborne, 1777/8; Young, 1780; Moss 1781; Underwood, 1784; Spence 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Lara, 1791; Hamilton, 1792; Mears, 1797; Young's Midwifery, late 18th).

The principal argument was whether sudden or gradual methods should be employed. Such was the emphasis laid on gradual methods that it could be assumed this was the common practice, but the very vehemence of the condemnation of sudden or abrupt methods, combined with statements that the latter were commonly practised by nurses, tends to confirm that sudden methods of weaning were not unusual and may well have been more common than gradual methods, especially in the period before 1750.

Sudden or abrupt practices

Eleven authors referred to sudden practices which were in use and/or recommended by them (Paré, 1575; Ste Marthe, 1584; Guillemeau, 1612; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Brouzet, 1755; Rosenstein, 1776; Moss, 1781; Hamilton, 1792; Young's Midwifery, late 18th). These are described in table 7.14.
Table 7.14: The proportion \(p\) of 11 medical authors who described abrupt methods employed in weaning 1500-1800

<table>
<thead>
<tr>
<th>Method</th>
<th>16th century ((n=2))</th>
<th>17th century ((n=2))</th>
<th>18th century ((n=7))</th>
<th>Total ((n=11))</th>
</tr>
</thead>
<tbody>
<tr>
<td>Painting breasts/nipples with bitter substance</td>
<td>(p) 0.50</td>
<td>(p) 1.0</td>
<td>(p) 0.86</td>
<td>(p) 0.82</td>
</tr>
<tr>
<td>Hiding the nurse</td>
<td>0.50</td>
<td>0.50</td>
<td>0.43</td>
<td>0.45</td>
</tr>
<tr>
<td>Disgusting/frightening child from breast</td>
<td>0.50</td>
<td>0.50</td>
<td>0.14</td>
<td>0.27</td>
</tr>
<tr>
<td>Calling breast by foul names</td>
<td>0.50</td>
<td>-</td>
<td>-</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Painting or anointing the nipples is an ancient and widespread method of weaning, still used in some Third World societies today (Soranus, 1956; Mead, 1963; Whiting & Child, 1964; Mondot-Bernard, 1977).

Various substances were used:

1. Aloes (Paré, 1575; Guillemeau, 1612; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Moss, 1781).

2. Wormwood (Paré, 1575; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Rosenstein, 1776).

3. Soot and water (Paré, 1575; Nurses Guide, 1729; Moss, 1781).

4. Mustard (Paré, 1575; Guillemeau, 1612).

5. Gall (Sté Marthe, 1584; Hamilton, 1792).

6. Water of Colocynith (Guillemeau, 1612).

7. Honey could be used if the child disliked sweet things (Pechey, 1697).
Some authors cautioned against using too much as it could be harmful to the child (Pechey, 1697; Nurses Guide, 1729; Maubray, 1730) but still recommended its use; only one writer deplored its use as cruel (Hamilton, 1792).

Its effect was described by Shakespeare in _Romeo and Juliet_ (c1594) when the nurse tells of the traumatic day of Juliet's weaning:

".... I remember it well.
'Tis since the earthquake now eleven years;
And she was weaned - I never shall forget it -
Of all the days of the year, upon that day;
For I had then laid wormwood to my dug ....
.... When it did taste the wormwood on the nipple
Of my dug, and felt it bitter, pretty fool,
To see it tetchy, and fall out with the dug!"
(Act I scene 3).

This mention in a popular play indicates that this was a fairly common procedure in Elizabethan England (common enough for the effects to be known by a male playwright) and remained so, in some rural areas, at least until the early years of the 20th century. For example, Chamberlain (1975) recorded the experiences of an 84-year old woman living in a remote fen village:

"We didn't have no bottle for our children. Fed them all ourselves. Everyone. All nine. Till they were three years old, some of them. You'd be standing there washing, and they'd hang onto you and want a teat. I didn't know see. I tried to wean them several times, but then they'd get it again and have another drop. I had no end of trouble weaning my children. Till somebody give me some bitter aloes. So I covered my breast with that, and said 'Oh, look, nasty. Don't have that, that's nasty! And that done the trick".

However cruel or undesirable this aversion method may appear today, its main recommendation was that it was obviously effective. Both the above writers were referring to children weaned at up to 3 years of age, when weaning is now believed to be more difficult than in very young infants (Newson & Newson, 1974; Leach, 1974). Perhaps
the popularity of anointing the breasts with bitter substances was more with children who had been breastfed for long periods, since many of the authors who recommended its use before 1750 were also those who recommended that weaning should not be undertaken until 18-24 months (cf. table 7.1). There is also the point that an older child is able to talk and understand so that he can be told that something tastes nasty.

Like the woman quoted above, nurses obviously had difficulty weaning their charges at this age, as Ste Marthe (1584) described:

"Some anoint their nipples with ungrateful gall,
Some by vile names the milky fountains call.
A thousand ways will careful nurses try
His relish to disgust, and fright his eye".

An alternative abrupt method, probably equally common, was to remove the mother or nurse for a period, or for the woman to hide herself from the child. This was described by some medical authors (Ste Marthe, 1584; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Young's Midwifery, late 18th) although Young (late 18th) thought this method was upsetting for the child. Again this is a widely used method in more primitive societies today (Whiting & Child, 1964).

A reference to the 'child of a spayner' in the parish register at Greystoke, Cumbria, for April 13 1592 indicates that some children in the north of England were sent to a special intermediary known as a spayner (spayne = wean in Cumbrian and Yorkshire dialect) to remove them from the breast for a period of time (Thiselton-Dyer, 1898).

Evidence from the American colonies in the 17th and 18th centuries shows that separation of mother/nurse and child was a favoured method (Caulfield, 1952). Mothers often went away for a while and left the father to look after the weanling; or the child was abruptly sent away to grandparents or other relatives. One New England diary for June 7 1733 stated "Son & daughter minor came & brot their child & left itt hear to wean & went home again & I went with them & lodged there" (Caulfield, 1952). In England the same procedure was probably
adopted in the Josselin family of Essex. Two grandchildren stayed with Ralph Josselin and his wife in 1674 and 1679, the former of whom "went homewards well weaned" (Macfarlane, 1970).

Possibly this was a slightly less traumatic method than presenting the child on one day with the normal source of comfort and food, and on the next with a foul-tasting, unfamiliar-looking breast. But some modern psychological theories indicate that, if sudden methods were used, the latter may have been preferable for the child provided he was nursed by his mother. Wet nursed infants, for whom weaning usually meant leaving for good the familiar foster mother for an unfamiliar home and family, would have fared worse whichever method was adopted.

Erikson (1967) states that "Weaning should not mean sudden loss of the breast and loss of the mother's reassuring presence too. A drastic loss of accustomed mother love without proper substitution at this time can lead to acute infantile depression or to a mild but chronic state of mourning which may give a depressive undertone to the whole remainder of life". If this is so, and if this method of weaning was very extensive, it could be related to the prevalence of melancholia in the late 16th and 17th centuries (Burton, 1621). To some extent this condition became fashionable after the publication of books such as Burton's *Anatomy of melancholy* (McDonald, 1980) but the upper classes who complained of, or were diagnosed as suffering from, this complaint were the very people most likely to have experienced the trauma of sudden separation from the breast accompanied by loss of the mother figure at weaning; because they came from that part of society which put its children out to wet nurses.

There is no doubt that, psychologically, weaning was a traumatic period for the infant and was recognised to be so (Faré, 1575; Ste Marthe, 1584; Sharp, 1671; Brouzet, 1755) all referred to the distress of the 'weaning babe'.

"But how, my pretty infant, wilt thou bear,
A loss that will thy soul and body tear?"
What floods of tears will deluge from thy eyes,  
What shrieks, what waking groans and sleeping sighs?  
Learn pretty infant, learn to bear these ills,  
Who can avoid what the creator wills?"  
(Stee Marthe, 1584).

**Gradual methods**

The majority of medical writers emphasised that gradual weaning was preferable to the above methods (Roesslin, 1540; Pare, 1575; Jones, 1579; Guillemeau, 1612; Culpeper, 1676; Pechey, 1697; Maubray, 1730; Cadogan, 1748; Burton, 1751; Buchan, 1769; Smith, 1774; Rosenstein, 1776; Denman & Osborne, 1777/8; Young, 1780; Moss, 1781; Spence, 1784; Aitken, 1786; Mantell, 1787; Downman, 1788; Hamilton, 1792; Mears, 1797; Young's Midwifery, late 18th).

Some said that sudden weaning was dangerous (Jones, 1579; Pechey, 1697; Burton, 1751; Spence, 1784; Downman, 1788; Hamilton, 1792) or cruel (Hamilton, 1792), but most did not give their reasons for preferring a gradual process. The way in which this was to be accomplished is summarised in table 7.15.

**Table 7.15:** The proportion (p) of 25 medical authors who recommended gradual methods of weaning and/or said that they were commonly practised 1500-1800

<table>
<thead>
<tr>
<th>Method</th>
<th>16th century (n=4)</th>
<th>17th century (n=3)</th>
<th>18th century (n=18)</th>
<th>Total (n=25)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Giving food beforehand</td>
<td>p 0.75</td>
<td>p 1.0</td>
<td>p 0.89</td>
<td>p 0.88</td>
</tr>
<tr>
<td>Increasing food + decreasing the amount of breast milk</td>
<td>-</td>
<td>0.33</td>
<td>0.28</td>
<td>0.24</td>
</tr>
<tr>
<td>Begin by suckling only at night</td>
<td>-</td>
<td>-</td>
<td>0.11</td>
<td>0.08</td>
</tr>
<tr>
<td>Getting child used to someone other than the nurse</td>
<td>0.25</td>
<td>-</td>
<td>-</td>
<td>0.04</td>
</tr>
</tbody>
</table>
Writers were vague about how long these procedures were supposed to continue, only Guillemeau (1612) specified the period of time that weaning should take. He illustrates also the conflict between gradual and sudden methods: the ideal and the practical. The child was to have breast milk and food for a few days followed by sucking only at night. "It will be very fit in the morning, when he is awake and hath been shifted and dressed, to give him sucke a little, and then to let him stay two or three hours before hee take anything, afterward to give him some dinner, as some pottage, or panada, with a little flesh minced, or cut very small, and then let him stay two hours without giving him anything, at which time you may give him a little sucke, and lay him to sleepe: and when he is wakened and hath been made cleane, then the nurse shall carry him abroad into the aire, if it be faire weather, and give him sucke, and then lay him to sleepe again, with out letting him eate any solide meate, or very little. At his dinner they shall give him to drinke a little boyled water: and this order shall be kept a whole moneth, and when hee shall bee accustomed to eate solide meate then the teate shall be quite taken from him. It happens often times that the child will not forsake the breasts, but still cryeth and is very eager after it, and then you must make him loathe it, anointing the nurses breast with mustard, or else rubbing the top of the nipple with a little aloes, and likewise make him ashamed of it". (In this description he is referring to a child of about 2 years of age).

Guillemeau was not writing in a period when times for breastfeeding were fixed and rigidly adhered to (see chapter on maternal breastfeeding). The regime he described was to replace sucking whenever the child wanted it and was designed to get the child used to solid food, and to leaving a certain length of time between meals. These patterns of demand feeding and weaning are similar to those in many cultures today (Whiting & Child, 1964) where aversion methods are used as a last resort after more gradual methods have failed. The period of one month is similar to that recommended today for weaning from the breast (Spock, 1973).

Very little has been found about how long women did take to wean their children. In 1645 the wife of Ralph Josselin took 11 days to
wean her son, Thomas, and in 1655 spent at least 2 weeks in weaning her daughter Anne (Macfarlane, 1970; Josselin, 1976). Katherine Dee was weaned very suddenly on one day in 1582. Her parents visited her at nurse and removed her immediately because she was sickly "and weaned her at home". But John Dee recorded of Michael in 1586 and Margaret in 1596 that they "begonne to be weaned" thus implying that it would take a certain amount of time (Dee, 1842).

In the late 18th century any distress of the newly weaned child was eased by the administration of laxatives (Hamilton, 1792; Mears, 1797), opiates (Mantell, 1787; Hamilton, 1792; Mears, 1797; Young's Midwifery, late 18th) and alcohol (Hunter, 1775; Young's Midwifery, late 18th). Hunter, for instance, appeared to favour sudden weaning with the assistance of alcohol:

"You should not do it [weaning] gradually but all slowly let ye child suck in at night for ye last time. In one 24 hours generally the child is weaned, ye first night after a little sack whey with barley water is ye best thing in ye world. This makes them a little drunk, they all like it and afterwards go to sleep very comfortable". (Hunter, 1775).

However it was carried out, by the end of the 18th century weaning was recognised by physicians as an event whose management required some "care and judgement" (Smith, 1774) and was important "because the mode of living and future health may depend upon its proper conduct" (Hamilton, 1792).
Conclusions

1. Sudden or abrupt methods of weaning were apparently common and were sometimes recommended by medical writers, the most usual being to paint the nipples with bitter substances or to remove the mother or nurse for a period. These methods were probably traumatic for the child and could have been related to the prevalence of melancholia in the late 16th and 17th centuries.

2. The majority of medical writers recommended gradual methods of weaning by giving foods beforehand; increasing these, and decreasing the quantity of breast milk. Any distress which accompanied weaning was soothed by administering laxatives, alcohol and opiates.
The weaning diet

1. Weaning foods

The foods to be given before or at weaning were discussed by 19 writers (Roesslin, 1540; Pare', 1575; Jones, 1579; Guillemeau, 1612; Pechey, 1697; Nurses Guide, 1729; Maubray, 1730; Cadogan, 1748; Burton, 1751; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Smith, 1774; Underwood, 1784; Mantell, 1787; Downman, 1788; Baudelocque, 1790; Lara, 1791; Hamilton, 1792). Weaning foods usually differed from those suggested for mixed feeding, with fewer milk foods and increased use of meat broths and other meat foods which were not usually advised for children until they had teeth with which to chew them.

The specific foods recommended by 17 of the above writers is given in table 7.16.

Table 7.16: The proportion (p) of 17 medical writers who recommended the following weaning foods 1500-1800

<table>
<thead>
<tr>
<th>Food</th>
<th>16th century (n=2)</th>
<th>17th century (n=2)</th>
<th>18th century (n=13)</th>
<th>Total (n=17)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chicken broth</td>
<td>0.50</td>
<td>0.50</td>
<td>0.69</td>
<td>0.65</td>
</tr>
<tr>
<td>Minced or pre-chewed meat</td>
<td>0.50</td>
<td>1.0</td>
<td>0.31</td>
<td>0.41</td>
</tr>
<tr>
<td>Meat broths/gravies + breadcrumbs or rice</td>
<td>-</td>
<td>-</td>
<td>0.46</td>
<td>0.35</td>
</tr>
<tr>
<td>Bréad + butter and/or sugar</td>
<td>1.0</td>
<td>-</td>
<td>0.15</td>
<td>0.24</td>
</tr>
<tr>
<td>Panada</td>
<td>-</td>
<td>0.50</td>
<td>0.31</td>
<td>0.29</td>
</tr>
<tr>
<td>Pap</td>
<td>0.50</td>
<td>0.50</td>
<td>0.08</td>
<td>0.18</td>
</tr>
<tr>
<td>Milk mixtures</td>
<td>-</td>
<td>0.50</td>
<td>0.15</td>
<td>0.18</td>
</tr>
<tr>
<td>Foods like milk</td>
<td>-</td>
<td>-</td>
<td>0.15</td>
<td>0.12</td>
</tr>
<tr>
<td>Cereal/porridge</td>
<td>-</td>
<td>-</td>
<td>0.08</td>
<td>0.06</td>
</tr>
</tbody>
</table>
Some authors more generally recommended solid or hard foods (Pare', 1575; Guillemeau, 1612; Nurses Guide, 1729; Maubray, 1730) or a variety of foods (Roesslin, 1540; Maubray, 1730).

Downman (1788) made the interesting recommendation for his time of letting the child decide what food suited him and how much. Allowing the child rather than the mother decide was unusual in the 18th century, and even today, when experiments have shown this to be sound advice (Davis, 1928), it remains unusual (Spock, 1973; Leach, 1974).

Only 3 writers forbade particular foods at this stage. Brouzet (1755) disapproved of milk because he believed it was dangerous to mix milk with other foods, and Buchan (1769) and Smith (1774) thought meat should not be given until the child was older.

Some mention was made of the child's diet after he was weaned from the breast, although this received much less attention than the foods given in preparation for weaning. 2 authors said that beer boiled with bread and butter was commonly used (Sennert, 1657; Maubray, 1730), presumably a more substantial version of pap. 7 writers recommended specific foods to be given after weaning (Jones, 1579; Pechey, 1697; Brouzet, 1755; Buchan, 1769; Smith, 1774; Lara, 1791; Hamilton, 1792). These are given in table 7.17.
Table 7.17: The proportion (p) of 7 medical writers who recommended suitable foods for children after weaning 1500-1800

<table>
<thead>
<tr>
<th>Food</th>
<th>16th century (n=1)</th>
<th>17th century (n=1)</th>
<th>18th century (n=5)</th>
<th>Total (n=7)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat gravies, beef tea, etc.</td>
<td>-</td>
<td>-</td>
<td>0.80</td>
<td>0.57</td>
</tr>
<tr>
<td>Minced or pre-chewed meat</td>
<td>1.0</td>
<td>1.0</td>
<td>0.20</td>
<td>0.43</td>
</tr>
<tr>
<td>Bread or rusks</td>
<td>-</td>
<td>-</td>
<td>0.80</td>
<td>0.57</td>
</tr>
<tr>
<td>Milk mixtures/puddings</td>
<td>-</td>
<td>-</td>
<td>0.80</td>
<td>0.57</td>
</tr>
<tr>
<td>Panada</td>
<td>-</td>
<td>-</td>
<td>0.40</td>
<td>0.29</td>
</tr>
<tr>
<td>Cereals in water</td>
<td>1.0</td>
<td>-</td>
<td>0.20</td>
<td>0.29</td>
</tr>
<tr>
<td>Pulses</td>
<td>1.0</td>
<td>1.0</td>
<td>-</td>
<td>0.29</td>
</tr>
<tr>
<td>Fruit</td>
<td>-</td>
<td>-</td>
<td>0.40</td>
<td>0.29</td>
</tr>
</tbody>
</table>

9 authors stated that certain foods were forbidden to recently-weaned children (Pemell, 1653; Cadogan, 1748; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Smith, 1774; Lara, 1791; Hamilton, 1792; Mears, 1797). These are shown in table 7.18.

Table 7.18: The proportion (p) of 9 medical authors who listed foods forbidden to the newly-weaned child

<table>
<thead>
<tr>
<th>Food</th>
<th>17th century (n=1)</th>
<th>18th century (n=8)</th>
<th>Total (n=9)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Meat</td>
<td>-</td>
<td>0.50</td>
<td>0.44</td>
</tr>
<tr>
<td>Pastry/biscuits/sweetmeats</td>
<td>-</td>
<td>0.38</td>
<td>0.33</td>
</tr>
<tr>
<td>Sugar</td>
<td>-</td>
<td>0.38</td>
<td>0.33</td>
</tr>
<tr>
<td>Spice</td>
<td>-</td>
<td>0.38</td>
<td>0.33</td>
</tr>
<tr>
<td>Porridge</td>
<td>-</td>
<td>0.13</td>
<td>0.11</td>
</tr>
<tr>
<td>Stone Fruits/almonds</td>
<td>-</td>
<td>0.13</td>
<td>0.11</td>
</tr>
<tr>
<td>Too many root vegetables</td>
<td>-</td>
<td>0.13</td>
<td>0.11</td>
</tr>
<tr>
<td>Fish</td>
<td>1.0</td>
<td>-</td>
<td>0.11</td>
</tr>
<tr>
<td>Fats</td>
<td>1.0</td>
<td>-</td>
<td>0.11</td>
</tr>
</tbody>
</table>
After weaning the child's meals were to be orderly and routine, fitting in with those of the rest of the family (Guillemeau, 1612; Pechey, 1697; Cadogan, 1748; Brouzet, 1755; Buchan, 1769; Smith, 1774; Hamilton, 1792; Mears, 1797). Although most did not concern themselves with the management of the child after weaning, 5 physicians stated the number of meals a day he was to receive. Brouzet (1755) and Smith (1774) said 4 meals a day to begin with; Cadogan (1748) and Buchan (1769) thought 3 were sufficient; Downman (1788) believed the newly-weaned child needed only one meal a day. Hugh Smith (1774) was exceptional in stating the exact dietary regime from weaning until 2 years of age:

<table>
<thead>
<tr>
<th>Time</th>
<th>Meal</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 - 7 am</td>
<td>Breakfast</td>
<td>Half a pint of milk with about two ounces of bread in it.</td>
</tr>
<tr>
<td>10 - 11 am</td>
<td>Second meal</td>
<td>Half a pint of good broth with the same quantity of bread.</td>
</tr>
<tr>
<td>2 - 3 pm</td>
<td>Third meal</td>
<td>Broth as above.</td>
</tr>
<tr>
<td>about 6 pm</td>
<td>Supper</td>
<td>New milk and bread as for breakfast.</td>
</tr>
</tbody>
</table>

Plain and simple meat jellies could be substituted for broth, and barley water and milk could be given if the child was thirsty between meals.

The fact that advice about the pre- and post-weaning diet was mainly given in the 18th century, especially after 1750, must be related to the earlier age of weaning in that century (see part 1A). Prior to this time children were assumed by medical authors to be at least a year old, and probably well into their second year of life, and in possession of several teeth before weaning was considered. During this time they were expected to continue on the paps and panadas used for mixed feeding (see chapter on mixed feeding). This implies that, by the time he was ready to be weaned, a child was able to sit up at table, had some ability to feed himself, had teeth with which to chew a variety of hard foods, including meat, and generally looked more like a child than an infant. He was visibly ready for whatever was the normal diet of his particular family.
As writers were directing their views mainly towards the wealthier and/or more educated classes, they tended to recommend a variety of meats and their products and, to a lesser extent, bread because these were the main foods eaten by these groups in British society (Drummond & Wilbraham, 1957; Wilson, 1976). Therefore the few writers who thought the weaning diet worthy of mention in this period all recommended a diet which was familiar to their readers. The description given by John Jones (1579) of the food given to the children of the French king after weaning was probably very similar to that in wealthy English households in the same period (Furnivall, 1868; Drummond & Wilbraham, 1957).

"Bread of fine wheate floure, of fine starch, also of almonds, of barley, or bigge, of wheat, which we call furmentie, of rye, of pease and suchlike, or soft bread steeped in the broth of fleshe of kiddes, tuppes, calves, hennes, etc. And sometimes a capon's wing minced in small pieces, or the breast of a pheasant rosted, cut in pieces".

Milk foods and milk as a drink were not a normal part of the diet for the wealthier section of society, especially in the 16th and early 17th centuries. Milk was considered to be a food for infants (i.e. children who were not weaned), the very old and the sick (Elyot, 1534; Muffet, 1584; Drummond & Wilbraham, 1957; Wilson, 1976), which explains its absence in the suggested weaning diets of this era.

If the above diet was given to richer children regularly over a long period then diseases such as scurvy, rickets, bladder-stone and some degree of night-blindness, accompanied by a lowered resistance to infection, would have been common among young children after weaning because, in a mainly meat and cereal diet which excludes dairy foods, vitamins A, D and C are absent and the amount of calcium may be insufficient for a growing child (McCance & Widdowson, 1978); see discussion in chapter on mixed feeding). With the exception of rickets these diseases were all common among the adult population during this period (Drummond & Wilbraham, 1957).
Poorer families ate a different type of diet, consisting mainly of bread, cheese, salt meat (predominantly pork) and pulses, thus the poorer child may well have fared better in nutritional terms (provided he received a sufficient quantity) than the richer child. In the 16th century white meats or dairy foods, including eggs, were eaten by the poor (Wilbraham & Drummond, 1957) and, as many cottagers kept a cow, milk was more likely to be drunk by these families than by the wealthy, although milk drinking was rare in towns because of poor supplies; a situation not remedied until the late 18th and early 19th centuries (Trusler, 1786; Drummond & Wilbraham, 1957; Beaver, 1973; Wilson, 1976). Until at least the late 18th century there were regional differences in milk-drinking habits; the north of England using milk as a drink whilst this was rarer in the southern counties (Drummond & Wilbraham, 1957).

The child weaned onto this type of diet, which in summer and autumn probably included hedgerow fruits such as blackberries, may have suffered some degree of scurvy during the winter (as did the adult population (Drummond & Wilbraham, 1957)) but otherwise would have received all the nutrients necessary for healthy growth (Rec. Intakes, 1973; McCance & Widdowson, 1978).

The condemnation (by Pemell, 1653) of fish and fats, possible sources of vitamins A and D (McCance & Widdowson, 1978), was because they were thought to cause worms. This may explain the absence of these items from the recommended diets of physicians, although both rich and poor did eat fish, especially those living near the sea (Furnivall, 1868; Drummond & Wilbraham, 1957).

In the 18th century the situation was different. Infants were considered ready for weaning before they could sit up at a table (independent sitting in modern societies is achieved by most children at about 8 months (Musson, 1963; Leach, 1974) although, because of nutritional and environmental factors, this was not necessarily so in the 18th century). They had few or no teeth (Leach, 1974), little
ability to feed themselves (Leach, 1974) were more vulnerable to
diseases, especially of the gastro-intestinal tract, than children
of one to two years (Jelliffe & Jelliffe, 1978). Therefore much
more consideration of diet was necessary, and explains the recom-
mandations for milk-containing foods during and after weaning.

Many physicians still believed teeth were necessary before meat
could be given, and for this reason some forbade meat to children
until they were older and had most of their teeth (Nelson, 1753;
Brouzet, 1755; Smith, 1774; Mears, 1797). There was apparently
some prejudice among the patients of these physicians. Hugh Smith
(1774) described the reactions to his suggestion of meat juices
and gravies:
"Parents generally imagine it to be unwholesome for children; and
oftentimes when I have recommended it, some good old lady has stoutly
opposed me, alledging that it fills the child with humours; whereas
on the contrary, this is the only part of the flesh that produces
good nourishment".

Despite the diversity of weaning foods recommended or forbidden by
18th century medical writers, some of these were reflections of the
personal prejudices or knowledge of only one or two people. For
example, Hamilton (1792) disapproved of the use of his national dish
for infants. "The common preparation of oatmeal (called pottage or
porridge) ---- much used in this part of Great Britain, is undoubted-
ly too difficult of digestion for infants". And Buchan (1769) thought
that root vegetables should only be given sparingly: "This caution
is peculiarly necessary for the poor; being glad to get what will
fill their children's bellies for a little money, they stuff them
two or three times a day with potatoes and the like". These comments
again illustrate that the condemnations of physicians frequently
offer more indication of what parents were feeding to their children,
as well as medical attitudes towards these habits.

