before death were considered to be due to a terminal bronchopneumonia.

Pathologically there can be no doubt that this is a genuine example of paradoxical embolism. The only other site of embolism found at necropsy was in the left lung. Clearly this small infarct could not have appreciably raised the pressure in the right auricle. The present case, then, illustrates the fact that paradoxical embolism can occur in the absence of a raised pressure in the right side of the heart, and supports the findings of Thompson and Evans that this factor does not play an essential part in the production of paradoxical embolism.

I am indebted to Dr. Russell Brain for permission to publish this case, and to Dr. Dorothy S. Russell for her report of the necropsy. I should also like to thank Dr. W. Evans for his help and criticism.

T. G. REAH, M.B.Cantab., M.R.C.P.Lond.,
Resident Medical Officer, Hospital for Epilepsy and Paralysis, Maida Vale.

Reports of Societies

ANAESTHESIA DURING LABOUR

At a meeting of the Medical Society of London on January 23rd, with Sir JOHN BROADBENT in the chair, a discussion took place on anaesthesia during labour.

Mr. LESLIE W. H. WILLIAMS said that from an observation of many cases he had come to the conclusion that labour was extremely painful, and particularly at two periods—namely, when the head was passing through the cervix and just beginning to distend the vagina, and at the time of delivery through the vulva. Something was needed, therefore, which would relieve over a long period, and could be reinforced in its action as desired. The ideal method of relieving pain in labour had not yet been discovered. In recent years gas and oxygen had been widely advocated as the ideal anaesthetic, but in this advocacy only the second stage had been considered, and it was obvious that this anaesthetic could not serve throughout labour, and particularly during the many hours of the first stage, when the patient, conscious only of pain without appreciable progress, was thoroughly miserable. In the search for something more powerful they had been handicapped by the encouraging reports of some observers, whose enthusiasm had not been justified in the ultimate result. Certain cases were found to respond very badly to the drugs used, some of the patients becoming wildly excited and even maniacal. Even in cases where the drugs appeared otherwise to be working well they had an adverse effect on the uterine contraction to such an extent that labour practically came to a standstill. He had had little or no experience of the method which seemed to him in theory the best of all—namely, that brought forward by Gwathmey, of synergistic anaesthesia. Early in labour, as soon as the patient was beginning to evince real distress, 1/6 grain of morphine dissolved in 2 c.cm. of 50 per cent. magnesium sulphate solution was given intramuscularly. During the first stage two further injections of the magnesium sulphate alone were given, and just before the descent of the head into the pelvic cavity a rectal injection of a mixture consisting of ether and olive oil, together with a small amount of quinine and alcohol, was made. He thought that this merited much more extensive trial in this country. "Twilight sleep" was widely used in maternity hospitals; he described his own modification of this method. At the first sign of distress the mother was given 1/4 grain of morphine and 1/100 grain of scopolamine; subsequently she received 1/200 grain of scopolamine at two-hourly intervals for about two doses, and later 1/300 grain of scopolamine at three-hourly intervals if required. It was his custom to stop scopolamine at the commencement of the second stage, and to continue intermittent chloroform, or, better still, gas and oxygen. He was not in favour of the employment of drugs like avertin which were given by rectum. The intravenous injection of barbiturates was also to be deprecated; the oral route, however, was highly satisfactory in many cases. He had never used paraldehyde in obstetrics. With regard to the second stage of labour they would all be agreed that gas and oxygen was far and away the best anaesthetic; but the patient did require to be under the influence of something like nembutal, otherwise she would wake up between each administration of the gas and oxygen and ask whether all was well.

Dr. DOUGLAS BELFRAGE said that for the second or expulsive period of labour the choice had to be between ether, chloroform, and gas and oxygen. The only one of these which fully answered the purpose was gas and oxygen; the other two inhibited the action of the uterine muscle as soon as they were used in sufficient concentration to relieve pain. The disadvantage of gas and oxygen was the cumbersome and expensive nature of the apparatus, but this was being gradually reduced. A much more difficult problem was to secure the first stage of labour free from pain, and an enormous number of drugs had been advertised for this purpose. Nembutal, in his opinion, was a perfectly safe drug when rightly used, though when used alone, even if morphine had been given beforehand, there was a tendency to restlessness. He gave a first dose of 3 grains of nembutal, followed shortly afterwards by 30 grains of chloral hydrate in lemonade. Within two hours 1½ grains of nembutal and 30 grains of chloral were given if necessary. He thought that 6 grains of nembutal was not an excessive dose taken over six, eight, or ten hours. Many of the women in whose cases this method had been used had no recollection of their labour at all, and none of them had any painful memory. He believed that avertin had some place in obstetrics; it was perfectly safe as long as the patient was not left alone. The dose should be rather smaller than the usual pre-operative dose. In the cases with which he had had to do—about twenty—he had found no difficulty in the rectal administration. If success was to be achieved the patient must not be allowed to return to consciousness after the avertin had been given. If, therefore, one began the administration too soon, one would only be saved from failure by an exceedingly long anaesthetic session.

