

### Duty-Free Alcohol.

A SHORT time ago some letters on this subject appeared in *NATURE*, complaining of the difficulties experienced by scientific workers in obtaining permission to use such alcohol, and of the absurd regulations accompanying such permission. Perhaps the complainants, amongst whom, I remember, Sir William Ramsay was one, were somewhat unreasonable, for they should have considered that the officials in the Excise Department, as in other Government departments, are mostly of the "kings and captains" type; they really do not know what a laboratory or scientific work means; they certainly do not know what distillation implies, and probably their only idea as to alcohol is that it is something which is always either under- or over-proof, like the old lady's idea of stocks and shares, as being those things which go up and down in the City.

I was lucky enough to obtain permission to use duty-free alcohol, though only after long negotiations, and on the explicit assurance that I would not use it for running motor omnibuses round my laboratory. But recently the need for economy induced me to apply for permission to recover my waste spirit by distillation. After the usual six weeks' delay, and sheaves of official documents, an officer was sent to examine my stills, and was shown several shelves of retorts and flasks; but on my explaining to him that not more than one of these would be in use at the time for the purpose in question, we filled in the form of application for one still of about a litre capacity to be used in redistilling alcohol: and a permit for doing so eventually reached me. But in the course of the next few months the transaction had permeated to the domain of some higher official, whose eagle eye detected a flaw. Was I using a condenser in this distillation, and, if so, how many, and with what object? Again the official visited me, and was shown three condensers in a dusty corner of the laboratory: so the form of application was altered accordingly; and I am now the proud possessor of full official permit, granted "as an indulgence," to use in my laboratory a still of not more than quarter-gallon capacity with three Liebig condensers.

SPENCER PICKERING.

### Standards and Functions of Museums.

"W. P. P." is in error in his article on the "Standards and Functions of Museums," which appeared in *NATURE* for September 23, when he says that the Department of Public Health in the American Museum of Natural History answers to no more than one aspect of the Department of Economic Zoology of the British Museum of Natural History, that which concerns the organisms injurious to man.

The Department of Public Health does cover more than this; the exhibits so far arranged come under the following heads: water supply, sewage disposal, bacteria and bacterial diseases, insect-borne diseases, and military hygiene; while the exhibits in course of preparation deal with problems of diet. Especial stress naturally has been placed upon the bubonic plague, malaria, and yellow fever, as well as on the sanitation of the Panama Canal zone. Other aspects of the relations of insects to man are treated in the exhibits of the division of entomology, such as the importance of insects, benefits due to insects, and injuries caused by them. There is no collection of domesticated animals other than that illustrating variation under domestication, and, owing to lack of funds and space, no attempt can be made to bring together such a collection.

F. A. LUCAS.

American Museum of Natural History,  
New York, October 19.

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DR. LUCAS'S brief summary of the ground covered by the Department of Public Health in the American Museum of Natural History is more complete than that which appeared in the forty-sixth annual report of the museum, which formed the subject of the article against which Dr. Lucas now lodges his protest; hence the "error" of the writer. We contend that only by a very elastic use of the term "Natural History Museum" can such subjects as the disposal of sewage, and water supply, be included. These are surely more fittingly themes for a Museum of Technology, while military hygiene and problems of diet would find a more suitable home in a Museum of Physiology. If these were omitted the funds and space which they absorb would be available for the collection of domesticated animals which Dr. Lucas is now obliged to neglect, to the great hurt of his museum.

W. P. P.

### Multiple-Character Evolution.

ONE should have thought that a meeting of the Palaeontological Society of America was scarcely a propitious occasion for promulgating as a newly discovered law that a body equals the sum of all its parts. As your reviewer has rightly remarked (*NATURE*, p. 286), it has been said before that every organism is made up of a great number of characters, each of which is in a state of flux. The obvious fact that any species has more than one differential character (of which we use only those which take our fancy) never had need of rediscovery, but it has occasionally been neglected, merely not thought of, sometimes with appalling consequences, as, for instance, it has been solemnly pleaded that if one character distinguishes a species, two should make a genus.

H. GADOW.

Zoological Laboratory, Cambridge,  
November 26.

### EGYPT AND THE FAR EAST.<sup>1</sup>

PROF. ELLIOT SMITH has long established his position as our principal authority on the anatomical study of ancient Egyptian mummification. Before he undertook the systematic examination of mummies during the years he spent in Egypt, the vaguest and often the most erroneous notions were current with regard to the technical treatment of the corpse and its intestines by the ancient Egyptian embalmers. To the average Egyptologist such details necessarily appeared of a rather gruesome character, and, as a consequence, Prof. Elliot Smith, who brought expert medical knowledge to bear on an unrivalled collection of material, was able to obtain important results in what to all intents and purposes was a virgin field of research. His volume of the Cairo Catalogue, which was reviewed in *NATURE* on its publication, marked, as was pointed out at the time, a fitting culmination to his labours. When, therefore, its author has anything to tell us in connection with the subject he has made peculiarly his own, he is entitled to more than a respectful hearing. If on some essential

