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Rewards for Scientific Discoveries

THE continued growth of nationalism during the past few years has brought clearly to the mind of many people the thought that, *pace* the League of Nations and all it represents, the struggle among nations will in the future, as so often in the past, result in the battle going to the strong and the race to the swift. One consequence is that the governments of the more important nations, aware of the futility of trusting to mere numbers of man power, are turning more and more to the encouragement of the best minds among their own nationals in the hope that their discoveries will place their own nation in the forefront and so enable it to reap the due reward, be it either in war or in peace.

Although this encouragement has taken various forms in different countries, and includes in most countries the granting of honours and the general esteem of the public, in no country has it taken a form which is regarded as entirely satisfactory, while in most countries the reward, whether to workers in science or in art, must be regarded as deplorably inadequate from the financial point of view. In Great Britain, the difficulties of the Department of Scientific and Industrial Research in the realm of science are only too apparent, while the inadequacy of the reward of composers, in view of the vast development of broadcasting and the gramophone, is a matter for keen regret. In other countries similar problems are forming the subject of most searching inquiry, an example of such inquiry being the first of a series of papers which the Council of the American Association for the Advancement of Science is authorising, the paper being the Report of the Committee on Patents, Copyrights and Trade Marks entitled, "The Protection by Patents of Scientific Discoveries", published as a Supplement to *Science* in January last (New York: The Science Press). Extracts from the Report appear elsewhere in the present issue of NATURE.

Much discussion has occurred upon the question of the patenting of scientific discoveries. In an attempt to formulate a policy or agreement upon principles, it may be worth while to consider first those inventions which have possible industrial uses and are patentable, and whether scientific investigators should obtain patents on such inventions which have resulted from their work, medical patents being for the moment excluded as presenting peculiar difficulties. Many objections

have at various times been raised against patenting by scientific investigators, among them, for example, being that it is unethical for scientific men or professors in universities to patent the results of their work; that publication or dedication to the public is sufficient to give the public the work of a scientific man; that patenting will lead to the debasement of research; that patents will place unfortunate strictures on other men who afterwards do fundamentally important work in the same field; and so on.

After considering these and other objections, the opinion of the Committee is that the patenting of the results of research (other than medical research) which have some possible commercial importance or industrial application is highly desirable; and indeed it is difficult to understand how any opposite opinion could be held either in the United States or elsewhere.

The question of medical patents is in Great Britain admittedly difficult, mainly because the preponderating weight of medical opinion is against the granting of medical patents to medical practitioners. At the annual general meeting of the British Medical Association in July 1931 there was a prolonged debate which resulted in a resolution:

"That the Association approves the traditional usage in accordance with which it is unethical for any medical practitioner who discovers or invents any substance, process, apparatus, or principle likely to be of value in the treatment of patients to act against the public interest by unduly restricting the use and knowledge of such discovery or invention for his own personal advantage."

It should be remembered, however, that although medical opinion in Great Britain is opposed to the patenting of medical inventions by medical practitioners, the recently revised patent law (see the Patents and Designs Acts 1907-1932, Section 38 A) permits the patenting of medical inventions by any person under rigidly defined conditions which adequately protect the public interest. Whether in these circumstances it is either in the best interests of the medical profession or in the public interest that medical practitioners should hold aloof from patenting medical inventions, may reasonably, it is submitted, be open to doubt.

Probably most of the discoveries made by scientific investigators cannot be protected under our present patent laws even if the investigators so desire; and there remains, therefore, the

question whether the present inadequate reward of investigators in fields outside patentable inventions can be increased by any means alternative to those at present employed, for not even the most exalted scientific man can subsist solely on honours and public esteem.

The brief history of alternative means which have been suggested is that before the War vague proposals were, from time to time, put forward for the protection of scientific property, that is, the property which a scientific investigator might reasonably be held to have in the whole of the results attributable to his work. After the War, however, definite proposals were made and soon became an issue with the League of Nations, resulting in the adoption in 1922 by the International Committee of Intellectual Co-operation of the following motion:

"The Committee, considering that intellectual property is not sufficiently protected and that scientific property particularly is at present not protected at all, entrusts a subcommittee consisting of MM. Destree, Millikan, Ruffini and de Torres Quevedo with the duty of examining the means by which this protection may be assured."

Western European nations weighed and pondered the issue: France, Italy, Norway, Switzerland, Spain and Portugal announced in favour of the protection, while Great Britain, Austria and Germany opposed it. In the United States, almost dead silence was maintained, "due probably and mainly to an ignorance of the question". (R. Spencer, "Scientific Property", *American Bar Association Journal*, February 1932.)

