SANITARY ASSOCIATION OF SCOTLAND.

CONGRESS IN GLASGOW.

THE twentieth annual Congress of the Sanitary Association of Scotland was opened on August 22nd, in the Corporation Galleries. The proceedings were entirely devoted to the business of the Association. Dr. EBENEZER DUNCAN, the President, occupied the chair, and there was a large attendance.

The SECRETARY submitted his report, which referred to the business of the Council during the year. It proposed the following gentlemen as office-bearers: *Honorary President:* Ex-Bailie Crawford, Glasgow. *President:* Professor Mathew Hay, Aberdeen. *Vice-Presidents:* Dr. J. B. Russell, Glasgow, and Mr. Gilbert Thomson, M.A., C.E., Glasgow. *Secretary:* Mr. D. M. Alexander, Glasgow. *Treasurer:* Mr. J. C. Stobo, Rutherglen.

Mr. STOBO, the Treasurer, submitted his annual report, which stated that the total income was £215 15s. 9d., and the expenditure £208 4s. 7d., leaving a balance in hand of £7 11s. 2d. Mr. Stobo, as Secretary of the Board of Examiners, stated that 118 persons now held the certificate of the Association.

The Association, said the CHAIRMAN, had stirred up the Government to take an interest in the local government in Scotland. They had for several years been discussing that question, and they had put their views in various forms before the Government, not only by memorial this year, but by deputation to Parliament, and he had not the smallest hesitation in saying that these last ten years of agitation, in which the Association had taken a very prominent part, had had a great deal to do with the revision which had been effected in the Board of Supervision during the last session of Parliament. He must say that he was somewhat disappointed with the result of the Local Government Bill. He had hoped that they would have a Health Board for Scotland. They were still in the position of having a Board which dealt both with Poor-law and public-health matters, and in which they had not carried out the thorough reform which they had advocated in their Association. They were not only desirous of having a separate health board for Scotland, but of having on that board a number of skilled men who might be able to advise the local authorities in regard to such matters as were constantly coming before them. They had, however, an instalment of their reforms granted to them. They had one skilled man put upon the Board, and they had had a large number of persons removed who took no interest in public health matters at all, and who did not attend their meetings. They had still a number of reforms which must be effected before they could consider the Board which had been granted by Parliament at all an ideal or a thoroughly efficient board. In the first place they ought to have on the Board experts in order to strengthen it, and in order to make it a board of health respected by the local authorities, because when a local authority had a difficult question of sanitation to face, it naturally looked to the central body to direct its action intelligently, and therefore he thought their suggestion that there should be gentlemen connected with sanitation on that Board should be carried out at some future time. Thus they were strongly of opinion that the powers of the central board should be greatly enlarged. They found in looking into the Public Health Act that the central authority had really had no power of compulsion over burghs, particularly those over 10,000 of population. They had simply the power of suggesting reforms. With regard to the examinations, he thought that department had been carried out with signal success during the past year. They were the only body in Scotland who were at present engaged in doing work of that kind, and they were quite ready to increase the stringency of the examinations, particularly with regard to education pure and simple. So long as the great English bodies did not advance in that direction more heartily than they were doing at the present time, of course they could not go any further than they had done. The report was adopted.

On August 23rd the subject of Uninhabitable Houses was introduced by Dr. J. B. RUSSELL, who described the method of dealing with them in Glasgow under Clause 32 of the Glasgow Police (Amendment) Act, 1890, which gives powers to the local authority, as advised by their officials. As a result of the discussion, the Congress decided to call upon the Secretary for Scotland to insert in the new Public Health Act a provision giving similar powers to all local authorities. Mr. R. R. TATLOCK, analyst for Glasgow, discussed the causes of the pollution of the Clyde; and the medical officer of Lanarkshire, Dr. MCLINTOCK, handled the same theme of the pollution of rivers, and the Congress adopted a resolution that the Rivers Pollution Prevention Act of 1876 should be amended by the Government, in terms of the Act, recently passed by the Joint Boards of West Riding and Aire Valley, so as to enable burgh and county sanitary authorities adequately to purify rivers and streams within their jurisdiction.

Dr. A. K. CHALMERS, Dr. J. B. Russell's colleague, opened the proceedings of the second day with a paper on Sanitary Control of Infectious Diseases. A discussion on Building Regulations for cities and counties led to the adoption of a resolution that more powers should be given local authorities to regulate the erection of new buildings, and the Congress remitted it to the Council to draft a Bill on the subject. School hygiene was also brought under the review of the Council by a paper by Dr. Glaister, of Glasgow.

The business of the Congress was pleasantly varied by visits to places presenting features of sanitary interest, including the new Glasgow Sewage Disposal Works.

