

thorax respiration recommenced after two minutes, being slow, shallow, and sighing. The same patient had taken gas previously with a similar cessation of respiration.—Mr. BELLAMY GARDNER and Dr. FLUX deprecated the death being attributed to gas and oxygen.—Dr. SILK's experience went to show that the after effects of gas and oxygen were more varied and more frequent than those consequent upon nitrous oxide alone. He pointed out that the physiological effects of the gas and oxygen might persist in the individual even when he appeared to resume consciousness, and it was quite conceivable that chloroform might increase these effects and finish what the mixture had commenced. He cautioned against the mixture being employed indiscriminately, as no doubt its value would thereby be lessened.—Mr. CROUCH narrated a case of a patient to whom he gave gas diluted with air and found evidence of dilatation of the heart during the administration. He had had precisely similar experience in giving gas with oxygen, in which case he carefully noted the condition of the heart.—The PRESIDENT spoke a few words of warning against the elevation of the mixture into a kind of panacea among anaesthetics. He had found that many persons had formed the most extravagant conception of its possibilities and were not aware of its limitations.—Dr. MCPHAIL having narrated his experiences Mr. BELLAMY GARDNER replied.

## SOCIETY OF MEDICAL OFFICERS OF HEALTH.

### *Antiseptics in Food.*

A MEETING of this society was held on April 14th, Dr. E. GWYNN, President, being in the chair.

Dr. A. HILL read a paper on the Use of Antiseptics in Food. It was under many circumstances necessary to preserve foods from decomposition and for this purpose drying, smoking, salting, and heating, followed by exclusion of air, with or without the addition of oil or sugar were variously applicable and harmless. Salt was distinguished from other chemical preservatives by being a normal constituent of the animal body, the ingestion of between half an ounce and one ounce daily being necessary to health. The antiseptics which he would consider were chemicals foreign to the living body and exerting physiological actions of which advantage might be taken by the physician in the treatment of disease, but the inconsiderate consumption of such substances was presumably injurious to persons in health. Perhaps those most widely used at the present time were boric acid, borax, and salicylic acid, though of late a solution of formic aldehyde, under the name of formalin, had been extensively employed. Between 1896 and 1898 Dr. Hill had examined 1016 samples of milk, of which 59 were preserved by boric acid and 29 (of 600 only examined for it) with formic aldehyde. Boric acid was found in 216 out of 574 samples of butter and in 28 out of 33 of margarine. Boric acid was present in five out of six samples of cream, one containing salicylic acid also. Four out of seven samples of sausages, four out of six of ham, all of four hams and tongues, one out of three pork pies, one of two samples of pickled meat, and one of two polonies, five out of six samples of jam, five out of 11 of ipecacuanha wine, and one out of 12 of sherry contained salicylic acid. Benzoic acid had been used in France since the prohibition of salicylic acid. Sulphurous acid was widely employed in the treatment of wines, beers, lime juice, &c., and fluoride of sodium, a powerful antiseptic, but in doses of a few grains almost a poison, had been so too. As to their effect on digestion the case of formic aldehyde admitted of no doubt; one part per 1000 of milk rendering the casein insoluble in pepsin and hydrochloric acid, and one part of formalin (a 40 per cent. alcoholic solution of formic aldehyde) to 2000 parts by weight of fish, hardening them so as to be quite unsaleable. England was almost the only country in the civilised world where the use of antiseptics as such was wholly unrestrained and prosecutions had to be undertaken under Section 6 of the Sale of Foods and Drugs Act, on the ground that the sample "is not of the nature or quality" demanded, or under Section 2, that "the addition is injurious to health," and the defence always endeavoured to throw on the prosecution the onus of proving injury in the particular case, the quantity of adulterative

