it was 81 months. Bone-grafting had resulted in union in 96% of the cases, but rehabilitation seemed to take longer than in cases uniting without operation.

Mr. D. L. Griffiths (Manchester) made a detailed plea for inquiry by statistics. He had submitted 249 cases of fracture of both bones of the leg with displacement to such inquiry, and had arrived at four definite conclusions—open fractures healed more slowly than closed fractures; the two forming distinct groups; direct violence, severe violence, and inadequate apposition of fragments, were all delaying factors. Figures indicated that only the grosser errors of treatment were important in delaying union.

Mr. F. B. Hurst (Sheffield), in a study of 399 cases of fracture of the leg, treated throughout by his own team, found that 349 returned to their own work and 35 to modified work; 15 had very poor function. Of 103 cases of open fractures, 48 were left open; these averaged an average of 16 weeks (the longest were 28 weeks in 4 cases); the remaining closed fractures united in an average of 13 weeks. He urged concentration on the quality of end-results rather than on the time taken to reach them. Continuity of treatment by one unit was the essential requirement. He and other speakers deprecated the late reduction occasioned by the slow movement of patients from one hospital to another. Dietetic factors were discussed by Mr. T. S. STEELING (Edinburgh), in particular reference to the important part played by vitamin C.

REHABILITATION

On Friday afternoon, May 29, the association visited the RAF Rehabilitation Centre at Hoylake, by kind permission of the Air Ministry, and members were conducted round the gymnasium, playing fields, swimming pool and so on. Mr. Watson-Jones gave a clinical demonstration by which he stressed the importance of carefully graduated muscle exercises, carried out initially under the guidance of the medical officer and later in the gymnasium under the control of a group of physical instructors. He and the admirable working of the centre and the importance of the patient's treatment being kept under the close supervision of a medical officer at all stages. Finally Squadron-Leader DAWES, the commanding officer, said how important it was to recreate mental and moral fibre in addition to restoring patients to full physical fitness.

AMPUTATIONS

On the second day of the meeting a discussion was held on amputations, based on the different views held by surgeons in Canada and Great Britain. The former attitude was stated by Dr. A. B. Le Mesurier of Toronto. The Canadian preference for end-bearing stumps for leg amputations was founded on the different views held by Dr. C. H. Cullen and Dr. G. Q. Chance.

Mr. F. W. Holdsworth (Sheffield), in a study of 399 cases of fracture of the leg, treated throughout by his own team, found that 349 returned to their own work and 35 to modified work; 15 had very poor function. Of 103 cases of open fractures, 48 were left open; these averaged an average of 16 weeks (the longest were 28 weeks in 4 cases); the remaining closed fractures united in an average of 13 weeks. He urged concentration on the quality of end-results rather than on the time taken to reach them. Continuity of treatment by one unit was the essential requirement. He and other speakers deprecated the late reduction occasioned by the slow movement of patients from one hospital to another. Dietetic factors were discussed by Mr. T. S. STEELING (Edinburgh), in particular reference to the important part played by vitamin C.

INTERIM REPORT OF THE PEOPLE'S LEAGUE OF HEALTH

The People's League of Health appointed a special committee* in July, 1935, to consider the effect of the nutritional state of expectant and nursing mothers on the health and disease of the mother and infant mortality and morbidity. The committee has now completed a survey which involved the study of the records of 5022 women and which the committee believes to be more comprehensive than any similar investigation previously carried out. The survey was carried out with the cooperation of 10 London hospitals: East End Maternity Hospital; Hammersmith Hospital (LCC); Mother's Hospital (Salvation Army); Queen Charlotte's Hospital; Queen Mary's Maternity Home; Roehampton Hospital (LCC); St. Mary's Hospital; Thorpe Coombe Maternity Hospital; and University College Hospital. Three commercial firms—Messrs. Vitamins Ltd., Crookes Laboratories and Roche Products Ltd.—supplied the vitamin and mineral elements required, free of charge.

The main investigation, which was carried out from March, 1938, to the end of 1939, was planned to show whether additions of vitamins and minerals to the food would benefit the condition of the pregnant mother and the newborn child. In order to obtain some information concerning the type of diet consumed by the group of women to be studied, an inquiry was made among expectant and nursing mothers attending the hospitals which had elaborated in the test; these patients included some of the women enrolled in the investigation. It was not possible to make a detailed dietary survey, but nearly 1000 women filled in questionnaires recording the food they had eaten during the previous week. This was at best a rough and ready method of assessing food consumption, but there were good reasons for believing that it would provide some evidence of the nutritional level of the women during the experimental period. A scoring system was adopted by which arbitrary values were given to express the daily consumption of the more important foodstuffs, such as milk, butter, wholemeal bread, fresh vegetables, fatty fish, fruit, eggs, &c. By making a sum of the weekly score for a group of appropriate foods, at best a fairly accurate record could be made of the intake of first-class protein, vitamins, minerals, &c., while from a general summation a picture of the diet as a whole was obtained. This procedure was sufficient to reveal any well-marked deficiencies in the diet. A somewhat similar scoring system has recently been found of great practical utility in nutritional investigations in Toronto.

