THE EARLY HISTORY OF PAEDIATRICS IN BRITAIN

by

Haldane Philp Tait
M.D.(Edin.), F.R.C.P.(E.), D.P.H.

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But my purpos is here to do theim good that have mooste neede, that is to saie, children. Phaer, in Preface to Boke of Children.

He onely cures well that rightly knows diseases and their causes, as also the vertue of simple Medicines, he cures best. Robert Pemell, in his Treatise of Medicines.

There can be no Doubt but that a perfect Cure of the Diseases of Children is as much to be desired by all, as any Thing else whatsoever in the whole Art of Physick. Walter Harris, in his De Morbis Acutis Infantum.

When a man takes upon himself to contradict received opinions and prejudices sanctified by time, it is expected he should bring valid proof of what he advances. William Cadogan, in his Essay upon Nursing.
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INTRODUCTION

PAEDIATRICS as a specialised branch of medicine had no real existence before the middle of the nineteenth century. Its earlier history is only a small part of the main current of general medicine.

Nevertheless, the birth of British paediatric literature took place with the publication of Thomas Phaer's Boke of Children (1545). Before this time, items of paediatric interest and importance were scattered in other writings in which the influences of Graeco-Roman and Arabian medicine were discernible.

The seventeenth century saw the real awakening of clinical medicine in Britain and with it came masterly descriptions of individual diseases of children by such as Glisson, Willis and the great Sydenham. Walter Harris, the Royal physician and the author of a popular work on children's diseases, was the premier paediatrician of his age.

The eighteenth century was a period of intense activity on all matters pertaining to children, both in health and disease, and the seeds of the modern care of children were sown by such men as Cadogan, Armstrong, Underwood and the two Heberdens. The efforts of these pioneer paediatricians were consummated in the nineteenth century when children's hospitals were established throughout the country and organised whole-time study of children's diseases became possible. Training in and teaching of paediatrics/
paediatrics logically followed these developments. The wastage of infant life and the abuses to which the child was exposed, finally roused public opinion to such a pitch in the later nineteenth century that action was taken resulting in the organisation of the Infant and Child Welfare Movement. Thus, twentieth century paediatrics comprehends not only the care of the sick child but also that of the healthy one.

It is proposed in this essay to consider paediatrics largely as a specialised branch of medicine, but at the same time to pass in brief review infant and child life from early times, as there are many things in the cultural and secular history of Britain which are of considerable moment in the history of paediatrics in our country. For this purpose it is convenient to divide the history into periods, viz:

- First Period - Earliest Times to 1539
- Second Period - 1540 to 1639
- Third Period - 1640 to 1739
- Fourth Period - 1740 to 1839
- Fifth Period - 1840 to present century.

The infant and young child have, from time immemorial, been thought to be exposed to evil influences operating before, at, and subsequent to birth. "Wise women" considered to possess the power of warding off malevolent spirits and restoring the health of sickly children by charms, incantations and other means, were for long the constant and only advisers/
advisers of the mothers. Thus was evolved the variegated ritual at the birth, bathing, nursing and baptism of infants, some of which still survives in the folk-medicine of our country. Some more general aspects of the folk-medicine of children's diseases will be considered in the concluding chapter of the essay.

The population remained small. Famine and pestilence stalked the land, and we may infer from this that infant mortality was enormous. Infanticide was probably practised extensively as child rearing was hard and difficult. With the introduction of Christia
tianity, there was some modification in the attitude to the child, but such in pagan rites and beliefs became merged with the new teaching, and superstition continued to surround the child. Thus the prognosis of the newborn infant's life depended on the time of its birth in relation to the cycle of the moon.

In the Lorschbook of Bald (circa A.D. 900) there were scattered references to childhood maladies, the remedies for which were largely composed of herbs, though occasionally animal sources were drawn upon. The Byzantine compilers exerted considerable influence on these Anglo-Saxon writings. The warm theory of disease was the prevailing one and numerous remedies were prescribed for internal and external women.

"Against a bad worm (Viscibas): take ship-tar, and sulphur, and pepper, and white salt, mingle them together, smear thereof with."

As
CHAPTER I.

THE FIRST PERIOD: EARLIEST TIMES TO 1539

Creighton (1891) remarked that one chapter in our country's early history of which we knew little was that dealing with the child, and that it ought to have been the greatest of all. In Anglo-Saxon times the population remained small, famine and pestilence stalked the land, and we may infer from this that infant mortality was enormous. Infanticide was probably practised extensively as child rearing was hard and difficult. With the introduction of Christianity, there was some modification in the attitude to the child, but much in pagan rites and beliefs became merged with the new teaching, and superstition continued to surround the child. Thus the prognosis of the newborn infant's life depended on the time of its birth in relation to the cycle of the moon.

In the Leechbook of Bald (circa A.D.900) there were scattered references to childhood maladies, the remedies for which were largely composed of herbs, though occasionally animal sources were drawn upon. The Byzantine compilers exerted considerable influence on these Anglo-Saxon writings. The worm theory of disease was the prevailing one and numerous remedies were prescribed for internal and external worms:

"Against a hand worm (?scabies); take ship-tar, and sulphur, and pepper, and white salt, mingle them together, smear therewith."

As/
As a preventive against teething troubles, smearing of the infant's gums with bitches' milk was recommended.

A surgical reference to hare-lip is interesting:

"For hair-lip, pound mastic very small, add the white of an egg, and mingle as thou dost vermillion, cut with a knife the false edges of the lip, sew fast with silk, then smear without and within with the salve, ere the silk rot. If it draw together, arrange it with the hand; anoint again soon."

Cockayne (1865) expressed doubt as to whether indeed the Anglo-Saxon leeches did perform such operations, though they wrote about them.

The writings of later physicians, such as Ricardus Anglicus, John of St. Giles, Hugh of Evesham and Gilbertus Anglicus in the thirteenth century, and John of Gaddesden and John Arderne in the fourteenth century contain little reference to diseases of children, though Sir Thomas Elyot (?1490-1546) in his Castel of Helth (1534) made some general references to children's maladies.

In the fourteenth century, the cult of patron saints began and superseded the Zodiac in the fifteenth century. In that century, St. Michael, the patron saint of scrofula was connected with the royal practice of "touching", the "angel" given by Henry VI, Edward IV, Edward V and Richard III had on it the figure of St. Michael, (Jones, 1937). As a corollary of the religious background was faith-healing, e.g. the/
the healing powers of well waters associated with some saint or martyr.

Throughout the period midwifery was almost entirely in the hands of women, and many nuns were skilled in the healing art.

**Infant Feeding:**

Breast feeding was probably the only method practised during the period though this might be either maternal suckling or by the employment of wet-nurses. Suckling continued into the second year and even into the third.

**The Child in the Social and Cultural History of the Period:**

Life for the child was hard throughout. Little is known of the earliest times, but with frequent famines and pestilences desolating the entire country, the child doubtless suffered severely both directly and indirectly. Monastic orders later gave help to the poor and needy, and during the fourteenth and fifteenth centuries religious hospitals accepted responsibility for the children of mothers dying following childbirth in these hospitals. In Scotland, Queen Margaret, in the eleventh century, "every morning prepared food for nine orphan children and on her bended knee she fed them". An Ordinance of the Provincial Councils of the Church, held in Scotland in the thirteenth century, forbade mothers or nurses to place young children in the same bed with themselves, "by reason of the frequent dangers arising therefrom"/
therefrom", - the danger of smothering.

In the Renaissance period, much attention was paid by the writers of the period, e.g. Erasmus and Elyot, to the education of children. In England, the wealthier classes sent their children to live in the homes of nobles and others to learn etiquette, theory of precedence, how to carve, and all the other essentials of the training of gentlemen and gentlewomen. The poor apprenticed their children from the age of seven years. Of children sent to school, their discipline was harsh and punishment severe. Relics of this austere preoccupation with etiquette and manners are to be found in some of the books of the period, such as John Russell's Book of Nurture, The Babees Boke, and others, (Furnivall, 1868).

Personal hygiene, as well as environmental hygiene, were low generally, but there are sections in these books containing exhortations on cleanliness of the face, hands, teeth and clothes.
The general care of children in this, the period in which interest in paediatrics was first manifested, still remained almost entirely in the hands of women. This was realised by such men as Peter Chamberlen, who, as late as 1616, petitioned James I. to obtain instruction and government of midwives in order that the newborn infant, as well as the mother, might at least receive attention of a satisfactory type. Unfortunately, this petition failed to obtain the notice it merited.

The opening year of this period is important in the history of paediatrics in Britain in that there was published in London a translation of Eucharius Rösslin's De Partu Hominis, entitled: The byrth of mankynde newly translated out of Laten into Englysshe, by RICHARD JONAS. The book, a rare one, was the first one dealing with paediatrics to be translated into English and published in England. Jonas dedicated his work to "the most gracious and in all goodnesse most excellent vertuous Lady Quene Katheryne", (Katherine Howard), and it was printed by Thomas Raynalde. While primarily a treatise on midwifery, it contained sections dealing with the handling, feeding and general care of the newborn infant, the choice of "nource" and a discussion on thirty-one diseases of children with the remedies appropriate to each.
The Byrth of Mankynde enjoyed considerable popularity until well into the seventeenth century, though the original translation by Jonas was revised and republished in 1545 by Thomas Raynalde, "physition". This latter translation went through several editions, the final one appearing in 1654, (Ballantyne, 1907).

The following short quotations taken from the 1552 edition of Raynalde, give some idea of the contents of the book which deal with paediatric matters:

"It shalbe beate that the mother give her chylde sucke her selfe, for the mothers mylke is more convenient and agreable to the infant, then any other womans, and more doth it nouryshe it, for because that in the mothers belly it was wont to the same, and fed with it". This was an indication of the prevalent belief that in the later months of pregnancy the maternal milk was carried to the foetus in utero.

To increase the quantity of breast milk: "Item, to eate shepes brestes, and the mylke of them is good!"

For the falling sickness: "Item, to hang Viscum quersinum (mistletoe of the oak), which is gathered in Marche the moone decreasyng, about the Chyldes necke, is very good".

It will be seen from these short extracts that superstition and astrology were intimately associated with medical thought at that time.

Ballantyne produced evidence to suggest that the Thomas Raynalde, printer of Jonas' translation of Rosslin's work was not the same Thomas Raynalde who subsequently/
subsequently revised Jonas' original English translation and issued, in 1545, The Beryth of Mankynde ...... Newly set forth, corrected and augmented ... Raynalde, the physician, appeared to have practised in London and Paris, and may have been related to his namesake the printer. Raynalde, physician, described Jonas as a "studious and diligent clarke" in the 1545 edition, and this implied that Jonas was not a medical man.

The year 1545 was also noteworthy in that the first work on diseases of children ever to be written by a British physician, appeared in London. The author was THOMAS PHAER (1510-1560), whose surname was variously spelt Phayer, Faer, Faier, Phayre and Phaier in others of his works. His paediatric treatise, The Boke of Children, was appended to a small volume containing Phaer's translation into English of a French version of the Regimen sanitatis salerni, which he called The Regiment of Life, together with short works on the pestilence and the veins.

Of Phaer himself, little is known. Probably born at Norwich, he was educated at Oxford, and later went to Lincolns Inn to study law. Phaer was described by Fuller as "a generall scholar and well versed in the Common Law". He wrote several legal treatises, as well as translating into English the first nine books and part of the tenth book of Virgil's Aeneid, in 1562, and several minor poems which were favourably received by the critics of his day.

