

101st ANNUAL MEETING
of the
British Medical Association

HELD IN DUBLIN, JULY, 1933

THE SECTIONS
SUMMARY OF PROCEEDINGS

During the next few months there will be published in the BRITISH MEDICAL JOURNAL the opening papers communicated to the Scientific Sections of the Annual Meeting at Dublin. The reports of discussions in this and next week's issues are intended to give members who were not present a general idea of the proceedings.

SECTION OF MEDICINE

Thursday, July 27th

RADIOLOGY IN HEART DISEASE

A discussion on radiology in the diagnosis of heart disease was held by a combined meeting of the Sections of Medicine and Radiology. Professor HENRY F. MOORE, President, took the chair for the first paper. He then asked Dr. GARRATT HARDMAN (Dublin), Vice-President of the Section of Radiology, to take the chair.

Dr. JOHN PARKINSON, opening the discussion, stated that *x*-ray examination gave evidence beyond the reach of percussion. Modifications due to thoracic build and overweight might be as great as those due to disease: examination in the oblique positions was as important as an anterior view. He discussed the importance of regional variations: the right ventricle might appear high on the left border and the left auricle often constituted part of the right border; to determine the presence of slight enlargement the *x*-ray findings must be related to the whole clinical picture. A simulation of enlargement was frequently due to scoliosis. He summarized the relative enlargements of the several components of the heart, and correlated *x*-ray findings with morbid anatomy by describing *x*-ray pictures confirmed by post-mortem findings. In toxic or exophthalmic goitre, he said, there was no very early assistance from *x* rays; coronary atheroma or myocardial disease might show distinctive shadows.

Dr. P. J. KERLEY opened the discussion from the radiological point of view. He did not claim that radiology had been helpful in the realm of pure pathology of heart disease owing to technical difficulties, but pointed out the value of screening and radiography in revealing the size of the heart and its various chambers, and the variations of its position due to bony deformities of the bony thorax and to emphysema. He explained the use of orthodiagraphy, teleradiography, and kymography. In teleradiography distortion was negligible. The value of kymography had yet to be substantiated. He mentioned a complicated system of *x*-ray measurements, valuable in physiological investigations. The small heart was more apparent than real. He referred to the difficulties of diagnosis in slight enlargements, and discussed differential *x*-ray diagnosis in atheroma, valvular diseases—particularly mitral stenosis—congenital heart disease, and the changes in the lungs due to passive hyperaemia of cardiac origin.

Dr. D. E. BEDFORD limited his remarks to the value of radiology in the diagnosis of congenital disease and disease of the pericardium, illustrating his subject with slides. Congenital disease showed anatomical deformities and no disease of muscle. He mentioned: (1) the scalloping of the under surface of the ribs, dilatation of the ascending aorta, and variation of the aortic knuckle in coarctation of the aorta; (2) the dilatation of the pulmonary artery

in patent ductus arteriosus and pulmonary stenosis; (3) the enormous dilatation of the pulmonary artery and hypoplastic aorta in patent interauricular septum; and (4) the atresic pulmonary artery and large displaced aorta of Fallot's tetralogy. Dr. J. CRIGHTON BRAMWELL (Manchester) considered it was possible to predict the transverse diameter of the heart from weight and height in normal healthy subjects with an accuracy of about ± 10 per cent., but it must be remembered that athletes had unusually large hearts. Radiology was capable of revealing slight degrees of cardiac enlargement, even in obese and emphysematous subjects. Its greatest value was in revealing alterations in shape in the various chambers of the heart. Dr. L. ABRAHAMSON (Dublin) suggested that the exhaustive use of methods such as *x*-ray examination might ultimately free us from their use in some conditions. He demonstrated the value of radiology in doubtful cases of mitral stenosis, syphilis of the aorta in the absence of a diastolic murmur, and in obscure cases of cardiac failure due to retrosternal goitre. Owing to the unavoidable absence of Dr. HOPE FOWLER (Edinburgh), his paper was read for him. He mentioned the method of heart measurement of Fray, which was found successful in determining cardiac enlargement in 75 per cent. of his series, and the formula of Kahlstorf for measuring the volume of the heart. Dr. RALSTON PATTERSON (Manchester) mentioned some experiments by other workers proving that the heart size diminished—from an antero-posterior *x*-ray view—after exercise; also of his own, proving the same thing from a lateral view.

Dr. GARRATT HARDMAN (Dublin) thanked the speakers, pointing out that physicians who were also expert radiologists were rare, and that the radiologist must usually be ready to collaborate in assisting his medical colleagues to make a diagnosis. Dr. PARKINSON, in reply, agreed that the faith necessary for successful percussion was a thing of the past, and radiology was often essential to successful diagnosis.

OTHER PAPERS

Professor H. F. Moore then called upon Dr. M. A. CASSIDY to take the chair, and Dr. E. T. FREEMAN (Dublin) gave a paper on the treatment of fluid in the pleural cavity. He discussed effusions due to bacteria only. An argument against the removal of tuberculous fluid was that it acted as a splint to the lung; the removal, with gas replacement, was necessary to relieve intense dyspnoea and tachycardia: he mentioned the interstitial fibrosis frequently following absorption. Gas replacement prevented the dangers of simple aspiration of large quantities of fluid. In serous effusions expansion of the lung should be allowed to occur very slowly; in purulent effusions the lung should be induced to expand as soon as it was safe to permit it.

Dr. L. S. T. BURRELL being unavoidably absent, his paper, on the diagnosis and treatment of bronchiectasis, was read for him. In this he discussed the differential diagnosis between bronchiectasis and tuberculosis, neoplasm, abscess, and chronic bronchitis. In treatment, he stressed the danger of phrenic evulsion and the value of lobectomy.

Dr. PARSONS (Dublin) said that he very rarely aspirated tuberculous effusions. Dr. CASSIDY remarked that he had not often seen interstitial fibrosis following tuberculous effusions. Dr. FREEMAN replied that it was only when tachycardia and dyspnoea were extreme, and pyrexia was of more than four weeks' duration, that he advised aspiration.

SECTION OF PUBLIC HEALTH

Thursday, July 27th

NATIONAL HEALTH POLICY

Dr. W. M. FRAZER (M.O.H., Liverpool), one of the Vice-Presidents, was in the chair, and opened the second session of this Section by recalling that the scheme of social services was now a quarter of a century old. It had survived the period of intense economic stress during the last three years—a testimony to the soundness of its foundations. A salient feature to-day, however, was the regrettable lack of co-ordination between such organizations as those

associated with the insurance scheme, municipal health undertakings, voluntary hospitals, etc. He then referred to the 1930 pamphlet. The British Medical Association scheme for a national medical service had certain fundamental requirements, some of which had proved to be impracticable. It had been thought at first by the Association that hospital services could be provided by an extension of the insurance scheme, but financial difficulties would seem to preclude this. It had more recently been suggested that part of the work undertaken by public health authorities could be carried out by general practitioners on a part-time basis. Dr. Frazer thought that this would give rise to very serious administrative difficulties. In the discussion which would follow, he said, it would be well to bear in mind the recommendations that had been made by the British Medical Association.

Dr. J. L. BROWNLIE (Chief Medical Officer, Department of Health, Scotland) then read his paper on "A National Health Policy, a Critical Survey." It is printed in full in this week's issue of the *Journal* (p. 275).

