Immunity and Nutrition

No disease is more prevalent in infancy than malnutrition, and of none is the pathology more obscure. Attempts to place it on the sure basis of morbid anatomy have utterly miscarried, and pathological chemistry has equally failed to yield an explanation. In the past year or two the trend of German work on this subject has been along biological lines, and has at least been fruitful in new suggestion both as to the intimate nature of marasmus, and as to the essential differences between human and animal milk from a food point of view.

The tendency at present is to look on the vital properties of human milk as of far more consequence than its chemical composition in the nutrition of the infant. The impetus to these investigations derives, of course, from Ehrlich's theory of immunity, and more particularly from studies of the precipitins by which specific albumins can be differentiated. The earlier workers had in view the possibility of the toxic symptoms which cow's milk sometimes causes being due to the direct absorption into the blood of the foreign albumin. It is known that injection into an animal of serum from another species causes poisoning—the "serum disease" is a well-known instance,—and evidence was brought forward that in the blood of very young artificially fed babies specific milk precipitins could be detected. The carefully planned work of Moll, however, led to the abandonment of this theory. He shows that, contrary to what might be anticipated, a foreign serum is very much less toxic to young than to adult animals, and that, parallel with the low toxicity there is but a limited production of antibodies. For the present, however, the idea that cow's milk is directly toxic must be departed from: its failings seem to be negative rather than positive.

Accepting Ehrlich's hypothesis that the body cells assimilate nourishment by means of appropriate side chains, and that for this "tropholysis" complement must be present in the serum, some very remarkable observations of Moro may be referred to. The blood of a newly-born baby contains abundant complement, which diminishes after birth, but under the influence of maternal nursing rises to the adult level in four or five days. In artificially reared infants the complement either pursues a downward course, or behaves in the normal manner. It falls in children who are not thriving, and rises in those whose weight curve is satisfactory. The difference is most striking in weaklings: of these, the breast-fed have normal complement, the artificially fed, very little; and
it seems that when, despite careful dieting, the complement does not increase, the prospect of success in rearing the infant is small. Confirmation of these variations in complement in the two sets of cases comes from another series of experiments by Pfaundler. If sufficient inactivated haemolytic serum is injected into an animal, death occurs, the haemolytic serum being activated by the animal's own complement. This is well established; but Pfaundler now shows that if the animal—dog or rabbit—has been reared artificially, the symptoms caused by the haemolytic serum are much less, by reason of the dearth of the necessary complement. That is to say, the ill-nourished animal (for artificially fed animals are liable to serious malnutrition) is more resistant to inactivated haemolytic sera than the normal, healthy animal.

So far, then, we are led to conceive of marasmus as a failure to assimilate through deficiency of complement. On this theory it is easy to explain why not all artificially fed infants fall victims to it. The new arrival into the world comes provided by its mother with a store of complement, and tissues which in time will be able to elaborate more. Normally the mechanism is supplemented from the mother's breast: if that fail, the mechanism may meet the increased demand—or it may not, and marasmus ensue. In the face of such a theory it might be thought that medicine is bankrupt, but this would be a mistake. True, we cannot yet supply complement at will, but there is some reason to believe that subcutaneous saline injections favour its production, and we know empirically that they are serviceable in certain cases of marasmus.

More significant from a therapeutic point of view, however, is a knowledge of the paramount importance of nature's method of feeding during the very first days of life. It is common enough to tell a mother, “Even if you only nurse your baby for a week or two it will get a good start,” but few realise what that start really means. It escaped even the perspicacity of Mr. Coleridge and the Royal Commission, that although to feed your pet pussy with cream is an act of humanity, to give milk to a newly-born kitten may be fraught with such disasters as to constitute “an experiment.” Yet so it is. Moro has proved that it is almost impossible to rear young animals if suckling be prevented from the outset. Eighty per cent. of guinea-pigs fed from birth on cow's milk die; of those which remain with the mother only one day, 60 per cent. survive; while 90 per cent. of those which are suckled for three days can be reared without difficulty. The popular belief which credits the colostrum with peculiar virtues is therefore experimentally verified, and from the present point of view the further discovery that it is excessively rich in ferment-like bodies is of interest. Langer shows that the cow's colostrum contains enormously more antigens (the generic name given to substances which evoke specific agglutinins, precipitins, etc.)
than the later milk, or than the adult blood serum. These antigens do not exist in the serum of the calf at birth; the placenta, apparently, is impermeable to them, and the young animal comes into the world defenceless to this extent. The deficiency is made good by the first colostrum sucked, for the antigen can be detected in the blood of the calf within six hours. After the third day the antigen content of the colostrum falls, and if a newly-born calf be fed from the first on the later milk it does not get from it the antigen it lacks.