Dr. GLYN HUGHES, speaking as a general practitioner, said that it was necessary to bear in mind that perhaps half of all labours were conducted by midwives. It was necessary also to differentiate between practitioners in large cities, who had access to consultants and nursing homes, and practitioners in country districts, who had to rely upon the help of a midwife or nurse. Of "twilight sleep" to its fullest extent he was no advocate; it called for too much personal attention and supervision, a state of excitement was often induced, and there was a tendency for the child to be born in a condition of apnoea. On the other hand, the modified method, given as a preliminary sedative, was of immense value. Nembutal could only safely be given by the mouth. In a large majority of cases with this drug he had found some degree of restlessness produced, sometimes a marked excitement; this could be lessened by giving an injection of omnopon-scopolamine beforehand. The restlessness seemed to have the effect of making the patient incapable of any effort herself. When given with chloral he had not had the same success as Dr. Belfrage. With regard to general anaesthetics he quite agreed that gas and oxygen was of enormous value, but it required the help of a skilled anaesthetist who could give the full time required. A combination of sedatives in the early stages, followed by gas and oxygen, with perhaps ether at the end, was the best procedure. As to the respective merits of ether and chloroform, he was in favour of chloroform, except, of course, in cases where it was contraindicated. The patients seemed to tolerate it well, and were always sufficiently conscious to obey orders and to render help.

Dr. ZEBULON MENNELL took the view that gas and oxygen was the ideal anaesthetic in labour, but it was an ideal that could not be reached in this country in existing circumstances except in a few special institutions. He was confident that chloroform given to the obstetrical

Br Med J: first published as 10.1136/bmj.1.3760.143 on 28 January 1933. Downloaded from http://www.bmj.com/ on 19 April 2024 by guest. Protected by copyright.

degree in normal labour was the only feasible anaesthesia in this country at the present time. In all his experience he had never seen any bad result from chloroform anaesthesia. By "normal labour" he meant one in which there was a reasonable hope that the woman would deliver herself, and by "chloroform anaesthesia to an obstetrical degree" he meant a definitely light form of anaesthesia, really an analgesia, which produced a partial amnesia. It was difficult for the accoucheur to realize how light the anaesthesia might be. The much abused ether was difficult to give unaided, and required a higher degree of skill than could usually be obtained in ordinary labour, but he believed that, given that skill, everything which could be done with chloroform could be done with ether, and with greater safety. "Twilight sleep" had its vogue; it had been tried out at St. Thomas's, and it was perhaps sufficient to say that hyoscine and morphine still had their uses in maternity work. The much boomed avertin was to his mind too uncertain, and if rectal anaesthesia was to be given a much more safe and certain drug was paraldehyde, after which chloroform could safely be given, as it could not after avertin. A good deal had recently been heard about capsules of chloroform distributed to midwives. He confessed that he saw very considerable difficulties and dangers in this procedure. It was likely that more capsules would be used than were required, and that an excessive percentage of chloroform would be taken by the patient in one deep inspiration. But surely it was not beyond possibility to produce some form of foolproof inhaler.

Sir WILLIAM WILLCOX uttered a warning as regards the use of certain drugs of the barbituric acid group. Nembutal had been advocated that evening, and it was used very much in America. It was a new drug, and like many such its possible dangers only became known after some experience. Nembutal was the most powerful of the barbituric acid series from the toxic point of view; it exceeded luminal in toxicity. Nembutal was a renal poison. The kidney cells stopped excreting, and suppression of urine was the result. He knew personally of four cases of fatal suppression of urine from nembutal in doses of considerably under 10 grains. Surely that was sufficient to make one hesitate to allow midwives to use a drug of that type. Within the last fortnight a patient seen by an eminent neurologist was given two capsules of nembutal. He went into a deep sleep for twenty-eight hours. Two days later he became restless, and the nurse, who had a bottle of nembutal tablets amongst other things which had been prescribed for this difficult case, gave him three capsules in twenty-four hours. The speaker was called in three days later, when the patient had a temperature of 101.6°, while the respiration was 60 and the pulse 120. It looked as if the patient was likely to die within a very few hours. There were signs of commencing pneumonia. He had recently discovered that the only thing that would save a person who had got pneumonia due to barbituric acid drugs was a lumbar puncture and the draining off of a good deal of cerebro-spinal fluid. That was done in this case, and fortunately the patient just recovered "by the skin of his teeth."

