

certain that both Lister and Pasteur would have recalled to our memories many names of men, their intellectual peers, who had a part in the work which we associate with them alone. If we consider only the men prominently associated with the advance of knowledge, of research into the etiology, prevention and treatment of some disease with respect to which we have been successful, we shall rarely, perhaps never, be able to name *one* man who deserves the lion's share of credit. In the history of research into typhoid fever, a glorious history, the names of Budd, Pettenkoffer, Eberth, Klebs, Gaffky and Almroth Wright, stand out. They were men who all greatly surpassed the normal standard of intellectual power, but were trained in different schools, and reached their several ends by different means; all were great investigators, not one was a sleuth hound who, having dramatically arrested the villain of the typhoid mystery, received the reward offered by a medical Scotland Yard.

It is just as futile to offer prizes for specific discoveries in medicine as to offer rewards for the composition of tragedies. Perhaps it is more futile, since the cooperative element in scientific discovery is more prominent. The recognition of that element has induced some to think that while it is wrong to attempt to purchase individuals it is right to try to purchase groups. We hear much of the need for team work. But the success of team work in matters of the spirit depends upon the willingness of individuals to act as a team. Even at football, I have heard, one can not manufacture an invincible eleven by bribing star players to form a side. To the business organizer of scientific victories it might seem obvious that the united forces of the best clinician, the best bacteriologist, the best biochemist, the best epidemiologist and the best men in a dozen other specialities, mobilized on the cancer front, would speedily conquer that redoubtable enemy of the middle-aged and elderly. But unless it can first be shown that all these star performers wish to abandon the investigations in which, by definition, they are successful, and are able to work in team, the obvious expedient begins to look very much like the sorcerer's heresy, to be another effort to purchase the gift of God with money.

One is, therefore, led to state certain facts and to base upon them certain principles.

The facts are that no great discovery stands alone and no important advance in medicine has been the result of working with a single intellectual tool. Upon these facts, we ground certain principles, or rather one general principle. It is that the endowment of research, the general support of all who approve themselves worthy to extend the bounds of knowledge in *any* direction, should be a rule of policy, both personal and collective. The rule of Looking-Glass Gar-

den, that if one wishes to meet the Red Queen one walks the other way, holds in other gardens; its meaning was familiar to the psychologist who said that "the foolishness of God is wiser than men; and the weakness of God is stronger than men." It has been the rule of the most successful endowment of research England has yet seen, that administered by the Medical Research Council. If A. B. submits a program of research which, he conceives, will throw some light upon the etiology of acromegaly, let us say, and the council are satisfied that he knows what he is talking about, they do not say to him, "You are evidently an able young man and your idea is good, but acromegaly is a rare disease and kills its units, while cancer is a common disease and kills its thousands, if you will turn your attention to cancer we will give you twice the grant you ask." They do not presume to control the operations of the human spirit; they know that it is quite possible that a research into acromegaly may teach us more about cancer than a specific inquiry into cancer. The wise old physician who endowed the best scientific foundation of Oxford did not insist that his traveling fellows should study any particular thing; he wished them to study and that was enough.

Those who demand that more money should be devoted to research in one particular field, that more attention should be devoted to influenza, to cancer or to some other particularly important matter and sneer at the allocation of grants for "academic" investigations have forgotten this principle and are in danger of the judgment pronounced upon Simon the sorcerer.

MAJOR GREENWOOD

HILLCREST, CHURCH HILL,
LOUGHTON, ENGLAND

THE CONSERVATION OF MARINE MAMMALS

THE killing of extraordinary numbers of whales from shore whaling stations in different parts of the world during the past few years through the use of improved modern weapons and means of transportation seriously endangers the future of these animals. This situation, coupled with the knowledge of what has occurred in the past to seals, sea elephants and some other marine mammals, has drawn attention to the urgent need of taking steps to bring about proper conservation of all the existing valuable sea mammals.

