

A HISTORY OF INFANT FEEDING

BY

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PART I. PRIMITIVE PEOPLES: ANCIENT WORKS: RENAISSANCE WRITERS

'All that has been written on the choice of nurses, and the nourishment of children, is hardly anything more than a collection of prejudices.'

N. BROUZET (1755)

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Infant Feeding Amongst Primitive Peoples

Anthropological studies show that there is a remarkable tendency to obscure the natural method of infant feeding. This is more readily understandable when it is realized that contemporary primitive tribes are in fact highly civilized, though their form of civilization has evolved along different lines from our own. The known facts have been compiled by Ploss and the Bartels (1935) in their historical and anthropological compendium entitled 'Woman'. The more important points will be reproduced here.

Most savage peoples let several days pass before the mother begins to suckle the newborn baby, and the time interval varies from tribe to tribe, but the average period is four days, and the maximum seldom exceeds nine days. The same kind of taboo on the colostrum is apparent in the writings of both English and French authors of the seventeenth century and it had been handed down to them from Greek and Roman times. The one exception appears to be the Maori tribe who attends to the breasts during pregnancy and begin suckling after delivery (Waller, 1937). Most other tribal women give food to the infant during the interim period and our own practice of giving sugar and water to the newborn is a survival of this custom. In Samoa the whole procedure is highly organized, with an official milk tester, usually an elderly woman, who puts the sample of milk in a dish, adds a little water and two hot stones. If curdling occurs the milk is pronounced poisonous and suckling is further delayed but a suitable bribe usually results in the test proving satisfactory!

The duration of the period of lactation varies considerably from one tribe to another but the average would appear to be from three to four years, though additional foods such as chewed bananas, coconut milk, bread and intoxicating liquors are often started

from the earliest age. Hottentots seldom feed longer than about four months, Samoans less than one year, Armenians for one to two years, Australian aborigines for two to three years, Greenlanders for three to four years, Hawaiians five years and Eskimos for about seven years reaching a maximum in King William Land of up to 15 years. In these circumstances a mother may be suckling two or more children of different ages at the same time.

Prolonged lactation would seem to be encouraged by maternal love, the pleasurable sensation experienced, economy, and belief in its contraceptive property. There would appear to be no moral content for, in breast feeding, the wife of primitive man has no feeling of merit or duty; she simply does what she cannot help doing. On the other hand prolonged lactation would appear to be actually abhorrent to civilized man; a note in the *Lancet* (1842) records a case of a woman who suckled a child for three and a quarter years and then developed epilepsy. The attendant physician wrote: 'The worst symptoms of debility at last attended this monstrous proceeding'. The Tyrolese, about 1900, went even further, for at that time breast feeding amongst them was not only not customary but was actually regarded as immoral.

Most primitive women nurse the baby in the horizontal position on their lap, and some use the fingers of their free hand to control the flow of milk. However, the Armenians and several Asiatic races lean over the supine baby, often resting on a bar which runs above the cradle for support. It has been suggested that in this position less air is swallowed, and certainly it is not customary for these women to lift the baby out of the cradle to eructate after a feed. The Hottentots and Fijians carry the child in a cloth on their backs, and having by nature long, pendulous breasts, they are able to toss one over their shoulder to the baby whenever he indicates by crying that he is hungry. In the accompanying illustration the

mother is at the same time nonchalantly smoking a pipe. In Japan suckling often occurs lying down, but older children take the breast by standing or kneeling up to the squatting mother.

