of ammonium sulphate), with a trace of albumin. A further novelty, and one which we approve, consists in supplying with the globules tablets or "peloids" as they are called, containing various flavouring materials and condiments. Tastes differ widely as to the amount of condiment or flavouring which should be added to beef-tea or soup. By this device, however, each can satisfy himself. This step is particularly advantageous in the case of invalids who often find a meat extract repulsive on account of an objectionable added flavouring. Lastly, it should be stated that the valatine globules are made of a size to admit of swallowing whole without any difficulty. In this way nourishment can be readily administered where extract in the form of beef-tea or soup is unsuitable.

OREXIN TANNATE.

(KALLE AND Co., BIEBRICH-AM-RHEIN. A. AND M. ZIMMERMAN, 9 AND 10, ST. MARY-AT-HILL, E.C.)

Orexin tannate has been tried in the treatment of anorexia, as in phthisis, anæmia, and chlorosis, and in cases of atony of the stomach. It is a yellowish-white powder, not unlike calomel in appearance. It contains tannin in combination with "orexin," a base obtained by a synthetic process from certain coal-tar derivatives. It is soluble in dilute hydrochloric acid and probably therefore in the gastric juice. It dissolves also in alkali, according to our experiments, the solution turning a deep brown from the production of alkaline tannate. When the dry powder is heated in a tube it evolves a strong fishy odour characteristic of amines. Orexin tannate is said to be an excellent stomachic, stimulating the acid secretion of the stomach, encouraging its motor activity and materially shortening the process of digestion. The salt may be obtained in powdered form or in chocolate tablets, the latter containing 4 gr. of orexin tannate.

(1) "GAIACOPHOSPHAL" AND (2) "PHOSPHOTAL."

(SOCIÉTÉ CHIMIQUE DES USINES DU RHÔNE, 8, QUAI DE RETZ, LYONS. AGENTS: R. W. GREEFF AND Co., 20, EASTCHEAP.)

These interesting bodies are new combinations of guaiacol and creasote respectively, which are stated to present distinct advantages over the compounds hitherto used. "Gaiacophosphal" is a definite white crystalline salt smelling distinctly of guaiacol. On treatment with potash the smell of guaiacol is more strongly developed. The salt readily melts on heating, and speedily dissolves in water. "Phosphotal" is a phosphite of creasote and is a gummy looking liquid with a creasote-like smell. On warming with potash the guaiacol evidently separates. Experiments are quoted to show the advantages of these compounds in contrast with the phosphates and combinations hitherto employed. As is well known guaiacol and creasote have been administered with encouraging results in some cases in phthisis, typhoid fever, &c., and in respiratory disorders. These new salts are regarded as pharmacological improvements.

EFFICIENCY OR COMPULSION?

To the Editors of THE LANCET.

SIRS,—A report which I recently made to my committee on the relation of vaccination to the recent small-pox epidemic at Middlesbrough has been criticised by Mr. Alex. Paul in letters which he has written to various evening papers, and is also referred to in an annotation in THE LANCET of July 23rd. I take this opportunity of forwarding you a copy of this report, which to my mind points out as has rarely been shown before the value and protection afforded by vaccination; it also clearly shows where the weakness of the present system of vaccination lies—i.e., in the inefficiency of most primary vaccinations and the want of systematic revaccinations. The State requires its servants, the public vaccinators, to practise vaccination in a prescribed manner, but there is no such standard enforced in the cases of the numbers of children vaccinated by other medical practitioners who may and do exercise their own judgment as to whether they shall vaccinate a child in one, two, three, or more places. How many medical practitioners are there in

this country who always perform vaccination with the efficiency required by the Local Government Board of the public vaccinators? And what medical man is there who at one time or another, when a mother has brought her child to him for vaccination and has pleaded for "just one place or two small ones, Doctor," out of the kindly sympathy of his heart has not yielded to this prayer in direct opposition to his better judgment?

