THE VALUE OF
THE CHILD WELFARE AND
ANTE NATAL CLINIC

By
J. A. Guy.
INTRODUCTION.

In the earlier days of medicine when it first became the fashion for medical men to write theses the scope of the science of healing was greatly limited in comparison with its present state in the twentieth century. In those olden days medicine was entirely clinical and it was possible for one man to be an expert in all the various branches of that science which then existed. It is, therefore, not surprising to find that the earlier theses were in keeping with the state of medicine at the time and were written on clinical subjects. The present day thesis is possibly the descendant of the old public disputations which took place between two opponents on a selected subject. Not only were the earlier theses confined to clinical subjects but they were also written in Latin. On reading Hill's History of Pediatrics we find that the first thesis written in English created no small sensation among the medical circles of the time, and the work was considered vulgar and uneducated on that account. Since the earlier days of the thesis medicine, in common with all the other sciences, has advanced rapidly and extensively so that if a medical practitioner of the past was able to see the present state of medicine he would be completely astonished. He would note, among other things, that everyone was not engaged in the practice of clinical medicine but that some men were now devoting themselves to the prevention of disease and
devising means and measures whereby the whole people might be kept healthy. In other words there now exists a preventive aspect in medicine which has resulted in such improvements in the water supplies, disposal of sewage and refuse, control of infectious diseases (to mention only a few of the advances) that the fearful scourges of cholera and typhoid so common in the earlier days are now non existant. He would be able to say with Sir Gilbert Blane (physician to the Navy under Lord Rodney) "The means of prevention are more within our power than those of cure, for it is more in human art to remove contagion, to alter man's food and clothing, to command what exercise he is to use and what air he is to breath than it is to produce any given change in the internal operations of the body."

Among the various problems which confront the leaders of this nation is the decline in the birth rate. Various theories have been advanced to account for it and numerous remedies have been tried. Whatever may be the cause the decline in the birth rate has affected all the countries of Western Europe to a greater or lesser degree. It is also certain that despite the various measures which have been applied no plan has been conspicuous by it's success. It has been found by experience, however, that by tackling the problem from a different standpoint a much greater degree of success has been achieved. While it has been found impossible to encourage a nation to produce
more children a similar object has been attained by saving from death a number of infants who would have died were it not for the measures employed. It is in this sphere that preventive medicine has had ample scope for its attack. The assault on the infant mortality rate has taken the form of the Maternity and Child Welfare movement. This movement started from a few sporadic efforts by individual men and women, gradually gathered momentum until the movement became pandemic. It also grew from a position of no importance to a place where it is jealously managed and cared for by the government of the various civilised nations.

In the Maternity and Child Welfare Movement the Clinic has been one of the chief elements in the various schemes. Indeed one would not go far wrong if it were said that the Maternity and Child Welfare Movement pivoted round the clinic. So that it is with interest we watch the development of the clinic while we review the history of the movement as a whole.

The present work falls naturally into several distinct parts. In the first place the history of the movement has been described in some detail. It was found difficult to confine the history to the development of the clinic only as, after all, the clinic is only part of a larger scheme. The historical portion therefore treats of the development of the entire Maternity and Child Welfare movement from the earliest times. Some apology is perhaps required if the reader finds the historical portion lengthy but the
material has been so generous and interesting that it
was felt a shorter sketch would not do the matter justice.
During the earlier portions of the history it was
convenient to describe both the Maternity and Infant
parts of the movement together; but with the advent of
the twentieth century the development of the two parts
became so rapid and involved that it was more convenient
to describe from that point each part of the movement
separately.

In the succeeding portions of the work the Infant
Welfare and Ante Natal Clinic are discussed. The
functions, future development and value of the clinic
are considered in some detail as well as the shortcomings
of the present system. The remaining portions of the
work are concerned with a short summary in which the
principal findings are embodied. A bibliography of
the various books and papers consulted or read is
appended.

In concluding this foreword I am able to say with
Ruhrah that in compiling this work it has been "a
delightful task that has been thoroughly enjoyed."
If the thesis is of interest or use to those who are
concerned with the Maternity and Child Welfare
Movement it will repay me amply for what effort I have
expended. I would beg to thank the librarian of the
British Medical Association for his unfailing courtesy
and kindness in assisting me with references and also
to my wife for her encouragement and kindly criticism.

JOHN A. GUY.
HISTORY.

The history of child welfare and ante natal care is interesting and though it is popularly thought to have originated during the seventeenth and eighteenth centuries one finds in studying the literature that the history goes back to the beginning of literature. References to Child Welfare and Ante Natal care are found in the Egyptian, Babylonian and Ancient Hindu civilisations. Sir Flinders Petrie in 1889 discovered a papyrus at Kahn in Egypt which contains so far as I have been able to discover the earliest reference to ante natal care. The substance of this papyrus consists of 35 sections most of which are concerned with directions for treatment in gynaecological conditions and pregnancy and in sex determination. Another well known papyrus which contains references to ante natal care is the Berlin Papyrus which is said to date back to 1500 B.C. This embodies incantations and prescriptions for the protection of the mother and child. The London and Berlin Papyrus which was found in a tomb at Sakhrah contains somewhat similar incantations and rites for the preservation of the pregnant woman. In passing it is interesting to note that the pyramid at Sakhrah has depicted on one of it's sides in stone the operation of circumcision. This carving is said to date back to 3000 - 4000 B.C. In the Babylonian Civilisation one finds the existence of laws for the adoption of children. These laws are to be found in the Code of Hammurabi which are said to
have existed about the year 2285 B.C. Doctor Chowry Muthu in his book "The Antiquity of Hindu Medicine" shows that in India the care of the pregnant woman, the lying in woman and the young infant was considered at an early stage in that country's history. In the medical history of India the names of two famous physicians stand out pre-eminently, these names are Charaka and Susruta. They both wrote books on the practice of midwifery and other matters pertaining to the art of healing. These books became classics, and for many centuries were revised and re-edited by many successive Indian Doctors down to the time of Bhara Misra A.D. 1550. Charaka describes in his book the furnishing of a hospital and the provision of a lying in room and a nursery. So meticulous was Charaka that he even gives minute directions as to how the rooms are to be furnished and decorated and what toys should be there. Susruta was chiefly interested in Medicine and Surgery but he gave some interesting directions and sound advice on Midwifery also. He advised that the parturient woman should be delivered by four aged and knowing women whose nails have been well trimmed. He also suggested the washing of the woman with hot water following delivery. Susruta concerned himself with the management of the puerperal state, the rearing of the child and the choice of a wet nurse. He was the first to advocate the dissection of dead bodies as a means of obtaining knowledge which might be of service to the living. The operations of craniotomy and
Caesarian section were suggested by him as the only rational kind of treatment in hopeless cases of obstruction. About the year 1500 B.C. when the cult of Brahminism was in full sway knowledge of midwifery had reached a high standard judged by the conditions which existed in the Middle Ages. The conduct of midwifery was not confined to midwives but was also practiced by the Brahmin Priestcraft. These priests thanks to Charaka and Susruta no longer confined themselves to the invocation of divine aid in cases of obstructed birth but knew something of the art of manipulation, crude surgical procedure and the action of medicines especially those of a cathartic or vomiting nature. Haggard in his book "Devils, Drugs and Doctors" states that the manipulation now known as podalic version, the art of which was lost during the Dark Ages and was rediscovered in the sixteenth century, was known and practiced by the Brahmin Priests. Unfortunately even in this enlightened civilisation of India the skill of the priest-physician was not exempt from revolting surgical practice. I here quote a few lines from the Indian practice of the times - "When a child cannot be brought forth, the physician may employ the knife in such a way that he by no possibility cuts a living child with it, for if a child is injured the physician may destroy both mother and child together." In the Hebrew civilisation we find a system of hygiene which is preserved almost unchanged among the orthodox Jews of today. In the Mosaic Law which is believed to have
been formulated between 1400 - 1250 B.C. we find no references to child welfare but we find evidence of post natal care and early, if not the first mention of midwives. Thus we find that the parturient woman was set aside as unclean for thirty-three days following childbirth. This allowed her a period of rest when the organs of generation could return to their normal condition, the function of lactation be established and, above all, the woman was afforded a period of rest before returning to the arduous duties of camp life. In the Bible in the first chapter of Exodus verse 15 we find a very early reference to midwives, the passage is of sufficient interest to bear transcription - "And the King of Egypt spake to the Hebrew Midwives of which the name of one was Shiprah and the name of the other Puah. And he said when ye do the office of midwife to the Hebrew women and see them upon the stools if it be a son then ye shall kill him but if it be a daughter then she shall live." The word stool is interesting and probably refers to an actual wooden stool of horse shoe design on which labouring women were delivered. This type of stool was in constant use in Europe until the seventeenth century when Moriceau a famous French obstetrician introduced the bed instead of the stool for labour. Haggard in his book states that the midwifery stool was occasionally used as late as the nineteenth century. The illustration below of a midwifery stool was taken from the design of Eucharius Rosalin a German doctor who lived in the sixteenth
century and who advocated the use of it in his "Garden of Roses for Pregnant Women."

The chair was of wood and stood upon four stout legs. The seat was cut away leaving a periphery of horse shoe shape. There was a solid back and at each side of the seat two iron handles for the woman to grip when she required additional support. It would be reasonable to suppose that the stool referred to in the Bible was similar in structure and design to the one advocated by Eucharius. The Arabian school of medicine makes, so far as I have been able to find out, only one important contribution to the subject under discussion. The physician Avicenna writing in his Canticum de Medicina regarding infants says "Let care be taken of the infant in his mother's womb that no harm happen to his body, let the mother's blood be kept in good order
and let the excess of it, out of which the infant is formed, be kept pure." He also recommends great care to be taken in the choice of a wet nurse.

Turning from the study of the ancient civilisations of which only the sketchiest fragments remain we come to the Grecian Civilisation. The Greeks are admittedly acknowledged as the founders of modern medicine. The Grecian Civilisation is renowned for its culture, when many of the arts and sciences received an important stimulus and indeed many originated in that period. Aesculapius one of Greece's mythological heroes and God of Healing is so intimately connected with the origins of Grecian medicine that he deserves special mention. The Aesculapian temples set up in his honour became the centres of healing and the prototypes of our sanatoria, where the sick congregated and were tended by the priests. Pregnant women and the moribund were however not permitted in these Aesclepieia as the temples came to be called. The Emperor Antonius Pius eventually provided a special building at Epidaurus in which confinement cases especially those which would be likely to end fatally were allowed to enter. This building of Antonius Pius is the first attempt at forming a maternity hospital which I can find. In spite of the great advance which the Greeks made in other sciences the level of the practice of midwifery did not share to any extent in the general advancement. This is possibly due to the fact that the Ancient Greeks were a nation delighting in sport, exercise
and healthy living, so that the proportion of maternal deaths due to such causes as contracted pelvis, rickety pelvis and puerperal sepsis is found to have been lower than that found during the Middle Ages and even later. We find then that the qualifications of a Greek midwife were very crude and simple for example, in Athens the law with regard to midwives gives as the only qualification the necessity of having borne a child and of having passed the age of child bearing. From the Grecian Civilisation onwards there were no laws or regulations governing the conduct of midwifery until the year 1555 and then only in the city of Ratisbon. The lack of improvement in Grecian midwifery may have been due to the physically fit condition of the Greek women who had few abnormalities during confinement or during the ante natal period. In spite of the low level of midwifery one of the earliest ideas of attempting to influence the ante natal condition comes from Lycurgus of Sparta who is said to have ordered "That the maidens shall harden their bodies with exercise of running, wrestling, throwing the bar and casting the dart, to the end that the infant wherewith they afterwards conceive take nourishment of a strong and lusty body, shall shoot out and spread the better and that they by gathering strength thus shall move easily away with the pains of labour". Following the decline of the Grecian Empire medicine gradually drifted to Rome where it was brought by Grecian Physicians, following the destruction of Corinth in 146 B.C. At first the
Greek physicians were not looked upon with favour. The Roman Cato in particular frowned upon this innovation and even Pliny said "It is at the expense of our perils that they learn and they experiment by putting us to death, a physician being the only person who can kill another with sovereign impunity. Nay even more than this, all the blame is thrown upon the sick man only, he is accused of disobedience forthwith, and it is the person who is dead and gone who is put upon trial". In spite of it's initial unpopularity Greek medicine gradually acquired favour in Rome and city and court physicians of that nationality were appointed. Greek medicine probably culminated in Soranus of Ephesus who lived in Rome during the life of Trajan and Hadrian. Soranus set a standard of midwifery which was not equalled again until the sixteenth century. Soranus advocated the avoidance of drugs and force to hasten the process of childbirth. He also taught patience, forbearance and rational treatment based on knowledge rather than the popular forms of treatment based on superstition. Soranus reintroduced podalic version which had fallen into disuse and which was again to lie forgotten until the sixteenth century following the destruction of the Roman Empire. A curious heritage left from Roman days was the test which Galen, the great physician (A.D. 131) devised for the suitability of milk for infant feeding. A drop of the milk to be tested was placed on the nail of a finger from whence it should run off neither fast nor slow. This test
remained in force for 1,600 years and was mentioned as late as 1752 in Smellie's "Treatise on the Theory and Practice of Midwifery". Another test for the suitability of milk which for convenience sake is included here is taken from a "Practica" of unknown origin and translated by Professor Sudhoff in his "Ersthunge der Padiatrischen Literatur" 1925. The milk to be tested is put on a polished surface - a mirror or on polished steel - if it keeps its position it is good, if it spreads out it is bad and it is not advisable that the nurse should disturb the child's kidneys with it.

The Middle Ages are said to have lasted from the fifth to the fifteenth centuries and were consequent on the fall of the Roman Empire. It was a period during which most of the arts and sciences stagnated and declined, amongst them the scientific study of medicine. Consequently it was not until the year 1513 that any attempts were made to improve the lot of the pregnant woman or care for the infant. The first effort in this direction was made by Eucharius Roslin of Worms who wrote a book entitled "The Garden of Roses for Pregnant Women and Midwives". It is interesting to note that with the fall of the Roman Empire the practice of midwifery fell into the hands of midwives and men were entirely excluded from attending the forcesses of childbirth for a period of 500 years approximately. Indeed it is on record that a few of the more venturesome male practitioners of medicine when discovered attending
child birth were seized, tried and executed. There is little to wonder at when we realise that the entire practice of midwifery was carried out by ignorant and unclean women, midwives whose primitive knowledge was acquired by the archaic process of word of mouth. It was in an attempt to remedy these appalling conditions which were the lot of the pregnant woman that Catherine of Brunswick requested Eucharius to write a book for the guidance and instruction of midwives and mothers. Although it is doubtful that Eucharius had ever attended a childbirth or even had first hand knowledge of his subject, his book was an immediate success and was extensively translated into a number of other languages including English. Thus the need was shown for instruction on midwifery.

We find few instructions for the rearing or management of children in the earlier centuries. It is possible to suppose that children of those earlier times were brought up in healthier conditions and with a very few exceptions all would be breast fed and not confined in walled cities and towns of the Middle Ages. Accordingly we find that the first organised attempt to deal with the care of infants was made by Archbishop Datheus of Milan who established a Foundling Hospital in the year 787. Following this example similar institutions sprang up like mushrooms all over Europe. The growth of these establishments is interestingly given by G. H. Payne in his "Child in Human Progress." One can understand how these institutions became unsuccessful and soon stagnated when run by the
disorderly and haphazard ways which characterised the life and conduct of the Middle Ages. Malthus is said to have declared that the surest way to increase infant mortality was to build more hospitals for their reception.

In Britain one of the first attempts to provide some sort of child welfare was in 1598 during the reign of Henry VIII when Christ's Hospital in Newgate Market was founded for the purpose of affording a place of refuge and upbringing to poor fatherless children at the charges of the citizens. This institution cannot have been altogether successful as we find that in the reign of Edward VI the aim of the institution was changed to provide honest education and instruction for children. A similar attempt was made in 1686 when the Justices of Middlesex suggested that an attempt be made to reduce the infant mortality of the times by purchasing a big building near Clerkenwell in which deserted and orphaned children were to be housed. In order that the children should be properly cared for a physician, an apothecary and a chirurgeon were to be in regular attendance. This scheme failed to mature chiefly owing to the fact that public sentiment at that time was against the care of such infants, on the ground that immorality and vice would be encouraged. In 1662 the President and Governors of the London Poor acquired a building in Bishops Gate Street for the reception of orphaned children. This scheme was brought about by some public spirited citizens; who seeing neglected children in the streets of the poorer
parts of London, go half naked and in rags, without homes, seeking shelter in penthouses and under hulks even in the dead of winter, willingly subscribed towards the cost of the project. It is said that in 1704 there were approximately 368 children cared for in this institution.

Turning to the prenatal part of the subject, the credit for originating the most practical scheme for the training of and supervision of midwives, the care of the pregnant woman and the management of young infants belongs to a woman. In 1687 Mrs. Elizabeth Cellier presented a manuscript to King James I. In this she stated that during the space of twenty years over 6,000 women had died in childbirth, more than 13,000 children had been born abortive and more than 5,000 "chrysome" infants had been buried and that in all probability these had perished for the want of due skill and care in those women who practiced midwifery. One wonders where Mrs. Cellier obtained her figures - it is more than likely that the statistics are inaccurate, probably an understatement and that the information was drawn from Parish and Orphanage records in London. Mrs. Cellier proposed to remedy the state of affairs by the formation of a corporation of midwives so that the midwives could be licenced, supervised and provision was to be made for their instruction. For orphaned and deserted children her plan was to build a large house or hospital for their accommodation and treatment. Unfortunately Mrs. Cellier's scheme was not adopted and so the idea
progressed no further than being a petition, but it served to show that public sentiment was beginning to be stirred against the useless waste of maternal and infant life. Another abortive attempt to control the instruction and behaviour of madwives was made during the same reign by William Chamberlen, of the family which invented the obstetric forceps. Further evidence of the increasing public conscience in the care of the infant was shown by the passing of a law in Scotland during the reign of James I which made concealment of birth a fact which could be used to prove the guilt of the mother should the child be subsequently found dead.