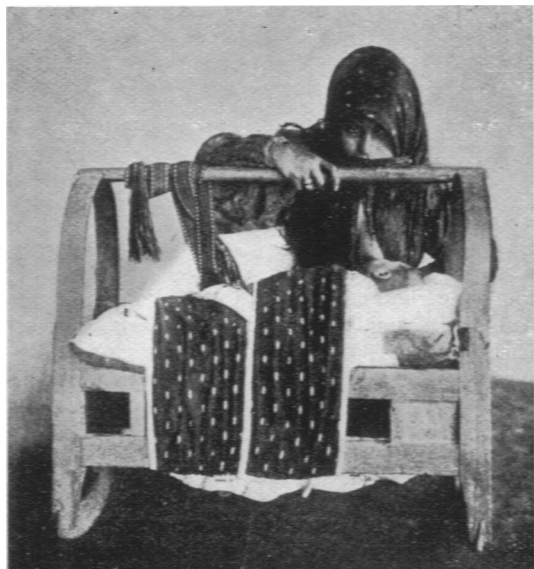


FIG. 1.—An Armenian suckling her child. Reproduced from 'Woman' Vol. III by Ploss and Bartels by kind permission of Messrs. Wm. Heinemann Ltd.

Wet nurses seem to have been in use from the earliest historical times and women of high rank in most communities have employed them but nevertheless some tribes consider foreign milk to be harmful for the infant, and if the mother dies the Eskimaux plunge the child into the cold sea rather than expose him to this danger. In contrast, some Arab communities pass each infant suckling round to all the lactating women.

In tribes associated with western civilization, such as in Java, the grandmother is expected to put the child to the breast whilst the mother goes out to work but there is considerable doubt as to whether persistent sucking ever stimulates true lactation in this way, though there are several reputed instances which suggest that it sometimes may and there are even reports of fathers successfully suckling.

In Africa and the Cameroons it is customary for the women also to suckle, if need be, domestic puppies and piglets, and the converse, of infants being suckled by animals, has been recognized since the time of Romulus and Remus, and was still practised in France in the last century where babies at L'Hôpital des Enfants Assistés in Paris were regularly put to the teat of asses which were permanently housed in stalls adjoining the ward.

Hoffman wrote at the beginning of the eighteenth century:

'The fiercest animals are rendered mild by human milk, and conversely humans being brought up on the milk of a wild beast become wild and fierce, witness the example of Romulus and Remus.'

The ferocity of Caligula was attributed to the fact that a drop of blood was regularly put on the nipple before he sucked and the bibulous Nero was partly forgiven because he had been reared by a drunken nurse.

The above facts about the breast feeding habits of various tribes are intentionally recorded without embellishment, for speculation upon the remote effects of the feeding mode upon the future life, health and temperament of the growing individual, and hence eventually upon the society and culture of which he forms an integral part, is potentially limitless and therefore liable to be misleading. Nevertheless suggestive facts are constantly being accumulated by workers in the field who converge



FIG. 2.—A Hottentot throws her breast over her shoulder to suckle her child. Reproduced from 'Woman' Vol. III by Ploss and Bartels by kind permission of Messrs. Wm. Heinemann Ltd.

upon the problem from different angles—by anthropologists, paediatricians, psychoanalysts and social workers—and thereby more confidence is being engendered in those who seek to assess the true depth and significance of the problem. Psychoanalysts are continually unearthing incidents which suggest that many important stimuli acting on the very youngest of infants are capable of making permanent and indelible imprints on the psychic pattern which become more and more deeply buried as the years go by and yet are capable in favourable circumstances of sending up bubbles, as it were, which cause ripples of disturbance on the surface. It is reasonable to expect that the emotionally charged atmosphere which is certain to envelop such a vital function as the feeding of a helpless human infant would be a stimulus of the most profound significance capable of moulding the developing character and, to a greater or less extent, of influencing the whole life history of the individual concerned.

Margaret Mead, in her recent study (1949) of the sexes entitled 'Male and Female' (pp. 68-72) approaches the problem as an anthropologist who has lived intimately amongst seven separate South Sea island communities, and she has attempted to correlate feeding habits with community traits. Thus the cannibal Mundugumor actively dislike rearing children, and the mothers push them away from the breast as soon as they are in the least bit satisfied. Their community spends its time quarrelling and head-hunting, and love-making is conducted like the first round of a prize-fight. On the other hand the Iatmul infant (also a head-hunting tribe) is allowed to cry vigorously for a feed, but when at last the breast is given there is no stinting and in this way the mouth becomes an assertive demanding organ. In contrast, the Balinese stuff little piles of pre-chewed banana into the infant's mouth whenever it opens, and this assault is followed in later life by a tendency to cover the mouth and eating is accompanied with great shame. The Arapech, a more docile and contented tribe in New Guinea, suckle their infants whenever they cry and they are never left far distant from some woman who can give them the breast if necessary.