<sup>1</sup> "On the Significance of the Geographical Distribution of the Practice of Mummification. A Study of the Migrations of Peoples and the Spread of certain Customs and Beliefs." By Prof. G. Elliot Smith. From vol. lix., part ii., of *Memoirs and Proceedings of the Manchester Literary and Philosophical Society*, Session 1914-15. Pp. 143. (Manchester: 35 George Street, 1915.) Price 2s. 6d.

points we are inclined to reserve judgment, it is because his theory opens up a number of collateral problems which demand independent examination. But there can be no doubt that the theory as he propounds it is very attractive, and it has the advantage of ranging over a number of detached and separate fields of study. Even for those who may not go quite so far as to believe with him that the influence of ancient Egypt ever spread to the Far East and to America, it is well to re-examine the grounds for scepticism, and, in the process, to take perhaps a less restricted view of the possibilities of intercourse in the ancient world.

The present monograph is the direct outcome of a paper read before the Anthropological Section at the meeting of the British Association last year in Melbourne. At the three preceding meetings its author had already developed his thesis that the geographical distribution of certain practices, such as mummification and megalithic building, point, on his view of the evidence, to their distribution from a common centre somewhere in the neighbourhood of the eastern Mediterranean. When setting out for the Australian meeting it had been his intention to develop his argument from megalithic monuments, while using the geographical distribution of the practice of mummification merely as a subsidiary means of corroboration. But on his arrival at Sydney he examined the mummy from Torres Straits in the Macleay Museum, and studied the literature relating to the methods of embalming in that region; and, as a result, he formed the conclusion that the methods employed in the Papuan mummies must be of Egyptian origin. Moreover, since the practices which he there noted were not prevalent in Egypt until the time of the New Empire, and some of them not until the time of the XXIst Dynasty, he further concluded that they could not have left Egypt on their long journey to the Torres Straits at the earliest before the ninth century B.C.

The work before us was written as an answer to one of the criticisms of the theory at the British Association meeting, to the effect that there were no links between Egypt and Papua to indicate that the custom of mummification had spread from the one region to the other. Prof. Elliot Smith here replies that there are plenty of links; and he works out the course of a great culture-migration, which, he suggests, began a world tour from Egypt, and, coasting eastward to India and Ceylon, was carried far out into the Pacific, and eventually reached the American continent. There is, of course, no continuous chain of mummification customs, or even of megalithic monuments, on which this world-wide theory may rest; but traces of the migration, deduced from common distribution, are said to be visible also in sun-worship, serpent-worship, the tradition of a world-wide deluge, petrification myths, the use of the swastika emblem, and the practices of ear-piercing, tattooing, couvade, the artificial deformation of the head, etc. If each of these be-

liefs or practices be considered alone there are many breaks in the chain; but taken together the gaps may be filled in.

Such in outline is the theory, and in the space at our disposal it would be quite impossible to do adequate justice to any one of its many facets. We may perhaps mention two small points. Should we be on quite sure ground in assuming close maritime intercourse between the Persian Gulf and India from the eighth century B.C.? The evidence is surely in favour of a later date by some two or three centuries. And should we be justified in regarding the custom of burning incense before the corpse, when no attempt was made to preserve the body, as an indication of the influence of the Egyptian custom of mummification. Apart from such an influence, is incense-burning so inexplicable? We may be quite sure, with Prof. Elliot Smith, that it was never used for "disguising the odours of putrefaction." But his view surely assumes that its funerary use in Egypt, to restore magically its natural odours to the desiccated body, was its only possible use. Whereas in Babylonia, to mention but one country of the East, the ritual use of incense had descended from immemorial antiquity, and was doubtless present in funerary rites with quite other associations. L. W. K.

#### INDUSTRIAL SCIENTIFIC RESEARCH.

UNDER the above heading the *Quarterly Review* for October contains a timely and interesting paper by Mr. T. L. Humberstone, which reviews comprehensively the problem how best to apply the results of physical science, as studied in the universities and colleges, to the requirements of the industrial world.

At the outbreak of war the fact that this country was almost dependent on Germany for dyes seemed to come with the force of a rough awakening to the majority of British manufacturers, who during the last forty years had been deaf to the warnings which had been shouted at them repeatedly by the scientific chemists. The lesson of the dyes is being taken to heart to some extent by other manufacturers, and the urgent questions which have now to be answered have aroused much discussion. The Government of this country has also, at last, consented to acknowledge the importance of science in a national sense by appointing a committee of the Privy Council, assisted by an advisory committee of eminent scientific men. The functions of these bodies is to discover in what way scientific education can be modified, and the results of research made more widely applicable, so that both may be utilised to the advantage of industry and trade.

The discussions which have already taken place show how much opinions may differ about the working of such a scheme, but one or two things seem clear. As Mr. Humberstone properly points out, our universities and colleges must in future train a much larger number of students with the direct object of fitting them for an industrial