Analysis of the records showed that, in general, there was a well-marked deficiency of first-class protein among any of the women answering the questionnaires. As regards minerals, a shortage of calcium was noted in about 70% of the women, most of whom were consuming insufficient milk and dairy products. Iron deficiency was even more serious, only 2% of the women having a satisfactory intake. As regards vitamins, the deficiency of A was the most common, this being anticipated from comparison with other pre-war data. Rather more than half of the women were taking less vitamin A than they required. Generally speaking the diets were not badly defective in vitamin B1, but nearly half the women were not obtaining as high an intake as was really desirable. Vitamin-C shortages also affected about half the women, but once again the deficiencies were not nearly as grave as had been expected. The general impression was that the women were on the average better nourished than had been expected from previous surveys of comparable groups.
of the ordinary population. Many of the women were clearly following advice given at the antenatal centres, and fresh fruit and eggs frequently entered into their daily diet. The same was true of milk. The women said that taking these foods especially because they had been advised that the health of their babies would thereby be improved. There were, however, instances in which the dietary was grossly defective.

The committee next decided on the amounts of vitamins and minerals required to make up the deficiencies noted. The daily supplements used for the experiment were:

- Saccharated iron carbonate, gr. 18 (1.2 g.), equivalent to 0.26 g. ferrous iron.
- Calf's liver extract, gr. 30 (2 g.) equivalent to 0.26 g. calcium.
- Minute quantities of iodine, manganese and copper.
- Adsorbate of vitamin B1 containing all factors of the B complex (B1 content standardised at 200 I.U. per g.) gr. 15 (1 g.).
- Vitamin C (ascorbic acid), 100 mg.
- Halibut liver oil (vitamin A, 52,000 I.U. per g. and vitamin D 2500 I.U. per g., min. 6 (0.36 g.).

In each hospital the women enrolled at the antenatal clinic were divided into two main groups by placing them alternately on separate lists. Some women in one group received the supplements, while those in the other were kept as controls. Within each of these groups the women were further classified into primigravidae and multiparae. These two groups were again subdivided into women under 25, between 25 and 30, and over 30 years. All women who were not in good health or whose delivery was expected in less than 16 weeks were excluded from the experiment.

The groups of important records thus obtained have been analysed by Mr. W. T. Russell, the statistical member of the committee, and his assistants, but the extent of the material collected and the exigencies of the war have made it impossible to prepare a full report at present. In view, however, of the importance of certain facts which have emerged it has been decided to issue this preliminary report.

**Toxemia of Pregnancy**

At the beginning of the research it was decided to regard as toxemic (a) women who exhibited hypertension (a systolic blood-pressure of or above 140 mm. Hg or a diastolic of or above 90 mm. Hg) with or without albuminuria, oedema, &c., and (b) women who had no hypertension but in whom the diagnosis was based on albuminuria. In the 1530 primigravidae who received the special diet the toxemia was 31.7% of which 27.1% was due to hypertension and 4.6% to toxemia but no hypertension. The figures were also favourable to the incidence of toxemia being 21.8% in both 980 treated and 999 controls. Within recent years it has come to be recognised that a diagnosis of toxemia cannot be based on hypertension by itself, for this often connotes not a true or specific toxemia but an essential hypertension. The exclusion from the above groups of women with hypertension as the sole clinical abnormality leaves those in whom the diagnosis of toxemia is based on albuminuria, oedema, &c., with or without, but generally with, hypertension. This treatment of the figures may exclude some cases in which the hypertension is due to toxemia but any such disadvantage is offset by the fact that, apart from any possible differential benefit derived from the supplementary diet, the groups are being similarly treated. It has the advantage of segregating for special study those cases in which the diagnosis of toxemia rests on a reasonably secure foundation. On this basis the primigravidae who received the additional dietary in-...
OTHER EFFECTS
The committee could not find any evidence that the vitamin and mineral additions to the dietary appreciably affected the risk of fever and sepsis after childbirth. Nor did they find any appreciable influence on the character and duration of labour.

An additional investigation under a special subcommittee with Sir Norman Bennett as chairman was arranged to study the effect of the special dietary on the teeth of the mothers. It was possible to carry out the investigation in only 814 cases, at the East End Maternity Hospital, Hammersmith Hospital, the Royal Free Hospital (Eastman Clinic), St. Thomas's Hospital and Queen Mary's Maternity Home. The results were inconclusive.