Different plans were proposed for affording protection: (1) by the establishment of an international bureau; (2) by the creation of a fund contributed to by manufacturers; (3) by donation of government funds to the discoverer; and (4) by the extension of the patent system to include scientific discoveries.

The conclusion of the whole matter from the American point of view seems to be that no practicable and desirable means alternative to those in operation at present has been proposed. It is probably the fact that in Great Britain a similar opinion is held. So far as inventions form subject matter for the grant of Letters Patent, the law has been recently revised and brought up-to-date in the Patents and Designs Act of 1932. Any person, be he scientific investigator, medical practitioner or otherwise is at liberty, unless as in the case of the medical practitioner he is restrained

by ethical or similar considerations, to apply for the grant of a patent for any invention which constitutes a new manner of manufacture. If the invention or discovery lies outside the field covered by the Patents Acts, no alternative to the present means which is practicable and desirable has been suggested; and if scientific investigators in this field are to be adequately rewarded, it seems that the only way open is for a more generous support to be accorded to them both by public and private benevolence than has hitherto been the case.

Myths of Polynesia

Religious and Cosmic Beliefs of Central Polynesia.

By Robert W. Williamson. Vol. 1. Pp. xxi+399.

Vol. 2. Pp. vi+398. (Cambridge: At the University Press, 1933.) 50s. net.

A REVIEW of these two volumes must be the funeral oration not only of a good worker, but also of a school the best traditions of which he worthily represented. Of this school Tylor may be considered the father. He proceeded by culling illustrations from the whole world and in making generalisations without any strict method. It was the only course open to those pioneers to whom only fragments were as a rule available. They were like surveyors on the top of a mountain picking out the salient features of the landscape, indicating roughly the trace, and leaving it to others to work it out in detail.

In this second line of survey, Mr. Williamson holds an honourable place. As a rule such systematisers lack the vision of pioneers. Mr. Williamson is no exception. Nor has he the gift of style to help us over the crowded shingle of facts. To take a specimen at random: "Tyerman and Bennet say that Orion was known by name. According to J. R. Foster the stars forming his Belt were called E-whettoo-mahoo. Moerenhout says the stars of the constellation were called Fehone-tarava, and guided their navigators at night. The London missionaries say . . ." (vol. 1, p. 125); but even the expert wants a pause in the midst of these enumerations.

Lack of imagination leaves the treatment rather mechanical. The geographical boundary is drawn by latitude and longitude rather than by a point of view. By restricting himself to Central Polynesia (except for a few temptations to glance at islands just out of bounds) the author makes difficulties for himself. Thus he is puzzled by the fact that

in the Paumotuian myth of the separation of sky and earth the sky is female, not male as we have been brought up to expect. This he has to explain as "an accidental mistake" (vol. 1, p. 28). Had he allowed himself a peep at Egypt he would have found the same myth with the sky as female. What seems a mistake is really an important piece of evidence: it proves there are two versions of the myth occurring side by side from the Near East to Polynesia. But it is an axiom with this school that nothing ever travelled before our own culture except within restricted areas, such as Polynesia. Any interchange of ideas outside those areas, as between Polynesia and India, or Polynesia and America, is rigorously taboo.

Equally mechanical is the classification, for example, into creation, sun, moon, stars, winds, and so on. It is not with natural phenomena we are concerned, but with the minds that think about these phenomena, and there is not one department of the mind that deals with creation, another with the sun, another with the moon. All these different phenomena may figure in the same system of thought, such as the creation cycle, which is one big system including myth and ritual of sun, moon, stars and many other things; on the other hand, the sun may figure in different systems, as in our creation myth and in our astronomy, two systems which some people manage to keep completely apart in their minds.

For purposes of reference, however, nothing can be more suitable than a mechanical classification such as the author adopts. After all, no one has discovered a better arrangement of words in a dictionary than the purely mechanical one of following the alphabetical order. It is as a work of reference that Mr. Williamson's book has to be judged. For new and fruitful points of view we shall look in vain. The conclusions boil down to waves of migrations which are neither proved, nor worth proving, a mere variation on that most unfortunate theme, vol. 2 of "The History of Melanesian Society". It is sad that Rivers at his best should find no imitators, while Rivers at his worst is still taken seriously.

The author could have laid the fault at the door of his authorities, but, like a good workman, he does not blame his tools. Yet he might have done so with justice. The literature on Polynesia is too much made up of scraps for the most part to give us a picture of any single culture as a whole. It is only recently that we have come to realise that all these scraps are parts of recurrent patterns, and