Dr. E. H. M. MILLIGAN (M.O.H., Glossop) advanced the opinion that any policy for the improvement of the national health would be incomplete unless preventive and curative medicine were linked more closely together. Both were, in the wider sense, preventive—the one preventive of the onset of disease and the other of death through established disease. The disconnexion in practice, therefore, between the public health service and the work of those engaged in private practice rendered the achievements of both much less effective than they ought to be. To remedy this state of affairs he suggested that national insurance work should be administered by local health authorities instead of by insurance committees, so bringing the curative service into close touch with public health departments. In order to mobilize the entire forces of the medical profession Dr. Milligan suggested that each health authority under this scheme should have an advisory committee consisting of representatives of the local Division of the British Medical Association. Such a committee, with the full power of the Association behind it, would be able to help the health authority enormously to deal with the problems with which it was faced. As regards Ireland the speaker considered that medical benefits should be included in the Saorstát health insurance scheme.

Dr. MAITLAND RADFORD (M.O.H., Shoreditch) agreed that there was a growing undercurrent of dissatisfaction, due to a fundamental lack of policy in the public health services. Inadequacy of individual purchasing power had, however, checked, diverted, or stopped the development of public health endeavour. Maternity and child welfare work had cut through this difficulty, and by intensive education had achieved most valuable results. He also cited the existence of a dental hospital in Shoreditch which provided treatment, for those living or working in the borough, on a graduated payment basis. Here was another real preventive effort, which aided poor persons who could not afford the fees of dental practitioners. More attention had been given to the treatment of tuberculosis than to its prevention, since personal economic considerations so often stood in the way of the latter. As to housing, the poorly paid worker could not afford the price of houses which conformed with modern hygienic requirements. Distribution of milk at welfare centres was inadequate, owing to the fact that many who needed and could not afford it were not classified as being entitled to receive it. On the answers to such questions depended the future of public health. Dr. C. BASTIBLE (M.O.H., Wexford) said that modern medical education had been changing in recent years, adopting a more preventive trend in both medicine and surgery. In Ireland preventive medicine was less divorced from curative than in England, but more co-operation was necessary. A system of record-keeping by dispensary practitioners on the lines of that in the national insurance scheme in Great Britain would be desirable, although some difficulties would attend its inception. There was some danger, however, that intensive organization might tend to sterilize individual effort. In insanity and nerve diseases prevention would be much more effective than the

treatment of the established condition. The supply of milk must also be safeguarded, and those responsible for its distribution should ensure that it was obtained from pure sources. There was need for the introduction into the education of children and adults of hygiene courses. The public required a much fuller knowledge of this subject than it at present possessed. Professor C. A. BENTLEY (Cairo) said that individual purchasing power was an essential without which the ideals of public health could hardly be realized. Public health was purchasable, and was governed by economic considerations. This he had found true in Egypt and Bengal. Dr. D. MCKAIL (Glasgow) agreed that the time was fully ripe for an assessment of the relative importance of health services. In view of the history of these he concluded that the power of the central departments ought to be increased. Although many problems, such as that of housing, had been realized as urgent long ago, there had been a notable lack of remedial activity. Central departments should therefore be ordered to take the initiative in national health services, and not be obliged to wait on local stimulation. Local authorities ought to inaugurate new schemes, and improve and intensify many of those now existing.

Dr. BROWNLIE, in a brief reply, said that his original intention had been to provoke criticism, and he was gratified by the result. Many points had been brought up, and he hoped that there might be practical consequences in various quarters.

ISOLATION OF ENTERIC BACILLI

Professor W. J. WILSON (Belfast) read a paper on the isolation of enteric bacilli from sewage and water, and its bearing on epidemiology. He showed that before the typhoid bacillus had been cultivated it was known that water and food contaminated with sewage matter were the vehicles by which infection was conveyed, and that the measures necessary for its prevention—pure water supplies, good drainage, and suitable methods of sewage disposal—had been undertaken before the isolation of the bacillus by Gaffky in 1884. Although sewage was known to be infective when it entered a water supply, it was only in 1928 that Wilson at Belfast, by means of a new medium, succeeded in demonstrating the constant presence of typhoid bacilli in small amounts of sewage. Since 1928 other workers had had success with Wilson and Blair's medium, and had found not only typhoid, but paratyphoid bacilli and the various types of food-poisoning organisms to be frequent inhabitants of sewage. After an epidemic of paratyphoid fever at Epping Sir Alexander Houston had found enormous numbers of paratyphoid bacilli present in the effluent from the sewage works as it entered Cobbins Brook, a tributary of the Lea, and into which he estimated that on February 18th, 1931, over 33,000 million paratyphoid bacilli were being discharged. This was a serious menace to the health of East London, which was supplied by water from the Lea below the point of entry of this brook. Of course, the Lea water was well purified before being distributed, but to afford greater security chlorination of the whole of Cobbins Brook was at once undertaken and had been continued, since the paratyphoid bacilli had been found to persist in the sewage. The bacilli that were found were probably derived from healthy "carriers," and not due to the multiplication of the bacilli in the sewage works. One of the most notable victories of preventive medicine had been the reduction to an almost negligible figure of the mortality from enteric fever. It had, however, to be borne in mind that the infective agent of the disease had not been eradicated, but that its opportunities had been curtailed, and that the control of the disease would only be secured by the vigilance of sanitary authorities. Professor W. D. O'KELLY (Dublin) referred to the extensive work which had been done by Professor James Wilson to introduce more precise methods of isolating typhoid bacilli. These had certainly led to the view that this organism was ubiquitous. There still remained a great deal to be learnt as to its incidence and pathology. General improvements in sanitary measures undoubtedly had a hidden influence on various kinds of micro-

organisms, and should be pressed on. Dr. J. L. BROWNIE (Edinburgh) emphasized the importance of the problem of the carrier. What was wanted now was some way of determining the degree of virulence of the organism. Professor W. J. WILSON, replying, said that there was at present no way of determining virulence in the case of the typhoid bacillus. It was difficult to keep carriers under observation, nor could they reasonably be treated by operations on the gall-bladder. Ordinary germicides seemed to have no curative value. Stools reeking of coal tar products had been found to teem with bacilli. Education of the public should have a really practical outlook: persons should be instructed, for example, to wash their hands after visiting the closet. Facilities in this respect were, however, seriously lacking. It was curious that there were so few typhoid outbreaks, despite the apparent liability to mass infection.

SECTION OF ORTHOPAEDICS

Thursday, July 27th

FUSION OPERATIONS ON THE HIP-JOINT

After Sir WILLIAM DE C. WHEELER, the President, had taken the chair, Dr. M. S. HENDERSON of the Mayo Clinic opened a discussion on the role of fusion operations as applied to the hip-joint. Such operations, he said, were commonly performed for the relief of paralytic conditions, such as infantile paralysis, in which an anatomically normal joint was physiologically unsound, for diseased joints in which there was a serious degree of disorganization, and in painful conditions resulting from trauma and mechanical derangement. Few cases with infantile paralysis could be expected to benefit from fusion of the hip, as the vast majority of patients with flail-hip had, in addition, uncontrollable paralysis of the knee and ankle; however, if the paralysis was localized to the muscles around the hip, fusion was to be recommended. In non-tuberculous arthritis and traumatic conditions the speaker had been very disappointed with the results of reconstructive operations, and was convinced that except in cases in which both hips were involved arthrodesis afforded a better prospect of relief. In tuberculosis his practice was always to arthrodesis the hip unless there was some definite contraindication, such as the presence of active kidney or lung disease or severe local secondary infection. Although the practice at the Mayo Clinic had been confined chiefly to adults, there was every reason to believe that the operation should also be performed in children.