matter found by the analyst, or the proportion requisite for the purpose in view. But while one man deemed 18 grains of boric acid to one pound of butter sufficient another put in 84 grains, and though the quantity consumed in one article of food might be productive of no ill effects it was quite possible that the aggregate dosage of several in daily use might be highly injurious, to say nothing of individual susceptibilities. So-called experts, mostly chemists ignorant of physiology, could always be had to give evidence for the defence, and it was safer that Section 6 only should be relied upon. Dr. Hill quoted the opinions of numerous authorities based on clinical observations or upon experiments on themselves and on dogs as to the effects of small and large doses of boric acid to show that it tended to interfere with nutrition, to increase excretion by the bowel and kidney, to induce catarrhal and inflammatory conditions and cutaneous eruptions, and to depress the heart's action to such an extent that fatal consequences had followed its use even in surgery. The action of salicylic acid on the heart and cerebral functions as well as on nitrogenous metabolism was well known, and its great value as a drug made its habitual use more evidently dangerous. Perhaps, however, the most serious aspect of the question at present was the effect of boric acid in milk upon infants whose sole or chief food was milk, and it was not improbable that much infantile diarrhoea might be due thereto. In Germany all antiseptics were illegal—boric acid in meat and milk especially—and their use was prohibited more or less strictly in France, Italy, Holland, and even in Spain and some States of both North and South America. In France, however, produce intended for exportation was exempt, and "Brittany butter" and the milk recently sent over from Normandy were highly charged with boric acid. There was no real justification for the use of chemical preservatives, but if they were not prohibited unconditionally some authoritative regulation was required, as would have been exercised by the proposed Board of Reference in the Bill introduced in 1897 by Mr. Kearley and other members of the House of Commons. Refrigeration, however, was a means of preserving all perishable articles of food which was absolutely free from objection and applicable to all alike.

Mr. TUBB THOMAS said that boric acid was employed in large amounts for preserving in an apparently fresh state the fish imported from Sweden and Norway.

Dr. WILLOUGHBY believed that the use of preservatives for milk was in London practically confined to the small retail dealers, enabling them to carry over to the next day the few gallons left unsold. The great companies, at any rate that with which he was connected, strictly prohibited the use of preservatives while insisting on effectual refrigeration by special apparatus.

Mr. CASSAL, as a public analyst, held, and always took up the position in court, that "if a substance were present in quantity sufficient to exert an antiseptic action it must *de facto* inhibit digestion, and therefore it must if of any use be harmful."

Dr. WOODFORDE, Dr. W. BOND, Dr. EDMUNDS, Dr. ALLAN, and others having spoken Dr. HILL replied.

Two resolutions (1) deprecating the use of chemical antiseptics in general, and (2) demanding that if they were permitted their nature and amount should be clearly stated were passed almost unanimously.

## CHELSEA CLINICAL SOCIETY.

### *Tuberculosis.*

A SPECIAL meeting of this society was held at the Jenner Institute of Preventive Medicine, Chelsea-gardens, S.W., on April 18th, the President, Mr. J. FOSTER PALMER, being in the chair. The subjects of discussion were the Recent Investigations relating to the Etiology, Prevention, and Treatment of Tuberculosis. Dr. AUSTIN E. COOPER, the honorary secretary, read the minutes of the last ordinary meeting which were then confirmed and the names of new members were read out.

The PRESIDENT in the course of a few introductory remarks touched upon the several aspects of tuberculosis. He said that the additions to our knowledge of this subject were, after all, confined principally to bacteriological research. The contagious nature of the tubercle and the

belief of the possibility of its prevention were generally recognised, but they must avoid regarding contagion as the sole reason of tuberculosis. He remarked that the open-air treatment was not new, for it had been recommended in 1864. Tuberculosis was, he thought, hereditary only in the same way as were diphtheria and typhoid fever. He asked, Could it be accepted as a bacteriological fact that cowflesh might be eaten with impunity if the milk was poisonous? In referring to the question of expectoration he thought there were two safe methods—the one to spit into the fire, the other on the ground. The sanatoria question was not yet fully worked out; to be consistent with our beliefs nearly half the population ought to be sent to sanatoria. Was a member of a family with a patch of tubercle in one lung to be treated as a leper? The nature and biological qualities of the tubercle bacillus and the means of distinguishing it would be brought before them. Was the Timothy-grass bacillus a modification of the tubercle bacillus? Lastly, the surgical aspect of the question would be brought before them; he thought they should see excision of the lung as certainly as they removed toothache by extraction of the teeth.