It is notable that forbidding certain foods to children was a fea-
ture of the period 1748-1800 (see table 7.18). Although this re-
jects the more punitive and simplistic attitude towards the diet
of older children, which dated at least from John Locke's *Some thoughts concerning education* (1693) and was reinforced by William Cadogan (1748), this also was related to the earlier age of weaning. With some doctors advocating weaning as perfectly possible in the first 3 months of life if necessary (Armstrong, 1771; Moss, 1781), there had to be more emphasis on nourishing yet simple foods with which to feed them safely. However Smith's (1774) recommended regime from weaning to the 2nd birthday was scarcely varied enough for the second year of life (Leach, 1974) despite being nutritionally well-balanced (McCance & Widdowson, 1978). Although it may have been followed in the nurseries of richer families, Brouzet's (1755) statement that women, especially mothers, gave children most of the foods which they ate themselves probably portrays a truer picture for the majority of families.

The children of the 18th century were apparently beginning to be weaned in a similar way to those of today. First having pureed or minced foods containing milk or broth, progressing to the foods eaten by the rest of the family, firstly mashed then cut into small pieces as the child became older. And that this graduated weaning diet (which to some extent merged with mixed and artificial feeding) was necessary because of the earlier weaning age in the 18th century.

2. **Drinks to replace breast milk**

14 authors recommended a drink to replace breast milk (Jones, 1579; Ste Marthe, 1584; Guillemeau, 1612; Glisson, 1651; Sharp, 1671; Culpeper, 1676; Pechey, 1697; Maubray, 1730; Nelson, 1753; Buchan, 1769; Smith, 1774; Underwood, 1784; Downman, 1788; Lara, 1791). These are listed in table 7.19.
Table 7.19: The proportion (p) of 14 medical writers who recommended suitable drinks for newly-weaned children 1500-1800

<table>
<thead>
<tr>
<th>Drink</th>
<th>16th century (n=2)</th>
<th>17th century (n=5)</th>
<th>18th century (n=7)</th>
<th>Total (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milk/buttermilk/whey</td>
<td>P</td>
<td>0.20</td>
<td>0.57</td>
<td>0.36</td>
</tr>
<tr>
<td>Water</td>
<td>0.50</td>
<td>0.20</td>
<td>0.43</td>
<td>0.36</td>
</tr>
<tr>
<td>Ale/beer/smallbeer</td>
<td>0.50</td>
<td>0.20</td>
<td>0.43</td>
<td>0.36</td>
</tr>
<tr>
<td>Wine</td>
<td>-</td>
<td>0.40</td>
<td>0.29</td>
<td>0.29</td>
</tr>
<tr>
<td>Barleywater</td>
<td>-</td>
<td>-</td>
<td>0.14</td>
<td>0.07</td>
</tr>
</tbody>
</table>

11 authors forbade certain drinks (Jones, 1579; Ste Marthe, 1584; Pemell, 1653; Maubray, 1730; Nelson, 1753; Brouzet, 1755; Buchan, 1769; Mantell, 1787; Downman, 1788; Lara, 1791; Mears, 1797). These are listed in table 7.20.

Table 7.20: The proportion (p) of 11 medical authors who listed drinks forbidden to newly-weaned children 1500-1800

<table>
<thead>
<tr>
<th>Drink</th>
<th>16th century (n=2)</th>
<th>17th century (n=1)</th>
<th>18th century (n=8)</th>
<th>Total (n=11)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wine</td>
<td>P</td>
<td>P</td>
<td>0.63</td>
<td>0.64</td>
</tr>
<tr>
<td>Strong liquors</td>
<td>-</td>
<td>-</td>
<td>0.38</td>
<td>0.27</td>
</tr>
<tr>
<td>Ale</td>
<td>-</td>
<td>-</td>
<td>0.13</td>
<td>0.09</td>
</tr>
<tr>
<td>Milk</td>
<td>-</td>
<td>1.0</td>
<td>0.13</td>
<td>0.18</td>
</tr>
<tr>
<td>Tea</td>
<td>-</td>
<td>-</td>
<td>0.13</td>
<td>0.09</td>
</tr>
</tbody>
</table>

Tables 7.19 and 7.20 show that the drinks discussed were principally alcoholic beverages. Alcoholic drinks of some kind were recommended by 8 authors (Jones, 1579; Glisson, 1651; Sharp, 1671; Culpeper, 1676; Maubray, 1730; Nelson, 1753; Buchan, 1769; Smith, 1774).
and forbidden by 9 authors (Jones, 1579; Ste Marthe, 1584; Maubray, 1730; Nelson, 1753; Buchan, 1769; Mantell, 1787; Downman, 1788; Lara, 1791; Mears, 1797). In many cases it was the type of alcoholic drink which was at issue, which explains the presence of some authors in both lists.

Although today it would be unthinkable to recommend or give a child as young as 6 to 12 months alcoholic drinks on a regular basis, the situation was very different in pre-industrial Britain. Because the water was widely known to be contaminated it was very rarely drunk by any part of the population (Drummond & Wilbraham, 1957). Most of the authors recommending it originated from France where it was apparently drunk either alone or with wine. This was emphasised by the anonymous English translator of Guillemeau's work in 1612. When Guillemeau recommended water his translator added the footnote "That is in France where they have not ale or beere".

The common drink of most people in Britain was ale, beer or small-beer (Drummond & Wilbraham, 1957; Wilson, 1976); ale had a fairly high alcoholic content but smallbeer was much weaker (Drummond & Wilbraham, 1957). Therefore, once a child was weaned and ate similar food to the rest of the family it was natural for him to have the same drink.

Wine was drunk by the wealthier sections of society and home-made wines were also common (Drummond & Wilbraham, 1957). Disapproval of its use in the 16th century was an echo of the ancient medical authorities who thought it was not good for children (Galen, 1951). The fact that 18th century physicians disapproved of wine indicates that it possibly had a higher alcoholic content than the beers and ale which some authors preferred (Drummond & Wilbraham, 1957).

As noted in the preceding section, the lower weaning age in this period meant that milk was ideally given for longer than previously and, added to the increased scientific knowledge about the value and composition of milk after 1761 (Young, 1761; Still, 1931), ex-
plains why milk products were increasingly recommended.

The main concern of all authors, especially in the 18th century, was that "spirituous liquors" should not be administered to babies and young children. This was the period in which gin was very cheap and easily accessible even to the very poor and was a social problem to all age groups (Hogarth's *Gin Lane* 1751 shows even small babies being dosed with gin (see fig. 4.1); Drummond & Wilbraham, 1957; Jarrett, 1964; George, 1966; Watney, 1976). Among the wealthy, brandy was a favourite spirit and was apparently administered to infants from birth by some nurses wishing to quieten them (Harris, 1689; Drummond & Wilbraham, 1957). Thus forbidding strong liquors or spirits was related to these contemporary social problems and did not prevent physicians recommending a more commonplace alcoholic drink such as beer (whose virtue was compared favourably with gin by Hogarth in *Beer Street* and *Gin Lane*).

William Buchan (1769) illustrates the medical attitude to children's drinks in the second half of the 18th century, with preferences turning towards milk products or the weaker alcoholic drinks:

"All strong liquors are harmful to children. Some parents teach their children to guzzle ale, and others strong liquors at every meal; but such a practice cannot fail to do mischief .... Milk, water, buttermilk, or whey, make the most proper drink for children. If they have anything stronger, it may be fine smallbeer, or a little wine mixed with water".
Conclusions

1. The most popular weaning foods recommended by medical writers were chicken broth, minced or pre-chewed meat, and meat gravies with breadcrumbs or rice. Weaning foods were usually different from those recommended and probably used, for mixed feeding, in particular they contained meat because the child was judged capable of digesting meat once he had teeth with which to chew.

2. The increased concern about the pre- and post-weaning diet in the late 18th century was probably related to the earlier age of weaning at this time.

3. The recommended weaning diet of mainly meat and bread was related to the normal diet of the wealthy classes and, if given regularly and as recommended, children would have suffered lack of vitamins A, D and C, and some deficiency of calcium. Resultant diseases would have included scurvy, rickets, bladder stone, a degree of night blindness, and lowered resistance to infection, all of which occurred among the adult population during the period 1500-1800.

4. Children in poorer families, weaned on to their normal diet, would probably have received a more balanced nutritious diet than that of wealthy families although in certain periods the former were more likely to have insufficient quantity of food.

5. Physicians recommended smallbeer, water or forms of milk to replace breast milk but most condemned wine and strong liquors. Since the most usual drink of the adult population was smallbeer, beer or ale most children would have been weaned onto the family's usual drink. The more frequent recommendation of milk drinks in the late 18th century was probably related to the earlier age of weaning.
14 writers associated specific diseases with weaning (Glisson, 1651; Nurses Guide, 1729; Maubray, 1730; Hoffmann, 1740; Hurlock, 1740; Astruc, 1746; Brouzet, 1755; Buchan, 1769; Rosenstein, 1776; Young, 1780; Underwood, 1784; Spence, 1784; Aitken, 1786; Mantell, 1787). These are listed in table 7.21. As Glisson (1651) was the only pre-18th century writer and discussed only rickets, he is included in the table in order to give a complete picture.

### Table 7.21: The proportion (p) of 14 medical writers who associated specific diseases with weaning in the 18th century

<table>
<thead>
<tr>
<th>Disease or condition</th>
<th>18th century writers (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>p</td>
</tr>
<tr>
<td>Rickets</td>
<td>0.29</td>
</tr>
<tr>
<td>Gastro-intestinal upsets</td>
<td>0.29</td>
</tr>
<tr>
<td>Leanness and small growth</td>
<td>0.29</td>
</tr>
<tr>
<td>The weaning disease</td>
<td>0.29</td>
</tr>
<tr>
<td>Teething</td>
<td>0.21</td>
</tr>
<tr>
<td>Scrofula</td>
<td>0.07</td>
</tr>
</tbody>
</table>

'Teething' (a synonym for weaning)

In the 16th and 17th centuries (with the exception of Glisson (1651)) medical writers did not associate particular diseases with weaning although the constant mention of sudden change being dangerous (see Part IIA), and the necessity for the period of teething to be over, implies that it was frequently accompanied by some degree of illness. The Bills of Mortality consistently showed a large number of deaths from teething long before some 18th century writers linked it directly with weaning (Hurlock, 1742; Astruc, 1746; Mantell, 1787).
Teething was believed to be a disease entity in the 16th and 17th centuries, and was still regarded as such by many physicians until the 19th century (Rendle-Short, 1955b; Radbill, 1965). It has been shown throughout this chapter that weaning and teething were inextricably linked, therefore many of the deaths attributed to teething (and by implication to weaning) in the year 1740 is shown by the following extracts from the Bills of Mortality for that year:

Total number of infants christened: 15,231
Total deaths age 0 - 2 years: 10,765 (71%)
Cause of death age 0 - 2 years:
   a) convulsions: 8,479 (79%)
   b) teeth: 1,708 (16%)
   c) fevers, smallpox, etc.: 578 (5%)

Some deaths attributed to convulsions may also have been due to teething (Rendle-Short, 1955a & 1955b).

These figures can only be used as a rough indication since the Bills of Mortality recorded only infants christened in the established church, and the cause of death was not normally given by a medical practitioner but by a paid 'searcher' who would have given the cause most immediately obvious to them (or accepted what the parents told them) (Graunt, 1676). Since, in infants, convulsions may appear at the beginning of some infectious diseases, accompany severe rickets, and present in the terminal stages of most untreated diseases of infancy (Rendle-Short, 1955a; Shaw, 1979) the causes of the deaths attributed to 'convulsions' were manifold.

Thomas Mantell (1787) said that of the "great numbers of infants who die in teething" those who were healthy and lived abstemiously "generally suffer little" and the "greatest sufferers from dentition" were those already debilitated by disorders before teething began. The stress of teething which may (like other stresses) lower the body's resistance to infection temporarily (Dubos, 1969) could have resulted in increased susceptibility to disease from unclean feeding
vessels and unsuitable food during weaning; the healthy older child being likely to overcome this much more easily than an infant of only a few months old, or one already debilitated by disease or malnourishment.

**Rickets**

Rickets was a prevalent disease of young children in the 17th and 18th centuries and has been discussed elsewhere in this thesis (see chapters on wet nursing and mixed feeding) but it should be pointed out that, in this period, it was a condition particularly associated with weaning. Glisson (1651) specifically linked the onset of rickets at 9 - 18 months of age with the loss of breast milk. "So long as they are conveniently nourished with it, they incur the fewer errors of diet, and are rendered the less obnoxious to this disease ---- after the ninth month, children are usually fed with other aliment besides breast milk or other milk, and from that variety there easily resulteth some errors in the point of diet". William Hunter (1775), after recommending weaning at 8 - 9 months, said "Rickets usually happen to children at 10 months old". Young (1780) said rickets were rare before weaning.

Undoubtedly this age of onset was related to which foods were given at and after weaning, and the partial or total loss of milk from the diet of young children. It may also be related to the fact that this is the approximate age at which children first stand up and begin to walk (Musson, 1963; Leach, 1974) and thus bowing of the legs and other skeletal deformities would become apparent. (Although the age of first walking in the 17th and 18th centuries may have been different from today, the little evidence available (De Mause, 1976) shows the range of walking ages to be similar to that of today).

**The weaning disease/gastro-intestinal upsets**

The 'weaning illness' or 'weaning brash' was a gastro-intestinal disorder which occurred when children were weaned from the breast
It was regarded as 'normal' and inevitable and was associated with the change in diet (Brouzet, 1755; Young, 1780; Aitken, 1786). "This is a violent purging, frequently attended with vomiting, wasting, etc.

Causes: 1) Early weaning
2) Improper food

Cure: Removal of causes" (Aitken, 1786).

This condition was obviously a form of the 'weanling diarrhoea' observed in areas such as India, Africa and Central America today (Jelliffe & Jelliffe, 1978; see discussion in chapter on mixed feeding).

Leanness and small growth

Leanness, wasting and small growth were particularly associated with early weaning (Hurlock, 1742; Astruc, 1746; Rosenstein, 1776) and with "improper foods" and "too sudden change of the milk for solid foods at weaning" (Hoffmann, 1740). As seen above, wasting was part of the weaning illness described by Aitken (1786) and inevitably would have been associated with conditions such as diarrhoea and vomiting. Poor or inadequate feeding after leaving the breast would have resulted in an undernourished and therefore underweight child and, since the quality of the diet in the first few months of life has been found to be a vital determinant in human growth (Tanner, 1981), weaning in early infancy could have resulted in stunted growth.
1. Specific diseases began to be associated with weaning in the 18th century, possibly because of the earlier age of weaning and the increased interest in childhood diseases. Conditions particularly connected with weaning included rickets, gastrointestinal upsets, leanness and small growth, and teething (which throughout this period was regarded as a disease entity).
CONCLUSIONS
During the progress of this investigation into infant feeding practices it gradually became clear that, during the 300 year period, there had been two major points in time when changes in theory and practice occurred. The most obvious of these was the mid-18th century, about the time that William Cadogan's widely-read and influential Essay was published in 1748. Many changes, in some cases quite radical ones, have been shown to date from this time; in some cases Cadogan appears to have been initiator of ideas (e.g. the theory of not boiling milk for infant foods); in others he consolidated the theories of previous writers, such as John Locke (1693) in his pleas for simple wholesome food, and continental physicians such as Ettmueller (1699) and Hoffmann (1740) in his belief that the newborn child should be put to the mother's breast early on and receive colostrum rather than purges.

Although the fact that he put all of his new and old ideas into book form in a new, positive, and refreshing way makes him appear to have been apart or ahead of his contemporaries, other important events occurred in the 1740's which could have had an equal influence on feeding practices.

In 1741 the Foundling Hospital opened in London and initially experimented with dry nursing. The high mortality which resulted, and the consequent change to mainly wet nursing in the surrounding countryside, was the first demonstrable experiment on a relatively large number of children which could be used to show the general populace that dry nursing was a dangerous method of feeding when compared to breast feeding. As the Foundling Hospital was a fashionable place to visit, and was initially supported by subscriptions from wealthy patrons, the results of this experiment were published and were well known (Found. Hosp., 1749; Jones, 1978; Lloyd Hart, 1979). This fact would surely have been taken into account when wealthy families were deciding upon the method of feeding for their own babies.
In 1747 the first Lying-in wards were opened in London, closely followed in the next five years by several lying-in hospitals (Donnison, 1977). Concern about the high incidence of milk fever and breast disease among their newly delivered women led to experiments and changes in neonatal feeding, and the consequent dramatic reduction in the incidence of milk fever. Again these were the first relatively large-scale experiments in putting infants to the breast within a few hours of birth, and the results were again published and available for the populace to consider in decisions about maternal breast feeding (Nelson, 1753; the Gentleman's Magazine regularly carried reports about both the Foundling Hospital and the Lying-in Hospitals).

The timing of the change in ideas in the mid-18th century was almost certainly related to three things:

1. The consolidation of changes in medical ideas which had probably originated in continental medical schools where British physicians and some surgeons were educated (particularly Leyden) (See Appendix I). Cadogan, a graduate of Leyden, put these down in a short readable form and thus acted as a 'springboard' or catalyst in passing these on to both general and medical readers for the next 60 years. He was aided by the fact that the Foundling Hospital decided to adopt his suggested methods of infant care in caring for their children, thus further publicising these methods (Jones, 1978; Lloyd-Hart, 1979; Wilson, 1979).

2. The visible and published experiments, with their results, of different infant feeding methods at the Foundling Hospital.

3. The experiments in early maternal breast feeding at the Lying-in Hospital which demonstrated the positive effect of this practice on the health of the mothers.

It should be noted here that the effect of Rousseau's ideas about infant care, feeding and education, which were first published in *Emile*, in 1762, appear to have played little part in the change in
Britain since the major changes have been shown to have been well under way at least a decade before his text appeared. However the popularity of his work could possibly have reinforced the effects mentioned above.

A second period of change which is much less easily defined seems to have occurred about 1670. This again coincided with publication of a major work, this time a definitive midwifery text by the French surgeon-midwife Francois Mauriceau. His *Accomplisht Midwife* (1668) was first translated into English in 1672 and 1673 and in a ten year period, for the first time, several publications appeared by English writers on midwifery. (Wolveridge, 1671; Sharp, 1671; new editions of Culpeper in 1675 and 1676; Comp. Mid. Pract., 1680; Eng. Mid. Enl., 1682), all of which dealt at some length with infant feeding. As was shown throughout this study, Mauriceau and these English contemporaries were often at the forefront of new ideas, no longer giving credence to the ancient writers whose theories dominated paediatric publications before the 1670's.

This change in emphasis in the medical literature was undoubtedly linked to the general changes occurring in other branches of medicine and science in the late 17th century where empiricism was replacing the ideas of the Greeks and Arabs. Differences were also evident in practice, as was seen with the upper classes and their experimentation with hand feeding, and the beginnings of the dissatisfaction with wet nursing. Different theories were beginning to be voiced in the weaning of children; with the foods they were given; and the first suggestions that early breast feeding was good for the child, also date from this period, as does the beginning of diversification of feeding vessels.

Whether or not Mauriceau's treatise was the spur for British practitioners to put pen to paper, or it was coincidental in a period of scientific enquiry and activity, is not clear but like Cadogan's book it is a marker, although less obvious, of a time of change in British infant feeding practices. It is suggested that this investigation divides into three broad periods:
1. **1500 - c1670** A period of little change in ideas or practice, where the principle criteria were unchanged from those of the Greeks. The main concern was for the child.

2. **c1670 - c1748** A period of experimentation, of rejection of old ideas, and the real beginning of publications dealing with infants and their care by English and Scottish writers. Concern is still for the child but, towards the end of this time, attention begins to focus on the mother.

3. **c1748 - 1800** Major changes in infant feeding practices and ideas. The period when books of advice for mothers began to appear and attention and concern is less for the child and much more for the mother, although the child as a consequence benefited from this interest in the mother. This was the era of early industrialisation when modern ideas of infant feeding began to be voiced and practised.

It is suggested that any further work which is attempted upon the history of infant feeding in Britain, possibly using additional sources, might examine these three periods of time, and particularly the approximate dates of change 1670 and 1748. In retrospect this survey, although necessary to identify such change, was too massive for one person to undertake. But it was also too interesting to omit any major part of it. Ideally infant feeding should be looked at by a small interdisciplinary team, each member of which could bring to it her own field of expertise. It should certainly be examined more fully in the context of contemporary ideas about other aspects of infant care and paediatrics, and in conjunction with the increasing evidence about infant and maternal mortality which is presently being investigated by historical demographers.

Other sources, not used in this study, which might provide evidence
to confirm or disprove the findings presented, include wills and inventories, for evidence of methods of feeding such as feeding vessels; quarter sessions records for evidence of problems with wet nurses; local studies of villages where wet nursing was a common occupation for women, to try to identify the extent of this trade and any organisation behind it. In addition the many unpublished letters, diaries and estate records in county record offices undoubtedly conceal a mound of information about feeding practices among the wealthier members of the population. Some investigation of Armstrong's Dispensary for the Infant Poor in London might reveal more details about methods of infant nutrition among the urban poor.

Should further work be attempted, any analysis of a similar kind would probably be more efficiently performed using a computer. The arrangement of the analysis for this work provides some basis on which this could be carried out when looking for broad trends and possible points of change.
Principal conclusions

1. Between 1500 and 1800 there were two periods of change in infant feeding, c1670 and particularly c1748, and it may be profitable for future researchers to look at these in more detail.

2. Changes after 1670 included experimentation with artificial feeding, associated with diversification of feeding vessels; dissatisfaction with wet nurses; the first suggestions that colostrum could be fed to the child rather than discarded; and recommendation of an earlier weaning age. These were related to general changes in English and Scottish medicine and science.

3. Changes in the 1740's were connected with industrialisation; the first well-publicised experiments with a) dry nursing at the London Foundling Hospital and b) early maternal breastfeeding at the Lying-in Hospital. Cadogan's Essay was important because it consolidated changes in medical ideas and presented them readably to the general and medical public.

4. Major changes after 1748 included decreased popularity of wet nurses accompanied by increased incidence of maternal breastfeeding among the wealthy; allowing the child to suck colostrum rather than discarding it; changes in preparation of infant foods, particularly the non-boiling of milk; the adoption of hand feeding as the method of choice after maternal breastfeeding; medical discussion of hand feeding and the development of better substitute foods, and more suitable vessels for administering them; a significantly earlier weaning age.

5. The principal medical trend between 1500 and 1800 was a decreasing concern for the health and wellbeing of the infant. This was replaced in the 18th century by increased attention to that of the mother, from which infants may have benefited indirectly.

6. Neonatal feeding, mixed feeding, artificial feeding, wet nursing and weaning were all associated with increased risk of morbidity.
and death therefore the effect of infant feeding practices should always be taken into account in investigations or discussion of infant mortality rates in the pre-industrial period.

7. Neither literary sources nor medical texts can be used in isolation to construct a reliable history of infant feeding practices since many aspects of parental practice differed from medical discussion on infant nutrition.
GLOSSARY

AGNUS CASTUS: A tree, also called chaste-tree or Abraham's balm

AGUE: Acute fever, especially the cold shivering stage of a malarial fever

ANIS(E), ANYS: Plant cultivated for its seeds; has carminative properties

APHTHAE: Small white specks seen on the mouth and tongue in infantile thrush

BIGGE: Hare

BOUILLIE, BOUILLON: Broth or soup

BUBBY: Woman's breast

CASTILE SOAP: Fine hard soap made with olive oil and soda

CATAPLASM: Poultice, formerly also a plaister

CAUDLE: A warm drink of thin gruel mixed with wine or ale, sweetened and spiced; given to sick people, especially women in childbed

CLOUT(S): Piece of cloth; particularly swaddling clothes or form of napkin or diaper (tail-clouts)

CLYSTER: Enema, injection or suppository

CONSUMPTION: Wasting disease, particularly pulmonary tuberculosis

CORDIAL: Medicine, food or beverage which stimulates the heart and circulation

COSTIVE: Constipated

DIASCORDIUM: Medicine made from the dried leaves of Teucrium scordium

DUG(GE): Pap or udder of female mammals; also the teat or nipple

EPILEPSIE: Epilepsy or epileptic-like convolution

FALLING SICKNESS: Epilepsy

FOMENTATION: Application of flannels, etc., soaked in hot water, sometimes medicated
FURMENTIE, FRUMENTY: A dish of hulled wheat boiled in milk, spiced and sweetened

GRIPES: Intermittent spasmodic pain in bowels; colic

GRUEL: Liquid food made by boiling oatmeal in water or milk

HARTSHORN: Substance obtained by rasping or scraping the horns of harts, formerly the chief source of ammonia

HOREHOUND: Herb; Juice is used as a remedy for coughs

ITCH: Scabies

KING'S EVIL: Scrofula; supposed to be curable by the King or Queen's touch (until 1714)

LISBON SUGAR: Type of soft sugar

MANCHE T BREAD: Finest wheaten bread

MANNA: Mild laxative obtained from juice of the bark of the Manna-Ash tree

MEAT(S): Food(s)

MUMP: Munch, nibble, chew

OINTMENT: Preparation of soft consistency mixed with medicament and applied to the skin

PANNIKIN: Small metal drinking vessel

PAP(PE): 1) Teat or nipple of a woman's breast; occasionally breast giving suck

2) Soft semi-liquid food for infants or invalids

PASSIONS: Moods or feelings in which the mind is powerfully affected or moved; e.g. avarice, desire, love, hatred, grief, anger

PIP KIN: Small earthenware or metal pot or pan used for cooking

PLAISTER: Solid or semi-solid substance spread upon a piece of muslin, skin or other material and of such a nature as to be adhesive at body temperature. Used for local application of a medicament, for closing a wound, and sometimes for mechanical support
POULTICE: Soft mass of a substance such as bread, bran, linseeds, usually made with boiling water and spread upon muslin, linen, or other material; applied to the skin to supply moisture or warmth, as an emollient for a sore or inflamed part, or as a counter-irritant; a cataplasm

POX: Syphilis

PURGE: 1) Aperient or purgative medicine 2) Cleanse 3) To issue forth, evacuation (of bowel)

RED GUM: Rash affecting infants particularly during dentition; consisted of red pimples and patches distributed irregularly over the skin

ROCKET: Type of cabbage

SACK: White wine imported from Spain and the Canaries

SCROFULA: Disease characterised by chronic enlargement and degeneration of the lymphatic glands; particularly tubercular infections of the neck glands

SMALLBEER: Beer of a weak, poor or inferior quality

TEAT: 1) Nipple 2) Whole breast

TOPS AND BOTTOMS: Type of rusk

TUPPE: Male sheep

VENICE TREACLE: Electuary composed of many ingredients and supposed to possess universal curative and preservative properties

WATERY GRIPES: Diarrhoea; probably form of *cholera infantum*

WHITE MEATS: Dairy foods

YELLOW GUM: Jaundice
REFERENCES AND BIBLIOGRAPHY

1. Anonymous works are listed under the first word of the title, excluding the definite and indefinite article. e.g. The practice of midwifery; The English midwife.