Ruhrāh/
Title Page of Thomas Phaer's Regiment of Life and Boke of Children (1553)
Ruhräh (1925) called Phaer the Father of British Paediatrics and there was considerable justification for this title. He was the first to recognise the importance of paediatrics in this country, a subject which had been and indeed continued for a long time later to be neglected. Phaer championed the vernacular as a medium for the language of science and learning and scathingly commented on those who continued to write on medicine in a foreign language.

The title of Phaer's little book was:

THE REGIMENT of life, whereunto is added a treatise of the peste silence, with the boke of children, newly corrected and enlarged by T. Phayre. + Anno 1545.

The work was published in London by Edward Whitchurch, and it went through other editions in 1546, 1550, 1553, 1560, 1565, 1567, 1570 and 1596 - a clear indication of the popularity of the book.

Phaer started off the Boke of Children by explaining that he intended to treat only of "things necessary, as to remove the sicknesses, wherewith the tender babes are oftentimes afflicted, and desolate of remedye, for so muche as many doe suppose that there is no cure to be ministred unto the, by reason of theyr weaknes". Thereafter, he proceeded to a short discussion of the virtues of maternal milk for the infant, and failing this, the necessity of choosing a "nourse, not of yll complexion and of worse maners: but such as shal be sobre, honeste and chaste, well fourmed/
fourned, amyable and chearfull, so that she may accus-
tome the infant unto myrth, no dronkard, vyckyous nor
sluttysshe, for suche corruptethe the nature of the
chylde". He described remedies "appropriate to ye
encreasyng of mylke in the Brestes", finishing off
thus:

"Thus moche of the nource, and of the mylke:
nowe wil I declare the infirmities of children".

Phaer then listed some forty maladies affecting
young children. Two extracts will give some impres-
sion of Phaer's style and therapy.

"Of Terrible Dreames and Feare in the Slepe.

"Oftentymes it happeneth that the child is afraid
in the slepe, and sometimes waketh soudainly, and
sterteth, sometime shrikethe and trembleth, which
effect commeth of the arsyynge of stynking vapours,
out of the stomake into the fantasye, and sences of
the brayne, as ye may perceyve by the breath of the
chylde: wherfore it is good to geve him a little hony
to swallow, and a lytle pouder of the seedes of peonye,
and sometymes treacle, in a litle quantity with milke,
and to take hede that the chylde sleepe not with a
full stomake, but to beare it about wakyng, tyl part
bee dygested, and whan that it is laide, not to rocke
it much, for overmuch shaking letteth digestion, and
maketh the chylde many tymes to vomyte".

Though his drug therapy may be weak, his manage-
ment is along modern lines. Phaer believed in charms
and much of what he wrote echoed Graeco-Roman authors,
and Ruhräh has pointed out that the last chapter of
Phaer's/
Phaer's book, on "Gogle Eyes", had been extracted almost word for word from Jonas' translation of Rösslin's work. He was not original in his paediatric writings, but his great merit lay in his enabling his fellow-physicians to read and think of children and their diseases, in their own language. Phaer died on August 12, 1560.

The third contribution to our subject appeared in 1579, and though not dealing with diseases of children, it was important in that it was a book dealing with child management. Written in English, it was entitled: The Arte & Science of Preserving Bodie & Soule in Healthe, Wisdome, and Catholike Religion: Phisically, Philosophically, and Divinely devised: By John Jones, Physition. - most unlikely title for a book dealing with the nursing and education of children. Only four copies of the work have been catalogued (Radbill, 1938).

JONES (fl. 1579), inferentially a Welshman, practised medicine at Louth, Nottingham, Derby, and during the seasons, at Bath and Buxton (D.N.B.). He dedicated his work to Queen Elizabeth, and its forty-five chapters were divided into three sections. The first section dealt in the main with the nurse, the second with the infant, and the third with the education and spiritual training of the child.

The importance of maternal milk was emphasised, but failing that the necessity of choosing a suitable wet-nurse, aged between 23 and 33 years. Weaning was/
was recommended at about the seventh month, "pappe" being used. Jones cautioned mothers and wet-nurses against seeking the advice of "unlawful practitioners" who were abundant during this time. The hygiene of the child was carefully considered and our author also included the care of the cot, the clothing and the nursery. Various anatomical measurements of the child were also given. Jones discussed the emotional development of the child intelligently, and wrote that, "Many judgeth that the causes of unkindness, disobedience, and unlawful suits arise because mothers fail to nurse their own children", - quite in keeping with the beliefs of modern paediatric psychiatrists.

Thereafter conduct, education, the choice of tutor - who should have some knowledge of dietetics - the value of play, "in time and place convenient" are considered, the final chapters being devoted to a religious discussion.

In 1612, an anonymous English translation of Jacques Guillemeau's work appeared, entitled: The Nursing of Children. This book seemed to have gained some favour among British physicians as a further edition was forthcoming in 1635. The work had some merit, and contained a description of congenital syphilis, which was then beginning to receive some attention.

ELIZABETH CLINTON, Dowager Countess of Lincoln, published in 1622, a little twenty-one page book entitled: The Countess of Lincolnes Nurserie, with an/
an Address to the Reader by Thomas Lodge. Mother of eighteen children, eleven of whom died, Elizabeth dedicated her little work to her daughter-in-law, Bridget, Countess of Lincoln. Though in no sense a treatise on diseases of children, it is important as a book dealing with the virtues of maternal suckling. It was written as the Dowager Countess was concerned about the almost universal practice among the higher ranks of society of employing wet-nurses. Elizabeth herself had not nursed any of her children, not, as she explained, for want of will to do so, but because she had been over-ruled by "another's authority" and deceived by some ill counsel. She argued in favour of maternal feeding from both Biblical example and precept, but her most convincing argument came near the end of her book: "I have found by grievous experience, such dissembling in nurses, pretending sufficiency of milk, when indeed, they had too much scarcity: pretending willingness, towardness, wakefulness, when, indeed, they have been most wilful, most froward, and most slothful . . . ."

"Therefore, be no longer at the trouble, and at the care, to hire others to do your own work; be not so unnatural as to thrust away your own children; be not so hardy as to venture a tender babe to a less tender heart; be not accessory to that disorder of causing a poorer woman to banish her own infant for the entertaining of a richer woman's child, as it were, bidding her to unlove her own to love yours . . . ."
Infant Feeding:

The outstanding feature of the works on children appearing during the period was the stress laid on the feeding of infants. Much, but by no means all, of this was based on tradition and superstition. We must remember that artificial feeding was unknown and cow's milk was never mentioned. The choice for the infant lay between the breasts of its own mother or those of a wet-nurse. All the writers from Jonas, the translator, to Elizabeth Clinton, were agreed that maternal milk was best, and though such was the ordinary way of feeding the infants of the common folk, the infants of the nobility and wealthier classes were being steadily and progressively more committed to the care of wet-nurses. It was because the practice of putting infants out to wet-nurses had become so universal among her class that moved the Countess of Lincoln to write her little book. In spite of all efforts, however, the stock of the wet-nurse continued to rise, and indeed it was during this period that she gained her position which she maintained till the early nineteenth century. Phaer and Jones gave meticulous instructions on the choice of wet-nurses, as a prevalent belief was that the virtues, vices and other characteristics of the foster-mother were transmitted in her milk to the infant, thus influencing the child's later character. Shakespeare alluded to this belief in Richard III (Act II. Scene II.).
The duration of breast-feeding was variable. In *The Byrth of Mankynde*, weaning was recommended at the end of the first year, Jones advised it at about seven months, but at the same time he added that he himself had been nursed for three years and was "none the worse". Generally, however, weaning completely from the breast was not carried out till between two and three years of age. "Lyttle pylles of bread and sugar" were recommended as the first food by Jonas and weaning was to be continued until the child was able to "eate all maner of meate". "Pappe" as described by Jones consisted of bread and water made into a pottage.

The Child in the Social and Cultural History of the Period:

By the beginning of the period, the severance of the spiritual allegiance of Britain to the Church of Rome had already been accomplished and with it were swept away those habits of life and thought to which the people had grown accustomed for the previous ten centuries. With the Dissolution of the Monasteries in 1539 came the closing of many schools in connection with them, and song and grammar schools were re-organised in conformity with the Reformed Church. Notwithstanding this, education of the children was crude and scanty, and the period of childhood was an unhappy one. There was little parental display of affection. The birch played a large part in the bringing-up of children, and Nicholas Udal, the famous/
famous Eton master firmly believed in its virtues, while Roger Ascham cried sadly: "Learning is robbed of her best wits by the great beating".

Baby-farming became an organised trade, as with wet-nursing being more and more adopted, many infants were sent into the country to foster-mothers. Even men could be baby-farmers, a wholly unnatural state of affairs (Forsyth, 1911). During this period, in Scotland, the Presbytery had often to deal with the offence of "smooring bairns" (Ferguson, 1948). The delinquents were usually women, but on occasions men appeared and "were rebuked for being art and part in smooring the bairn". The punishment was usually light and the offence was not stamped out. Indeed, smothering was a recognised method of infanticide till late in the nineteenth century.

The children of the poor were subject to the harsh measures contained in the Elizabethan Act of 1572 and the Scottish one of 1579. The unfortunate children were bound and restricted to their masters, the emphasis always being on servitude. Nevertheless, efforts were made to provide for orphans and foundlings, and in 1553, Christ's Hospital was founded for fatherless children and foundlings, and in Scotland, Council Records for Edinburgh and Kirk-Session Records for Elgin (1601) show entries indicating concern by the authorities for the care of poor and orphan children.

Generally, the age was one of callous indifference to child life, even though "Merrie England" formed part of the period.
CHAPTER III.

THE THIRD PERIOD: 1640-1739

Garrison (1923) described the seventeenth century as essentially a period of individualism in thought and research, and this was reflected in the remarkable number of treatises on special subjects rather than of exhaustive works, and the same state of affairs continued into the early eighteenth century. Though the humoral theories of pathology still were staunchly supported by such great figures as Sydenham, there began to be a break away from the old Hippocratic ideas, with the formulation of new theories which became so marked in the later eighteenth century as to warrant the appellation, the Age of Theories.

The first of the diseases especially affecting children, to which special monographs were devoted in this period was rickets. Though the history of this disease undoubtedly dates from ancient times (Foote, 1927; Findlay, 1934), we cannot recognise any clear description of rickets in medical writings until 1645. Then DANIEL WHISTLER (1620-1684) presented a thesis, written in Latin, for the degree of M.D. at Leyden, in which he gave a clear clinical picture of the disease. He pointed out that rickets had first been observed in England some twenty-six years previously, and the word rickets was apparently first used there about 1625. It certainly appeared as a cause of fourteen/
fourteen deaths in a Bill of Mortality for 1634, while the term rickety was not in use till 1738 (Brown, 1942). Moore (1884) cast doubts on the originality of Whistler's description of the disease, but of its priority there is no question. The clinical picture sketched by Whistler compared favourably with any present-day account, but his pathology was purely speculative. A Dutch physician, ARNOLD BOOT (1606-1650), practising in London, published a further account of rickets there in 1649.