From what has been said it will appear that these researches are still largely tentative, and it is not yet clear to what conceptions they may ultimately lead. Several hypotheses have been reared, but practically the facts which stand out most clearly are the specific character of milk, the immense importance of maternal nursing, particularly during the first few days, and the remarkable deficiency in complement in some cases of malnutrition. Immunisation is one of our lines of defence against infections: some of Schlossmann's researches hint at the possibility of combating malnutrition and intolerance of milk in the same way.

Medical Education of Women in Edinburgh. This question has again been brought prominently forward owing to the unfortunate position in which the Association for the Medical Education of Women has been placed by the sale of Minto House. This building has served for many years as the headquarters of the Association, and from its position and traditions was admirably adapted for the purpose. We sympathise with the Association in the unfortunate circumstances which have deprived it so unexpectedly of its home, but we fail to see why this fact should be magnified into a crisis as regards the medical education of women in Edinburgh.

It is well known that although in name called the Medical College for Women, yet comparatively few of the classes of the curriculum were held within its walls, and that its chief usefulness consisted in providing a central office and accommodation for the teaching of practical anatomy. The crisis therefore chiefly consists in replacing these wants, and we understand that suitable accommodation for the purpose was available and could have been obtained by the Association. If this course had been adopted, then the status quo as regards the medical education of women would have been maintained, and any so-called crisis obviated. For certain reasons, however, this course was not adopted by the Association, and it has appealed to the University Court to help them out of the difficulty by undertaking the education of the women students.

We do not desire to maintain the proposition that the position of the University in regard to women medical students is altogether
satisfactory. The proper training of those upon whom it confers its degrees should be the necessary and obligatory complement of graduation. This is the ideal position, and one which Edinburgh University has always strongly advocated. In the case of women students, however, the position is not so simple when viewed from the standpoint of expediency and the best interests of the University. There are many reasons why it would be a most disastrous policy for the University to undertake the onus of teaching women medical students. In the first place, because, the example of other Schools notwithstanding, mixed classes would simply mean the death-knell of the Medical School, which has made the University famous and the largest seat of medical education in the Empire; and, secondly—it is necessary to be frank—because Edinburgh is at present in sore straits to provide the necessary material for the efficient teaching of practical anatomy, operative surgery, practical midwifery, as well as for clinical instruction in medicine and surgery.

The future of Edinburgh depends upon its male students—not the women; and unless this fact is recognised we shall be saddled with a burden which will effectually prevent the expansion of the class of student upon which the chief prosperity of the University depends, and also, it may be, which will lead to a serious difficulty in providing for the education of such numbers as we at present possess.

We have already stated that the Association has the opportunity of maintaining the status quo—to this course no one can take exception—but it has no cause to complain if, under the circumstances, the University feels itself unable to afford aid by undertaking the medical education of women. Such students form but a very small proportion of the medical undergraduates in Edinburgh, while not more than about a fifth of their total number are natives of the city. It cannot, therefore, be maintained that any great hardship is being inflicted on them as a body by the refusal of the University to admit them within its walls, more especially when it is remembered that, so near as Glasgow, there is not only a superabundance of clinical material available for them, but also no less a sum than £45,000 of the Muirhead Trust money lying ready to be devoted to the scientific education of women.

Sir Henry Littlejohn. For more than half a century Sir Henry Littlejohn has been one of the most outstanding figures on the Edinburgh stage, and, since the death of Sir Robert Christison, he has played the leading part. The announcement of his approaching retirement from the posts which he has filled with such acceptance, has accordingly attracted more than usual attention. It is not possible on this occasion to attempt an estimate of the enormous obligations under
which he has laid the city of his birth and the country at large; we cannot, nevertheless, allow the opportunity to pass without some grateful acknowledgments of his invaluable services.