In the early sixteenth century the idea of preventive medicine must have been widely spread, at any rate in Europe, for we find that in Italy, one, Bernadino Ramazzini of Modena, known for his contribution to the study of industrial diseases and among other things his advanced views on the rearing and management of children. His work was entitled "The Diseases of Artificers which by their particular callings they are most liable to, with the method of avoiding them, and their cure". The advice given by Ramazzini was both sound and practical, for we find he advocated better ventilation in mines, protective clothing and respirators for the miners and, curiously enough, the addition of fatty broth and milk to the dietary - advice consistent with the most modern views. In his advice to nursing mothers or wet nurses he advocates cleanliness, although the popular belief at
the time was that to bathe a cold was to court a cold and further that infants would not thrive well when deprived of their "succulent and nourishing juices" which only too frequently were allowed to plaster the babe from head to foot. Not only did Ramazzini advocate cleanliness in the infant but he also advocated the mother and nurse to be clean and sweet. "The infant", says Ramazzini, "is not to be fed too often and suckled every time it cries, on the contrary it should only be put to the breast three or four times during the twenty-four hours. After the child has been weaned, he goes on to say, it is to be fed with clean cows' milk to which has been added the yolk of an egg and a little sugar". This advice was strangely in advance of the times when it was the custom to clap the child to the breast every time it cried or give it 'river water' to drink and if it was fractious, a sleeping potion, "Godfrey's Cordial", "Dalby's Carminative" or even a drachm of gin. Small wonder that the infant mortality of that time was enormous. Another feature of the times, which has now disappeared, was the death of the infant from overlaying by nurse or mother. This evil was generally prevalent all over Europe during the Middle Ages and whilst most countries did little or nothing to prevent it, an isolated attempt was made at Florence. In this locality the laws made it compulsory for the wet nurse to make use of the contraption known as the 'Arcutio' which is described in the "Art of Nursing", 1733. This invention was
THE ARCUTIO.

A. Space for child.
B. Headboard.
C. Hollow for nurse's breast.
D. Bar of wood to lean on when nurse suckles child.
E. Iron Arch to support "D".

Total length of Arcutio three feet, two and a half inches.
designed to allow the infant to be suckled in bed without the danger of overlaying him. The invention was simple and crude, consisting of three wooden spars supported at one end by a wooden base. The two lower spars had a notch cut in them to allow the comfortable projection of the nurse's breast into the interior. This invention never found favour in England, but it is said to have been very successful in Florence where the magistrates compelled the wet nurses to use it whenever they took charge of an infant. During the seventeenth and eighteenth centuries the germs of methods for the better rearing of children were growing in most of the European countries.

In the Netherlands one of the earliest references to the origin of Dutch Child Welfare is contained in a book by Stephen Blankaart written in 1684. His work is entitled "Van de opvoedinge en zrekten der kinderen" and is translated by Still. This book was chiefly concerned with diseases of children. It consisted of three parts. The first part deals with the baby until the time of weaning in which he devotes a great deal of time to the upbringing of the child. Blankaart advised breast feeding but as a supplement suggested the use of pap made with bread crumbs soaked in diluted milk. He discountenanced the use of alcohol, so common in those times as a soporific. The problem of weaning he suggested should be dealt with by smearing the nipples with aloes or mustard!!!

In France an early exponent of the Child Welfare Movement was Jean Charles Desessarts, who wrote a book...
"Trait de L'éducation corporelle des enfans bas age, ou réflexions pratiques sur les moyens de procurer une meilleure constitution aux citoyens". While this book chiefly dealt with children's diseases it also contained advice on ante natal care and management of the new born infant in great detail as well as advice on clothing, cleanliness and exercise. Desessarts is vehement in his condemnation of the practice of foster nursing and relates that all the villages within twenty leagues of Paris were full of boarded out children with a correspondingly high death rate. Towards the end of the sixteenth century a school for midwives was opened in the famous Hotel Dieu in Paris. This was probably the first school for such a subject and was very likely originated by Paré, the famous surgeon who was responsible for the reintroduction of podalic version, a procedure which had not been made use of since the fall of the Roman Empire. Paré also reintroduced the male midwife.

It is to be noted with interest that among the graduates of this French school of midwifery was Louise Bourgeois who is said to have been the official midwife of Paris at that time and to have officiated at the birth of King Louis XIII.

In Germany Johan Peter Frank was one of the earliest to realise the importance of child welfare. In 1765 he wrote his Polixey which was a treatise on the management and care of children. In this work he considers what attitude the state should adopt towards children and what provision it should make for their
care and education. Frank was interested in the illegitimate child, concerned at the fearful waste of child life, the prevention of baby farming and the heavy mortality in foundling hospitals and orphanages. He was the first physician to realise the need for improved school hygiene. Frank was against the customary practice of seating young children on hard benches and making them concentrate on their work for long periods under the supervision of a surly master. He realised the necessity for more sleep, the provision of a mid-day meal, the adequate heating and ventilation of the school room and the value of sport and games.

Doctor Hoffmann, another German physician of the seventeenth century, is alleged to have protested against the feeding of infants with pap and wine, a custom much indulged in at that time. These facts were made known to this country in Robert James's Medical Dictionary in 1745.

In Britain William Buchan, M.D., Edinburgh was perhaps the first to recognise the value of open air for infants. Among other things he suggested a very practical plan of infant welfare which is recorded in "Domestic Medicine" 1769. His plan was as follows:- If it was made the interests of the poor to keep their children alive we should lose very few of them. A small premium given annually to each poor family for every child they have alive at the end of the year would save more infant lives than if the whole revenue of the Crown was expended on hospitals for this purpose. It would make the poor esteem fertility a
blessing whereas many of them regard it as the greatest
curse that can befall them and in place of wishing their
children to live, so far does poverty get the better of
natural affection that they are often very happy when
they die. Buchan also writes 'It is to be regretted
that more care is not bestowed in teaching the proper
management of children to those whom nature has
designed for mothers. This, instead of being made the
principal, is seldom considered as any part of female
education. Is it any wonder when females so uneducated
come to be mothers that they should be quite ignorant
of the duties belonging to that character? However
strange it may appear it is certainly true that many
mothers, and those of fashion too, are as ignorant when
they have brought a child into the world what to do for
it, as the infant itself'. Buchan's views unfortunately
found little favour but though his advice was disregarded
at the time it undoubtedly pointed the way for other and
more fortunate pioneers of the Child Welfare Movement.

In England the eighteenth century was, as far as
infant and maternal welfare was concerned, a period of
rapid growth. We are aware that the Industrial Revolution
took place in the latter half of this eighteenth century
but even before and during this men were turning their
thoughts to the prevention of the appalling infant
mortality and to finding ways and means for the better
rearing of young children. Foremost among the pioneers
in infant hygiene was William Cadogan, M.D. (1711-1797).
This learned physician struck a decisive blow at the
custom of the times when he wrote his famous essay on the
nursing, feeding, clothing and exercise of infants. Cadogan observed that among the bottle fed infants of the time not one in three survived. He writes on the practice of the time 'The general practice is that as soon as a child is born to cram a dab of butter and sugar down it's throat, Panada, Candal, or some such unwholesome mess. So that they set out wrong and the child stands a fair chance of being made sick from that first hour. It is the custom of some to give a little roast pig to an infant which, it seems, is to cure it of all mothers longings. I wish these matters were a little more enquired into for the honour of the sex'. He goes on to say "If we follow nature instead of leading or driving it we cannot err. Where a child is first born there seems to be no provision at all made for it, for the mother's milk seldom comes before the third day so that according to nature a child would be left a day and a half or two days without any food, to me a very sufficient proof that it wants none". These extracts from his pamphlet are sufficient to indicate the far sightedness and sanity of the man in an age guided by superstition and ignorance. Cadogan also fought against the practice of swaddling. This process of swaddling consisted in binding the child from head to foot in tight bandages. The object of this was to give the child a well shaped head and straight legs and prevent the large head and bowed legs of rickets so commonly seen in those days. The swaddling bandages were usually removed once daily and the procedure was often carried out for several months. Another queer practice of the eighteenth
century was the fixing of whalebone stay at the back of a child's neck to prevent the head from nodding or rolling about.

In the same century one, Charles White stood out for his interest in Child Welfare and Maternal Care. This gentleman was born in 1728 and is to be remembered chiefly for his singularly advanced treatise entitled 'On the management of pregnant women and the means of curing but more especially of preventing the principal disorders to which they are liable'. This treatise was published in 1773. In this treatise White dealt with the hygiene and general procedure of childbirth and the prevention of childbed fever. He suggested that maternity homes should be well kept and clean. As a physician White interested himself in the Ante Natal period and from his study of it came to the conclusion that there were many factors which could adversely affect the maternal and foetal health even in the early months of pregnancy. As the result of his studies he was an advocate of systematic ante natal supervision. White's views on the causation of puerperal sepsis are interesting in view of the knowledge which we now possess. He held that puerperal sepsis was the result of retained and putrefying lochia which was absorbed into the body. He was also inclined to believe that the disease could arise from the mismanagement of the midwife. In regard to the prevention of the disease White suggested several rules which were as advanced as his other ideas. Perhaps his most important rules were the cleanliness of the patient, her bedding and general
surroundings; the early adoption of the sitting position after childbirth to facilitate the drainage of the genital tract. He believed in a wholesome mixed dietary fresh air and a suitable temperature of the patient's room. White claimed that by observing these rules he never lost a case.

The influence of alcohol on the infant population of today is less than it ever has been but in the eighteenth century the part played by alcohol in the destruction of infant life was prodigious. In those days many mothers and nurses gave their offspring or charges gin with the object of 'hardening' their stomachs, or, as a carminative or even as a hypnotic. Gin was called and deserved the name 'the real grand destroyer of infants'. An Inland Revenue Officer by the name of Scarisbrick, writing of the times, says that in 1720 drunkenness abounded and that England had become a nation of drinkers. Some people consider this extraordinary era of intemperance as the most disgraceful period of English history. Not only did alcohol cause death to those infants who drank it but it was also responsible for many cases of overlaying. John Evelyn in his diary of March, 1664 writes "It pleased God to take away my son Richard, being now a month old, yet without sickness of danger perceivably, being to all appearances a most likely child, we suspected much the nurse had overlain him to our extreme sorrow, being now again reduced to one, but God's Will be done". This is but one example among many thousands. Overlaying was a frequent happening when an unwanted child was to be got rid of.
Indirectly alcohol must have been responsible for a large number of deaths the result of drunken parents and guardians exposing infants to hard usage, insufficient and bad food, exposure and privation.

It is impossible to read through the medical history of the eighteenth century without coming upon the names of two famous Scottish physicians who gained their fame in London and who were responsible for discovering new and important methods in midwifery and ante natal care. Their names were William Smellie and William Hunter. The former was the first medical man to measure the pelvis accurately by new methods which he had discovered. He also found means of diagnosing and treating placenta praevia. He was a strong advocate of the male midwife. He is said to have originated the idea of providing districts in towns for students to gain practical experience in much the same way that midwifery students acquire their practical knowledge 'on district' in this present age. Doctor John Mobray, another figure of the times should also be remembered for he, like Smellie, was a firm believer in the male midwife and also in the need for ante natal care.

The eighteenth century saw the founding of the first organised hospital for lying-in women. This was established by Sir Richard Manningham in 1739.

No historical sketch would be complete without at least a passing reference to the Chamberlain family. This family was well known in the obstetric world. They were said to have come over from France and settled in England in the reign of Henry VIII. In
Peter Chamberlen is said to have invented the obstetric forceps. He had devoted himself to the practice of midwifery and, at about the same time as Mrs. Cellier presented her petition to James I, Chamberlen made a somewhat similar proposal. His proposal was made in 1616 and runs somewhat as follows 'That some order may be settled by the state for the instruction and civil government of midwives'. This proposal however like Mrs. Cellier's came to nothing. The secret of the obstetric forceps was jealously guarded and was handed down within the family until the latter half of the seventeenth century when, by reason of his political views, Hugh Chamberlen had to flee the country. In his wanderings he met Mauriceau, a famous French obstetrician, to whom he is reputed to have offered the secret for a large sum of money but, as Chamberlen failed to deliver the child of a woman with contracted pelvis, whom Mauriceau gave him as a test case, the secret did not change hands. In 1699 Chamberlen while in Holland sold his invention to a number of public spirited men who made it known to the world.

In 1730 Thomas Corham made his entry into the sphere of Child Welfare. Corham was a retired trader of some means and philanthropic disposition. He was greatly impressed by finding dead bodies of infants on manure heaps on the outskirts of London when he went for walks and conceived the idea of building a foundling hospital. The idea was immediately successful and many of the nobility gave their support to it. Indeed it became the fashion to hold drawing room meetings and concerts.
in aid of the fund; among others the famous musician Handel gave more than one concert on its behalf. Unfortunately the ends of the project were defeated by the crude means of infant management prevalent in those days so that the infant mortality rate within the hospital was enormous. The hospital also became open to abuses of various sorts. Workhouse masters would hurry the infants of the indignant and expostulating poor to the Foundling Hospital in order to save expense to the parish. A wholesale trade in infants and babies sprang up amongst the tinkers and hawkers of England. Unwanted babies were conveyed by these undesirables from all parts of England to London where they deposited them at the door of the Foundling Hospital and hastened back for a fresh load.

The Poor Laws of England were first introduced in the reign of Queen Elizabeth and had remained practically unaltered until the middle of the eighteenth century. The effect of these laws was to make incumbent upon each parish the necessity of providing for its own poor. The workhouse masters, an unscrupulous lot of men, were responsible for the care of the infant poor from birth until the infant reached an age when he could be apprenticed to some craft. Under this regime those responsible for the welfare of the poor often hustled women in labour from one parish to another in order to avoid the expense which the upbringing of these infants would entail. Pitiful stories are told on newly born infants being torn from their mother's breast to be taken to the Foundling Hospital in order to save the parish money.
In 1757 a trader by the name of Joseph Hannay interested himself in the state of the indigent poor and when he had become conversant with the state of affairs which at that time existed succeeded in passing through Parliament two important Bills, the first in 1761 which provided for the registration of infants under Parish care and for preventing women in labour from being moved from parish to parish. Another Act was passed at Hannay's instigation in 1767 the object of which was the prevention of the infant poor of London being kept in workhouses during the first six years of their lives. Provision being made for them to be nursed individually in the suburbs of the city or even out in the country. As a result of Hannay's efforts the infant poor of St. James's, Westminster, were farmed out on Wimbledon Common. The nurse was allowed three shillings per week for the child's maintenance. Should the child recover from an illness then a fee of five shillings was awarded; if it lived for a year then a guinea was given. It is interesting to note that this is one among several infant welfare schemes which depended on the award of money for the successful rearing of infants. To continue with Hannay's scheme, if we may term it as such, the medical supervision of these boarded out children was provided for and a surgeon and an apothecary were appointed to supervise their health. In passing we may note that these infants were vaccinated against smallpox. To guard against carelessness a provision was made whereby if a nurse had two children die under her care within one year her services were discontinued because such an event showed lack of skill or care on her part. One
wonders if Broadbent's scheme at Huddersfield which followed nearly a century later was in any way modelled on Hannay's scheme. Both schemes were cleverly conceived and were successful but for some reason were not continued nor were they tried in any other town.

About the same time as Hannay was bringing forward his bills for the care of the infant poor another important branch of infant welfare work was being opened for the first time. This was the outdoor dispensary. Doctor George Armstrong, an eminent physician, was responsible for this innovation in 1769. Armstrong's idea was that while it would require an enormous institution to house all the infant sick which were examined, yet if a place was opened where advice and medicine could be given, mothers could nurse their sickly babies at home and bring them to the "Dispensary", as the place was called, from time to time, for further advice and guidance where necessary. In this way a large number of infants could be examined and treatment given without the necessity of maintaining an unwieldy establishment. Armstrong's dispensary was opened in Red Lion Square in 1769 and was open four days a week for the treatment of the poor and on other days for fee paying patients. During the first year of its existence 696 patients were treated. The dispensary closed in 1781 through lack of funds and though sporadic attempts were made to open it again they were all unsuccessful. During the eleven years of its existence about 35000 patients were treated. Surely a worthy record for any dispensary. A word might be said here on Doctor Armstrong and his work.
He was a very capable physician, kind and sterling in his qualities and showed an amazing clarity of thought. He gave one of the earliest and best descriptions of pyloric stenosis that has ever been written. Here are one or two extracts from his writings which demonstrate the clearness of his expression and thought. "Convulsions for the most part close the scene in adults as well as in infants, because they die convulsed we do not say they die of convulsions, though this is constantly said in regard to children merely through the ignorance of persons about them, who do not know what other name to give to the disease". "I do not confine myself to the therapeutie or curative part of physic only. I likewise extended my care to the prophylactic branch or that which concerns the prevention of disease, constantly endeavouring to hinder their being so frequent or so violent when they happen". Here we have the seeds of preventive medicine in the sphere of infantile disorders sending out their roots, for other men were thinking on much the same lines in other branches of medicine. Sir Gilbert Blane, physician to the Navy under Lord Rodney, writes 'The means of prevention are more within our power than those of cure, for it is more in human art to remove contagion, to alter man's food and clothing, to command what food and exercise he is to use, what air he is to breathe, than it is to produce any given change in the internal operations of the body'. Lettson in his 'Medical Memoirs' in 1774 says "In the nurture and management of infants as well as in the treatment of lying in women the reformation has equalled that of the
smallpox. For by these two circumstances alone incredible numbers have been rescued from the grave”.