One of the objects of the research was to see the effect of the diet on the teeth of mothers who had been deprived of this diet for the first three years of the children's life and who had been added to the general family stock; the substances were therefore given in tablet or capsule form. Moreover, as was to be expected, some women defaulted. It may further be urged that the full value of such protective substances can be realised only when they are given in the form of normal foods. For these reasons the committee feel that the results of the investigation, valuable as they are, should be regarded as preliminary to the publication of a well-regulated diet on the part of the mothers and on the development and well-being of their infants is of national importance. Further, the message is addressed to all sections of the community, for it is not solely among the poorer classes that defective nutrition is prevalent. At the same time, since poverty and malnutrition march hand in hand and since the poorer classes are relatively the most fertile, it follows that the ravages of faulty maternal nourishment fall with tragic emphasis on the mothers in poor homes and their children.

The committee indebted to Miss Gladys Kitchener, secretary of the Poor People's League of Health, and to the secretarial staff for their work in this research.

**Reviews of Books**

Year Book of General Therapeutics, 1941

*Editor: O. W. BETHRA, M.D., professor of clinical medicine, Tulane University School of Medicine. Chicago: Year Book Publishers; London: H. K. Lewis. Pp. 520. 1s. 6d.*

This volume is one of the most useful of a useful series. Its aim being to present a full and concise account of new work in the various fields of treatment the main problem has been one of selection. In this the editor's task has been facilitated by war-time diminution in the volume of research and the number of foreign medical journals. A large part of the new matter—about a fifth of the book—naturally deals with the sulphonamides; as the editor remarks, a collection of articles on this subject alone would easily constitute a fair-sized library. The summaries and comments the editor has chosen are of real value. Sulphadiazine is described as the most important sulphonamide in use and the drug to be preferred in the treatment of infections where chemotherapy is required. Little mention is made of sulphaethazone, the newest of the group, but comparable figures are given of therapeutic results and toxicity in large series of cases treated with the other preparations. The section gives a good summary of the present sulphonamide position, despite only one small reference to the use of sulphaguanidine in bacillary dysentery—an important omission in view of the wide need for dysentery control in war-time. The sections on vitamins are also useful, and the accounts of vitamin-B complex are particularly good. Papers are included on the use of synthetic vitamin K in cases of jaundice, and hypotrophoblastin with hemorrhage, and emphasis is laid on the need for accurate diagnosis of minor aches and pains generally labelled lumbago, backache or muscular rheumatism. These lesions, he insists, can be diagnosed accurately and he tells how. Once diagnosed, they can usually be readily cured, he holds, by the methods he advises.

Adolescent or Ankylosing Spondylitis


The late Dr. Gilbert Scott's short monograph deals with his experience of a crippling disease, usually regarded as rather rare; at the Charterhouse Rheumatism Clinic, however, he detected some 300 cases over 10 years, and he emphasised the importance of early diagnosis and treatment. He claims for wide-field X-ray therapy the greatest progress of the disease. Orthopaedists and physiotherapists should be familiar with this subject; if the claims for wide-field therapy are substantiated this monograph will have served a good purpose.

Massage, Manipulation and Local Anesthesia

JAMES CYRIAX, M.D. Camb., assistant medical officer, physiotherapeutic department, St. Thomas's Hospital; London: Hamish Hamilton Medical Books. Pp. 302. 12s. 6d.

In this little book Dr. James Cyriax describes the methods which he and his colleagues use to treat minor injuries and disease. He does not discuss the technique of massage, mobilisations and general anaesthesia, and gives a useful chapter on referred pain. He makes considerable use of procaine anaesthesia, not only in the Steindler test for establishing the site of referred pain, but to confirm diagnosis, as a therapeutic measure (following Leriche's technique), and to distinguish between neurosis and malingering. Detailed directions are given for examining structures—muscles, tendons, ligaments and capsules—which may be giving rise to pain. Conditions are arranged according to regions, and the chapter on sciatica is specially clear and full. He advocates early aspiration for effusions into the knee-joint in which most surgeons will support him; but he is not likely to find general agreement on his wide-field X-ray therapy which has shown such excellent results. He advocates early aspiration for effusions into the knee-joint in which most surgeons will support him; but he is not likely to find general agreement on his wide-field X-ray therapy which has shown such excellent results. He advocates early aspiration for effusions into the knee-joint in which most surgeons will support him; but he is not likely to find general agreement on his wide-field X-ray therapy which has shown such excellent results. He advocates early aspiration for effusions into the knee-joint in which most surgeons will support him; but he is not likely to find general agreement on his wide-field X-ray therapy which has shown such excellent results.