Should not the Vaccination Bill now before Parliament have clearly defined what constitutes an efficient vaccination and the period for which such protection lasts and have made suitable provision for seeing that such a vaccination was performed in every case? Mr. Paul in his letters expresses astonishment that there should have been 1207 vaccinated persons attacked with small-pox at Middlesbrough, but how many of these 1207 can be considered to be really vaccinated persons—i.e., with scars of such an area and of such a quality as can be considered to be really protective and in whom the protection had not passed off through the lapse of time? We only know of 87 who had been re-vaccinated, leaving 1120 who had only had a primary vaccination. Of these 1044 were over the age of 15 years. If the 1120 were primarily vaccinated during the early months of infancy, as is very probable, then the 1044 cannot be classed as vaccinated persons protected from liability of attack, and the older they are the less is the protective or modifying value of the primary vaccination, this being most clearly shown in the table of deaths amongst the vaccinated class given in my report, the greatest mortality being at the greatest age periods.

The surprise at these results expressed by Mr. Paul denotes that he either looks at the question from the point of view of the biased anti-vaccinationists who do not care to examine both sides of the question or that he, like a great majority of the inhabitants of this country, is utterly ignorant as to what constitutes a thorough and efficient vaccination and what is claimed for it as a protection against small-pox. One fine day does not constitute a summer nor does a vaccination consisting of one or two small scars afford protection for life against liability to attack from small-pox. It should be our duty as medical men, together with all other believers in the virtues of vaccination, to instruct the population on these points and the former should see to it that every child submitted to them for vaccination should be so vaccinated as to ensure its being rendered immune to attack. If this were so the populace would soon gain confidence in vaccination and there would be little need to discuss the question of compulsion. The anti-vaccinationists would not be able to point to the fact, as they have done in the past, that the majority of small-pox cases occur amongst a so-called vaccinated community.

I am, Sirs, yours faithfully,

CHARLES V. DINGLE, M.D., B.Hy. Durh.,
Medical Officer of Health of Middlesbrough.

July 25th, 1898.

THE REPORT OF THE VACCINATION COMMISSION.

To the Editors of THE LANCET.

SIRS,—It is difficult to see what can be the object of the New Sydenham Society in simply reprinting the final report of the Vaccination Commission when it can be purchased of the Government printers at a very reasonable cost. But to print it without an index is still more inexplicable. It is a grave reflection upon *someone*—I do not know whether it may be the Commission itself or the Treasury—that it should have been left to General Phelps, the president of the Anti-Vaccination League, to publish an index to the report of the Commissioners as well as to that of Dr. Collins and Mr. Picton. These two indexes may be obtained (1s. each) on application to General Phelps, Edgbaston, Birmingham. They are very fairly done. As to an abstract of evidence, that is much more worth the attention and expenditure of the New Sydenham Society, but it will need to be carefully done to be really useful and by someone who is pretty familiar with the vaccination controversy. What is much more practicable and would be very useful and not very costly would be a consolidated index of the whole of the evidence. But that involves the Herculean labour of indexing the sixth volume, which, like the final report, was published without an index. It is understood that Lord Herschell has made an effort to get this latter defect remedied, but with what success I do not know.

I am, Sirs, yours faithfully,

Gloucester.

FRANCIS T. BOND, M.D. Lond.

THE LANCET.

LONDON : SATURDAY, JULY 30, 1898.

