Reports of Societies

STILLBIRTH AND NEONATAL MORTALITY

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on Oct. 17, Dame LOUISE MCILROY presiding, a discussion took place on "Stillbirth and Neonatal Mortality."

Prof. D. BAIRD (Aberdeen) said that statistical analyses showed great differences in this mortality as between one country and another and between different areas of the same country. In 1936 in England and Wales 25,045 stillbirths and 18,200 neonatal deaths were recorded. It had been long recognized that infant mortality was largely dependent on poverty and low standard of living, and stillbirth and neonatal mortality rates might be similarly influenced. The exact cause of stillbirth was often difficult to determine, especially in domiciliary practice; and even in hospital, with the aid of routine post-mortem examinations, it was not easy. The appendix to the Registrar-General's report for Scotland (1937) classified 37% of stillbirths as of unknown or ill-defined causation, 14% as due to difficult labour, and 13% to foetal abnormalities. The speaker had attempted an analysis of cases in the only maternity hospital in his area, thus obtaining a cross-section of the stillbirth rate in Aberdeen during the period taken. The rate was 36 per 1,000. In 30 cases out of a total of 82 the cause was unknown, in 24 it was difficult labour, and in 9 toxaemia. Among emergency cases admitted to hospital difficult labour naturally entered largely, and, with placenta praevia, accounted for 50% of the cases.

The importance of neonatal mortality was evidenced by the fact that, in Scotland, 50% of the infant death rate related to the first month of life. In Scotland in 1937 the neonatal mortality was 38 per 1,000 births, in the North of England 34, in the South-East of England 24, while in large cities it varied from 43 in Glasgow to 24 in London. The London figure was about the same as for New York and Chicago, whereas Amsterdam had the low figure of 16. Among the booked hospital cases the biggest factor was infection. One of the chief problems was the prevention of prematurity. Many hospitals lacked provision for dealing with premature babies. Maternity hospitals should have special nurseries on the cubicle system for such infants. The incidence of premature labour in booked hospital cases, which represented the working-class community, was about 9%; among the middle and upper classes (in a series of 885 cases) it was 6%, and among booked specialist cases (330)—that is, patients coming in the early months of pregnancy, not because they were ill, but because they wanted to be under specialist care from the beginning—it was 2%. The neonatal mortality in these three groups was respectively 3.3, 1.35, and 0.6%. Stillbirth and neonatal mortality rates, as well as the infantile death rate, were higher in Scotland than in England, but 60 years ago the reverse was the case, and presumably there was no inherent weakness in Scottish offspring. In depressed areas measures to lower the mortality should take the form of better feeding of pregnant women and nursing mothers, intensive teaching of mothercraft during pregnancy, the provision of more antenatal beds for the treatment of complications, better postgraduate training of doctors and nurses, and better training of health visitors.

Paediatric Aspects

Prof. CHARLES MCNEIL (Edinburgh) said that the first month of life formed a bridge-head between obstetrics and paediatrics. He based his remarks on an analysis of 416 cases of stillbirth and, during the same period, 236 neonatal deaths. Post-mortem examinations had been carried out in 540 of these 650 cases. There was found to be a much higher incidence of congenital defects in premature children, so that congenital deformity was somehow linked with prematurity. Asphyxia had a prominent position in causes of death of both premature and immature infants, the anatomical explanation being that the infant's lungs were stiff and difficult to inflate. Paediatrics as a medical service, in contrast to obstetrics, was poorly equipped. There should be a strengthening of paediatric staffs in maternity hospitals. The diet of expectant mothers should also receive more attention. More needed to be learned about the first beginnings of the complicated process called digestion, which after birth was for the baby an entirely new mechanism. Measures should be taken to protect the baby in hospital from the great danger of infection, particularly from gastro-enteritis, which stood out easily first among infections as a cause of death. Every maternity hospital should have a follow-up clinic for its babies, and a much closer supervision of them during the first month of life, whether in hospital or out of it, especially as regards dietetics.

Dr. DOYNE BELL said that the treatment and prevention of immaturity—which he defined as some degree of unsuitability for extra-uterine life, as contrasted with prematurity, which denoted merely a time factor—were highly relevant to the present discussion. He criticized both the recent Toronto investigation which had been mentioned by Prof. Baird and that of the People's League of Health in London. In the former investigation the control series of patients was not strictly comparable with the subjects of the dietetic experiment, and the records of infant deaths were not stated in such a way as to permit of any valid conclusion being drawn. With regard to the latter investigation he gave reasons for thinking that the yardstick was not accurate enough to warrant the significance attached to the figures. An analysis of a series of unselected pregnancies showed that the range of error likely to occur in the estimation of the duration of gestation rendered conclusions based on the concept of prematurity highly unreliable. In spite of loose certification of neonatal deaths, both as to their exact cause and as to their exact age, it was probable that immaturity played an important part in their causation, but there was no reason at present to suppose that the problem of preventing immaturity had been solved. The prevention of neonatal death from immaturity could, however, be assisted by an adequate paediatric service. The maternity hospitals were not at present required by any Act or regulation to provide proper paediatric supervision of newborn infants.