Mr. G. R. GIRDLESTONE (Oxford) confined his remarks chiefly to tuberculosis of the hip, in the treatment of which arthrodesis could be employed to promote healing (especially in adults), and to prevent recurrence of disease or the development of late pain or deformity. It was his practice to establish the diagnosis in adult cases at the earliest possible moment—by biopsy, if necessary. If the patient's general and local condition was satisfactory he proceeded with immediate operative fixation. First, the infected joint was excised as thoroughly as possible (intra-articular arthrodesis), and then a broad flap from the outer table of the ilium was turned down and held in a slot in the great trochanter (extra-articular arthrodesis). Sometimes it was advisable to do the operation in two stages. In children, operation was deferred until serial *x*-ray films showed cessation of active disease as evidenced by recalcification. Preliminary intra-articular arthrodesis was only necessary when the joint cavity was filled with inflammatory debris. In the majority of cases extra-articular arthrodesis sufficed. In adults or children the great contraindication to operation was local sepsis. Cases with sinuses responded well to wide drainage followed by prolonged conservative treatment, and not infrequently spontaneous bony fusion ultimately occurred. In the treatment of non-tuberculous arthritis arthrodesis had a very definite place, but when the disease was bilateral it was essential that an operation, designed to allow movement, should be performed. A reconstructive operation of the Whitman type, or an extra-articular

pseudarthrosis (as described by the speaker in the Robert Jones Birthday Volume), was to be preferred. Some excellent slides were shown demonstrating the remarkable powers of growth in extra-articular grafts.

Mr. W. R. BRISTOW was of the opinion that even in a case of infantile paralysis with a completely flail lower extremity great functional improvement followed fixation of the hip combined with stabilization of the foot and any form of treatment that would give the patient a slight degree of back-knee. In connexion with chronic arthritis of the hip he referred to the work of Mr. Max Page, who had operated on 150 patients with this condition. In his hands intra-articular arthrodesis had generally relieved pain, but fusion had occurred in only 50 per cent. For that reason Mr. Page now favoured the combined operation. Mr. Bristow agreed with the preceding speakers' advocacy of arthrodesis in children. The only serious danger was operative shock, and this was strictly proportional to the length of time of operation. Every effort should be made to complete this operation within forty-five minutes.

Mr. T. P. McMURRAY (Liverpool) objected to the depressing conclusions drawn from statistics of conservative treatment in tuberculosis. Almost invariably enthusiasts for arthrodesis referred to the results of conservative treatment as practised twenty or more years ago. Modern conservative treatment could be relied on to give a high percentage of successes; in a series of 150 of his own cases that had been followed for six or more years 70 per cent. of his patients were able to do full work, 25 per cent. had pain or deformity, and only 5 per cent. were dead. He drew a parallel between excision of the knee in children so much in vogue a few years ago, and the present boom in arthrodesis of the hip. He hinted that the latter would, like excision of the knee, sooner or later fall into disrepute. There was, however, a place for the operation in cases in which the *x*-ray film showed a small femoral head in a large acetabulum and in which sound fibrous ankylosis could hardly be looked for. Miss E. M. HOLMES (Cardiff) quoted statistics from British, American, and Continental hospitals which led her to believe that conservative treatment properly carried out yielded a high percentage of cures. Arthrodesis had not the slightest effect on the healing of the disease, and, when successful, gave both surgeon and patient a false feeling of security. She claimed that even in adults conservative treatment was to be preferred. Mr. HARRY PLATT (Manchester) complained that the vast majority of statistics dealing with tuberculous arthritis were misleading, for the reason that inaccurate diagnosis was all too common. Children frequently suffered from transient arthritis of the hip that was certainly not tuberculous, and yet such cases often found their way into statistical tables as "cures." He supported the cause of arthrodesis. Mr. WHITCHURCH HOWELL was gravely concerned about operative shock in children, and asked how it might be reduced. Miss FORRESTER-BROWN (Bath) had seen a number of cases in children in which recalcification never occurred in the so-called healing stage of tuberculosis. In such cases she found that after arthrodesis recalcification took place most rapidly, even before the graft had become soundly fused. The part played by the graft was undoubtedly biological as well as mechanical. Recent work in Bath had shown that the sedimentation test was of some value in indicating when the disease had become quiescent; she wished to know if other surgeons had found it useful.

In reply, Dr. HENDERSON observed that post-operative sinuses were far less common in adults after the combined as opposed to the purely extra-articular arthrodesis. He joined Mr. Girdlestone in advising this type of operation.

HINGE GRAFTING

Professor A. K. HENRY (Cairo) read a short paper on hinge grafting, illustrated by lantern slides and a cinema film. The operation was of great value in such conditions as flail-foot, paralytic back-knee, and loss of digits. He had succeeded in placing grafts on both sides of the

knee-joint in such a way that they performed the function of a knee-cage. Hyperextension of the joint was impossible, and a limited though useful range of flexion was allowed. In a patient with large chondromata of the index finger he had removed the phalanges and half the metacarpal, making good the defect with a hinge graft. A fair degree of active movement was possible at the hinge, and the patient was able to lift a weight of two kilograms with the index finger alone.

PAINFUL FEET

Mr. PHILIP WILES read a short paper on the treatment of painful feet. The causes of this condition were chronic foot strain, minor deformities such as corns, and chronic arthritis. He insisted that a normal foot was characterized by free mobility in, and adequate muscular control of, all its joints. A foot might be perfectly flat in repose, but if the patient was able to produce an arch voluntarily the foot must be classed as normal. This was best illustrated by the so-called flat-foot of ballet dancers. Almost all foot trouble could be referred to the presence of intra- or peri-articular adhesions resulting from infection or trauma. Pain occurred when these adhesions were stretched in the ordinary process of walking. Treatment with supports could at best be only palliative, and might even do harm by leading to further stiffness in the tarsal joints. Clearly the only rational treatment was to restore full movement by manipulation sufficient to break down all adhesions, followed by exercises to restore muscular control to normal. Almost every case of foot strain could be cured in this way and, in carefully selected cases, arthritic feet could at least be made comfortable.

SECTION OF OBSTETRICS AND GYNAECOLOGY

Thursday, July 27th

THE ENDOCRINES IN GYNAECOLOGY

With a Vice-President, Miss ALICE BLOOMFIELD, in the chair, Professor EMIL NOVAK (Baltimore, U.S.A.) opened the discussion on the gynaecological aspects of endocrinology. He began by reviewing the principles underlying present-day gynaecological endocrinology. Three important discoveries were described: the menstrual histological cycle of the endometrium; the ovarian follicle hormone (folliculin, theelin, oestrin), which governed the growth of the endometrium; and the anterior pituitary hormone (prolan), which activated the ovarian function and caused ovulation and corpus luteum formation. The action of the corpus luteum hormone (progesterin) in changing the folliculin-stimulated endometrium into a secreting mucosa was described in some detail. In recent years much doubt had been thrown on the view that ovulation was a necessary preliminary to menstruation. The speaker considered that it was not, and he thought that some cases of sterility were due to anovulatory menstruation. Premenstrual curettings of these cases would show an absence of the progesterin change in the endometrium. The actual cause of menstrual bleeding was a sudden lowering of the folliculin level in the blood. The present achievements of gynaecological organotherapy were not great. Many workers expected too much. Injections of folliculin could never stimulate a non-functioning ovary. Progesterin was not yet available for clinical use. Prohibitively enormous doses of both these substances were required to reproduce the changes of the menstrual cycle in the human endometrium. More promising results were obtained by prolan preparations in the so-called functional bleedings. Sometimes the bleeding stopped within a few hours of the injection. Folliculin might be useful in some menopausal disturbances. The practice of gynaecology without at least some knowledge of endocrinology was fast becoming an incongruity. It was this asset, plus a knowledge of gynaecological pathology, which marked the difference between the real gynaecologist and the mere gynaecological operator.