In our own community there is less uniformity of approach to the problem and hence generalizations are less valid, but there is great scope for a team of social anthropologists to observe a series of infants from birth with a view to correlating feeding methods and problems with the later development of personality types and psychoneurotic reactions. Until such research is carried out we can only guess how pervasive an influence infant care can have upon any social structure. It has recently been suggested

that Russia's expansionist behaviour depends upon their custom of tightly swaddling the newborn and in this respect it may be significant that our own Empire building was carried out at a time when the same practice prevailed in England.

In the pages which follow we shall record in greater detail the modifications of infant feeding which have developed amongst western peoples, the difficulties which have arisen therefrom, and we shall see the persistence of primitive taboos with the submergence of the natural laws; later we shall observe the impact of science gradually taking effect. The interplay between the primitive and the civilized sometimes produces grotesque results as typified by the illustration of a modern Javanese woman carry-

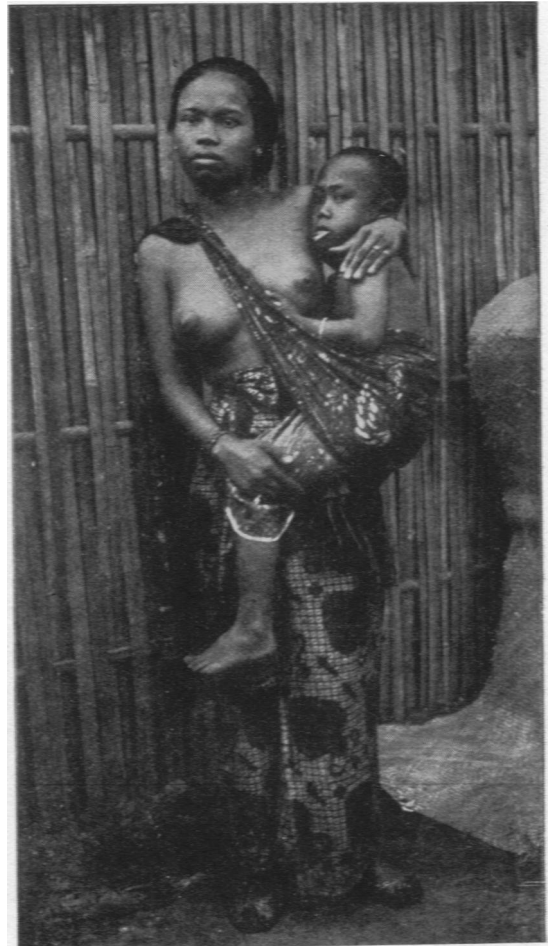


FIG. 3.—Woman from central Java carrying a suckling of 4 years of age. Reproduced from 'Woman' Vol. III by Ploss and Bartels by kind permission of Messrs. Wm. Heinemann Ltd.

ing a 4-year-old suckling boy who is smoking a cigarette between feeds!

Earliest Writings on Infant Feeding

F. H. Garrison, writing the introductory chapter on the *History of Pediatrics* in Abt's 'Pediatrics' makes a comprehensive study of the references to paediatrics in the earliest medical writings which have been handed down to us from the ancient civilizations.

The Papyrus Ebers (c. 1550 B.C.) is the earliest medical encyclopaedia from Egypt and it includes a very small paediatric section which contains one short prescription concerning breast feeding:

'To get a supply of milk in a woman's breast for suckling a child: Warm the bones of a swordfish in oil and rub her back with it. Or: Let the woman sit cross-legged and eat fragrant bread of soused durra, while rubbing the parts with the poppy plant.'