2. The name of the author is that given in the edition used. Known alternative spellings are given in brackets.

3. The date immediately following the author is normally the date of original publication in Latin or English. Dates given at the end of an entry denote the date of the edition or translation used.

4. Modern translations of pre-renaissance writers are listed under the name of the author of the original work.

5. Diaries, memoirs, letters and autobiographies are listed under the name of the original author.

6. Biographies are listed under the name of the biographer.

7. Catalogues of libraries and museums are listed in alphabetical order under catalogues.

8. Hospital reports are listed under the first name of the institution. e.g. The Foundling Hospital.

9. For ease of identification, the full name of the author is given for pre-1800 texts and manuscripts.


Arbuthnot, John 1731 An essay concerning the nature of aliments. London.

Arbuthnot, John 1732 Practical rules of diet in the various constitutions and diseases of human bodies. London.


Armstrong, George 1771 An essay on the diseases most fatal to infants. To which are added rules to be observed in the nursing of children: with a particular view to those who are brought up by hand. London. 2nd ed.
Artificial feeds for the young infant. 1980 DHSS report on health and social subjects no. 18 HMSO. London.


Astruc, Jean 1746 A general and complete treatise on all the diseases incident to children from their brith to the age of fifteen. transl. anon. London.

Aveling, J.H. 1872 English midwives their history and prospects. London.


Barrett, Robert 1699 A companion for midwives, childbearing women and nurses. Directing them how to perform their respective offices. London.


Batty, Bartholomaeus 1581 The christian man closet. etc. Transl. Louth, W. London.


Baynard, Edward 1706 The history of cold bathing: both ancient and modern. Part II. London. 2nd ed.


Bibliography of the History of Medicine no. 15. 1975-79 National library of medicine, Bethesda, Maryland.


Biller, P. 1980 Personal communication.


Boaistuau, Pierre 1566 The theatre or rule of the world. Transl. Alday, J. London.
Boemus, Johannes A. 1555 The fardle of facions. conteining the anciente maners, customes, and lawes of the peoples enhabiting the two partes of the earth called Affrike and Asie. London.


Boorde, Andrewe 1547 The breviary of helthe for all manner of sicknesses and diseases the which may be in man or woman. London.

Boorde, Andrew 1562 Dyetary of health. London.


Bracken, Henry 1737 The midwife's companion or, A treatise of midwifery. London.


Brand, Benjamin d. 1636 Memorial brass. Edward stone Parish church, Edward stone, Suffolk.


British Lying-in Hospital 1752 An account of the rise and progress of the lying hospital for married women in Brownlow Street, London, from its first institution in November 1749 to July 25th 1751. London.


Brooke, Henry 1766 The fool of Quality or, the History of Henry, Earl of Moreland. London.

Brouzet, N. 1755 An essay on the medicinal education of children; and the treatment of their diseases. transl. anon. London.

Brown, Sarah 1777 A letter to a lady on the best means of obtaining the milk in order to the suckling of the infant. London.


Brownlow, J. 1847 Memoranda; or chronicles of the Foundling Hospital, including memoirs of Captain Coram. London.


Buchan, William 1769 Domestic medicine; or the family physician. Edinburgh.


Bullein, William 1595 The governement of health. London


Burton, John 1751 An essay towards a complete new system of midwifery. London.


Cadogan, William 1748 An essay upon nursing and the management of children, from their birth to three years of age. London.


Catalogues

1. British library, London


2. Cambridge Group for the history of population and social structure, Cambridge.

Unpublished catalogue of the library of the SSRC Cambridge group
for the history of population and social structure, Cambridge.

3. Cow and Gate, Trowbridge, Wiltshire
   The Cow and Gate collection of feeding vessels catalogue undated.

4. Royal College of Obstetricians and Gynaecologists, London
   Unpublished catalogues of the Royal College of Obstetricians and
   Gynaecologists, London.

5. Royal College of Physicians, London
   Unpublished catalogues of the Royal College of Physicians, London.

6. University of London
   Unpublished catalogues of the University of London Library,
   Senate House, London.

7. Wellcome Institute for the History of Medicine, London
   A catalogue of printed books in the Wellcome historical medical
   library. I Books printed before 1641. 1962
   Wellcome historical medical library, London.

   A catalogue of printed books in the Wellcome historical medical
   library. II and III Books printed from 1641 to 1850 1966 and
   1976 Wellcome historical medical library, London. 2 vol.

   Moorat, S.A. J. Ed. 1962 Catalogue of Western manuscripts on
   medicine and science in the Wellcome historical medical library.
   I MSS written before 1650 AD. Wellcome historical medical
   library, London.

   Moorat, S.A. J. Ed. 1973 Catalogue of Western manuscripts on
   medicine and science in the Wellcome historical medical library.
   II MSS written after 1650 AD. The Wellcome Institute for the
   history of medicine, London. 2 vol.

   Poynter, F.N.L. 1954 A catalogue of incunabula in the Wellcome

   Wellcome Institute for the history of medicine and the related
   sciences. London. Subject catalogue of the history of medicine
   Munchen. 9 vol.

8. Wellcome collection at the Science Museum, London
   Excerpts from the unpublished and uncompleted catalogue of the
   Wellcome collection at the Science museum, London.

   Caulfield, E. 1931 The infant welfare movement in the eighteenth

   Caulfield, E. 1932 The Countesse of Lincolne's nurserie. 
   Am. J. Dis. Child. 43 151-162.

   41 673-687.


Cheyne, George 1724 *An essay of health and long life. Bath.*

Cholmley, Hugh 1787 *The memoirs of Sir Hugh Cholmley. London.*


Clark, William 1751 *The province of midwives in the practice of their art*. Bath and London.


Cohen, J.E. 1975 *Childhood mortality, family size and birth order in pre-industrial Europe. Demography 12 35-55*


Compel midwife's practice, enlarged, The. 1680 London.


Cone, T.E. 1971 *Dietary pampering of English children in 1754 and the physician's malevolent role in childhealth according to the...*


Cone, T.E. 1976 200 years of feeding infants in America. Ross Laboratories, Columbus, Ohio.

Cone, T.E. 1979 a John Locke on the care of newborn infant Paediatrics. 64 237.


Cooke, John 1768 Some necessary directions in the care of infants. in A collection of pieces relative to inoculation for the smallpox. Dublin.

Crawford, P. 1980 Personal communication.


Culpeper, Nicholas 1675 and 1676 A directory for midwives; or, a guide for women, in their conception, bearing and suckling their children. Corrected from many gross errors. London.


Cunningham, A. 1980 Personal communication.


Darwin, Erasmus 1797 *A plan for the conduct of female education*. Derby.


Davis, B.D. et al 1973 *Microbiology including immunology and molecular genetics*. Harper and Row, Hagerstown, Maryland. 2nd ed.


Dawkes, Thomas 1767 *Prodigium Willinghamense or authentic memoirs of the life of a boy -- who before he was three years old was three feet, eight inches high, and had the marks of puberty*. London.


Dee, J. 1880 *Diary for the years 1595-1601 of Dr. John Dee Warden of Manchester from 1595 to 1608*. Ed. Bailey, J.E. Unpublished, privately printed.


Denman, Thomas and Osborne, William 1777-78 Notes abstracted from several courses of lectures in midwifery given by Dr. Denman and Dr. Osborne. Taken down by Fran. Kingston. *Wellcome Historical Medical Library MS 2099*.

Deruisseau, L.G. 1940 *Infant hygiene in the older medical literature*. *Ciba Symposia* 2 530-560.


Dionis, Pierre 1719 A general treatise of midwifery transl. anon. London.


Downman, Hugh 1788 Infancy or, the management of children. A didactic poem in six books. London. 4th ed.


Driscoll, R. 1981 Personal communication.


Edge, G. 1981 Personal communication.


Elyot, Sir Thomas 1523 The boke named the governour. London. 1544.

Elyot, Sir Thomas 1534 The castel of helth. London.

Elyot, Sir Thomas 1545 The defense of good women. London.


Eng, R.Y. and Smith, T.C. 1975 Peasant families and population control in 18th century Japan. J. Interdisciplinary Hist. 6 417-445

English midwife Enlarged ---- containing two new treatises ---- of the diseases of little children, and the conditions necessary to be considered in the choice of their nurses and milk. 1682. London.


Ettmueller, Michael 1699 Etmullerus abridg'd: or a compleat system of the theory and practice of physic. Transl. anon. London.


Exton, Brudenell 1751 A new and general system of midwifery. London.


Ferrarius, Omnibonus 1577 De arte medica infantium. Brescia.


Finlay, R.A.P. 1980 Personal communication.


Floyer, Sir John 1706 The history of cold bathing: both ancient and modern. Part I. London. 2nd ed.


Forsyth, D. 1911 The history of infant feeding from Elizabethan times. Proc. Soc. Med. 4 110-1


Foundling Hospital 1749 An account of the hospital for the maintenance and education of exposed and deserted young children. London.


Fretwell, James 1877 *A family history in Yorkshire diaries and autobiographies in the seventeenth and eighteenth centuries.* Surtees Society. Durham. vol. 65


Full view of all the diseases incident to children containing a translation of Dr. Harris' Book upon the acute diseases of infants, and the eminent Dr. Boerhaave's treatise upon all their diseases. 1742 London.


Gentleman's magazine 1765 Unsigned writer on some of the causes that occasion the mortality of children under two years of age. In answer to queries in the public papers, concerning the cause of the great mortality of infants in this metropolis under that age. December 1765. London.


Geyer-Kordesch, J. 1979 Personal communication.


Glisson, Francis 1651 A treatise of the rickets, being a disease common to children. Transl. Armin, P. London.


Graunt, John 1676 Natural and political observations on the Bills of Mortality. Much enlarged. London. 5th ed.


Griffith, Matthew 1633 Bethel: or a forme for families. London.


Guillemeau, Jacques 1612 Childbirth or The happie deliverie of woman --- To which is added a treatise of the diseases of infants, and young children: with the cure of them. Transl. anon. London.


Gunnel, 1981 Personal communication.


Hanway, Josiah 1757 A journal of eight days journey from Portsmouth to Kingston upon Thames. London. 2nd ed.

Hanway, Josiah 1757 An essay on Tea. London. 2nd ed.


Harris, Walter 1689 A treatise of the acute diseases of infants. Transl. Martyn, J. London. 1742 Also see Full View.


Harvey, Gideon 1685 The disease of London or, A new discovery of the Scorvey. London.


Helmont, John Baptista van 1662 Oriatrike or, Physick refined. Transl. J.C. London.


Hoffmann Friedrich c1740 A system of the practice of medicine vol. 2 transl. Lewis, W. London. 1783.


Hopkirk, M. 1953 Queen over the water. Mary Beatrice of Modena, Queen of James II. John Murray. London.


Hunter, William 1775 Lectures anatomical and chirurgical by William Hunter 1775. Wellcome Historical medical library MS 2966. Also dated 1783.


Hurlock, Joseph 1742 A practical treatise upon dentition. London.


James, Robert 1746 The modern practice of physic. As improv'd by --- H. Boerhaave, and F. Hoffmann--- Being a translation of the aphorisms of the former with the commentaries of Dr. van Swieten. 2 vols. London.


Johnson, Robert Wallace 1767 Some friendly cautions to the heads of families by a physician. London.


Jones, John 1579 The arte and science of preserving bodie and soule in healthe, wisedome, and catholick religion: physically, philosophically and divinely devised. London.


Josephus, Flavius 1st century AD The lamentable and tragicall historie of the wars and utter ruine of the Jewes transl. Lodge, T. London. 1602.


Knodel, J. 1980b Personal communication.


*Ladies dispensatory or, Every woman her own physician*. 1740 London.


La Motte, Guillaume Marquest de 1746 *A general treatise of midwifery*. Transl. Tomkins, T. London.


Lara, Benjamin 1791 An essay on the injurious custom of mothers not suckling their own children; with some directions for chusing a nurse, and weaning of children, etc. London.

Laski, M. 1965 From imps to angels. Observer colour magazine, December.

Laslett, P. 1971 The world we have lost. Methuen. London. 2nd ed.


Lindsay, J. 1963 Daily life in Roman Egypt. Muller. London.


Lobb, Theophilus 1774 The good samaritan or useful family physician. Dublin. 2nd ed.

Locke, John 1693 Some thoughts concerning education. London.


Lowder (Lowther), William late 18th century Midwifery. Lectures on that subject read by Dr. Lowder. vol. 2. Wellcome Historical Medical Library MS 3334.


McDaniel, W.B. 1948 Conception, birth and infancy in ancient Rome and modern Italy. Florida.

McDonald, M. 1980 Personal communication.


Mackenzie, Colin 1770 Lectures in midwifery. Wellcome Historical Medical Library MS 3392.


McLaren, D. 1981 Personal communication.

McMath, James 1694 The expert midwife: a treatise of the diseases of women with child, and in child bed ---- with fit remedies for the various maladies of newborn babes. Edinburgh.


Mantell, Thomas 1787 Short directions for the management of infants. London.


Maubray (Mowbray) John 1730 The female physician containing all the diseases incident to that sex ---- together with the diet and regimen of both the mother and child. London.

Mauriceau, Francois 1673 The accomplisht midwife, treating of the diseases of women with child, and in childbed ---- with fit remedies for the several indispositions of newborn babes. Transl. Chamberlen, H. London.

Mauriceau, Francois 1739 Aphorisms relating to the pregnancy, delivery and diseases of women, etc. transl. Jones, T. London.


Meade, Sarah Letter to her mother, Margaret Fox. May 17th 1684 Miller MSS No. 77 (transcript No. 7) Friends House Library. London.

Meade, Sarah Letter to her mother, Margaret Fox (née Fell) 7 April 1686 Abraham MSS No. 30 Friends House Library. London.

Mears, Martha 1797 The midwife's candid advice to the fair sex: or The pupil of nature. London.


Memis, John 1765 The midwife's pocket companion. London.


Muffet (Moffet) Thomas 1584 Health's improvement: or rules comprising the nature, method, and manner of preparing all sorts of food used in this nation. Corrected and enlarged by Christopher Bennet. London. 1655.


Newcome, Henry 1695 The compleat mother or, An earnest persuasive to all mothers (especially those of rank and quality) to nurse their own children. London.
Newcome, H. 1852 The autobiography of Henry Newcome MA. Ed.

Newdigate, A. 1898 Gossip from a muniment room. Being passages
in the lives of Anne and Mary Fitton. 1574-1618. Ed. Newdigate -

Newdigate - Newdegate, Lady. Ed. 1898 The Cheverals of Cheveral

Newson, J. and Newson, E. 1974 Patterns of infant care in an urban

Nihell, Elizabeth 1760 A treatise on the art of midwifery. London.

Nurses guide: or the right method of bringing up young children.
By an eminent physician. 1729. London.

O'Hara - May, J. 1977 Elizabethan dyetary of health. Coronado
Press. Kansas.

Orrery 1903 The Orrery papers. Ed. Cork and Orrery, Countess.


Osborne, William and Denman, Thomas 1776 Sketches of the practice
of midwifery. From the lectures of Drs. Osborne and Denman. Wellcome
Historical Medical Library. MS 2098.

Osborne, William and Clarke, John 1770 Diseases of children with
directions for the management of them. To which is added the symptoms
by which you can distinguish their complaints. And the materia medica
infantum. Wellcome Historical Medical Library MS 3392.

Press. London.

Oxinden 1933 The Oxinden letters 1607-1642. Ed. Gardiner, D.
Constable. London.

Pachinger, A.M. 1906 Die mutterschaft in der malerei und graphik.
Müller. Munich.

Packard, F.R. 1926 Life and times of Ambroise Paré (1510-1590)
Paul Hoeber. New York. 2nd ed.

London.

Palmer, R. 1981 Personal communication.


Pechey (Peachey), John 1697 A general treatise of the diseases of infants and children. Collected from the best practical authors. London.


Pemell, Robert 1653 De morbis puerorum, or a treatise of the diseases of children. London.

Pennington, Sarah 1767 Letters on different subjects. London. vols. 3 and 4.

Percy, H. 1930 Instructions to his son by Henry Percy. 9th Earl of Northumberland Ed. Harrison, G.B.


Poole, H.W. 1920 Infant welfare in ancient, Mediaeval and modern times. Maternity Child Welf. 4 178-181; 207-209.


Practice of Midwifery by a pupil of the late Dr. W. Hunter. 1783 London.


Present day practice in infant feeding 1974 DHSS report on health and social subjects No. 9. HMSO. London.


Quillet, Claude 1655 Callipaediae or, An art how to have handsome children. Transl. anon. 1710. London.


Radacliffe, W. 1970 The problem of infant mortality prior to 1800. Community Health (Bristol) 1 276-282.


Recommended intakes of nutrients for the United Kingdom 1973 DHSS reports on public health and medical subjects No. 120 HMSO. London.

Reiff (Ryff), Walter Hermann 1545 Schwangererfrauen rosengarten. Frankfort.

Rendle-Short, J. 1955a The causes of infantile convulsions prior to 1900. J. Pediat. 47 733-739.


Med. Hist. 4 288-309.


Richardson, Samuel 1740 Pamela. London.


Rous, Margaret letter to her mother, Margaret Fox (née Fell) 28 April 1672 Abraham MSS no 16 Friends House Library. London.


Sainte Marthe, Scévole de 1584 Paedotrophiae: or the art of bringing up children. Transl. anon 1710. London.


Schofield, R. 1979 Personal communication.


Sears, E. 1981 Personal communication.


Sharp, Jane 1671 The midwives book or the whole art of midwifery discovered. Directing childbearing women how to behave themselves in their conception, breeding, rearing and nursing of children. London.


Shaw, J. 1979 Personal communication.


Sloane, Hans 1748 Letter to John Milner, vice-president of the Hospital for the maintenance and education of exposed and deserted young children. 28 October 1748 quoted in full in Brownlow, J. 1847 Memoranda. London.


Smith, Henry 1597 The sermons of Maister Henrie Smith Gathered into one volume. London.


Sowerby, L. 1652 The ladies dispensatory containing the natures, vertues, and qualities of all herbs and simples useful in physick. London.


Spence, David 1784 A system of midwifery. Edinburgh.


Steele, Richard 1709a The Tatler no. 15 Thursday, 12 May (On the birth of an heir).

Steele, Richard 1709b The Tatler no. 89 Tuesday 1 November (Account of the life of Isaac Bickerstaff).

Steele, Richard 1711 The Spectator no. 246 Wednesday 12 December (On abuses in nursing children).


Stone, M. 1976 Middle-class childhood between 1500 and 1800: examples of the lives of artists, musicians, and writers. J. Am. Acad. Psychoanal. 4 545-574.


Temkin, O. after 1958 Nutrition from classical antiquity to the Baroque Human nutrition historic and scientific monograph 3 78-97.

Theobald, John 1764 The young wife's guide in the management of her children. London.
Thiselton-Dyer 1898 Old English social life as told by the parish registers. Elliot Stock. London.

Thomson, John c1772-85 An analysis of midwifery with the diseases incident to pregnancy and those which commonly happen in the month, to child-bed women. Wellcome Historical Medical Library MS 4779.


Tillotson, John 1728 The works of the most Reverend Dr. John Tillotson. London. 9th ed. vol. 1 1st pub. ?1683.

Times index, The 1790-1800.

Tissot, S. 1793 Advice with respect to health. London. 5th ed.


Trusler, Rev. Dr. John 1786 The London adviser and guide. London.

Tryon, Thomas 1692 The good housewife made a doctor. London. 2nd ed.


Underwood, Michael 1784 *A treatise on the diseases of children. With directions for the management of infants from the birth: especially such as are brought up by hand.* London.


Wesley, John 1792 *Primitive physic.* London. 24th ed.


Willughby, Percivall 1630-69 Observations in midwifery. As also the country midwife's opusculum or vade mecum, Ed. Blenkinsop, H. Warwick. 1863.

Wilson, A. 1979a Personal communication.


Wilson, Andrew 1761 An essay on the autumnal dysentery. London.

Wilson, C.A. 1976 Food and drink in Britain. From the stone age to recent times. Penguin books. Harmondsworth.


Wolveridge, James 1671 Speculum matricis; or The expert midwives handmaid. London.


Young, George 1780 A treatise on Opium. London.


Young, Thomas late 18th century Young's midwifery. Wellcome Historical Medical Library. MSS 5106 and 5107.

APPENDIX I

Biographical details of authors
in alphabetical order

* Major writers on the subject of infant feeding; either because they devoted a significant amount of space to the topic, or because they discussed several of the aspects of infant feeding which were examined for this thesis.

M The writer was a physician, surgeon or apothecary.

W The writer was a female midwife.

In each case the name and dates of the author are followed immediately by the short title and edition of those works included in this study; with an estimate of the number of editions and the minimum time-span during which they were available to their contemporaries.

NB The information known, particularly about European or lesser-known writers, is often sparse or untraceable. The amount of detail included in this section is therefore very variable, depending largely upon the fame, or interest to later scholars, of the writer concerned.
M John AITKEN  ? - 1790
Principles of midwifery, 1786
1784-1786 at least 3 editions in English.

Scottish surgeon who studied medicine at Edinburgh and became a surgeon and lecturer in surgery and midwifery of the University of Edinburgh. He was a successful teacher and wrote several textbooks to illustrate his lectures. He made many improvements in surgery including a change in the method of locking obstetrical forceps and, in 1784, founded a lying-in hospital in Edinburgh. (Spencer, 1927; DNB, 1975).

M John ALLEN  ?1660 - 1741
Synopsis medicinae, 1733
1719-1762 at least 19 editions in Latin, English, French and German.

A physician and inventor who was a licentiate of the College of Physicians in London and practised as a physician in Bridgewater, Somerset. It is not known where obtained his MD. (DNB, 1975).

M John ARBUTHNOT  1667 - 1735
1) An essay concerning the nature of aliments, 1731
1731-1756 at least 4 editions in English.
2) Practical rules of diet in the various constitutions and diseases of the human body, 1732
1732-1741 at least 2 editions in English and French.

A Scottish physician and wit who obtained his MD from St. Andrews and was a fellow of the College of Physicians. He was physician to Queen Anne from 1705 and attended her in her last illness but lost his position at court when George I succeeded, although he retained a large practice among the Great. He was a close friend of Swift, Pope, Addison and Gay and much involved in the literary world of London. His principal publications were witty literary works against which his few medical works were relatively insignificant. (DNB, 1975).
George ARMSTRONG 1719 - 1789

An account of the diseases most incident to children, 1771
1767-1808 at least 4 editions in English and Italian.

A Scottish physician who began his working life as an apothecary. He practised for fifteen years in Hampstead but is principally remembered for opening the first public dispensary for sick children in Britain - the Dispensary for the Infant Poor, Red Lion Square, Holborn - in 1772. This institution was rapidly overwhelmed by the poor and, since at that time treating children as in-patients was unknown, Armstrong proposed to visit them in their own homes. His book is of importance because it was based on his own observations of the poor made at the dispensary, and on his own experience as a practising physician among the children of the poor rather than those of the wealthy and/or fashionable. After he could no longer take an active part in the work of the dispensary it languished for lack of public support. Little is known of his life before he opened his institution and he died in obscurity. (Still, 1931; DNB, 1975).

Jean ASTRUC 1684 - 1766

Treatise on all the diseases incident to children, 1746
1745-1770 at least 6 editions in French and English.

A French physician, he was born in Languedoc and graduated from Montpellier. He was assistant professor and, later, professor of Medicine at Montpellier and also taught anatomy at Toulouse for a time before being appointed professor of Medicine at Paris and chief physician to the king of France. His main works were on venereal diseases and the diseases of women. (Still, 1931).

Robert BARRETT fl.1699

A companion for midwives, 1699
1699 1 edition in English.

Little is known of this author. He is described in the British
Library catalogue as a Brother of Surgeon's Hall, implying that he was a surgeon and man-midwife (from the subject matter of his treatise).

Bartholomeaus BATTY fl 1581
The christian man's closet, 1581
1581 at least 2 editions in Latin and English.

He is said in the British Library catalogue to be from Aelst.

*M  Jean Louis BAUDELOCQUE  1745 - 1810
A system of midwifery, 1790
1781-1844 at least 11 editions in French, German, Dutch, English and Italian.

A French man-midwife who was head of the school for midwives at the Maternité in Paris from 1797. He was an important figure in obstetrics in France and invented the pelvimeter and advanced the knowledge of the mechanism of labour. (Garrison, 1929).

*M  Edward BAYNARD  1641 - fl 1719
The history of cold bathing (part II), 1706
1706-1732 at least 5 editions in English.

A physician and poet from Lancashire, he studied medicine at Leyden and was a fellow of the College of Physicians of London. He practised as a physician in Preston, Lancashire and later at both Bath and London, where he lived. He wrote several popular medical books including a poem on health. (DNB, 1975).

Thomas BECON  1512 - 1567
The cathechism of Thomas Becon, with other pieces written by him in the reign of Edward the sixth, 1844
1563 - many editions in English.
A protestant clergyman who was born in Norfolk and studied at Cambridge where he came under the influence of Hugh Latimer, he was ordained in 1538. He was strongly in favour of the Reformation and in 1543 was made to revoke his doctrine and burn his books. All his works were proclaimed heretical and he was forced to earn a living from teaching youths in Leicestershire, but returned to favour on the accession of Edward VI. He became Rector of St. Stephen's Walbrook, and chaplain to Cranmer and the Protector Duke of Somerset, but on the death of Edward VI he was sent to the Tower as a seditious preacher and lost his living. Released after seven months, he travelled to Strasbourg where he wrote and preached, but in England his books were declared heretical. When Elizabeth I succeeded he returned to England, and regained his former living and position at Canterbury. In 1560 he was made Rector of Buckland, Herts; Christchurch, Newgate Street; and St. Dionis, Backchurch. He became a very popular preacher and lived his last years at Canterbury. (DNB, 1975).

*H*enry BRACKEN 1697 - 1764
The midwife's companion, 1737
1737-1751 at least 2 editions in English.

A surgeon, man-midwife and writer on farriery, he was born in Lancaster. He was apprenticed to a physician in Wigan, spent some months at St. Thomas' Hospital and at the Hôtel Dieu in Paris before studying medicine at Leyden under Boerhaave. He then returned to live and practise in Lancaster where he became widely known as a surgeon and a respected veterinary writer. He was twice mayor of Lancaster and, in his medical practice, was notable for discarding many traditional remedies and a belief in simple treatments. (Still, 1931; DNB, 1975).