During the latter half of the eighteenth century when the industrial revolution was in full swing people who had been previously engaged in agricultural pursuits migrated to the towns in search of better wages and possibly in an attempt to satisfy their gregarious instincts. This led to the rapid growth of the industrial towns and, as town planning was unheard of in those days, slums quickly came into existence and grew at an alarming rate. Sanitary reform still in its infancy failed to cope with the conditions so that drainage and sewerage were still very primitive and when once epidemics of disease came along the death rate became startling. The fact that so many people were living together under unhygienic conditions gave opportunities for old diseases, and diseases that had seldom been heard of before to flourish in an hitherto unheard of degree. Thus with the combination of a smoky atmosphere and poor feeding, rickets, with its attendant ills, became common among the labouring classes. The water supplies were bad with a consequent high death rate from water borne diseases. At the risk of digressing for a moment from the subject I quote here a few statistics from Newman to illustrate the damage done by one disease alone:—

1831 - Cholera epidemic started in Sunderland and killed 32000 people.

1848 - Cholera epidemic killed 55000 and in a seven year period killed 250000 people.

1866 - Cholera epidemic killed 10800 people in London alone.

Coupled with disease and disease producing conditions
children were being employed in increasing numbers in factories and mines at the tender age of five and six. In this morass of industrialism the thread of the development of infant and maternal care becomes difficult to follow; but it was none the less there. As Bernardino Ramazzini of Modena had studied and enquired into the effect of artisans' employment on their health so did Aiken, Percival, Ferrier and Turner-Thackerah of Leeds in this country. The researches of these and others led to the turning of public sentiment against the callous employment of child labour. Thus the Government began to take a hand in the protection of the young by passing legislature. One of the first acts was passed in 1802, this was the first Factory Act. The effect of this act was to limit the working hours of apprentices to twelve per day, to provide separate accommodation for the sexes and to prohibit more than two persons sleeping in one bed. This first act was followed by a large number of Acts of Parliament for the express purpose of prohibiting child and female labour in factories and mines. To enumerate these acts would take more space and time than I am able to devote. In 1819 an act was passed prohibiting children under nine years of age being employed in cotton mills. In 1842 it was made illegal to employ women in mines. 1870 saw the passing of the famous 'Factories and Workshops Act', the 'Children's Dangerous Performances Act', the 'Chimney Sweeps Act', the latter being passed at the instigation of Joseph Hanway the inventor of the umbrella. The 'Prevention of Cruelty to Children' Act passed in 1872
was hastened by the abominable practice of baby farming and the case of the notorious Margaret Waters, in 1870, and that of Mrs. Dyer of Reading brought the matter to a head. These trials brought into being a society whose sole aim is the protection of infant life. Doctor J. B. Curgenven's name is associated with the initiation of the society which called itself 'The infant life Protection Society'.

It is necessary to turn to another aspect of welfare work which was beginning to receive attention for the first time as a social obligation in the beginning of the nineteenth century. This was the problem of the unmarried mother and her infant. The history in connection with this subject is scanty but may be traced back to the time of Queen Elizabeth when a Poor Law Act was passed in 1576 'for settling the poore on work' and 'for the avoidance of idleness'. Under this act the father was made responsible for the upkeep of his illegitimate child. Following this the matter lay dormant until 1834 when the Poor Law Amendment Act was passed. The question of the illegitimate child once raised received increasing attention from Parliament and a number of acts were passed dealing with the problem. The present position in regard to the illegitimate child is interesting. In the first place the child may be kept by the mother in her own home and, other things being equal, this is the best solution, or the child may be adopted by a foster mother, or boarded out with another family or may be sent to a small cottage home or lastly and most unsatisfactorily may be kept in
a large orphanage. The laws relating to the illegitimate child are administered by the Ministry or Board of Health and locally by the Maternity and Child Welfare Authority. This latter authority must appoint Infant Protection Visitors, whose duty it is to inspect and report on the progress of the illegitimate children who are kept for hire. In spite of the present day precautions the lot of the illegitimate child is not always as it should be. A glance at the Registrar General's Reports show this by the fact that the Death Rate for the illegitimate child is almost twice that of the legitimate.

**DEATH RATE PER 1000 CHILDREN BORN.**

<table>
<thead>
<tr>
<th>Period</th>
<th>Legitimate</th>
<th>Illegitimate</th>
</tr>
</thead>
<tbody>
<tr>
<td>1921-25</td>
<td>73</td>
<td>140</td>
</tr>
<tr>
<td>1926-30</td>
<td>65</td>
<td>119</td>
</tr>
<tr>
<td>1931-</td>
<td>64</td>
<td>111</td>
</tr>
<tr>
<td>1932-</td>
<td>63</td>
<td>112</td>
</tr>
</tbody>
</table>

The fact that the plight of the illegitimate child is not confined to this country alone is borne out by the figures given by the New York Academy of Medicine for New York (1933)

<table>
<thead>
<tr>
<th>Live Births</th>
<th>Total Deaths</th>
<th>Rate per 1000 Births</th>
</tr>
</thead>
<tbody>
<tr>
<td>Legitimate</td>
<td>343862</td>
<td>1504</td>
</tr>
<tr>
<td>Illegitimate</td>
<td>4448</td>
<td>60</td>
</tr>
</tbody>
</table>

Before dismissing the subject we find that the Board of Health issued a circular in connection with Maternity and Child Welfare Act, 1918, which makes special reference to this subject and is worth quoting 'The health of infants and young children who lack the support of a father often need special attention and it is on all
grounds desirable that the mother and child should be kept together in such cases especially during the first year. It is notorious that the Death Rate of illegitimate infants, the only infants in this category for whom separate statistics are published, is about twice the Death Rate of legitimate infants. To some extent this is due to the difficulty experienced by the mothers in making a home for them. The Board have therefore attained the Treasury assent to the extensions of the grant to homes at which mothers and children can be kept together in certain cases and to such other managements that the Board may approve for attending to the health of the children under consideration'. At the same time as this important change in official circles was taking place a society came into being for the express purpose of looking after unmarried mothers and their children. This Society had as it's principal aims the reforms of the existing Bastardy Laws, Affiliation Acts and Orders, the securing of accommodation for mothers and babies throughout the country with the special object of keeping mother and child together and to deal with individual enquiries from, or on behalf of, the unmarried mothers. In accordance with these views the Day Servants Hostel in Chelsea was established with the object of providing a good home for the unmarried mothers and children. The children being cared for in the home while the mother worked in the immediate neighbourhood. It was quite obvious however that this arrangement was only practicable in the larger towns and cities. In the smaller urban
and rural areas some other plan had to be resorted to so the old idea of boarding out children had to be resurrected. Upon trial it was found that when a child was boarded out in a suitable home in the same stratum of society to which the mother belonged and which the mother could visit from time to time, the plan was then fairly successful. This is the manner in which the majority of illegitimate children are being dealt with at the present time. The Chief Medical Officer in his Annual Report for 1931 writes 'One practical difficulty is to find enough women of a suitable type who are willing to take these children. There are probably many working class women who would be prepared to do this if they felt this was a contribution to National Child Welfare work. If organisations such as Women's Institutions, Toc H, Co-operative Women's Guilds, British Legion, and so on, would take this matter up with their members, and if each branch found only one or possibly two suitable homes, the problem of the nurse-child would be well on its way to solution and most of the difficulties associated with infant life protection would disappear'.

The Infant Welfare Movement Abroad. Towards the latter half of the nineteenth century the Infant Welfare movement tended to become general. It does not appear to have spread from one country to another so much as to have sprung up de novo in each individual nation. Thus we find the movement in existence about much the same time in most European countries and in America. Foremost among the nations of Western Europe to take an
interest in Infant Welfare was France. The birth rate in this country had been falling continuously since the beginning of the nineteenth century which is shown in the below figures:

**NUMBER PER 1000 POPULATION.**

<table>
<thead>
<tr>
<th>Period</th>
<th>Births</th>
<th>Deaths</th>
<th>Excess Births over Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1801-1810</td>
<td>33.0</td>
<td>29.0</td>
<td>4.0</td>
</tr>
<tr>
<td>1811-1820</td>
<td>31.8</td>
<td>26.1</td>
<td>5.7</td>
</tr>
<tr>
<td>1821-1830</td>
<td>30.0</td>
<td>25.2</td>
<td>5.8</td>
</tr>
<tr>
<td>1831-1840</td>
<td>29.0</td>
<td>24.8</td>
<td>4.2</td>
</tr>
<tr>
<td>1841-1850</td>
<td>27.4</td>
<td>23.3</td>
<td>4.1</td>
</tr>
<tr>
<td>1851-1860</td>
<td>26.3</td>
<td>23.9</td>
<td>2.4</td>
</tr>
<tr>
<td>1861-1870</td>
<td>26.3</td>
<td>23.6</td>
<td>2.7</td>
</tr>
<tr>
<td>1871-1880</td>
<td>25.4</td>
<td>23.7</td>
<td>1.7</td>
</tr>
<tr>
<td>1881-1890</td>
<td>23.9</td>
<td>22.1</td>
<td>1.8</td>
</tr>
<tr>
<td>1891-1900</td>
<td>22.2</td>
<td>21.5</td>
<td>0.7</td>
</tr>
</tbody>
</table>

This serious decline must have acted as a stimulus to those interested in the welfare of the nation to investigate ways and means whereby they could reduce this decline. One of the ways was obviously to check the Infant Mortality. Firmin Marboeuf was one of the French pioneers in the nineteenth century who observed the conditions resulting from the employment of married women in factories. He instituted the first crèche in 1844. In a similar way Doctor Fibert at Havre is credited with the establishment of the first dispensary for the treatment of outpatient sick infants.
Professor Pierre Budin opened what he called a Consultation de Nourrissons at the Charite Hospital in Paris in 1892. The object of this latter centre was to encourage the mothers of babies born in the hospital to bring their infants back a month after birth for a routine examination and weighing. At this centre Budin advocated breast feeding but also supplied sterilised milk in bottles of sufficient capacity for one feed only to those mothers incapable of breast feeding their babies. Budin's centre acquired great fame both at home and abroad while other clinics received little attention. For example Budin had a predecessor called Professor Herrgott of Nancy who had a clinic which functioned much on the same lines as that of Professor Budin but only a few people seem to have heard of it's existence. The year 1894 saw the opening of the first 'Goutte de lait' as it was termed by Doctor Leon Dufour. This centre was run with the following objects:- 1. Encouragement of breast feeding, 2. The provision of supplementary feeding with modified cows' milk. 3. To give advice and to supply modified cows' milk when breast feeding was impossible. The modification of the cows' milk is interesting in view of the present day knowledge. It was done by the following procedure. To each quart of milk one pint water added and to a litre of the mixture fifteen grammes of cream, thirty-five grammes of lactose and one gramme of salt were added. The modified milk was bottles and sealed and subjected to a heat of 102 degrees Centigrade for forty-five minutes.
world was Doctor Gaston Variot a pediatrician. Variot opened a dispensary at the Belle Ville Hospital. He was a firm believer in the 'Gouge de Lait' and did much in his journal 'La Clinique Enfantile' to spread the idea among his colleagues. The first municipal dispensary was opened in 1895 at the instigation of Senator M. Paul Strauss at the Maison de Secours in Paris.

Before leaving the Infant Welfare Movement in France a brief reference might be made to a remarkable society which was formed in 1876 and was called 'Société de Allaitement Maternelle'. The object of this society was to provide homes in which necessitous pregnant women could be kept for some weeks prior to delivery, when they were in want of rest or treatment. The society also provided funds to give financial assistance to those mothers who suckled their infants as a means of encouraging breast feeding. France was the first country to have State recognition of midwives. Rules and regulations for their behaviour were introduced as early as 1813.

In 1892 an interesting experiment was carried out by two French workers, by name Messieurs Balestre and Gilleta of St. Joseph, near Nice. These two gentlemen set out to analyse the Infant Mortality of 681 French towns which had a total population of 13,000,000 people. These investigators discovered some interesting facts which I give below:--
Chief Causes of Death.

<table>
<thead>
<tr>
<th>Cause</th>
<th>Number of Infant Deaths per Thousand Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Gastro-enteritis, diaorrhea.</td>
<td>884.7</td>
</tr>
<tr>
<td>2. Respiratory diseases.</td>
<td>147.3</td>
</tr>
<tr>
<td>3. Congenital debility.</td>
<td>170.7</td>
</tr>
<tr>
<td>4. Tubercolosis</td>
<td>24.7</td>
</tr>
<tr>
<td>5. Infectious diseases.</td>
<td>49.6</td>
</tr>
<tr>
<td>6. Other causes.</td>
<td>222.9</td>
</tr>
</tbody>
</table>

From these statistics Balestre and Gilleta came to the conclusion that as diaorrheal diseases were mainly responsible for the high infant mortality rate that this could be greatly reduced by better means of feeding and with suitable care of the food to be consumed this cause of three-quarters of the deaths could be avoided.

Perhaps the most remarkable scheme of infant welfare in France of which very little is heard, but which had an important effect on the development of the Infant and Maternal Welfare in Britain was the scheme of Commune of Millieurs-le-duc in the department of the Cote d'Or. In this Commune the infant mortality was given as follows:

<table>
<thead>
<tr>
<th>Period</th>
<th>Deaths under one year per thousand births</th>
</tr>
</thead>
<tbody>
<tr>
<td>1792-1892.</td>
<td>130.</td>
</tr>
<tr>
<td>1892-1903.</td>
<td>---</td>
</tr>
</tbody>
</table>

During the latter decade there were 54 births and no deaths and no ante natal mortality. This was a remarkable tribute to the efficiency of the scheme.
which had been put into operation in 1892. This scheme which was conceived by the Mayor (M. Morel de Villiers) provided for the ante natal care of the expectant mother with skilled attention from a physician, if necessary, provision for the puerperium, and a system of attention for the welfare of the infant, including an arrangement for an elaborate artificial feeding where necessary. Not only was the system complete but simple and effective in operation as the results indicate. Briefly the scheme was as follows:— Every pregnant woman, whether married or single, who was unable to provide for the confinement was declared to have the right to require assistance from the Commune provided she notified her condition to the Mayor before the seventh month of pregnancy and stated the name of the midwife who was to be present at the confinement. The selected midwife was then asked to make an ante natal examination for which a fee of five francs was paid. The midwife was obliged to report to the local authority any case in which medical help was considered necessary. In such cases the local authority would request the physician chosen by the patient to attend and his fee was paid by the Commune. During the puerperium the mother received six francs provided she stayed in bed six days following the confinement. With regard to children farmed out or hand fed, the guardians or nurse were obliged to obtain a milk sterilising apparatus and feed the child in accordance with written instructions supplied by the Commune. The apparatus was inspected from time to time by an officer of the Commune and any parts missing
or broken had to be replaced from the Commune Offices. All cases of illness of infants were to be notified to the Commune Offices within twenty four hours of the first symptom. All infants which were farmed out were required to be weighed on the Commune weighing machine either in the child's home or at the Municipal offices. Milk sterilising apparatus and spare parts were provided by the Commune at cost price. Each nurse who brought her child to the Mayor, in good health at the end of the year, received a grant of two francs for each month the child had been under her care. This scheme was so successful that it attracted the attention of the French Academy of Medicine who sent down a special officer to examine and report on the scheme. It is worth while noting that Doctor Moore, the Medical Officer of Health for Bradford, modelled his scheme, which was subsequently adopted by that city, on this French scheme and to which reference will be made later.

In America three names stand out conspicuously in regard to the advancement of infant welfare, these are Strauss, Coit and Chapin. The foremost was a wealthy Jew, a most public spirited person who devoted his energies and wealth to the cause of infant welfare. He became, in 1898, President of the New York Board of Health. For some time Strauss had been interested in Infant Mortality in New York; his investigations led him to believe that diseases of the digestive system accounted for by far the largest number of infant deaths, His plan was to place milk suited for infant nutriment within reach of the poor. He then considered ways and
means of putting his plan into action and finally decided, in 1893, to open a milk depot which was to supply pasteurised and modified milk suitable for infant feeding. More than a thousand sick infants were fed from milk at this depot and as Strauss himself says "The results were immediate and amazing". In about a year's time it was found that the depot was having an unexpected result in improving the standard of milk sold in the neighbourhood. The milk dealers were finding it hard to compete with their inferior and more expensive article against the carefully prepared and stored 'depot milk'. The procedure taken with this milk was to cool it at the source, transport it as quickly as possible to the central laboratory in New York where it was first separated in a mechanical separator in order to rid it of coarse impurities. The milk was then put in bottles and pasteurised. Strauss made it a rule never to sell any milk which had been pasteurised more than twenty four hours previously. In 1905, when Strauss addressed the State Medicine section of the British Medical Association, he said there were fourteen depots in New York supplying 250,000 bottles of milk per month.

Doctor Coit another prominent American Infant Welfare worker also came to the same conclusion that Strauss had reached, namely that a pure supply of milk was the best way of tackling the high Infant Mortality rate due to gastro intestinal diseases. Coit, unlike Strauss and the French workers, would not accept milk in it's original unhygienic state from farmers and then
render it safe by pasteurising it, but preferred to have milk from healthy cows which was handled and kept by hygienic methods. In passing we may note that it is said that Coit's attention was first drawn to the milk problem when he tried to obtain clean milk for his dying infant son and found that the receptacles in which milk was stored by the milk vendors were in a filthy condition. By 1892 Coit had worked out a plan by which he hoped that milk could be produced conforming to the following standards:

1. Absence of pathogenic organisms and with few non pathogens.

2. Unvarying resistance to early fermentative change so that milk could be kept under ordinary conditions.

3. That the known chemical components should be unvarying and that there should be a constant relation between the percentage of it's component parts.