From this brief reference we can deduce that failure of lactation was a definite problem in ancient Egypt which was not entirely solved by the use of wet nurses or the adoption of artificial feeding, a hazardous procedure in those days. Later, in the Ptolemaic period, Greek influence probably resulted in an increased use of slaves as wet nurses whose responsibility it was to breast feed their charge for about six months and then to use cow's milk. In the Cairo museum there is a nursing flask of the Alexandrian period (second century) and perhaps these were used for the rearing of foundlings who, if they survived, were destined to become gladiators or prostitutes.

Indian Brahminical medicine had an excellent and well systematized paediatric section, and in the 'Susruta' (second century B.C.) it is made clear that it was customary to evacuate the meconium by giving honey and clarified butter during the first four days of life whilst the colostrum was expressed and discarded. Normal breast feeding was begun on about the fifth day. If a wet nurse was later required it was recommended that a lactating woman should be selected from the same caste as the infant, with well shaped breasts and with all her own children living. An infant should not be put to the breast of a woman who was feverish, dyspeptic, hungry or pregnant, and the milk should be tested and found to be easily miscible with water, thin, cold, clear, without froth or shreds and the colour of a conch shell.

In Israel children were regarded as a blessing and breast feeding as a religious obligation. It seems probable that the average duration for suckling was about three years (2 Maccabees 7, 27) and the hire of wet nurses was clearly well organized one

thousand years before Christ (Exodus 2, 7). The common belief in purging the newborn is preserved in Isaiah (Isaiah 7, 14) but there is no mention of artificial feeding anywhere in the Talmud.

In Homeric Greece (950 B.C.) wet nurses were in frequent demand, particularly by women of the higher classes, in whose households they came to hold a position of great responsibility with authority over the slaves and often with prolonged care of their charges up to adolescence. The writings of Hippocrates (460-370 B.C.) and his school contained little about infant feeding apart from some of the 32 aphorisms which, according to W. H. S. Jones, have been put together by scribes from later writers under the general heading 'On Dentition'. The first five are worth reproducing here:

- I Of children, those that be well nourished by nature, suck not milk in proportion to their fleshiness.
- II Gross feeders that draw much milk gain not flesh in proportion.
- III Of sucklings, they that pass much water are least inclined to sickness.
- IV They that have the belly much moved and good digestion withal are the healthier: they that have scant movement, and being gross feeders are not nourished in proportion are sickly.
- V In those that vomit much milky material, the belly is confined.

Hippocrates believed that the foetus learned to suck *in utero* and that this accounted for the passage of meconium and the presence of the sucking reflex at birth. He advised that

'Children and infants for a long time should be washed in warm water, and for drink should be given wine diluted with water and not quite cold; this should be given because it does not distend the belly and cause wind. These things are to be done to lessen the liability to convulsions . . .'

The next great writer of importance whose works have come down from the Graeco-Roman period is Soranus of Ephesus who lived in the second century A.D. and who produced a treatise on gynaecology and obstetrics which included no fewer than 23 chapters on mothercraft, infant feeding, teething and children's diseases which served as a prototype for the next 1,500 years. Soranus dealt in full with the choice of a wet nurse, the regimen for nurses, salting of the newborn and many other topics. He included the first description of the nail test which he probably did not originate but which has been handed down the centuries under his name from book to book. He recommended withholding the breast during the colostrum period just as the earlier Indian writers did, and at the age of 6 months he advocated the addition of bread crumbs, diluted wine, soups and eggs. There is no complete English

translation of his works, but his influence upon the Renaissance writers will be plainly discernible in the next section. There is a full French translation by Dr. Herrgoth (1895).

Galen (A.D. 130-200) wrote a chapter on infant feeding which, so far as I am aware, has never been translated into English but he is more particularly important for his general influence on medical thought in the Middle Ages. His conception of the fundamental principles of the natural world, or elements (air, fire, earth and water), which were respectively cold, hot, dry and moist dominated all branches of medicine for many centuries. A combination of one quality from each pair produced a complexion, and each had its appropriate humour thus:

Complexion	Qualities	Humour
Sanguine	Hot and moist	Blood
Phlegmatic	Cold and moist	Phlegm
Choleric	Hot and dry	Yellow or green bile
Melancholic	Cold and dry	Black bile

Children were considered to be phlegmatic at first, becoming sanguine and choleric with growth; they had to be treated accordingly.