Richard BRATHWAITE (BRAITHWAITE) ?1588 - 1673
The English gentlewoman, 1631
1631-1641 at least 2 editions in English.
A poet who was born in Westmorland in c1588 he attended both Oxford and Cambridge, where he studied law. He wrote many plays and poetry, his most famous work being Barnabees journal in 1638. After 1611 he lived mainly in Westmorland, where he was Captain of a company of foot, and later became Deputy Lieutenant of the County. He served on the Royalist side in the Civil war and afterwards lived and died at his manor in Catterick, Yorkshire. (DNB, 1975).

Pierre BOAISTUAU (called Launay) fl 1561
The theatre or rule of the world, ?1566
1561-1663 at least 14 editions in French, English, Latin, Spanish and German.

M Andrew BOORDE ?1490 - 1545(9)
1) The breviary of helthe, 1547
1547-1598 at least 5 editions in English.
2) The dyetary of health, 1562
1562 1 edition in English.

A traveller and physician who was born in Sussex. He entered a strict order of Carthusian monks at London Charterhouse and became suffragen Bishop of Chichester in 1521, but in 1528 left the order and travelled to several countries in Europe in order to study physic. On his return in 1530 he attended the Duke of Norfolk and Henry VIII. He made several more expeditions to Europe, including Montpellier, and wrote the first 'handbook' of Europe. His many books included the first printed specimen of the gypsy language. At the end of his life he lived in Winchester but probably as a result of a misdemeanor with 'loose women' (with which he had had previous problems) he was committed to the Fleet Prison, London, where he died in 1545. (DNB, 1975).

*N. BROUZET ? - c1772
An essay on the medicinal education of children and the treatment of their diseases, 1755
1754-1755 at least 2 editions in French and English.

A French physician from Beziers, he studied medicine at Montpellier and then worked in Paris. By 1749 he was physician to the infirmary and hospitals at Fontainebleau and was also physician to the King of France. (Still, 1931).

*M William BUCHAN 1729 - 1805
Domestic medicine, 1769
1769-1805 at least 45 editions in English, French, Italian, Portuguese, Spanish, Russian and American.

Scottish physician who studied divinity and medicine at Edinburgh, where he also taught for some years. He then moved to Yorkshire where he practised as a physician and was physician to the Foundling Hospital at Ackworth. Whilst there he wrote his thesis on the Preservation of infant life. After practising in Sheffield and Edinburgh he moved to London where he acquired a large practice. He was well known for his Domestic medicine which was the first book of its kind to be published in England. He also wrote works on cold bathing, venereal disease, the diet of the common people, and the duties of a mother. (Still, 1931; DNB, 1975).

M William BULLEIN ? - 1576
The governement of health, 1595
1558-1595 at least 2 editions in English.

A physician who was born in the Isle of Ely and possibly studied at both Oxford and Cambridge. In 1550 he was Rector of Blaxhall, Suffolk, but resigned in 1554 and travelled to Europe to study physic and obtain an MD. He wrote several books, including one of the earliest English Herbals and a text on 'pleurisie'. (DNB, 1975).
M  John BURTON 1710 - 1771
An essay towards a complete new system of midwifery, 1751
1751-1773 at least 3 editions in English and French.

A physician and man-midwife who was born at Ripon (Still) or Colchester (DNB) and studied medicine at Leyden, afterwards becoming an MD at Rheims. After returning to England he lived and practised in York where he had a high reputation as an accoucheur. He wrote an Essay on the chin-cough in 1738 but later became well-known as an antiquarian and published works on the history of Yorkshire. Because of his ambivalent views at the time of the 1745 Jacobite rebellion he was satirised by Lawrence Stern in Tristram Shandy as Doctor Slop. (Still, 1931; DNB, 1975).

Robert BURTON 1577 - 1640
The anatomy of melancholy, 1621
1621-1893 at least 20 editions (mainly during the 19th century).

Born in Leicestershire, he studied at Oxford and became vicar of St. Thomas', Oxford in 1616. He obtained the living of Segrave, Leicestershire in 1630 and kept both positions until his death. He wrote a Latin comedy in 1606 but is principally remembered for The anatomy of melancholy which he is said to have written in order to suppress his own melancholy. His publisher made a fortune out of this one work.' (DNB, 1975).

*M  William CADOGAN 1711 - 1797
An essay upon nursing and the management of children, 1748
1748-1792 at least 11 editions in English and French.

A physician who was born in London, he studied at Oxford and later obtained his MD from Leyden. After spending several years as an army surgeon, he practised in Bristol until 1754 when he moved to London and became physician to the Foundling Hospital. He was a fellow of the College of Physicians, being Censor four times and
Harveian orator twice. In his own lifetime he was better-known for his *Dissertation on the gout* which was published in 1771 and reached its 10th edition within two years. (Still, 1931; DNB, 1975).

M George Cheyne 1671 - 1743

An essay of health and long life, 1724

1724-1787 at least 14 editions in English, French and Dutch.

A physician who was born in Aberdeenshire and studied medicine at Edinburgh where he became involved in the Scottish dispute about the treatment of fevers. He moved to London where he became a Fellow of the Royal Society and practised as a physician. At the end of his life he moved to Bath. He wrote works on mathematics, philosophy and a very popular book on the gout and Bath waters but, after becoming very obese, his later publications were vehicles for his views on temperance and vegetarianism and the above work was the most popular of these. (DNB, 1975).

M William Clark 1698 - 1780?

The province of midwives in the practice of their art, 1751

1751 1 edition in English.

A physician who was born in Wiltshire and studied medicine at Leyden. After practising for several years in London he moved to Bradford in Wiltshire where he practised as a physician until his retirement in 1772. He spent his last years in Colchester and also wrote on the Effects of passions on human bodies. (DNB, 1975)

M John Cooke ? - 1777

'Some necessary directions for the care of infants'
in *A collection of pieces relative to inoculation for the smallpox*, 1768

1768-1770 at least 2 editions in English and French.

A physician from Leigh-on-Sea who also wrote a work on children's

*M* Nicholas CULPEPER 1616 - 1654
1) *The English physician Enlarged*, 1653
   1652-1845 at least 38 editions in English.
2) *A directory for midwives*, 1675-1676
   1651-1777 at least 11 editions in English.

An apothecary and writer, he was born in London and studied for a short time at Cambridge. He was then apprenticed to an apothecary and c1640 he set up as an astrologer and apothecary in Spitalfields where he developed a high reputation among the patients of East London. In the Civil War he supported the parliamentarians and took part in at least one battle, where he sustained a serious chest wound. He wrote an unauthorised English translation of the College of Physician's *Pharmacopoeia* and thus earned himself a great deal of political abuse from the College. He wrote and translated many medical and astrological works, a large number of which were published by his wife after his early death in 1654. During his lifetime he was always short of money but was noted for his readiness to give medical advice to the poor. (DNB, 1975).

* Daniel DEFOE 1661 - 1731
The compleat English gentleman (1728-29), 1890
1890 1 printed edition in English.

A journalist and writer who was born and lived in London, he went into business in 1685 and became a livery-man of the City of London. He travelled widely in France and Spain and was one of the most intelligent observers of the social conditions of his day. He wrote numerous pamphlets and books on subjects such as politics, bankruptcy, dissenters, some of which landed him in Newgate jail. After writing for journals he founded the *Whitehall Evening Post* in 1718 and the *Daily Post* in the following year. Among his many books
were Robinson Crusoe, Moll Flanders and Journal of the Plague year. (DNB, 1975).

*M Pierre DIONIS 1643 - 1718
A general treatise of midwifery, 1719
1719-1724 at least 3 editions in English.

A French surgeon who, as early as 1673, gave courses in operative surgery using cadavers. He wrote a popular anatomy textbook and both this and his work on surgery were standard texts for half a century and were translated into several languages. (Garrison, 1929).

*M Hugh DOWNMAN 1740 - 1809
Infancy, or the management of children, 1788
1774/76 - 1809 at least 7 editions in English.

A physician and writer who was born in Devon and studied at Oxford. He was ordained in 1763 but then went to Edinburgh to study medicine, and after briefly working in a London hospital he returned to Devon to practise as a physician in Exeter. He wrote several unsuccessful plays as well as essays and poems and founded a literary society in Exeter, where he died in 1809. (Still, 1931; DNB, 1975).

Sir Thomas ELYOT ?1499 - 1546
1) The boke named the govenour, 1523
1523-1564 at least 5 editions in English.
2) The castel of helth, 1534
1534-1610 at least 15 editions in English.

A diplomat and author who was born in Wiltshire and became clerk of assize in the west of England where his father was a judge. After inheriting landed property in 1522-23 he lived mainly in Oxfordshire. As a young man he read (probably with Linacre) the works of Galen and other ancient medical writers so that he was familiar with the
study of physic. In 1523 he became clerk of the privy council, from which he was discharged in 1530 and given a knighthood. The popularity of his Boke named the govenour led to his appointment as ambassador to the court of Emperor Charles V. He became MP for Cambridge in 1542 and two years later was Sherriff of Cambridgeshire. He was a close friend of Sir Thomas More and Roger Ascham and wrote works on political philosophy and the theory of education as well as a Latin-English dictionary and a translation of Plutarch. He holds an important place in English literature as one of the earliest writers in his native tongue. (Still, 1931; DNB; 1975).

Desiderius ERASMUS ?1466 - 1536
Colloquies, 1526
1526 - many editions in Latin, English and other European languages.

Renaissance humanist and theologian who was born in Rotterdam or Gouda and was ordained as a priest at Steyn, near Gouda, in 1492. He became Latin secretary to the Bishop of Cambrai who consented to his attending the University of Paris, after which he devoted his life to scholarship. He travelled widely in Europe and paid several visits to England where he associated with Linacre and Thomas More. In 1521 he settled in Basle as the general editor and literary adviser of Froben's Press. Said to be the first 'man of letters' to appear in Europe since the fall of the Roman Empire, he had many friends and patrons among the wealthy educated classes who enabled him to live in some comfort whilst writing his many books and pamphlets. His most important works were the translation and paraphrases of the New Testament, his letters and colloquia. Strongly against religious fanaticism, he tried throughout his life to remain neutral and apart from the controversy surrounding his contemporary, Martin Luther, and the reformation. He died in Basle in 1536 (Encyclopaedia Britannica, 1929).
M Michael ETTMUELLER 1644 - 1683
Etmmulerus abridg'd, 1699
16 - 1708 at least 5 editions in Latin, French and English.

A German physician who was born in Leipzig and gained an MD from the University there in 1666, and was successively Professor of Medicine in 1676, Professor of Botany in 1681, and Professor of Surgery and Midwifery in the University of Leipzig. He wrote several treatises on medicine including *De infantum morbis*, but most of these were published posthumously. His early death is said to have been hastened by the ill-effects of his experiments on chemical substances. (Still, 1931).

M Brudenell EXTON fl 1737 - 1760
A new and general system of midwifery, 1751
1751-1771 at least 4 editions in English.

A physician and man-midwife who practised in Kingston-on-Thames. He studied midwifery early in life and in 1737 and 1738 practised in London under the eminent man-midwife Dr. Chapman and later under Sir Richard Manningham. In 1753 he became physician and man-midwife to the Middlesex Hospital where he was responsible for introducing female pupils to the study of midwifery since he insisted on the necessity of educating midwives. He retired from the Middlesex in 1760 and went to live in the country. (Spencer, 1927).

M Sir John FLOYER 1649 - 1734
The history of cold bathing (part I), 1706
1697-1732 at least 7 editions in English.

A physician born in Staffordshire, he studied at Oxford for twelve years and obtained BA, BM, and MD. He then moved to Lichfield and practised as a physician, and was the physician who advised that Samuel Johnson be sent to London for the Royal Touch of Queen Anne for the King's Evil. Some of his books were printed by Johnson's
bookseller father. He achieved considerable eminence as a physician and was knighted in or before 1686. His books show his independence of thought and some are said to have been the starting points in new medical practice. For example he was the first to make regular observations of the pulse rate and invented the pulse-watch which was constructed to go for exactly one minute. He also wrote on asthma and emphysema. (DNB, 1975).

M Edward FOSTER 7-1780
The principles and practice of midwifery, 1781
1781 1 edition in English.

A man-midwife in Dublin, he presumably studied at Edinburgh since he published an inaugural dissertation there in 1767. (Garrison, 1929; BL catalogue of printed books).

M Francis GLISSON 1597 - 1677
A treatise of the rickets, 1651
1650-1742 at least 5 editions in Latin and English.

A physician born in Dorset, he studied arts at Caius College, Cambridge where he became a Fellow. After taking an MA at Oxford in 1627 he returned to Cambridge to study medicine and graduated MD in 1634. Almost immediately he entered the College of Physicians and two years later was appointed Regius Professor of Physic at Cambridge, a post which he held for the next forty years. He lived at Cambridge for several years then moved to Colchester where he practised as a physician for a short time before moving to London. He lectured in anatomy, practised medicine and became very involved in the official activities of the College of Physicians of which he was president between 1667 and 1669. He was one of the earliest members of the Royal Society and wrote several works on anatomy of which the most notable were those on the liver (viz. Glisson's capsule) and died in London in 1677. (Still, 1931; DNB, 1975).
William GOUGE 1578 - 1653

Of domesticall duties, 1622
1622-1626 at least 2 editions in English.

A puritan clergyman who was born at Stratford-le-Bow, he went as a scholar to Kings College, Cambridge in 1595 where he gained a considerable reputation as a logician. After gaining an MA in 1602, he became a lecturer in logic and philosophy and also taught Hebrew. He took Holy Orders in 1607 and became a preacher at St. Anne's Church, Blackfriars in the following year. In 1621 became Rector of St. Anne's where he preached, lectured and maintained his popularity for thirty-five years. In the same year he was imprisoned for 'treasonable speculations' in a book. He gained a DD in 1628 and was involved in many religious and charitable societies, such as the Westminster Assembly and Presbyterian organisation. He was a strict puritan and scholar and was interested in providing education for poor scholars at Cambridge, although he refused the provostship of Kings College. Of domesticall duties was the first of the many religious works which he published. (DNB, 1975).

Matthew GRIFFITH 1599 - 1665

Bethel: or forme for families, 1633
1633

A Royalist clergyman, he was born in London and studied at Oxford, graduating BA in 1618. Aafter gaining MA at Cambridge he became lecturer at St. Dunstan's in the West, Fleet Street and the Rector of St. Mary Magdalen in Old Fish Street. In 1640 he was appointed Rector of St. Benet Sherehog but two years later was imprisoned for preaching and publishing the sermon A patheticall persuasian to pray for publick peace. When freed he took refuge with the king, was made a DD at Oxford, and fought on the Royalist side in the Civil War. In 1647 he returned to London and preached to small gatherings of cavaliers, for which he was imprisoned four times. He prematurely preached and published a Royalist sermon in 1660 and was thrown into Newgate jail but on the restoration of Charles II Griffith regained his rectorship of St. Mary Magdalen as well as that of Bladon,
Oxfordshire. His first publication was *Bethel* and he also published several of his sermons. He died at Bladon through rupturing a blood vessel while preaching. (DNB, 1975).

Stefano GUAZZO fl 1574

*The civile conversation*, 1581 & 1586

1574-1738 at least 11 editions in Italian, English and Latin.

---

*M* Jacques GUILLEMEAU 1550 - 1613

*Childbirth, or the happie deliverie of women*, 1612

1609-1635 at least 3 editions in French and English.

A French surgeon born at Orleans, he studied in Paris and was a favourite pupil of Ambroise Paré (see below). He served for several years in the Spanish army in Flanders and then became surgeon at the Hôtel Dieu in Paris. He was surgeon to three French kings - Charles IX, Henri III and Henri IV - and wrote treatises on surgery, diseases of the eye and embalming. (Still, 1931).

---

*M* Alexander HAMILTON 1739 - 1802

*Treatise on the management of female complaints*, 1792

1792-1824 at least 9 editions in English, French, Italian and American.

Surgeon, physician and man-midwife, he was born in Kincardineshire and in 1758 became assistant to an Edinburgh surgeon. When his master died in 1762 Hamilton was admitted to the Edinburgh college of surgeons and began to practise as a surgeon. He later gained a medical degree and became a Fellow of the College of Physicians of Edinburgh. In 1777 he made strenuous efforts to get surgery taught in the university by a separate professor but was unsuccessful. For several years he lectured in midwifery and in 1780 was appointed joint Professor of Midwifery together with Thomas Young (see below). When Young died three years later Hamilton became sole Professor of Midwifery. As a direct result of his efforts during 1791, the lying-in hospital
founded by John Aitken (see above) was established in the town by 1793. He was a successful practitioner and writer in midwifery and resigned as professor in 1800, two years before his death. (Spencer, 1927; DNB, 1975).

M Walter HARRIS 1647 - 1732
'De morbis infantum' in A full view of all the diseases incident to children, 1742
1689-1742 at least 18 editions in Latin, German, French and English.

A physician, he was born at Gloucester and studied Arts at Oxford before commencing to study physick at the University of Bourges, France. After graduating MD in 1675 he settled in London and practised as a physician mainly in the Catholic community. After Titus Oates' plot in 1678 anti-Catholic feeling was strong and Roman Catholics were expelled from London, and at this point Harris gave up his Catholic beliefs to which he had been converted as a young man. He gained an MD at Cambridge in 1679 and three years later became a Fellow of the College of Physicians, in which he held many offices including Censor, Harveian orator, treasurer and councillor between 1688 and his death. He wrote several medical works but none achieved the fame or influence of his paediatric text. 'De morbis infantum' was written in imitation of Sydenham whom Harris knew and admired, and it contained his theory that the fundamental cause of all infantile diseases was acidity and therefore the universal treatment was antacids. This theory was very influential and was believed without question for a hundred years. Harris achieved a great reputation as a physician and was physician to Charles II and William and Mary, attending Queen Mary in her last illness in 1694. He died in London in 1732. (Still, 1931; DNB, 1975).

*M Friedrich HOFFMANN 1660 - 1742
A system of the practice of medicine, volume 2, 1783
1715/1740 -
A German physician who was born in Halle and gained a doctorate from Jena in 1681 after studying under Wolfgang Wedelius who also wrote on the diseases of children. After lecturing at Jena for a time he practised as a physician at Munden. In 1684 he visited England and met the leading scientists of the period, including Robert Boyle. When a university was established at Halle, Hoffmann became its first Professor of Medicine and Natural Philosophy. He was physician to the king of Prussia and had a great reputation throughout Europe. His medical works included two books on the diseases of children which were published in 1715 and 1740, and the 1783 abridged English edition of his System of the practice of medicine used in this study includes his views on the diseases of infants. (Still, 1931).

*W* 
William HUNTER 1718 - 1783

1) MS Lectures anatomical and chirurgical by William Hunter, 1775
2) Practice of midwifery by a pupil of the late Dr. W. Hunter, 1783
1783 1 edition in English.

A surgeon, physician and man-midwife who was born in Lanarkshire, the elder brother of John Hunter the anatomist and surgeon. For five years he studied at the University of Glasgow, initially for the church but later turning to medicine, and was a pupil of William Cullen between 1737 and 1740. In 1741 he went to London to become a pupil at St. George's Hospital. From 1746 he lectured on surgery to naval surgeons and the following year became a member of the surgeon's corporation. After touring Europe and working with his brother he became a successful lecturer and midwife and, in 1748, gave up surgery for obstetrics, becoming surgeon-accoucheur to the Middlesex Hospital and later to the lying-in hospital. He obtained an MD from Glasgow in 1750 and set up as a physician in Jermyn Street, London eventually becoming a member of the College of Physicians. He was a leading man-midwife and was consulted by Queen Charlotte in 1762 at the birth of the Prince of Wales, becoming her physician extraordinary two years later. He was a Fellow of the Royal Society and was appointed the first Professor of Anatomy to the newly-founded
Royal Academy. From 1770 until his death he collected a large number of medical specimens which now form the basis of the Hunterian museum in the University of Glasgow. His published works were mainly on anatomy and surgery although many of his lectures exist in manuscript. (DNB, 1975).

M Joseph HURLOCK fl 1742

A practical treatise upon dentition, 1742
1742 1 edition in English.

A surgeon who was probably born early in the 18th century because he mentions attending a case in 1729. He lived in London and had a widespread and extensive practice and in 1747 appeared in the list of the Corporation of Surgeons, thus being one of those with exclusive rights to practise surgery in London. Little else is known about him. (Still, 1931).

M Robert JAMES 1703/5 - 1776

The modern practice of physic, 1746
1746 1 edition in English.

A physician born in Staffordshire, he studied medicine at Oxford and obtained an MD from Cambridge in 1728. After practising as a physician in Sheffield, Lichfield and Birmingham he settled in London and, in 1745, was admitted to Licentiate of the College of Physicians. He was a friend of Samuel Johnson who wrote the dedication for James' first book A medical Dictionary in 1743. He became famous for his patent cure for fevers which he patented in 1746 and administered to Goldsmith in his last illness, and to George III during an attack of mania in 1788. This remedy fell into disuse in the next century but most of James' publications were written to praise and advertise his famous powder. (DNB, 1975).
M John JOHNSTON ?1603 - 1675
The idea of practical physick in twelve books, 1657

A naturalist and physician who was born in Poland of Scottish parents. He studied at St. Andrews between 1622 and 1625 then travelled abroad for four years before going to Cambridge to study Botany and Medicine. In 1630 in London he wrote most of his first book on Thermatographia. He obtained an MD from Leyden in 1632 and after travelling again in England and Europe, he returned to Leyden and built up a great reputation as a physician. He refused the Chairs of Medicine at Leyden and Brandenburg preferring to study independently. He retired to his estate in Silesia in 1675, dying there twenty years later. He wrote several works which were very laborious compilations although they were highly esteemed in England during the 17th century. (DNB, 1975).

*M John JONES (of Bath) fl 1562 - 1579
The arte and science of preserving bodie and soule in healthe, wisedome and the catholick religion, 1579
1579 1 edition in English.

A physician who came from Wales and is said to have studied at both Oxford and Cambridge. Little is known about him and it is not known where and when he began practising physic. He mentions curing a person at Louth in 1562 and during the next ten years lived for a time near Nottingham and at Kingsmead near Derby. He appears to have travelled to Bath and Buxton during the seasons to practise medicine in the spa towns. At various times he was patronised by the 2nd Earl of Pembroke and the Earl of Shrewsbury and published six books between 1566 and 1579 on different aspects of physic, including a translation of Galen's Books of Elements. (DNB, 1975).
M Guillaume Marquest de LA MOTTE 1665 - 1737

A general treatise of midwifery, 1746
1722-1765 at least 4 editions in French, English and German.

A man-midwife, born at Valognes near Cherbourg, who studied at the Hôtel Dieu in Paris. He returned to his home town and practised as a man-midwife for thirty years before publishing his famous treatise on midwifery in 1722. He worked hard in an area where physicians and surgeons were few and had great independence and confidence in his own ability, as is demonstrated in his book. The latter was well received and one of the strongest advocates for a translation into English was William Smellie (see below). (Bett, 1955).

*M Benjamin LARA fl 1788 - 1814

An essay on the injurious custom of mothers not suckling their own children, 1791
1791 1 edition in English.

A surgeon, physician and man-midwife, not a great deal is known about him. He obtained the diploma of the corporation of surgeons in London in 1788 and served as a surgeon in the navy at least until 1798. Later he took up general practice, especially midwifery, and gained an MD from Edinburgh in 1802, becoming a Fellow of the College of Physicians of Edinburgh in 1814. He also wrote a dictionary of surgery. (Still, 1931).

M William LOWDER (LOWTHER) ? - 1801

MS Midwifery. Lectures on that subject read by Dr. Lowder, 1780

Physician and man-midwife, born in Southampton, who gained his MD from Aberdeen and was licentiate of the College of Physicians in 1786. He became a well-known lecturer in midwifery at Guy's Hospital and St. Saviour's Academy in Southwark. (Spencer, 1927; Wellcome Catalogue).
*M Sir Thomas MANTELL 1751 - 1831

Short directions for the management of infants, 1787
1787 1 edition in English.

An antiquarian and surgeon, he was born in Kent and practised as a surgeon in Dover. He retired from surgery when he was appointed agent for prisoners of war and transports at Dover, and in 1814 was made agent for packets. He was a magistrate for many years and Mayor of Dover six times, during one of which he was knighted. He was an antiquarian, investigating tumuli in Kent and collecting antiquities and was elected a fellow of Antiquaries in 1810. He wrote one other medical work, on imperforate anus, and two books on the Cinque Ports. (DNB, 1975)

*M John MAUBRAY ? - 1732

The female physician, 1730
1724-1730 at least 2 editions in English.

A man-midwife and physician who is generally regarded as being the first public teacher of midwifery in England. His own practical experience of midwifery was apparently not large but he was a great traveller to Europe, including Venice, Germany and Holland, during which periods he practised. In London he became a teacher of theoretical and practical midwifery to students and was unusual in demonstrating with pregnant women whom his students later had the opportunity to deliver. He was the first to appeal for the building of a hospital for lying-in women in England and also wrote Midwifery brought to perfection by manual operation. (Aveling, 1872; Spencer, 1927).

*M Francois MAURICEAU 1637 - 1709

The accomplisht midwife, 1673
1668-1755 at least 21 editions in French, English, German, Dutch, Italian, Flemish and Latin.
A man-midwife, trained at the Hôtel Dieu in Paris, who belonged to the community of surgeons of Saint-Come. He practised in Paris and became the most accomplished man-midwife of his day in France and the dominant figure in obstetrics in the 17th century. His midwifery treatise was a milestone in the history of obstetrics and provided a great impetus towards its establishment and recognition as a specialty. He introduced the practice of delivering women in bed rather than on the birth-stool, gave the earliest account of prevention of congenital syphilis by treatment of the mother during pregnancy, disagreed with Paré's long-held theory of pubic separation during childbirth, and described the main differences between the male and female pelvis. (Speert, 1957).

W Martha MEARS fl 1797
The midwife's candid advice to the fair sex, 1797
1797 possibly 2 editions in English.

A midwife about whom little is known. She called herself a 'practitioner in midwifery' and lived at the end of the 18th century at 12 Red Lion Square, London. She claimed in her book to have spent some years studying under the most eminent professors of midwifery and read the best treatises on the subject including Hunter, Smellie and Denman. (Aveling, 1872).

M John MEMIS c1720 - fl 1786
The midwife's pocket companion, 1765
1765-1768 at least 2 editions in English.

A surgeon who attended the University of Aberdeen but did not graduate, was presumably apprenticed to a surgeon for a period, and then studied midwifery under Thomas Young (see below) at Edinburgh. In 1757 he became a Burgess of Aberdeen and about the same time started a class for midwives. He gained an MD from St. Andrews in 1765 and the following year became a manager of Aberdeen Infirmary. He was involved in a lawsuit against the managers of the Infirmary
when it received its Royal Charter in 1773 because of the way he was described in the translation of the Charter, but lost the case. He also published a treatise on the prevention and cure of diseases. (Cullen, 1924).

**M** William MOSS fl 1781

*An essay on the nursing and management of children in the earlier periods of infancy, 1781

1781-1794 at least 2 editions in English.