THE ANNUAL REPORT OF THE LOCAL GOVERNMENT BOARD, 1892-93.[1]

[SECOND NOTICE.]

THE portion of this report devoted to auxiliary scientific investigations is principally occupied by the record of researches undertaken by Dr. Klein, on the Etiology of Typhoid Fever, on the Antagonism of Microbes, and on the Etiology of Vaccinia and Variola. The rest of the space is given to Dr. Cautley on Micro-organisms found in the Small Intestines of Man, Dr. F. W. Andrewes on Blood Infection, and Dr. Sidney Martin on the Chemical Pathology of Diphtheria in Relation to the Symptoms of the Disease.

All these essays are interesting, but it must be confessed that to one untrained in official ways they have a smack of antiquity. From the taxpayers' point of view it is doubtless a satisfaction, tempered by the costliness of the illustrations, to know that public servants are doing good public work, and as a proof of industry the bulky volume before us serves a good purpose. It must be noted, however, that, although published in the latter half of 1894, it deals only with matters occurring up to March, 1893, and thus, as a contribution to current scientific knowledge, is, to say the least of it, somewhat out of date.

THE TYPHOID BACILLUS.

The first matter reported upon by Dr. Klein is as to the relationship of Eberth's bacillus with enteric fever. The fact of its almost constant presence in the mesenteric glands and spleen of persons dead from enteric fever is universally recognised, but there are certain difficulties in the way of accepting it as the *vera causa* of typhoid fever—it is not found in the blood, as are the microbes of malarial and relapsing fever; it is now generally admitted that it does not form spores, as it should do, to accord with the clinical history of prolonged vitality in the infection of typhoid fever; and then there is the doubt arising from the difficulty of identification and the confusion between it and the bacillus coli. After much careful investigation on the latter point, Dr. Klein believes that the two bacilli are distinct and separate species. From examination of the blood of living patients suffering from typhoid fever, Dr. Klein confirms the observations of Gaffky and others as to its freedom from all forms of bacteria. In the mesenteric glands and spleen, however, of patients dead of the disease during the second and third week of its progress, the typhoid bacillus was constantly present, often in the form of pure culture, and it is to be noted that this was the case so early as the second week, before any considerable disorganisation of Peyer's patches had taken place and given rise to possibility of immigration.

[1] London: Eyre and Spottiswoode; Edinburgh and Glasgow: Menzies and Co.; Dublin: Hodges, Figgis, and Co. Price, 9s. 7d.

The Bacillus Coli in Typhoid Fever.

It is a curious thing, however, in regard to the great similarity between the typhoid bacillus and the bacillus coli that Rodet and Roux should have found the latter almost in pure culture in the intestinal contents in cases of typhoid fever, while Klein in the same disease finds the former in the glands and spleen, and it is clear that when Dr. Klein says, "There is then the strongest presumption, short of actual proof, that this particular organism called the typhoid bacillus, which differs essentially from the bacillus coli, stands in an intimate relation to the disease enteric fever," the strength of the presumption hinges on the proof of the distinction between the two bacilli.

The Antagonism of Microbes.

The second investigation reported on by Dr. Klein is a continuation of his experiments as to the antagonism between different pathogenic microbes. He has found reason for believing that in regard to the influence exercised on each other's life processes by different pathogenic micro-organisms a distinction must be drawn between the influence due to the actual chemical constituents of the body of a given microbe and that referable to the chemical products produced by it in the pabulum in which it flourishes. The bodies of certain microbes, their actual protoplasm, inoculated into rodents, produce a certain physiological effect, whereas the culture media in which they have been grown and from which they have themselves been completely removed have under like conditions other and different physiological effects.

Both are due to poisons produced by the animal, but the poisons are different; one being the "intracellular" poison, bound up within the body of the bacterium, the other that manufactured in the culture medium by the particular microbe, its own "metabolic" poison. Upon this basis of differentiation of a microbe from its products, Dr. Klein went on to inquire whether the insusceptibility conferred by protective inoculation was due to the "intracellular" or to the "metabolic" poisons produced by the microbic growth.

His results are certainly surprising, tending to show that while, as is well recognised, each microbe brews its own "metabolic" poison, which has a specific inhibitory effect on the growth of similar micro organisisms, the intracellular poison is not specific, but in regard to all the species experimented on is of the same nature.

Guinea-pigs made ill by inoculation with the intracellular poison of one of his microbes were fully protected against further successful inoculation with the intracellular poison of any of his other microbes, even when used in greater amount and greater potency.

Inoculation against Cholera.