The most complete and authoritative description of rickets was that of FRANCIS GLISSON (1597-1677), and his two collaborators, George Bate (1608-1669) and Ahasuerus Regemorter (1614-1650). The work, entitled: De Rachitide, was written in Latin and published in 1650. It was a monumental and exhaustive enquiry into the disease, in which the causes, morbid anatomy, pathology, symptomatology, course and treatment were discussed. In the clinical description we see Glisson as the master observer. He denied that rickets was a result of syphilis or that it was contagious, but regarded excessive feeding with its consequent indigestion as at least one cause of the disease. He postulated a theory of unequal distribution of blood to the various parts of the body as another cause. He also insisted that rickets was more common in England than in Scotland, and in the rich than the poor. Therapy was limited to issues, cupping, blisters, use of ligatures, laxatives, vomits, simples and compounds, yet curiously Glisson had almost nothing to say on the dietary aspects of treatment/
De Rachitide
Sive
Morbo Puerili,
qui vulgo
The Rickets dicitur,

Traëtatus;
Opera primo ac potissimum
FRANCISCI GLISSONII
Doctoris & publici Professoris Medici
in alia Cantabrigiae Academia,
& Socii Collegii Medicorum
Londinensium, conscriptus:

Adscitis in operis societatem
GEORGIO BATE, M.D. EDIN
&
AHASUERO REGEMORTERO

Medicina quoque Doctoribus, & pariter Sociis
Collegii Medicorum Londinensium.

L. 17. LONDINI, 1650.

Title Page of Glisson's De Rachitide (1650)
treatment, in spite of his theory. He was most modern in his use of splints. He lays claim to remembrance also by his account of scurvy which occurred in the section dealing with the association of rickets with other diseases.

Glisson's work exercised a profound influence on medical thought and practice both in his own time and later. An English translation by Philip Armin was published in 1651, and Nicholas Culpeper, "Gent., Student in Physick and Astrology", and "the most confident of physicians" (Kipling), issued an "enlarged, corrected and very much amended" English edition also in 1651.

JOHN MAYOW (1640–1679) sheared Glisson of much of his verbosity, and published one of the shortest, best and most accurate accounts of rickets, from both clinical and pathological standpoints, in a work, De Rachitide, published in 1669. Mayow saw further than Glisson in his pathology, refuting the theory of unequal nutrition, and substituting that of impaired muscle growth as the cause of the bowing of the bones. In therapy, however, Mayow was no better than Glisson, though it is interesting to note that, "The Scab or Itch coming upon this Disease, confers much to the Cure thereof".

In 1667, THOMAS WILLIS (1621–1675) published a work on the pathology of the brain, in which he described epilepsy and its treatment, and made frequent reference to the disease occurring in children. In this/
this work, translated into English in 1742 in a paediatric anthology, *A Full View*, Willis insisted that epilepsy was either hereditary or acquired, was caused by any unusual commotion in the blood, overheating, chilling, too rich diet, and any irritation in almost any part of the nervous system. He believed that the moon had an influence on the frequency of attacks - a lapse into superstition compatible with the times, but hardly to be associated with such an acute observer as Willis. Charms also formed an important feature of his therapeutic armamentarium. He demonstrated the importance of post-mortem examinations, and described the pathological appearances found in the brain of a month-old infant who had died from convulsions.

Willis also discussed whooping cough in 1675, attributing the disease to some frequent and violent irritation of the lungs and to a nervous disturbance producing a convulsive type of cough. On treatment, he conceded: "This cough though but rarely fatal or dangerous is nevertheless very difficult to cure, and not infrequently it ceases more on account of changed season than from any success of remedies".

JOHN BURTON (1703-1771) also wrote on whooping cough in 1738. His treatment consisted in first loosening the phlegm by giving millipedes with testaceous powders, and keeping the secretion reduced by exhibiting Peruvian bark.

THOMAS SYDENHAM (1624-1689), the most distinguished/
distinguished physician of his time, not only in Britain but in Europe, carved for himself a niche in the annals of British pediatrics by his unsurpassed descriptions of chorea (1686), still referred to as "Sydenham's chorea", his minute and detailed account "Of the Measles in the Year 1670", and his less full but none the less first description in Britain of scarlet fever (1675). It is remarkable that he failed to observe the sore throat in his description of scarlatina. The first appearance of the name scarlet fever in print in Britain occurred in Pepys' Diary, under date November, 10, 1664. Sir ROBERT SIBBALD (1643-1712) wrote upon scarlet fever in Scotland in 1684, under the impression that it was a new disease there. Sydenham's works were translated into English by JOHN PECHEY (1655-1716) who also compiled a small pediatric work of little merit, in which he was content to repeat what others had said before him.

To a Scottish physician, PATRICK BLAIR (? -1728) belongs the credit of publishing the first description of pyloric stenosis in an infant, with a post-mortem report on the case. Blair was probably one of the first physicians in the country to apply himself largely, but not exclusively, to pediatric practice. "I have had several Years Experience in the Diseases of Children and applied myself particularly to that Part of the Practise of Physic". His account of pyloric stenosis was published in 1717, and/
and he wrote that "The Pylorus and almost half the Duodenum were cartilaginous and something inclined to an ossification, so that no nourishment could have passed into the Intestines ...."

Two communications to the Royal Society are of importance during this period when smallpox became one of the major infections destroying child life in Britain. Though not physicians belonging to this country, the authors of these papers, together with the writings of the Lady Mary Wortley Montague, contributed much to the introduction of variolation here. EMANUEL TIMONI and GIACOMO PYLARINI (1659-1718), both graduates of Padua, described the success attendant on inoculation with smallpox material as a preventive measure against the disease itself. The communications by these two physicians appeared in the Philosophical Transactions, 1714-16. The propaganda of these three individuals was attended with considerable success, and variolation was first practised by the medical profession in England in 1721 and in Scotland at Aberdeen in 1726. Crookshank (1889) pointed out, however, that one, PETER KENNEDY, a Scottish physician in An Essay on External Remedies, published in London, 1715, described variolation as practised in the Peloponnesus, Turkey and Persia, but little attention was paid to his work.

In this period, a few general paediatric works were published and the first of these was in 1653, the author being ROBERT PEMELL (? - 1653), of Cranbrook, Kent./
Kent. Pemell believed in writing in English, "for the benefit of such as do not understand the Latine tongue", though the title of his little book of 58 pages was De Morbis Puerorum. He arranged his subject matter "methodically that it might be useful and profitable to such as shall read the same", and his descriptions of disease were short and concise, including one on the recently discovered rickets. Pemell's general therapeutics were sound but he had a fondness on occasion for drawing on some of the more nauseating of the Pharmacopoeial remedies. JAMES STARSMARE (fl. 1664) published a similar treatise in 1664, in which he described the King's Evil but omits any mention of the virtues of the Royal Touch. The best and most complete account of King's Evil was contained in Richard Wiseman's Several Chirurgicall Treatises published in 1676. In passing, it might be mentioned that touching for this disease ceased only with the death of Queen Anne.

The outstanding paediatric textbook of the period was De Morbis Acutis Infantum, written by WALTER HARRIS (1647-1732), pupil of Sydenham, and later Royal Physician. This book, published in 1689, held the field as the authoritative work on paediatrics till it was supplanted by Michael Underwood's work in 1784. The features of Harris' work were that he did not restrict his descriptions of disease to infants but extended them to include the older children. He deplored the neglect of paediatrics by his/
DE Morbis Acutis INFANTUM
Edition Secunda, Priori Author.

CUI ACCESSIT
LIBER Observationes de Morbis aliquot gravioribus Medicas complectens.
Annexis etiam Quibusdam de Luis Venere origine, natura & curatione.

Autore GUALTERO HARRIS, M.D.
Celeberrimi Collegii Medicorum Londinensis Socio.

LONDINI,

Title Page of Walter Harris's De Morbis Acutis Infantum (1705)
his fellow-physicians. Harris was an exponent of the Iatro-Chemical School, being greatly influenced by the writings of Franciscus de le Boë Sylvius, whose paediatric treatise had been translated into English by Richard Gower in 1682. Thus Harris wrote, "All the Causes of the Diseases of Infants .......... centre in one next and immediate prevailing Cause, namely, an Acid prevailing universally". Consequently, his idea was first to neutralise the acid and get rid of it by purgation, and to this end "things that are quite temperate will securely absorb the prevailing Acidity, gradually assuage the Ebullition, and become powerful and safe Anodynes". Such substances included crabs' eyes and claws, chalk, coral, and other "testaceous powders or absorbents of acid". His favourite purge was rhubarb. Harris' work was translated into English by Cockburn in 1693, and by Martyn in 1742, the latter translation being graceful yet exact. Still (1931) listed eighteen editions of Harris' treatise, the last being in 1742.

Though neither an original thinker, nor indeed, a great physician, Harris was shrewd and honest, a keen observer, and in therapeutics one to hold to simplicity and caution. To these attributes of the man himself must be ascribed the popularity of his book for a century.

English translations of paediatric works by Continental writers also continued to appear in increasing numbers during this period. Abraham Lenertzon Fox/
Fox translated the *Treatise of Surgery*, including the *Children's Book*, of Felix Wurtz, in 1656; notice has already been taken of Gower's translation of Sylvius' *De Morbis Infantum*; an English edition of Ettmüller appeared in 1703, and translations of two paediatric poems were also published. In 1710, an anonymous translation of St. Marthe's *Paedotrophia* and Quillet's *Callipaedia* appeared, while Nicholas Rowe edited a further translation of *Callipaedia* in 1712.

**Medical Care of Children:**

There was obviously an awakening among physicians of the period to the importance of a study of disease in infancy and childhood, but as Harris pointed out, "several Physicians of the first Rank have openly declared to me, that they go very unwillingly to take care of the Diseases of Children, especially such as are newly born, as if they were to unravel some strange Mystery, or cure some incurable Disease". If this applied to those of the first rank, how fared the humbler physicians? We must in spite of the endeavours of such as Harris, Pemell, Blair and others, come to the conclusion that the child was still severely ignored by the profession and its care remained, as in previous centuries, in the hands of women and charlatans, and that to its misfortune, as Harris spoke of "the dangerous Ignorance of an unskilful Quack". Midwifery was almost entirely in the hands of untrained midwives, in spite of endeavours to organise midwifery on a sound basis by such as Mrs Elizabeth/
Elizabeth Cellier, the "popish midwife" who appealed to James III. in 1687 for the foundation of a maternity hospital and the proper training of midwives. Manningham began such a school in 1739. Edinburgh instituted a Chair of Midwifery in 1726, the first in the country.

**Infant Feeding:**

Maternal nursing was the rule among the common folk, but wet-nursing continued to increase among the gentry, as artificial feeding methods were largely precluded by prevailing hygienic conditions. Pechey warned on the choice of a proper wet-nurse, but he was the first to lay down rules on weaning. There was no fixed time for weaning - a strong child could leave the breast earlier than a weak one. On an average, a child should "suck a year and a half to two years", but full weaning was advised against until the child had all its teeth. Sir Robert Sibbald recorded that "I sucked till I was two yeers and two moneths old, and could runn up and down the street, and speake, because my other brothers and sisters had dyed hec-tick; which long suckling proved, by the blessing of God, a mean to preserve me alive".

Weaning, according to Pechey, was not to be lightly undertaken, and was to be done when the moon was increasing. Pappe was to be followed by chicken broth, then bread, milk and "pulse boyled", then flesh "of easy digestion and good juice", and it might first be chewed by the nurse before offering to the/
Child Mortality:

With the publication of Bills of Mortality, and the foundation of the science of vital statistics by John Graunt in 1662, we were enabled for the first time to obtain some idea of mortality among infants and children. Forsyth described the insanitary conditions prevailing in London during the middle of the seventeenth century, and showed how much more so was it in the outparishes and other parts of the country. In Restoration England infant mortality was appalling. Two-fifths of the total deaths were in infants under two years of age. In some years, half the births were wiped out by infantile disease and in the hot summers of 1669, 1670 and 1671, diarrhoea alone added 2,000 to the bills of mortality in eight to ten weeks. (Traill and Mann, 1903).