Dr. J. P. HEDLEY felt strongly that the less drugging that was given to these patients within limits the better. He did not like the very strong drugs, but much preferred the simple things such as morphine and scopolamine to the newer preparations like nembutal. Paraldehyde was another old friend, and, so far as he knew, was a perfectly safe anaesthetic. But if, towards the end of the labour, an anaesthetic was needed, he thought the only practicable one was chloroform. Gas and oxygen was very pleasant, but unless morphine or something of the kind was given beforehand the patient woke up periodically, and really, in the long run, had a worse time than if she had been given a longer labour with chloroform.

Dr. BERNARD SCHLESINGER asked whether nembutal might not leave the infant rather cyanosed. Mr. D. W. ROY spoke of a case under his observation, treated by nembutal, in which it seemed to him that the constant movement of the patient must interfere with the use of the subsidiary muscles and hinder her delivery. In cases under nembutal with chloral he was of opinion that the patient was definitely too much "doped." He thought it a great pity to use any method of anaesthesia which did away with the co-operation of the patient. Dr. T. JENNER HOSKIN asked about the anaesthetic procedure in women with damaged hearts with mitral stenosis, who, however, were considered well enough to be allowed to go to term. Dr. W. M. H. MCCULLAGH said that at his hospital morphine and magnesium sulphate had been tried out, but they could not satisfy themselves that the magnesium added anything of value. They had also tried nembutal, and had found that a number of cases had had to be held down in bed. Dr. WILLIAM GILLIATT thought it undisputed that all anaesthetics and analgesics tended to delay the contraction of the uterus. He believed it unwise that every patient should be allowed to believe that she would have a painless labour. It was better to tell her to expect some pain, but that it would be possible to relieve her to some degree.

Mr. LESLIE WILLIAMS, in reply, said that the discussion that evening would be accounted reactionary by the advocates of nembutal. In the comparatively large number of cases in which he had used this preparation he had never seen any disadvantages from the mother's point of view, though he knew of a case of suppression of urine where nembutal had been used intravenously. As to chloroform in capsules administered by midwives, this had been tried extensively, and he had always awaited news of a catastrophe, but it had never come. Midwives were now being trained at Queen Charlotte's to use capsules on the district. Nembutal had practically no effect on the infant. In women with mitral stenosis chloroform had been given, and they had gone through the labour extremely well.

PHYSICAL METHODS IN TREATMENT OF HEART DISEASE

At a meeting of the Section of Physical Medicine of the Royal Society of Medicine on January 20th, with Sir ROBERT STANTON WOODS in the chair, a discussion took place on the value of physical methods in the treatment of heart disease.

Dr. F. G. THOMSON said that the systematic treatment of heart disease by physiotherapy had been somewhat neglected in this country, especially since the injudicious treatment of unsuitable cases at Nauheim had caused the "Nauheim system" to fall into disrepute. The generally accepted physiological effects produced by different types of baths, by massage, and by graduated exercises should, in principle, be of considerable value in certain types of cardiovascular disease. The main effects were: improvement in peripheral circulation; reflex action on the heart, causing slower and more effective beat; reflex action on respiratory centre, causing deeper respiration; increase of metabolism; elimination of toxins; reduction of obesity; and general improvement in health and outlook. The only form of electrical treatment he had found to be of any real value was high-frequency current in the treatment of abnormally high blood pressure. It was necessary to make careful selection of cases in which the principles just enumerated might be applied with advantage. The following were unsuitable: infective endocarditis; rheumatic carditis, except possibly in certain old-standing stabilized cases; advanced myocardial disease; advanced arteriosclerosis; and tachycardia and the like, associated with hyperthyroidism. Suitable cases were those recovering from a toxic myocarditis following acute illness; "D.A.H."; functional conditions, such as multiple extrasystoles, or dyspnoea, dependent on gastro-intestinal disorders, obesity, or thyroid deficiency; myocardial debility associated with obesity; and early cases of myocardial degeneration often associated with hypertension, with symptoms suggesting mild coronary insufficiency, such as dyspnoea and precordial distress on exertion. Dr. Thomson added that there could be no greater error than to assume one stereotyped physical treatment as being applicable to all cases. Further, physical treatment, if it was to be of any value, must be applied in the early stages, and, when that was done,