The importance of this in respect to cholera inoculation is obvious. This procedure consists in essence of the introduction into the body to be protected of the cholera vibrio itself, not of the chemical products resulting from its life-processes; now although inoculation with the intracellular poison of the cholera vibrio does indeed protect against further reaction to the same test, the same protection can be obtained by inoculation of the intracellular substance of a great variety of microbes, and the disease produced by the one or the other cannot be looked on as in any sense specific, or as a substitute for a definite attack of cholera. In Dr. Klein's view, therefore, anti-cholera inoculation, as now practised, cannot be expected to have protective value.

Variola and Vaccinia.

In regard to vaccinia, Dr. Klein has succeeded in inoculating lymph from early vesicles of confluent small-pox into calves. But even at the fourth remove, vaccinating calf from calf, there was no trace of vesiculation; nothing but a linear crust, with swelling of the skin in its neighbourhood and distinct areolar redness.

At the stage of "fourth remove" it was considered by Drs. Klein and Cory that the semi-fluid material which could be squeezed out might with safety be transferred to the human subject, and the result was the production of unmistakable vaccinia. The scab from one of the vesicles so produced was used for retrovaccination on another calf, and then there appeared on this calf the characteristic umbilicated vesicles of vaccinia. Clearly all that tends to prove the variolous origin of vaccinia tends to make more comprehensible its protective powers, showing that the protection is of a specific nature.

Dr. Klein's further bacterioscopic examination of calf-vaccine, and variolous lymphs do not appear very conclusive, but he found in them all an apparently similar bacillus, a bacillus which contains certain bodies comparable with spores, but which cannot at present be cultivated in artificial nutritive media, and so cannot at present be further studied.

THE ANTITOXIN TREATMENT OF DIPHTHERIA.

V.—Dr. J. J. Henton White, L.R.C.P. (Durham), sends us the following notes of a case of diphtheria treated by antitoxin, for permission to publish which he is indebted to Dr. Renton, of Chester-le-Street:

B., a girl, aged 3 years, was first seen on the evening of August 12th. She was then feverish (temperature 99.5° F.), had a harsh, croupy cough, and a sore throat. On examining the latter by candle light no membrane could be seen. During the night the cough became worse, and stridor set in with ordinary respiration. On August 13th there was distinct membrane over both fauces and pharynx. Stridor was distinct but respiration was not much hurried. On August 14th a piece of membrane had disappeared from the pharynx and left tonsil, leaving a raw, red, swollen surface beneath. On August 15th the child was worse; respiration was hurried and the stridor very marked; membrane was again present over the fauces and pharynx; anæmia and emaciation were setting in, and the patient was distinctly weaker; there was a haze of albumen in the urine.

The treatment up to this date had consisted in frequent insufflations of equal parts of boric acid and iodoform and of a mixture of perchloride of iron. Calomel gr. ij was administered on this day. On August 16th the patient was still weaker and more anæmic, and on this day for the first time refused nourishment; the stridor, croupy cough, and membrane continued as on August 15th. At 11 A.M. antitoxin ℥vj was injected into the muscles of the back with antiseptic precautions. At 6.45 P.M. great improvement, both in general and local conditions, had taken place; the pulse had fallen from 130 at 11 A.M. to 100, she was taking food eagerly, and had slept well since the injection; the membrane had almost gone from the pharynx, but there was still some on the fauces; there was no stridor. Antitoxin ℥v was given as before. She slept nearly all night, and on August 17th no membrane was to be seen; knee-jerks, tested for the first time, were found to be present. On August 18th she was still improving; the fauces and pharynx were almost normal in appearance.

This case seems of interest, not only because it shows the therapeutic value of antitoxin locally, but also on account of the rapid relief of the general toxic symptoms. It will be interesting to see if cases thus treated develop any paralytic symptoms after apparent recovery, and, if so, to try the effect of a renewal of the injections on their appearance.

VI.—Dr. Trevor Fowler, D.P.H.Camb., M.O.H. Epping, etc., sends us the following notes on two cases of diphtheria treated by antitoxin:

R. R., a female, aged 11 years, was admitted into Epping Infectious Hospital on August 18th. The illness was stated to have been of three days' duration. On admission, the whole of the soft palate was swollen and covered with membrane protruding into the mouth. There was inability to shut the mouth, with saliva constantly dribbling from the lips. There was great swelling of the left tonsil and surrounding structures. On the left side the neck was swollen and brawny externally from above the angle of the jaw to the sternum; deglutition was difficult, and the breath very offensive; pulse 110, temperature 99°. There was no cerebral disturbance. On August 19th the local conditions were unaltered, except that there was well-marked diffused cellulitis extending over the left side of the neck and halfway down the sternum. The pulse was unaltered, the temperature 99°. On August 20th the cellulitis was apparently subsiding. A large piece of membrane had been coughed up. The temperature 99°6 in the morning, 99° in the evening. On Au-