4. That the organic principles should be unimpaired by mechanical, thermal or chemical treatment.

In order that the above requirements could be obtained Coit's idea was that bodies of medical practitioners within the United States would lay down necessary rules by means of which milk producers, who were willing to take part in this scheme, would be bound. It was naturally difficult at first to find dairymen who would accept the stringent rules laid down but this difficulty was eventually overcome and 'certified' milk, as this approved milk came to be called, was produced in a number of States but especially those along the Atlantic Seaboard of America. The technical standards of certified milk were as follows:

1. Not more than 30,000 bacteria per cubic centimetre. Later reduced to 10,000.
2. Four per cent butter fat.
3. Tubercular free herd.
4. Healthy farm workers.

Coit's standards and methods have been adopted almost completely in Great Britain in the production of certified milk which has appeared as a commercial product during the last few years.

Before leaving the American development of Maternity and Child Welfare it is necessary to refer to Chapin, Emeritus Professor of Medicine (Diseases of Children) at New York post-graduate school. Chapin interested himself in the unwanted child. He came to the conclusion that orphan infants thrived poorly and died readily when cared for in the large institutions which were a feature of New York towards the end of the nineteenth century. His objections were that a child needs a more personal contact with its mother or nurse than could be given at an institution and further that serious epidemics of infectious diseases were frequent in these buildings and were responsible for a large number of deaths. As a solution to this problem Chapin suggested the so-called Speedwell system of boarding out children which was particularly suited to large towns. The essential feature of this Speedwell system was the recruitment of foster mothers from among the better class of the labouring stratum of society. In the city in which it is proposed to adopt this scheme a portion is mapped out as being a suitable locality, a number of women are carefully selected as foster mothers, the qualification for this being their motherly instincts as shown by the
presence of a young family in a good state of health and nutrition. Emphasis was not laid upon the absence of dirt in the home as it was felt that this could be improved by subsequent visitation and education of the foster parent. Having selected a number of willing foster mothers in an area, a local committee was formed of people who would have knowledge of these mothers and their circumstances. This committee was to help in raising money and supplies for the maintenance of the foster children and to assist in friendly visitation and exercise of general supervision. The area plus the committee was called a unit and there might be several such within one city. The funds were also used to assist the entire family including the foster child so that a wide view was taken of the committee's obligations. In addition to the visitation by the committee a Doctor and nurse were to pay regular visits to the families concerned. Records of progress were kept on cards which were filed in the committee's office.

Chapin also held the view that the best solution to the problem of widows' children was to help the widow financially and so keep the family together rather than put the children in an orphanage. The result of the Infant Welfare Workers in New York may be gathered from a glance at the vital statistics of that city:
<table>
<thead>
<tr>
<th>Year</th>
<th>Infant Mortality Rate per Thousand Children Born</th>
</tr>
</thead>
<tbody>
<tr>
<td>1885</td>
<td>273.6</td>
</tr>
<tr>
<td>1919</td>
<td>81.6</td>
</tr>
<tr>
<td>1921</td>
<td>71.1</td>
</tr>
</tbody>
</table>

In Belgium the development of Infant Welfare work centres itself round the name of Doctor Miele of Ghent. This doctor was a member of the Vooruit, a socialist society which among other things interested itself in the welfare of the industrial classes. Ghent in 1901 was a city in which the silk industry flourished and consequently the percentage of married women employed was high to the detriment of their families. At this time the Infant Mortality rate in Ghent was thirty-three per thousand births. This fact inspired Miele to try and reduce this. The Vooruit then assisted Doctor Miele to establish what he called 'The Society for helping Mothers'. Miele's scheme was divided into twelve parts. In the first place there was an infant dispensary, very much on the lines of a present day clinic. A body of voluntary health workers was selected from the mothers who had attended the dispensary with their own infants, who were willing and who showed an aptitude for instructing others. These women paid domiciliary visits to the homes of the infants who came to the dispensary. Another part of the scheme was a Mothers' Friendly Society which received weekly contributions from expectant mothers and at the time of their confinement the Doctor's and midwife's fees were.
paid and baby clothes provided. Provision was also made for a supply of sterilised milk for infants who could not be breast fed; indeed several depots were opened in different parts of the city for this purpose. Milk was supplied for nursing mothers and in special cases was granted free of charge. Modified food suitable for infants suffering from digestive trouble was supplied at cheap rates. On the educative side provision was made for talks, lantern lectures and demonstrations. Classes on infant feeding and management were held for girls between fourteen and eighteen. In a similar way courses were held for foster mothers. To complete the scheme instruction was given in the care and nursing of tubercular patients. This scheme of Doctor Miele's was very successful and in 1906 the dispensary was dealing with a thousand cases annually. The scheme was described by Mrs. Russell in an article to the 'Nineteenth Century and After' Magazine of December 1906, in an endeavour to interest and stimulate British workers to a like venture. It would be difficult to contemplate a more complete and comprehensive scheme than the one we have just described and it is pleasing to note that the example set was not entirely lost but was followed, at any rate in part, by the London St. Pancras Scheme of which more will be heard later.

To return to conditions in Britain it is to be noted that following the lead of the French Gouties de Lait a number of milk depots were opened. The first of these, and perhaps the best known, was the depot at
St. Helen's, Lancashire. This was established on the initiation of Doctor Harris, the Medical Officer of Health of St. Helen's, in 1889. This example was quickly followed by Liverpool which city opened two depots in 1901. Soon a number of other cities followed suit.

The milk depot must be regarded as a transient phase of Infant Welfare movement, which has long since disappeared having completed its period of usefulness. The place of the depot has largely been taken by the Infant Welfare Centre and the milk replaced by the use of dried milk or home sterilised cows' milk modified by the instructed mother.

Health Visiting. In tracing the origin of health visiting I find that John Bummell Davis (1817) was among the first to advocate the visiting of the infant, especially the sickly infant. Davis in his remarkable pamphlet entitled 'A cursory enquiry into the principle causes of Mortality among children, with a view to assist in ameliorating the rising generation' says, "If some benevolent ladies could be prevailed upon to form district committees to visit and inspect the state of health of sick indigent children and report to the committee of the Universal Dispensary for the Infant Poor, of which they should become an integral part. How many tears of gratitude would not drop from the eyes of disconsolate parents at seeing them so kindly instrumental in rescuing from death their helpless and diseased offspring". Davis is reputed to have been the originator of the following slogan "The mother's breast is an infant's
birthright and suckling a sacred duty, to neglect which is prejudicial to the mother and fatal to the child". There was however a lag between the time Davis made his suggestion and the time when the idea of home visiting as part of the infant welfare scheme was acted upon. Indeed it is doubtful whether health visiting was the direct result of Davis's suggestions. Salford and Manchester perhaps deserve recognition for being the first cities in Britain to employ the services of a health visitor. In 1862, in Manchester, a society was formed called "The Ladies Sanitary Reform Association", this society had as it's aim the idea of popularising sanitary knowledge and improving the physical, social and moral development of the labouring classes. At first an attempt was made to disseminate knowledge by the distribution of pamphlets. This, however, had little success and the Society therefore considered that it's ends would be best served if a working class woman was hired to engage in a door to door canvas of the poorer quarters of the town and to teach those women who were willing to receive her. This proved successful so that they gradually expanded the scheme to cover a greater part of the poorer quarters of the city. Eventually the city was divided into areas each having a lady superintendent and a number of health visitors working under her. Weekly mothers' meetings were held in each area in which health and cleanliness talks were given and then discussed. In 1890 Manchester Corporation agreed to pay the salaries of health visitors and so the scheme gradually came under the control of the
Municipal Authority. In Glasgow the health visitor originated in the female sanitary inspector so there we find in 1870 'the appointment of four female visitors to advise dwellers in tenements how to keep their rooms sanitary and clean'. Doctor A. K. Chalmers, the Medical Officer of Health of Glasgow, was largely responsible for the development of the Infant Welfare work of that city. Chalmers found that the best results occurred when the health visitor attended the homes of the newly born infants, but the scope of visitations was hampered by the fact that there was no means of knowing when a child had been born. The difficulty was partially solved by arranging to have sent to the Public Health Department, every second morning, the names and addresses of those children born in the outdoor practice of the midwifery hospitals. The Notification of Births Act naturally simplified matters. In 1903 a milk depot was opened and mothers and infants attending this depot were visited by members of a voluntary organisation - 'The Glasgow Infant Health Visitors Association' - because there were insufficient health visitors belonging to the Municipality. In 1906 an infant consultation was opened in conjunction with the milk depot where advice was given by a female medical officer and where periodic weighing of the infants took place. Among other cities where health visitors were appointed was Nottingham, where a female workshop inspector was appointed in 1892.

The first female to be officially designated health visitor was at Birmingham in 1899. These early health visitors were recruited from the ranks of the people
whom they were to instruct and experience soon pointed out the fact that better results would accrue from the employment of more highly educated women who would, from their superior knowledge and resourcefulness, be better able to cope with the varied problems which of necessity would arise during the course of their work. It was obvious then that higher and more exacting qualifications would be progressively required from those engaging in this type of work. In 1908 the London County Council under the 'General Powers Act' made the first regulations as to the qualifications necessary for health visitors. These were a medical degree, the status of a fully trained nurse, certificate of the Central Medical Board or some training in nursing and a health visitor's certificate of a society approved by the Board of Health or previous discharge of duties of a similar character in the service of a local authority. The next step in the evolution of the health visitor was the passing of the Maternity and Child Welfare Act in 1918 when Exchequer Grants were made available to those health visitors who had training as outlined above. In 1924 further changes were made and the Royal Sanitary Institute was made the central governing body and as such was empowered to make rules, provide for examination and issue certificates to health visitors.

The duties of health visitors in general terms is to supervise the health of the expectant mother, the nursing mother, infant and toddler. In addition to these duties she attends the maternity and child welfare centres and acts as infant life protection visitor and so
supervise the homes and conditions under which foster children are boarded out under the Children and Young Persons Act 1932-33.

In continuing the history of the Infant and Maternal Welfare movement there is one or two schemes which stand out pre-eminently in the development of the movement and so merit special mention. The Huddersfield scheme is such. It was a welfare scheme which put into operation at the beginning of the twentieth century. It was the most practical and complete scheme so far conceived and put into practice in any town in Britain. The two figures responsible for the initiation of this scheme were Benjamin Broadbent and Doctor Moore; the former was chairman of the Public Health committee and later Mayor of Huddersfield, while the latter was the Medical Officer of Health. Both these gentlemen got their inspiration from the French scheme of Monsieur Morel de Villiers, which has already been described. Broadbent first brought out a simple scheme which he applied to the Longwood District of Huddersfield. He offered a gift of one pound to each baby born in this district during his year of office, to be paid when the infant reached it's first birthday. The gift took the form of a promissory note on the back of which was printed advice regarding the rearing and care of the infant. During the year the growth of the infant was watched by an assistant Medical Officer of Health and by a health visitor who paid periodic visits to the home. Broadbent sent cards of remembrance to each infant at Easter and Christmas. At the onset of the diarrhoeal
season and cold weather he sent cards of warning and appropriate advice. The analysis of the result of the scheme is as follows:

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of Promissory Notes issued</td>
<td>...</td>
</tr>
<tr>
<td>Number of Infants attaining first birthday</td>
<td>...</td>
</tr>
<tr>
<td>Deaths</td>
<td>...</td>
</tr>
<tr>
<td>Untraced</td>
<td>...</td>
</tr>
<tr>
<td>Deaths per thousand births.</td>
<td>...</td>
</tr>
<tr>
<td>Deaths per thousand births (same year).</td>
<td>...</td>
</tr>
</tbody>
</table>

The more complete Huddersfield scheme was in operation in 1905 and was the work of both Broadbent and Moore. It was a compact and efficient scheme and it survives, in its essentials, at the present time. It differed from other Infant Welfare schemes in that the clinic or welfare meeting, a feature of all other schemes, was absent. The idea was to obtain domiciliary supervision of infants rather than fortnightly or weekly supervision at the health centre. The scheme was planned to come into action as soon after birth as possible and it was found that if the scheme was to be successful it was necessary to have a system of birth notification. Thus a voluntary system of birth notification was put into action and a fee of one shilling was paid to the informer provided that the notification was made within twenty-four hours of the birth. The personnel of the scheme consisted of Health Visitors and Doctors; each ward into which the city was divided had a female superintendent and under her was an appropriate number of Health Visitors. The doctors consisted of two female Assistant Medical Officers and the Medical Officer of
Health. The machinery of the scheme operated in this way. On the receipt of a notification of birth the Medical Officer of Health despatched an Assistant Medical Officer of Health to the house where the birth occurred and a simple talk was given to the mother on infant management and a card with a few simple directions as to bringing up baby was left. The child was also examined to see if it's condition was satisfactory. Regular visits were than made by the Health Visitor. Weekly lists of births were given to the district superintendent so that the visitations of births could be appropriately allocated among the Health Visitors. Where a child failed to thrive satisfactorily and no medical practitioner was in attendance the Health Visitor was required to communicate with the Health Department so that one of the assistant Medical Officers was sent to investigate and report on the best means of assistance. Lastly the various philanthropic organisations of the city were notified of cases which were in need and their help solicited.

The last British Infant Welfare scheme that deserves mention, principally on account of the widespread subsidiary and social aspects of the work which it embraced, is the St. Pancras London Scheme. The moving spirit of this was the Medical Officer of Health, Doctor Sykes. He had been interested in Infant Welfare work for some time and had come to the conclusion that the most satisfactory way of launching a welfare scheme was to interest the public in the project. Thus a public meeting was held and was attended by representatives
of the various social organisations of the Borough of St. Pancras. At the meeting it was decided that an attack should be launched against the Maternity and Infantile mortality in the following ways. In the first place every encouragement should be given for pregnant women to seek advice on the management of their health in order that their children might gain the benefit therefrom and also that they might be able to suckle their children when born. Secondly that all efforts be made to improve the health of the nursing mother before devoting attention solely on the infant.

With the above principles in mind a scheme of action was drawn up which embraced both the Municipal Authorities and the voluntary organisations. The Municipal part of the scheme had its centre in the Borough Public Health Department which undertook the notification of births, the compilation of various vital statistics relating to births and deaths of the infants, the preparation and dissemination of an advice card to mothers and, lastly, examining the birth notifications with a view to deciding the most suitable cases for visitation. The voluntary side of the organisation had as its centre the Babies Welcome and School for Mothers, as it was called. The scope of this side of its activities could scarcely be improved upon at this present time. The voluntary activities included:-

1. Consultation and weighing of babies.
2. Cheap dinners for nursing mothers.
3. Classes on simple cooking.
4. Lessons on food values and prices.
5. Classes for mothers and young wives on the care of babies.


7. Fathers evening conferences.

A transient phase in the Maternity and Child Welfare development was the provision of free or cheap meals for expectant mothers who, by reason of ignorance or poverty, were unable to provide themselves with adequate nourishment. The idea started, like so many other Infant Welfare ideas, in France, where a Mademoiselle Coullet in Paris, in 1904, opened an eating house which provided necessitous nursing mothers with free morning and evening meals. In England Mrs. Gordon opened a similar establishment in London in 1906. The idea however was not popular and, while some Welfare Centres began to provide liquid or dried milk for nursing mothers, no further measures were undertaken. Some of the larger Welfare Centres provided simple cookery courses for mothers but as a result of experience it was found that the results produced under the more ideal conditions of a demonstration kitchen were rather more successful than those achieved in the wretched conditions of the kitchens in the poorer homes. The St. Pancras scheme went so far as to provide a home visitor who made visits and showed the mother how to cook with her own homely utensils. This practice even though possible in the larger towns has not survived.

Sufficient has been said to indicate the widespread character of the developing Child Welfare Movement in the nineteenth century. From the commencement of the twentieth century the movement became in it's true sense international and in 1905 the first International
Child Welfare Congress was held in Paris. From the isolated welfare schemes operating in Britain, at the time, there were naturally few representatives who came to this conference. The lack of numbers however was made up for in energy and resolution so that the second International Child Welfare Congress was held in London and was directly due to the activities of the British representatives who had attended the Paris Congress. Other similar Congresses were held in Brussels, 1907, London, 1908, Berlin, 1911. In Britain it was felt that the multiplicity of Child Welfare organisations was becoming too great and that some means of central organisation was essential. Thus a central body called the 'Association of Schools for Mothers and Infants Consultations' was formed in 1911. This Association now exists under the changed title of 'Association of Maternity and Child Welfare'. In 1912 a National Association for Prevention of Infantile Mortality was set up. The 1918 Maternity and Child Welfare Act emphasised the Government's approval of the Maternity and Child Welfare Clinics and schemes and empowered the various Local Authorities throughout the Kingdom to establish these for the purpose of attending to the health of expectant mothers, nursing mothers, of infants and children under five years of age.

ANTE NATAL CARE.