Br Med J: first published as 10.1136/bmj.1.3760.143 on 28 January 1933. Downloaded from http://www.bmj.com/ on 19 April 2024 by guest. Protected by copyright.

there were many cases in which it would be found of great value in the restoration of cardiac efficiency.

Dr. B. T. PARSONS-SMITH said that it was customary nowadays to divide heart affections into two main groups —functional, and structural or congenital. In both these groups a defective circulatory reserve was recognized, in which the circulatory mechanism suffered embarrassment to the extent of producing the characteristic train of symptoms well described as the "effort syndrome." From personal experience he was inclined to attribute special efficacy in heart affections to general massage and graduated exercises. Actually the result of massage and exercises was an increased heart load, and this, if suitably graduated, would in favourable cases exert a strengthening influence on the myocardium and at the same time improve the mechanics of the general circulation. Both remedies must be administered with the utmost caution, so that the processes of compensation in the heart and peripheral circulation might be suitably graduated according to the severity of the underlying disability and the patient's past and present exercise tolerance.

Dr. T. F. COTTON said that it had not been possible, by the direct action either of drugs or of physical agents, to prevent or cure the pathological condition which was recognized clinically as cardiovascular disease, but the natural course of the structural changes could be in greater or less degree controlled by suitable treatment. He drew particular attention to the cutaneous blood vessels and their response to mechanical, thermal, and electrical stimulation. The physiotherapeutic agents, by their direct action on the minute blood vessels of the skin and nerve endings, released a mechanism which played a more or less important part in controlling the peripheral circulation. If vaso-constriction was the dominant factor in the causation of symptoms, a rational form of treatment was one which restored the balance by liberating vaso-dilator influences, and he thought it possible to support the view that physical stimulus as applied by physiotherapy caused a widening of the blood vessels by direct action, and this vascular response was due to the release of a vaso-dilator substance in the skin. There was evidence that vaso-dilatation in these circumstances was under local control and independent of the central nervous system. Dr. GEOFFREY HOLMES spoke of the effects of baths. In his practice the cardiovascular conditions fell into two groups: actual valvular disease on the one hand, and, on the other, myocardial weakness and the anaemia associated with the chronic infective type of arthritis. Sometimes the heart condition was so serious that the taking of baths which would be appropriate to the joint condition was rendered almost impossible. In the normal person the taking of a bath at a temperature of 99° to 104° F. produced an immediate rise in the pulse rate, and sometimes a rise in the systolic pressure, though there was a drop in the diastolic. It was not yet agreed to as to how the CO_2 bath acted, but it certainly affected the basal metabolism, and increased the flow of blood through the peripheral vessels and so relieved the heart. Liver packs, with mustard as a stimulant, were good for auricular fibrillation. In some further discussion, Dr. W. P. KENNEDY said that he had brought about great benefit in some cases of tachycardia associated with hypothyroidism by physical methods; and Dr. R. TIMBERG mentioned that physiotherapeutic treatment of cardiovascular conditions was largely practised in Sweden fifty years ago, especially in the case of those people who had lived more "well" than wisely.

CLINICAL CASES

At a meeting of the Aberdeen Medico-Chirurgical Society, held on January 12th at the Royal Aberdeen Hospital for Sick Children, with the president, Dr. W. CLARK SOUTER, in the chair, cases were shown by members of the staff of the hospital.