Professor R. W. JOHNSTONE (Edinburgh) read a paper in which points of special interest to the practitioner were discussed. He described the Pregnancy Diagnosis Station in the Animal Genetics Department of Edinburgh Univer-

sity, where practitioners could have the Zondek-Aschheim test carried out on specimens of urine: 6,600 samples had been tested, with only 2 per cent. error. It was interesting to find that a low oestrin content was often followed by abortion. Cases of amenorrhoea might be associated with either excess or deficiency of oestrin. Regarding therapy, he felt dismayed at the indiscriminate use of glandular extracts, which had been created almost exclusively by the deluge of often misleading and never disinterested brochures from manufacturing chemists. He made a strong plea for the examination of the patient's hormonal state before starting treatment, and urged the use of a laboratory such as the Pregnancy Diagnosis Station for this purpose. Gonadotropic hormones (prolan) were disappointing in primary amenorrhoea, but more hopeful in secondary amenorrhoea. Striking success had been obtained in the bleedings of puberty and in cases of metropathia haemorrhagica. They were also useful in habitual abortion, and possibly in dysmenorrhoea, where they might lessen the activity of the uterine musculature by stimulation of the corpus luteum.

Dr. B. P. WIESNER (Edinburgh) pointed out some of the complexities of the subject. No one had yet disproved the work by Dr. Crew and himself, which pointed to two anterior pituitary hormones: he believed that three or even four factors existed. There were also reactor factors present in the body which governed the effect of a hormone in a particular animal. Anterior pituitary hormones influenced behaviour: a virgin female rat would assume maternal behaviour after injection of these preparations. In 1,000 cases of secondary amenorrhoea there was no lack of the essential hormones in the urine; it was therefore useless to inject these patients with expensive extracts. Dr. DOMINIC J. CANNON (Kildare) thought that menstrual bleeding was an active process, and could not be explained by withdrawal of a hormone. If the previous speakers were correct dysmenorrhoea would occur in metropathia haemorrhagica; but this was not so. Dysmenorrhoea was a neuro-muscular derangement. He had treated such cases by resection of the presacral nerve. Dr. N. McI. FALKNER (Dublin) showed a series of photomicrographs of the corpus luteum at various stages. He believed that a hormone actively stimulated menstruation, and simultaneously caused bleeding to take place in the corpus luteum. No haemorrhage was seen in the corpus luteum of pregnancy. Dr. L. CARNAC RIVETT suggested that the uterine glands themselves produced a hormone. Lieut.-Colonel SMITH, I.M.S., spoke of the use of thyroid medication in prostatic trouble in the male, and suggested its use in stout menopausal women. Dame LOUISE McILROY spoke of calcium metabolism. Amenorrhoea was often a sign of early phthisis. She used corpus luteum and thyroid extract combined with potassium chlorate in cases of habitual abortion. A psychological shock might alter the function of the endocrine glands. Dr. E. LEWIS LILLEY (Leicester) and Mr. E. FARQUHAR MURRAY (Newcastle) asked if ovarian hormones were active when given by the mouth. Miss ALICE BLOOMFIELD discussed the use of anterior pituitary hormones in habitual abortion.

In reply, Dr. NOVAK said he doubted the value of urine hormonal tests: blood tests were better, but difficult to carry out. Animal tests showed that ovarian substance had no action when given by the mouth. Theelin had some activity by mouth, but the dose had to be five to thirty times that of a hypodermic dose. The cause of bleeding in metropathia haemorrhagica was a rapid variation of the balance between the anterior pituitary hormone and folliculin content of the blood.

Dr. P. M. F. BISHOP read a paper on a modification of the Friedmann test for pregnancy. The Friedmann test on rabbits was easier to carry out than the Zondek-Aschheim test in mice, but hitherto had not been so accurate. He discussed the sources of error, and showed that these could be avoided by performing a laparotomy and inspecting the ovaries before injection of the urine to be tested. If the results were negative he injected known pregnancy urine, and after thirty-six hours again performed a laparotomy. By using the animal as its own control he had had no error of diagnosis in a series of 104 tests.

SECTION OF SURGERY

Thursday, July 27th

DISEASE OF THE BILIARY TRACT

With the President, Professor C. J. MACAULEY (Dublin) in the chair, Professor D. P. D. WILKIE (Edinburgh) opened a discussion on surgical diseases of the biliary tracts. He said that as the subject was so large he intended to focus attention on certain points which were of practical interest to the general practitioner—namely, the local and general effects of diseases of the bile passages, indications for operation, and the results. Apart from the local effects produced by gall-stones, obstruction, carcinoma, pancreatitis, and hepatic cirrhosis, he had been struck by the distant results of infection. Rheumatism, myocardial changes, fibrositis, and albuminuria had been found to be associated with focal sepsis in the gall-bladder. He emphasized the importance of the barium meal in the diagnosis in certain cases, and he had found that in as many as 10 per cent. of females diagnosed as cholecystitis duodenal ulcer was present. Professor Wilkie considered indications for operation under the headings: (1) Recurring biliary colic; (2) chronic dyspepsia; (3) acute obstructive cholecystitis; and (4) stone in the common duct. In the third group he did not, as a rule, advise operation in the acute stage, owing to the associated hepatitis and the increased vascularity and oedema of the base of the right lung, which resulted from the arrest of diaphragmatic movements. Operation, however, had to be carried out occasionally, when the acute symptoms did not subside or increased within forty-eight hours. Cholecystostomy was usually safer in these circumstances. Operation was, as a rule, performed in from seven to ten days, and the speaker mentioned the importance, in performing cholecystectomy, of leaving a cuff at the neck of the gall-bladder, since the exact anatomy of the ducts was obscured by oedema. Patients who had once had acute obstructive cholecystitis were subject to recurring attacks. When a gall-stone was present in the common duct operation was imperative. In discussing preoperative treatment Professor Wilkie said that he advised, when possible, reduction in weight by as much as two stone by dieting and exercises. Jaundice and hepatic insufficiency should be actively treated by the administration of fluids and glucose, the injection of calcium chloride, and sometimes blood transfusion. Surgery, when timely, was curative and safe, but free access and careful laparotomy, especially examination of the common duct and pancreas, were essential.

Professor H. L. BARNVILLE (Dublin) said that the results of modern treatment of biliary diseases were, as a rule, excellent. Gall-stones undoubtedly occurred as the result of a general disturbance in metabolism, and when infection supervened he was of the opinion that the pathway was not the common bile duct. Conservatism still had a place in the treatment of diseases of the gall-bladder and biliary passages. Referring to the group of cases of dysfunction of the bile tracts, he said that typical gall-bladder symptoms were produced by spasms of the sphincter and muscularis mucosae of this viscus. He agreed with Professor Wilkie that many cases of rheumatism and fibrositis were improved after removal of the biliary focus of infection. In the case of a woman with auricular fibrillation and cardiac failure cholecystectomy, performed over one year ago, had apparently relieved the patient of her trouble, and cholecystostomy in a man with severe secondary anaemia had produced a rapid improvement in the blood picture, and he had remained well in spite of the fact that he still had his gall-bladder. In conclusion Professor Barnville thought pulmonary complications—infarction and collapse of the lung—were on the increase, and that he could not find any really tangible assistance in their prevention. In these cases, however, the patient was invariably of what might be called the "nervously inert" type, and hence breathing exercises, movements of the limbs and trunk, and the avoidance of the unnecessary abdominal binder were essential after any upper abdominal incision.