A surgeon who received his earliest teaching from Henry Bracken of Lancaster (see above) from whom he may have gained his interest in children. He became surgeon to the Liverpool Lying-in charity and was among those who gave their services to the inoculation society which gave the poor inoculations in their own homes every spring and autumn. This protected many of the poor, mainly children, against smallpox. He also published a popular guide to Liverpool. (Still, 1931).

**M** Thomas MUFFET (MOFFET) 1553 - 1604

*Health's improvement (1584), revised edition, 1655

1655 - 1746 at least 2 editions in English.

A physician, probably born in Shoreditch, he studied for a BA at Caius college, Cambridge and then studied medicine. He was expelled from Caius in 1576 for taking an MA at Trinity college and went to Basle where he attended the medical lectures of Felix Platter and Zwinger, defended many medical treatises and received an MD in 1578. He then travelled through Europe studying insect life, especially silkworms, and adopted the Paracelsian system of medicine. On his return he was, with John Hester, the main upholder of Paracelsus' principles in England. He received an MD from Cambridge in 1582 and then practised as a physician in Ipswich and, later, London and was a Fellow of the College of Physicians. In 1591 he was appointed physician to the army, serving in Normandy under the
Earl of Essex, and in 1597 became MP for Wilton where he died in 1604. He also published works on insects and silkworms. (DNB, 1975).

*M Colin MACKENZIE ?1698 - 1775
1) MS Lectures in midwifery, 1770
2) MS Lectures on midwifery, 1774

A pupil of Dr. Smellie (see below) who lectured on midwifery at the General Lying-in Hospital in London. He offended his master by making a preparation of an injected uterus which was shown to the Hunter brothers. It was from this specimen that the structure of the placenta was described, each of the Hunters claiming the discovery. This led to a lasting quarrel between them. Mackenzie was the teacher of the eminent man-midwife, William Perfect (1737-1809) with whom he kept up a correspondence until his death. (Spencer, 1927; Wellcome catalogue).

*M James McMATH ?1649 - ?1694
The expert midwife, 1694
1694 1 edition in English.

An apothecary who obtained an MA at Edinburgh in 1665. He was booked as a servant to a surgeon-apothecary for five years in 1673 and studied for a time at Leyden. He says in his book that he also had an MD from Rheims. In 1680 he called himself an apothecary when he took on Michael Bruce as an apprentice apothecary. There is no evidence that he became either apprentice or master of the incorporation of surgeon-apothecaries, and is not a known member of the College of Physicians. (Cunningham, 1980).

*M James NELSON 1710 - 1794
An essay on the government of children, 1753
1753-1763 at least 3 editions in English.
An apothecary who lived in Red Lion Street, Holborn, he says in his book that he had been an apothecary for nearly thirty years. He preferred to be an apothecary rather than a physician or surgeon because he was jealous of the good standing of apothecaries who had opportunities for service that physicians had not since, due to their higher fees, they were not called in until later in an illness. His book made him well-known in literary circles and was well regarded by many physicians of his day, including Cadogan, Heberden and William Hunter who all subscribed to its publication. He also wrote dramatic works. (Still, 1931).

* Henry NEWCOME 1627 - 1695

The compleat mother, 1695.
1695 1 edition in English.

A non-conformist minister, he was born in Huntingdonshire and studied at Cambridge from where he obtained an MA in 1651. He was a schoolmaster in Cheshire for a short time but soon was ordained as a presbyterian minister, becoming perpetual curate at Goostrey, Cheshire and, in 1650, Rector of Gawsworth, Cheshire. Six years later he was elected one of the preachers at the collegiate church of Manchester where he became very popular. He was a Royalist and nearly lost his living when he was involved in preparations for an unsuccessful Royalist uprising in 1659. The Restoration was fateful for his career and he lost his place at Manchester and travelled a great deal in England and Ireland. He returned to Manchester in 1670 and was fined for preaching in private houses but remained in the Manchester area, preaching when the opportunity arose. His most important work was the diary he kept from 1646, and he also wrote sermons and religious texts. (DNB, 1975).

W Mrs. NIHELL 1723 - fl 1772

Treatise on the art of midwifery, 1760
1760-1771 at least 2 editions in English.
A midwife who was born in London and began the practice of midwifery early in life. She was apprenticed midwife at the Hôtel Dieu in Paris, which was difficult and rare for a foreigner, where midwives worked without male supervision or intervention. She married a surgeon-apothecary and they both practised in the Haymarket. She wrote her treatise as a violent attack on the increasing numbers of men-midwives who, with their use of instruments, threatened the previously female-dominated profession of midwifery. She was still practising as a midwife in 1772 but the date of her death is unknown. (Aveling, 1872; Donnison, 1977).

*M William OSBORN(E) 1736 -1808
1) MS. Diseases of children, 1770. with John Clark.
2) MS. Notes from .... lectures in midwifery, 1777-78
3) MS. Sketches of the practice of midwifery, 1776. with Dr. Denman

A surgeon and man-midwife, born in London, he began his medical studies under a surgeon and apothecary at Uppingham. Later he studied under William Hunter (see above) in London, and Levret in Paris. He briefly became an army surgeon and then devoted himself to midwifery. In 1770 he founded a school of midwifery with Thomas Denman (see above) and became one of the most successful midwifery teachers (more than 1200 midwives attended his lectures). He gained an MD from Aberdeen in 1777 and became licentiate of the College of Physicians in 1783. He was physician to the General Lying-in Hospital in Store Street and wrote books on midwifery. About 1800 he retired to Dover where he died in 1808. (Spencer, 1927).

*M Ambroise PARE 1510 - 1590

The workes of that famous chirurgiori Ambrose Parey, 1634
1575-1841 at least 16 editions in French, Latin, English, Dutch, German and Japanese.

A surgeon who came from the provinces in 1529 as a barber's apprentice and became a surgical dresser at the Hôtel Dieu. In 1537
he became an army surgeon and it was in this capacity that he made his greatest contribution in the treatment of gunshot wounds. These, which had formerly been treated with boiling oil, he left well alone and treated only with a salve, advocating the power of nature. He invented many new surgical instruments, introduced artificial limbs and artificial eyes, popularised the truss for hernias and re-introduced the ligature, thus making modern amputation possible. He was the first to suggest syphilis as a cause of aneurism, performed the first exarticulation of the elbow joint and was probably the first to recognise flies as transmitters of infectious disease. In obstetrics he was responsible for describing podalic version and inducing artificial labour in cases of uterine haemorrhage. He wrote many books on surgery, although he was often snubbed for writing in his own tongue rather than Latin which he did not understand, and made Fabricus of Versalius popular and accessible to surgeons by writing a version in the vernacular. He is ranked with Versalius and Paracelsus as a great medical figure of the Renaissance. (Garrison, 1929; Doe, 1976).

*J  John PECHEY (PEACHEY) 1655 - 1716

A general treatise of the diseases of infants and children, 1697
1697 1 edition in English.

A physician, born in Chichester, he studied for an MA at Oxford before turning to medicine. He became a licentiate of the College of Physicians in 1684 and practised in the City of London although his methods were said to be more those of an apothecary than a physician. He wrote several books, most of which were compilations of existing knowledge, including works on midwifery, acute diseases and herbals, but he is probably best known as the translator of Sydenham's works. He died in Cheapside in 1716. (Still, 1931; DNB, 1975).
M Robert PEMELL ? - 1653
De morbis puerorum 1653
1653 1 edition in English.

A physician who practised in Cranbrook, Kent, he wrote two books on simples as well as works on diseases of the head and Help for the poor. He died young in 1653 but little else is known about him. (Still, 1931).

William PERKINS 1558 - 1602
Christian oeconomie, in the Complete workes, vol. III, 1618
1597-1659 at least 15 editions in English, Latin and Dutch.

A preacher and theological writer born in Warwickshire and enrolled at Christ's College, Cambridge, where he was first exposed to puritanism. He gained an MA in 1584 and became widely known as a preacher and, when the controversy of anglican and puritan parties at Cambridge was at its height, he was noted for his outspoken resistance to all papist ritual. He had an unrivalled reputation as a teacher and his numerous theological writings were studied throughout the 17th century. The latter were remarkably popular and translated into several languages. He died in Cambridge in 1602. (DNB, 1975).

M Thomas PHAER (PHAER, PHAYER, FAER) ? - 1560
The boke of children, 1545
1545-1596 at least 9 editions in English.

A lawyer and physician who was probably born in Norwich but lived in Kilgerran, Cardigan, for most of his life. He studied at Oxford and Lincoln's Inn to be a lawyer but then turned to the practice of physick. He wrote several books on law and medicine and translated from French the Regiment of life to which his book of children was appended. He was best known among his contemporaries for his poetry, particularly his translation into English of Virgil's Aeneid. He made a point of writing in English to make learning accessible to more people. He was MP for Cardigan for several years.
and died in Kilgerran in 1560. (Still, 1931).

Claude QUILLET fl 1655
Callipaeida, 1710
1655-1836 at least 11 editions in Latin, English and French.

A French priest who became an Abbot soon after his poem was published in Latin in 1655. (Still, 1931).

*M Eucharias ROESSLIN, THE ELDER ? - 1526
The byrthe of mankynde, 1540
1512-1730 at least 40 editions in German, Latin, French, English and Dutch.

A German physician who practised at Worms and later at Frankfurt and wrote one of the most famous midwifery books of the 16th century, The rosengarten, of which the above is an English version. (Still, 1931).

*M Nicholas ROSEN VON ROSENSTEIN 1706 - 1773
The diseases of children and their remedies, 1776
1765-1798 at least 6 editions in Swedish, English, French, Italian and German.

A physician, born as Nicholas Rosén in Westgothland, Sweden, who studied theology and then medicine. He was a student at Uppsala and at Halle under Friedrich Hoffmann (see above), and briefly worked in Paris before returning to take his MD at Harderwijk in 1731. He taught anatomy and practical medicine at Uppsala and was appointed physician to the king of Sweden in 1735, becoming a founder member of the Swedish Academy of Sciences four years later. In 1740 he was made Professor of Natural History at Uppsala when Linnaeus was Professor of Medicine and, by mutual agreement, they exchanged posts. Because of these two distinguished professors, Uppsala became re-
nowned as a seat of learning. In 1762 he was ennobled as Baron Rosén von Rosenstein. He contributed many important papers to the Academy of Sciences, including the first description of a scarlet fever epidemic in Sweden, but his most important work was the above book on paediatrics and it was recognised as such by his contemporaries: It has been said that he laid the foundations of paediatrics as a specialty. (Still, 1931).

M Jacob Rueff 1500 - 1588
The expert midwife, 1637
1554-1680 at least 10 editions in German, Latin, Dutch and English.

A Swiss surgeon.

*Scevole de Sainte Marthe 1536 - 1623
Paedotrophiae, 1710 and 1797
c1584-1797 at least 20 editions in French, Latin and English.

A French lawyer and poet who was born at Loudun and studied law at the Universities of Paris and Poictiers. He had no medical training but made investigations in physick when his son became ill and the physicians could not save him. His successful treatment of his son resulted, through the entreaties of his friends, in his most famous work - a Latin didactic poem on the care of children. He wrote several other poems but none achieved the fame of Paedotrophiae which was said to have been 'read in the most famous universities in Europe with the same veneration as the works of the Ancients'. He later became mayor of Poictiers, and president of the district of Poictiers. He died there in 1623 and was buried in the Cathedral at Loudun. (Still, 1931).

M Daniel Sennert 1572 - 1637
De mulierum et infantum morbis translated in J. Johnston (see above)
Idea of practical physick, 1657
1632-61 at least 4 editions in Latin and English.

A physician who was born in Breslau and studied medicine and philosophy at the University of Wittenberg. He became Professor of Medicine there in 1603 and was physician to the Elector of Saxony. He was a compiler rather than an original observer but his two works on medicine were much quoted during the 17th century. (Still, 1931).

*W Jane SHARP fl 1671
The midwives book, 1671
1671-1724 at least 4 editions in English.

Mrs. Jane Sharp of London, she says in her book that she has been a midwife for thirty years but nothing is known of her life and it has been suggested that she was a mythical figure and the book was actually written by an unknown male. She was rarely mentioned or quoted by other writers although Willughby (see below) severely criticised her method of treating arm presentations whilst approving her "medical treatment of menorrhagia and convulsions. (Aveling, 1872; Rurhah, 1925; Garrison, 1929).

*M Sir Hans SLOANE 1660 - 1753
MS letter to the governors of the Foundling Hospital, 1748,
published in Brownlow's Memoranda, 1847

A physician who was born in County Down and studied medicine at Paris and Montpellier before gaining an MD from the University of Orange in 1683. He became a Fellow of the Royal Society two years later and his friends included Robert Boyle and Thomas Sydenham. In 1687 he was elected Fellow of the College of Physicians and travelled to the West Indies as physician to the Governor of Jamaica. He returned to London with a large collection of Jamaican plant specimens which formed the nucleus of his lifelong collection on natural history. He developed a large and successful practice in Bloomsbury and, although he treated the most rich and famous of his day including
Queen Anne and George II, he is said never to have refused a patient who could not pay him. He was a benefactor to many hospitals, including Christ's Hospital to which he was appointed physician. He became physician to the army in 1722 and five years later succeeded Isaac Newton as President of the Royal Society. He published many books on natural history but only one medical work - on diseases of the eye. However his Chelsea library of books, manuscripts and specimens was left to the nation when he died and formed the basis of the British Museum. The Sloane Manuscripts are important as major sources of medical history between Charles II and George II. (DNB, 1975).

*M William SMELLIE 1698 - 1763
Treatise on the theory and practice of midwifery, 1752
1752-1790 at least 12 editions in English, French and Dutch.

A physician and man-midwife born in Lanark. It is not known where he obtained his medical training but by 1720 he was practising in Lanark as a surgeon and apothecary. In 1733 he was a member of the faculty of physicians and surgeons of Glasgow. After studying midwifery for a short time in Paris he settled in London in 1739 and began teaching midwifery at his house in 1741, using a model of human bones covered with leather. Four years later he was awarded an MD from the University of Glasgow. He had a large practice and published two important works on midwifery which described more accurately than any previous writer the mechanism of labour and the importance of exact measurement of the pelvis. In 1759 he retired to Lanark and died there four years later. (Still, 1931; DNB, 1975).

Henry SMITH ?1550 - 1591
The sermons of maister Henrie Smith gathered into one volume, 1597
1592-1675 & 1872 at least 18 editions in English.

A puritan preacher who was born in Leicestershire and briefly studied at Cambridge before leaving to study with the Rector of Dry
Drayton in Cambridgeshire, from whom he acquired his puritanic principles. He later graduated from Oxford in 1578/9. He officiated at the church of Husbands Bosworth in Leicestershire for a short period then moved to London where he became a very successful and popular preacher. He was elected lecturer of St. Clement Danes in 1587 where he became known as 'silver-tongued Smith', such was his facility for preaching. He resigned in 1590 because of ill-health and returned to Husbands Bosworth to prepare his sermons for publication, and died there the following year. His collected sermons were published a year after his death and these and his other religious works were printed throughout the 17th century. (DNB, 1975).

*M Hugh SMITH ?1736 - 1789

*Letters to married women on nursing and the management of children,* 1774

1772-1792 at least 11 editions in English, French, Dutch, German and American.

A physician who obtained his MD from St. Andrews and also from Leyden in 1755. He had a practice in Hatton Garden and, having married an heiress, became a very fashionable physician. He wrote two extremely popular medical books for the general public - *Letters* and *The family physician* - both of which went to many editions, and also published books on mineral waters and *Essay on the nerves.* Little else is known of his life (he is not to be confused with the physician of the same name and period who was attached to the Middlesex Hospital and College of Physicians). He died at his home in East Barnet in 1789. (Still, 1931; DNB, 1975).

M David SPENCE fl 1766

*A system of midwifery,* 1784

1766-1784 at least 2 editions in English.

No details have been discovered about his life but he may be the same David Spence who was apprenticed to John Campbell, surgeon-
Sir Richard STEELE 1672 - 1729
1) The Tatler, 1709
2) The Spectator, 1711

An Irish writer and journalist born in Dublin and educated at Charterhouse and Christ Church, Oxford. After serving in the army he entered the household of Lord Cutts as secretary and officer in Cutts' own regiment. In 1707 he was first introduced to journalism when he became a gazeteer and two years later began editing the Tatler under the assumed name of Isaac Bickerstaff. The Tatler was partly a newspaper and partly a journal of politics and society. His friend, Addison, began contributing in the 18th issue and after the Tatler ceased publication Addison and Steele jointly launched the Spectator. In the next four years Steele began several short-lived newspapers including the Guardian in 1713. He was briefly MP for Stockbridge but was expelled from the House for the seditious language of one of his pamphlets. His fortunes improved on the accession of George I and he became a JP, deputy lieutenant of Middlesex, Surveyor of the Royal Stables, Governor of the royal company of comedians, and was knighted in 1715. After the Jacobite rebellion he spent two years in Scotland as commissioner of forfeited estates. He was continually in financial difficulties and eventually retired to Llangunnor in Wales where he died in 1729. (Encyclopaedia Britannica, 1929).

Luigi TANSILLO ?1510 - ?1569
(La Balia) The nurse. A poem, 1798
1798-1800 at least 2 editions in English.

A soldier born near Naples, Italy, who was a contemporary of some of the greatest Italian poets. His poem La Balia was discovered in manuscript in 1767 and was first published two hundred years after his death. Little is known of his life. (Still, 1931).
M John THOMSON fl 1772 - 1785
MS Analysis of midwifery, 1772-85

A surgeon in the Royal Navy and, later, surgeon to the Kent dispensary (preface to the MS).

*M Michael UNDERWOOD 1737 - 1820
Treatise on the diseases of children, 1784
1784-1848 at least 20 editions in English, French, Italian, German and American.

A physician, surgeon and man-midwife, he was a pupil at St. George's Hospital for several years and also studied in Paris, before becoming surgeon to the British Lying-in Hospital in Brownlow Street. His main interest was in midwifery and diseases of women and children, and he rapidly achieved a high reputation in both these fields. This was enhanced when he was appointed physician to the Princess of Wales and attended at the birth of Princess Charlotte in 1796. It is not known where he obtained his MD but it is said to have been from 'one of the Scotch universities'. He became licentiate in midwifery of the College of Physicians in 1784 - the last holder of that title. Underwood wrote several surgical and medical works, including treatises on scrophulous sores and mammary abscesses, but achieved his greatest fame from his paediatric work which was possibly the first modern study of the care of children. He retired from professional work in 1801 and died in Knightsbridge in 1820. (Still, 1931; DNB, 1975).

*M Simon de VALLEMBERT fl 1565
Cinq livres, de la maniere de nourir et gouverner les enfans des leur naissance, 1565
1565 at least 1 edition in French.

A physician born at Avalon in Burgundy, very little is known of his life. He was living at Chastellerault when he wrote the book.
In 1558 he was physician to the Duchess of Savoy and Berry and, in 1565, to the Duke of Orleans. He also wrote on surgery, Latin poems and edited the works of various Greek writers. (Rurhah, 1925; Still, 1931).

Johannes Ludovicus VIVES 1492 - 1540
Instructions of a Christian woman, 1540
1540-1592 at least 4 editions in Latin and English.

A scholar born in Valencia, Spain, who studied in Paris and Bruges and lectured at Louvain. He returned to Bruges in 1521 where he was visited by Henry VIII, Katherine of Aragon and Thomas More, and worked with Erasmus. Two years later he travelled to England, was received at the English court, and lived and lectured at Oxford. He supported Katherine of Aragon and was one of the three foreign councillors the king allowed her to consult, but he was imprisoned for six weeks and banished from the court. He returned to Bruges where he wrote his best literary works and died there in 1540. He wrote many works on devotional subjects which were translated into all the main European languages including English. (DNB, 1975).

M Charles WHITE 1728 - 1813
A treatise on the management of pregnant and lying-in women, 1773
1773-1849 at least 11 editions in English, French, German and American.

A surgeon who was born in Manchester and studied in London as a fellow student and friend of John Hunter. He returned to Manchester where, with a merchant called Joseph Bancroft, he founded the Manchester Infirmary. He was surgeon there for thirty-eight years whilst being instrumental in the founding of various societies and institutions. These included the Manchester Literary and Philosophical Society (1781), a college of science, literature and art (1783), and the Manchester Lying-in Hospital (1790) to which he became consulting surgeon. He was the first to introduce conservative surgery and gave the first accurate description of 'white-leg' in lying-in women.
Although widely known among his contemporaries for his lithotomy operations, he was most famous for his revolution in the practice of midwifery in which, among other things, he preceded Semmelweiss in pioneering asepsis to prevent maternal mortality from puerperal fever. His many publications were on surgery and midwifery and he died 'the most eminent surgeon in the north of England' at Sale, Cheshire, in 1813. (DNB, 1975).

M Percivall WILUGHBY 1596 - 1685

*Observations in midwifery*, 1863
Circulated as a manuscript in English and Latin 1640's - 1670's; published 1764 in Dutch and 1863 in English.

A man-midwife born in Nottinghamshire, he graduated from Oxford in 1621. He was apprenticed for medical training in 1619 and when his master died in 1624, set up in practice on his own. He settled in Derby in 1631, moving only briefly to London (1655-60) to educate his children. He achieved a high reputation in the counties around Derby for his skill in obstetrics. He did not approve of instruments and tried to avoid difficult deliveries by turning the child _in utero_. He was assisted in his cases by his daughter whom he had trained as a midwife to ladies of the upper classes. (DNB, 1975).

M James WOLVERIDGE fl 1671

*Speculum matricis*, 1671
1671 at least 2 editions in English.

An Englishman who graduated MD from the University of Dublin in 1664 and practised in Cork. (Spencer, 1927).

M Felix WURTZ (WUERTZ) 1510 - 1590

*An experimental treatise of surgerie*, 1656
1563-1695 at least 16 editions in German, English, French and Dutch.
A Swiss surgeon born in Basle in 1510 (Wellcome catalogue) 1514 (Rurhah, 1925) or 1518 (Garrison, 1929). He studied at Nuremberg before returning to practise surgery in Basle. He was a close friend of Paracelsus and followed the latter's principles of simplicity. His book on surgery (1563) was an important work which helped to change the course of surgical procedure. For example in his advocation of simple treatments for wounds, the use of splints for fractures and belief in the healing powers of Nature. He died in 1575 (Garrison, 1929) or 1590 (Wellcome Catalogue) in Basle. (Rurhah, 1925).

George YOUNG fl 1753
A treatise on opium, 1780
1753-1780 at least 3 editions in English and German.

From Edinburgh (Young, 1780).

M Thomas YOUNG ? - 1783
MS Young's midwifery, late 18th century

The first professor of midwifery in the University of Edinburgh he was the first to give regular courses of lectures on midwifery to medical students, beginning in 1756. He wrote De lacte, the first scientific treatise on milk, in 1761 and partly retired from lecturing in 1780. He was instrumental in the opening of a lying-in ward in the attics of the Royal Infirmary, Edinburgh which were fitted up at his own expense for four lying-in women 'or as many more as Dr. Young could accomodate'. (Spencer, 1927; Still, 1931).
APPENDIX II

Recipes for pap, panada and similar substances used for infant feeding
1500 - 1800

Recipes are given in chronological order under

a) Pap
b) Panada
c) Foods similar to pap and panada

Those given first appear in the tables of the chapter on Mixed Feeding. Additional recipes are given for comparison and interest. The number in brackets following the author's name and date denotes the number of recipes extracted from the description and included in the analysis. The ingredients of each recipe are summarised at the foot of each quotation.

(NB. The concern about alum which recurs throughout the 18th century recipes refers to the practice, particularly common in London, of adulterating white bread flour with alum to make it appear whiter).
a) Recipes for pap

Simon de Vallambert, 1565 (1)

"The flour of which it is made nowadays the greater part of the nurses pass simply through a sieve without other preparation. Others cook it in the oven in a leaded or vitrified earthen pot after the bread is drawn, to finally take away the viscosity which is in the crude flour. The milk mixed with the flour is commonly from the goat or cow, that of the goat is better. When one intends to add more nourishment one adds finally an egg yolk, when one wishes to guard against constipation one adds honey."

Flour
Milk
Egg yolk
Honey

**********

Ambroise Paré, 1575 (1)

"Pap hath these three conditions, so that it be made with wheaten flower, and that not crude but boiled. Let it be put into a new earthen pot or pipkin, and so set into an oven at the time when bread is set therein to be baked, and let it remaine there untill the bread bee baked and drawne out: for when it is so baked it is less clammy and crude. Those that mixe the meale crude with the milke, are constrained to abide one of these discommodities or other, either to give the meale grosse and clammy unto the childe, if that the pap be only first boiled over the fire in a pipkin or skillet for so long as shall be necessary for the milk, ---- or else they give the child the milk despoiled of its butterish and wheyish portion, and the terrestrial and cheeselike or curdlike remaining, if the pap be boiled so long as is necessary for the meale: for the milke requireth not so great, neither can it suffer so long boyling as the meale. Those that doe use crude meale, and have no hurt by it, are greatly bound to nature for so great a benefit."

Wheat meal
Milk
John Jones, 1579 (1)

"Take of new milke a pinte, put therein of fine wheate flower, so much, as being boiled, will make it thicke. Add to it the biggenesse of a chestnut of almond butter, or of sweete butter, one ounce of the beste sugar not faulted in the sunning, and then it will bee the better to digest, and the refuse not turned to the nourishment of the bodye, the sooner and earlier emptied. For that made of the milke and floure alone, is somewhat slow in distribution, and therefore binding."

New milk
Fine wheat flour
Almond butter or sweet butter
Sugar

**********

Scévole de Sainte Marthe, 1584 (1)

"With milk and bread the sooty tin they fill,
Stir it together o'er the fire, and boil,
They try it with a touch, the spoon they dip,
Blow it, and put it to his craving lip."

Bread
Milk

**********

John Johnstone, 1657 (1)

"Pap made of wheat meale and milk, usual amongst us; which because it breeds gripings and obstructions, the wheat flour must be dried in an oven....."
Jane Sharp, 1671 (1)

"Barley bread steeped a while in water and then boiled in milk."
Barley bread in water
Milk

Francois Mauriceau, 1673 (1)

"Give him pap, made of flower and milkke ---- put the meal in an earthen pan, into an oven as soon as the bread is drawn, stirring it often, to dry it equally. Pap made of this flower, besides that it is sooner concocted, is much better than the ordinary, which is heavier, clam­mier, and not so easy of digestion; for being made with raw flower, 'tis very difficult to boil it well, without consuming the best part of the milk, leaving only the grossest part behind, and losing by the long boiling both its goodness and taste."
Flour
Milk

Nicholas Culpeper, 1676 (1)

"Make a pap of barley-bread steept in water, and boyled in milk."
Barley bread in water
Milk

James McMath, 1694 (4)

"Pap of new milked milk, clear ale, or yet water, and meal well dryed to be less viscid and crud : or rather crumbs of white bread gently boiled to a moderate consistnece (though some order the milk raw as being of a cleansing quality, easier of digestion and excellent to prevent all convulsions and griping pains of the stomach)----adding a little sugar, butter, or powdered anis."
(1) Meal
(2) Meal
New milk
Clear ale
Michael Ettmueller, 1699 (4)

"It ought to consist of white bread dry'd and beaten small, yolks of eggs and aniseed boil'd in milk or water to the consistence of a thin pulp. That which is made of flower and milk or water is fitter for paste than anything else: for it lies heavy in the child's stomach, and degenerates into a viscous tough crudity: whereas the bread being already fermented, is sooner and more easily digested."