As Surgeon of Police for more than fifty years, and Medical Officer of Health for a period not much less, Sir Henry Littlejohn has been responsible for all the advances which have characterised Edinburgh during the second half of last century. The disappearance of smallpox and typhus fever, and the great diminution of most of the other infectious diseases, must be attributed to his energies. Nothing could be more striking in this connection than the reduction in the death-rate of Edinburgh, which, between 1850 and 1900, fell to about one-half. In association with William Chambers, he led the Town Council of Edinburgh to see the necessity for clearing out the old rookeries in which disease and crime were hatched, and let air and light into many a festering spot which had been unchanged since the times of Flodden. For these services the City of Edinburgh will ever hold Sir Henry Littlejohn in thankful remembrance. In medico-legal circles he has, since the death of Sir Robert Christison, been the most important man in Scotland, and has taken part in almost all the great criminal trials in his time. From the year 1855 until 1906, that is to say for fifty-one years, he taught the subject of Medical Jurisprudence in the Edinburgh Medical School. During the last ten years of this period he was the University Professor on the subject. No one has, within the memory of man, approached him as a teacher. His lectures were marked by lucid analysis of fact, by dramatic vividness of statement, and by picturesque grouping of surroundings. Among the many generations of medical and legal undergraduates who sat at his feet during his half a century of teaching, there is a unanimous opinion that he was without a rival as a teacher.

Sir Henry Littlejohn will be followed into his retirement by the good wishes of all his fellow-citizens, and his friends trust that he will long continue to enjoy that perennial youthfulness which has been envied by all. A hope has often been expressed, and we may venture here to echo it, that he would spend some of his well-earned leisure in giving permanent form to his reminiscences. Permeated as he is with the old traditions of our picturesque city, he would be able to rescue from oblivion many an interesting chapter in history.

Dr. Halliday Douglas, a former President of the Royal College of Physicians, and for many years the Senior Fellow, passed away within a week of his eighty-ninth birthday. There can be few still with us who remember him as one of the Physicians to the Royal Infirmary, for he had actually completed his term of office in that institution before the outbreak of the Crimean War. His hospital service was not only remarkable in
that he was appointed a full Physician at the age of twenty-four, but in respect of the important share which he took in popularising the use of the stethoscope, and in the perfection of its application to clinical medicine to which he himself attained. He was held in high esteem by his contemporaries, and in particular by Warburton Begbie, who often sought his help in difficult cases. That he did not acquire a large consulting practice was due in part to his retiring manner, which did not inspire confidence among those who did not know him, and in part to his being still a young man when his term of office in the Infirmary expired.

A man of many virtues and of a kind heart, he took a keen interest in the social and spiritual welfare of medical students, and was one of the founders of the Edinburgh Medical Missionary Society.

Reginald Harrison. The popularity of Reginald Harrison was not a thing of the town in which he lived or of the nation to which he belonged; it was world-wide. At gatherings at Paris or Berlin, Cairo or Washington, Harrison was one of the most popular representatives of British Surgery, and was beloved by all who experienced the charm of his personality. Until his short and fatal illness—influenza followed by pneumonia—and although on the verge of completing the allotted span of three-score years and ten, he was in full possession of his faculties and actively engaged in the multifarious duties of his busy life.

While he attained eminence as a general surgeon in the Royal Infirmary of Liverpool, his name is generally associated with the surgical disorders of the urinary organs, and on the death of Sir Henry Thompson he became the leading authority on this branch of surgery in the metropolis. Although belonging to what may be called the old school, his mind retained the plasticity of youth, and he kept himself well abreast of modern progress in a speciality which has made enormous strides in recent years. He was above all a courteous gentleman, and he will be sadly missed by a wide circle of friends in all parts of the world.

On the recommendation of the Scottish members of the Electro-Therapeutic Section of the Royal Society of Medicine, the London Council has agreed to hold the May meeting of the Section in Glasgow, in the rooms of the Royal Philosophical Society, 207 Bath Street, on Friday, May 22, at 8.30 p.m. On that occasion three papers will be read—one by Dr. Lewis Jones of London, another by Dr. Dawson Turner of Edinburgh, and a third by Dr. Samuel Sloan of Glasgow. Many of the English members are expected to be present. Dr. Deane Butcher, the President of the Section, will preside. The meeting will be open to all medical gentlemen.