Sir FRANCIS FREMANTLE, M.P., said that the neonatal mortality figures had improved slightly during the last three years, although infant mortality as a whole had risen, but not much, even on the very low figure for 1939. The increase and improvement of ante-natal clinics had taken place on a large scale. At the end of last year there were in England and Wales 1,600 of these under the aegis of local authorities and 260 under that of voluntary associations. The attendances last year were 452,000, and first visits paid by health visitors numbered over half a million. In all the surveys the general finding was that conditions of infant life were much more alarming when associated with poverty. But the economic conditions which created poverty were in some degree the result in present or previous generations of weakness of character or intelligence. It was not merely the social conditions which produced the statistics so much deplored; they were partly due to the fact that many of the people concerned were not able to look after themselves. Merely to improve the housing, necessary as that was, would not bring about the desired results. On the other hand, there were countless instances of people living in slums in the midst of penury who yet, because the mother was scrupulously clean and a good manager, brought up a healthy family. The problem must not just be left to Government provision, national or local, but the people themselves must be taught to use their own powers and intelligence.

The League of Health's Inquiry

Prof. JAMES YOUNG said that the report of the People's League of Health (*British Medical Journal*, July 18, 1942, p. 77) was probably the most comprehensive and best-controlled investigation ever carried out on this subject. It revealed two important results of statistical significance from the standpoint of the present discussion. The incidence of pregnancy toxaemia was about 30% less in women who received additional dietary supplements than in the control women, and toxaemia was known to be one of the chief factors in prematurity, stillbirth, and neonatal death. In the second place, the prematurity rate was about 17% less. The investigation could not be expected to reveal the full effect of the improved nutrition because in the majority of cases the women first entered the experiment

at a stage of pregnancy when the major risk of abortion had passed. The food supplements were given in the form of tablets and capsules, the only method by which such a large nutritional experiment was possible, and no doubt it was true that natural foods would be even more effective, so that the results, striking as they were, represented rather the minimal than the maximal influence of good nutrition. He added some up-to-date figures relating to changes in infant birth weights, prematurity rates, and toxaemia rates since the war began. The study had been carried out by Dr. Hargreaves at the British Postgraduate Medical School on "booked" cases during 1937 (1,597 cases), 1938 (1,765), 1940 (954), 1941 (846), and 1942 (662). The average birth weights of full-time children had shown a decline since the pre-war years from 7.3 to 7.1 lb. in primigravidae and from 7.6 to 7.4 lb. in multigravidae. The percentage prematurity rates had declined, though not so consistently, from 19.7 to 14.2 in primigravidae and from 16.7 to 13.6 in multigravidae. The percentage toxaemia rates had shown no consistent change.

Prof. BAIRD, in his reply, said that the appointment of paediatricians to emergency hospitals was desirable, but this would be only a wartime measure, and what he desired to see was appointments of the type recently made in Newcastle, where a doctor had been appointed "Professor of Child Health." He had been interested in Prof. Young's figures. The incidence of toxaemia in primigravidae in Aberdeen in booked cases was 8%, which was very close to the London figure, and he had always understood that there was relatively little toxaemia in maternity cases in London. In a small series of cases in private practice the toxaemia rate was only 3%, or less than half the hospital figure. The percentage prematurity rate in Aberdeen among hospital cases was 23, but in private practice only 8.

Correspondence

What is "Sterile Blood"?

SIR,—Recent contributors to the *Journal* have raised the above question and answered it to their seeming satisfaction, but not without leaving an opening for legitimate criticism. The question as to what constitutes "sterility" is evidently a matter of some perplexity. This is borne out by the report of four experts from the Blood Transfusion Service of the Medical Research Council as published in the *Journal* of March 21, 1942. These workers eventually decided that the ordinary bacteriological tests for the sterility of plasma were of little value, and they discarded them in favour of the naked eye as a check on their plasma storage technique.