In this brief history of the Maternity and Child Welfare movement it has seemed proper to describe both parts of the movement together. This was easy in the earlier days of it's history but from the nineteenth
century onwards the development of the movement became more rapid and complicated so that it was simpler to describe from that time the history of the two movements separately. Thus in order to take up the thread of Ante Natal development it is necessary for us to go back to the year 1813 when the Society of Apothecaries appealed to Parliament to bring in legislation for the control and instruction of midwives. Like other previous appeals nothing was done and Parliament was eventually stimulated to bring in legislature in rather a round about way. An enquiry was started by Doctor Farr, the statistician, in 1866. Farr became interested in mortality among children under five years and, in order to get data, asked for the help of the Obstetric Society who, in turn, proposed a number of questions to it's members. Among these were "What proportion of births are attended by medical men and by midwives", and "Are the midwives instructed". The enquiry having begun seemed to become more involved and rapid in it's scope so that the Obstetric Society by 1870 had formed several proposals suitable for legislation. Perhaps the most important of these was that neither doctor nor midwife shall attend a childbirth unless they have had previous instruction and passed an examination (this alluded to the practice of employing an unqualified assistant in medical practice). In 1892 the Obstetrical Society instituted a voluntary examination for midwives and those who passed were given a certificate stating that the holder was a skilled midwife competent to attend natural labour. The first act passed by
Parliament appertaining to midwifery was the Midwives Act, 1902. The chief provisions of this were that, after 1905, no one might use the term 'Midwife' unless she was certified by the Central Midwives Board, also that after 1910 no one might attend women in childbirth for reward unless certified by the Central Midwives Board or unless under the direction of a doctor and lastly the Central Midwives Board was created. This Board kept a roll or register of midwives and made rules for their conduct and kept a general supervision of midwives. Passing from the Legislative to the clinical side of Maternity work we find that the first real conception of an ante natal scheme came from Ballantyne of Edinburgh who was a most prolific writer and thinker. In 1902 he published the first volume of his 'Ante Natal Pathology and Hygiene'. Ballantyne had advanced ideas on the subject of ante natal care and was not afraid of making his views known. He was of the opinion that much could be done to safeguard the health of the mother and child during pregnancy by the provision of 'Rest Houses' and 'Prematernity Hospitals' during the later period of pregnancy and also by clinics, prematernity nursing and, lastly, by the teaching of mothercraft. Ballantyne advocated the registration of still-births and adequate facilities for the treatment of syphilis; strict regulation and supervision of all trades and occupations dangerous or injurious to the pregnant woman. He was a great explorer into the physiology and treatment of any abnormal condition of pregnancy. It may have been that Ballantyne got his inspiration
from France as happened not infrequently in Maternity and Child Welfare history. It is possible that the French 'Sanatoria de grossesse' may have suggested the idea of the prematernity hospital to him. One of the best known and oldest of these Sanatoria was the 'Refuge de L'Avenue du Maine', which was opened in 1892. The object of these Sanatoria was to provide accommodation for working class women who needed rest during the last month of pregnancy.

In 1906 Ballantyne made a strong appeal in the British Medical Journal for the formation of a maternity hospital and soon afterwards a bed was set aside exclusively for treatment of ante natal abnormalities, at the Simpson Memorial Hospital, Edinburgh. The number of beds so allocated gradually rose to four. Ballantyne next persuaded the Hospital Authorities to allow ante natal patients to be visited in their own homes by 'Pre Maternity Nurses' from the hospital. In 1915 the famous Infant and Pregnancy Consultation for expectant mothers was opened. The scheme was taken over in 1917 by the Corporation of Edinburgh and, in 1919, the treatment of venereal disease in pregnancy was introduced. Ballantyne's ideas in providing ante natal care were to ensure that pregnancy would be free from adverse influences and would result in the safe delivery of a healthy child of a healthy mother. Ballantyne's ideas were gradually adopted and so we find in London, just before the Great War, a number of hospitals taking an interest in the ante natal condition of those women who were to be confined within their
walls. The ante natal attention being given by a member of the medical staff making domiciliary visits for that purpose. An important stimulus was given in 1915 by a gift of £500 to the National League for Health, Maternity and Child Welfare. With this money six experimental ante natal clinics were established and were attached to the existing Metropolitan Infant Welfare Centres and situated within easy reach of the Royal Free Hospital. The plan being that the Royal Free Hospital could be used as a consulting centre. Following these examples ante natal clinics sprang up all over the country so that from 120 centres existing in 1915 there were:

<table>
<thead>
<tr>
<th>Year</th>
<th>Centres under Local Authorities</th>
<th>Voluntary Centres</th>
</tr>
</thead>
<tbody>
<tr>
<td>1931</td>
<td>995</td>
<td>198</td>
</tr>
<tr>
<td>1932</td>
<td>1060</td>
<td>217</td>
</tr>
<tr>
<td>1933</td>
<td>1090</td>
<td>250</td>
</tr>
<tr>
<td>1934</td>
<td>1130</td>
<td>266</td>
</tr>
<tr>
<td>1935</td>
<td>1220</td>
<td>271</td>
</tr>
<tr>
<td>1936</td>
<td>1279</td>
<td>289</td>
</tr>
</tbody>
</table>

In the rural parts of the country the provision of ante natal schemes was more difficult because the population, in contrast with the urban areas, was scattered over wide areas. Consequently such districts could not be serviced by clinics and centres. The difficulty was overcome by the enrolment of General Practitioners in the scheme. Briefly the scheme was to apply only to uninsured women who had engaged midwives. The County
Council prepared a list of General Practitioners who were willing to make ante natal examinations. Midwives were informed that they should advise their patients to be medically examined at least once during pregnancy. The midwife was informed of the result of the examination. If abnormalities were found during an examination the Medical Officer of Health was informed and it was possible for him to make arrangements before labour began. If abnormalities occurred during the course of labour medical aid could be sought. The usual fee paid to a doctor for an ante natal examination was five shillings together with reasonable mileage. A scheme on the above lines was first conceived and put into action by the County Council of Cumberland and which was afterwards adopted by a large number of County Councils in England.

In 1914 the Government became interested in ante natal care and the Local Government Board issued the first circular which recognised ante natal care as a factor of importance in Public Health. This circular offered grants to Local Authorities providing clinics etc., for the medical observation of expectant mothers and their instruction in the hygiene of pregnancy, home visiting and the provision of beds for the treatment of ante natal complications. Unfortunately the suggestions in the circular were not acted upon; the activities of the Local Authorities at that time were engrossed by the war. However in 1918 the Maternity and Child Welfare Act was passed and a large number of Local Authorities began to adopt ante natal schemes.
In 1928 the Maternal Mortality and Morbidity Committee was set up by the Ministry of Health. This committee issued an interim report in 1930 and a final report in 1932. One of the conclusions the committee arrived at was that 'Faulty ante natal care was considered to be the primary avoidable factor in thirty six per cent of the cases which they examined and that when ante natal care was given it was often too perfunctory to deserve the name'. The most important step the Government has taken is the passing of the Midwives Act, 1936. This was, perhaps, in response to the Maternal Mortality and Morbidity Committee's findings. The principle of the act is to secure the organisation, throughout the country, of a domiciliary service of salaried midwives under the control of local supervising authorities as an important step in the improvement of maternity services.
PART 3.

AIMS AND OBJECTS OF INFANT WELFARE CENTRES.

Before attempting to assess the value of the movement it is necessary to lay down what are the aims and objects of the centres and to examine in some detail their structure and method of operation.

If we return to the history of the movement for a moment we recollect that the aims of the early clinics were, briefly:

1. To supply milk fit for babies to those who were unable to be fed on their mother's milk.

2. To give the mother instruction and guidance in the proper rearing of her infant.

These are still the first principles underlying the functioning of the present day clinic but, in addition, a further ideal might be added:

3. To oversee the health of the infant and toddler, to prevent incidence of disease and where possible any deviation from the normal in its incipience.

With these principles as the basis of the centres' activities we come next to the situation of the centre. Those likely to attend the centre are the mothers of the artisan and labouring classes, with a few exceptions, so this should be taken into account when a location for a centre is sought. It should be conveniently placed for those likely to attend, giving them as short a distance as possible to bring themselves and their children. A problem has been created by the removal of the working class population from the centre of large towns to the outskirts so that centres which were formerly of easy access are now out of reach.
Movements of this kind should be borne in mind when the establishment of new centres is contemplated. In normal areas the location of centres is more difficult; the most satisfactory solution is to place the centre in a market town or village where the mothers from the surrounding country can attend.

The architecture and design of the present day centre varies very considerably, depending whether the centre has been built expressly for that purpose, as in larger towns, or the improvisation of an old building, or the loan of a church hall, provides the housing of the "Welfare" as in the rural districts. Despite these discrepancies the basal requirements of a Welfare Centre are, and should be, simple, having before it the above mentioned aims and objects. Essentially, the centre should consist of a large waiting room, a doctor's room, a weighing room, sufficient sanitary accommodation and, where possible, the provision of a pram shelter and a room for toddlers. Furniture and fittings should not be elaborate but pleasing in design, simple and durable in structure. Decoration, especially in the waiting room, should be bright and cheerful, strict attention being paid to the access of light, cleanliness and heating. The weighing room, apart from the basal essentials such as tables, chairs and balance, should have wire baskets to hold the infants' clothes separately, a cupboard for blankets and towels, card files and other extras. The Doctor's room may need a store cupboard, some drawers apart from the essential table and chairs.
Staff. Even the smallest centres require a proper personnel and it is in the suitability and the co-operation of the staff that the success or failure of the centre lies. It is also in the staffing of the centre that perhaps the happiest combination of voluntary and paid workers can occur.

Medical Officer. Some of the smaller centres function without a medical officer but it is now realised that, in order to deal successfully with the many medical problems, which arise during the course of a welfare session and which only a medically qualified person is competent to solve, the presence of a medical officer is essential. The Local Authorities do not ask for any special experience or qualification in paediatrics when a medical officer is put in charge of a centre. This, one feels, is a mistake and should be remedied by making compulsory a course of child welfare work and a certain amount of post graduate experience of sick children. I have found that many child welfare centres are run by medical officers who are chiefly employed in the School Medical service, who have little interest in infants and who, therefore, can show no enthusiasm in the child welfare work. In many towns the School Medical service is separate from the Maternity and Child Welfare work and this separation is to be commended as it tends to encourage the officers to specialise in the study of children before taking a full time maternity and child welfare post. The Society of Medical Officers of Health now sponsors short courses in various subjects, including child
welfare and it would be of benefit to those medical officers in charge of centres under a Local Authority if attendance at one of these short courses was made obligatory once in every period of years.

**Nurses.** It is impossible to run a centre without the help of at least one trained Health Visitor. The larger centres, with an attendance of sixty or more infants, require two health visitors. I find from experience that not all are suited to this task. The ability to do well in an examination is not the only essential. The type of person who succeeds best is one possessed of a patient, kindly and yet dominant personality, who can, with tactfulness, persuade the mothers and estimate their capacity without creating ill feeling and discouraging the mothers from attending the clinic. It is therefore of the greatest importance that these qualities be taken in to account when selecting an applicant for the post of Health Visitor.

**Midwives.** Whenever possible it is an advantage to have the local midwives assist at the sessions of the centres, thereby giving them an opportunity to follow up the progress of the mothers they have delivered and the post natal course of the infants. Mothers in the very early stages of pregnancy have also an opportunity of consulting with the midwives at this early stage so tending to make ante natal supervision earlier than it would otherwise be.

**Voluntary Workers.** Voluntary workers are most useful if not essential to all centres. They find work in assisting with clerical work, making tea and entertaining
the mothers and children generally.

**Health Talks.** In most Infant Welfare Schemes nowadays there is a place for short lectures on health topics. This is in keeping with the function of educating the mother and can be given during the course of the welfare session. I find that there are a number of points in favour and against the practice of talks during the session. From practical experience I find that mothers are apt to pay little or no attention to leaflets giving advice, however well written and sound the advice, but the human voice seems to make a better impression and some mothers do pay attention and act on the advice given. Among the disadvantages are, the disturbance made by the noise of toddlers and the need of brevity in the talk as otherwise mothers would be held up in their progress to the weighing room and doctor's room. As a compromise the best plan is to have two similar short talks, not lasting more than fifteen minutes, given to two separate groups of mothers during the session. This gets over the difficulty of holding up the centre's activities and, at the same time, if given near the beginning and towards the end of a session most of the mothers can have an opportunity of listening. The Health Visitor, who gives the lecture, can have a chance of giving individual explanation to any mother who needs it. The subject of these lectures should be varied and as practicable as possible for example, Preparation of babies' feeds, nursing of a sick child, feeding and clothing of an infant, hygiene of babyhood, care of toddlers, and etcetera.
Weighing of Infants. I find that in order to obtain the best results from weighing that it should take place in a separate room which is well lighted, ventilated and adequately warmed for the undressed infants. The size of the room varies according to the size of the clinic but should have at least room for about twelve mothers and the staff which carry on the work there. The mothers' chairs arranged against the wall with wire baskets provided between each chair for the clothes of the babies. A table, with sufficient room on it for the balance, cards, and adequate space for clerical work. The actual weighing should be done by the Health Visitor and the weight recorded on cards by a voluntary helper. The child having been weighed waits, wrapped in blankets, with the mother in the weighing room for a consultation with the medical officer in another room which preferably opens off the weighing room. With regard to attendances it is best to have infants attend weekly for weighing during the first year and then fortnightly until two years of age and thereafter once a month until school age is reached. It is impossible for the doctor to see every infant attending the centre weekly but even in the largest centres each child should be seen once a month unless it is thriving when it should be seen once a week.

Infant Consultation. The consultation between mother and doctor consists of two parts. In the first place the mother is questioned regarding her mode of feeding the child, the birth weight, the babies' habits etcetera.
Secondly, the child is examined physically in the routine manner. At the conclusion of this the mother is asked if she desires to draw attention to any point and is then given what advice the doctor thinks is necessary. It is useful to have a routine set of questions for each part of the examination so that there is no possibility of neglecting any point of major importance. The mother should be questioned on date of child's birth, character of labour, weight at birth, mode and times of feeding; if artificially fed, how food is prepared and outfit sterilised and the quantity of the feed. Then one questions on the child's behaviour, whether good or fretful, amount of sleep during day and night. Whether the child sleeps in the open air during the daytime. Character of motions and their regularity and whether or not the male baby has pain on mictivition. In the case of a child over one year the questions are modified and attention paid to it's history of teething and date of walking and talking. The facts obtained and any others found necessary to record are entered on the infant's card which is filed. The routine physical examination is gone through. To the trained observer a thriving infant presents an appearance which is readily appreciated. Having recorded the first visual impression the doctor should watch the demeanour of the child, the state of skin, hair and teeth (if any). Formation of head, any visible indication of rickets or congenital abnormalities. After this general palpation is gone through,
Palpation of Thorax and abdomen, the skin may indicate a rise in temperature, enlarged costo-chondral junctions, may be one of the few signs of rickets, a misplaced apex beat either a congenital or pathological indication. The abdomen may show an enlarged liver or palpation, and/or an enlarged spleen. In the head, the fontanelle is first palpated and any abnormality noted, shape of head estimated, rarely, if ever, does one come across a case of craniotabies in this examination these days. In auscultation the back of thorax should be examined first, taking care to make the discomfort as little as possible remembering a cold chest piece can make further auscultation at the time and often at every other session an impossibility. The heart should then be listened to for any congenital defects. Lastly the eyes inspected for any signs of inflammation or discharge and congenital defects; the hernial openings examined, the prepuce for phimosis and the arms for any congenital abnormality. The most frequent difficulties one has to contend with are the following:- Feeding (artificial and breast), teething and it’s troubles, constipation, phimosis, hernia, skin eruptions, difficulties of weaning and anoveria.

Artificial Feeding. In considering the history of the welfare movement it was pointed out that the heaviest Infantile Mortality was due to gastro intestinal diseases and that it was the opinion of not a few doctors that improved methods of artificial feeding would result in lessened infantile mortality. This is amply illustrated by the investigation of Messieurs Ballastre
Galleta of St. Joseph, near Nice, who analysed the mortality figures from 681 French towns having a total population of 13,000,000 during the period 1892-1897. These workers found the following facts in relation to the deaths of infants:

<table>
<thead>
<tr>
<th>Chief Causes of Death</th>
<th>Number of Infant Deaths per Thousand Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gastro-enteritis, diarrhoea.</td>
<td>884.7</td>
</tr>
<tr>
<td>Respiratory diseases.</td>
<td>147.3</td>
</tr>
<tr>
<td>Congenital debility.</td>
<td>170.7</td>
</tr>
<tr>
<td>Tuberculosis.</td>
<td>24.7</td>
</tr>
<tr>
<td>Infectious diseases.</td>
<td>49.6</td>
</tr>
<tr>
<td>Other causes.</td>
<td>222.9</td>
</tr>
</tbody>
</table>

In Britain, under similar conditions, the death rate for infants under one year was equally heavy, consequently we find the state of the infant death rate to be as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Average Deaths per Thousand Births under One year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1841-1850</td>
<td>153</td>
</tr>
<tr>
<td>1851-1860</td>
<td>154</td>
</tr>
<tr>
<td>1861-1870</td>
<td>154</td>
</tr>
<tr>
<td>1871-1880</td>
<td>149</td>
</tr>
<tr>
<td>1881-1890</td>
<td>142</td>
</tr>
<tr>
<td>1891-1900</td>
<td>155</td>
</tr>
<tr>
<td>1901-1910</td>
<td>126</td>
</tr>
<tr>
<td>1911-1920</td>
<td>100</td>
</tr>
<tr>
<td>1921-1930</td>
<td>78</td>
</tr>
</tbody>
</table>
We notice that from the year 1900 there has been a progressive and rapid drop in infant mortality. In analysing the cause of this we find that improvement has been chiefly affected in the group of deaths classed under gastro-enteritis while little improvement has resulted in other causes of death. Also the majority of deaths now occur under four weeks and are due to such causes as Prematurity of birth, congenital defects, marasmus and developmental abnormalities. This is shown in the following table:

<table>
<thead>
<tr>
<th>Year</th>
<th>Diarrhoea and Enteritis</th>
<th>Prematurity of Birth</th>
<th>Congenital Defects</th>
<th>Developing and Wasting Diseases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900</td>
<td>28</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>1905</td>
<td>21</td>
<td>--</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>1910</td>
<td>36</td>
<td>20</td>
<td>18</td>
<td>41</td>
</tr>
<tr>
<td>1915</td>
<td>15</td>
<td>18</td>
<td>15</td>
<td>37</td>
</tr>
<tr>
<td>1920</td>
<td>15</td>
<td>35</td>
<td>11</td>
<td>64</td>
</tr>
<tr>
<td>1930</td>
<td>10</td>
<td>34</td>
<td>12</td>
<td>55</td>
</tr>
<tr>
<td>1931</td>
<td>10</td>
<td>32</td>
<td>15</td>
<td>55</td>
</tr>
<tr>
<td>1932</td>
<td>9</td>
<td>34</td>
<td>14</td>
<td>55</td>
</tr>
<tr>
<td>1933</td>
<td>9</td>
<td>34</td>
<td>15</td>
<td>56</td>
</tr>
<tr>
<td>1934</td>
<td>11</td>
<td>36</td>
<td>14</td>
<td>59</td>
</tr>
<tr>
<td>1935</td>
<td>10</td>
<td>35</td>
<td>14</td>
<td>57</td>
</tr>
<tr>
<td>1936</td>
<td>10</td>
<td>36</td>
<td>14</td>
<td>58</td>
</tr>
</tbody>
</table>

When we consider the probable causes of this decline we find that the following probably operate:
1. The general improvement in environmental hygiene since the passing of the Public Health Acts.