Professor G. SIMS WOODHEAD said he wished to take up one or two special points concerning the pathology of tuberculosis as there was now a practical agreement as to the main points in its etiology. In this subject, more than in any other, laboratory experiment had confirmed in a most marked degree clinical observation. He should attempt to place before them some of the more important clinical features of pulmonary tuberculosis and indicate how the condition there met with agreed with experimental tuberculosis and with the disease as seen in different animals. He made a number of sketches of the different forms of pulmonary tuberculosis and pointed out the relation of consolidated patches and cavities to the glands of the root of the lung. He gave examples of extension of tubercle to the lung: (1) from the glands; (2) from the abdominal cavity, especially when the base of the lung was adherent to the diaphragm and the diaphragm to the liver; (3) from the thickened pleura on the wall of the chest and in connexion with thickened pleura at the apex. He also showed how in cases of acute pleurisy tuberculosis often appeared to come in as a purely secondary condition. He then described the results of feeding experiments on the pig, showing how tubercle of the bacillus could enter by the tonsil, which it might or might not attack directly, but having made its way to this point it followed the course of the glands of the neck down to the apex of the lung and also down to the root of the lung; and he thought that this channel of invasion was now coming to be recognised at its true value. He showed how tuberculosis might be accelerated where there was imperfect expansion due to adhesion, by alteration in the lymphatic supply, and similar alterations. He then described the different kinds of tubercle met with in different animals and insisted very strongly on the fact that it was by no means the most resistant animals which contained fewest tubercle bacilli, as here they had to do with a question of dosage and the overcoming of resistance; where there was a large dose and where the resistance was eventually overcome, even though it had been initially great, there must be a large number of tubercle bacilli found. He also spoke of the necessity of absolutely cutting out tuberculous cattle from a dairy supply, whilst he believed that the best and most economical plan would be to kill off tuberculous cattle before they got any thinner. He looked upon tuberculosis as an exceedingly curable disease; he mentioned that tuberculin in some form or other might still be useful in the treatment of tuberculosis, especially when, as the President had indicated, they were able to cut out or get at and expose thoroughly tuberculous lesions. He did not think he was too hopeful when he said that he quite expected that in the next 10 or 15 years they should see an enormous reduction in the mortality from tuberculosis.

Dr. SIDNEY MARTIN said that he should take up a few points especially as indicating how the study of pathology had been of great help in the elucidation of the clinical features of the disease. It was a subject the history of which was enshrouded in the greatest obscurity, caused, he was sorry to say, in many instances by the imagination of the medical profession itself. It was only since 1882 that any clear idea of what tuberculosis was had been obtained. He proposed to deal with modes of invasion of tuberculosis through the

mouth, the tonsils, the intestine, by means of the lungs or skin, through tuberculous meningitis, and tuberculosis of the bones and joints. In his work for the Royal Commission on Tuberculosis on the Infectivity of Meat and Milk he had learnt some lessons of the nature of infection which had been of the greatest value to him in comparing the tuberculous lesions of milch cows with those which occurred in human beings. The invasion of the body by an infective disease depended, he thought, on several factors: (1) susceptibility of the animal to the disease; (2) dosage of a poison; and (3) virulence of the bacillus. In experimenting by feeding, by inhalation, or by inoculation one great result which he thought was obtained was that there might be direct local infection and infection at a distance. One animal, for instance, would have a local lesion in the intestinal tract and in the other there would be none, but a lesion in one or more of the mesenteric glands. It appeared then that the tubercle bacillus could pass through the intestinal mucous membrane without producing a local lesion and this result depended on the dose of the virus. He believed that certain distant foci of tubercle were the result of accidental infection by the blood-stream; this might sometimes also be the case in tuberculous meningitis and in tuberculous bones. He then dealt with the localisation of the disease and pointed out that retrograde lesions were frequently observed at the same time that advance was going on in other parts of the body. Then they had cases which appeared to get well from start to finish. The question of the infectivity of the retrograde tubercle was very important not only pathologically but clinically and he mentioned the calcareous caseous nodules met with at the apex of the lung and in the lymphatic glands; these were found where there was no spread of the tubercle—frequently in cases of carcinoma and cancer. He had never seen active tubercle occur in a case of carcinoma. Tubercle was, he thought, incompatible with cancer, speaking as a rule. Although he believed that the old lesions were usually more infective he should like to point out that Fowler had traced the relation between calcareous caseous lesions and general tuberculosis. He then referred to the great tendency to healing which usually existed in cases of tuberculosis in the human subject as compared with that in the lower animals, to the localisation and encapsuling of the lesion. It must always be remembered that tuberculosis was never produced by anything but the tubercle bacillus and one of the great means of getting rid of tuberculosis was to get rid of tuberculous foci, especially when these were in animals; other foci in air, &c., were comparatively unimportant. As regards meat and milk he thought the milk question was a simple one, but as regards meat they were met by two different schools—"all" and "none." He believed that in most cases infection was carried through the dressing of meat. In only a few cases had he come across any tubercle in the meat itself, but the danger from "dressing" was a very appreciable one.