Mr. G. H. EDINGTON (Glasgow), in an analysis of 200 cases operated on for gall-bladder disease, said that

organisms had been discovered in over half the cases investigated bacteriologically, and that in 37 per cent. marked fibrosis was noted in the subserous layer of the gall-bladder. It was doubtful whether cholecystitis took a share in the production of gall-stones, but it was probable that the presence of stones might excite or aggravate inflammation of the gall-bladder. Mr. Edington considered that, apart from conditions requiring anastomosis of the gall-bladder to the duodenum or stomach, and cases in which there was reason to suspect stone in the common duct, the choice of operation lay between cholecystostomy and cholecystectomy. With cholecystectomy the patient was rid of a presumably diseased organ. It must be remembered, however, that there was probably also some degree of hepatitis or pancreatitis present. Cholecystectomy did not provide the necessary drainage, and unless the gall-bladder was markedly diseased there was something to be said for employing it as a natural drainage tube. Another objection to cholecystectomy was that any subsequent operation was more difficult. The late results were undoubtedly good. Cholecystostomy would seem to be indicated when, with a gall-bladder not too flagrantly diseased, there was evidence of hepatitis or pancreatitis, and drainage was necessary for a time.

Professor R. E. KELLY (Liverpool) stressed the frequency with which stones were found in the common duct without jaundice and in some cases without pain. In all cases the common bile duct should be viewed, and if it was dilated it must be opened. If exploration was unsatisfactory, help might sometimes be given by a transduodenal incision. An early growth of the ampulla had been discovered in this way. The duct was occasionally opened and no stone observed, but in his experience this only occurred in about 17 per cent. of cases. Stones were sometimes present in the hepatic ducts; they were of the pigment variety, and often very difficult to remove. As a rule a stone ulcerated into the second part of the duodenum, but he had on one occasion seen a stone half-way through the stomach wall. Professor Kelly mentioned a case in which the mesentery of the small intestine was infiltrated with bile, which must have leaked into the mesentery at its attachment over the pancreas. In this instance there was a further collection of bile behind the second part of the duodenum. He thought that many rounded gall-stones were conglomerate, a mass of small stones being compressed like a snowball. When the common bile duct was opened white bile generally indicated a bad prognosis, whereas frothy bile meant there was a large opening into the duodenum. The speaker briefly referred to the reconstruction of the common duct, and exhibited an x-ray photograph showing that the catheter used at the time of the plastic operation was still present after nine months. Carcinoma of the gall-bladder was always associated with gall-stones, and removal of the growth gave disappointing results. He thought that the complete transverse incision gave excellent access, and pointed out that the incision opened itself up when the back was arched. One had only to look at the transverse creases on one's waistcoat to appreciate the fact that the incision healed without tension.

Mr. A. J. WALTON limited his remarks to causes of obstruction of the common duct. The different causes of obstruction and their relative frequency, shown by a chart of the speaker's figures, included 662 cases of gall-stones, with 103 obstructions of the common duct, forty-four cases of recurrent calculus, thirty-four of reconstruction of the common duct, twenty-eight of carcinoma of the common duct, forty-seven of carcinoma of the pancreas, and sixty-one of chronic pancreatitis. Mr. Walton described the symptoms of stones of the common duct, and gave the reasons why such stones were not infrequently overlooked at operation. He illustrated by means of wall diagrams the methods by which the common duct might be injured. The cases fell clinically into three groups: (1) those injuries recognizable at the time of operation; (2) post-operative fistula with the escape of bile (here there was no back pressure, but the duct was narrow); (3) complete obstruction of duct—these cases were a dangerous risk owing to back pressure, but

the dilated duct was easier to find. Carcinoma of the common duct might occur at different sites, and the cases fell into four clinical groups. The symptoms of these groups were mentioned, and the methods of radical and palliative treatment described. Carcinoma of the pancreas was relatively common, and nearly 70 per cent. of the cases gave rise to obstructive jaundice. Chronic pancreatitis was also relatively common, and about 50 per cent. of the cases caused obstructive jaundice. Mr. MICHAEL SMYTH said that examination of the bile obtained by duodenal intubation was a most important method of investigation. The presence of mucus, leucocytes, and cholesterol should be sought for. Chronic gastritis was present in about 25 per cent. of cases of cholecystitis, and in about 50 per cent. of cases of gall-stones. Treatment of this gastritis by lavage with hydrogen peroxide, one drachm to the pint, was useful. He said that large doses of hexamine, as recommended by Hurst (100 grains three times daily), pre-operatively and post-operatively, helped to clear up the hepatitis and improve the infection. When drainage of the gall-bladder had to be carried out a self-retaining catheter was best employed. If the common duct had been explored he considered it advantageous to dilate the ampulla of Vater by means of Desjardin's forceps and to stimulate the drainage of bile down the duct by the administration of magnesium sulphate by mouth. Mr. Smyth gave an analysis of twenty-four cases of acute perforation of the gall-bladder, which he had obtained by the courtesy of the surgeons of the London Hospital. One patient was moribund on admission, and died before operation could be attempted. The remainder underwent operation, and there were eight deaths. Cholecystectomy had been successfully performed in one case. In the remainder, cholecystostomy with drainage of the peritoneal cavity had been carried out.

Mr. MCADAM ECCLES asked, Was he unique in the Section in having no gall-bladder? He collapsed on the same day last year as he was going to this Section. The diagnosis had been cholecystitis, and the symptoms were horrible pain and local tenderness, almost unbearable, and removed by morphine and confidence in the surgeon. Preparation for operation at his old hospital was excellent, and the anaesthetic and operation, five days later, just what they should be. Post-operative discomfort was far less than he had imagined, and was mainly due to flatulence. He had lost two and a half stone after the attack, and later recovered one stone. Careful after-treatment should be stressed, even to a surgeon—diminution of fats, no olive oil with salads, sugar superseded by saccharine, and so on. Exercise was essential, and as a rule, the bowels had to be helped. There was no hernia through this vertical scar, and he had much for which to thank the surgeon and nurses. Professor H. S. MEADE (Dublin) said that clinical symptoms were of more importance than the dye test. He had noted that tenderness was very often elicited by light pressure over the eighth and ninth costal cartilages. It was easier to operate on the acute cholecystitis than the subacute, and he thought that it was during the subacute stage that oedema of the lung and change in the liver occurred. The jaundiced case should not be left too long before operation was carried out. Mr. W. SALUSBURY (Northampton) said that complete exposure was essential, and showed a useful self-retaining retractor which could be manipulated with one hand. Mr. W. H. OGILVIE recommended surgical treatment as soon as the diagnosis of gall-stones was established. The characteristic pain of gall-stones was unmistakable, and should be sufficient to lead to diagnosis. The pain was very severe, sudden in onset, but not long continued. It had the rhythm of a colic. The pain was above the umbilicus and medial to the linea semilunaris. It was accompanied by retching but rarely relieved by vomiting. The attacks were unpredictable in origin and course. When attacks such as this were met with, gall-stones might be diagnosed with certainty and operation recommended with confidence. The fundamental risk of infected gall-bladder attacks was that of liver damage, and unfortunately many patients only came for surgical treatment in a condition of advanced hepatic insufficiency. Mr. Ogilvie recommended

continuous intravenous infusion by the drip method for this type of case, and spoke of this as the greatest surgical advance of the past ten years.

Professor WILKIE, in reply, said that in his experience lung complications were relatively rare. He used Kocher's incision, but thought that the transverse incision was very good. The surgeon must be sure before closing the abdomen that the common duct was empty, and he agreed with Mr. Walton that small and soft stones and biliary sand were not palpable. He advocated, when necessary, preliminary exploration of the common duct, with a small needle and syringe, since the condition of the bile gave a clue to the condition of affairs. Adequate exposure was the keynote of the surgery of the biliary tract. He did not agree with Mr. Smyth that gastritis was so common. Investigation appeared to show that hexamine, though it could be demonstrated in the bile, had little effect on the infection. With regard to the tender ninth costal cartilage, he had noted that more often there was a tender spot behind in the ninth intercostal space. As pointed out by Mr. Ogilvie, operation at an early stage was safe and very successful. If the liver was damaged the risks of operation were much increased. He agreed that intravenous glucose saline was the main essential in pre-operative and post-operative treatment in these advanced cases.