2. The Infant Welfare centre and its ancillary services.

3. Cleaner and better food, with use of dried milk for infants.

4. Deliberate restriction in size of family, giving a better prospect to the children born (Jameson and Marchant, page 177).

<table>
<thead>
<tr>
<th>Year</th>
<th>Under Four Weeks</th>
<th>Four Weeks to Three Months</th>
<th>Three Months to Six Months</th>
<th>Six Months to Twelve Months</th>
<th>Total Under One Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>1905</td>
<td>41</td>
<td>25</td>
<td>25</td>
<td>37</td>
<td>128</td>
</tr>
<tr>
<td>1910</td>
<td>38</td>
<td>20</td>
<td>19</td>
<td>28</td>
<td>105</td>
</tr>
<tr>
<td>1915</td>
<td>38</td>
<td>19</td>
<td>19</td>
<td>34</td>
<td>110</td>
</tr>
<tr>
<td>1920</td>
<td>35</td>
<td>16</td>
<td>12</td>
<td>17</td>
<td>80</td>
</tr>
<tr>
<td>1925</td>
<td>32</td>
<td>13</td>
<td>11</td>
<td>19</td>
<td>75</td>
</tr>
<tr>
<td>1930</td>
<td>31</td>
<td>10</td>
<td>8</td>
<td>12</td>
<td>61</td>
</tr>
<tr>
<td>1935</td>
<td>30</td>
<td>9</td>
<td>8</td>
<td>10</td>
<td>57</td>
</tr>
</tbody>
</table>

The extraordinary reduction in the percentage of deaths in the periods shown above would appear to be getting near to the irreducible minimum while the high percentage during the first four weeks shows little change during the past thirty years. It would seem logical that when it is known that the diseases causing such a high death rate are intimately connected with the process of birth and the condition of the mother before birth, that improvement could be effected more adequately by Ante Natal supervision than by Welfare Centre's help following birth.
<table>
<thead>
<tr>
<th>Macerated Fresh Neo-Natal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complications of Labour</td>
<td>18</td>
</tr>
<tr>
<td>Ante-partum haemorrhage</td>
<td>58</td>
</tr>
<tr>
<td>Toxaemia of pregnancy</td>
<td>57</td>
</tr>
<tr>
<td>Syphilis</td>
<td>78</td>
</tr>
<tr>
<td>Maternal States</td>
<td>11</td>
</tr>
<tr>
<td>Placental states</td>
<td>11</td>
</tr>
<tr>
<td>Foetal states</td>
<td>25</td>
</tr>
<tr>
<td>Prematurity</td>
<td>--</td>
</tr>
<tr>
<td>Cause unknown</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>298</td>
</tr>
</tbody>
</table>

Thus, in the above series, syphilis was responsible for 114 out of 1,311 deaths or 8.6 per cent of the total. This, however, is not the only havoc that syphilis causes for if we consider the number of cases of maternal death or morbidity following abortion due to syphilis the total damage must, of necessity, be increased. It is impossible to supplement this statistical evidence because the Maternal Mortality and Morbidity Committee states "Reliable statistical information regarding the prevalence of abortion in England is practically non-existent". Professor Johnston in his 'Manual of Midwifery' states "Syphilis is the commonest constitutional cause of the interruption of pregnancy". We must therefore bear in mind the fact that syphilis may be an important, though indirect, cause of maternal death which is classed as being due to abortion. If we
once satisfactory milk supply diminishes appreciably and the over-worked mother has neither the time nor the patience to go on suckling the child and supplementing the breast feeds until a better flow is established. Others, even with a good supply of milk, find they are unable to spare the time if another member of the family can sit and bottle feed the infant.

Doctor Newsholm performed an interesting experiment in Brighton during 1903 - 1904 in regard to breast feeding. He took a census of infants living in approximately 5,000 houses in the poorer quarters of Brighton and noted the character of feeding during the various age groups.

<table>
<thead>
<tr>
<th>Ages of Infants in Months</th>
<th>Percentages of Infants Fed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td>82</td>
</tr>
<tr>
<td>3 - 6</td>
<td>63</td>
</tr>
<tr>
<td>6 - 9</td>
<td>61</td>
</tr>
<tr>
<td>9 - 12</td>
<td>41</td>
</tr>
</tbody>
</table>

From Medical Officer of Health's Annual Report Brighton, 1904.

In conducting a similar investigation among Staffordshire infants in an agricultural area I find:— On examining the records, at random, of 300 infants who have attended a centre
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 3</td>
<td></td>
<td>39</td>
<td>43</td>
<td>18</td>
</tr>
<tr>
<td>3 - 6</td>
<td></td>
<td>15</td>
<td>3</td>
<td>82</td>
</tr>
<tr>
<td>6 - 9</td>
<td></td>
<td>10</td>
<td>--</td>
<td>90</td>
</tr>
<tr>
<td>9 - 12</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 - 9</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In the feeding of infants the Centre has been of great value. In the first place the advice of the doctor and health visitor on the value, and indeed necessity of, breast feeding with its advantages are brought home to the mother. This encourages many mothers to continue suckling against the advice of "grannies" and mothers-in-law who sometimes try to persuade the mother to take the child off the breast. When the mother continues to breast feed her child and notes its regular gain in weight a moral victory is won for the Centre. Where a mother, against the Centre's advice, persists in bottle feeding her child there is, in my opinion, little use in abandoning further interest in the woman because it is the child who suffers and not the unintelligent mother. In this type of case the Centre is of value in instructing the mother in the correct way of bottle feeding the child and also of keeping the mother and child under supervision by the Health Visitor at her own home. With regard to the type of bottle feeding I have a decided preference.
for good quality dried milk. My reasons for this are as follows:-- A fair proportion of cows in England are infected with Tuberculosis and if we may regard Staffordshire as a sample of England it is stated by the County Veterinary Officer that about two per cent of the total cow population is infected with Tuberculosis. Thus in order to render milk safe from Koch's bacillus and other harmful bacteria it is necessary to boil it. Many of the more ignorant mothers not only neglect to boil baby's milk but also keep it in unclean vessels where it is exposed to further contamination from flies and dust. Dried milk is sterile, is easily prepared for baby, is not removed from it's clean package until about to be used. Among the other advantages is the fact that it is slightly cheaper than cows' milk when sold at wholesale rates. It has been my experience that infants fed on good quality dried milk do not develop rickets. In England the value of dried milk, over modified raw cows' milk, for infant feeding is being appreciated by ever increasing numbers of clinics and mothers. If we again take Staffordshire as an example we find the increase in the use of dried milk sold at County Council Clinics to have increased as follows:--
Milk Sold in Staffordshire Welfare Centres.

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Centres</th>
<th>Amount of Dried Milk Sold (In pounds)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1932</td>
<td>59</td>
<td>20,883</td>
</tr>
<tr>
<td>1933</td>
<td>59</td>
<td>20,232</td>
</tr>
<tr>
<td>1934</td>
<td>59</td>
<td>26,460</td>
</tr>
<tr>
<td>1935</td>
<td>59</td>
<td>38,387</td>
</tr>
<tr>
<td>1936</td>
<td>61</td>
<td>47,673</td>
</tr>
<tr>
<td>1937</td>
<td>61</td>
<td>64,778</td>
</tr>
</tbody>
</table>

Relation of the Home to the Centre. On visiting the homes of those who attend the Welfare Centre and through information supplied by the Health Visitor, one finds that the conditions and management of the house is completely at variance with the teaching at the centre. In some cases it may be due to bad housing but more often it is due to the failure of the mother to adapt her resources to the principles which she is taught. The health visitor on her rounds is chiefly concerned with the hygiene and health of the infant so that it appears to me there is an opportunity for the employment of a Health Visitor who could devote her time solely to instructing the mother how to improve her housewifery, cooking, provisioning and other household matters relative to, but not immediately concerned with, the infants. The addition of such domestic science teachers to the staff of the centres would undoubtedly raise the standard of living in the poorest and badly managed homes. This idea was tried with considerable
success in the St. Pancras Scheme and is worthy of further development.

**The Value of Ancillary Services.** I am in favour of having a number of ancillary services attached to welfare centres. These are, naturally, more easily and conveniently worked in larger towns and boroughs but can be managed, with limitations, even in the smaller towns and rural areas. The most important ancillary services are dental treatment, orthopaedic treatment, Tuberculosis, Ear, Nose and Throat and Ophthalmic clinics. The provision of services such as these might be regarded as a further encroachment on the grounds of the Family doctor. On going further in to the matter one finds that the income of the average family attending the Infant Welfare centre leaves little latitude for extraneous expenses or luxuries and the General Practitioner is not likely to be called unless matters appear urgent or terrifying. This means that any condition of disease must be well advanced before it receives any medical attention and this is contrary to the principles of preventive medicine. If we examine, for instance, the provision of service for the removal of Tonsils and Adenoids which have been discovered necessary to remove while the child attended the Infant Welfare centre, we find that few family doctors now attempt the operation themselves so that the patient is entered on the waiting list of a voluntary hospital as a non-paying patient and may have to wait as long as two years to have the operation performed. This state of affairs is similar in the
other services mentioned. Most Local Authorities have already provided the ancillary services in their Maternity and Child Welfare schemes. Such advantages should be available however with every Infant Welfare centre.

Value of Day Nursery. As an useful offshoot of the Welfare centre the day nursery requires mention. The object of these nurseries is to look after infants and young children up to the school age whose mothers are out at work during the day. Such centres are especially useful in towns where a large proportion of female labour is used. The nursery should be under the supervision of a trained Health Visitor, should be housed in a well lighted and well ventilated building and not of unwieldy size. They should have attached to them open air play grounds which can be used by the toddlers on fine days, facilities for cooking a mid-day meal. Provision should be made for them to rest lying down, preferably in the open air, for an hour after the meal. Small canvas "stretchers" are usually used for this purpose.

The great disadvantage of these Day Nurseries and also the Infant Welfare centre is the possible dissemination of infectious disease to children under school age, which is obviously an age when such should most be avoided.

Immunisation against Infectious Disease at Infant Welfare Centres.

In spite of the fact that vaccination is offered free of cost and that Vaccination Officers are situated in every district in Britain, a large proportion of
infants are not vaccinated. It would therefore be an advantage to offer vaccination to those infants who are in regular attendance at the clinic. In the same way diphtheria immunisation might also be offered to children of appropriate age. The practice of diphtheria immunisation has been adopted extensively among Education Authorities but as a large number of cases occur below school age the only practicable method is to use the Infant Welfare centre to immunise those toddlers attending the clinic. The question whether scarlet fever immunisation should be adopted as a routine measure at Infant Welfare Centres is more complicated. The expense of the material is greater than for diphtheria immunisation, the course of infections lengthy so that while the subject should be open to experiment it would be unwise to recommend the general adoption of this at present. Rest Houses. The value of rest houses for mothers and infants might be considered as a valuable adjunct to the child welfare centres. Voluntary organisations have a few rest houses for mothers but the idea might be given a wider trial from Local Authorities such as the County Councils and County Boroughs who are the authorities for the Maternity and Child Welfare schemes. One finds at the present time a large number of institutions maintained at public expense such as holiday homes for school children, homes for mental defectives and so on. I consider that the rest home for a nursing mother equally important from the point of view of maintaining the health and well being of the
mother and thereby helping to lay the foundations of a healthy citizen of the future in the infant. It is hard to realise what a holiday away from a clamouring young family means to the overharassed mother who has to face the upbringing of a newly born infant when she has not had the time or the peace to recover sufficiently from her confinement. A month's holiday with her last infant would make all the difference, very often, between semi-invalidism and health to so many over-worked working class mothers. Arrangements could be made, either with a relative or a suitable working housekeeper who could give the care necessary to the household at a small wage and her keep. The health visitor could act as a supervisor and make visits at intervals and so help to keep the mother's mind at rest. These rest houses should be situate in pleasant surroundings, near the sea if possible but this obviously is not essential. I see no reason why this scheme could not be made use of and share in the Government grant set aside for Maternity and Child Welfare.

The Provision and Sale of Medicines at Welfare Centres.

The sale of medicines, dried milk and other articles has long been a vexed question. With regard to the medicines there are undoubtedly a number of points in favour and against. It might be argued that such a practice is deviating from the normal purpose of welfare centres, that it is likely to interfere with the practice of the Family doctor and is, in fact, turning what should be, primarily, an educative movement into a sort of chemist shop. On the other hand such medicines as
cod liver oil, halibut oil, liquid paraffin and magnesia preparations are often essentials in the normal upbringing of a child and can be supplied at the clinic at a cheaper rate and possibly of better quality than the mother could afford to pay at a shop or when left to her discretion. The provision of these things could do little harm to the practice of any Family doctor.

The Relation of Medical Practitioner, Health Visitor Midwives to the Welfare Centre.

The relation of the General Practitioner to the Welfare centre is at present nebulous, unfortunately one often finds it antagonistic. The Welfare centre originally designed mainly for instructional purposes has gradually enlarged its aims and now in many centres treatment is carried out. Although the activities of the centres are almost entirely confined to the poorer, non-insured and non-fee paying section of the community there is the feeling that work is being taken out of the hands of the General Practitioner. Useful co-operation between centre and Family doctor might occur when welfare children become ill. It is only natural that when a mother has attended a clinic with her child in health she should turn for help to the same place when the child is ill. The welfare Medical Officer, by referring the child to the Family doctor can secure for it earlier treatment. In addition he should be able to give the Practitioner any notes which might be of value on the diagnosis of the case. It was my experience when a General Practitioner that I knew little or nothing about
infant feeding and management in spite of a short undergraduate course at a children's hospital. I also find that many other practitioners, whom I have met with, do not profess to know much about infant feeding or management. The practitioner could then be of great value in directing or referring to the Infant Welfare Centre infants who had been under his care, or who came under his notice for advice in this important side of medicine. The practitioner might be enrolled in the Maternity and Child Welfare Scheme itself, in the outlying villages where the expense of having a County Maternity and Child Welfare Officer is out of the question the local doctor might hold a fortnightly clinic at the expense of the Maternity and Child Welfare Authority. This practice is carried out in Staffordshire and might well be more widely adopted.

The relation of the midwife to the centre is not so definite as that of the Health Visitor and yet I am of opinion that she is able to play a part in the furtherance of the scheme. I find that midwives attending welfare centres are able to familiarise themselves with the progress of the infants, whose births they have attended, thus avoiding, if only to a slight extent, the tendency to put various branches of medicine into watertight compartments. Another point not to be overlooked is, that when midwives attend sessions at welfare centres they are often approached by prospective mothers who book the midwife earlier than would otherwise be the case, so giving an opportunity of beginning ante natal care at a much
earlier stage than would otherwise be the case.

Fee Paying Centres. In many of the larger towns and cities there is an opportunity for the establishment of fee paying centres. The fact that a woman belongs to the middle or professional class does not mean she has any sounder ideas on the upbringing of infants and she often has not enough income to visit the family doctor every time she wishes to have advice on problems of management as they arise but often she refuses to attend the ordinary welfare centre. The establishment of a fee paying centre has been tried in some places, the best know one being at Chelsea where the mothers pay a subscription to become members of this 'Welfare Club' and attend at periodic intervals, having the expert advice of a visiting specialist in children's diseases and an expert dietician. This particular centre has published a booklet on diet of children under five years giving useful recipes and mode of preparation of food of the infant in his different stages and appears to be a great success and fills a much needed gap in the welfare services. I think that in the larger cities these centres could, in some way, be incorporated with the other centres of the Maternity and Child Welfare scheme; being made either self supporting or contributing towards the expenses in the ordinary clinic. However it appears to me that the Local Authorities, responsible for the Maternity and Child Welfare clinic, could start a clinic of this kind where it is considered a necessity and when it becomes a "Going concern" could allow it
to continue on its self supporting way with occasional visits of supervision.

Relation of Welfare Centre to Health Departments. It has been adequately demonstrated that bad housing and overcrowding are definitely prejudicial to infant life. The Health Visitors who are in a position to have first hand knowledge as to the housing of the family attending the centre should have a system whereby, on reporting the results of her visits, the Medical Officer could visit the unsatisfactory houses with a view to removing the family to a better house. So giving families, where there are young children, a better chance of being allocated to a Council house.
THE ANTE NATAL CENTRE.