(1) White bread (2) White bread
Milk Water
Egg yolks Egg yolks
Aniseed Aniseed

(3) Flour (4) Flour
Milk Water

Pierre Dionis, 1719 (1)

"There's scarce a woman who knows not how to make pap" but few take care to dry the flour sufficiently which makes it heavy and viscous and difficult to digest. It must be made of new milk and not too thick.

Flour
New Milk

The Nurses Guide, 1729 (1)

"Pap ---- ought to be made with a little fine flower, boil'd in a great deal of milk adding to it a little salt ----. But before this flower is boil'd in the milk, it must first be put into some vessel,
and afterwards into an oven with a batch of house-hold-bread, and not be taken out till the bread is quite baked; for otherwise the flower will not be sufficiently boil'd along with the milk; because it takes a much longer time to boil than the milk: and then it will produce a crude chyle ---- But if as much time be allow'd to boil the flower in the milk, as the flower requires, then the milk, by having its sërous parts evaporated, grows thick, and is turn'd to a kind of cheese, and so produces flatulencies, and causes obstructions."

Fine flour
Milk
Salt

***********

John Maubray, 1730 (4)

Pap "is commonly made of flower and milk, or ale, with a little sugar and butter: but because flower is of itself humid and viscid---- it ought to be first well dryed in a new or clean earthern pot in an oven: or, what is better, the pap made be made of the crumb of loaf."

(1) Flour
Milk
Sugar
Butter
(2) Flour
Ale
Sugar
Butter

(3) Breadcrumbs
Milk
Sugar
Butter
(4) Breadcrumbs
Ale
Sugar
Butter

***********

Henry Bracken, 1737 (1)

"....soft water with old manchet-bread (which has not much barm or yest in its composition) grated into it and boil'd well, afterwards adding a little canary or tent wine, I think is of the better sort."

Stale manchet breadcrumbs
Soft water
Canary or tent wine

***********
Robert James, 1746 (2)

"well-fermented bread reduced to a soft pulp, by an affusion of milk, or flesh-broth, may be properly used".

(1) Bread  (2) Bread
Milk      Meat broth

James Nelson, 1753 (2)

"It is usual to feed it with nothing but water pap, that is, bread and water boil'd together, without the addition of milk" but it should have "bread and water boil'd lightly together, and milk added to it".

(1) Bread  (2) Bread
Water      Water
Milk

N. Brouzet, 1755 (2)

"Pap or wheatflour, diluted in milk or water, and made of a certain consistence is the first solid aliment given to young children". A better pap is made from the flour of wheat malt such as is used in France for brewing ale.

(1) Wheat flour  (2) Wheat flour
Milk        Water

Raulin, 1769 (2)

"One makes pap with light bread well baked and well fermented...one prepares it by boiling bread broken into morcels in water into which one puts a little oil or butter following the usage of the country. One reduces it over a gentle fire to the consistence of a jelly or of a light panada. The bread ought not be freshly baked: it is better when three or four days old. One ought to smooth the pap with brown sugar or honey or indeed with loaf sugar if the infants are threatened with diarrhoea ---- One also makes pap with wheat biscuit, which one knows under the name of sea biscuit. One cooks it with pure water in an earthen vessel stirring with a wooden spoon until the material is reduced to a jelly. In place of biscuit one slices well fermented bread and dries these slices at the fire. One powders it and keeps it in bottles or other vessels in a dry place. When one wishes to serve this powder suitable to the quantity of pap which one wishes to pre-
pare, one softens it with lukewarm water and reduces it over a low
fire to the consistence of jelly. One regards with reason the flour
of malted wheat as very good to make pap. It is prepared like the
preceding. One ought to fear that pap made by the admixture of milk
would become more likely to cause colics than it is by itself".

(1) Stale bread
   Water
   Oil or butter
   Sugar or honey

(2) Sea biscuit/dried powdered bread
   Oil or butter
   Water
   Sugar or honey

* * * * * * * * * *

Colin Mackenzie, 1770 (1)

"If the bread pap is made the bread should be cut into slices and
some boiling water poured upon it and after standing for some time
sh'd be poured off by which means you'll wash off the alum. Pap made
of tops and bottoms is better. Some give biscuit pap but this is
nearly the same as flower and water and consequently improper."

Bread or tops and bottoms
Water

* * * * * * * * * *

George Armstrong, 1771 (2)

"Crumb of bread boiled in soft water, to the consistence of what is
commonly called pap, or a thin panada. The bread should not be new
baked, and, in general, I think roll is preferable to loaf bread;
because the former is commonly baked with yeast only, whereas the
latter is said to have alum sometimes mixt with it. ---- This pap
should be sweetened with soft, or lisbon sugar, unless the child is of
a lax habit of body, in which case the finest loaf sugar should be
used; and in this case too, the pap should be made with biscuit
instead of roll. It should not be made sweeter than new milk; for
too much sugar both palls the appetite and grows sour upon their
stomachs ---- If the infant is to be bred up by hand from the birth,
it ought to have new cow's milk mixed with its victuals as often as
possible. ---- The victuals should be made fresh twice a day ---- and
three times in summer, and the milk must never be boiled with the pap
but by itself, and added to the pap every time the child is fed;
otherwise it will curdle, and grow sour on the child's stomach. It
can hardly be necessary to mention, that when new milk is made use of,
it must not be boiled at all."
William Moss, 1781

"The food which is almost universally given; namely panada and pap, which is composed of bread and water, boiled and sweetened with brown sugar; to which is, sometimes, added a small quantity of milk; or oatmeal and water, in the form of thin water gruel, with the same additions. Care is necessary in the choice of the bread; it should not be too fine nor too coarse; the first may make it binding; the latter too loosening. The bread should be made with yeast, without butter, or any kind of seeds, and very light; so that, when mixed in the food, it may be as smooth and free from lumps as possible. When bread of any kind is put into the food, it ought to be boiled sufficiently in water first, and the milk put to it afterwards without being boiled. When all sorts of bread have disagreed with a child, I have sometimes found that a piece of upper crust boiled whole in water, and the water poured off clear and mixed with the milk would agree very well."

<table>
<thead>
<tr>
<th>(1) Bread</th>
<th>(2) Bread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Water</td>
</tr>
<tr>
<td>Sugar</td>
<td>Milk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(3) Oatmeal</th>
<th>(4) Oatmeal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
<td>Water</td>
</tr>
<tr>
<td>Sugar</td>
<td>Milk</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>(5) Bread</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water</td>
</tr>
<tr>
<td>Milk</td>
</tr>
</tbody>
</table>

***********
Jean-Louis Baudelocque, 1790 (1)

"Pap made from boiled flour, the use of which seems so generally adopted, is never less fit for a child than in the earlier periods of its existence —— It may be rendered a little less viscous, and more easy of digestion, by first baking the flour with which it is prepared."

Flour
Water

*******

Additional recipes

Théophile Bonet, 1684 (4)

"The usual food of children —— is Pap, made of flour, wheaten especially, and milk, of a middle consistence between a solid and a liquid, although it came nearer the former; for it cannot be supped —— a food difficult of concoction. Some endeavour to amend this fault by long boiling. —— Others, by mixing it well, and stirring it, make pap with a gentle boiling —— But neither thus is the mischief avoided, for the flour remains crude, incoctible, and insuperable —— this is the way to make it not only proper for children, but for the use of the kitchen, of which an easy dish may be made, by mixing it with milk, broth, etc. Take barley, or oat-flower, put it in a bag of thick cloth, boil it in a kettle for twelve hours, so as that the water may be always above it, keeping down the bag, by laying a weight upon it. When the flower is taken out, set it in an hot oven, after the bread is taken out, and keep the mass for use."

Theodorus Zwingerus, 1680, disapproved of "making pap this common way. The matter, saith he, of pap, is flower and milk; nay, and often instead of this it is made of water, of which things, without fermentation, a paste is made only by simple boiling, with which they cram children every day."

(1) Wheat flour (2) Barley or oat flour

Water Water Milk
(3) Barley or oat flour  (4) Flour
Water  Milk
Broth

***********

Descriptions of the paps, etc. given to James, Prince of Wales, 1688
(Hopkirk, 1953)
"At first [English Children] are given nothing but boiled milk and
crumbs of bread, and soon after, more solid food." Barillon.

"The feed [him] on boiled bread, according to the decision to give
him neither milk nor a wet nurse." Terriesi.

"The said aliment, called 'water-gruel' is composed of barley-flour,
water and sugar, to which a few currants are sometimes added." D'Adda.

"A species of paste made of oatmeal, barley and water." Terriesi.

(1) Breadcrumbs  (2) Bread
Milk  Water
(3) Barley-flour  (4) Barley flour
Water  Oat meal
Sugar  Water

***********

Reference to the pap given to George, Prince of Wales, 1762
(Hunter, 1908; Hedley, 1975)

"The Princess [of Wales] desired a little milk to be put into the

"We found that the pap was without milk, the Princess having said
as the child is well let there by no change." Aug. 16.

"Pap made with chicken broth." Sept. 16.

***********
Recipe passed from Lady Spencer to her daughter-in-law, 1760's
(Trumbach, 1978)

"Take a white half-penny role, such as are sold at country bakers, piqued at each end, and let all the crust be pared off very thin (that is the outward crust of all), and then put the rest of the roll into a pint of very fine spring-water, which must boil till it looks like a jelly, it must then be strained into a china or earthen bowl through a lawn sieve, this if rightly done, will be of the consistency of a jelly when it is cold; it is to be taken out in small quantities as is wanted, to be warmed and mixed with a little milk, and the milk should be mixed into every cupful, when it is warmed, and not into the whole quantity.

Bread roll
Water
Milk
b) Recipes for panada

Simon de Vallembert, 1565 (4)

"One grates a crumb of bread very small, then one puts it in a bouillon of good flesh in a small glazed earthen pot and puts it to cook on a small charcoal fire without smoke. Sometimes it is cooked in a bouillon of peas or other legumes, with oil or butter, and more often it is cooked with goats or cows milk or milk of sweet almonds. Others mix with the panada an egg yolk or the entire egg."

(1) Breadcrumbs
   Meat broth
   (Sometimes egg/yolk)

(2) Breadcrumbs
   Pulse broth
   Oil or butter
   (Sometimes egg/yolk)

(3) Breadcrumbs
   Goats or cows milk
   (Sometimes egg/yolk)

(4) Breadcrumbs
   Milk of sweet almonds
   (Sometimes egg/yolk)

Johannes Baptista Van Helmont, 1662 (1)

"Made of bread boyled so long in thin ale, with clarified honey, if not, with sugar, until they shall come together in the likeness of a mucilage, or glew or jelly: then as much thin ale is mingled with, and washed on this jelly, as is sufficient for it to serve instead of drink."

Bread
Weak ale
Clarified honey or sugar

William Smellie, 1752 (2)

"loaf bread and water, boiled up together, in form of panada, and mixed with the same quantity of new cow's milk; and sometimes with the broth of fowl or mutton ----. The food ---- ought to be light and simple ---- such as thin panada mixed with cows milk, and sweetened-"
with sugar: or should the child be costive, instead or sugar, honey or manna may be used."

(1) Loaf bread
   Water
   New Milk
   Sugar or honey

(2) Loaf bread
   Meat broth
   Water
   Sugar or honey

N. Brouzet, 1755 (1)

"a kind of panada, made of bread slightly boiled in small beer, and sweetened with clarified honey or sugar, the whole being reduced to the consistence of a jelly, and at length diluting it with a sufficient quantity of smallbeer, to the end that this preparation may also serve to drink."

Bread
Smallbeer
Clarified honey or sugar

C D G De Claubry, 1783 (2)

"Panada is made in different fashions with bouillon and bread, and also is made with water, butter and bread to which one sometimes adds an egg yolk and a little sugar. One puts the whole to boil in a glazed earthen pot which is used only for this purpose and cooks well over a small fire stirring gently with a spoon.

(1) Bread
   Broth

(2) Bread
   Water
   Butter
   Egg yolk
   Sugar
David Spence, 1784 (1)

Thin panada sweetened with raw sugar and a little wine or spirits occasionally added. Do not use newly baked bread. Loaf bread preferable to rolls as bread in Scotland "grow lighter and lighter everyday, and continue fit for the purpose of making panada longer than any other bread we have."

Bread
Sugar
Wine or spirits
(liquid not given)

***********

Michael Underwood, 1784 (1)

"The first addition of any kind ---- ought to be broth (preferably the diluted juices from roast beef or mutton) which with a little bread beat up in it in the form of panada, will be at once an agreeable and wholesome change and prepare them for further advances."

Bread
Meat broth

***********

Alphonse Leroy, late 18th century (Gardien, 1807) (1)

"One commences first by making a bouillon with a piece of veal and 2 or 3 ounces of beef. One next takes the crust of bread which has been well-boiled and one adds the bouillon according as it swells, one ought also to add aromatics. One salts this bouillon only with sugar."

Bread
Meat broth
Water
Sugar
Aromatics

***********
(Cream of bread, a type of panada recommended by the Faculty of Medicine, Paris)

"The manner to make this cream consists in taking a wheaten loaf which one divides in the centre to dry by baking: next one steeps it in water for six hours. It is then pressed in a cloth. It is placed in a pot and is boiled in a sufficient quantity of water for eight hours taking care to stir the whole from time to time with a spoon and to dilute with warm water as it is thickened by the fire. One adds a pinch of anis and a little sugar in the proportion of 59 grains of anis and an ounce of sugar per pound of bread. Finally one passes the whole through a hair sieve. When this cream is served for the nourishing of infants one should take care to reheat each time only the necessary quantity."

Bread
Water
Sugar
Anis

**********

Additional recipes

From Colonial America (Cone, 1976; and 1979)

"Set a little water on the fire with a glass of white wine, some sugar, and a scrape of nutmeg and lemon peel; meanwhile grate some crumbs of bread. The moment the mixture boils up, keeping it still on the fire, put the crumbs in and let it boil as fast as it can. When of a proper thickness just to drink, take it off."

Breadcrumbs
Water
White wine
Sugar
Nutmeg
Lemon peel

**********
Chicken panada

"Boil it till three parts ready in a quart of water, take off the skin, cut the white meat off when cold, and put into a marble mortar; pound it to a paste with a little of the water it was boiled in, season with a little salt, a grate of nutmeg, and the least bit of lemon peel. Boil gently for a few minutes to the consistency you like; it should be such as you can drink though tolerably thick."

Chicken meat
Water
Salt
Nutmeg
Lemon peel

**********
c) Recipes for infant foods similar to pap and panada

Scevole de Sainte Marthe, 1584 (1)

"The soft bread that's in the broth infus'd"
Bread
Broth

John Johnston, 1657 (1)

"White bread crumbs moistened with hens broth."
Bread crumbs
Meat broth

William Cadogan, 1748 (3)

"A little bread and water boil'd almost dry, and then mixed with fresh milk, not boiled ---- One half of infants diet [should] be thin, light broths [made from full grown animals such as young ox or wild animals] with a little bread or rice boiled in them."
(1) Bread
(2) Bread
Water
Fresh, unboiled milk
(3) Rice
Rice
Meat broth

William Smellie, 1752 (1)

"Thick water-gruel, mixed with milk, and sweetened [with sugar or honey]."
Water gruel
Milk
Sugar or honey
Gentlemans Magazine, 1765 (3)

"Nothing is so good as cows-milk, but not to be boiled, with some of the biskets called tops and bottoms, or rusks, by which we are sure to avoid that pernicious thing called alum ---- half their diet should be thin, light broths, a little with bread or rice boiled in them."

(1) Tops and bottoms/rusks (2) Bread
Milk
(3) Rice
Bread

John Cooke, 1768 (2)

"Half their diet should be thin, light broths, with a little well-baked bread, biscuit or rice in it."

(1) Bread/biscuit (2) Rice
Broth

William Buchan, 1769 (1)

"One of the best methods of preparing [bread] is to boil it in water, afterwards pouring the water off, and mixing with the bread a proper quantity of new milk unboiled. Milk is both more wholesome and nourishing this way than boiled, and is less apt to occasion costiveness."

Bread
Water
New Milk

**********
Nils Rosen von Rosenstein, 1776 (1)

"Unboiled milk mixed with a little rye-biscuit, which is tender and well-fermented, being previously soaked in warm water."

Rye biscuit
Water
Milk

William Osborne and Thomas Denman, 1776 (1)

"Tops and bottoms, or rusks, as being very well baked and free of alum. When used they should be provisionally steeped a night in water and then boiled up with skimmed milk, and a small proportion of sugar, a few caraway seeds may also be boiled with ye food so as to give it a slight aroma."

Tops and bottoms/rusks
Water
Skimmed milk
Sugar
Caraway seeds

C D G De Claubry, 1783 (1)

"The crèmes of rice, barley, oats, semolina, vermicilla are the farinaceous substances which are most proper for the nourishment of the infant given well cooked in bouillon."

Rice/farinaceous substances
Broth

Michael Underwood, 1784 (1)

"Boil a piece of roll, together with the upper crust, in a good deal of water, till it be very soft; by which the bread will part with some of its ascenscent quality: the water should then be strained off, and the bread mixed up with some milk, which ought to be boiled if
the child be very young, or inclined to be purged."

Bread roll
Water
Milk

Thomas Mantell, 1787 (1)

"Milk of cows, asses, or goats, and weak broths joined with some farinaceous substance, as bread, flour, biscuit, rice or semolina, is the most proper food ---- vary it, in the farinaceous part."

Farinaceous substances/bread etc.
Broth

Hugh Downman, 1788 (1)

"Bread well fermented, unadulterate with deleterious alum, this with milk and with the limpid element decoct."

Bread
Milk
Water

Thomas Young, late 18th century (2)

In Paris infants are fed on flour and milk "well-baked bread a lighter food, with milk and water and a little sugar ---- Paste of flour and water will remain long undissolved in water; but yeast and fire makes it light, as bread, easily dissolved."

(1) Bread       (2) Flour
   Milk        Milk
   Water
   Sugar

**********
APPENDIX III

Wet nursing impedimenta

1. Typical advertisements from The Times 1793-1794

2. The 'Arcutio'
1. Typical advertisements placed in The Times in the 1790's by prospective wet nurses or their patrons

"Wants a place as a wet nurse, a healthy young woman, 23 years of age, has not lain-in a fortnight of her first child, has got a good breast of milk, and can be well recommended. Enquire at No. 36, Brunswick Street, Blackfriars Road." (The Times, Oct. 28, 1793).

"Wants a place as a wet nurse, a person with a good breast of milk, who has lain in about 10 weeks of her first child. Direct to Mr. Lowndes, Cheesemonger, No. 45 Beaumont Street, near Devonshire-Place, Maryle-bone: or at Mr. Ellis's, opposite the Quaker's Bury-ing Ground, Long-Lane, Bermondsey." (The Times, Nov. 6, 1793).

"Wants a place as a wet nurse, a healthy young woman with a good breast of milk, has lain in two months. Any lady in want of a person in that capacity, may, by addressing a line to E.K. No. 77 City Road, opposite Finsbury Terrace, hear of a person that can have an unexceptional reccomendation." (The Times, April, 19, 1794).

"Child to wet nurse. A young woman with a good breast of milk, who has lain in a fortnight. Is situated very pleasantly, about two miles from town, wishes to take a child to wet nurse. She can have an undeniable character for sobriety and tenderness in the care of children, from a family who have experienced her fidelity in the discharge of that duty towards two of their own children; or she would have no objection to take a child to dry-nurse. Apply to A.B. at Mr. Wall's, oilman, in Charles Street, Hatton Garden." (The Times, April 25, 1794).
2. The 'Arcutio'

The following description of a device used by Florentine wet nurses to avoid the high number of deaths from over-laying at nurse was described in The Gentleman's Magazine of January 1746.


When I consider how many are charged overlaid in the bills of mortality, I wonder that the Arcutios, universally used here, are not used in England. I send you here the design of one drawn in perspective.

a. The place where the child lies
b. The headboard
c. The hollows for the nurse's breasts
d. A bar of wood to lean on when she suckles the child
e. A small iron arch to support the said bar

The length about 3 feet 2 inches, and breadth about 1 foot 1 inch at the head. Every nurse in Florence is obliged to lay the child in it, under pain of excommunication. The Arcutio, with the child in it, may be safely laid entirely under the bed cloaths in the winter, without the danger of smothering."

(No evidence has been found to show that the Arcutio was ever used or was available in Britain during the 18th century).
Figure III.1: The Florentine Arctico. (Gent. Mag. 1746).
NEONATAL FEEDING PRACTICES AND INFANT MORTALITY DURING THE 18TH CENTURY

V. FILDES

Department of Human Biology and Health, University of Surrey, Guildford

Introduction

It is now widely accepted that the infant mortality in England and Wales began to fall in the late 17th century. Various theories that have been put forward to account for this include advances in preventive medicine (including smallpox inoculation and vaccination), improved nutrition, improved social conditions and increased consumption of cow’s milk (McKeown & Brown, 1955; Glass & Eversley, 1965; Beaver, 1973). Yet none of these theories satisfactorily explains why the major part of this fall in infant mortality was due to the fact that many more infants survived the first month of life.

Data for total infant mortality and endogenous mortality (Table 1), show that for a sample of rural parishes and market towns (Schofield, 1979, personal communication), between 1680 and 1780, there was a 42% fall in the death rate at 0–4 weeks whilst the overall infant mortality fell by only 19%. Between the 1680s and 1875 (Registrar General, 1979, personal communication) there was a 75% decrease in early infant deaths compared with only a 17% fall in overall infant mortality. To account for this strong effect on the mortality of infants in the first

Table 1. Total and endogenous infant mortality and percentage change, 1680–1875

<table>
<thead>
<tr>
<th>Date</th>
<th>Overall infant mortality</th>
<th>Mortality 0–28 days</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Per 1000</td>
<td>% difference</td>
</tr>
<tr>
<td>1680s</td>
<td>204</td>
<td>-11</td>
</tr>
<tr>
<td>1730s</td>
<td>181</td>
<td>-9</td>
</tr>
<tr>
<td>1780s</td>
<td>165</td>
<td>-9</td>
</tr>
<tr>
<td>1840</td>
<td>150</td>
<td>-9</td>
</tr>
<tr>
<td>1875</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy rural districts</td>
<td>103</td>
<td>-31</td>
</tr>
<tr>
<td>Worse urban districts (Liverpool)</td>
<td>234</td>
<td>+56</td>
</tr>
<tr>
<td>Average</td>
<td>169</td>
<td>+13</td>
</tr>
</tbody>
</table>
few weeks of life, it is obvious that a definite factor affecting very early infancy must have changed, a change which began in the 17th century and continued with increasing momentum until it reached stability in the early 19th century. Extremes of environmental conditions at the end of the 19th century affected the gross mortality rate but not that of young infants, which remained virtually unchanged.

This paper reports the results of an analysis of the contemporary literature which demonstrates that this unknown factor was probably a universal and radical change in the ideas, advice and practice of neonatal feeding. Sixty-one texts and manuscripts, written predominantly by physicians and midwives between 1500 and 1800, specifically mention the first food of infants. These were analysed together with seven earlier texts of Indian, classical, Arabian and medieval writers, who influenced medical thought at least till the second half of the 17th century (Appendix 1).

Results

The majority of the texts either recommended a first food or stated which foods were customarily given by mothers and nurses. The frequency with which the different recommended first foods of infants appear in these is shown in Table 2, while Table 3 lists the first foods said to be given commonly.

<table>
<thead>
<tr>
<th>Table 2. Recommended first foods of infants, 1500–1800</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>1500–1747 (n = 21)</td>
</tr>
<tr>
<td>------------------------------------------------------</td>
</tr>
<tr>
<td>Purge only</td>
</tr>
<tr>
<td>Purge and/or colostrum</td>
</tr>
<tr>
<td>Colostrum only</td>
</tr>
<tr>
<td>Breast milk but not colostrum</td>
</tr>
<tr>
<td>Medicinal substance + purge</td>
</tr>
<tr>
<td>Medicinal substance only</td>
</tr>
<tr>
<td>Purge/colostrum followed by food</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 3. First foods said to be commonly given, 1500–1800</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td>1500–1747 (n = 8)</td>
</tr>
<tr>
<td>---------------------------------------------------------</td>
</tr>
<tr>
<td>Purge only</td>
</tr>
<tr>
<td>Purge + food</td>
</tr>
<tr>
<td>Food only</td>
</tr>
<tr>
<td>Purge + food + medicinal substance</td>
</tr>
<tr>
<td>Purge + medicinal substance</td>
</tr>
</tbody>
</table>
Neonatal feeding and infant mortality in the C18

In these two tables, 1748 is taken as the dividing line since this was the date of publication of William Cadogan's Essay on Nursing and the Management of Children, from their Birth to Three Years which marked the beginning of radical changes in feeding practices.

The purge mentioned was not a single dose. It was usually a nauseous mixture of oil or butter and honey, sugar or syrup which was given every 2–4 hours for the first few days of life. Sometimes wine or sugared wine or thin pap was given instead. Medicinal substances, such as powdered red coral, were given to ward off diseases such as the falling sickness, leprosy, or convulsions.

There were, of course, some mothers who did breastfeed immediately. For example, Mauriceau said that the poor could not take his advice, which was to delay feeding until the fifth day. He also referred to some mothers who would not permit anyone but themselves to feed their infants. However, from the contemporary descriptions of what was the common procedure, it does seem that the majority delayed breastfeeding, and that generally mothers did not feed their babies for the first few days of life, or in some cases for the first few weeks. There were four main reasons for this:

1. The mother's first milk or colostrum was regarded as unpurified and bad for the child.
2. The mother was not cleansed (i.e. she could not feed until the lochia had stopped flowing and she had been 'churched').
3. The mother was not 'rested' or fit enough to feed.
4. The baby would come to harm if it was given milk whilst still passing meconium.

Occasionally it was recommended that the child could suck another woman's breast while waiting for the mother to begin suckling. The mother's breasts, meanwhile, were sucked by other women, older children, puppies, or the milk expressed with glasses. This delay meant that neonates, who normally lose several ounces after birth, were not adequately fed for some days at least, so that the weight loss may well have been considerable. In small babies this added weight loss may have made the difference between viability and probable death.