ONE great value of periodical congresses such as that of the British Medical Association which is being held this week in Edinburgh is that they afford opportunity for the exposition of fresh facts and doctrines by men who can speak with authority, thereby adding to the general stock of knowledge and serving a very useful educational purpose. The Address in Medicine delivered by Professor T. R. FRASER certainly comes under this category, for it was mainly occupied with a remarkably lucid and exhaustive account of the present position of science in regard to the share taken by toxins in the production of disease and the new aspect which has been given to the interpretation of the facts of infective disease and the prospects which are offered for their mitigation and abolition. We cannot pretend to follow Professor FRASER in all parts of his scientific address; it must be read and read again before it can be fully mastered, but it yet behoves us to indicate what are its main teachings, since they have such important bearings upon the conception of the nature of such diseases and upon their treatment. It is undoubtedly true that toxic influences play a much larger share in the production of the phenomena of disease and of the structural changes which constitute morbid anatomy than could have been possibly conceived a few years ago. There is abundant evidence, direct and indirect, that poisoning, whether from without or within, plays a chief part in the derangements to which flesh is heir. Indeed, there would seem to be no limit to which this conception of toxæmia may not lead. It embraces conditions as remote from ordinary poisoning as it is possible to conceive, for who can say that auto-intoxication is not at the root of many a disorder, seeing how wide are the opportunities and how varied the conditions for the manufacture and the retention of substances within the body the action of which on blood and tissue is highly detrimental to their integrity. As Professor FRASER remarked, many of the ptomaines and leucomaines are alkaloidal in nature and rival the vegetable alkaloids in potency, and many a disease may well be ascribed to their agency. To some it would appear as if medicine were about to enter upon a new phase of generalisation, and they may see in the doctrine of toxins a parallel to some of the old speculations upon the nature of diseases.

The modern study of infective diseases offers ample scope for the application of this doctrine, only here we have to do with toxins produced by microbic agents which have been revealed by the labours of the bacteriologist. To explain the phenomena of an infective disease it is not merely necessary to postulate the existence of a pathogenic micro-organism, but it requires further that this microbe should produce a poison to which the symptoms and the morbid

changes of the specific disease are due. That it is not the microbe that is the immediate cause of the phenomena is proved by the fact that the toxic effects are produced by the filtered solution of the material in which the microbes have been cultivated. Now one of the most remarkable facts about these infective diseases is the protection which a single attack generally affords against further infection. This fact, long observed in the diseases themselves, has been amply verified by experimental inoculations, but it has been still further advanced by the demonstration that the blood-serum of protected animals possesses the power of transmitting this resistance when injected into other animals. Professor FRASER showed that this acquired immunity could not be solely explained as we may explain the immunity to ordinary poisons by any theory of tolerance. Nor did he think it possible for phagocytosis to account for all the facts. He dwelt with necessary emphasis upon the singular differences in the duration of "artificial" immunity as compared with "natural" immunity, or that protection which an attack of the infective disease itself affords. He argued that in cases where immunity is prolonged there must be a continued reproduction of the protective substances, which implies the continued existence of the attenuated micro-organism which yields the antitoxin. This is a view which is most suggestive, and which seems to be necessary to explain the reason why the immunity conferred by antitoxic serum is so fleeting in comparison with the more permanent effect of an immunity conferred by the microbes themselves. We may well quote here a passage which conveys a moral to be taken to heart by all who are working at the experimental side of this question: "Unless by education we can so tame and civilise a pathogenic microbe as to subdue its virulent and hostile disposition while at the same time its beneficial and protective properties are left unimpaired, the hope of obtaining—as for plague, cholera, and tubercle—immunising vaccines equal in efficiency to the lymph of vaccinia will probably never be realised." And we note the warning that perchance the very germicidal action of glycerine which is being used to remove from vaccine lymph all external contamination may deprive the lymph of its long-lasting prophylactic power.

Professor FRASER discussed in some detail the origin of the antitoxins and antivenins and argued very plausibly that they are derived from the toxins and venins themselves, produced by chemical changes in the latter or forming part of their complex composition. If this be so it may, as he says, be only a matter of time before the resources of chemistry will enable us to extract the antidote from the poison, without recourse to the somewhat cumbrous method of serum production. He dwelt also upon the mode of action of antitoxins, which is still largely a matter of speculation; but if this is not yet clear it is at any rate accepted that in their employment the treatment of the diseases in which they are available comes to be that of a direct antidote, an attack on the cause of all the symptoms, an arrest of all the changes which are set up by the poison. His experiences with cobra venom have shown him how marvellously these mysterious antidotes act, and we cannot read his words without recognising that we