Ante Natal Centres are really only part of the larger scheme of Maternity and Child Welfare. This movement has now been adopted by the Government which is anxious to see the rapid and efficient development of the Maternity and Child Welfare service. The powers conferred upon Local Authorities by the Maternity and Child Welfare Act, 1918 are wide. They are laid down in these words 'Local Authorities (within the meaning of the Notification of Births Act, 1907) may make such arrangements as may be sanctioned by the Ministry of Health, for attending to the health of expectant and nursing mothers and children who have not attained the age of five years. Under this Act the chief Medical Officer of the Ministry of Health in his report for 1920 suggests the scope of the arrangements which might be made. These include the following:

1. Ante natal care and nutritional care of the mother.

2. An adequate medical, midwifery and nursing service for childbirth.

3. The notification of births and still-births.

4. Domestic aid before the time of and after childbirth (including maternity benefits).

5. Provision of maternity centres for ante natal and post natal supervision.

6. The provision, for certain cases, of maternity home and hospital accommodation.

7. The establishment of Infant Welfare centres (for consultations, home visiting and assistance of the mother in the upbringing of her children.

8. The establishment of infant treatment centres and infant homes and hospitals.
9. Homes for unmarried mothers and their infants.
10. Day nurseries; homes for healthy babies.

Of these suggestions we are concerned with the first one, namely the Ante Natal care of the mother. The principles of ante natal care are simple, first of all, as Ballantyne remarked, all labour should be prepared for during pregnancy and conducted in accordance with the discoveries made. To this we may add that ante natal care also concerns itself with the health, hygiene and diet of the woman and endeavours to rectify any faults which may exist; quite apart from caring for her obstetric condition. The ante natal centre only serves a portion of the community and yet ranks high in the organised scheme of reducing the Infant and Maternal Mortality which exists in Britain. In this connection it is important to remember that the Departmental Committee on Maternal Mortality and Morbidity, in their final report, came to the conclusion that at least half of the maternal deaths occurring in this country were preventable. This Committee's conclusion was in agreement with the findings published by Professor Munro Kerr on maternal deaths occurring in Glasgow Maternity Hospital for the period 1926 - 1930.

If we enquire into what is meant by an ante natal clinic we find that there are two distinct types of clinics. One type of clinic may be termed the consulting clinic and the other the Clinic for Routine Examination. These two separate varieties of clinic are clearly recognised by the Departmental Committee referred to above.
The Consulting Clinic is usually found only in the larger towns and cities and in close association with the Maternity Hospitals. As a rule the buildings which house these clinics are designed expressly for the purpose. The Consulting Clinic is staffed by obstetricians of experience and standing and by reason of the close association of the clinic with its parent Maternity Hospital has beds available for those women whose condition requires hospital treatment or supervision. This type of clinic is highly efficient and performs a most useful purpose.

The other type of centre is the clinic for Routine Examination or, as termed by the Maternal Mortality and Morbidity Committee, simply the Ante Natal Clinic. This type of clinic is more numerous than the above mentioned Consulting Clinic and is, for the most part, situated in the smaller towns and villages. They have no association with maternity hospitals and are staffed for the most part by Medical Officers who have no active part or experience in midwifery. It is this latter type of Ante Natal Clinic that we are particularly concerned with.

Premises. The expense of erecting a special building for each Ante Natal Clinic is prohibitive so that the alternative of making use of existing premises is essential if ante natal clinics are to exist in the smaller towns and villages where ante natal care is just as necessary as in the larger towns and cities. This coincides with the Ministry of Health's views and it is stated in their circular that the lack of a
special building should not discourage organisers, the essentials of warmth, cleanliness and privacy are comparatively easily obtained. Thus it is possible, in many instances, for an ante natal clinic to function in the same premises as a Welfare Centre, only the hours or days of attendance must differ. Perhaps the most important feature of the ante natal clinic is its location. This is important in view of the fact that during the later months of pregnancy (a most important period in regard to ante natal care) women are unable to walk for any distance and are often conscious of their appearance, especially the primigravidae.

Another fact which must be taken into consideration in siting an ante natal clinic is the migration of population. Under the Housing Acts 1930 - 1936 Local Authorities have built large numbers of houses on the outskirts of the towns and it is in these new housing estates that the bulk of the clients live, who attend ante natal clinics. Consequently the success of the clinic in respect of attendances will vary as the nearness of the clinic to the housing estate.

In regard to the construction of an ante natal clinic I find the simplest type to consist of three rooms, a waiting room, a nurses' room and a doctor's room. It is desirable to have all three rooms thoroughly warmed and ventilated, because women object strongly to undressing for examinations in the cold. This object can easily be achieved by means of gas or electric stoves in almost all clinics. The furniture is essentially simple; the waiting room need only be
furnished with chairs, the nurses' room should have, in addition to chairs, a writing table and cupboard for blankets, towels and other such articles. The doctor's room should have a wash hand bowl, an examination couch and a cupboard for the storage of card index files and the necessary instruments. The instruments should include apparatus and reagents for testing urine, a pelvimeter, tongue and vaginal specula, blood pressure measuring apparatus, foetal stethoscope.

**Personnel.** As the Ante Natal Clinics are under the control of the Local Authority it is usual to find that the Medical Officer of the clinic is a whole time official in the employment of that Local Authority. The Ministry of Health suggest that the Medical Officer be trained and experienced in obstetrics and ante natal work and should preferably have held a resident appointment in a maternity hospital or, failing this, should have had at least three months post graduate instruction at a recognised school if the Medical Officer has had no recent obstetrical experience. It is the practice of many Local Authorities to employ School Medical Officers to run these ante natal clinics, in conjunction with other Maternity and Child Welfare work, and many of these doctors have had no practical experience of obstetrics since qualifying. Thus it would be impossible to expect the highest standard of work from clinics under such conditions.

Some Local Authorities are attempting to improve matters by employing a Maternity and Child Welfare Officer with special experience to supervise and/or conduct the more important centres themselves. I suggest the following
means of raising the general level of antenatal examinations in Local Authorities' clinics:

1. Local Authorities should insist on having Medical Officers for school and child welfare work with adequate obstetric experience.

2. Local Authorities should allow Medical Officers in charge of antenatal clinics to attend postgraduate courses at recognised midwifery schools.

In continuing the discussion of personnel it is essential to have a nurse present at all antenatal clinics and in the larger ones two or even more nurses may be required. In the smaller clinics I find the best plan is to arrange to have the midwife whom the patient has selected to attend. The midwife is then able to act as a nurse and is able to see the examination for herself. Thus she is familiarised, kept up to date and instructed in the procedure of the antenatal examination. Further she is warned of any abnormality that is present and can bring the patient before a selected General Practitioner for treatment without delay. The presence of the midwife also does away with the necessity for a duplicate series of examinations by antenatal centre and midwife, which is annoying to the patient and quite unnecessary.

Patients. The type of patient who comes to the antenatal clinic is from the poorer stratum of society and is usually the uninsured woman who cannot afford to pay a doctor's fee. In some of the more industrial areas patients are sent by doctors who wish routine observation and examination of these cases to be carried out by the antenatal clinic. In brief I find the cases attending these clinics fall into several groups. These are
arranged in order of priority:

1. Midwives' cases.
2. Cases sent by Health Visitor.
3. Cases coming independently.
4. Cases sent by doctors.

The Ante Natal Examination. The ante natal examination is the most important function of the clinic and, as such, deserves special mention. The examination must be thorough, must miss no important point and at the same time must be rapid because there may be a number of cases waiting and women in this class of life have little time to spare. The ante natal examination consists of two distinct parts:

1. General physical examination including history of previous illness, accidents or operations and any present ill health.

2. Obstetric examination and history.

In performing the examination I consider it important to adhere to a routine so that the examination may be as brief as possible and at the same time no point of importance is missed. In order to record the facts more quickly it is convenient to have a form for each patient with the details of the examination arranged under printed headings. This saves a considerable amount of writing and at the same time insures that no point shall be overlooked during the examination. With regard to procedure it is most convenient in the ante natal clinic to have the patient stripped and wearing a dressing gown while the history is being taken so that no time is lost between history and physical examination. The patient's history is taken with regard to her
previous illness, accidents and operations first. Then her obstetric history is recorded. The patient is next asked to lie on the examination couch and the second part of the examination begun. This part, likewise, should be divided into two parts, a general and an obstetric portion. The general examination, which is most important, consists in quickly and thoroughly going over the cardiovascular, respiratory and alimentary systems and carefully noting any defect found; special attention being paid to the presence of cavious teeth as a possible source of infection, retracted nipples, both of which are conditions which can easily be remedied and neglect of which can cause serious trouble. In examining the abdomen there is little alteration during the earlier months of pregnancy, so when any abdominal tumour is found it should be measured and compared with the estimated state of pregnancy. During the later months of pregnancy the abdominal tumour should be carefully palpated; the height of the fundus recorded and the various foetal parts mapped out. The position of the head and breech is most important especially during the last month of pregnancy. The possibility of twins should always be kept in mind and also the possibility of placenta praevia when doing the obstetric part of the examination. During the last six week's of pregnancy the size of the child's head should be carefully watched with a view to avoiding disproportion, this can best be estimated by forcing the head into the pelvis by pressing on the fundus with one hand and, with the other, feeling the descent of the head into the pelvis.
In adipose women it is difficult to feel anything with certainty through the thick abdominal wall. The only alternative then is to introduce the index and second fingers of the right hand into the vagina when the descent of the head can be appreciated on pressing with the other hand on the fundus. With regard to the question of vaginal examination the modern trend is to avoid a performance of this as much as possible and, at present, whether it is performed or no is left to the discretion of the Medical Officer in charge of the centre. From personal experience I feel that the vaginal examination should be done once during the course of pregnancy and should not be repeated unless necessary. Vaginal examination offers the only means of exploring the birth canal and excluding such conditions as polyp and placenta praevia. Vaginal examination should be done in all cases of leucorrhoea and a history of previous difficult labours. The examinations should conclude by taking the external measurements of the bony pelvis. The most important of these are the intercristal, interspinous and external conjugate of the pelvis.

Special Examinations. Apart from the history and physical examination of the patient there are a number of what may be termed special examinations which are not always done at the average ante natal clinic and which are important. Under the heading of special examinations we may include:

Blood Pressure - This should be ascertained at the patient's first visit and should serve as a standard during the remainder of pregnancy. A rising blood
pressure is an important guide to the approach of a toxaemia and should therefore be ascertained at each re-visit of the patient. It is interesting to note that in the thirty-seven ante natal clinics in Staffordshire only eleven are equipped with blood pressure measuring apparatus.

Urine Examination - The routine examination affords an important clue to any approaching toxaemia. The most important abnormal constituents which should be looked for are albumin, sugar and pus. The appearance of even a trace of albumin should be regarded as a warning of an approaching toxaemia and the patient immediately referred for treatment.

Wasserman Test - The ease with which a diagnosis of syphilis, by means of the Wasserman Test, can be made and the effectiveness of its treatment by means of the arsenicals suggest that each ante natal centre should have the means of performing such a test on each new case. In Cardiff routine tests of women attending the ante natal centres have been carried out since 1925 and according to the Annual Report of the Medical Officer of Health of that city, for 1935, the percentage of women with positive reactions was 3.1. In Glasgow, according to an article by Doctor Nora Wattie, routine testing (Wasserman) at ante natal clinics was started in 1925, since when the results of 938 tests showed that 4.9 per cent was positive. These results would indicate that the routine procedure of taking the Wasserman Test is, to say the least of it, worth while. An added value to the detection and treatment of syphilis, in the
mother, would be the avoidance or limitation of the transmission of this disease to the foetus. This would result in a reduction in the still-birth and abortion rate as well as a reduction in the neo-natal infant mortality rate due to that disease. The importance of syphilis as a factor in infant mortality can be got at a glance from the following table:-

<table>
<thead>
<tr>
<th>Year</th>
<th>Death Rate per one thousand live births of infants under one year certified as due to syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1912</td>
<td>1.34</td>
</tr>
<tr>
<td>1913</td>
<td>1.46</td>
</tr>
<tr>
<td>1914</td>
<td>1.55</td>
</tr>
<tr>
<td>1915</td>
<td>1.44</td>
</tr>
<tr>
<td>1916</td>
<td>1.57</td>
</tr>
<tr>
<td>1917</td>
<td>2.03</td>
</tr>
<tr>
<td>1918</td>
<td>1.90</td>
</tr>
<tr>
<td>1919</td>
<td>1.76</td>
</tr>
<tr>
<td>1920</td>
<td>1.51</td>
</tr>
</tbody>
</table>

In addition to being responsible for causing a substantial infant mortality, syphilis is unquestionably responsible for a number of still-births and abortions. The following table illustrates the important effect that syphilis has in producing death among foetuses:-
The rapid and tremendous growth of the centres must be considered as a tribute to their usefulness and success as shown:

<table>
<thead>
<tr>
<th>Year</th>
<th>Centres</th>
<th>Number of Children Attending</th>
<th>Infant Mortality Rate</th>
<th>Health Visits</th>
</tr>
</thead>
<tbody>
<tr>
<td>1914</td>
<td>250</td>
<td>---</td>
<td>105</td>
<td>---</td>
</tr>
<tr>
<td>1915</td>
<td>400</td>
<td>---</td>
<td>110</td>
<td>---</td>
</tr>
<tr>
<td>1916</td>
<td>720</td>
<td>---</td>
<td>91</td>
<td>---</td>
</tr>
<tr>
<td>1917</td>
<td>970</td>
<td>---</td>
<td>96</td>
<td>---</td>
</tr>
<tr>
<td>1918</td>
<td>1133</td>
<td>---</td>
<td>97</td>
<td>---</td>
</tr>
<tr>
<td>1919</td>
<td>1412</td>
<td>---</td>
<td>89</td>
<td>---</td>
</tr>
<tr>
<td>1920</td>
<td>1754</td>
<td>---</td>
<td>80</td>
<td>---</td>
</tr>
<tr>
<td>1921</td>
<td>1960</td>
<td>---</td>
<td>83</td>
<td>---</td>
</tr>
<tr>
<td>1925</td>
<td>2195</td>
<td>---</td>
<td>75</td>
<td>3878</td>
</tr>
<tr>
<td>1930</td>
<td>2662</td>
<td>---</td>
<td>60</td>
<td>4839</td>
</tr>
<tr>
<td>1935</td>
<td>2993</td>
<td>815295</td>
<td>57</td>
<td>2020</td>
</tr>
<tr>
<td>1936</td>
<td>---</td>
<td>3,075,286</td>
<td>59</td>
<td>3115</td>
</tr>
</tbody>
</table>

It is clearly shown in the history of the movement that some mothers refuse or are unable to suckle their infants in the earliest ages and this is true of the present day. The reasons for not suckling vary. Women of the better classes may find it too great an interference with their social activities. Among the labouring classes, women following ten days' rest in bed immediately after the birth of the child are compelled, by circumstances, to resume their household duties which are often arduous and on a diet which leaves much to be desired. The result is that the
examine the figures of deaths from abortion for 1934. It will be evident that abortion accounts for a not inconsiderable portion of deaths from puerperal causes as illustrated in the below table:

Extract from Registrar General's Statistical Review, 1934, for England and Wales.

<table>
<thead>
<tr>
<th>Cause of Death</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abortion - septic and non-septic</td>
<td>394</td>
</tr>
<tr>
<td>All puerperal causes</td>
<td>2748</td>
</tr>
</tbody>
</table>

So that abortion is responsible for 14.3 per cent of the total deaths due to puerperal causes. It would, therefore, only seem logical, in view of the above facts, that Wasserman tests should be taken as a routine measure of every ante natal case, instead of being left to the whim of the Medical Officer as now frequently prevails and, further, there should be means of treating the woman found to have a positive W.R.

Attendances at Clinics. Haultain and Fahmy in their excellent book on ante natal care advise that a woman should commence her attendance at the ante natal clinic from the time she has missed one menstrual period. By so doing, it is claimed, there will be an opportunity for discovering and treating such conditions as ectopic gestation. This would be of undoubted value where a woman is able to attend a Consultative Clinic and where an experienced obstetrician would recognise such a condition. On the other hand the average Medical Officer in charge of the ante natal clinic would more than likely not recognise such a condition. It is my experience that in Rural Staffordshire, as a sample of England, women seldom 'book' a midwife or attend an ante
natal clinic before the fifth month of pregnancy. Although Midwives, General Practitioners and clinics endeavour to impress on patients that it is desirable for women to attend for ante natal care as early as possible in pregnancy, it will be some time before public opinion becomes sufficiently enlightened to ensure the earlier attendance of prospective mothers. The Maternal Mortality and Morbidity Committee suggest that a patient attend the ante natal clinic at the sixteenth week of pregnancy unless, owing to trouble at a previous confinement, she be asked to attend earlier. She should also attend the clinic at the twenty-fourth and twenty-eighth weeks and then fortnightly to the thirty-sixth week and, from then, weekly until confinement. In practice I find this difficult to follow for the reason that many of the patients are required at home and some find it difficult to attend unless they bring their families. Other women object to a multiplicity of examinations by midwife and by clinic. Still others object on the ground that if a doctor's assistance is required at the confinement the Medical Officer of the clinic will not be available and another doctor must be found. In order to avoid frequent examinations in a healthy woman I find the best plan is to examine women monthly until the thirty-second week, from that time fortnightly till term. During each examination the woman is warned to report at once if she notices anything abnormal about herself or loses her normal good health. Should any such abnormalities come to light, in this way, it can
be kept under a weekly observation or referred to the family doctor for treatment.