Dr. N. J. LOGIE showed two cases of rupture of the kidney. The first, a girl aged 8 years, was admitted with abdominal pain, sickness, and vomiting two days after being run into by a bicycle. Tenderness and rigidity were present in the right iliac fossa, but there was no lumbar tenderness, and no blood was found in the urine. When the abdomen was opened a little free fluid and blood were found, but there was haemorrhage into the ascending mesocolon. The lower pole of the right kidney was surrounded by blood. Appendicectomy, without drainage, was performed. Sixteen days later fullness and tenderness developed in the right side, and a radiogram suggested an intra-abdominal effusion. In twenty-three days' time a swelling had developed in the right hypochondrium. This was opened, and pus, blood, and urine (urea concentration 1.8 per cent.) were obtained. Culture showed *Staphylococcus albus*. The urea concentration of the right kidney was 1.38, 1.44, and 1.55 per cent. Retrograde pyelography showed a leakage of sodium iodide into the abscess cavity from the lower pole of the right kidney, and dilatation of the pelvis. The child was discharged very well. Ten months later retrograde pyelography showed a normal appearance apart from a suggestion of destruction of the lower pole on the right. Uroselectan showed equal shadows and equal rates of excretion. The second patient, a girl aged 11, had been run into by a bicycle ten days before admission to hospital. The symptoms were the same as in the previous patient, but in this case haematuria was present, and tenderness in the right flank. Fifteen days later right-sided lumbar pain, tenderness, and a swelling developed. Incision yielded pus and urine, which on culture gave a growth of *Streptococcus haemolyticus*. The urea concentration of the right kidney was 0.7 and 1.15 per cent. Retrograde pyelography showed marked dilatation of the right pelvis, and probably a leakage from the lower pole into the abscess cavity. The patient was discharged well, and five months later uroselectan showed a normal appearance and equal rates of excretion in the two kidneys.

Dr. JOHN CRAIG showed a boy of 5 years of age who had had a pneumococcal septicaemia for seven weeks, but had eventually made a good recovery. The child was admitted with a pneumonia of the right lung apex. As this was resolving a fresh patch of consolidation appeared at the left base, and this was followed by successive small pneumonic areas in the remainder of the left lung. The pneumococcus was of Type IV; a lung puncture demonstrated the same organism. Dr. Craig also showed a film illustrating the diagnosis and operative treatment of pyloric stenosis in infants.

Mr. ALEXANDER MITCHELL showed the case of a child of 13 years, who had been admitted to hospital with a history of seven months' pain in the left hip of gradually increasing severity; there was little limp in the mornings, but in the evenings, when the child was tired, this was more pronounced. There was no history of trauma, but osteotomy had been performed on both tibiae during childhood for rickets. There was limitation of all movements of the joint, flexion being least affected; it was possible to raise the leg to an angle of about 120 degrees from the trunk. Apparent shortening was present, but no actual shortening. Bryant's triangle was distorted, and there was a certain amount of tilting of the pelvis, but no pain, tenderness, or wasting was present. The blood Wassermann reaction was negative. A radiogram revealed coxa vara, with partial destruction of the head of the left femur. Mr. Mitchell also showed a film of two cases of cerebral diplegia demonstrating the typical scissors gait. Mr. G. GORDON BRUCE showed the case of a boy, aged 6 years, who was found, following a motor car injury, to have a retroperitoneal rupture of the duodenum. He was operated on within three hours of the accident, the opening in the duodenum being closed by suture; recovery was uninterrupted. Mr. ANDREW FOWLER showed two cases illustrating the late results of operative treatment for severe lacerated wounds of the hand and wrist and of the foot, and a film of two cases of spastic paraplegia. Dr. WILLIAM BROWN showed a case of chorea paralytica in a girl aged 6 years. There had been a rash, accompanied by pyrexia, after the administration of 24 grains of nirvanol. When the reaction subsided the child began to make voluntary movements again. Dr. Brown also showed a cinematograph film of three cases of hemichorea.

Br Med J: first published as 10.1136/bmj.1.3760.143 on 28 January 1933. Downloaded from http://www.bmj.com/ on 19 April 2024 by guest. Protected by copyright.

DIAGNOSIS OF EARLY PHTHISIS

At a meeting of the Liverpool Medical Institution held on January 12th, with Mr. FRANK JEANS, vice-president, in the chair, Dr. ROBERT COOPE read a paper on some reasons for the frequent failure to make an early diagnosis of phthisis.