Wet-nursing was rapidly supplanting maternal nursing among the well-to-do classes and baby-farming was on the increase. The mortality among such infants was enormous. Walter Harris alone may be quoted to give a picture of the period: "The Rector of a Parish twelve miles from London, with great grief of mind told me 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 weak he had/
had happily committed to my Care from his very Birth, and that the same Number of 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".

Overlaying figured largely in bills of mortality and from 1701-1776, nearly 4,000 children died in this manner. Both Pepys and Evelyn in their Diaries, and Richardson in Pamela referred casually to its occurrence and obviously accepted such a state of affairs as inevitable.

Smallpox became a major cause of death in childhood and was often called "the poor man's friend" in that it kept his family within reasonable limits. Measles also took its toll of child life. In 1674, the year in which measles was severe in London it exacted a high mortality.

Even among the higher ranks of society, infant life was hardly less secure. Gibbon mentioned in his Memoirs that five brothers and a sister died in infancy and Queen Anne's eighteen children all died in infancy.

Finally, the drinking of spirits became the fashion in the second quarter of the eighteenth century and Hogarth depicted scenes from this period. Gin - the real grand destroyer of infants - added its toll to child mortality.

The/
The Child in the Social and Cultural History of the Period:

While many comforts and improvements in domestic life were evident in England and Scotland during the period, little originality was shown in respect of children. Superstition and belief in witchcraft were universal and indifference and callousness towards children was the rule, until near the middle of the eighteenth century. In the cities and towns especially, neglect, cruelty and infanticide were so abundant indeed, as to suggest that children were not even considered, in fact, Neglect sums up in a word the most profound and far-reaching cause for the terrific waste of child life.

Maternal feeding in the wealthy was largely precluded by fashion, while the children of the poor were neglected by reason of poverty and poor medical care, or rather, lack of such care. The avenues open to the poor mother, unable to feed her infant, were the same as those used by the unmarried mother, viz: - "dropping" the child, or abandoning it to the parish workhouse. In London, it was the "dropping" of infants which aroused the pity of Thomas Coram, and which Hogarth attempted to portray in his "Conception of the Foundlings". Steele in the Spectator, Jonathan Swift and Archbishop Tillotson often referred to the miserable state of childhood, and the magazines of both Scotland and England were filled with references to death sentences on women for infanticide. Isolated attempts to improve the lot of orphans were made, however/
however, by the Justices of Middlesex in 1686, by Mrs Elizabeth Cellier in 1687, by the President and Governors of the Poor for the City of London in 1704, and by some merchants of London in 1708. Thus these early seeds of the Infant Welfare Movement may be said to have fallen upon stony ground.

Thomas Firmin, in 1681, in an effort to alleviate destitution in Aldersgate in London, set up a school in combination with a factory, his idea being to educate the children from three years of age in the three Rs. and from the age of four to commence technical instruction in addition to education. This was the first experiment in England in Factory Schools. In Scotland, a Spinning School had been instituted at Peebles in 1633. (Dean, 1930).

School discipline was still harsh; sometimes it verged on frank sadism. To be a school child of the period was to be nurtured in the strictest discipline. Even the fondest and kindest of parents overloaded their children with learning and the task of being good. Evelyn's little son, aged two and a half years, "could perfectly reade any of the English, Latin, French, or Gottic letters, pronouncing the three first languages exactly". Numerous essays were published on education by such authors as Sir William Petty (1648) and John Locke (1692).

On the brighter side of the picture, we find by the time of Restoration, all kinds of things being invented for children's pleasure. There were books not/
not only to teach them to be good and help them to learn, but books that might be read purely for entertainment. Dolls, dolls-houses, furniture, tea-sets, hoops, tops and balls all became common playthings, and even gunpowder was played with by small boys—frequently to the danger of their lives.

Interest in the education and care of the deaf child was manifested during this period. Sir Kenelm Digby in 1644 described how a Spanish Grandee, born deaf, was taught to lip-read and speak in a monotone by a priest. John Bulwer also devoted much time to the teaching of the deaf and published a book on the subject (1648). John Wallis, Savilian Professor of Mathematics at Oxford, in addition to writing on the mechanism of speech (1652), also taught the deaf to speak. William Holder and George Dalgarno were other writers on the training and teaching of the deaf, Dalgarno especially devoting his attention to teaching reading and writing rather than speech. Little attention, however, was paid to the care and education of the blind.

The art of the period portrayed children, at first as members of family groups, and later Hogarth attempted to depict the tragic side of child life. From portraits of the period, the children were dressed like miniature adults.

The end of the period saw the rising sun of interest in childhood, and though it declined temporarily during the Industrial Revolution, it rose again and has since continued its upward course.
CHAPTER IV.

THE FOURTH PERIOD: 1740-1839

This period may be said to mark the commencement of real and practical interest in Britain in the health and care of the child, and of an awakening by the medical profession to the significance of disease in childhood. Thus there was an increased tempo in the trend first shown in the previous period, of interest in infant nutrition and, with it, the introduction of artificial feeding; of clinical observations on particular diseases of children; of general paediatric treatises; and of English translations of the paediatric works of Continental workers. Attempts were made at both systematic and practical instruction of midwives and medical students in diseases of infants and children, while preventive paediatrics received its greatest impetus in Jenner's discovery of vaccination.

Outbreaks of conditions associated with sore throat were frequent during the period, and much confusion is observed in the clinical descriptions of these anginas. JOHN FOTHERGILL (1712-1780), in his Account of the Sore Throat (1748), seemed rather to treat of scarlet fever than of diphtheria, and JOHN HUXHAM (1692-1768) also failed to differentiate between scarlet fever and diphtheria (1757), though he emphasised the palatal paresis which often occurred. FRANCIS HOME (1719-1813) described the diphtheritic membrane/
membrane in the trachea and bronchi of children under twelve years, and suggested the possibility of tracheotomy as an emergency measure (1765). He believed he was dealing with a new disease then prevalent in Fifeshire, and which Sinclair (1825) recorded was associated with a high mortality. Home also published an account of an attempt to apply the principles of smallpox inoculation to measles. He used blood from the area of the rash as the inoculation matter, but his ideas received scant attention and it seems that no efforts were made to pursue the subject further.

Chickenpox was finally differentiated by WILLIAM HEBERDEN, senior, (1710-1801) in a masterly description published in 1768. In the same year, the first account of tuberculous meningitis appeared. ROBERT WHYTT (1714-1766), of Edinburgh, and one of the first physicians in Scotland to devote himself to clinical research in the modern meaning of this term (Comrie, 1932) wrote on "Observations on the Dropsy in the Brain". This essay was the finest clinical description of a disease up to that time, and the three stages of tuberculous meningitis were succinctly portrayed. The essay was published posthumously by Whytt's son in his father's collected papers.

JOSEPH CLARKE (1758-1834), for a time Assistant Master of the Rotunda Hospital, Dublin, wrote an account of tetanus neonatorum, termed "nine-day fits", in 1789, though GEORGE CLEGHORN (1716-1789) had already drawn attention to the disease in 1751.
A FULL VIEW
OF ALL THE
DISEASES
INCIDENT TO CHILDREN.

CONTAINING
A Translation of Dr. Harris's Book upon the Acute Diseases of Infants, and of the eminent Dr. Boerhaave's Treatise upon all their Diseases, as well Acute as Chronical.

TOGETHER WITH
A careful Abridgment of the best Authors who have wrote upon their particular Diseases, viz.

SYLVIUS on the Thrufh.
WILLIS on the Epilepsy.
SYDENHAM on the Small-Pox.

ANDRY on Worms.
BURNON on the Chin-Cough.
GLISSON on the Rickets.
WISEMAN on the King's-Evil.

TEETHING, with all the various Accidents which attend that Critical Stage of Childhood, and the most effectual Methods to prevent or remove them, are fully laid down by BOERHAAVE and HARRIS, as contained in this Collection.

LONDON:
Printed for A. MILLAR, over-against St. Clement's Church in the Strand. MDCCXLII.
Mumps was well described by ROBERT HAMILTON (1721-1793) of Edinburgh, in 1790. Though not an original description, it served to emphasize the occurrence of orchitis as a complication of mumps.

The outstanding event in paediatric practice of the period was the publication by EDWARD JENNER (1749-1823) of his great work, An Inquiry into the Cause and Effects of Variolae Vaccinæ, in 1798.

The story of Jenner's discovery needs no recounting here, suffice it to say that he had to overcome great prejudices before vaccination was accepted. As the result of the introduction of vaccination in Britain and elsewhere, it was realised that smallpox had been essentially a disease of children rather than of adults, as the age incidence shifted to older age groups, especially young adults.

JOHN CHEYNE (1777-1836), a distinguished Scottish physician, who practised in Dublin, published, between 1802 and 1808 brilliant studies of croup (synanche trachealis), intestinal maladies of children, and acute hydrocephalus. JOHN CLARKE (1761-1815), a London obstetrician in 1815 gave the first account of laryngismus stridulus and emphasised its association with tetany.

Of general paediatric treatises of the period, some were of outstanding merit, others of little consequence. The first and most interesting was published in London in 1742. It was entitled A Full View of All the Diseases incident to Children, but its/
Dr. Thomas Bill Bardwick

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:

Printed for T. Cadell, in the Strand.

MDCCCLXVII.

Title Page of George Armstrong's Essay on the Diseases most fatal to Infants (1767)
its author is unknown, though Caulfield (1928) produced strong evidence that it was probably John Armstrong (1709-1779), the poet-physician. The book was essentially a compilation and contained English translations of Walter Harris's treatise, Boerhaave's writings on children's diseases, together with "A Careful Abridgment of the best authors who have wrote upon their Particular Diseases". These were Sylvius on thrush, Willis on epilepsy, Sydenham on smallpox and measles, Andry on worms, Burton on chin-cough, Glisson on rickets and Wiseman on the King's Evil. The book is one of the most attractive of all British paediatric literature, and the editor was obviously at pains to present accurate accounts of his chosen authors, and enhanced the value of his work by providing an excellent index.

GEORGE ARMSTRONG (fl. 1767), younger brother of John Armstrong, was the author of the next important paediatric text, which was published in London in 1767. Entitled Essay on the Diseases most fatal to Infants, it was reprinted in 1771, with additions, and in extended form with an essay on nursing and a description of the Dispensary for the Infant Poor, in 1777. Armstrong echoed the complaint of Harris when he said: "I know there are some of the physical tribe who are not fond of practising among infants, and I make no scruples to own, that I was of that number myself till within these two or three years". He emphasised the fact that symptoms in childhood
A TREATISE ON THE
DISEASES OF CHILDREN;
WITH DIRECTIONS FOR
THE MANAGEMENT OF INFANTS FROM
THE BIRTH.
BY
MICHAEL UNDERWOOD, M.D.
LICENTIATE IN MIDWIFERY
OF THE
ROYAL COLLEGE OF PHYSICIANS IN LONDON,
Physician to her ROYAL HIGHNESS the PRINCESS
OF WALES.
AND
LATE SENIOR PHYSICIAN TO
THE BRITISH LYING-IN-HOSPITAL.

IN THREE VOLUMES.

VOL. I.

THE FIRST EDITION, REVISED AND ENLARGED.

omnia Res ipsa negat, contenta decert.—Manili.

London,
PRINTED FOR J. CALLOW, MEDICAL BOOKSELLER,
CROWN COURT, PRINCES STREET, SOHO.

1811.
"will, for the most part, speak for them (the children) in so plain a manner as to be easily understood". Armstrong deprecated the lack of exercise in infants and the neglect of nurses to give it to them. He covered many of the maladies of childhood, relying largely on antimonial pukes for convulsions, and magnesia as a purge. His *Essay on Nursing* will be noticed later.