The Value of Ancillary Services. It is obvious that if the ante natal clinic is to confine itself entirely to advice and the diagnosing of abnormalities and makes no attempt to remedy even the slightest of defects it is missing the opportunity of doing some good. The average uninsured woman attending the ante natal clinic and who is recommended, shall we say, to consult a dentist on account of septic teeth, will not do so because she cannot afford the expense. There is need, therefore, for the provision of some sort of dental scheme in conjunction with ante natal clinics. This might take the form of paying the fee of a local dentist or where a School Dentist service is in operation of referring the woman for treatment to the nearest School Dental clinic. Many multipara attending ante natal clinics suffer from varicose veins and oedematous legs. It would therefore seem reasonable that when the patient is unable to afford the family doctor's services, to bandage her limbs at the clinic or to pay a fee to the family doctor. Another essential ancillary service is the provision of extra nourishment to necessitous mothers. It is now realised that pregnancy makes severe demands on the mother's available calcium and the diet of the average working class woman is notoriously deficient in lime. It would therefore seem proper that the ante natal clinic should have means of granting free milk to those expectant mothers whose weekly income is less than twenty-seven shillings per week.
In a similar way it would be advantageous if ante natal clinics were permitted to dispense essential commodities such as cod liver oil to these necessitous mothers whose condition would seem to require it. Schemes of this sort are now in operation in most districts in England but one feels they should be available in all areas. Another useful service would be the sale of sterilised maternity outfits. Doctor J. C. Jefferson says "The question of swabs, towels and dressings is one of great importance." The use of old linen, hastily torn off and dabbed through a two week antiseptic, by the midwife should be forbidden. It is too much to demand that the General Practitioner shall provide a sterile outfit in all cases for, if reduced to it's essentials, his payment for the actual confinement in such a case in a working class house is somewhere in the neighbourhood of seven shillings and sixpence. Nor can the patient herself afford to provide what is necessary. It would again be a small matter for the Health Authorities to issue to midwives and practitioners sterile packages. If these only contained a pound of sterile wool, some large squares of lint, two service towels, umbilical pads and perineal dressing for after use, it would be a great gain and the cost would not be considerable. The service already functions in a number of areas in a modified form but could be made more general.

The ancillary services of an ante natal clinic would be scarcely complete without an efficient pathological laboratory to which specimens of blood, urine, sputum, throat swabs, etcetera could be sent for
In Holland the necessity of nursing the mother during the puerperium is fully recognised and is provided for by a special home help, known as 'Baker and Kraamverzorgster'. As distinct from the midwife, these "nurses" have had a short midwifery training and allowed to nurse the mother during the puerperium as well as having to look after the family. In this country, with few exceptions, no such special provision is made. During the days of the handy woman, the family was looked after by the same woman who attended the confinement and the household problem was solved. At the present time the midwife who conducts the confinement considers the major portion of her task completed with the end of the confinement and, quite rightly, does not consider the progress of the household, apart from the mother and infant, within her scope. With the result that many can make no provision for home help during this period and I maintain that there is a definite need for a trained home help. The provision of this home help could be made most conveniently when the mother visits an ante natal clinic for the first time. This would ensure a restful puerperium for the mother, with no danger of having to get up too soon to assume heavy household duties and adequate care of the other infants in the house would be assured.

It has been proved conclusively that a number of unnecessary deaths have been caused through lack of an efficient follow-up system of ante natal patients. Thus a prospective mother who has attended an ante natal
clinic once and thereafter dies of toxaemia of pregnancy is a case lost simply through failure of the follow up system. This could be avoided by the visiting of delinquent prospective mothers by the Health Visitor or midwife to impress upon them the importance of repeated visits until the child is born.

**Value of Post Natal Examination.** While the value of ante natal examination is not appreciated to the extent that it should be post natal examination is still less appreciated. In all civilised countries the number of women dying from the complications of pregnancy and labour is known from year to year but we have no means of ascertaining the number whose health is impaired as the result of the reproductive process. We know that it must be large from the records of the gynaecological records from our hospitals therefore a realisation of this brings home to us the necessity for a more adequate post natal supervision than has hitherto generally given. In the ante natal period a regular routine is followed. No precise routine is generally followed in the post partum period and, as a result, conditions are often overlooked which later result in chronic ill health and even death. The necessity for exercise and open air is impressed on patients during the ante natal period. The same emphasis is not put on physical fitness as a necessity in the post natal months. The abdominal muscles are over-stretched during the latter part of pregnancy and are tired out at the end of the second stage of labour. During the patient's stay in bed these muscles are apt to become soft and flabby so that
when she gets up at the end of ten days or two weeks they are easily tired and afford inadequate support. If the patient has the whole care of her baby, in addition to household and social duties, the muscles have little chance of recovery and remain in a permanently relaxed condition, the result is that she takes less and less exercise, the abdominal walls sag, there is a tendency to a general visceroptosis and a prolapse of all the abdominal and pelvic organs. Patients of this type form a large proportion of those who complain of chronic backache and lower abdominal pain. Again, from similar causes, retroflexion of the uterus or even slight prolapse may be found. These conditions can be prevented in many cases by the process of carrying out a systematic series of exercises during the two or three weeks following delivery. There can be no question that when such exercises are regularly carried out the muscles keep their tone so that when the patient gets out of bed she is able to move about more freely and with less distress than a patient who has done no exercises. The ante natal clinic would be of service in advising midwives to encourage their patients, during the puerperium, to carry out a series of exercises; indeed, if numbers permitted, physical exercise classes might be held at the ante natal centre. When the woman is able to get about again and visit the clinic a post natal examination should be done, at the present time this is a difficulty even in the most advanced ante natal clinics, because women do not realise the necessity for an examination after the baby has been born. In order
to remedy this defect it is necessary to educate public opinion by advising patients, at the clinics, midwives and medical students of the value of a post natal examination. If a routine pelvic examination was carried out, six weeks after childbirth, in every woman who had attended the ante natal clinic much could be done to prevent such conditions as chronic leucorrhoea or retroflexion occurring. Perhaps the ideal plan would be for the Medical Officer of the ante natal clinic to refer cases, in which an abnormality had been found on post natal examination, to a central consulting clinic where the condition could be dealt with by an expert gynaecologist and passed on if necessary to a hospital for further treatment.

**Pregnancy Toxaemias.** It used to be the common text book teaching that eclamptic toxaemia used to be a condition which cleared up very quickly after the termination of pregnancy and that no ill effects were left. This belief was founded on the rapid diminution of the quantity of albumen in the urine and very often it's complete disappearance within a few days of labour. With a more thorough and prolonged follow up of these eclamptic and other pregnancy toxaemia cases our views have been profoundly modified and it is now realised that many of these cases suffer permanent ill effects and require very careful observation not only during the post partum period but, indeed, for the rest of their lives. Doctors W.W. Herrick and Jean Corwin published an interesting paper in 1927. These two doctors hold that the late toxaemia of pregnancy represent failures
of a defective maternal cardio-vascular-renal system to adapt itself to the stress of child birth. They classify these toxaemias as:

1. Acute convulsive toxaemia (eclampsia).
2. Nephritic toxaemia marked by long continued albuminuria or relative nitrogen retention.
3. Hyper tensile toxaemia characterised by hypertension without marked albuminuria.

In the Sloan Hospital for women, Bunzel found in a series of one hundred and thirty-three cases of late pregnancy toxaemia, where a complete follow-up had been possible, that thirty-seven to thirty-eight per cent showed persistent hypertension and that thirty-nine decimal eight per cent had albuminuria of some degree; fifty-four decimal two per cent showed renal insufficiency by the phenolphthalein test; and of those with retinal changes during their pregnancy thirty-one per cent had persistence of these. These findings, collectively, gave a percentage of forty-one decimal four with signs of permanent cardio-vascular-renal disturbances following on pregnancy toxaemia. Other observers have published similar results. It would be out of place to attempt to discuss as to what these late pregnancy toxaemias really are, whether there is a definite entity called eclampsia, which differs etiologically from the other forms of toxaemia, or whether it is merely a late stage of the latter. For the present purpose it is sufficient to realise that all are liable to be followed by permanent structural and functional changes which may materially affect the life and health of the patient. It is no longer possible to accept the old dictum that
the patient who has had eclampsia in one pregnancy has only the general average liability to it in a subsequent one. Many of them do go through future pregnancies without convulsions but the majority show some sign of toxaemia. Young found out that out of forty-seven cases of eclampsia, six had had convulsions in previous pregnancies. It is thus evident that every patient who has exhibited any of the signs and symptoms of toxaemia during pregnancy requires to have a careful watch kept on her, not only during the immediate post partum period but during each subsequent pregnancy.

In the observation and management of these women who have shown signs of toxaemia in previous pregnancies the ante natal clinic should have peculiar advantages.

**Provision of Convalescent and Rest Homes.** Some thought should be given by Local Authorities to the provision of Convalescent or Rest Homes for the reception of pregnant women in need of rest and for those mothers and infants who are in subnormal health following the puerperium and who have but poor chance of regaining health chiefly by reason of their environment. A brief holiday of even fourteen days would do much to restore many women to health which medicine and good advice could never do. Vast sums are spent, at present, on the establishment and maintenance of such institutions as Mental Defective Homes, Sanatoria, Infectious Disease Hospitals, etcetera to mention only a few institutions. Consequently it would seem only in keeping with the twentieth century ideas, in relation to preventive medicine, if convalescent homes were erected and maintained
not so much with the idea of treating established disease as with the object of putting a woman into the best possible state of health so that much of the morbidity associated with child bearing could be avoided. A brief holiday would do much to establish the function of breast feeding at a time when so many infants are weaned. The absence of the mother from the home during this rest would entail the provision of a "Home Help" or some relative to care for the rest of the family but as this is an accomplished fact in some districts with regard to the puerperium there is no reason why the idea is not a perfectly practicable one.

The Relation of the Midwife and General Practitioner to the Ante Natal Clinic.

In considering the relation of the midwife to the ante natal clinic it is first of all important to realise that an increased large number of births are being conducted by midwives and it is therefore important that every effort should be made to make the midwife more efficient in her duty, especially with reference to ante natal methods. One of the difficulties that has to be met with is the lack of uniformity in training. Under the present regime there are a great many small institutions in England in which midwives are trained with consequent difference in teaching and efficiency. This contrasts unfavourably with, for example, the conditions in the Netherlands where there are only three training schools and where the efficiency of the midwife is admittedly high. It would seem more satisfactory therefore if the training of midwives was gradually restricted to a number of better equipped schools.
A practical difficulty, in the training of midwives, is the lack of a sufficient number of parturient women on which to instruct the midwife. In part this is due to the large number of nurses who take the midwife's course. If this number was restricted to women who intended to practice midwifery a greater number of cases would be available for teaching purposes. For example, there were, in 1927, 63,478 midwives on the roll but only 14,411 were practicing as midwives or 22.7 per cent.

Under the present system the midwife has less knowledge of ante natal methods than the doctor and so it would seem logical that the ante natal examinations of the uninsured women, who have booked midwives, should take place at ante natal clinics. Were this done regularly it would save the patient a duplicate series of examinations by clinic and midwife and/or General Practitioner. The midwife's knowledge of ante natal methods would be kept up-to-date and she would have a first hand knowledge of her patient's condition as assessed by the clinic doctor who has at hand resources of knowledge and instruments which are not available to midwives. Thus the ante natal clinic should be the pivot round which midwives should conduct the ante natal portion of their duties.

The relationship between the ante natal clinic and the General Practitioner varies in different parts of the country. On the whole the feeling is that the Local Authorities are encroaching, by means of their ever increasing medical services, on the preserves of the General Practitioner. In the larger towns and in
industrial areas the Practitioners have found the ante
natal clinics most useful and have referred all their
uninsured cases to the clinic for routine observation.
In other areas the Local Authority has encouraged the
General Practitioners to take the clinic in turns and has
provided an obstetric specialist to examine difficult
cases or where the General Practitioner finds himself in
doebt. This method appears to me to be, at any rate,
a partial solution to one of the problems of the ante
natal clinic and where it has been tried has been most
successful, the General Practitioners taking a great
deal of interest in the possibilities of ante natal
care.

Suggested Improvements in Scheme of Ante Natal Clinics.

It would seem only logical that, as the Local
Authority maintains its ante natal clinics at
considerable cost, it should endeavour to raise and
maintain this service at its highest level. Thus I
envisage the following scheme which might be expressed
graphically. The centre should be under the charge
of a Medical Officer with obstetrical experience or under
the local General Practitioners. The centre should be
adequately supplied with the essential instruments and
reagents. Cases could be treated at the clinics for
minor ailments. Sterile Maternity sets could be
provided.
A scheme for extra nourishment should be available for necessitous mothers. Essential medicines should be stocked and sold at cost price or given free to necessitous cases. A complete dental scheme should be in operation, frequently women refuse to part with their diseased teeth because they cannot afford dentures and the latter should be provided in necessitous cases. The ante natal clinic should be able to send difficult cases to a Central Consulting Clinic, under the charge of an experienced obstetrician, for advice. An adequate number of pre-maternity beds should be available, either in hospitals built for that purpose, or in Voluntary Hospitals. Lastly beds should be
available in the Maternity hospitals themselves.

Present State of Ante Natal Work. By the end of 1937 there were, in England and Wales, 1,307 Ante Natal Clinics provided and maintained by Local Authorities and, in addition, 285 clinics organised by voluntary agencies. These figures include Ante Natal Clinics conducted at Infant Welfare Centres. During the year 1937 the clinics were attended by 320,319 women who made a total of 1,408,315 attendances. The number of women who attended these clinics, expressed as a percentage of the total notified births, is as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1930</td>
<td>27.3</td>
</tr>
<tr>
<td>1931</td>
<td>33.9</td>
</tr>
<tr>
<td>1932</td>
<td>38.9</td>
</tr>
<tr>
<td>1933</td>
<td>42.2</td>
</tr>
<tr>
<td>1934</td>
<td>43.07</td>
</tr>
<tr>
<td>1935</td>
<td>43.08</td>
</tr>
<tr>
<td>1936</td>
<td>48.85</td>
</tr>
<tr>
<td>1937</td>
<td>54.19</td>
</tr>
</tbody>
</table>

These figures serve to show that public opinion is realising the value that these clinics offer and that women are gradually taking advantage of the advice and benefits offered. The situation is still far from satisfactory when we consider the recommendations of the Maternal Mortality and Morbidity Committee were a minimum of seven visits whereas the above figures indicate that the average woman attended the ante natal clinic only four times.
SUMMARY.

The history and development of the Maternity and Child Welfare is described from its earliest beginning. From the development of the movement the fact emerges clearly that the Infant Welfare Centre is of proved value because, from a meagre beginning, they have become increasingly popular and numerous and from casual voluntary control has passed into the immediate control of the State.

The necessity for advice is appreciated by mother and clinic alike with regard to the infant but advice is too infrequently sought in relation to toddlers so that they present defects on first school medical examination which might be avoided.

There is need for a closer relationship between General Practitioner and Centre whereby exchange of useful information between the two might be effected.

The scope of health talks might be profitably extended. The rearing of children is not limited entirely to the mother but the correct rearing of children is often thwarted through fathers' ignorance. Therefore evening lectures on Fathercraft could be usefully given.

Welfare Centres could profitably stock dried milk for bottle fed babies and necessitous mothers and other essential medicines such as Cod Liver Oil, Iron and Liquid Paraffin.

Midwives might attend Welfare Sessions at Clinics with advantage.
There is need for Medical Officers in charge of Centres to have had special experience in diseases of children and facilities for these Medical Officers to attend refresher courses at recognised Medical Schools at intervals.

That it would be an advantage for the Centre to be in close association with the local Public Health Authority in order that families with young children should have preference in relation to provision of Municipal houses.

There is an opportunity for Local Authorities in larger towns and cities of providing, where it is felt necessary, a Fee Paying Centre for providing "better class" mothers with information and advice.

That ancillary services are of great value to Infant Welfare Centre and that they might profitably be extended.

That Local Authorities should consider the provision of "rest homes" for temporary holidays for mother and infant and also the provision of a home help during the mother's absence.

In relation to the Ante Natal Clinic the history is described in some detail from which it appears that the Ante Natal Clinic is of more recent development than it's sister the Infant Welfare Centre.

The present state of the Ante Natal Clinic is of very limited value as contrasted with the Consultative Clinic.

The defects in the present Ante Natal Clinic are:-

1. Lack of special knowledge of obstetrics by Medical Officer.
2. Lack of communication between Clinic and General Practitioner.
3. No access to pre-maternity beds or maternity hospital.
4. Insufficient number of ante natal examinations.
5. Insufficient number of post natal examinations.
6. Medical Officer of Centre does not attend confinements and is apt to lose touch with practical side of midwifery.
7. Poor follow-up system so that defaulting prospective mothers may die from unremedied defects.
8. Lack of certain essential examinations such as Wasserman Test.

These defects could be remedied by:–
1. Employing Medical Officers with special obstetrical experience.
2. Providing an adequate number of pre-maternity and hospital beds for cases from Ante Natal Clinics.
3. Enabling Medical Officers to attend refresher courses in obstetrics at recognised medical schools.
4. Staffing smaller centres with General Practitioners who specialise in midwifery and who will be available in emergencies.
5. Educating women as to the value of Ante Natal supervision and thus encouraging earlier and more frequent ante and post partum examinations.
6. Providing necessary instruments at Clinic for estimating blood pressure and taking blood for Wasserman tests.
7. Improving "follow-up" system so that defaulting women are visited by midwife or health visitor
and persuaded to continue attendances at Clinic.

8. Extending ancillary.

Local Authorities should provide rest homes and convalescent homes for pregnant women and women convalescent from child birth and at the same time provide, without cost to the patient, a home help to housekeep and look after the family and home.

There is need for the whole plan of Ante Natal Clinics throughout the country to be reviewed and radically revised with a view to establishing a more complete ante natal service as suggested in part four.
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