Dr. Coope had analysed 103 cases which, on being sent for opinion, were justifiably labelled for the first time as suffering from phthisis. Of these only five were "early" enough to show by *x* rays nothing more than a small subclavicular patch of infiltration. A further twelve cases showed disease limited to one lobe without cavities. No fewer than sixty-one patients had cavities, large or small. Thus eighty-six out of 103 patients came with advanced or moderately advanced lesions, a figure agreeing closely with that of Myers of Lymanhurst. There were ten cases of the "grandparent age"—60 to 80 years; all appeared clinically to be so-called typical conditions of "chronic bronchitis" or "asthma." Such cases were dangerous—to the grandchildren. It did not appear that the medical profession was seriously at fault, though analysis of previous symptoms suggested that there is still too little heed taken of warning symptoms, such as pleurisy or slight haemoptysis. Possibly doctors were still reaping the fruits of the pre-radiological era, and tended to pay too much attention to the presence or absence of physical signs. Nor could the patient justly be blamed. The truth was that phthisis often began as it were in a rather advanced and rapid way, and the early case was found only rarely, and then often by good fortune. Once cavitation was present, the case should be regarded as serious, because of the danger of spread by the bronchi to other parts of the lung. The day had gone by for any need to defend radiology in the diagnosis of disease of the lung; it was a far more reliable instrument of precision than the stethoscope. Dr. Coope pleaded finally for a better all-round training of medical students in pulmonary tuberculosis. The subject was an important branch of medicine, and of fine educational value, full of fascinating problems of judgement both in diagnosis and in treatment—full, also, of human and social interest in its relations with social and industrial conditions.

In the discussion which followed, Dr. A. ADAMS entered a protest against the doctrine that the use of the stethoscope was valueless in the diagnosis of pulmonary tuberculosis. Pulmonary tuberculosis was a disease rarely seen now in our hospitals, and it had become a close preserve of the municipal or county specialist. Doubtful cases were almost always sent to him for diagnosis, with the result that in our teaching hospitals no material was found for the students, and there was little wonder that the younger generation had come to rely more on a radiological report than on their own perceptions. The conditions of the patients on first diagnosis had grown progressively more advanced. A few years since, he had discovered that an average of 60 to 70 per cent. were found to be definitely advanced cases on first notification in the most progressive boroughs of England. This was not entirely due to faulty work by the general practitioner, but because, mainly owing to increased resistance and immunity, the patients were able to continue at their work without serious inconvenience and without seeking medical aid.

Dr. E. T. BAKER BATES said that at a time when the early diagnosis of phthisis was essential to progress, the medical student had no facilities for the observation of early cases, owing to their segregation in municipal clinics. In no branch of medicine had radiology been of greater value than in pulmonary tuberculosis—any case with obvious physical signs was always advanced. Early bronchiectasis—especially the apical, the atelectatic, and the dry haemorrhagic types—with recurrent haemoptysis simulated tuberculosis. Primary new growths of the lung were forming a large proportion of the cases sent by the tuberculosis officers to the observation wards of the Liverpool Chest Hospital. In both of the above conditions lipiodol had been of the greatest value in the differential diagnosis. At the Stanley Hospital, Liverpool, routine radiographs of the chest were taken in all cases of dyspepsia—demonstrating active or quiescent phthisis in 35 per cent., with or without a gastro-intestinal condition such as peptic ulcer or chronic appendicitis. Dr. H. R. HURTER said that in diagnosing phthisis there was no excuse in Liverpool for the existence of what Dr. Coope had referred to as "exclusive stethoscopists," for nowhere in England was *x*-ray work better done. The co-operation of the expert radiologist had become essential in chest examinations. In the search for evidence of phthisis by *x* rays one experienced two opposite kinds of shock: first, the disagreeable one of discovering that extensive disease was present when auscultatory signs had not suggested it; and secondly, the more agreeable shock of obtaining normal *x*-ray films in cases of prolonged cough or fever after influenza, when phthisis was beginning to be suspected. It was in establishing such negative diagnoses that *x* rays were specially valuable to the general practitioner. Dr. C. G. BRENTNALL said it appeared from Dr. Coope's findings that a general practitioner would be well advised not to attempt the diagnosis of pulmonary tuberculosis, but to send all cases with suspicious symptoms to the radiologist and bacteriologist. Dr. C. ALLAN BIRCH thought that the stethoscope, though an interesting instrument to use, and the badge of a physician, could not compare with the *x*-ray machine as a means of making an early diagnosis in pulmonary tuberculosis. In some American centres students learned fluoroscopy in addition to stethoscopy.