Oribasius (A.D. 325-403) in his treatise to Eunapius Lib. 5 was one of the first writers to reproduce Soranus almost *in toto*, but Galen's influence is also apparent where he advises against giving meat to infants because it 'creates phlegm'.

The medical writings of Paulus Aegineta (?A.D. 625-690) have been fully translated by Francis Adams; they comprise seven books of which the first is concerned with infant feeding. Most was copied from Oribasius who in turn plagiarized Soranus, but it is worth summarizing here the main points with which he dealt. In choosing a wet nurse he recommended that she should be between the ages of 25 and 35, with well developed breasts and chest, and have been recently delivered of a male child. She should avoid salty and spicy foods, venery and debauchery, and she should take regular exercise employing the arms and shoulders by grinding or working at a loom. In addition to the nail test he advised adding rennet to the milk in a glass, allowing the cheesy sediment to settle, and comparing the serous supernatant fluid with the sediment. They should be roughly equal in quantity, but if the latter exceeds the former the milk will be indigestible, and if vice versa then the milk is too weak. If on the other hand the milk was too thick the mother should be given emetics to evacuate the phlegm, and if it was offensive it should be expressed and the mother fed on fragrant food and wines.

The Arabian school, which flourished about 200

years after Paulus, was represented by Rhazes (850-932), Avicenna (980-1037) and Averroes (1126-1198) who were more interested in children's diseases than in infant feeding but they served to bridge the gap between the Graeco-Roman and Renaissance writers. Rhazes attributed 'Mater Puerorum' to the taking of too much milk and thereby set a precedent for many subsequent writers to cite overfeeding as the cause of numerous disorders. Avicenna advised purging the nurse if the infant ailed.

The practice of preventing the newborn infant from taking colostrum and the giving of sugar instead, which is plainly contrary to nature, has therefore been prevalent since the dawn of civilization and, as we have seen, it is still almost universally adhered to by contemporary primitive tribes. In the writings we have so far referred to, there is very little mention of artificial feeding yet the discovery of feeding vessels from 2000 B.C. onwards suggests strongly that animal milk was in fairly common use. Many clay vessels have been found in the graves of Roman infants and some, from the first to the fifth century A.D., have been accurately dated with the aid of coins found along with them. It is difficult to account for this widespread omission, but perhaps the most likely explanation is that the milk was not modified in any way and hence no instructions for giving it were required. In any case wet nurses were the great standby; their employment by the Roman patricians caused Tacitus to inveigh firmly against their excessive use. Later writers have regarded this practice as a cause or a symptom of the decline that was to follow and have used similar arguments to warn our own civilization of its impending doom.

Aulus Gellius in 'Attic Nights' (translated by J. C. Rolfe), also records how the philosopher Favorinus called at a Roman's house to congratulate him on the birth of a son and he relates the arguments whereby Favorinus attempted to convince the grandmother that her daughter should suckle the child. In a long dissertation he asserted that to refuse the breast was as wicked as to procure an abortion, and he clearly believed in the conveyance of character via the milk which he used as an argument against the employment of a nurse.

The ancients, therefore, sowed the seeds of many of the superstitions and practices which embellish infant feeding even today, but they blossomed most strongly in the Middle Ages.

Renaissance Writers

We can pass straight from the ancients to the Renaissance period for there is no surviving work

from the Middle Ages relevant to our subject nor is it likely that anything of importance was written. The year 1472 marks the beginning of the output of printed works on paediatrics (Still, 'History of Paediatrics' p. 58), but all the earlier ones were in Latin and nearly a 100 years were to pass before the first book in English on the subject appeared.

Paul Bagellardus (?-1492) wrote the first of the paediatric incunabula which was printed in Padua in 1472. It was largely compiled from the ancients and contained the usual references to the nail test and the characteristics of a good wet nurse. Hiccoughs, diarrhoea and vomiting were all attributed to over-

feeding while viscous milk gave rise to constipation which was to be treated with a suppository made from powdered mouse excrement. Ruhräh ('Paediatrics of the Past' pp. 34-70) gives a full quotation from Bagellardus.