First time mothers especially had technical difficulties in learning to breastfeed, and Underwood, in 1784, referred to the problems of sore nipples and distended breasts, especially in first-time mothers. When these women did begin to nurse the supply of milk was probably inadequate at first—further prejudicing the child (Fitzgerald, 1949–57). Several accounts tell of babies who, after being denied the breast for 4 or more days, did not know how to suck; for example, Willoughby whose observations were made during 1632–69, described a case history of an infant not being allowed to suckle for 6 days. Once a wet nurse had been found, the child was too weak to suck and died 3 days later. Many infants undoubtedly died from similar cause.

What was most serious was that newborn infants did not receive colostrum. This bright yellow viscous secretion of the first few days after delivery, quite different in consistency and composition from later milk, was expressed and discarded, much as it is in some primitive societies today. Thus the child was
deprived of the very substance which protects and nourishes it at the beginning of postnatal life. Colostrum has a proteolytic effect which aids the evacuation of the meconium from the neonate's intestine (Jelliffe & Jelliffe, 1978). But more important, colostrum contains concentrations of antibodies particularly against bacterial gut infections. The newborn infant has no secretory IgA in its intestine for the first 6 weeks of life, and the colostrum helps to make good this deficiency and thus protects the neonate against intestinal disease. In addition lactoferrin, which has a strong bacteriostatic action that is particularly effective against pathogenic strains of *E. coli*, is in very high concentrations in colostrum. It is also believed to be effective against *Candida albicans* which causes 'thrush', and to contain an antistaphylococcal factor.

Deferment of suckling was deprivatory in other ways. There is a high cellular content in human milk during the first 2 weeks after delivery. These cells have a phagocytic action in the gut and liberate secretory IgA, lysozyme, lactoferrin and interferon; all protective substances concerned particularly with intestinal disease in the newborn. There are also concentrated amounts of other nutrients, notably zinc. This trace element has been shown to be of great importance against infections in the newborn; lack of it disturbs future zinc metabolism and may lead to stunted growth.

The evidence of writer after writer in the pre-industrial period is that the most prevalent disease and cause of infant deaths was 'griping' and 'looseness'. It is easy to ascribe this to unhygienic foods and feeding utensils, for spoons were commonly used to administer substances in the first few days. But it seems likely that an additional important factor was the feeding practices and particularly lack of colostrum. It is worth enquiring whether there was any change in the accessibility of colostrum to newborn babies at about the same time as endogenous infant mortality began its dramatic fall. The results are summarized in Fig. 1 and the details are set out below:

<table>
<thead>
<tr>
<th>Year</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-1673</td>
<td>All writers condemned colostrum as harmful and undesirable.</td>
</tr>
<tr>
<td>1673</td>
<td>Mauriceau reported that some people believed colostrum to have a purgative effect, but did not recommend it himself.</td>
</tr>
<tr>
<td>1694</td>
<td>McMath repeated this belief.</td>
</tr>
<tr>
<td>1699</td>
<td>Ettmueller was the first to recommend colostrum instead of the traditional purge.</td>
</tr>
<tr>
<td>1719</td>
<td>Dionis was the first to recommend colostrum as more nourishing than any other milk.</td>
</tr>
<tr>
<td>1733</td>
<td>Allen recommended colostrum as nourishing for some days.</td>
</tr>
<tr>
<td>c 1740</td>
<td>Hoffmann said that experience had shown that people were wrong to advise against the first milk.</td>
</tr>
<tr>
<td>1746</td>
<td>Astruc was the last writer to advise against feeding infants with colostrum.</td>
</tr>
<tr>
<td>1748</td>
<td>Cadogan published his essay and recommended that no child should be given anything whatsoever until it was put to the breast: harm would come to any infant denied colostrum.</td>
</tr>
<tr>
<td>1748–1800</td>
<td>No writer considered that colostrum was a bad or harmful</td>
</tr>
</tbody>
</table>
Neonatal feeding and infant mortality in the C18

The period 1730–90 saw the publication of Cadogan's revolutionary view of infant management and particularly infant feeding. He also advised against swaddling and urged light, loose, clean clothing with plenty of fresh air and exercise, but it seems unlikely that these factors alone are enough to account for the total change in mortality, although in combination with his feeding advice, they probably accelerated its fall. His work had tremendous influence and was still being referred to with respect by authors at the end of the century, e.g. Mantell in 1787 and Lara in 1791.

In the 1770s came the increased knowledge about the nutrient value of milk following Thomas Young, who wrote the first scientific thesis on milk in 1761 (cited by Still, 1931). More sensible diets were then suggested for infants who were

Fig. 1. Percentage of writers recommending early breastfeeding with colostrum (-----) and the percentage fall in (a) mortality 0–28 days (----) and (b) overall infant mortality (-----), 1630–1840.

substance. Fifteen out of 30 authors actively considered the first milk and recommended it as good for the child, as an alternative or addition to the traditional purge, and as a preventative against milk fever in the mother. Nelson in 1753 first mentioned the advantages of early feeding in the prevention of milk fever.

Rosen von Rosenstein was the first to state that feeding the child with mother's milk from the beginning prevented many infantile disorders.

Allowing for the fact that new ideas always take time to filter through society, the process appears to have been as follows.

Between the 1680s and the 1730s changes in the traditional beliefs about colostrum slowly began to be reflected in practice. Hence the 16% fall in the neonatal mortality rate.

The period 1730–90 saw the publication of Cadogan's revolutionary view of infant management and particularly infant feeding. He also advised against swaddling and urged light, loose, clean clothing with plenty of fresh air and exercise, but it seems unlikely that these factors alone are enough to account for the total change in mortality, although in combination with his feeding advice, they probably accelerated its fall. His work had tremendous influence and was still being referred to with respect by authors at the end of the century, e.g. Mantell in 1787 and Lara in 1791.

In the 1770s came the increased knowledge about the nutrient value of milk following Thomas Young, who wrote the first scientific thesis on milk in 1761 (cited by Still, 1931). More sensible diets were then suggested for infants who were
hand-reared from birth, for physicians discussing hand-rearing from the middle of
the 18th century onwards recommended that milk be included in the first food,
which previously had commonly been bread boiled in water to make a pap or gruel.

The change in the attitude to the use of colostrum resulted in the approval of
immediate breastfeeding and its gradual establishment. At first the practice was
probably confined to the gentry and well-to-do who could afford physicians’ and
midwives’ fees. This is reflected in Wrigley’s (1968) comparison of infant mortality
for the British aristocracy and for Colyton, Devon. That of the British aristocracy
fell gradually from 1675 and particularly significantly from 1750 onwards, whilst a
parallel drop from 1700–56 onwards in Colyton was less pronounced (Table 4).

Table 4. Mortality, 0–12 months,
British aristocracy and population
of Colyton, Devon

<table>
<thead>
<tr>
<th>Date</th>
<th>British aristocracy</th>
<th>Colyton</th>
</tr>
</thead>
<tbody>
<tr>
<td>1650–74</td>
<td>210</td>
<td>118–147</td>
</tr>
<tr>
<td>1675–99</td>
<td>196</td>
<td>118–147</td>
</tr>
<tr>
<td>1700–24</td>
<td>169</td>
<td>162–203</td>
</tr>
<tr>
<td>1725–49</td>
<td>166</td>
<td>122–153</td>
</tr>
<tr>
<td>1750–74</td>
<td>102</td>
<td>122–153</td>
</tr>
<tr>
<td>1775–99</td>
<td>85</td>
<td></td>
</tr>
<tr>
<td>1800–24</td>
<td>82</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>122–153</td>
</tr>
</tbody>
</table>

seems reasonable to suppose, as in Table 1, that the major part of the fall in infant
deaths occurred in babies under 28 days. It is also probable that new and
fashionable ideas would be taken up by the aristocracy rather sooner than by
isolated villagers. It has been suggested that the fall in infant mortality among
the aristocracy was due to the decline in the use of wet nurses and the adoption of
maternal breastfeeding (Trumbach, 1978). Thus the mothers who were most likely
to read the physician’s ‘advice books’ (Fitzgerald, 1957), breastfed their children
from birth rather than assigning them to a wet nurse who had been lactating for
several weeks and consequently had no colostrum for her nurse-child.

From the 1780s the new ideas had become widely established. They seem to
have reached the Fens by 1780, for the infant mortality at both Leake and Wrangle
dropped in this decade (West, 1974). This dissemination was probably aided by
the understanding among obstetricians that early breastfeeding helped to prevent
disease in the mother. Nelson in 1753, noted that after Hunter, at the Lying-in
Hospital, Brownlow Street, had instituted the practice of feeding immediately after
delivery ‘they have not once been threatened with a sore breast, nor has what could
be called a Milk Fever been once observed among four hundred women that have
been deliver'd there since this method has been pursued'. The lying-in hospitals and wards were responsible both for teaching midwives and doctors and delivering respectable poor women (Donnison, 1977). Between 1745 and the end of the century, thousands of destitute mothers had their infants delivered in these institutions and many more were delivered in their own homes by the Royal Maternity Charity. All were subject to the new medical ideas of those who treated them. They breastfed their babies soon after birth to avoid milk fever and their infants sucked colostrum. Once the lying-in hospitals had adopted the new fashion, with its consequent sudden fall in morbidity and mortality from milk fever, it seems reasonable to suppose that it would spread via the student physicians and midwives there once they obtained their licence to practice. Thus the change would have reached the poor, both directly and indirectly.

By 1840, the change of ideas in early infant feeding had had 170 years in which to become established, so that the deaths which had earlier been due to late and inappropriate feeding would no longer occur, and no further improvements from this source would be expected. This obviously had happened by 1840 when the Registrar General's figures for the whole country first became available, since between then and 1875 there was no further significant fall in endogenous infant mortality, despite large changes in overall mortality. These accompanied the great social changes of the 19th century, which are outside the scope of this analysis of material from the pre-Victorian period.

Discussion

Analysis of historical texts suggests that the fall in endogenous mortality between 1680 and 1840 was due, in the absence of any other reasonable explanation, to a radical change in neonatal feeding practices. It is emphasized that it is only a suggestion. The texts examined primarily reflect medical advice and cannot be taken as evidence of practice, unless this is stated (e.g. as a case history). It does appear that, with reference to the particular factor of early feeding, advice and practice were fairly closely aligned.

While the argument is reasonable when applied to the well-to-do who could afford physicians' and midwives' fees, and read the new 'advice books', it is not at all clear how far the poorer classes were influenced by the arguments and opinions of writers before and after 1673, for such influence would be a prerequisite of the change suggested. However, in many cases the earlier writers were clearly describing the general practices that they knew to be customary in the country, in addition to repeating the ideas of the classical authors. Again, in suggesting this explanation, it was not the purpose to explain the reasoning behind the feeding of neonates but merely to point out a possible change that may have been of the utmost importance in survival of newborn babies. But in the absence of any other factor that can be identified as relevant, sufficiently effective, and showing change in the same period, it appears reasonable to attribute the rapid and drastic improvement in neonatal survival to the change in infant feeding recommendations and practice.
Acknowledgments

The author would particularly like to acknowledge the resources and helpfulness of staff at the Library of the Royal College of Obstetricians and Gynaecologists, London, and the Wellcome Historical Medical Library, London.

References


(Received 28th June 1979)

Appendix

This study is based on the following texts and manuscripts, which are listed here in chronological order. The date immediately following the author or title is the date or period of the original work where this differs from the date of publication given at the end of each entry.

Pre-Renaissance writers

Neonatal feeding and infant mortality in the C18


16th century writers


17th century writers

14. Jacques Guillemeau (1601) *Childbirth or The Happy Deliverie of Women ... to which is added A Treatise of the Diseases of Infants, and Young Children: With the cure of them*, pp 18–19, 24. Translated anonymously (London, 1612).
22. The English Midwife, Enlarged ... containing two new Treatises ... Of the Diseases, etc., of Little Children, and the Conditions necessary to be considered in the choice of their Nurses and Milk, p. 242 (London, 1682).

18th century writers
30. John Maubray (Mowbray), The Female Physician, containing all the Diseases incident to that sex ... To which is added The Whole Art of New Improv'd Midwifery ... Together with the Diet and Regimen of both the Mother and the Child, pp 328, 333–334 (London, 1930).
35. The Ladies Dispensatory or Every Woman her own Physician, p. 312 (London, 1740).
37. R. James, The Modern Practice of Physic ... Being a Translation of the Aphorisms of [Boerhaave] with the commentaries of Dr Van Swieten—in two volumes, aphorism 55, p. 50 (London, 1746).
44. N. Brouzet, *An Essay on the Medicinal Education of Children; and the Treatment of their Diseases*, pp 61, 75, 92, 93, 96. Translated anonymously (London, 1755).
46. ‘Some of the Causes that occasion the Mortality of children under two years of age. In answer to Queries in the Public papers, concerning the cause of the great mortality of Infants in this Metropolis under that age,’ unsigned article in the *Gentleman’s Magazine* (London, December 1765).
47. William Buchan, *Domestic Medicine; or the Family Physician*, pp 21–22 (Edinburgh, 1769).
53. John Thomson, *An Analysis of Midwifery with the Diseases Incident to Pregnancy, or those which commonly happen in the Month, to Child-bed Women*, pp 118–119. Wellcome Historical Medical Library, MS4779 (1772–1785).
58. Michael Underwood, *A Treatise on the Diseases of Children; With directions for the Management of Infants from the Birth; especially such as are brought up by Hand*, pp 237–239, 243 (London, 1784).
68. *Young's Midwifery* (late 18th century), 4 vols. Wellcome Historical Medical Library, MS 5106.
Weaning the Elizabethan child -1

Valerie Fildes, BSc, SRN

TODAY, weaning is generally considered to be a time of importance. As the first partial severing of the mother from the child, the way in which it is carried out may well affect the future behavioural development of the child, and also the behaviour of the mother, especially in future severings such as starting school, leaving home and marriage of the child.

This attitude has not always been held. Although weaning has always been discussed, the emphasis was more on assisting the child through the dangerous period of taking in food other than breast milk, than on any effect of the time or method on the child itself.

Timing

The time of weaning through the ages seems to have been assigned fairly arbitrarily, with little regard to the health of the child or mother. In many societies, the age was significant because it marked the official end of infancy and the beginning of childhood. For example, the ancient Egyptians suckled for three years (Montet, 1958), a similar period to that mentioned in the Books of the Maccabees. With the use of wet nurses in Roman Egypt, this was reduced to a period of from six months to three years, a typical wet nursing contract requiring breast milk only for a period of 16 months (Lindsay, 1963).

In the second century AD, Galen recommended three years of breast feeding (Green, 1951). Four hundred years later, Athanasius of Amida advised 20 months, while Paulus Aeginata’s time of two years apparently based on the current customs filtered downwards in English society. Certainly, with the wide use of wet nurses, the poor were able to observe the rich. In the 16th century, babies were weaned at any time from seven-and-a-half months to three years, a typical wet nursing contract requiring breast milk only for a period of 16 months (Lindsay, 1963).

In the first century AD until well into the 16th century, two years was still regarded as the end of infancy for recording mortality rates, until compulsory registration began in 1877.

In 16th century England, these ancient medical writers were referred to as experts who could not be challenged, but the actual dates of weaning of various individuals show that many did not breast feed for two years. Over 80% of the infants studied were weaned by 18 months (Fig 2).

Whether this was the time for all the children remains unknown, since the only records which have survived are those of the literate merchants, the gentry, and the nobility. As they are derived from different parts of England, there is no reason to believe them atypical.

Other writers, particularly the protestant preachers after the Reformation, referred to the populace of the child in the use of wet nurses, and mentioned that infant feeding customs filtered downwards in English society. Certainly, with the wide use of wet nurses, the poor were able to observe infant care among the rich.

In the 16th century, babies were weaned at any time from seven-and-a-half months to three years, a typical wet nursing contract requiring breast milk only for a period of 16 months (Lindsay, 1963).

For example, the ancient Egyptians suckled for three years (Montet, 1958), a similar period to that mentioned in the Books of the Maccabees. With the use of wet nurses in Roman Egypt, this was reduced to a period of from six months to three years, a typical wet nursing contract requiring breast milk only for a period of 16 months (Lindsay, 1963).

In the second century AD, Galen recommended three years of breast feeding (Green, 1951). Four hundred years later, Athanasius of Amida advised 20 months, while Paulus Aeginata’s time of two years apparently based on the current customs filtered downwards in English society. Certainly, with the wide use of wet nurses, the poor were able to observe the rich. In the 16th century, babies were weaned at any time from seven-and-a-half months to three years, a typical wet nursing contract requiring breast milk only for a period of 16 months (Lindsay, 1963).

In the first century AD until well into the 16th century, two years was still regarded as the end of infancy for recording mortality rates, until compulsory registration began in 1877.

In 16th century England, these ancient medical writers were referred to as experts who could not be challenged, but the actual dates of weaning of various individuals show that many did not breast feed for two years. Over 80% of the infants studied were weaned by 18 months (Fig 2).

Whether this was the time for all the children remains unknown, since the only records which have survived are those of the literate merchants, the gentry, and the nobility. As they are derived from different parts of England, there is no reason to believe them atypical.

One of the main reasons for writers’ insistence on the need for teeth was that teething was associated with fevers, aching gums and other symptoms, as well as being a recognised cause of death in the Bills of Mortality.

As the French surgeon, Ambrose Paré wrote: ‘There is no certain time of weaning of children. For the teeth of some will appear sooner and some later; for they are prepared of nature for no other purpose than to chew the meat. If Children bee weaned before their teeth

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Weaning age (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Halsdson</td>
<td>1540</td>
<td>24</td>
</tr>
<tr>
<td>G. S. Martello</td>
<td>1579</td>
<td>24</td>
</tr>
<tr>
<td>S. Ste Matthes</td>
<td>1584</td>
<td>24</td>
</tr>
<tr>
<td>V. Fildes</td>
<td>1510-1590</td>
<td>24</td>
</tr>
</tbody>
</table>

Fig 1. Recommended weaning times in the 16th century
reasons for weaning as late as three years. He himself was not weaned until
enough to resist the diseases transmitted by food and drink. Breast feeding was safe and
picturesque and be fed with what is somewhat hard and solid, they are
infectious in many diseases.'
However, by the time this had been adapted to the English climate, the
advantages of weaning were more obvious. When the extremes of temperature in winter
and summer could be avoided. This idea may well have been part of the general theory of the time
that moderation in all things was desirable, rather than consideration of the mother
and child. The 11th century female physician, Trotula, had also warned against
weaning in hot weather and this, of course, did make good sense in an age
when weaning a child in unhygienic Tudor age, no author ever discussed early weaning as a
possibility. Breast feeding was safe and was maintained until the child was strong
enough to resist the diseases transmitted by food and drink.
Jones thought there were several good reasons for weaning as late as three
years. He himself was not weaned until
the individual child should be taken into
account, but no one in the 16th century
thought that the health of the mother or
nurse should also be a factor. This issue
greatly concerned physicians in the 18th
century, as more mothers were breast
feeding their own babies, so it may be a
reflection of the fact that in the 16th
century wet nurses were commonly used,
least by the gentry and merchant
classes, and a replacement was easily
found if a nurse became ill.

Early and late weaning
Because of the dangers of weaning a
child in the unhygienic Tudor age, no
author ever discussed early weaning as a
possibility. Breast feeding was safe and
was maintained until the child was strong
enough to resist the diseases transmitted by food and drink.
Jones thought there were several good
reasons for weaning as late as three
years. He himself was not weaned until
this age because his mother was 'twenty-
five and upwards' when he was born. In
the 1500s this was considered somewhat
old and perhaps dangerous for bearing
children and the child of an elderly
mother should suck longer than that of a
young and lusty nurse.
Jones also felt that twins, males and
nobilis should be weaned later than other
infants, as males and nobles had to run
households and governments. Soranus
had condemned the Roman practice of
weaning females six months later than
males on the grounds that girls were
frailer. He thought that all babies were
equally strong.)
Jones was the only writer to forward
these views but they made sense in that
time. Twins, on average, tend to be smaller
than singletons and also to be born a week
or more before full term (Myles, 1975) so
weaning them later would increase the
likelihood of small, underweight babies
surviving.
A similar argument holds for males
since boys tended to be harder to rear
than females (Stern, 1960) and keeping
them at the breast might well have
increased their chances of life. Theodore
Doe was weaned at 18 months, the longest
suckling of his family, but his older
brother suckled for less time than two of
his sisters. Jones' advice does not seem
to have been followed (Fig 4), even though an
educated family such as the Dees would
have been aware of his views.
If the infant was weak and sickly, this
was a major reason for late weaning. Ambrose Paré was typically dogmatic, 'If
the child be weak, sickly, or feeble, he
ought not to be weaned'. Medical men
were also against weaning children who
were not taking hard foods or were not
feeding well from the spoon.

Methods
All the authors implied that weaning
should be a gradual process, usually by
introducing solid food while the baby was
still being suckled. The basis for this was
the belief, handed down from Soranus,
that sudden change was harmful. But,
despite this caution, weaning seems to
have been a sudden change in many cases
as they also recommended and referred to
suggestion methods.
The most common of these was
smearing the breasts with a bitter
substance such as aloes, wormwood,
mustard or soot, so that the child was
disgusted or frightened. This practice had
survived from Roman times when Soranus
had denounced it.
The nurse described Juliet's weaning in
Romeo and Juliet (c1594) as an
earthquake and a shaking:
'I never shall forget it
Of all the days of the year, upon that
day,

<table>
<thead>
<tr>
<th>Name</th>
<th>Date weaned</th>
<th>Season</th>
<th>Age (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mary Tudor</td>
<td>1517</td>
<td>Winter</td>
<td>12</td>
</tr>
<tr>
<td>Elizabeth Tudor</td>
<td>1534</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Jane Grey</td>
<td>1538</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Charity Johnson</td>
<td>1545</td>
<td>Autumn</td>
<td>18</td>
</tr>
<tr>
<td>John Jones</td>
<td>1579</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Arthur Dee</td>
<td>1580</td>
<td>Summer</td>
<td>13.5</td>
</tr>
<tr>
<td>Katherine Dee</td>
<td>1582</td>
<td>Summer</td>
<td>14.5</td>
</tr>
<tr>
<td>Theodore Dee</td>
<td>1589</td>
<td>Summer</td>
<td>18</td>
</tr>
<tr>
<td>Madina Dee</td>
<td>1591</td>
<td>Summer</td>
<td>15.5</td>
</tr>
<tr>
<td>Frances Dee</td>
<td>1593</td>
<td>Winter</td>
<td>13.5</td>
</tr>
<tr>
<td>Margaret Dee</td>
<td>1596</td>
<td>Spring</td>
<td>7.5</td>
</tr>
</tbody>
</table>

Fig 2. Actual weaning times in the 16th century
For I had rather have wormwood than my dog...
...when it did taste the wormwood on the nipple of my dog, and felt it bitter, pretty foul, To see it totchy, and fall out with the dog.

This upheaval in the three-year-old's life was carried out despite the fact that Julies had fallen down and hurt her forehead the previous day and presumably would have been seeking comfort from the breast.

This method appears to have been practised until the end of the 18th century. It is still used in primitive tribes today (Mead, 1963) and in 1975 an 84-year-old woman described her difficulty in weaning her nine children in rural England, and how she had achieved this by covering her breast with bitter aloes (Lindsay, 1963). An alternative method of weaning by hiding the breast or the nurse, was practised until the end of the 18th century (Chamberlain, 1975).

Reported common practice

<table>
<thead>
<tr>
<th>Author</th>
<th>Date</th>
<th>Weaning age (months)</th>
</tr>
</thead>
<tbody>
<tr>
<td>E. Roesslin</td>
<td>c1540</td>
<td>12</td>
</tr>
<tr>
<td>Tuchardius</td>
<td>c1570</td>
<td>12</td>
</tr>
<tr>
<td>Mazerus</td>
<td>c1570</td>
<td>12</td>
</tr>
<tr>
<td>J. Jones</td>
<td>1579</td>
<td>12</td>
</tr>
<tr>
<td>A. Park</td>
<td>1510-1590</td>
<td>12 (18-20)</td>
</tr>
</tbody>
</table>

Fig 3. Reported common weaning times in the 16th century

<table>
<thead>
<tr>
<th>Range (months)</th>
<th>Median</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>24—36</td>
<td>24</td>
<td>4</td>
</tr>
<tr>
<td>7.5—36</td>
<td>14.5</td>
<td>11</td>
</tr>
<tr>
<td>12—20</td>
<td>12</td>
<td>5</td>
</tr>
</tbody>
</table>

Fig 4. Summary of the time of weaning 1500-1599. The weaning advice given by medical authors apparently had little relationship to what mothers and nurses actually did.
Weaning was an anxious period for parents as many babies died at that time

Valerie Fildes, BSc, SRN

Foods used for weaning

Soon after birth, most infants were given pap, or panada, made either with flour and water (or milk and water), boiled together; pap was recommended as a weaning food by John Jonas in his recipe of 1579 telling ‘How to make the best Pappe’.

Take of new milk a pint, put there in a fine wheate flour so much as being boiled will make it thick. Add to it the bignesse of Chestnut of Almond Butter, or of Sweet Butter, one ounce of the best sugar—not failed in the sunny, and then it will bee the better to digest, and ‘the refuse not turned to the nourishment of the bodye, the sooner and earliuer emptied’.

He disapproved of plain milk and flour mixtures as they were binding, but ‘Nevertheless, it is much used over all, and I myselfe was so fudda, my nurse hath said it, as I have seen divers others of lively spirithe and sounde bodye, as well in Wales and the Marchm, as in sundry other partes of this Raleim'.

In the earliest paediatric text, originally written in 1512, Eucharis Rossetin suggested ‘make for it lyttel pylles of breade and sugar to eute, accustome it so till it be able to eate all manner of meate’.

Jonas disagreed and thought that bread and fresh butter were preferable. The Welsh doctor thought that broth could be introduced later, made ‘with tender flesh of good temperature and juice... first minced or bruised’.

The nurse also pre-chewed food before giving it to the weanling, but this was not mentioned in the 16th century English literature, possibly because the habit was so widespread that it was not thought worthy of mention. Certainly it was still common in the 18th century when it was condemned by medical writers, such as Brouzet, in 1755.

Anthemise Paré was the only writer to advise that hard or solid food be given before weaning:

‘When the child is two yeaers old, and the teeth appeare, if the childre more vehemently desire harder meates, and doth eat on then with pleasure and good success, he may be safely weaned; yet he may not be weaned without such an appetite.’

Eggs, fish, fruit and vegetables were never mentioned as food for children and this was probably because the rich man in the 16th century ate very little fruit or vegetables, and none at all in the winter months. The diet ward a variety of meals (fish on Fridays and feast days) and a small amount of bread (Drummond and Willbrugham, 1957; Wilson, 1973).

