reasonable bounds with respect to the quantity of punch his guests were to imbibe. "But," he would observe, "I do not wish to be inhospitable; I wish every man to enjoy himself under my roof. And, gentlemen, if any of you or all of you after leaving my residence has or have the misfortune to be intercepted on the way to your lodging, send for me and I will bail you. I make it a point not to go to bed early on these evenings in order that I should be forthcoming to relieve you in any difficulty in which you may be placed." Unfortunately this promise often required to be acted upon, and it is to the honour of Dermott that he never failed to fulfil it.

Dermott was in every respect a thoroughly honest, straightforward, and painstaking man. Independent by nature, he rarely squared himself by the opinions and feelings of others, and his rapidly-formed convictions were based as much upon feeling as upon reasoning. He took an active part in the foundation of "The Medical Protection Assembly," which was formed in 1843 after the new charter had been granted to the Royal College of Surgeons of England, and it was the anxiety attending his relations with this Assembly which undoubtedly hastened his end.

Dermott's school was modelled more upon the Great Windmill Street or Webb Street Schools than upon Carpué's or Brookes's, for it aimed at giving a complete medical education. The fee for perpetual attendance on the course of lectures was £22, and the entries were so numerous that Mr. Clarke says that when he joined the school its alumni numbered nearly 300. It suffered many migrations in the course of Dermott's life. The school was founded in Little Windmill Street; it was transferred after a time to Chapel Street, Wardour Street, and thence into a house in Great Pulteney Street. It was held for a time in the Westminster Dispensary, in Gerrard Street, Soho, and later in Charlotte Street, Bloomsbury. This house was required by the Commissioners of Metropolitan Improvements in 1845, and Dermott was compelled to surrender his lease. He then moved into Bedford Square, where he died two years afterwards.

Dr. Ryan lectured in the original school for some time upon medicine. He was one of the physicians to the Western Dispensary in Charles Street, Westminster, where most of the students of the school attended as his pupils, for at this time the Apothecaries' Company received the certificate of fifteen months' attendance at a recognised dispensary as evidence that a candidate for its licence had passed through a sufficient course of practical medicine. Ryan was editor of the *London Medical and Surgical Journal*, but he eventually became involved in pecuniary difficulties, and died at a comparatively early age.

John Epps, M.D., of the London University, lectured upon *materia medica*, chemistry, and botany. He was the eldest son of a noted ham and beef shopkeeper in London, and when the school broke up he took to the practice of homœopathy.

In later years Tuson, Guthrie, Jewell, and Sigmond lectured, and more than maintained the reputation of the Little Windmill Street School.

THE MANCHESTER MEDICAL SCHOOL.

DR. F. W. JORDAN (Heaton Chapel, Stockport) writes: With reference to your interesting article in the *BRITISH MEDICAL JOURNAL* of June 22nd on the Medical Schools of London, you refer, on page 1389, 1st line, to "Dr. John Coode and Dr. Roget, who founded the Medical School at Manchester." This is a mistake. The Manchester Royal School of Medicine was founded by Mr. Joseph Jordan first in Marsden Street and then in Chatham Street; it then amalgamated with one that had been established in Pine Street. This last had been founded as the result of a split or quarrel, I believe. Mr. Joseph Jordan was licensed by the College of Surgeons to deliver lectures on Anatomy at his own house in Bridge Street, which was fitted up with dissecting room and museum.

The Medical Faculty of Cracow has proposed the name of Dr. Galezowski, the well known ophthalmic surgeon of Paris, for the Chair of Ophthalmology in that University.

The Society of German Scientists and Physicians will hold its annual meeting this year at Lübeck. The Society has now a membership of 1,105. The Presidents for 1895 are Professors Wislicenus, of Leipzig, von Ziemssen, of Munich, and Victor von Lang, of Vienna.

THE TEACHINGS OF PROFESSOR E. FRANKLAND'S REPORT ON METROPOLITAN WATER SUPPLY, 1894.

By CHARLES PORTER, M.D.IREL., D.P.H.CAMB.,
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Medical Officer of Health for Stockport.

THE latest addition to Professor E. Frankland's familiar series of annual reports to the Registrar-General on the quality of the water supplied by the metropolitan water companies presents features of special interest and suggestiveness.

By graphic representations of the monthly fluctuations of contained organic matter, Professor Frankland demonstrates the marked inferiority, in regard to chemical purity, of the raw river waters utilised in 1894 as compared with those used in 1893, and once more alludes to (a) the chemical superiority of the Lee over the Thames as a raw material, especially in times of flood; and (b) the greater chemical purity of the Lee in its upper as compared with its lower reaches.