E. Roësslin (?-1526), who lived in Worms, wrote the first printed book on obstetrics and, as was the custom with the ancients, it included a section on paediatrics which was mainly a translation into Latin from Metlinger (c. 1450-1492), who had written the first book in German. Roësslin's 'Rosegarten' as it is called was translated into English by Richard Jonas in 1540 with a dedication to Katherine Howard, wife of Henry VIII. It was later reprinted by Thomas Raynalde entitled 'Byrthe of Mankynde'; a photograph of the title

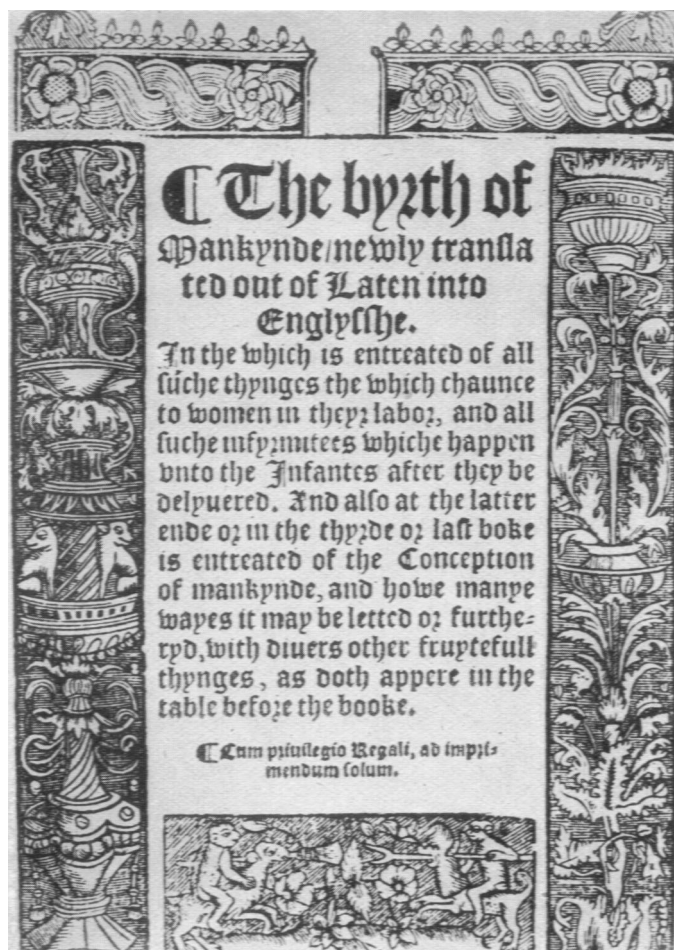


FIG. 4.—Title page of the English translation of Roësslin's 'Rosegarten' by Richard Jonas, 1540. Reproduced from 'History of Paediatrics' by Still with the kind permission of the Oxford University Press.

page is reproduced here and the following quotation comes from the First Boke, Cap; X, folio lix;

'Avicen avyseth to geve the chyld sucke two yeres / howe be it amonge us most comenlye they sucke but one yere. And when ye wyll wene them / then not to do it sodenly but a lytell and lytell . and to make for it little pills of bread and sugre to eate and accustom it so / tyll it be able to eate all manner of meate.'

The above passage is of particular interest and value because of the fact that the author definitely states that he is describing contemporary custom. All too frequently the medical historian has to assume that the author is describing contemporary methods whereas in fact he may just

as well be endeavouring to introduce a new scheme which he considers to be an improvement upon the existing state of affairs which is too well known to require further mention. It is for this reason that a history of infant feeding can never hope to be very much more than a chronological account of the relevant bibliography; further extension into the everyday methods of the common people is usually pure speculation. Forsyth, speaking at the Royal Society of Medicine in 1910, fell into this trap when advancing his thesis that not only was the incidence of breast feeding steadily declining, but also that the duration of lactation had been gradually curtailed from about two years in Elizabethan times to about nine months by 1900. The above quotation from the 'Rosegarten' shows clearly how much he was at fault.