Mr. WATSON CHEYNE, who was unable to be present, sent a paper of which the following is an abstract. In surgical work tuberculosis was met with in a variety of forms and situations and the mode of access of the bacilli and the changes which they produced were of great importance from the point of view of treatment. In operating on a tuberculous affection it was a point of the greatest importance whether one was likely to remove the whole disease or only to take away one local manifestation. Many cases undoubtedly arose from direct infection as in the skin and in cases of intestinal tuberculosis and glandular disease. Mr. Watson Cheyne then referred to Klebs's experiments upon animals and said that the conditions were similar in the human subject. In cases of diseased cervical glands lesion was seldom found at the point of entrance in the throat, though probably the bacilli entered in that situation. It must be remembered that the infection spreads rapidly to adjacent glands and it was more satisfactory in removing the diseased glands to take away also all the surrounding fat. In tuberculosis of the more distant parts the bacilli probably had reached the part through the blood-stream and then the question of the primary or secondary origin of the disease was a much more difficult one. There were a number of points which precluded the embolic origin of joint affections as a common mode of origin. One of these points was the marked predisposition to tuberculous disease shown by different joints. Whence did the bacilli in the blood-stream come? They must either have got into the blood from outside or have come from some pre-existing deposit in the body, such as a cheesy gland. In the

former case the disease of the joint would be primary and removal of the local deposit would cure the patient; in the latter disease would be secondary and cure would be doubtful because fresh lesions might arise from the same source that supplied the bacilli in the first instance. Pathological research had shown that in many cases of scrofulous diseases of the joint there was a deposit elsewhere which might have preceded the joint disease, but it did not follow that the bacilli which set up the joint trouble were necessarily derived from the former source. Mr. Watson Cheyne thought they were in many cases but not always. This view fell to the ground in face of the fact that in several instances no such deposits had been found and one must admit therefore that many of the deeper-seated tuberculous deposits were primary in origin; where these arose secondarily to deposits elsewhere he thought it was a case of multiple tuberculosis.

Some slides were then shown which were lent by Professor SIMS WOODHEAD and Mr. WATSON CHEYNE.—The following members took part in the discussion which followed: Sir C. GAGE BROWN, Dr. MITCHELL SMITH, Dr. F. R. WALTERS, and Dr. GIBBES.—Professor SIMS WOODHEAD replied at some length to the questions put to him.—The proceedings terminated with a hearty vote of thanks to those who had so kindly addressed the meeting.

### LIVERPOOL MEDICAL INSTITUTION.

#### *Prurigo Ferox.—Pylorotomy.—Pyloroplasty.—Foreign Bodies in the Eye.—Suppurative Peritonitis.*

A MEETING of this society was held on April 13th, Dr. W. MACFIE CAMPBELL, the President, being in the chair.

Dr. BARENDT showed a lad, aged 13 years, suffering from Prurigo Ferox. The "eczematization" of the skin due to incessant scratching, with prurigo efflorescences glimmering through and in the vicinity of this secondary eruption, was most marked on the shins and forearms. The thighs, buttocks, and arms, with the exception of the internal aspects, displayed red ridges and configured areas of thickened integument powdered with material like asbestos. The prurigo buboes were well marked in the inguinal and axillary regions and the skin where free from rash was harsh to the touch. The family history shed no light on this incurable affection and treatment was only palliative.

Mr. RUSHTON PARKER showed a man, aged 48 years, upon whom he had performed Pylorotomy on Jan. 16th. Gastric troubles had existed for five or six years and recently pain and vomiting after food had reduced the patient to a state of emaciation. At the operation a hard tumour was found in the posterior wall near the pylorus and excision was performed. The duodenum was then attached to the stomach by continuous silk stitches, one set for the mucous membrane, the other for the peritoneum, and the remaining gap in the stomach was closed by attaching its sides in the same fashion. The patient made a good recovery within a few weeks, was able to eat ordinary food, and was still in good health on April 13th. The growth showed no indication of carcinoma, but was obviously of syphilitic origin as evidenced by small gummata, endarteritis, and cellular infiltration.

Mr. RUSHTON PARKER also showed a man, aged 21 years, upon whom he had performed Pyloroplasty on Jan. 23rd. At the operation the pylorus was found to be narrowed to three-eighths of an inch in diameter outside. This was opened and a small circular ulcer was found inside the stomach. Pyloroplasty was performed over a Mayo Robson's decalcified bone button and the diameter of the pylorus increased to one and a half inches outside. The patient made a good recovery, in a month or five weeks ate ordinary meat diet, and on April 13th he was in good health.