In the United States, the most active organization gathering and disseminating information on the subject is the Committee on Conservation of Marine Life of the Pacific Division of the American Association for the Advancement of Science, under the leadership

of Dr. B. W. Evermann, Director of the Museum, California Academy of Sciences. The National Research Council, the Bureau of Fisheries of the Department of Commerce, and the Bureau of Biological Survey of the Department of Agriculture, are all taking a lively interest in this subject and desire to assist in developing a practical method of conserving these forms of wild life.

The Natural History Society of British Columbia, under the leadership of its president, Dr. William N. Kelly, is also taking an active part in this conservation movement. In recent correspondence with Dr. Kelly I referred to the difficulty of controlling the taking of whales offshore outside the three-mile limit, to which he replied in part as follows:

Regarding the taking of whales outside the three-mile limit, the Canadian Act (Statutes of Canada, 1914, Chapter 8, Section 8) has provided for this contingency by forbidding any whale not captured in the manner described by the Act being brought ashore to a Whaling Station for reduction into oil and fertilizers, and it also prohibits any whale being brought to a shore station except by the boat from which it was harpooned.

He adds further that he is

inclosing a cutting from Lloyd's List, London, 23d of March, 1923, on the Whaling Research Expedition that is about to leave for South Atlantic Whaling Stations and this will indicate that Great Britain is also alive to the necessity of further restrictions for the conservation of these mammals.

The interesting quotation which Dr. Kelly sends reads as follows:

With regard to the announcement that the Antarctic ship "Discovery" had been purchased by the Crown Agents for the Colonies on behalf of the Government of the Falkland Islands, it is now stated officially by the Colonial office that the vessel is to be employed principally in research into whaling in South Georgia and the South Shetlands, which are Dependencies of the Colony.

There is a very large whaling industry in these Dependencies, and the present amount of scientific knowledge regarding the numbers and habits of the whales is insufficient to enable the industry to be controlled in such a way as to afford security against depletion of the stock. The principal task for which the vessel will be employed is to ascertain the geographical limits of the stock of whales, to trace their migrations, and to form some idea of their numbers and the rate of reproduction. But the expedition will also afford opportunities for adding to scientific knowledge in many other directions, and particularly in oceanography, meteorology and magnetism. The work will be generally on the lines recommended in the report of the Interdepartmental Committee on Research and Development in these Dependencies.¹

¹ SCIENCE, June 22, 1923, pp. 715-716, contains a more extended notice of this expedition.

The example set by the British Government in beginning definite research work covering the life histories of whales is one that should be extended to cover seals, and other sea mammals, and should be promptly followed by the United States and other maritime nations which are commercially interested in the pursuit of these mammals and in the extended utilization of their products. It is obvious that the present uncontrolled, wholesale slaughter of sea mammals over most of their range and practically throughout the year can result only in their rapid extermination.

During the last century the pursuit of sea mammals was carried on on a great scale and yielded an enormous return in oil, whale bone, hides and furs of fur seals and sea otters. Several species have been nearly or quite exterminated by this pursuit and others will follow without concerted action. Proper control of the hunting of these animals will perpetuate indefinitely the returns from this valuable natural asset.

The success of the fur-seal treaty, whereby, through international action, Japan, Russia, England and the United States safeguard the breeding grounds of the fur seals on the Fur Seal Islands, in Alaska, has been a practical demonstration of the effectiveness of such action. It is to be hoped that a similar treaty between the maritime powers interested may be equally effective in saving the other sea mammals from their threatened extinction.

E. W. NELSON

BUREAU OF BIOLOGICAL SURVEY,
WASHINGTON, D. C.

SCIENTIFIC EVENTS

INTERNATIONAL CONFERENCE ON STANDARDIZATION

A CONFERENCE of the secretaries of national industrial standardizing bodies was held in Switzerland from July 3 to 7. Thirteen countries were represented, including all the more important industrial nations of Europe and America. The sessions were held in Zurich and in Baden.

A leading topic discussed by the conference was the interchange of information between the various national bodies during the development of the work in the different countries. At the first conference held in London two years ago, arrangements were made for the systematic interchange of completed work and, to some extent, of information on work in progress. Experience had shown such an early interchange to be extremely important for the work within the different countries from the national viewpoint alone, and quite irrespective of the question of international standardization.