Thomas Phayer (1510-1560), generally known as the father of English paediatrics, wrote the first English textbook on the subject entitled the 'Boke of Children'. This was originally bound with his 'Regiment of Life' and was, according to Still, first published in 1546 but Caulfield asserts that there is a copy in the Huntington Library, California, dated 1544. The last edition appeared in 1654 and the book therefore held its popularity for a century. It is freely borrowed from Jonas' translation of Roësslin who in turn had plagiarized Metlinger, who himself had derived his main inspiration from the ancients, relayed largely through the Arabian school. Phayer's description of the nail test and his remedies for increasing breast milk are copied almost word for word from the earlier work. Copies of both works can be seen and compared at the Wellcome Historical Medical Library; it is interesting to note that the 'Rosegarten' is paginated as folios, whereas in the 1546 edition of Phayer (variously spelt Phaer, Faer, Fayre, etc.) the pages are unnumbered. Phayer wrote about eight pages on infant feeding before passing on to the diseases of children and his pleasing style makes a quotation of the major part well worth while.

He begins by avowing his disinclination to deal with the hygiene and feeding of infants at all since in his day these matters were completely dominated by the midwives, but he summons enough courage to proceed notwithstanding. In the introduction he gives expression to the widespread belief of that period that temperament and morals, in addition to diseases, are conveyed by the milk of the nurse:

'In the meane season for confinyte of the matter, I entend to write somewhat of ye nourse, and of the milke, with the qualities, and complexions of ye same, for in that cōsisteth the chief pointe and summe, not only of ye mayntenance of health, but also of the fourmyng or infectyng eyther of the wytte, or maners, as the Poet Vergyl when he would describe an uncurteys churlyish and a rude cōdishioned tyraunt, dydde attribute the faute unto the gyver of the mylke . . .

And, as writeth Aulus Celius, Phavorinus the Philosophor affirmeth, if ye lambes be nourished with ye milke of goates, they shall have course wolle, like the heare of goates: and yf kiddes in lyke maner sucke upon shepe ye heare of them shalbe soft lyke wolle. Whereby it doth appeare, that the mylke and nouryshyng hath a marveylous effecte in chaunging the complexion . . .

Phayer then follows this up naturally with the traditional criteria for choosing a wet nurse, the appearance of sound milk, and of course a description of the famous nail test:

'Wherefore as it is agreing to nature, so it is also necessary and comly for the oun mother to nourse the oun child. Which if it maye be done, it shall be

most comendable and holsome, yf not ye shall be well advised in taking of a nourse, not of yll complexion, and of worse maners: but such as shall be sobre, honeste and chaste, well fourmed, amyable and chearefull, so that she may accustome the infant unto myrthe, no dronkard, vycyous nor sluttyshe, for such corruptethe the nature of the chylde.

But an honest woman (such as had a man chylde last afore) is best not within two monethes after her delyveraunce, nor approchyng nere unto her time againe. These things ought to be cōsidered of every wyse person, that wyll set their children out to nourse. Moreover it is good to loke upon the milke, and to se whether it be thicke and grosse, or to much thinne and watrye, blackyshe or blew, or enclynynge to rednesse or yelow, for all such are unnaturall and evyll. Likewise when ye taste it in your mouthe, yf it be eyther bytter, salte, or soure, ye may well perceyve it is unholsome.

That milke is good, that is whyte and sweet, and when ye droppe it on your nayle, and do move your finger, neyther fleteth abrod at every stering, nor wyll hange faste upon your naile, when ye turne it downward, but that whyche is betwene both is beste.

Somtime it chaunceth that the milke wasteth, so that ye nourse can not have sufficiente to susteine the child, for the which I wil declare remedies leaving out the causes for brevity of time.'

