lar intervals. There are two filter beds, circular in shape, and containing coarse particles of broken brick, etc. At first the upper of the two beds was worked as an anaërobic tank. Subsequently, however, it was converted into an aerobic filter, differing from the lower one only in containing coarser particles. It was found that better results were obtained by this alteration.

According to the reported analyses, the Reigate sewage is a strong one and the amount of purification highly satisfactory. The average reduction in the amounts of albuminoid ammonia and oxygen absorbed was 90 and 93 per cent. respectively with the original combination of anaërobic with aerobic bed, still greater when the anaërobic bed was replaced by another aerobic bed. The average amount of oxidised nitrogen was 4.6 per 100,000. These satisfactory results were obtained when as much as 500 gallons of sewage per square yard were passing through the system in twenty-four hours. Drs. Kenwood and Butler, of University College, London, have examined the effluent of the sprinkler bed, and found that it contained dissolved oxygen varying from 4.5 to 7.5 milligrams per litre. Although the beds have been working without interruption since installation, no signs of choking either of the beds or sprinklers have been detected; no labour or alterations have been required. Equally satisfactory results are reported from Southwold, where the sewage is exceptionally strong, and from Southampton. With ordinary weak domestic sewage the rate of filtration has been increased up to 1,000 gallons per square yard per twenty-four hours with a very satisfactory amount of purification.

From the above statements it is seen that this system is also very simple, automatic, comparatively inexpensive, and capable of treating large volumes of sewage with great rapidity within a very small area and with very satisfactory results.

There are various other systems of continuous filtration, for example, those of Ducat, Whittaker, etc., which the writer has not had the opportunity of visiting. They are fully described and criticised in Dr. Rideal's book. The above instances, however, will serve to illustrate the advantages claimed for the methods of continuous as compared with intermittent filtration, those advantages being chiefly greater rapidity of filtration, great reduction of the area and bulk of the filter, and, in Scott Moncrieff's system, at any rate a far more complete oxidation, an oxidation almost attaining the maximum possible.

A study of the reports of the various methods employed in bacterial purification of sewage reveals the great want of a system by which the collection of samples, the methods employed for analysis and the construction of standards ought to be regulated in order to compare and judge between the different methods of bacterial purification.

Experts are not likely to agree upon the value of arbitrary standards of purification as gauged by the amounts of albuminoid ammonia, "oxygen absorbed," or oxidised nitrogen in the final effluent. Nor can such standards be of value for testing the actual efficiency of different schemes until some standard methods have been adopted for determining the character of the sewage under treatment.

Scott Moncrieff has urged that such standards should be determined by observations on crude sewage submitted to treatment in anaërobic beds of a certain size for definite and varying periods of time, and subsequently treated in aerobic and nitrifying trays of a standard size containing particles of definite size, the flow of sewage being so controlled and regulated as to pass through the apparatus in definite quantity.

It may be confidently hoped that when observations of this kind have been carried out and completed—but not till then—we shall have obtained some definite means for estimating the actual relative values of the different schemes for sewage purification.

THE MEDICAL SICKNESS AND ACCIDENT SOCIETY.

THE usual monthly meeting of the Executive Committee of the Medical Sickness, Annuity, and Life Assurance Society was held on September 28th at 429, Strand, London, W.C. There were present Dr. de Havilland Hall in the chair, Dr. G.

A. Heron, Dr. J. B. Ball, Mr. J. Brindley James, Dr. F. J. Allan, Mr. F. S. Edwards, Dr. M. Greenwood, Dr. Walter Smith, Dr. J. W. Hunt, Mr. William Thomas, and Dr. Alfred S. Gubb.

The list of sickness claims was unusually long for this season of the year. The extra number was mainly made up of cases of nervous breakdown, many of which seem to be the result of past attacks of influenza. There are also not a few accident cases, for the most part connected with bicycles, which appear to be largely used by medical men during their holidays.

Several of the members of the Society volunteered for service in South Africa, and of which, so far, three have been invalidated home with enteric fever, causing them to be on the Sick Fund for many weeks. The list of those who are permanently incapacitated steadily grows, and there are now seventeen members on the books who will in all probability never be able to resume professional work. A few months back death removed from this list a member who had been continuously drawing sickness pay for more than fifteen years, and had received in all more than £1,800. This is the heaviest amount yet drawn by one member, but there are some on the present list who may require even more than this before they lose their need for the sickness pay of the Medical Sickness Society.

Prospectuses and all particulars on application to Mr. F. Addiscott, Secretary, Medical Sickness and Accident Society, 33, Chancery Lane, London, W.C.