A second diagram contrasts the organic purity of the raw Thames water at Hampton with that of the average filtered water as delivered in London, and in this connection attention is again directed to the fact that water impounded in times of severe floods may most seriously affect the quality of the "supply as delivered" in the following month, even to the extent of making it during that month of worse quality from a chemical point of view than the raw river water passing the companies' works at the same time. Commenting upon this remarkable state of things, Dr. Frankland, in his 1893 report, recommended the provision either of (a) some means of substituting the river for stored water, whenever the chemical quality of the former is better than that of the latter, as roughly estimated by observations of the colour in a two-foot tube; or of (b) sufficient storage to tide over the longest floods. This, it will be remembered, was one of the two conditions (the other being efficient filtration) with which the late Royal Commission safeguarded their opinion that no danger exists of the spread of disease by the use of drinking water derived from the Thames and Lee. Large though insufficient storage capacity appears, however, in this particular (chemical) respect, to be distinctly more disadvantageous than a relatively small amount, for certain companies who possessed comparatively little provision of this kind were actually enabled just after the floods of June and December, 1894, to deliver water of better quality than that supplied by the Chelsea Company; who, notwithstanding their much greater storage capacity, had obviously been unable to entirely exclude flood water, and had been compelled to use it afterwards. On the other hand, as regards bacterial purity, the deliveries of the companies possessing least storage were, as might be expected, amongst the least satisfactory.

Judged by the relatively low proportion of carbon to nitrogen, the organic matter present in the waters was as usual found to be chiefly if not entirely of vegetable origin, the directly conflicting results in this respect formerly obtained by the water companies' chemists having proved to be due to an error in the method of analysis adopted by the latter. A further discrepancy in regard to the Chelsea Company's water is explained by the fact that the supposed samples of this water collected for the companies' chemists were really taken inadvertently from the New River Company's main.

In regard to the softening of metropolitan water—both river and well—treatment with lime is regarded as the most economical method, unless it can be shown that less than one-eightieth of the total supply is used for washing, for it entails only about one-eightieth of the expense incurred by the private consumer in the shape of additional soap.

Believing with Koch and with American observers at Lawrence, Mass., that *efficient* sand filtration is practically a perfect safeguard against the introduction of cholera and typhoid bacilli into drinking water, Professor Frankland attaches the highest hygienic importance to the bacterioscopic examination of river-derived drinking waters as the only trustworthy method by which their efficient filtration and bacterial purity can be ascertained. To facilitate such examination in the metropolis he advocates the establishment of small bacteriological laboratories at the various river-water intakes. It

is to be hoped that the time is not far distant when such provision will form part of the equipment of all filtering works, so that, as is now the case in the metropolis, the engineer in charge may at once be informed when any filter is working unsatisfactorily, for to quote Professor Koch, "It is the business of those in charge of the works to take care that the filtered water always satisfies bacteriological requirements."

The results of bacterioscopic examination of the *unfiltered* river waters used by the metropolitan companies in 1894 once more demonstrate (1) the immense destruction of bacteria which is effected by storage in subsidence reservoirs; and (2) that the bacterial quality of these waters may differ widely from their chemical qualities. Thus the water pumped from natural gravel beds near the Thames is nearly identical chemically with the Thames water itself, but the bacterial purity of the gravel water far exceeds that of the Thames water, and indeed not infrequently that of the filtered Thames water sent into London. Again, although the water of the Lee was found during the year to be chemically purer than the Thames, and also in its higher as compared with its lower reaches, yet the determinations of 1894 have demonstrated that bacterially the higher portion of the Lee is enormously inferior to the lower portion, and also to the Thames at Hampton. Dr. Frankland specially draws the attention of the Lee Conservancy Board to this unexpected condition, and one naturally recalls the strictures of the late Royal Commission on the large heaps of gas lime, manure, and town refuse which, as far at any rate as Hertford, "are places on the edges of the banks of the Lee, and within a few feet of the stream itself," and which obviously, in times of rain and flood, become a serious source of pollution.

No part of this report will be read with greater interest than the observations recorded on the causes of the great variations in the amount of microbial life in river waters during the course of the year. Changes of temperature or exposure to varied amounts of direct sunshine have hitherto been regarded as responsible for these variations, the Royal Commissioners stating in their recent report that bacterial life is injuriously affected by "even such a tempered amount of light as is present under ordinary conditions in Thames water." Professor Frankland now, however, demonstrates that the amount of rainfall—or, in other words, the volume of water flowing in the river—is the chief cause of these variations. In a series of most interesting tables and diagrams he brings the number of microbes in raw Thames water into contrast with each of these alleged causes, and his conclusion is as follows:

"That the number of microbes in Thames water is determined mainly by the rate of the flow of the river, or in other words by the rainfall, and but slightly, if at all, by either the presence or absence of sunshine or a high or low temperature. With regard to the effect of sunshine, the interesting researches of Dr. Marshall Ward leave no doubt that this agent is a powerful germicide; but it is probable that the germicidal effect is greatly diminished, if not entirely prevented, when the solar rays have to pass through a comparatively thin stratum of water before they reach the living organisms. If this be so, however, it can be no matter of surprise that the effect of sunshine upon bacterial life in the great mass of Thames water should be nearly, if not quite, imperceptible."