Dr. GROSSMANN described a Method of Localising Foreign Bodies in the Eye by Means of the X Rays which he had employed in preference to Mr. M. Davidson's stereoscopic method.<sup>1</sup> He utilised the movements of the eye for obtaining the parallax of the shadow of the foreign body, the Crookes's tube, the patient's head, and the sensitive plate retaining the same position in two successive exposures.

Mr. R. W. MURRAY showed a child upon whom he had operated for General Suppurative Peritonitis associated with a gangrenous appendix. The patient, a boy, aged nine years,

was first seen by Mr. Murray last September; he had been seriously ill for five days with abdominal pain, constipation, and continuous vomiting. The abdomen was much distended, tender, and tympanitic. On opening the abdomen the intestines were found to be bathed in pus and bubbles of gas came from the right iliac fossa. The median incision was enlarged, the intestines were turned out of the abdominal cavity, and the appendix which was gangrenous and perforated was excised. The abdomen was then well washed with warm boric lotion, the distended intestines after being cleansed were with some difficulty returned, and the wound was closed except at the lower part where a drain was inserted. After an anxious convalescence the boy ultimately made a good recovery.—Mr. W. MITCHELL BANKS said that by far the commonest cause of suppurative peritonitis was in the first instance an appendicitis or a perityphlitis. He considered the routine use of opiates to be harmful to the patient and distracting to the surgeon. As the majority of cases occurred in children it might be possible to have in the operating theatre a tin bath beside the table at a height convenient to the surgeon. If the bath were filled with a hot salt solution and the child put into it the abdomen might be opened in it and washed out under water. This was a theoretical proposition, but perhaps it might yet be tried.—Dr. E. T. DAVIES, Dr. HUMPHREYS, Dr. NATHAN RAW, Dr. BARR, Dr. GRÜNBAUM, Mr. RUSHTON PARKER, and Mr. THELWALL THOMAS also spoke and Mr. MURRAY replied.

### ROYAL ACADEMY OF MEDICINE IN IRELAND.

#### SECTION OF PATHOLOGY.

*Abscess in the Tibia.—Hemiplegia in Enteric Fever.—Multiple Abscess of the Liver and Carcinoma of the Gall-bladder.—Blood-cast of the Nares.*

A MEETING of this section was held on March 24th, Professor E. H. BENNETT, President of the Academy, being in the chair.

Mr. H. G. CROLY communicated several cases of Brodie's Chronic Circumscribed Abscess in the Tibia and exhibited portions of bone removed by a trephine; the bones were much thickened and diseased. Case 1 occurred in the lower end of the tibia of a young man who suffered from severe pain confined to a small spot about four inches above the ankle-joint. All treatment constitutional and local failed to give relief. Mr. Croly trephined the tibia at the most painful part and a small quantity of pus escaped. The patient felt immediate relief and made a rapid recovery. Case 2 was that of a young woman who suffered from pain at the junction of the middle and lower third of the tibia for about 16 years. The pain at times was excruciating. All treatment having failed amputation was proposed and refused, but on Mr. Croly trephining the tibia a small quantity of pus escaped and the patient made a perfect recovery. Case 3 was that of a young man who suffered for 10 years from very severe pain in the lower third of the right tibia. Mr. Croly trephined and about two drachms of healthy pus escaped as the portion of bone was being removed. The wound healed rapidly and the patient got immediate and permanent relief. In Case 4 the patient was a young girl who suffered for over three years from severe and constant pain in the upper third of the right tibia. Mr. Croly trephined and she got instant relief.—The cases were discussed by the PRESIDENT, Dr. T. MYLES, Dr. KNOTT, and Mr. T. E. GORDON.

Dr. J. W. MOORE reported a case of Enteric Fever fatal through Embolic Hemiplegia. The patient was a woman, aged 29 years, who progressed favourably until the twenty-seventh day when a fresh rise of temperature, pain in the left side, and a choking sensation marked the occurrence of hæmorrhagic infarction in the spleen. 11 days later a violent rigor and rapid rise of temperature to 105.6° F. ushered in an attack of right hemiplegia with complete aphasia. The patient died on the forty-third day. The left middle cerebral artery was blocked by a firm embolus. The spleen was the seat of several hæmorrhagic infarctions. The terminal few inches of the ileum showed frequent excavations formed by the previous detachment of numerous typhoid ulcers.—Dr. E. J. McWEENEY and Dr. R. T. SMITH discussed the case.

<sup>1</sup> Brit. Med. Jour., Jan. 1st, 1898.