THE VOLUNTARY NOTIFICATION OF PHTHISIS.

By WILLIAM RUSHTON PARKER, M.A., M.D.Cantab.,
Member of the Town Council of Kendal.

Nor much headway is likely to be made against consumption until some uniform action is taken throughout the country, and this must be preceded by some agreement as to the best policy to adopt. Probably one of the earliest and best steps to take is the adoption by the various sanitary authorities of a system of voluntary notification of phthisis, with payment of the usual fees to the notifying practitioners, and of free disinfection of dwellings vacated by persons suffering from phthisis.

ADVANTAGES OF NOTIFICATION.

1. *Number of Consumptives.*—Each district becomes aware of the number of consumptives at large in its midst, each of whom is a possible centre of further infection. The knowledge of this should facilitate the institution of sanatoria for the milder curable cases, and of isolation homes for the severer incurable ones. In the meantime, every such case needs instructing about spitting, cleanliness, and ventilation, for which the notifying practitioner should be responsible so long as in actual attendance.

2. *Distribution of Cases.*—Each district becomes aware of the distribution of its cases, the knowledge of which should induce it to improve or get rid of such dark, dirty, badly-ventilated, overcrowded, noisome dwellings as are found by experience to specially harbour the infective material of consumption, and to keep a close supervision of common lodging-houses and public houses, where cases appear to arise with special frequency, and also to improve the subsoil drainage of its damper quarters.

3. *Source of Infection.*—Occasionally the source of infection may be traced to workrooms infected by other consumptives, or to dwellings vacated by consumptive tenants (as in New York, Manchester, and Oldham), or to tuberculous milk. The knowledge of this should encourage the frequent cleansing of all dwellings occupied by consumptives, and their disinfection when vacated by removal or death; also the improvement of cowsheds in the matter of air space, ventilation, lighting, cleansing, and drainage, and the search for diseased udders.

4. *Isolation of Certain Cases.*—In the case of consumptives beyond the adequate supervision of any medical man, as where no practitioner is in attendance, or where living in common lodging houses, or attending school, or working in factories or crowded workrooms, or dealing in such easily infected articles as milk, food stuffs, clothing, etc., it becomes a matter of public concern that a check should be placed upon

a dangerous source of infection, and in such cases the medical officer of health might advantageously step in. The treatment of such cases in sanatoria is most desirable from the point of view both of isolation and of education.

OBJECTIONS TO NOTIFICATION.

The principal objections to voluntary notification seem to be based on the idea—

1. *Breach of Confidence.*—That it involves a breach of confidence on the part of the medical attendant; this can be avoided by the practitioner invariably securing the sanction of his patient first; if a patient refuses consent, and continues a dangerous source of infection among the public, doubtless the practitioner should notify without consent.

2. *Intrusion of Sanitary Officials.*—That private patients would be subject to interference and annoyance from medical officers of health or other officials; this can be avoided by such officials invariably working through the private practitioner, provided the latter has any real supervision of the case.

RESULTS OF NOTIFICATION WHERE ADOPTED.

So far, very satisfactory results have been obtained in several places where the usual notification fees are paid, as in Brighton, Manchester, and Sheffield; but in several others sufficient time has not yet elapsed for the system to have been thoroughly tested, as in Stockport, Blackburn, Stonehouse (Devon), Plymouth, and Kendal. On the other hand, wherever adequate fees are not paid, the system is a miserable failure; for instance, in Norwich, where a fee of only 1s. is paid, 11 notifications came in during the first three or four months, and none at all during the following six months; in Carlisle, where a fee of only 1s. is paid, and only parish, hospital, and dispensary doctors asked to notify, few notifications come in; in Liverpool, where the payment of fees has been omitted, very few cases are reported; and in Cardiff, Blackpool, Chiswick, and Clacton-on-Sea, where fees are not allowed, very few notifications come in; so complete is the failure that in several of the above places adequate fees are about to be proposed.

CONCLUSIONS.

It appears, then, that a general adoption of voluntary notification of phthisis by the various sanitary authorities, with the payment of the usual notification fees, followed by the offer of free disinfection of dwellings vacated by consumptive persons, will unquestionably lead to useful results. The mere notification by registrars of deaths due to phthisis, even though accompanied by the disinfection of the dwelling concerned, as in Birmingham, Huddersfield, Louth, St. Thomas (Devon), and Saltburn-by-Sea, seems an altogether inadequate measure.

THE GERMAN SCIENTIFIC AND MEDICAL CONGRESS.

[FROM OUR SPECIAL CORRESPONDENT.]

SOME CELL PROBLEMS.