Dr. C. ALLAN BIRCH read a paper on the diagnosis of pleuro-pulmonary perforations, which dealt with part of a piece of work he performed at the Sea View Hospital, New York, under Dr. George Ornstein, and at the Royal Victoria Hospital, Montreal, under Professor Jonathan Meakins, during the tenure of a Dorothy Temple Cross Travelling Fellowship. Several methods were available, including: (1) clinical signs; (2) injections of dyes and volatile substances; (3) pressure studies; (4) *x*-ray studies; (5) thoracoplasty; and (6) gas analysis. Dr. Birch showed that gas from a pneumothorax cavity could be examined with the same ease as a pleural effusion and valuable information obtained. Whatever non-irritant gas was put into the pleural space it rapidly adjusted itself to a mixture of nitrogen, 1 to 5 per cent. oxygen, and 6 to 8 per cent. CO_2. When fluid appeared oxygen fell to 1 per cent. or less, and CO_2 rose to 10 per cent. or more. If a bronchial fistula or spontaneous pneumothorax was present, the oxygen rose above 5 per cent. because of contamination with alveolar air. Serial analyses would demonstrate the open or closed state of a fistula. Ten illustrative cases were described.

MALARIA CONTROL IN MINING CAMPS

Sir MALCOLM WATSON lectured on January 19th to the Institution of Mining and Metallurgy on the subject of malaria control in mining camps. Swampy ground, he said, was not necessarily malarial. The anopheles which carried the parasite bred, as a rule, in clean water, and malaria could be driven out from many places by polluting the water, either with mine tailings or decomposing vegetable matter. In some countries large rivers were dangerous during the dry season and harmless during the wet; in the dry season the mosquitos bred along the rush-green banks, and in the rains the larvae were all swept away, although there were species which could anchor on to the vegetation and defy the current. Sir Malcolm mentioned tin mines in Malaya where there were acres of swamp coloured red by mine tailings, and where malaria was almost unknown; the danger came, however, in other parts of that country by reason of tiny streams and seepages. At one of the iron mines of Orissa, India, the whole of the malaria was traced to a stream and the springs which fed it, and when these had been controlled by proper organization no larvae were to be found. In the copper mines of Northern Rhodesia two species of anopheles were culprits—*A. gambiae*, which lived in pools

Br Med J: first published as 10.1136/bmj.1.3760.143 on 28 January 1933. Downloaded from http://www.bmj.com/ on 19 April 2024 by guest. Protected by copyright.

in sunshine, and surrendered at once to a weekly round of oiling ; and *A. funestus,* which lived in slow-moving water, among grass, and liked a certain amount of shade, and for the elimination of which some drainage was necessary.

In the ensuing discussion Mr. A. D. STORK described the work on the Roan Antelope mine in Northern Rhodesia. In 1928–9, among a European population of 1,200, the malarial rate in the bad months, March and April, was as high as 200 cases per 1,000. In collaboration with the Ross Institute measures of control were instituted, and the rate fell progressively, until last year it was 28 per 1,000. A good deal of blackwater fever formerly prevailed, but last year there was not a single case on the mine. He added that the cost of control at Roan Antelope was a capital expenditure of £25,000, and an upkeep expenditure of £8,000 for the three years —an inconsiderable figure when it was remembered that the total capital invested at Roan Antelope was nearly five millions.

Dr. G. C. RAMSAY said that, in Assam, out of about twenty species of the anopheles, only one was identified as being responsible for malaria. This species was found to breed in clear water or exposed streams, and had been eliminated by shading the streams by dense vegetation. In the swamps of Assam, water with colloidal clay in suspension was perfectly safe.

A mining engineer of long experience, Mr. E. T. MCCARTHY, said that he was able to recall the towns of Klang and Port Swettenham, in the Federated Malay States, when they were exceptionally malarial. He mentioned also Ipoh and Kuala Lumpur, where Government officials were not allowed to bring their wives and children on account of the prevalence of malaria ; now these towns were full of English women and children, thanks to the result of malaria control. Santos in Brazil, and Vera Cruz in Mexico, were both known in his earlier days as "La ciudad de los muertos" (the city of the dead), and were now free from malaria, as was Havana, another city which had suffered terribly. In the Malay States, in the early 'eighties, he was about to pitch his tent on a low hill, when the Malays in a near-by village declared that it was a bad place, as the fever mosquito was there. He paid no attention to this idea at the time, but thinking that the place was known to be malarial pitched his tent elsewhere. A few years later, when the facts were known about the anopheles, he tried to discover whether the Malays had any knowledge of the mosquito being infected with fever, but without any result. In that particular locality, before modern discovery, the people had in some mysterious way associated malaria with the mosquito.

MEDITERRANEAN FEVER

At a meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, held in the Royal College of Physicians on January 6th, with Dr. W. R. O'FARRELL in the chair, Surgeon Lieutenant Commander S. G. RAINSFORD (introduced by Professor J. W. Bigger) read a paper on the laboratory aspect of Mediterranean fever.