SECTION OF PATHOLOGY AND BACTERIOLOGY

Thursday, July 27th

SEROLOGY AND THE PATHOGENIC COCCI

With the President, Professor J. M. BEATTIE (Liverpool), in the chair, the opening paper, on the present position of serology in relation to the pathogenic cocci, was read by Dr. H. J. PARISH. (It is printed in full in this issue of the *Journal* (p. 277).)

Dr. R. CRUICKSHANK (Glasgow) dealt first with staphylococcus and *Streptococcus pyogenes* infections. He pointed out that it was difficult to find any direct evidence of the importance of the exotoxins of these organisms in the clinical manifestations of infections. Consequently the therapeutic test—that is, the value of staphylococcal and streptococcal antitoxin in the treatment of corresponding infections—became correspondingly important. He gave personal experience, and quoted the work of Glasgow colleagues in the employment of staphylococcal and streptococcal antitoxin in such conditions as osteomyelitis, carbuncle, scarlet fever, erysipelas, puerperal sepsis, cellulitis, and streptococcal septicaemia. Regarding antibacterial serums, he referred to experience with anti-pneumococcal serums as illustrating the difficulties met with in their practical application. The virulence of the pneumococcus was closely correlated with its specificity, and therefore, to counteract the infection, a highly specific antibacterial serum was required. Fortunately, in the case of lobar pneumonia, although there were over thirty serological types of the pneumococcus, two-thirds to three-quarters of the cases were due to Types I and II pneumococcus, and antitoxin could therefore be given practically and economically. But in other bacterial infections—for example, those due to the streptococcus—there was a multiplicity of infective serological types, and the production of antibacterial serum became a practical impossibility. This was the obstacle which the serologist must try to overcome in the future. Dr. E. N. DAVEY (Gloucester) referred to his experience with puerperal fever, and mentioned that he had never known of recovery in a case of septicaemia with a positive blood culture for haemolytic streptococci. Professor BEATTIE thought that experience showed that serum treatment of meningitis was of decided value if the correct type of serum was given and if treatment was continued for four or five days.

In answer to further questions Dr. PARISH agreed that there was every reason to expect good results with toxoid treatment for staphylococcal infections. He thought cases of streptococcal septicaemia with a rash were the most likely ones to benefit by antistreptococcal serum. In answer to questions about the addition of complement to

protective serums, he suggested that this might be of value when spinal injections of serum were given, but complement was not necessary for intravenous injection. A hearty vote of thanks was accorded to Dr. Parish for what the chairman described as a useful and stimulating paper.

LYMPHADENOMA

Dr. C. E. VAN ROOYEN (Edinburgh) read a paper on recent work on the aetiology of Hodgkin's disease. He reviewed the history of the disease, and described the recent advances in our knowledge made by Dr. M. H. Gordon. In work published in 1932 Dr. Gordon reported that intracerebral inoculation of rabbits with suitable suspensions of lymphadenomatous tissue was followed in three or four days by highly characteristic changes affecting the central nervous system of the animal. Dr. van Rooyen gave a series of pictures illustrating this encephalitic syndrome, and described how it could be elicited. His experiments had proved that the encephalitic syndrome produced in the rabbit was specific for Hodgkin's lymphoid tissue, and consequently might be utilized as a biological test for the diagnosis of this disease. The precise nature of the syndrome produced in the rabbit was not the outcome of a simple traumatic and inflammatory change produced in the brain of the animal, but was probably due to the action of either a specific toxin or a filterable virus, derived from the human subject suffering from Hodgkin's disease. The present available data regarding the nature of this pathogenic agent neither confirmed the possibility of these effects being the results of a specific toxic activity nor excluded them from being due to the action of a filterable virus.

SECTION OF OPHTHALMOLOGY

Thursday, July 27th

VISUAL FIELDS AND INTRACRANIAL LESIONS

After the President, Mr. F. C. CRAWLEY (Dublin), had opened the meeting by welcoming the members to Dublin, Mr. A. A. McCONNELL (Dublin) and Mr. H. M. TRAQUAIR (Edinburgh) opened the discussion on fields of vision in connexion with intracranial lesions. Their papers were printed in the *Journal* of August 5th (pp. 226 and 229).

Mr. NORMAN M. DOTT (Edinburgh) stressed how invaluable quantitative perimetry had proved in practice. Cases of tumour compression of each optic nerve simultaneously, and of carotid pressure, detected by arterial radiography, were shown. He described the distinction between true hemianopia and the irregular field depressions of post-neuritic optic atrophy. The results of other forms of compression in various situations with the exact mechanism of production of the field defects were also discussed. He doubted that permanent hemianopic defects occurred in true migraine, and showed that resection of Meyer's temporal loop did not result in hemianopic field defects.

Miss EUPHAN MAXWELL (Dublin) described a case of invasion of the left occipital lobe by the common lung fluke of Japan, and two cases of pituitary gland tumour in middle-aged women, contrasting the slow, continual progressive loss of vision in the one case as compared with the marked fluctuations in the other.

Mr. HUGH CAIRNS, in emphasizing the importance of quantitative perimetry in the diagnosis and management of chiasmal lesions, illustrated his remarks by cases of pituitary adenoma. Scotomatous bitemporal hemianopia was the most common defect in the earlier stages of pituitary tumour, so that examination of the peripheral field only precluded early diagnosis. Examples of recovery of fields after operation on pituitary adenomata were demonstrated.

Mr. G. JEFFERSON (Manchester) compared the evolution of perimetry with that of the investigation of cutaneous sensation. He confined his remarks to meningiomata of the tuberculum sellae, where diagnosis might be made with certainty by perimetry alone. Such cases were puzzling because x -ray examination was negative. Three cases of his illustrated the fact that careful perimetry

alone would give the surgeon a chance of operating early and with success. Pituitary tumours did not always lead to recognizable somatic changes in the hands, face, etc.; they might reach large dimensions without altering the patient's appearance. Mr. P. G. DOYNE asked for an explanation of the directional movement of the edge of the field. Dr. L. W. WERNER (Dublin) gave details of an injury to the occipital lobe in a boy, and asked for information as to the prognosis.

Mr. TRAQUAIR, in reply, said that the movement of the field edge was due to nicking of the optic nerve by the dura mater covering the upper edge of the optic foramen. In chiasmal retrobulbar neuritis the clockwise or anti-clockwise movement was inexplicable. With regard to traumatization of the occipital lobe, that part of the brain substance which was affected purely by oedema would recover with resumption of function. Prognosis in such a case was facilitated by perimetry with serial objects. Mr. DOTT illustrated the first part of Mr. Traquair's reply by reference to one of his cases.