Since the problem of the causes of failing lactation is still unsolved today it is disappointing that Phayer had no time to recount them, but under the heading 'Remedie appropriate to ye encreasyng of Mylke in the Brestes' he recommends 'parsneppe rootes', 'fenelle rootes sodden in broth of chicken and afterward eaten with a little fresshe butter', 'rice sodden in cow's mylke', 'the powder of earthwormes dried and dronken in the broth of a neates tonge', and 'the broth of an olde cocke, with myntes, cynamone and maces'. If all these fail, the local application of plasters of fenell may be efficacious.

Sir Thomas Elyot (1490-1546), a diplomatist in the court of Henry VIII and author of the 'Castel of Helth', of which there is a copy at the Royal College of Physicians, also gave expression to the popular belief in the moral danger inherent in employing a wet nurse (quoted by Still, 1931, p. 307):

'For as some auncient writers do suppose, often times the childe soukethe the vice of his nourse with the milke of her pappe.'

Thomas Muffett (1553-1604) in his book 'Healths Improvement' (1584) draws attention to the medicinal use of breast milk:

'Neither is women's milk best onely for young and tender infants, but also for men and women of riper years, fallen by age or by sickness into compositions. Best I mean in the way of nourishment, for otherwise asses milk is best.'

He later describes the effect of the nurse's temperament on the ailing Dr. Caius:

'What made Dr. Cajus in his last sickness so peevish and so full of frets at Cambridge, when he suckt one woman (Whom I spare the name) froward of conditions and of bad diet; and contrariwise so quiet and well when he suckt another of a contrary disposition.'

Muffett believed that breast milk was 'converted from the superfluity of the blood', and 'seemeth to be nothing but white blood'. He strongly favoured breast feeding and on page 120, Chapter XIII of the 1655 edition he warned against the use of animal milk:

'... Aegyrtus, who being fed in a Shepherds Cottage only with goat's milk, waxed thereupon so goatish and lecherous, that he defiled not only Agamemnon's bed, but also neighed (in a manner) at every man's wife.'

The rest of the chapter on milk is concerned with a long discussion on the qualities of various types of animal milk, and the usual description of the virtues desirable in a wet nurse, to which he adds, 'Such a nurse is sooner wished of than found'.

On the continent Simon de Vallambert wrote the first French treatise on the subject entitled '*De la Maniere de Nourrir et Gouverner les Enfants des leur Naissance*' (1565) in which he recommended feeding cow or goat's milk through a horn after the third month of life, and he was the first author to mention the possibility of the transmission of syphilis between nurse and infant. He attacked the prevalent custom, handed down from Avicenna's day, of the nurse chewing the food before feeding it to the child because he believed that this generated worms. In Italy O. Ferrarius wrote '*De Arte Medica Infantum*' in 1577 which contains the first picture of a breast pump consisting of a receptacle with an opening for the nipple, and a long spout

reaching up to the mother's mouth, and H. Mercurialis, the misogynist, wrote '*De Mortis Puerorum*' in 1583 in which he recorded that lactation may last for two or three years but most women (whom he described as stupid and always making mistakes) gave pap by the third month and stopped breast feeding by the thirteenth in contrast with the old days when, for example, Plotinus at the age of eight used to run from his tutor to his nurse and clamour for the breast.

We have seen enough of the fifteenth and sixteenth century writings to realize that little or nothing was added to that which had been handed down from the Graeco-Roman period, but the advent of printing together with the use of the English, French and German vernaculars ensured a much wider dissemination of the older works than had previously been possible.

Some historians, such as Forsyth, have noted the paucity of details about artificial feeding and have concluded that animal milk was not used for babies during this period. This omission, however, was also noticeable in the classical works and since the Renaissance writers followed the ancients so closely it is hardly surprising that it was perpetuated. We have ample evidence of a concrete nature of the use of animal milk in Roman times, and medieval prints depict the use of a cow's horn as a feeding bottle such as de Vallambert describes. We have no knowledge whatsoever as to the details of artificial feeding, nor do we know what proportion of society was able to employ wet nurses instead, but there can be little doubt that breast milk was by no means the only food commonly given to young infants.

[A full bibliography will be published with the last section of this paper.]