MICHAEL UNDERWOOD (1737-1820), physician to the Princess of Wales, and a M.D. of St. Andrews (1784), was the author of a first-class treatise on the disorders of children (1784). This was the most comprehensive textbook of the period and held the field for some seventy years, going through at least ten editions, the last in 1846 and edited by H. Davies. Underwood was much influenced by Harris, but he was obviously a voracious reader of contemporary works, and freely referred to such authors as Armstrong, Cadogan, Denman, Hugh Smith and others. It has been said that with Underwood, paediatrics in Britain passed the Rubicon and the modern study of disease in childhood began. The book was very complete, and the various editions contained excellent descriptions of sclerema neonatorum, apnoeic attacks of the newborn, erythroblastosis neonatorum (infantile jaundice), congenital heart disease (pueres caeruleati), poliomyelitis (debility of the lower extremities), to mention only a few of the more unusual diseases of childhood.

In/
In 1804, the last of the general paediatric texts representing the transition from the eighteenth to the nineteenth centuries was published. WILLIAM HEBERDEN, the younger, (1767-1845), a brilliant classical scholar as well as physician, wrote a little Latin work, Morborum Puerilium Epitome. It was probably largely based on notes made by his distinguished father, or from information gleaned by intimate association with him. The book dealt in clear and terse language, reminiscent of the Hippocratic aphorisms, with the hygiene and feeding of infants and children, and some fifty-two diseases, all set out in sixty-one brief chapters. It was translated into English by J. Smith in 1805, but by reason of imperfect rendering, and in some instances of total misrepresentation by Smith, Heberden himself published an English translation of the Epitome in 1807.

Three paediatric poems were published during the period, one, Infancy, issued in three parts in 1774, 1775 and 1776, in London. The author was HUGH DOWNMAN (1740-1809) an able physician but better known as a man of letters. One part of his poem, that dealing with observation of the sick child might well have been written to-day. The second poem was a further translation by H. W. TYTLER (1752-1808) of Forfarshire, of St.Marthe's Paedotrophia (1797). The third was a translation of Tansillo's La Balia by WILLIAM ROSCOR (1753-1831) and entitled The Nurse (1798).
A General and Compleat
Treatise
on all the
Diseases
Incident to
Children,
from
Their Birth to the Age of Fifteen.
With
Particular Instructions to tender Mothers,
prudent Midwives, and careful Nurses.
The whole made Familiar to every Capacity.

By the Learned
Dr. John Astruc,
Regius Professor of Medicine at Paris,
and
Chief Physician to his present Majesty the King
of France, &c.

London:
Printed for John Nourse, at the Lamb,
against Katherine-Street, in the Strand.

MDCXLVI.
Of English editions of Continental writers, mention deserves to be made of the anonymous translations of Andry's *Orthopaedia* (1743), Astruc (1746), and Brouzet (1755), Sparman's translation of von Rosenstein's work on diseases of children, and Willich's translation of Struwe (1802). The mere appearance of these important books reflected the remarkable increase in interest in the child and its management in health and disease.

Several works on midwifery contained accounts of the diseases of the newborn. JOHN BURTON (1703-1771), published such a treatise in 1751, but the outstanding contribution was by the Master of British Midwifery, WILLIAM SMELLIE (1697-1763) in his great work (1752). He devoted a chapter to the Management and Diseases of the Newborn, in which he described mould-shot head, thrush, disorders of teething, and in his collected cases, examples of fractures, club-foot, imperforate anus, and green stools of infants. In his collected cases also, is to be found an account of the difficulties encountered by Smellie when he took his students with him to the homes of his patients.

The last six decades of the eighteenth century were therefore full of intense activity in pediatrics. Not only were children's diseases carefully described, but also the general management of children. Thus JAMES NELSON (1710-1794), an apothecary and father of seven children, the study of whom he turned/
AN ESSAY ON THE MEDICINAL EDUCATION OF CHILDREN; AND THE TREATMENT OF THEIR DISEASES.

Translated from the French of

M. BROUZET, Physician in ordinary to the French King, and to the Royal Infirmary and Hospitals of Fontainbleau; Correspondent of the Royal Academy of Sciences and Belles-Lettres, at Beziers, &c.

LONDON,
Printed for THOMAS FIELD, at the Wheat-Sheaf, the Corner of Pater-noster Row, Cheapside.

MDCCLV.
turned to good account, wrote An Essay on the Government of Children in 1753. Nelson dealt with health, manners and education, and though the book was conceived in the same spirit as Locke's similar work, it was much less philosophical and more practical and balanced than that of the famous philosopher.

Medical Care of Children:

While this still remained for the most part in the hands of women, as the editor of A Full View wrote, an increased interest in paediatrics was evident by the appearance of physicians who were actively engaged in paediatric practice, though not wholly so. This, together with the greater efforts that were made for child life in general, resulted in better all-round care of children, though this was far from perfect.

Interest was at first centred around the care of the newborn, and Sir Richard Manningham, in 1739, established a ward in the parochial infirmary of St. James's, Westminster, for the reception and care of lying-in women and their infants. This was the first institution of its kind in Britain. William Smellie continued this work and attended, with his students, poor women in labour. Largely as a result of Smellie's influence and example, the Middlesex Hospital provided beds for women in labour (1747), and several maternity hospitals were founded later; the British Lying-in Hospital (1749), the City of London Lying-in Hospital (1750), Royal Maternity (1757)
(1757), General Lying-in Hospital (1765). In Ireland the Dublin Lying-in Hospital was founded in 1745, and in Scotland, a lying-in hospital was founded by James Towers in 1792 at Glasgow, and the next year saw the founding of a similar hospital in Edinburgh.

A somewhat different type of institution was the Foundling Hospital in London, which was founded in 1739, and will be noticed later.

On April 24, 1769, was instituted the Dispensary for the Infant Poor in Red Lion Square, London, described as "the first and only charity of the kind that had ever been established". Probably the idea of the Dispensary originated in the minds of the brothers Armstrong, John and George. They proposed, along with some friends, that as sick children under four years were not admitted to any existing institution, there should be means available whereby the industrious poor could receive advice and medicine. A dispensary was therefore founded, as a hospital was not considered feasible. The Dispensary for the Infant Poor was an immediate success and 696 patients were treated during the first year, 1296 during the second and 1313 during the third year. Sir John Fielding, half-brother of Henry, spoke publicly on behalf of the Dispensary in 1770. But financial difficulties soon overtook the institution, and in spite of reorganisation of the management in 1772, it ceased to exist in 1781, after having treated 35,000 patients.
patients in its brief existence. A tragic end to a
great endeavour! In 1770 another dispensary was
opened with John Coakley Lettsom as one of the physi-
cians. Lettsom was also instrumental in helping to
found the Royal Sea Bathing Hospital, Margate, in
1796. This hospital, the first of its kind in
Europe, was solely founded for the care of those suf-
fering from tuberculous infection of the joints.

A third dispensary was founded in June, 1816, by
JOHN BUNNELL DAVIS (1780-1824), and in the first six
months of its existence 1921 patients were treated.
This was the Universal Dispensary for the Infant Poor,
which remained open for four years before closing its
doors, and reopening at new premises later. At this
dispensary, Davis conceived the idea of a continua-
tion of the Dispensary service by home visiting of
the children by "some benevolent ladies" who would
form district committees to visit and inspect the
state of health of sick indigent children. Thus
were sown the seeds of the modern Health Visitor ser-
vice.

In 1831, a ward of fifteen cots was established
at Guy's Hospital, and this remained open till 1850,
while in 1834 the St. Marylebone Provident Dispensary
was opened and a small charge was made for treatment.

In Scotland, apart from the towns, there were
but few doctors and Sinclair recorded that many pa-
rish ministers acted as physicians and even perfor-
med the operation of inoculation, and later vaccina-
tion./
vaccination. With the final acceptance of Jenner's work, Sinclair suggested that "it would be a good plan, to have midwives taught the modern art of vaccination ...... and perhaps, it would make the plan of vaccination general, were itinerant vaccinators annually sent about at the public expense".

Teaching and Training in Paediatrics:

This period saw the development of paediatric teaching and training, and though the efforts were isolated, they indicated the awakening of the profession to instruction in child management. The University of Edinburgh had founded a Chair of Midwifery in 1726 for the instruction of students in obstetrics and the care of the newborn. Manningham also taught students, while Smellie was methodical in their instruction - he was the greatest teacher of his time - and for the purposes of his lectures had a "collection of foetuses, together with other useful preparations collected from time to time for the information and improvement of students".

Other courses of systematic instruction in obstetrics combined with the management and diseases of the newborn were given by DAVID SKENE of Aberdeen (1758), JAMES MUIR of Glasgow (1759), DAVID McBRYDE of Dublin (1772), JAMES MONTEITH of Glasgow (1778) and JAMES TOWERS of Glasgow (circa 1792). Probably George Armstrong gave clinical instruction at the Dispensary for the Infant Poor, but certainly his assistant, ANDREW WILSON (1718-1792) did so (circa 1783) /
(1783) for he composed **Aphorisms** for a text to practical lectures on children for the benefit of his students.

In the early part of the nineteenth century, a course of instruction in paediatrics was given in Manchester at the **Medical Institution** (1829); the **Prospectus of the Newcastle-upon-Tyne Medical School for 1837** mentioned a teaching post as Lecturer in Midwifery and Diseases of Women and Children. About 1837, **WILLIAM CAMPBELL** (?1788-1848), a well known obstetrician in Edinburgh, gave clinical instruction and lectures on children's diseases at Queen's College there. He issued class cards, set examinations and gave diplomas to his successful students.

**Infant Feeding:**

The period marked the dawn of a more scientific attitude to infant feeding. Thus artificial methods of feeding were introduced, cow's milk became the favoured food, and its composition contrasted with human and other milks was demonstrated in the fourth edition of Underwood's work (1799). Horns, pewter feeding bottles, and finally glass bottles successively held the field as containers of the artificial feeding mixture. Weaning was recommended at an earlier age than the two years advised by Pechey, though uniformity in this important sphere was not finally achieved.

**WILLIAM CADOGAN** (1711-1797), a fashionable physician of London, friend of Garrick, and one of the/
AN ESSAY UPON NURSING AND THE MANAGEMENT OF CHILDREN, FROM THEIR BIRTH TO THREE YEARS OF AGE.

BY W. CADOGAN, FELLOW OF THE COLLEGE OF PHYSICIANS, LATE PHYSICIAN TO THE FOUNDLING-HOSPITAL.

In a LETTER to a GOVERNOR.

Published by Order of the General Committee for transacting the Affairs of the said Hospital.

THE NINTH EDITION, REVISED AND CORRECTED BY THE AUTHOR.

LONDON: PRINTED FOR ROBERT HORSFIELD, AT THE CROWN IN LUDGATE-STREET. MDCCLXIX. (Price One Shilling.)
the medical staff of the Foundling Hospital, stimulated interest in infant nutrition in a work published anonymously (1748). So popular did this book become that a second edition was called for in the same year, and the later editions published under Cadogan's own name numbered at least ten, the last appearing in 1772. Cadogan's *Essay on Nursing* is one of the great British writings on infant nutrition and hygiene and could readily be published today with but little editing. He was indeed one of the pioneers in child welfare and the prevention of infant mortality. He complained that children were, in general, overclothed and overfed, and to these two causes he imputed almost all their ailments, lack of exercise being a potent contributing factor. If he could have prevailed, "no child should ever be crammed with any unnatural mixture, till the Provision of Nature was ready for it". Breast feeding was to be encouraged and nursing was to be at stated times and the same each day. Weaning "by insensible degrees" was recommended at twelve months. Of dry-nursing, not one in three survived it, said Cadogan.

