A great deal of psycho-analysis, he thinks, is so silly that only people deficient in common sense and lacking in a sense of humour could have invented it. From this it will be seen that Mr. Sullivan, as a priest of the new religion, does not feel bound to adopt the attitude of bewilderment and humility.

A manual on the *Principles of Physical Chemistry for Medical Students*⁹ has been prepared by PHYLLIS KERRIDGE, M.Sc., who is an assistant in the department of physiology and biochemistry at University College, London. Physical chemistry is a little incongruous to the harmonic group of studies connected with biology, but yet is an essential requisite to medical education. The aim of the author, in recognition of this, has been to gauge carefully what is most necessary as well as sufficient for the medical student's purpose, and to save him from wandering farther afield from his main occupation than necessary. In this aspect the volume has been ably prepared; there is no lack of explanation nor any superabundance of words, and the book appears to give the student a very high rate of return for his effort of study.

Under the title of *The Fifth Avenue Hospital Clinics*¹⁰ are collected reprints of articles previously published by members of the staff of this hospital in New York. The volume also includes informal addresses read at meetings of the staff in 1925.

Lovers of Surtees and Bechford will find equal pleasure in reading *Letters on Hunting and the Management of Hounds*¹¹ by "Scrutator," a well known west country squire, by name K. W. Horlock, who for many years was master of foxhounds. The book is full of hints on the management of hounds, and contains all that information which only one who has practical experience of mastership can furnish. It is admirably written, and is sprinkled with amusing anecdotes. In short it is a book that should be in every hunting man's library.

⁹ *Principles of Physical Chemistry for Medical Students*. By Phyllis M. Tookey Kerridge, M.Sc., A.I.C. With an introduction by Professor A. V. Hill, M.A., F.R.S. Oxford Medical Publications. London: Milford, Oxford University Press. 1927. (Cr. 8vo, pp. xiii + 134; 22 figures. 5s. net.)

¹⁰ *The Fifth Avenue Hospital Clinics*. First Series. New York: P. B. Hoeber, Inc. 1927. (Med. 8vo, pp. xiii + 336; 67 figures. 5 dollars.)

¹¹ *Letters on Hunting and the Management of Hounds*. By "Scrutator." Second edition. London: P. Allan and Co. 1926. (Demy 8vo, pp. xii + 308; illustrated. 12s. 6d. net.)

PREPARATIONS AND APPLIANCES.

Anti-gas-gangrene Serum.

AN anti-gas-gangrene serum (W) (*B. welchii*) has been prepared by Messrs. Burroughs Wellcome in view of the importance attaching to the presence of the causative organism of gas gangrene in some cases of peritonitis and acute intestinal obstruction. During the war the prevention and treatment of gas gangrene was, of course, a matter of everyday importance, and promising results were then obtained with serums. Suitable doses of the present serum are 80 c.cm. intramuscularly or 40 c.cm. intravenously.

VICHY, AND ITS WATERS.

BY

SIR JAMES BARR, M.D.

VICHY is situated near the geographical centre of France. The medicinal properties of its waters have been known from time immemorial, but the first successful impetus to its popularity was given by Napoleon III, who, with the Empress Eugénie, made frequent visits for treatment from 1861 to 1866. Since then the town has steadily grown in size and importance, and it is now the most popular health resort in Europe. Over 130,000 invalids come here for treatment every year—of these a very considerable number have paid several previous visits.

We may now inquire what solid foundation there is for this popularity. It is true that we find here all the amenities of civilized society, but these attractions are no greater, nor perhaps as great, as those to be found at many other health resorts. After careful observation one is forced to the conclusion that the great bulk of the visitors come seeking health or a restoration to health, and if they were disappointed they would not repeat their visits so regularly.

The town is situated on the right bank of the river Allier—a large and rapid stream; the domestic water supply is ample, potable, and is said to be about the best in France. There are forty mineral springs, but only about twelve are in common use. These waters are free, and are freely used, though a free gift is not always

appreciated. However, everyone seems to take the waters religiously according to the prescription of his medical adviser. Almost on arrival everyone is advised to consult a local medical man, and it is difficult to get a bath of any kind at the Grand Thermal Establishment except on a medical prescription. This is a very wise precaution, as nothing could more readily detract from the reputation of the place than the indiscriminate use of the baths and waters. Vichy is well supplied with a large number of able medical men, to whom the success of the place is in no small measure due.

The Grand Thermal Establishment covers an area of nearly eight acres, and here baths of every description can be had. The mechano-therapy department is the best equipped that I have ever seen. The director, Dr. Haller, tells me that during the height of the season the clientele number 500 daily. This gives some indication of the number of damaged joints to be found in Vichy.

Dr. Félix Ramond of Paris in a recent article gives a glowing account of the mineral waters of Vichy, how they are formed deep down in the crust of the earth by the union of hydrogen and oxygen given off from the incandescent mass of metallic oxides. As the vapour gives off its latent heat it becomes condensed into water, which travels in various cracks of the earth to the surface, absorbing various salts in its passage. The waters must certainly start from a hot area as, notwithstanding all the cooling process in the transit, the Chomel source records a temperature of 109° F. on reaching the surface. Personally I am more interested in the physical and chemical properties of the waters than in their origin in *inferno*. There are forty-three million bottles of Vichy water exported annually. The chief sources for export are the Célestins, the Grande Grille, and to a less extent l'Hôpital. I presume these waters are more stable than some of the others, and are thus not so apt to alter in transit. For use at the source the Chomel is most frequently prescribed. I shall therefore deal exclusively with it. It is the warmest, the temperature being about 104° to 109° F., and is quite palatable. The composition in grams per litre is: sodium bicarbonate, 5.6; potassium bicarbonate, 0.35; lithium bicarbonate, 0.012; calcium bicarbonate, 0.36; magnesium bicarbonate, 0.07; ferrous bicarbonate, 0.001; sodium chloride, 0.57; sodium sulphate, 0.28; silicon oxide, 0.06; free carbonic acid gas, 0.97. The salts seem to be in an active state of ionization—anions and cations. The electric resistance is eighteen times less, and the electric conductivity eighteen times greater than ordinary tap water. The water is isotonic with the blood serum, to which it supplies an abundance of buffer salts. On this account the normal hydrogen-ion balance of the blood is easily maintained without any incessant strain on the regulative mechanism of the body. As there is an abundant supply of free ions in the waters, large doses should not be required; in fact, this is corroborated by the experience of the physicians, who find that repeated small doses are more efficient than one large dose.

The bipolar theory of living processes which has been long held by many, and which has been recently adopted by the great American surgeon Dr. Crile, is in harmony with what I have written. If Dr. Crile be correct, as I believe he is, that the brain is the positive and the liver the negative pole of the principal electric circuit of the human body, then the liver regains the importance which was formerly attached to it in the human economy. The preservation of the functions of the liver is very essential for health, and this object is well attained by the treatment at Vichy. The principal diseases which are amenable to the Vichy treatment are functional and organic disorders of the whole of the digestive and urinary tracts, diabetes, metabolic troubles, diseases of the spleen, gout, rheumatism, and different forms of arthritis, uterine troubles, and numerous skin affections.

As I am anxious not to overstate facts I have submitted this paper to Dr. Monod, one of the leading Vichy physicians, and he has not found any fault in it.

A large number come here every year to recuperate after the dissipations of the London season, and as the new Pullman service has brought Vichy within fourteen hours of London, still greater numbers are expected this year.