It seems likely that many nurses and mothers gave a mixture of breast milk and whatever foods they ate themselves, so the actual diet of the weanling could have been more generous and varied than that recommended, depending on the knowledge and degree of poverty of the parent.

Spring, and particularly autumn, may well have been suggested as the best weaning season because fresh vegetables and fruits were available then. In the winter, cheese, salt meat, coarse bread and dried pulses were the staple diet of the poor, supplemented by any meats they could posh.

Scurvy was endemic during the winter in Elizabethan days and vitamin C had not then been identified as the anti-scurvy agent. Parents weaned a child every other year or so, and they may have noticed that the child did better when both mother and child had a varied diet.

Foods after weaning

The postweaning diet was mentioned only by John Jonas when he described the fare given to the children of the French king. Presumably this was similar to that in noble English households.

‘Bread of fine wheate flour, of fine starch, also of Almonds, of Barley, or Bigge, of Wheate, which we call FurnTe, of Rye, of Pease, and suchlike, or soft bread, steeped in the breast of fleshie of Kiddos, Tupper, Calves, Horses, etc. And sometimes a Cagins wing minced in small pieces, or the breast of a pleasant roasted, cut in pieces.’

The diet may well have been considered unwholesome or unwholesome because it was
was presumed that the three-year-old would gradually, or even immediately, eat the same food as the rest of the family.

Even the very rich may have suffered some degree of malnutrition from the diet which Jones describes. Vitamins A, C, and D were all lacking and many suffered from "the Stone" (associated with low vitamin A and high calcium intake), scurvy, and rickets (Foote, 1927).

In the next century, rickets was to be associated specifically with weaning and the lack of milk products once the child left the breast (Cillman, 1651).

Drinks

To replace breast milk, Jones recommended fresh ale, which, together with bear and homemade wines, was the common drink. Water was rarely drunk in Elizabethan England as it was frequently contaminated and unpalatable.

Milk was considered a drink fit only for babies, the elderly and invalids, all of whom were advised to obtain woman's milk if possible. Cow's milk was sour and undrinkable in hot weather and was probably a source of many diseases, running from gastroenteritis to scrofula (Drummond and Willbraham, 1958).

Both John Jones (1579) and Ste Mather (1604) thought that children should not drink wine, which was the drink of the well-to-do. Ste Mather recommended water as a weaning drink, as did Guillemeau early in the next century but Guillemeau's translator stated in a footnote, "that is in France where they have not ale or borne", indicating that the latter were most commonly given to English children.

Diseases connected with weaning

The attention paid to weaning shows that it was considered a time of anxiety and danger: a time when an infant, however carefully tended, had to face the realities of the adult diet and its attendant lack of hygiene. (Abraham had given 'a great feast' the day his Isaac was successfully weaned, Genesis 21:8).

Physicians did not begin to record diseases associated with weaning until the 18th century, although Ste Mather did give a heartrending description of the distress of the weaning baby.

"But how, my pretty infant, wilt thou bear, A loss that will thy Soul and Body tear? What floods of Tears will deluge from thy Eyes?" What Shrieks, what wailing Groans and Sleeping Sighs?

"Learn, Pretty Infant, learn to bear these ills; Who can avoid what the Creator Will?"

The writers of the 16th century were undoubtedly referring to children of two years or more and this could partially explain why they ignored possible ills at weaning time. A two-year-old is in a better position to resist diseases of any type than an infant of a few months.

Many infants did perish during weaning, as shown in the Bills of Mortality. These figures probably underestimate the infant deaths since methods of collecting figures were inefficient, and excluded dissenters, who were a significant minority.

John Jones (1579), condemning a sudden change to other foods, said 'for by such measures of such desperate change I have known divers infants to perish', and Ste Mather made a reference to the chance every mother took when weaning an infant:

"Now when to Wean a Child I must direct. Yet such, Alas! is Man's uncertain State. What Rules can be prescrib'd, who's ruled by Fate'."

It seems obvious that, since weaning was consistently connected with the loosening of teeth, which, in turn, were always connected with taking in foods other than breast milk and sap, that a great many of the deaths attributed to 'teeth' were the result of inefficient and unsuccessful weaning.

In addition, infants already weakened by illness would be in a far worse position to tolerate an unhealthy diet. Although teething itself does not cause disease, generations of mothers have observed that it is almost always associated with coughs, colds and diarrhoea, even with today's relatively hygienic feeding practices. This may be because a person's resistance to disease is lower at any time of bodily stress, (Dubos, 1969) such as toothing.

In the 16th century, this could mean that weaning at the same time as toothing had the added danger of a lowered resistance to infection in the child. Therefore the doctors who recommended weaning after all the teeth were through were advising a safer course for the child.

Once the toothing and weaning period was over at around two years, the Elizabethan child stood a much better chance of survival than at any previous time in his short, traumatic life.

REFERENCES


Guillemeau, J. (1612). Childbirth or the Happy Deliverie of Women . . . to which is added, a Treatise of the Diseases of Infants, and young Children, with the cure of them. Transl. anon. London.


Valerie Fildes, BSc, SRN, looks at the diseases of weaning 1600 to 1800 — a time when infant mortality was extremely high and methods and ideas were not always in the best interests of the child itself.

Writers of diaries, memoirs and autobiographies, especially in the seventeenth century, paid great attention to weaning. This shows how anxious people were about the first separation in life and the dangers associated with the adult diet and its attendant lack of hygiene.

The Old Testament states that Abraham gave a great feast on the day that Isaac was weaned (Genesis, 21, 8), while Clergyman Ralph Josselin’s plea in 1655 — 'We resolved to wean An. The Lord bless our way therein' — shows the ancient Jews had as much to fear as the seventeenth century Puritan.1

But this period saw great changes in the understanding of child management and in the attention which doctors paid to the diseases of children. Paediatrics really developed as a medical specialty in the second half of the eighteenth century, although treatises dealing specifically with children’s diseases had been published occasionally during the fifteenth and sixteenth centuries.

Most of the writers who dealt with infant management and in the attention which doctors paid to the diseases of children. Paediatrics really developed as a medical specialty in the second half of the eighteenth century, although treatises dealing specifically with children’s diseases had been published occasionally during the fifteenth and sixteenth centuries.

But this period saw great changes in the understanding of child management and in the attention which doctors paid to the diseases of children. Paediatrics really developed as a medical specialty in the second half of the eighteenth century, although treatises dealing specifically with children’s diseases had been published occasionally during the fifteenth and sixteenth centuries.

Table I. Extract from the Bills of Mortality for 1740 (from The Gentleman’s Magazine).

| Total number of infants christened | 15,231 |
| Total deaths age 0–2 years | 10,786 |
| Cause of deaths age 0–2 years: |
| (a) Convulsions | 8,479 |
| (b) Teeth | 1,708 |
| (c) Fevers, smallpox, etc | 578 |

Teething

As in Elizabethan times, there was a major preoccupation with teeth which, during the 1600s and 1700s, was often given as a major cause of death at 0–2 years in the Bills of Mortality (Table I). It was obvious that children were weaned at, or just after, the time their teeth came through. The great numbers of infants who supposedly died from 'teeth' were probably the victims of inefficient and unsuccessful weaning.

A significant comment by Thomas Mantell in 1787 seems to verify this. He noted that of the 'great numbers of infants who die in teething', those who were healthy and lived abstemiously 'generally suffer little'. But those debilitated by disorders before teething 'are the greatest sufferers from denition'.2 Certainly, infants already weakened by disease would be in a much worse position to tolerate an unhealthy diet and, at a time of physical stress (such as teething), there was the added danger of a lowered resistance to diseases in general.3

As the period of breast-feeding shortened progressively throughout these two centuries (Fildes), the child of the late eighteenth century was possibly in more danger from disease which arose from unclean feeding utensils and food. An infant of a few months would have been less likely to survive severe illness than a child of 18 months or more.

Jean Baudelocque, in 1790, indicated that of the children weaned before cutting their teeth 'many have been very happy to return to the milk of a nurse at that time, because they were become so weakly during the cutting of their last teeth, that they could digest no other food'.4 Naturally, the child would have derived comfort during pain in returning to the breast but it was also a natural survival technique — he returned to the safest possible diet at that time. Certainly, once both teething and weaning had been successfully accomplished, the child stood a better chance of survival than he had before. As a writer in 1765 said, 'after that time there will be little to fear but from the smallpox, etc'.5

The author is a part-time postgraduate in the Department of Human Biology and Health, University of Surrey.
Rickets

Rickets was the first specific disease to be mentioned in connection with weaning and was also the only condition referred to in the seventeenth century. In 1650 Francis Glisson wrote the definitive treatise on this deficiency disease, which he said commonly affected children. He said it had first appeared about 30 years before in the West Country (where Glisson himself was born and reared) and had spread widely through the south of England, although it was rarely found in the North.6

In fact, there is some evidence, based mainly on Renaissance paintings of the Madonna and Child in which the latter looks distinctly rickety, that rickets had been widespread in Europe before this time. It is a mystery why it became more evident in England in the early 1620s. Glisson thought it was because of the greater affluence of the South and there may have been more doctors than in the North, so that the disease was noted and diagnosed more frequently. It is possible that women in northern England breast-fed their babies for longer, or that fewer used unreliable wet nurses than in the fashionable South East.

But rickets was certainly not so rare in the North that it was not generally known. In Yorkshire, Alice Thornton’s daughter, Betty, died in September 1656 and Alice recorded: “She had bin long and was provided in the poor houses and was given the case history of a rickety, 22-month-old child whose sole diet was “ground rice boiled in water to three-quarters of a pint of which one quarter of a pint of milk was added”.7 This child was lucky. She was sent to a nurse in the country where a good diet and fresh air for two years cured her. But there must have been many thousands of children who were never seen by a physician, as well as the rich who took little notice of their advice. These children became figures in the mortality lists.

The “English disease”

By the end of the eighteenth century, rickets, often known as the “English disease”, was also being connected with the growth of smoky manufacturing towns with which it remained linked until well into the twentieth century. Michael Underwood, one of the first modern paediatricians, said in 1784 that “this complaint . . . is said never to have made its appearance in England, till upon the increase of manufactures, people left the villages and husbandry to settle in large manufacturing towns”.8 However, the fact that it was still a weaning disease is shown by Dr William Hunter, the Queen’s obstetrician, who, after recommending weaning at eight to nine months, said: “Rickets usually happen to children at ten months old.”9

Although rickets was the major weaning disease obviously associated with the change in diet, the most common
Apart from the gastrointestinal tract, which was again clearly linked with improper and dirty food, gripes, looseness, purging, and constiveness were all described and that these symptoms were so frequent as to be almost normal, is reflected in the way authors spoke of them by names which were clearly recognisable to their contemporaries.

In his Treatise On Opium in 1780, John Aitken described the condition of "weaning brash" in similar terms. He attributed the diarrhoea to food, considering the weaning illness to be inevitable. A few years later, in the eighteenth century, the condition of "weaning diarrhoea" is well known throughout the world today and is thought to be the result of several interacting factors associated with the change from breast milk to other foods. The most notable factor is enteral infection associated with a change in intestinal microflora or with large doses of environmental bacterial contaminants. This is sometimes associated with a diet of ill-cooked, indigestible foods which may well have been effective, although the last was the best.

In fact, the condition of "weaning diarrhoea" is well known in Third World countries today and is thought to be the result of several interacting factors associated with the change from breast milk to other foods. The most notable factor is enteral infection associated with a change in intestinal microflora or with large doses of environmental bacterial contaminants. This is sometimes associated with a diet of ill-cooked, indigestible foods which are poorly absorbed or irritant. As with early weaning, there is a clear analogy between the developing countries today and the rapidly industrialising Britain of the eighteenth century.

The first connection

The association between weaning illness and diet had first been made by the royal French physician Brouzet in 1755. He linked diarrhoea with improper and dirty food. The Swedish "father of paediatrics", Nils Rosen von Rosenstein, described the common pattern of weaning in 1776. He attributed the diarrhoea to food, considering the weaning illness to be inevitable. The Frenchman Jean Astruc (1746) advised purging the weaning infant as a routine.

The second connection

This may seem odd at a time when it was natural for weanlings to be naturally purged to the point of death, but many eighteenth century purges consisted of fruit and vegetable mixtures which were a source of vitamin C (to purge the blood) rather than an intestinal stimulant. However, loss of weight at weaning was never widely connected with the inadequate diets recommended by so many, nor with the lack of food due to the poverty of the parents.

The third connection

Weaning has come a long way since the eighteenth century. The preoccupation with weaning diseases during the eighteenth century is still a dominant feature of modern society.

Feature: Weaning
once more a reflection not only of the beginning of pediatrics but of the much earlier age of weaning which, in turn, must have been associated with the use of unhygienic feeding utensils. In earlier centuries a child was weaned at not much less than a year and probably later, and he would have been able to drink and eat from cups and plates which, hopefully, could have been washed easily or, at the very least, wiped clean.

But in the eighteenth century, a child weaned at under six months or even later, was fed with a cow’s horn covered with rarely changed parchment, a pap boat or a bubby-pot shaped like a lidded, upright can with a long narrow spout covered with a sponge and parchment (Figure 1).

The pap boat, shaped like a shallow gravy boat, was open and easy to clean (Figure 2), but the others had narrow, curved entrances providing a superb environment for microbes. Armstrong unknowingly confirmed this when he described the early weaning of his three daughters in 1771. The two were weaned onto the cow’s horn and had permanent “gripes”. They nearly died until weaned again on to the boat. The third, fed with the boat from the beginning, remained in good health. It is clear that the vast infant mortality figures of the seventeenth and eighteenth centuries were only the tip of an iceberg, whose hidden base was the thousands of children who suffered year after year and, against all the odds, survived their weaning.

Acknowledgments
To the library staff at the Royal College of Obstetricians and Gynaecologists; the British Museum; and the Wellcome Institute for the History of Medicine.

References
The early history of the infant feeding bottle—1

This week we trace the history of the infant feeding bottle from the pre-Christian era to the 17th century

Valerie Fildes, BSc, RMN

It is often thought that feeding babies with milk from a bottle is a modern development but there is considerable evidence that the feeding bottle has existed in various forms in different societies since the early Iron Age. An analysis of traces of food in prehistoric vessels has proved to include casein, thus indicating that babies were 'bottle fed' with animal milk centuries before modern ideas on infant feeding were developed.

There is some doubt whether all the vessels suspected of being infant feeders were in fact used for this purpose. It has been claimed that they may have been used for filling lamps or for feeding animals. However, it is clear from the writing of the Roman, Pliny the Younger, in the 1st century AD that, 'It is not the custom in any country to burn in a funeral fire the dead corps of any infant before his teeth come up'. This explains why so many of the early feeders have been discovered in the graves of very young infants, together with simple toys and other childish objects presumably for use in any afterlife.

Evidence

Together with the absence of any blackening from lamps and the existence of traces of food in prehistoric vessels, this produces sufficient evidence that infants were sometimes fed from specially designed 'suckling' cups. (However some vessels, formerly thought to be infant feeders, would obviously have been very unsuitable. It is clear that with some doubtful specimens of the Greek and Roman eras that, if the spout was put in a child's mouth and the vessel tipped up for drinking, the projecting rim or some other part of the structure would hit him on the nose or eye, or obstruct his breathing.)

Most feeders in the pre-Christian era had the basic shape of a round cup or jug with a short, rounded spout, and a handle either above or at right angles to the spout. In the Greek and Roman Empires the glazed, earthenware vessels became more varied in design and were sometimes elaborately and beautifully decorated. Occasionally they were made in the shape of animals or birds, and even in the form of a child's head. Sometimes they were made of glass and examples of these have been found at excavations in London and Colchester.

When looking at the feeding vessels of this period, the most striking observation is that they fall into two quite distinct sizes quite independent of the design. The smaller vessels have a maximum diameter of six-seven cm and a height of three-seven cm. The larger type stand 9.5-12cm high and, depending on the design, have a diameter between 10 and 15cm.

The bore of the spouts for sucking varies slightly but it is always small enough for the mouth of a young infant and too small to be conveniently used as a feeding cup for an older child or adult. Although the spouts have rounded edges they were probably covered with a soft material such as a sponge or a cow's teat, as the hard absorbent clay from which they were made would have been unsuitable for prolonged use. (Although a Greek vessel in the Ashmolean Museum, Oxford, is said to bear the tooth marks of a child on the spout.)

Neonates

It is likely that the very small type of feeder was used for neonates, who were usually not fed on milk for the first few days of life, as it was thought to be bad for them. This size vessel was the type often found in infant graves. The larger feeders may well have been used when weaning the slightly older child from the breast or, for a child who was completely artificially fed, they could have been used once thicker fluids were introduced and a greater quantity was required. In the 1st century AD, the physician Soranus of Ephesus, who practised in Rome, referred to an artificial nipple for giving fluids to infants, so the relatively common discovery of Roman feeding vessels could be a reflection of this practice.

Throughout history the shape of the cow's horn and, periodically, the boat-shaped vessel have been constant. The horn, with a small hole made in the smaller end, was an obvious choice for a primitive drinking vessel as it required little preparation and was readily available from Neolithic times. The drinking horn was used by adults and it was probably a natural choice for feeding infants and children. It was depicted in paintings and literature at least until the 19th century although only the ancient Egyptians appear to have developed the idea by making an earthenware replica for infant feeding.

The boat-shaped vessel occurred in Greek and Roman civilisations and was the obvious ancestor of the pap-beat and boat-shaped feeding bottle of the 18th, 19th and early 20th centuries. It had the advantage of a filling hole in the centre as well as the spur for sucking, and often another opening at the opposite end. This would have allowed thicker fluids to be administered and far easier cleaning than some of the more intricate rounded designs, many of which incorporated strainers. (Although there is no evidence that cleanliness in infant feeding was a consideration until recent times.)

Oriental or Arabian feeding cups of a later period have been discovered which are of the smaller size and resemble a handle-less cup with a long curving spout. Since these are made of glass, which was very expensive, they
may have been relatively rare and used only by the richer members of 10th century society.

In Europe there were several regions, particularly parts of Germany, Switzerland and Austria, where breast feeding was rarely carried out from the earliest times. This appears to have been indigenous to certain communities and in the 18th and 19th centuries there is clear evidence that in some villages in these areas no woman ever, breastfed her children, and anyone who attempted to do so was reviled by the other women.

It is from these localities that the best pictorial evidence of the existence of feeding bottles comes. Carvings on wooden altar pieces, and statues, in the local churches depict young children sucking from them, and woodcuts in 15th and early 16th century books from Germany show at least two different designs of sucking bottle in use.

In England, Elizabethan portraits show young infants holding sucking bottles of pressed leather or wood, which are thought to have been imported from Germany and Italy. The bottles of this period were of two basic designs: upright, slightly rounded sides, with a screw top incorporating a small spout for sucking, or a spherical shape with an elongated spout.

**Bulbous**

During the 17th century England, Holland, parts of Germany, and the American colonies were producing sucking bottles, usually made of pewter or, more rarely, glass—although the very rich probably had silver or glass and silver versions of these. Certainly the latter existed by the early years of the next century. All the bottles surviving from this period were upright with a screw top and sucking spout, but the shape of the sides varied slightly. These were straight, bulbous at the base, concave or 'waisted'. The last type was from Holland and was designed to remain upright when used by the newly weaned infant.

These sucking bottles were not necessarily utilised just for the child who was fed by hand, but were probably used for giving extra fluids, or when weaning a child from the breast. In some countries, such as Holland, it was not considered decent for women to breastfeed outside their own home and a pewter sucking bottle was apparently used when the mother went visiting and her baby required feeding.

Next week: The history of the infant feeding bottle in the 18th and 19th century.

*Mrs Fildes is a postgraduate student, Department of Human Biology and Health, University of Surrey*
The early history of the infant feeding bottle - 2

We take a look at the development of the infant feeding bottle from the 17th century onwards

Valerie Fieldes, BSc, RMN

The boat-shaped feeding vessel of ancient times was not in evidence during the 17th century but by the very early 18th century it had reappeared in two forms. The pap-boat and the boat-shaped sucking bottle.

The pap-boat, which was shaped like an oval gravy boat with a lip for pouring, appeared some time between the 1650s and 1710; there is some disagreement about the exact date. It was probably developed from the round porringer which, from pictorial evidence, was in use during the previous century, and was used for giving various forms of pop or panada.

These foods, in use from very early times, consisted of flour or bread boiled in water with occasional additions of sugar, spices, and wine or spirits (pap), or milk thickened with bread crumbs and often sweetened (panada).

Unsuitable

The sucking bottle or drinking horn was obviously unsuitable for giving thickened foods and the pap-boat allowed women to feed their infants much faster than giving a spoonful of pap at a time. Since the average capacity of a pap-boat was two-four ounces, and more than one boatful could be given in quick succession, women were many complaints during the 18th century regarding its use for 'cramming' infants.

The boat-shaped sucking bottle, also appeared early in the 18th century and remained in use with minor modifications, until the 1950s. At first they were few in number and mainly made of glass with a teat-shaped lid, but later in the century increasing numbers were produced in porcelain, glass and cheap white Queensware.

Versions of upright feeders in this period included the English flask shape which was round with flattened sides, the French version with a bulbous base, and the German conical shape which is very similar to the feeding bottles of today. However, these basic designs overlapped as sucking bottles became more common and were produced in a greater variety of materials than the basic pewter of the previous century.

The great variety and diversity of infant feeding vessels which appeared during the early 1700s was probably a reflection of the growing fashion among the upper classes of artificially feeding their babies in preference to using a wet nurse. As the century progressed, and infants tended to be weaned at a much earlier age than previously, the use of feeding bottles as an intermediary between breast and cup may well have become more commonplace.

In the mid-18th century milk, or milk and water, was a more popular substitute for breastmilk for young babies and a sucking bottle or horn was more convenient for giving this than a pap-boat or spoon. The latter were more useful for giving thicker foods to older babies.

An offshoot in the development of the two basic designs of feeding bottle was the feeding can. Simple versions of this existed in the early 1700s but it was finally developed into a sophisticated feeding vessel called a 'bubby-pot' in the early 1770s by the London physician Hugh Smith. Its main features were a straight-sided can, with or without a lid, and a long spout which led from the base of the can or pot and, later, contained a rounded lip with perforations for sucking. This gadget apparently became popular in the late 18th and early 19th centuries for handfeeding infants from birth but, once the sucking bottle became more sophisticated, the bubbypot lost its popularity although, almost certainly, it was the precursor of the spouted cups so frequently used today when weaning children from breast or bottle.

Various individual and unique designs of feeding vessels which survived were probably the work of craftsmen for favourite sons or grandsons and some of these are engraved with initials and the date—possibly the descendants of the exotically-shaped, but rare and impractical, Roman vessels.

Common

A striking feature of the development of feeding vessels is that those surviving and known to have been in use from pictorial evidence are very rarely mentioned in the medical literature, barely half-a-dozen authors referred to bottles or cans for artificial feeding and no writer mentioned a sucking bottle being in use in Britain before the 18th century. Yet 18th century feeding bottles are relatively common today, particularly those produced later in the century by the Staffordshire potteries, and these must be only a fraction of those originally manufactured. This might indicate that sucking bottles were disapproved of by the medical establishment, or that they were little used by the fashionable patients of those who wrote medical books.

Alternatively they may have been so common that they were not considered worthy of comment. Whatever the reason it is a strange omission.

The few writers who did discuss feeding vessels for infants considered four types—the cow's horn, the pap-boat, the spoon, and the bubbypot.

George Armstrong, who discussed artificial feeding at length in 1771, and reared three daughters by hand, preferred the boat since the horn was only suitable for thin liquids and, when he used it for his daughter, she nearly died from 'the watery gripes'.

This was not surprising when it is remembered that the end of the horn was covered with a sponge and two pieces of parchment sewn together, through which the baby sucked. Alternatively a cow's teat was attached. There is no reference to this being changed or even washed, and the
consequent harbouring of microorganisms in the feeding vessels must have caused most of the cases, and deaths from, the 'watery gripes', 'colic' and 'green stools' which were so frequently mentioned in connection with hand-fed infants.

Unnatural

The spoon as the main feeding utensil was preferred by some writers although Sarah Pennington, who wrote a popular advice book in 1767, thought 'nothing is more unnatural and tormenting, than feeding them with a spoon that must be taken every minute from their mouths to be replenished'. In 1787, Thomas Mantell thought that all other inventions for infant feeding were 'imperfect imitations of nature' and 'cannot be kept perfectly clean, the victuals that hangs about them, will be liable to become in a few hours, a very unfit for a nice taste to swallow, or a delicate stomach to digest'. The first definite reference to the importance of cleanliness in connection with feeding vessels. However, the perfection of the bubby-pot by Dr Hugh Smith about 1774 was a triumph of ingenuity of which Michael Underwood fully approved a few years later as having many of the advantages and few of the disadvantages of other vessels. 'It is nearly as acceptable to many children as the breast, as I have often been a witness.' In his popular 'Letters to Married Women' of 1774, Smith described his invention:

'Since this book made its first appearance [in 1772] I have contrived a milk-pot for my own nursery ... it appears to my family and to many of my patients, preferable to those now in use, and may probably be still further improved ... this pot is somewhat in shape like an urn; it contains a little more than a quarter of a pint; its handle, and neck, or spout, are not unlike those of a coffee pot, except that the neck of this arises from the very bottom of the pot, and is very small ... the end of the spout is a little raised, and forms a rounded knob, somewhat in appearance like a small heart; this is perforated by three or four small holes; a piece of fine rag is tied loosely over it, which serves the child to play with instead of the nipple, and through which, by the infant's sucking the milk is constantly strained. The child is equally satisfied as it would be with the breast; it never weets him in the least; he is obliged to labour for every drop he receives in the same manner as when at the breast, and, greatly in recommendation of this contrivance, the nurses confess it is more convenient than a boat, and that it saves a great deal of trouble in the feeding of an infant; which is the greatest security to parents, that their servants will use it when they themselves are not present.'

An interesting postscript adds that 'The milk-pots are now also made in Queensware in order that the poor may be accommodated; any person, therefore, at a very trifling expense, may be convinced of their utility by making the experiment'. This seems to indicate that, by 1774, sufficient numbers of the poor were undertaking artificial feeding to make it worthwhile manufacturing cheap versions of the bubby-pot.

Established major developments

By the early years of the 19th century, therefore, the major developments in the shape of feeding bottles were established and a more suitable substitute for breastmilk was beginning to be used. All that remained was for a suitable teat or nipple to be invented to replace the parchment, rags, sponges and cow udders which covered the sucking spout and made the vessels so lethal. This was achieved in the 1840s when rubber teats were first made although, until the principles of sterilisation were properly understood, it remained an achievement to rear an infant by artificial means. Witness Charles Dickens in Great Expectations: 'My sister, Mrs Joe Gargery, was more than 20 years older than I, and had established a great reputation with herself and her neighbours because she had brought me up by hand.'


REFERENCES

AUTHORS


BIBLIOGRAPHY


REFERENCES