GEORGE ARMSTRONG in his *Essay on Nursing* (1767), differed from Cadogan in asserting that if breast feeding was impossible, rather than that the infant be committed to the care of an ailing wet nurse, it might be hand-fed. "There are two ways of feeding children who are bred up by hand; the one is by means of a horn, and the other is with a boat or spoon".
spoon". Armstrong himself, from his own personal family experience, preferred the spoon, but Heberden (1804) praised the horn. If hand-feeding was to be necessary from birth, he recommended new cow's milk, or better, asses' milk, and weaning with broth and beef-tea begun at three to four months, and by six months the infant might have boiled chicken minced very small and mixed into a kind of pap with broth and bread crumbs. Armstrong thus lowered the age of weaning compared with Cadogan.

An opinion rather midway between those of Cadogan and Armstrong was held by HUGH SMITH (fl. 1772). He published Letters to Married Women on Nursing in 1772, and his book received immediate popularity which it maintained for some thirty years. Smith urged mothers to suckle their infants and taught the sufficiency of breast milk alone for feeding purposes up to the age of six or seven months. He preferred cow's milk for an artificial food when such was necessary and insisted on its being boiled to render it easier of digestion, at least for the "first month or two", but warned against overfeeding with it. In 1777 Smith described a "bubby-pot", the object of which was to imitate Nature in making an infant labour for its artificial feed.

Underwood (1799) quoted a table showing the analysis of human, cow's, goat's, asses' and mare's milks which completed the more scientific attitude to/
to artificial feeding with which the eighteenth century closed. Underwood also recommended the boiling of cow's milk and he attempted to popularise a special "infant-feeding pot". He incidentally referred to the recent invention of the nipple-shield - "a new contrivance" - and spoke favourably of it.

By the beginning of the nineteenth century, four methods of infant feeding were recognised, viz., (1) maternal suckling; (2) use of wet-nurses; (3) feeding with animal, especially cow's, milk, and (4) feeding with bread and water, i.e. pap. The feeding bottle and cow's milk became formidable opponents of the wet-nurse, and as their safety increased, so her star set, never to rise again.

The time of weaning remained largely a matter of personal opinion, and times varied from six to eight months (Willich, 1802) to ten to eleven months (De-wees, 1826) and by the close of the period Chavasse (1840) recommended nine months as the optimum time.

Child Mortality:

During the first part of the period, infant mortality in Britain was appalling. It was highest in the towns and cities though by no means negligible in country districts as parish registers showed. This mortality affected those of high as well as low estate. Illegitimacy was rampant, and baby-farming became even more an organised trade during the second half of the eighteenth century. Cadogan (1748) wrote, "But let any one ...... look over the BILLS OF MORTALITY/
MORTALITY; there he may observe, that almost half the number of those who fill up that black list, die under five years of age". Up to 1741, no measures had been established for the relief of infants, and the lack of institutions for their care was noted in Parliament (Gentlemen's Magazine, 1736, p. 729), and Coram wrote, "Long and melancholy experience of this nation has too demonstrably shown, with what barbarity tender infants have been exposed and destroyed". Thus exposed, abandoned and overlaid infants constituted a large proportion of the deaths. Improper feeding, by cramming the newborn with "strange and improper things" also contributed its quota as "the gripes", vomiting and diarrhoea. Attempts at hand-feeding at the Foundling Hospital proved disastrous, and Sir Hans Sloane reported that dry-nursed infants had a mortality three times as great as suckled infants, and at the Dublin Foundling Hospital between 1775-1796, of 10,272 children admitted, only 45 survived hand-feeding, i.e. 99.6 per cent died. Malthus indeed expressed the opinion that there were no better means of stopping the growth of the population than by multiplying the institutions where the newborn were received. At the British Lying-In Hospital during the concluding years of the eighteenth century, breast feeding was insisted upon and the mortality fell to 66 per cent of that in the preceding forty years.

Infectious diseases also contributed heavily to child mortality. Thus smallpox claimed its toll.

Galt/
Galt related how, at Dalmailing in 1762, "the smallpox came in among the weans of the parish and the smashing that it made of the poor bits o' bairns was indeed woeful". In Kilmarnock between 1728-1764, of 662 deaths from smallpox, all but 36 were in children under six years. In England a similar state of affairs existed. Towards the end of the eighteenth century, smallpox began to decline and the introduction of vaccination accelerated this decline. But measles took its toll as well. Epidemics were frequent and mortality was often high, indeed measles came to occupy a dominant position in the epidemic history of the country. Robert Watt (1774-1819) of Glasgow postulated the Theory of Replacement, one disease replacing another. Watt's researches extended over the period 1783-1812, and he found that the satisfactory fall in deaths from smallpox was more than counterbalanced by the deaths from measles, and to a lesser extent, whooping cough. This is well shown in the following table modified from Watt:

<table>
<thead>
<tr>
<th>Period</th>
<th>Total Deaths</th>
<th>Percentage of Deaths attributed to -</th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Smallpox</td>
<td>Measles</td>
<td>Whooping Cough</td>
<td>&quot;Bowel Hives&quot;</td>
</tr>
<tr>
<td>1783-1788</td>
<td>9,994</td>
<td>19.55</td>
<td>0.93</td>
<td>4.51</td>
<td>6.72</td>
</tr>
<tr>
<td>1789-1794</td>
<td>11,103</td>
<td>18.22</td>
<td>1.17</td>
<td>5.13</td>
<td>6.43</td>
</tr>
<tr>
<td>1795-1800</td>
<td>9,991</td>
<td>18.70</td>
<td>2.10</td>
<td>5.36</td>
<td>6.47</td>
</tr>
<tr>
<td>1801-1806</td>
<td>10,304</td>
<td>8.90</td>
<td>3.92</td>
<td>6.12</td>
<td>7.27</td>
</tr>
<tr>
<td>1807-1812</td>
<td>13,354</td>
<td>3.90</td>
<td>10.76</td>
<td>5.57</td>
<td>9.26</td>
</tr>
</tbody>
</table>
ADVICE

TO

MOTHERS,

ON

THE SUBJECT OF THEIR OWN HEALTH;

AND ON THE MEANS OF PROMOTING THE

HEALTH, STRENGTH, AND BEAUTY,

OF THEIR OFFSPRING

—— Audite voces, vagias et ingentes,
Infantumque animae sentes in limine primo;
Quos dulcis vitæ escortes, et ubera captas,
Abluit atra dies, et funere mense occis.

VIRG. AENID. VI.

BY WILLIAM BUCHAN, M.D.

FELLOW OF THE ROYAL COLLEGE OF PHYSICIANS, AND
AUTHOR OF "DOMESTIC MEDICINE."

LONDON:
Printed by A. Strahan, New-Street Square,
For T. Cadell and W. Davies, in the Strand.
1803.
Watt concluded that "Next to the Smallpox formerly, and the Measles now, Chincough is the most fatal disease to which Children are liable". Bowel-hives are also seen to be increasing and this, as summer diarrhoea later in the nineteenth century, became the major cause of wastage of child life in Britain, and was the main reason for the development of the Maternity and Child Welfare Movement.

Edmonds (1835) compiled the following table for London which demonstrates very well the steady and progressive decline in child mortality rates from 1730 to 1829.

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Births</th>
<th>Total Deaths under 5 years</th>
<th>Dying percent under 5 years</th>
</tr>
</thead>
<tbody>
<tr>
<td>1730-49</td>
<td>315,456</td>
<td>235,087</td>
<td>74.5</td>
</tr>
<tr>
<td>1750-69</td>
<td>307,395</td>
<td>193,694</td>
<td>63.0</td>
</tr>
<tr>
<td>1770-89</td>
<td>349,477</td>
<td>180,058</td>
<td>51.5</td>
</tr>
<tr>
<td>1790-1809</td>
<td>386,393</td>
<td>159,571</td>
<td>41.3</td>
</tr>
<tr>
<td>1810-29</td>
<td>477,910</td>
<td>151,794</td>
<td>31.8</td>
</tr>
</tbody>
</table>

Suggestions were made from time to time that women should be trained in the care of their children, and that even young girls should receive such training in mothercraft. Among those who made such proposals were Smellie (1752), WILLIAM BUCHAN (1729-1805) in 1769, and Tytler (1798). Tytler even suggested that such training of girls in child care would be encouraged/
encouraged if a premium was offered to the girl in school or workhouse who succeeded in bringing up "the finest child to one year old".

The Child in the Social and Cultural History of the Period:

Neglect, in a word, summed up the position of the child in British society at the beginning of this period. But powerful influences were already at work. THOMAS CORAM (1668-1751), described by Walpole as "the honestest" man he had ever known, succeeded in obtaining a charter in 1739 for the Foundling Hospital in London, and it was opened on March 25, 1741. At first well supported, Parliament later assisted financially (1756) but afterwards withdrew its support (1760) on account of abuses consequent upon State assistance, and the Hospital had to be re-organised. Hogarth, Benjamin West, Wilson, Reynolds, Handel, Sterne, Nadox, Sloane and Mead were famous names associated with this institution. Its very existence focussed attention on prevailing conditions and JONAS HANWAY (1712-1786), a Governor of the Foundling Hospital, began to investigate conditions of children in parish workhouses (1756). His researches disclosed that between 80 to 90 per cent of all children received into workhouses succumbed from starvation, or the influence of such sleeping potions as Godfrey's Cordial or Dalby's Carminative. But Hanway largely succeeded in his efforts to ameliorate the lot of the parish child, and later interested himself/
himself in the conditions of juvenile chimney-sweeps ("climbing-boys").

The child was exposed to exploitation and misery with the inexorable advance of the Industrial Revolution and from 1800 to 1850, that period may be regarded as the blackest in British social history. Child labour became the rule and with it philanthropic effort attempted to cope. Schools of Industry and Spinning Schools were organised in England and Scotland, ROBERT OWEN opened the first Infant School at New Lanark (1816), to be followed by Brougham (1819) and Wilderspin (1820) in London, and David Stow in Glasgow (1827) opening similar schools. In 1824, the Infant School Society was founded. Thus began the modern nursery school movement. For the destitute and poverty-stricken child, John Pounds began the Ragged School movement (1818), and Robert Raikes (1780) and Thomas Cranfield (1791) the Sunday School movement. Lord Ashley became the champion of the child in Parliament, and gradually conditions began to improve as Royal Commissions published their Reports and legislative action was taken.

Education largely suffered from apathy, but social unrest following the French Revolution, and the development of industry combined to arouse the public mind to the necessity of a national system of day-schools which was but slowly evolved, being impeded by religious differences occurring throughout the country. Nevertheless, in 1839 a Central Education Department/
Department was formed in London for the country as a whole.

For the more fortunately placed child, life was also difficult in a different way. Charlotte Bronte's account of her school days in *Jane Eyre* was the perfect commentary on the mingled piety and cruelty of the times. Richardson, Addison, Swift, Fielding and other writers of the period also portrayed the child life of their times, while in art, it was to Reynolds' brilliant example, followed by Gainsborough, Romney and Lawrence, that we owe the admirable renderings of child life.

The training and education of the deaf and dumb was furthered by Thomas Braidwood (1715-1806) who established the first school for such children, in Edinburgh, in 1760. Johnson and Boswell visited Braidwood's school in 1773 when there were "about twelve pupils", but by 1783 there were some twenty pupils. In that year, Braidwood moved his school to London, and established a school at Hackney which was continued after his death by his daughter and two grandsons. In 1792, the London Asylum for the Deaf and Dumb was established. The Edinburgh Institution for the Deaf and Dumb was founded in 1810.