SECTION OF DISEASES OF CHILDREN

Friday, July 28th

VITAMINS IN PAEDIATRIC PRACTICE

With a Vice-President, Dr. KATHLEEN F. LYNN (Dublin), in the chair, Dr. L. J. HARRIS (Cambridge) opened a discussion on the value and dosage of vitamins in paediatric practice. Having shown the essential need for prophylactic measures, Dr. Harris discussed the methods available for giving vitamins. While cod-liver oil had proved of great worth in the past, it was sometimes difficult to reach a dose of this substance large enough to give complete protection without upsetting digestion. The modern preparations of irradiated ergosterol were recognized by a majority of workers, he said, as the best measure of wholesale protection. The use of such potent substances, however, raised at once the question of dosage, and, after stressing the need for expressing this in terms of the international standard, he suggested that an infant at 6 weeks of age might be started at 250 to 500 units daily, and gradually increased to 1,500 by the end of the first year. (This is equivalent to nearly five teaspoonfuls of good cod-liver oil.) From a public health standpoint it was probably best to incorporate irradiated ergosterol in the milk, either as was already done in certain dried milks, or by a wider use of irradiated milk—a method which would be of more value when the technical processes were more fully standardized. In the cure of rickets Dr. Harris recommended irradiated ergosterol as the method of choice, the suitable maximum curative dose for a severe case of rickets in a child between 1 and 2 years of age being about 5,000 international units of vitamin D daily. (This was about fifteen teaspoonfuls of cod-liver oil.) This raised the question of overdosage, and he argued that the risk was a real one, but was no reason for not using the remedy so long as the manufacturer's directions supplied with the commercial preparations of vitamin D were rigidly followed. For the human subject the toxic dose was quite close to the optimum curative dose, probably only about three times as much. Deficiency of vitamin A caused a characteristic abnormality in certain cell structures; vitamin B deficiency interfered with carbohydrate metabolism, leading to accumulation of lactic acid, and especially affecting the heart and nervous system; deficiency of vitamin C led to functional failure of certain highly active cells, especially in relation to the taste; while vitamin D appeared to have a more purely chemical effect upon calcium and phosphorus metabolism, controlling more especially the "net absorption" from the intestine. It followed from this that vitamin D was the proper remedy for infantile tetany and for the prevention of rickets in coeliac disease. Nursing and expectant mothers also required extra vitamin D. In conclusion, Dr. Harris spoke against the use of parathormone in tetany, since it did not influence the absorption of calcium and phosphorus.

Dr. W. R. AYKROYD (Geneva) agreed that correct nutrition was not a matter of instinct, a fallacy which

died hard. At the present time good nutrition was more likely to be found associated with a high degree of education and civilization than with primitive habits of life. In Southern Europe, and in most of the poorer countries of the world, children lived on a diet mainly composed of cereals. Such a diet was defective, and the children were below the physical standards of the school medical services in Great Britain, which, in turn, were below those in America. In regard to infants, Dr. Aykroyd continued, it was possible to think in terms of actual food factors, and a fairly exact programme of vitamin and mineral requirements could be worked out. In older children on a mixed diet the problem was not so simple, and he suggested that in judging the worth of any particular regime it should be possible to use as criteria the amounts of the more valuable foodstuffs present, such as milk, eggs, green vegetables, butter, etc., rather than in terms of actual food factors. This had the merit of being readily understood by the public. While there were as yet no fixed standards of vitamin requirements past the age of infancy, it seemed clear that the average child of the lower classes did not receive enough of those foods which were the most valuable sources of vitamins and mineral salts. Large-scale experiments had amply proved the value of extra milk in the dietary for such children. Finally, Dr. Aykroyd criticized the height and weight standards in use in England, observing that the current conception of a normal healthy child was largely based upon a study of children whose diet fell far short of perfection.

Dr. COLMAN SAUNDERS (Dublin) asserted that in his experience it was unusual to find a child between 1 and 2 years of age without some evidence of old or active rickets. This was true even of breast-fed children, and he thought this was because the maternal diet was often very defective in vitamin D. He had seen three examples of tetany in breast-fed children this year, and he thought that it was not generally realized that breast milk did not contain more vitamin D than cow's milk, the latter, however, being given diluted, so that the baby got less of this vitamin when artificially fed. Dr. Saunders thought that irradiated ergosterol should be given to the nursing mother or to the baby during the winter months. In the case of the artificially fed baby it was important to consider the balance of the diet as well as its deficiencies in relation to rickets. He regarded tetany as commoner than was generally realized, and he had obtained good results in the treatment of the paroxysms of whooping-cough and idiopathic convulsions at school age by means of calcium and vitamin D added to the diet. Dr. H. E. MAGEE (Aberdeen) stressed the importance of the balance of the constituents in a dietary in the maintenance of normal nutrition, too much attention, in his opinion, being sometimes attached to the individual elements. He drew attention to the significance of blood phosphatase as an indication of impending breakdown in calcium and phosphorus metabolism. Dr. S. W. CLAUSEN (Rochester, U.S.A.) mentioned the giving of extra vitamin B to children who were not gaining weight, and he pointed out that the extra carbohydrate intake might have something to do with the good results obtained. As regards vitamin A deficiency, he described recent experiments made to correlate the level of carotene in the blood with susceptibility to infection, the results showing only a slight relation. Dr. Clausen mentioned, in conclusion, the possibility of curing xerophthalmia with carotene. Dr. H. P. WRIGHT (Montreal) spoke especially of the value of the potato as a source of vitamin C. He had recently found that four tablespoonfuls of mashed potato daily would completely protect a child from scurvy, and double this amount effected a rapid cure. This source of vitamin C was much cheaper than the orange. Dr. L. G. PARSONS (Birmingham) said that he did not see anything like the same number of cases of rickets now compared with some years ago, and he thought statistics such as the opener had quoted on the prevalence of rickets should be accepted with caution. He mentioned that vitamin D obtained from irradiated milk seemed to be better utilized by the body than when it was taken in the more concentrated preparations. Dr. Parsons stated that he had seen five

examples of pellagra in this country. Dr. CATHERINE CHISHOLM (Manchester) spoke of the value of heliotherapy, stressing that the wholesale administration of irradiated ergosterol presented many practical difficulties. "Good mothering" was, in her opinion, a very important part of the prophylaxis of rickets.

The CHAIRMAN pleaded for a return to the natural state of man as an "irradiated animal," and urged that the smoke over the big cities was a very serious factor in producing rickets. She quoted some experiments which showed the value of irradiating the nursing mother.

COMMON SENSE IN PAEDIATRICS

Dr. EDOUARD CERESOLE (Lausanne) read a paper on "Childhood, Common Sense, and Medicine," emphasizing that paediatricians still showed more interest in diseased conditions than in prevention. He instanced the problem of "breeding" as applied to the human race, and pointed out that in his own country, where natural advantages ought to have enabled them to produce a very fine breed of humans, they were still much behind in matters of hygiene. As regards the question of fresh air and sunlight, the speaker thought that these natural healers were still largely neglected. Artificial sunlight he regarded, with Rollier, as a very poor substitute. Dr. Ceresole emphasized, as a visitor, the striking contrast seen in England between the splendid physique of the public-school boy and that of the child from a poor district—a remarkable example of the effect of environment, in his opinion. In conclusion, he stressed the need for the medical profession to take a definite stand upon the alcohol problem.

SECTION OF NEUROLOGY AND PSYCHOLOGICAL MEDICINE

Friday, July 28th

POLIOMYELITIS

At the second meeting of the Section, under the presidency of Dr. GORDON M. HOLMES, the opening paper on the epidemiology and treatment of poliomyelitis was read by Dr. F. M. R. WALSHE. He said that few nervous diseases had been subjected to such intense and fruitful study of recent years as poliomyelitis. The findings necessitated an almost complete revision of previous conceptions of the disease. Whereas up till five years ago it had been regarded as an acute specific fever consisting of a short-lived stage of general infection followed by an invasion of the meninges, and finally infection of the nerve cells, as shown by paralysis, the point was now being reached when the disease must be regarded as primarily and exclusively an infection of nervous tissue with no initial stage of systemic infection. The corollary from this was that the division of poliomyelitis into preparalytic and paralytic stages was an artificial one, and without pathological basis. This had important bearings on the question of serum therapy. Flexner had shown that, in monkeys, serum to be effective must be injected within twenty-four hours of the inoculation of the virus. In the twenty years since Netter introduced serum treatment no reliable statistical evidence of its efficacy had been produced, whereas the variable dosage and means of administration claimed as successful by different authors suggested that the value was *nil*. The results obtained in the best controlled series of cases yet available, in the New York epidemic of 1931, showed a slightly lower rate of paralysis in cases not treated with serum. The speaker considered that there was no reliable evidence that serum was of any value in treating the human disease, but doubted if hard facts would be equal to the task of cooling therapeutic enthusiasm.