In regard to *filtered* water, if 100 microbes or their spores per c.c.m. be taken as the permissible limit of bacterial life, the effluents of the Chelsea, the West Middlesex, the Lambeth, and the New River Companies were almost uniformly of great bacterial purity. Never once throughout the entire year did the Chelsea filtered water exceed the above limit. The West Middlesex and the Lambeth both transgressed once (in January) and the New River Company twice (January and June). Ten samples of the Grand Junction Company's effluent—4 from the Kew and 6 from the Hampton filters—exceeded the limit, the worst results (464 and 278 per c.c.m.) being in January and June. Four samples of the Southwark and Vauxhall Company's effluents, taken respectively in January, February, July, and December, were also unsatisfactory. The very small storage possessed by both of the two last-named companies is considered mainly responsible for these results. The East London Company's filters worked very irregularly up to, but not after, the end of July, and up

to that time (except during May) there was always at least one unsatisfactory sample. Most of the foregoing abnormal results occurred when the raw river water was bacterially very impure.

The closing pages of the report are devoted to a summary of the results hitherto obtained at the Lawrence (Mass.) Experimental Filtration Station, which are briefly: (1) That within the limits of 300,000 gals. to 3,000,000 gals. per acre per day, variations in rate of filtration have practically no effect on the purity of the effluent, and that filters may be operated satisfactorily even at the rate of 5,000,000 gals. per acre per day, provided that a uniform rate is maintained. (2) That the finer the size of the sandgrains, between the limits 0.2 mm. and 0.9 mm. diam., the higher the percentage of bacteria removed. (3) That, with any moderate rate of filtration, depth of sand within the limits of 1 ft. and 5 ft. exerts but little influence upon the percentage of bacteria removed. (4) That scraping the surface of a sand filter does not interfere with bacterial efficiency provided there is no mechanical disturbance of the main body of the sand.

It is well known that Professor Koch has pointed out certain difficulties attending efficient filtration during times of frost, which he ascribes to (1) freezing of the superficial sand-layer, causing at first total arrest of filtration, and later on excessively rapid filtration through the portions of the surface which are the first to thaw and become permeable, and (2) the impossibility of cleansing the sand surface of open filtering basins which have become thickly covered over with ice. Professor Frankland, however, refers to and reserves for future report some entirely novel phenomena affecting filtration, which the recent severe weather in England has brought to light, and the publication of his observations will be awaited with much interest.

LITERARY NOTES.

A FOURTH edition of Dr. Jukes De Styrac's *Code of Medical Ethics* is now in the hands of the printers.

An index to the first fifty volumes of the *Neue Folge* of the *Journal für praktische Chemie* has just been issued. It has been prepared by Dr. Robert Bahrmann, and covers the years 1870-94. The index is divided into two parts, "Sach register" and "Autoren register," but is more useful than the majority of German indexes compiled on this plan, as a full reference to the title of each paper is given in the "Autoren register."

Messrs. J. and A. Churchill have nearly ready a new work for the use of physicians by Mr. Alfred H. Allen, F.C.S., entitled "The Chemistry of Urine, a Practical Guide to the Analytical Examination of Diabetic, Albuminous, and Gouty Urine." The work, which extends to about 220 octavo pages, is fully illustrated.

Medicine is the name of a new monthly journal of medicine and surgery published at Detroit under the editorship of Dr. Harold N. Mozer. Our new contemporary presents a very creditable appearance, and to judge from the first three numbers it will be a valuable addition to medical journalism. We congratulate both the editor and the publisher (Geo. S. Davis, whose name is favourably known in connection with the *Index Medicus*), on the fact that the trail of the advertiser is not over their journal as it is over so many transatlantic periodicals.

The Hunterian Oration, read on February 14th last by Mr. Thomas Bryant on behalf of Mr. J. W. Hulke, the then President of the College, has just been printed by the Council. A note is prefixed to the Oration stating the sad and exceptional circumstances which caused the Council to undertake its publication. The original dedication, as drawn by Mr. Hulke in anticipation of the usual request of the Council, that the Oration should be printed, is also printed at the beginning of the volume.

The June number of the *Phonographic Record of Clinical Teaching* contains reports of a clinical lesson by Sir T. Grainger Stewart, and of a case of temporary loss of speech from the clinic of Dr. J. S. Bury, of Manchester; and Dr. Gowers begins a series of "Problems in Practical Diagnosis." Our contemporary appears to be doing excellent service in furthering the use of shorthand among medical students and practitioners.