Interest in the blind was stimulated in Britain during this period by the writings of M. Diderot, Physician to Louis XV. of France (1773), and the work of Valentin Haüy in Paris. In the *Edinburgh Magazine and Review*, November, 1774, attention was drawn by/
by a contributor "Demodocus" to the necessity for teaching the blind by the improvement of the imagination and mechanical powers of the blind person. The first asylum and school of instruction for the blind was established at Liverpool (1790), followed by the Edinburgh Blind Asylum (1793) and the Bristol Asylum or Industrial School for the Blind (1793), and the Southwark School (1799). James Gall, an Edinburgh printer, introduced a type for the blind in 1831, and in 1834 published the Gospel of St. John in his newly invented type, and so initiated the "battle of the types", which raged for a considerable time.
CHAPTER V.

THE FIFTH PERIOD: 1840 - Present Times

In order to appreciate the efforts of the pioneers of paediatrics like Harris, Cadogan, Armstrong, Underwood, Davis and others, we must review, however briefly, developments during the last hundred years. Indeed, the period is noteworthy for the great intensification of effort that has resulted in the present-day organisation of a child health service, embracing both preventive and curative paediatrics.

The recorded findings of individual physicians during the previous periods serve as measures of the gradual development of interest in paediatrics. Serious scientific study of the diseases of children began with the establishment of children's hospitals during the second half of the nineteenth century, but it was not till the last two decades of that century that paediatrics emerged as a specialty. Obstetricians and general physicians did not favour the development of paediatrics as a whole-time study, and themselves undertook the care of children as part of their professional work. Fleetwood Churchill, Charles West, Goodhart, Cheadle, Gee, Eustace Smith, Lees and Barlow may be noted among this band.

During the eighteen-eighties originated the idea of whole-time paediatrics, and the movement was launched by three men, all of remarkable ability and personality, and authors of standard textbooks on the diseases/
diseases of children. These pioneers were HENRY ASHEY (1846-1908) of Manchester, JOHN THOMSON (1856-1926) of Edinburgh, and GEORGE FREDERICK STILL (1868-1941) of London, and to them was due much of the credit for introducing systematic instruction in paediatrics at their respective medical schools, from which the principle spread to other centres. The British Medical Association instituted a special section devoted to diseases of children at its Annual Meeting in 1883.

The movement to establish children's hospitals went from strength to strength. In London, hospitals were established such as the Hospital for Sick Children (1852), the Belgrave, Queen's and Victoria (1866), East London (1868), Evelina (1869), Paddington Green (1883), Vincent Square (1903), Woolwich (1905) and Queen Mary's (1908).

In the provinces, children's hospitals were opened at Liverpool (1851), Manchester (1852), Norwich (1854), Birmingham (1862), Newcastle-upon-Tyne (1865), Bristol (1866), Brighton (1868), Birkenhead (1869), Hull (1872), Cheltenham (1874), Sheffield (1876), Derby (1877), Bradford (1883), Southampton (1884), Gateshead (1886) and Luton (1888).

In Scotland, children's hospitals were established at Edinburgh (1860), Aberdeen (1877), and Glasgow (1882).

Hospitals for infants were developed during the present century at Manchester (1914), Dundee (1916), Liverpool/
Children's wards in association with general hospitals were established throughout the country, as at the Royal Southern Hospital, Liverpool (1857), Royal Infirmary, Dundee (1883), and in London at the Middlesex (1890), Royal Free (1925) and St.Bartolomew's (1931) hospitals.

Pari passu with the development of children's hospitals and wards came the organisation of outpatient departments in association with them.

Convalescent homes and special hospitals followed as a logical sequence to the establishment of children's hospitals. Among hospitals for crippled children might be mentioned those at Birmingham (1817), London (1844, 1865), Gosforth (1889), Oswestry (1900), Alton (1908), Pinner (1911), Oxford (1919), Kirbymoorside (1925), Bath (1925) and Edinburgh (1932).

With compulsory education becoming operative in England and Wales (1870, 1880) and in Scotland (1872), the school child was, for the first time, capable of being studied and matters of school hygiene assumed great importance. A survey of school children in London (1880) showed that ten per cent were "too hungry to learn", and voluntary organisations attempted to provide meals for necessitous cases but not till 1904 in England and Wales and 1908 in Scotland were Acts passed authorising provision of school meals free or at a low rate of payment. Subsequent Acts extended the provision of meals and of milk in schools.
Medical examination of school children was introduced in England and Wales (1908) and in Scotland (1909), and so came into being the School Medical Service. Examination was extended to include treatment in 1913 in the entire country. Later Acts have embodied the idea that all school children, including those physically and mentally handicapped, were entitled to free treatment. Dental care for scholars developed along with the medical service.

The Infant Welfare Movement was intimately associated with the problem of infantile mortality, and will be noted in the section dealing with this subject.

Thus the specialist care of children in health and disease evolved, and with this came the training of medical students in paediatrics, and similar instruction for post-graduates.

Teaching and Training in Paediatrics:

Teaching and training in paediatrics were intensified and finally accepted as necessary parts of the curriculum for graduation in medicine.

In 1851, a lectureship in diseases of children was established at Sydenham College, Birmingham, but this lapsed in 1868. Henry Ashby became lecturer in paediatrics at Manchester (1881), and similar lectureships were founded at Liverpool (1882), Sheffield (1912), Durham (1913), Birmingham (1915), Leeds (1921) and Cardiff (1932).

In Scotland, the Professor of Midwifery at Aberdeen gave instruction in diseases of children from 1861/
1861-92, after which separate teachers on the subject were appointed, but a lectureship was not established till 1929. At Edinburgh, lectures on children's diseases were available at the Extra-Mural School from 1871, and in 1885, the University appointed two physicians to the Hospital for Sick Children as lecturers. At Glasgow, courses of instruction were available at the Hospital for Sick Children from 1882 (Finlayson, 1888), and a lectureship was founded in 1911. At Dundee (St. Andrew's University), a lectureship was established in 1908.

The first chair in paediatrics was founded at King's College, London (1906), followed by similar chairs at Glasgow (1924), Leeds (1927) and Birmingham (1929). A Chair of Child Life and Health was established at Edinburgh (1930) and chairs of Child Health have been established at Durham (1942), London and Liverpool (1944), Leeds and Sheffield (1946) and at Aberdeen and Manchester (1947).

This amazing development in paediatric teaching and training was associated with the foundation of various societies and journals devoted to the study of children's diseases. Thus were formed The Medical Officers of Schools Association (1884), The Society for the Study of Diseases of Children (1900), which was later absorbed into The Royal Society of Medicine, the British Paediatric Association (1928), and the Scottish Paediatric Society (1946) which evolved from the Edinburgh and Glasgow Paediatric Club (1922). The British Journal of Diseases of Children/
Children appeared (1904), and was amalgamated with The Archives of Disease in Childhood (1926) in 1945.

Infant Feeding:

We have seen that the introduction of cow's milk as a substitute for breast milk sounded the death knell of the wet-nurse, and the present period saw her rapid decline and ultimate disappearance. But cow's milk was not entirely accepted as the best substitute for breast milk, and when the conditions under which it was produced in London were described by Mr Rugg, a surgeon, in a pamphlet published in 1851, and by The Lancet (1855, 2, 551) following on the report of a sanitary commission appointed by that journal to investigate the production of cow's milk, its use as an infant food received a further set-back.

Substitutes for cow's milk were tried and these included sago, arrowroot, biscuits, isinglass and jellies which, however, were largely abandoned about 1840 by the appearance on the market of the first of the patent infant foods. It was called "tops and bottoms" and was manufactured by Messrs Robb & Co. on the suggestion of Dr Golding, the founder of Charing Cross Hospital. Before long other patent foods appeared such as Hard's Farinaceous Food, and Lemmon's Biscuit Powder. In 1867, Justus von Liebig adopted the plan of malting, and his "Food for Infants" was a liquid consisting of milk, wheaten flour, malt and potassium bicarbonate. It was sold ready for use at sixpence a quart, but had the disadvantage that fresh supplies/
supplies were required daily. This original malted food survives to-day in principle in the many malted preparations available.

The next step was the introduction on a large scale of cow's milk in modified form. Newton (1835) had taken out a patent for producing condensed (evaporated) milk, and Grimwade (1855) one for dried milk. Between 1870 and 1883 many brands of each variety of milk were available and became popular artificial foods for infants. But the reports of Cheadle (1878, 1889) and Barlow (1885, 1894) revealed that these malted foods and modified milks had serious nutritional deficiencies, and Cheadle advocated the use of fruit juices as food supplements, anticipating the discovery of the vitamins. The movement to boil fresh cow's milk before offering it to the infant developed during the period of controversy between Bastian and Pasteur (1873-1877), but it did not receive much support till the success attendant on the Gouttes de Lait in France, at which sterilised milk was issued for the artificial feeding of infants, caused a return to favour of boiled cow's milk. St. Helen's Town Council established an Infants' Milk Depot in 1899, and the success of this venture along with others, popularised the use of boiled cow's milk. To-day the pendulum has swung towards the use of dried and condensed forms of milk as the artificial food for infants, combined with vitamin supplements.

Schemes of artificial feeding in this country seem/
seem to date from about 1891 when Dr Goodhart, in the fourth edition of his textbook on diseases of children, produced a short table showing the total feeds per day, the total amount of milk mixture required, the size of each feed and the interval between feeds. This scheme proved so useful that it was elaborated and for the first time full directions came to be given for the artificial feeding of infants. Maternal breast feeding during the present period has shown a steady decline and artificial feeding is undoubtedly much more common than ever before.

Weaning was advised between nine months and twelve months of age during the later part of the nineteenth century, but during the present century, the period of weaning has steadily been lowered and it is now recommended that new foods should be introduced into the milk diet at the age of four or five months.

The feeding bottle underwent many modifications from the horn as recommended by Heberden and the pap-boat and spoon as advised by Armstrong. Ure, a staunch supporter of the feeding bottle, described the type of bottle in use in 1839. It was a conical, flattened glass bottle, to the narrow end or mouth of which was attached an artificial teat made of softened parchment or washleather, enclosing a small conical piece of sponge. In 1851, a new style of bottle was introduced from Paris - "the biberon". This was an elaborate contrivance consisting of a glass bottle/
bottle, with cork nipples and an arrangement of valves and spiral tubes to regulate the flow of the artificial food. Its appearance was hailed enthusiastically by *The Lancet*, but soon something simpler was demanded. In 1856 india-rubber was apparently first used for the manufacture of teats and valves for use as attachments to feeding bottles, and a model was patented by V. Scully and B. J. Heywood in that year. In 1869, C.H.F. Routh invented a pear-shaped apparatus, to the broader end of which was fitted a large hemi-spherical rubber cap elevated in the centre to resemble a teat. From the teat ran a bent glass tube into the interior of the bottle. The tapering end was fitted with a rubber valve. Such a feeding bottle was called a "Mamma" from its resemblance to the human breast.

By 1889, the feeding bottle had become simpler and more easily cleaned, by reason of the avoidance of angles, though the mouthpiece communicated with the interior of the bottle by a long narrow rubber tube, which was difficult to keep clean. By 1898 these long rubber tubes were largely replaced by close-fitting rubber teats and valves. Two types of bottle were then in popular use. One of these was the boat-shaped bottle, open at both ends, to one of which was attached the teat and to the other the valve. The other type was the upright or soxhlet bottle, with the teat stretched over the one mouth of the bottle. These two types of bottle still main-
maintain their popularity.