Dr. R. W. FAIRBROTHER (Manchester) said that the outstanding epidemiological features of poliomyelitis were its wide distribution but low incidence, its predilection for children, and its seasonal variation. Up to the present only one immunological strain of the virus had been obtained, but this was capable of variation in its virulence. The comparative immunity to the disease enjoyed by

adults was variously explained as due to the acquirement of immune bodies by one or more subclinical infections, and by the theory of "non-specific maturation," which supposed that the nervous system as years went by acquired an increased resistance to infections in general. For the latter theory there was little evidence. Dr. Fairbrother referred to his work with Hurst, showing that in monkeys inoculated with virus into the brain, or into the sciatic nerve in such a way that the medullary sheaths were injured, the incidence of the disease was 100 per cent. The proportion of cases developing the disease after intranasal application of the virus was appreciably less. The extension of the virus in the nervous system had been proved to occur by axonal spread, and the virus was subsequently found in the greatest quantity in the medulla and the enlargements of the spinal cord. The action of the virus was primarily upon the nerve cells, the meningeal reaction being secondary. Turning to treatment, the speaker advocated the use of gargles of oxidizing agents, such as hydrogen peroxide or potassium permanganate, both as a prophylactic and during the convalescent period. He considered the prospect of producing active immunity to be very remote, as this necessitated the use of active virus with its attendant dangers. He believed that, while its value was still *sub judice*, the use of immune serum in the treatment of the milder cases was in accordance with theoretical considerations, and should be further tested. He made a plea for the further testing of immune horse serum, the most powerful antiviral agent known.

Dr. J. PURDON MARTIN remarked that if the view expressed by Dr. Walshe that poliomyelitis was solely a disease of the nervous system were accepted, it would necessitate the revision of many of our conceptions of its nature and epidemiology. The speaker considered the evidence in favour of a general systemic infection to be overwhelming, and referred particularly to the marked febrile disturbance, unlike that occurring in most cases of encephalitis, the general lymphatic hyperplasia, the occasional isolation of the virus from blood, and the development of immune bodies in the blood. He noted the occurrence of poliomyelitis after certain cases of fracture, when the paralysis was most severe and lasting in the injured limb, and also cases of bulbar poliomyelitis which had followed tonsillectomy or acute tonsillar infection. While accepting the view of Fairbrother and Hurst that in ordinary cases the portal of entry of the virus was from the nasopharynx, via the olfactory nerves, the speaker believed that in exceptional circumstances the virus might be conducted by the nerves of the limbs or the bulbar nerves, in which case the major incidence of the paralysis would be upon the affected limb and medulla respectively. He considered it probable that the nervous and systemic invasion occurred concurrently, and that the time factor between them might vary. In such cases, if the systemic invasion preceded the neural, the development of antibodies was likely to be rapid and paralysis slight. Should the neural invasion precede the systemic the damage to the nervous tissue was likely to be great. Dr. Martin referred to the continued existence in textbooks of elaborate classifications of clinical types having little foundation in fact. He would prefer to group the cases as spinal, brain-stem, and abortive. He doubted the existence of an encephalitis as a manifestation of poliomyelitis, and quoted the experimental fact that the cerebral hemispheres themselves appeared to be particularly resistant to the virus even in direct inoculation, merely acting as vehicles for axonal spread to the brain-stem and spinal cord. Referring to treatment, he believed that some of the early successes claimed for immune serum were due to its use at a time when pre-paralytic diagnosis was becoming possible. It was unwise to expect too much of serum, but, at any rate, in the early stages theoretical considerations supported its use.

Professor S. HAUGHTON (Dublin) prefaced his remarks on the orthopaedic treatment of cases of poliomyelitis by reminding the meeting of the principles laid down by R. W. Lovatt of Boston. The disease was to be regarded as having three phases: (1) The acute attack, ending with

the total disappearance of muscle tenderness. (Treatment during this period consisted of complete physiological rest and splintage of affected muscles in a position of relaxation.) (2) The stage of spontaneous recovery, lasting two to three years. (Treatment consisted of splintage in the over-corrected posture, graduated massage and muscle training, and local heat. Electrical treatment he considered to be without value.) (3) The stage of irrecoverable paralysis. (Here treatment consisted of correct splintage, tendon transplantation, and arthrodeses.) On the whole he had found tendon transplantation disappointing, but had been impressed by the favourable results of arthrodeses, especially of the ankle-joint. Before the age of 14 he considered Whitman's astragalectomy serviceable, but after that age he preferred Naughton Dunn's subastragaloid arthrodesis. Dr. RUPERT COLLINS (Cheltenham) dealt with the course to be adopted in the case of an outbreak of poliomyelitis in a public school. In his opinion the school should be run on open-air lines, but he was doubtful of the wisdom of using chemical gargles, owing to the danger of damaging the nasal mucous membrane—particularly its ciliated epithelium—and thus increasing the danger of infection. Dr. MAUD FORRESTER-BROWN and Dr. R. G. GORDON (Bath) showed an interesting cinematograph film of the surgical treatment of poliomyelitis. Dr. JEAN MACNAMARA (Australia) emphasized the danger of applying facts determined in experimental poliomyelitis in monkeys to the natural disease in man. Fairbrother and Hurst's work was done with a virus adapted to monkeys, but up to the present no similar experiments had been reported in which a virus freshly obtained from a human source had been used. Had this been done the argument by analogy from monkey to man was open to question, as was illustrated by the case of yellow fever virus, which in man and most animals was viscerotropic, but in the white mouse intensely neurotropic. The speaker stressed the marked clinical differences between the preparalytic stage of poliomyelitis in children and in monkeys, the latter showing little febrile disturbance, marked nervous signs, and never the "spinal sign" so constantly seen in children. She regarded the virus of poliomyelitis as essentially possessing both viscerotropic and neurotropic elements. Serum therapy was still handicapped by the impossibility of accurate standardization of the serum. Dr. MacNamara pointed out that the results obtained in the New York epidemic of 1931 were open to criticism, and that it was freely admitted that the more severe cases received serum, the less severe being used as controls. The difficulty of proving the usefulness of a therapeutic agent by statistics was evident, but many clinicians of experience were impressed by its value. Mr. WHITCHURCH HOWELL referred to the rapidity with which the pain and pyrexia of the initial phase subsided on complete rest, and referred to cases he had observed in which a varicelliform rash over the dermatomes corresponding to the muscles chiefly affected had occurred. He personally had been impressed by the clinical results of serum therapy. Dr. WICHT (S. Africa) referred to the case of encephalitis in children, which showed none of the changes in the spinal fluid characteristic of poliomyelitis, and made a plea for the more accurate classification of encephalitides in early life. Dr. GORDON HOLMES remarked that the problem of serum therapy was essentially a practical and not a theoretical one, and that the bulk of the evidence available was adverse to the view that it had any action in preserving life or diminishing the incidence of paralysis.

We have received from the Department of Scientific and Industrial Research the *Index to the Literature of Food Investigation* (vol. iv, No. 2). This contains a list of useful publications on the progress in the preservation and transport of food. In addition to the title in each case, a short note is usually appended giving an indication of the subject-matter. The volume is arranged in fifteen sections, dealing respectively with such topics as meat, fish, eggs, dairy produce; theory of canning; freezing and chilling; bacteriology; mycology; and engineering. The *Index* is published by H.M. Stationery Office (price 2s. 6d.).