The speaker described a method of blood culture, an unusual feature of which was the use of blood clot alone—the serum of patients infected with the disease could inhibit all growth of Brucella in broth. Beef-liver broth of *p*H 6.6 was the best medium, and was successful in 80 per cent. of cases. The necessity of prolonged incubation of cultures was stressed, cases being described in which the organism was not isolated until the twentieth day of incubation. In one case the requisite length of time was sixty days. The cultures that required the longest incubation were those made from blood possessing a high agglutinating titre for Brucella. In severe cases positive blood cultures were obtained as late as the eleventh week of the disease. Blood cultures from chronic cases usually remained sterile. The following conclusions were arrived at concerning the agglutination test. Agglutinins appeared early, about the sixth to the fourteenth day of the disease, and disappeared rapidly, none being found as a rule two years after recovery. A case was described which gave negative agglutinations within a week of the temperature falling to normal, and only two months after the isolation of *Br. melitensis* from the blood. In chronic cases the agglutinins gradually disappeared, without any improvement in the clinical condition. In the later stages these cases gave negative agglutination tests, possibly indicating a blockage of the reticulo-endothelial system. Of 296 serums examined only three agglutinated Brucella when no infection either past or present could be traced. This low percentage of false positives was in contrast with the high percentage found in Ireland, where 20 per cent. of normal serums agglutinated *Br. abortus* (bovine). The probable explanation was that *Br. melitensis* was more virulent for the human race than *Br. abortus,* and it seldom invaded the body without producing disease. Any positive agglutination had therefore a greater significance in Malta than in the British Isles.

The CHAIRMAN referred to the persistence of a positive blood culture in many of the cases which had been mentioned in the paper. The textbooks stated that a positive blood culture did not persist for very long, but experience showed that it did. He himself had seen people who had been abroad and come home, and their blood cultures had remained positive for many months after their return. He thought that Commander Rainsford was to be congratulated on getting so many blood cultures which were not contaminated. He asked if any urinary cultures had been done. The question of the agglutination reaction was always a difficulty. There were many late cases in which no agglutinins could be found in the blood. These cases were diagnosed in Malta as Mediterranean fever, and were sent home. At home they did not agglutinate at all, and it was difficult to know whether they really were cases of Mediterranean fever or not. Dr. W. D. O'KELLY referred to a case of Malta fever which he had recently seen in Dublin. He thought that the seventy days which had to elapse before the result of the blood culture was known, in the method described by Commander Rainsford, was a long period and would not appeal to the clinician who was anxious to know the result as soon as possible. In the United States *Br. abortus suis* was regarded as very pathogenic. In this country *abortus* infection was not regarded as a serious thing, but it might become more serious, and from the public health point of view it was an infection which the health authorities would like to stop. Dr. G. C. DOCKERAY said that on account of the large number of people who had agglutinins in their serum there was a great danger of anyone with a febrile illness being regarded as a case of undulant fever. Unless it was possible to cultivate the organism in the blood, he thought it was quite unjustifiable in the British Isles to conclude that a case was one of undulant fever simply because the agglutination test happened to be positive. Dr. A. R. PARSONS said that on looking at the charts shown by Commander Rainsford he was struck by the extraordinary slowness of the pulse and the very high temperature. Conditions in which these two things occurred were very few. He asked if the spleen was enlarged in any of these cases. In one case which he had had under his care the spleen was distinctly enlarged. The man was in hospital for eight weeks with a high temperature all the time. The intermittent type of fever found in these cases was very much like that of tuberculosis. He asked what was the exact relation between the three different organisms which were found in these cases, and if there was any evidence showing that one organism could be converted into another.

Commander RAINSFORD, replying, said that in the acute stage the spleen was slightly enlarged ; in chronic cases there might or might not be enlargement. In general, all the organisms were similar antigenically. *Br. melitensis* was the most pathogenic organism, next came the porcine bacillus, and then the bovine bacillus. *Br. melitensis* produced abortion in the goat, but in the cow it produced practically no bad effects at all. Except in chronic human cases the pulse tended to be slow and the patients showed very little constitutional disturbance.

Br Med J: first published as 10.1136/bmj.1.3760.143 on 28 January 1933. Downloaded from http://www.bmj.com/ on 19 April 2024 by guest. Protected by copyright.