Infant Mortality:

Infant mortality, far from declining in spite of the considerable expenditure of energy and money on sanitary reforms consequent upon the work of Southwood Smith, Chadwick, Simon and others, showed a tendency to rise during the second half of the nineteenth century, and by the end of the century it was as high as it had been fifty years earlier as the following table shows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Deaths under 1 year per 1,000 live births</th>
<th>Births per 1,000 population</th>
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<tbody>
<tr>
<td></td>
<td>England and Wales</td>
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<tr>
<td>1851-55</td>
<td>156</td>
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<td>1856-60</td>
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<td>1896-1900</td>
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<td>1940</td>
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</tbody>
</table>
The first scientific enquiry of statistical importance relating to infant mortality in Britain was undertaken by WILLIAM FARR (1807-1883) in collaboration with the Obstetrical Society of London between the years 1867-1869. This investigation revealed that between fifty and seventy-five per cent of births in England and Wales, and thirty-three per cent of births in Scotland (Stark, 1866) were attended by midwives who had had little or no training. The Lancet (1868, 1, 387) added its weight to the agitation initiated by the Society for the proper training and control of midwives. The Midwives Institute (now the Royal College of Midwives) was founded in 1881, but no legislation concerning the control of midwives was forthcoming till the Midwives Acts of 1902 for England and Wales and of 1915 for Scotland, were passed. Ante-natal care and its direct bearing on infant mortality was emphasised by JOHN WILLIAM BALLANTYNE (1861-1923) of Edinburgh, who finally obtained, in 1901, the first bed in Britain for ante-natal purposes at the Royal Simpson Maternity Hospital, Edinburgh.

Notice of the appalling wastage of infant life was quickened by the decline in the birth-rate, and attention was directed to other causes of this mortality. Interest was focussed on epidemic diarrhoea, which summer after summer claimed its thousands of victims. Systematic studies of this disease were undertaken by Longstaff (1880), Ballard (1887) and Newsholme (1899). The last-named emphasised the importance/
importance of clean cow's milk in artificial feeding, and pointed to the success attendant on Budin's *Consultations des Nourrissons* at Paris (1892), and similar efforts by Variat (1893) and Dufour (1894). These French organisations, conducted on similar lines, had three main objects, viz., the systematic medical supervision of infants, the encouragement of breast feeding, and the provision of sterilised cow's milk for the artificially fed infants. Similar organisations were developed in Britain at St. Helen's (1899), Liverpool (1901), Ashton-under-Lyme (1901), Dunkenfeld (1901), Battersea (1902), Bradford (1903), and in Scotland, Leith (1903), Glasgow (1904) and Dundee (1904). Thus evolved the modern infant and child welfare clinics in this country, and in 1906, the First National Conference on Infant Mortality was held in London. The Infant Welfare Movement had begun in earnest, and it finally received official recognition in 1918 by the passing of the Maternity and Child Welfare Act, by which local authorities were empowered to organise schemes for the provision of midwives, health visitors, clinics, nurseries and other forms of service for the care of expectant and nursing mothers and children under five years of age.

Armstrong and Davis had commented upon the necessity for a continuity of supervision of the children attending their respective dispensaries and the homes from which such children came. In 1862, home visiting was begun at Manchester and Salford, at first by voluntary/
voluntary, and later by salaried visitors. This initial experiment in health visiting proved successful and the movement spread, but not till 1892 did a local authority (Buckinghamshire County Council) employ salaried visitors who had undergone a course of training. FLORENCE NIGHTINGALE (1820-1910) foresaw the possibilities of health visiting in 1891, and was largely responsible for the introduction at a later date (1919) of systematic instruction for health visitors. With the establishment of infant welfare clinics health visitors linked up with such organisations, but the visiting of newborn infants and their mothers was difficult as there was no obligatory notification of births till 1915, when it became possible for local authorities to organise health visiting on a proper basis.

Another approach to the subject was the education of mothers in infant hygiene as had been proposed by Smellie, Buchan and Tytler in the eighteenth century, and such Schools for Mothers were started in Glasgow (1906), St.Pancras (1907) and Marylebone (1907).

Thus the Child Welfare Movement of to-day, officially recognised in 1918, was the result of a fusion of several streams of effort directed to the unborn child as well as the infant and pre-school child, and the campaign against infantile mortality thus became more organised and consequently more effective.

The Child in the Social and Cultural History of the Period:

The growing interest in the child during the earlier/
earlier part of the period found expression in many Acts of Parliament for the protection of the child wage-earner. In one occupation after another child labour was either prohibited or regulated with increasing stringency. Though the agitation for the regulation of child labour dealt only with children at wage-earning age, it may be regarded as one of the social forces that drew attention to the evils that beset child life. It roused public conscience and demonstrated that Acts of Parliament, if efficiently administered, could do much to protect the more helpless members of the community.

The evils of baby-farming were suddenly brought to light by the trial and execution of Margaret Waters in September-October, 1870. By the exertions of Dr Curgenven, secretary of the Harveian Society, and others, the Infant Life Protection Society was formed the same year, and subsequent legislation conferred a great measure of protection on the orphan child. By the Children's Charter of 1908, children's courts were instituted which rescued them from the common prisons and from association with criminals.

The delinquent and vagrant child was rescued by such as Guthrie, Chalmers, and Sheriff Watson of Aberdeen, who established there a ragged school for boys in 1841 and two years later, founded a similar one for girls. Watson continued his efforts in 1845, and his example was followed in Dundee (1846) and/
and Glasgow (1847). Charles Dickens was also active on behalf of the less fortunate child, both through the medium of his novels and by his energy in helping to found the Hospital for Sick Children, Great Ormond Street, London. Dr Barnardo and William Quarrier displayed the same active and practical interest in orphan children later.

The eighteen-seventies and eighties saw compulsory free education for the poor established, with the barrier of the school-leaving age interposed between children and the factories. The same decades saw the establishment of the first Kindergartens, a movement which received a fresh impetus and inspiration in the present century through the labours of MARGARET Mc MILLAN (1860-1931).

The importance of fresh air was discovered in the nineties of the last century, and so came into being Fresh Air Funds and Children's Holiday Funds, to take the slum child into the country. The present century has seen the development of school and holiday camps, facilities for the care of the physically and mentally handicapped child, the setting up of care committees, and the many other organisations concerned with child life.

The pleasures of children increased, and in 1850 was published Reading without Tears, when it was first thought possible to turn children into learned and well-behaved citizens without beating or frightening them. Eminent authors wrote classics for them, Southey/
Southey The Three Bears, Ruskin, The King of the Golden River, Thackeray, The Rose and the Ring. An Age of Fun burst forth with Lear and Lewis Carroll, and of adventure with Treasure Island, while in a class by itself came Peter Pan, whose author was a great benefactor to the Hospital for Sick Children, London.

Picture books, musical boxes, rocking horses, circuses, theatres, fireworks, chocolates and good uncles everywhere increased. The Prince Consort introduced Christmas trees into Britain, and everywhere children and their elders seemed to get on better, and the present century - the Century of the Child - dawned, when all aspects of child life were freed from exploitation and hardness, medical care and knowledge greatly increased, nutrition became a science, and vitamins realities. Education was concerned chiefly with stimulating the child's desire to learn.
CHAPTER VI.

The Folk-Medicine of Children's Diseases.

The folk-lore of children's diseases is very extensive and includes popular conceptions of the acute exanthemata. Traditional folk-lore and mystical faiths are but slowly discarded and traces of them may still be encountered in paediatric practice. Faith in the influences of the sun and moon, of odd numbers, of the Evil Eye, of the protection given by patron saints, charms, amulets and talismans, of the transference of human diseases to lower animals, and of the special virtues of animal, vegetable and mineral remedies for diseases has its strongholds in various parts of the country to this day. Often combinations of these superstitions and remedies are employed but mention can only be made of some selected aspects of the folk-medicine of children.

Belief in maternal impressions is far from being extinct, and naevi in infants are attributed to their mothers having been frightened during pregnancy by rats, mice, dogs, and other animals.

Such distinguished physicians as Willis and Mead believed in celestial influences on certain diseases. Willis attributed the occurrence of epilepsy in children to the periods of the moon, and Mead profoundly believed in the evil effects of a conjunction of Mars and Saturn rendering the appearance of measles, smallpox and other epidemic fevers inevitable. The importance/
importance of time in birth, disease and other incidents of life was suggested by consideration of planetary influence. The first Wednesday in May was the day, in Cornwall, for bathing rickety children, and on the first three Wednesdays of May, children with mesenteric disease were to be dipped three times, while whooping-cough only ceased in the month of May following the attack.

Of numbers, three or multiples of three, especially nine, were the most popular in Britain, while seven, contrary to expectation was but seldom employed. Nine pieces of elder cut from between two knots made a good amulet for epilepsy, and nine knots on a string hung around the neck of a Lancashire child would soon cure it of whooping-cough. A blacksmith, whose father had been a smith for three generations, might carry a rickety child in his apron three times round the anvil on seven successive days, repeating the Paternoster each time, but the smith might not accept money for the resulting cure.

The malign influences of the Evil Eye were extensive. In the West of Scotland it was believed that the child was most liable to injury before it was baptised. Special care therefore had to be taken to protect the child till this ceremony was performed, so the infant was kept in the room where it was born till it was baptised. Other methods of protection were by hanging the key of the house over the child's cradle, or by bathing the infant in salt water, some of
of which the infant had to taste three times.

The cult of the patron saints developed in Britain during the fourteenth and fifteenth centuries, and to the honoured names of Joseph and Mary was special reverence paid. Thus a child with whooping-cough was sent to a house where the master and mistress were so named, and there, if the child was old enough to speak, it was to demand bread cut by Joseph and buttered by Mary. Consumption of this "piece" resulted in cure. Saint John was another saint whose help was sought on occasion, but after the Reformation the cult died out to a considerable extent.

Charms enjoyed considerable reputations as cures for teething difficulties. Such charms were legion and their variety limitless. Amulets were long popular, even countenanced by such as Willis who recommended an amulet of the roots and seeds of male peony as a cure for convulsive disorders in children. In connection with amulets and talismans, their colour was often important, and red was a particularly popular one, though yellow, blue and green had special virtues. Black was considered useful in some parts of the country and to be avoided in other parts.

Two examples of supposed transference of disease to lower animals may be quoted. In Devonshire and Scotland, a hair taken from the head of a child suffering from whooping-cough was put between two slices of bread and butter, and given to a dog. If, in eating the bread, the dog coughed, the disease would be/
be transferred to the animal and the child would be cured. In Lincolnshire, the practice of holding a live frog by one of its hind legs in the mouth of a child with thrush was long in use. But the transfer of disease was not always an easy business and it required the energies of witches and others to carry the transaction through, and during the sixteenth and seventeenth centuries belief in witchcraft reached its peak in Britain.

Of animal, vegetable and mineral remedies, the number is legion. The mouse, eaten raw, roasted, or fried, alone or mixed with other substances has long been regarded as a specific cure for enuresis. Passing a child with a hernia, or suffering from rickets, through the split trunk of a tree, often at stated times of the day for specified periods, and the treatment of eczema of the scalp by sewing ivy leaves together to form a cap for the child's head are examples of plant cures. Wesley, in his *Primitive Physic* (1747) recommended as a cure for worms, the boiling of four ounces of quicksilver in a quart of clear water for one hour, straining off the water, reboiling it before bottling. Such water was to be used for the common drink or at least night and morning for a week or two. The dead worms were thereafter to be purged off with jalap.

The hold which folk-medicine has on man was admirably summed up by Sir Clifford Allbutt when he wrote: "To folk-medicine doubt is unknown; it brings the peace of security".
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