Now the experienced bacteriologist may be able to say that cloudiness of plasma or serum means contamination and that clearness argues for probable sterility, but it is a departure from our usual scientific standards to dispense with proof of absolute sterility. It is quite obvious that in dealing with blood the bacteriologist is missing the free use of his autoclave, and that when he speaks of sterile blood he does not mean the same thing as when he refers to a sterile dressing. Everyone knows what is meant by the usual sterile fluids; they have been boiled or otherwise sterilized in order to kill off all forms of life within them. On the other hand, "sterile blood," although free from bacteria, is still a living tissue, but the activities of the living elements in stored blood have so far not had much consideration. There is in fact a widespread belief that the changes which take place in clean stored blood are purely physico-chemical, when as a matter of fact they must include the biological reactions of living things. It becomes necessary therefore to differentiate between those changes which are due to the inherent vital elements in blood and those which are due to contamination. Nor should we forget that the value of blood for many transfusion purposes is greatly diminished by the present storage processes, which aim at suppressing the extraneous forms of life but at the same time destroy the inherent vitality of the blood cells.

This vital aspect of blood was recognized by Crosbie and Scarborough,[1] who, among other criteria of the viability of the white blood corpuscles, described a curious "spinning" of the granules of the cytoplasm. This rapid oscillatory movement stops immediately when the cell is overheated—in short, when living protoplasm enters into its dead state. I have confirmed this observation, but I have gone further and found that, as the white cells break up, these spinning and, as I hold, living bodies can be seen floating free in the blood serum. With suitable technique, such as the use of dark-ground illumination under a high-power objective, it is also possible to demonstrate that there are other highly motile bodies in disintegrating "sterile blood."

We are faced then with the need for a more intensive investigation of the biological phenomena of stored blood which has been pronounced "sterile." It is clear also that the word "sterile" is not a suitable term in this connexion, because the state of sterility is inconsistent with the presence of vital elements in stored blood.—I am, etc.,

Medical School, University of Capetown. M. R. DRENNAN.

1 *Edinb. med. J.*, 1940, **47**, 553.

Rehabilitation Centres

SIR,—I enclose a brief memorandum which expresses the general opinion of the members of the British Orthopaedic Association in regard to rehabilitation, and I am doing so at the request of some of the senior members of the Association. We feel that it should be clearly understood that the orthopaedic surgeons of the country are wholly in favour of this constructive medical and sociological movement.

I think we all feel that rehabilitation should begin very soon after the accident or wound, and be carried on throughout the patient's period in hospital in the form of occupational therapy and gymnastic or remedial exercises. There remains as a logical and very necessary development the organization of Rehabilitation Centres where the final and more concentrated stages of rehabilitation are given to enable the patient to be returned to the Services or to industry with the least possible delay.—I am, etc.,

G. R. GIRDLESTONE,
Headington, Oxford. President of the British Orthopaedic Association.

*** The memorandum runs as follows:

The members of the British Orthopaedic Association recognize the value of measures already adopted by the Ministry of Health in introducing rehabilitation into E.M.S. orthopaedic, fracture, and accident services. They are not, however, satisfied that the later stages of rehabilitation have been adequately developed throughout the country; and for this particular purpose they urge the importance of establishing special Rehabilitation Centres, in association with existing orthopaedic, fracture, and accident services; under the same administrative and surgical control, but as a rule geographically separated in order to avoid the hospital atmosphere; and affording all facilities needed for the completion of treatment right up to the stage when work can be resumed. From undoubted evidence of grave wastage of man-power through accidents, they believe that the developments recommended are of immediate urgency in the prosecution of the war.

Listerism

SIR,—I have read the correspondence on the Lister technique in your issues of Sept. 5 and 26 and Oct. 3. A good case made out can't have too much backing, but there seems some confusion as to Listerism among others who think aseptic surgery is different from what Lister taught. The three main principles of Listerism are: (1) disinfection of the skin, (2) destruction or inhibition of the germs in the wound, and (3) prevention of the entrance of germs into the wound. Lister used antiseptics to produce asepsis, and he introduced dressings and a "protective" (oiled silk). We are indebted to him for the undermentioned: In 1866 he used crude creosote for wounds and banished pyaemia from his wards. He made a "plaster-of-Paris putty" for a compound fracture and covered it with tin foil, and so paved the way to the present-day method. (This was at a time when there was no bacteriology.) He tied the carotid artery of a horse under antiseptic conditions with good results, using first kangaroo tendon; this work then led him to chromic acid catgut. He invented a spray and this led to aerial disinfection. He taught the immobilization of wounds and fractures. He showed the possibilities of skin grafting. He insisted on sharp knives, so as not to bruise tissues. He showed the correct way of giving chloroform without a death. He introduced drainage of wounds. He was the