One of the most interesting papers from the biological point of view was read by Professor HANSEMAN, the pathologist of Berlin, entitled *Some Cell Problems and their Importance for the Scientific Evolution of Organo-Therapeutics*. He said that organo-therapeutics was originally intended to be a specific form of treatment. Its employment for other purposes, such as the use of thyroid gland for the removal of suprarenal fat, really lay outside the range of specific methods. The latter was based on the importance of every organ as regards the whole organism. All organs, not only the larger ones, were essential for the maintenance of health and well-being of the body, and every one of these glands had a so-called internal secretion which assisted in the manufacture of lymphatic fluid and blood. Thus one organ was brought into relationship with the others, and each undertook a function for the others. This dependence of one on the other, and *vice versa*, was termed altruism. Hanseman proceeded to give instances of this altruism in the thyroid, suprarenal, pancreatic, genital glands and cerebellum, describing their relationship to the rest of the body, showing the altruistic activity of the organs; and, secondly, that atrophy of one organ produced an altruistic atrophy of the remainder of the body, and hypertrophy an altruistic hypertrophy. The speaker

declared himself to be a believer in the theory of preformation as opposed to epigenesis, the main argument against the latter being the absolute and constant specificity of cells. Based on the latter he advanced the following conclusions bearing on organo-therapeutics. (1) It could only be of use to employ organo-therapeutics in diseases of organs having an inner secretion. (2) Success could only be expected where there is altruistic atrophy, not in cases of altruistic hypertrophy. (3) It was not immaterial from which animal the serum was prepared, but that species must be selected whose organic products more particularly resemble the human ones. (4) We know practically nothing of the chemical composition of the inner organic secretions. (5) Even though it may be impossible now to foretell the ultimate utility of organo-therapeutics the biological basis seemed to be secure.

REPAIR OF FRACTURES.

The Changing Relationships between the Form and Function of the various Organic Tissues was the title of a paper by Medical Councillor Professor JULIUS WOLFF (Berlin), in the course of which he showed by numerous lantern slides that Roentgen rays had disproved the old belief that during the healing of fractures Nature reverted to the original form, and that the marrow cavity assisted in the formation of the repair. Two processes must now be distinguished—the process of mechanical repair and a transformation. In no case did Nature revert to the old form; it only restored the original function by repairing the fracture with new formations.

INFANT FEEDING.

Sanitary Councillor L. FUERST (Berlin) first described the changes ideas as to infant feeding had undergone during the last forty years, beginning with the recommendation of Liebig's extract. The speaker pronounced as physiologically sound the modern endeavours at preparing a humanised milk by adding to the natural secretion of the cow a certain quantity of fat, by diminishing the quantity of casein, and by the conversion of the latter into a more soluble albumen.

Professor SCHMIDT (Bonn) read a paper on a similar subject, entitled, *Artificial Bottle-Feeding of Infants*. He considered the latter to be detrimental to the child as compared with breast-feeding, partly because the swallowing was not so easily performed, causing the infant to swallow also a certain amount of air. This he regarded as unavoidable, and as being the cause of the more numerous gastric derangements in such infants. Various endeavours had been made to prevent air being sucked in, and more inventiveness should be shown in that direction.

Dr. H. CONRADS (Essen), who read a paper on the Inability of many Mothers to Nurse Infants, dwelt on the necessity of mothers rearing their infants, and gave as causes of their inability, artificial feeding during their own infancy, sedentary stooping occupations without exercise, and chlorosis. As remedies he suggested gymnastic exercises in girl schools, and mentioned that in Berlin the mortality among artificially-reared infants was six or seven times as great as among those nursed at the breast. On the other hand, Norway was stated to have the lowest rate of infant mortality owing to the prevalence of the opposite custom. Where artificial feeding was unavoidable, it should not only be necessary to watch the percentage of water and fat in purchased milk, but the quantity of dirt should also be watched, as it was hardly creditable how much of this was contained in average samples of milk.

INTRO-MATHEMATICIANS OF THE FIFTEENTH AND SIXTEENTH CENTURIES.

This paper was read by Dr. SUDHOFF (Düsseldorf) in the Section of Historic Medicine. The speaker related that in the fifteenth and sixteenth centuries the origin, course, and cure of an illness were held to depend on various accidents, and systems were elaborated basing all ailments on all the possible signs and phenomena of the heavens. One system which had been referred to Hippocrates was connected with the constellations and the time of birth, each constellation foretelling the illnesses a particular person would be subject to. From one sign it was even foretold that the newborn would suffer from the results of over-exertion. Another school had prepared two tables of letters from the Greek alphabet, a different set for each illness. The first letter of the patient's