

proved designs resulting from one year's work at the Tank, the annual saving in the cost of operating the vessels would be more than enough to cover the cost of running the William Froude Laboratory for a year."

Of course, here as always in research, it is the case that the greater the success of research, the more immediate and drastic the effect on existing plant and equipment. That is where the rub sometimes lies. Millions are necessarily sunk in fixed assets which may in a year or two be made obsolete by the development of new methods. Obsolescence is indeed so rapid nowadays that it is not unusual for new plant to be written off in four years; and many valuable inventions have been bought up by vested interests and suppressed in order to save the greater loss that their exploitation would involve to already operating plant. It is therefore not surprising that there is not always an enthusiasm for unrestricted research or a readiness to praise it. But it is a shortsighted policy.

I have glanced at the rise and growth of the modern research movement. Coordination and cooperation have done much to link together the various elements, but there has as yet been no general national plan. For totalitarian states such things are not so difficult; but for that reason democratic countries too must organize and cooperate more closely than ever before. Groups of unrelated, often competitive, bodies can not be really effective. In my opinion the time must come when every research organization will be linked by some form of affiliation to a central controlling body. This would become inevitable in time if only to prevent hopeless overlapping and duplication, with attendant waste of energy, time and money. There is another direction where centralization is equally necessary. I refer to publication. At present if the results of research are not kept as trade secrets, they are often broadcast in such a multitude of journals, books, papers, addresses, etc., that it is almost impossible for one who is studying any particular branch to avoid unwittingly covering ground already covered by previous workers. We have all experienced the difficulty of trying to

collect all the latest information on the subject we have been called upon to deal with. I believe that approximately thirty thousand scientific periodicals are published throughout the world, each of which no doubt may contain the results of research in some form or other. In our own country no definite and practical scheme has yet been conceived for making available the results of research. There should, moreover, be some type of clearing-house of engineering information, such as would collect, collate and make immediately available all new data discovered. Some partial success has been attained in this direction in more than one way. The Executive Council of Imperial Agricultural Bureaux, for instance, an autonomous authority that deals with the finance and administration of ten scientific bureaux, works in close touch not only with all the councils but with other research centers such as the Low Temperature Research Station at Cambridge, the Building Research Station at Watford, and so on. If it be impossible even to work out a similar organization for engineering on a national or world-wide basis, it can not be impossible to establish at least a clearing-house system at a relatively small expense in cooperation with the Department of Scientific and Industrial Research. This department, with the research associations which it partly finances and others with which it is associated, provides the ideal nucleus for such an information service, but engineering must work out its own scheme.

I am afraid I have no definite proposals to make—at least at this juncture. All I have desired to do is to ventilate a subject of paramount importance to engineering. I would thank you for so courteously listening to me; there is no more useful work that the British Association does than offer opportunities for the ventilating of the vital problems and questions of the day. I am satisfied that at the moment in the engineering world—which after all means in the whole commonwealth—there are two outstanding questions, the coordination of effort and the promotion of intensive research.

SCIENTIFIC EVENTS

ADDITIONS TO THE COLLECTIONS OF THE NATURAL HISTORY MUSEUM, SOUTH KENSINGTON

THE London *Times* records that the Natural History Museum, South Kensington, has received as a gift from J. L. Chaworth-Musters the collections made by him in the early part of this year in the High Atlas Mountains, above Marakesh. The specimens include a few small mammals and 82 birds belonging to 31 species.

Among the birds are the rare crimson-winged finch,

an Alpine accentor and local forms of the dipper and shore lark. Mr. Chaworth-Musters also brought back 391 carefully preserved specimens of plants, which he has given to the Department of Botany. Of these five are ferns, 28 lichens and the remainder flowering plants.

Major W. R. Barker, of the Game Preservation Department, Khartoum, has presented a young female white rhinoceros and the skin and skeleton of an ant-bear, and the Rowland Ward Trustees have given a number of mounted heads of mammals. A collection

of marsupials, including some rare species, from Ferguson Island, New Guinea, has been purchased.

The Entomological Department has been given by Charles Dru Drury a number of interesting papers relating to his ancestor, Dru Drury (1725-1803), who was famous for his collections and descriptions of insects.

Among additions to the Mineral Department is a nugget of osmiridium, weighing nearly an ounce, from Adamsfield, near the source of the Derwent, in Tasmania. Osmiridium is an ore of iridium (which is used for the tips of fountain pens, among other things) mixed with osmium. The museum already possesses a rather bigger nugget, reputed to be the second largest in the world, but that now acquired is better crystallized. Another important purchase is a slice, weighing 1,387 grams, of a rare stony-iron type of meteorite known as a pallasite, from Springwater, Saskatchewan. Of historical interest is a selection of minerals from the collection of Wilhelm Karl von Haidinger, who from 1823 to 1826 worked in Edinburgh with Thomas Allan, a celebrated Scottish mineralogist, whose collections are at South Kensington.

A. W. G. Kingsbury, who has recently been collecting in the Mendips, has rediscovered the locality for pyromorphite, a lead phosphate, which was known there in the eighteenth century. He has presented a specimen of this to the museum, as well as a fine large piece of the rare lead oxychloride known as Mendipite. To the Department of Geology a collection of nearly 200 fossil fruits and seeds from the Cromer forest bed, all described by Mrs. E. M. Reid and her husband, the late Dr. Clement Reid, has been given by Mrs. Reid.

MATERIAL REWARDS FOR SCIENTIFIC RESEARCH

The British Medical Journal calls attention to a resolution recently passed by the French Academy of Medicine advocating the legal protection of ideas as well as their applications. The *Journal* writes:

On June 8 one more step was taken in the direction of giving scientists material rewards for their discoveries when the French Academy of Medicine passed a resolution in favor of this principle. During the past decade this problem has appeared from time to time on the agenda of scientific and allied bodies, including the League of Nations and its offspring the International Institute of Intellectual Cooperation. In a report presented on behalf of the Commission of Intellectual Cooperation, Bergson maintained that in the scientific field a new idea, not only its application, deserved protection on behalf of its author. Last March a study of the rights of savants was presented to the Academy of Medicine by Paul Olganier. The commission, which was appointed by the Academy, and which was com-

posed of some of its most distinguished members, has now issued its report, and it was as a response to this report that the Academy on June 8 unanimously voted a resolution in which the Government was invited to submit to Parliament the draft of a law aiming at the preservation of the rights, moral and material, of savants and inventors in all the fields in which their discoveries and scientific inventions exist. In the preamble to this resolution it was noted that legislation as it now stands does not grant to savants the same rights with regard to their discoveries and inventions as those enjoyed by the authors of literary and artistic works. It has seemed for some time that the discussion of this subject by learned societies has inevitably been doomed to the futility of pious wishes lacking executive expression; but what has given rise to hopes that this problem may be transferred from the academic to the legislative plane is that the French Government has prepared the draft of a law amplifying and harmonizing already existing legislation concerning authors' rights. With good will it ought not to be difficult to couple these proposed reforms with clauses extending the rights of authors to scientists in Bergson's spirit.

THE MUSEUM OF THE MASSACHUSETTS INSTITUTE OF TECHNOLOGY

A MUSEUM of the industrial arts and sciences is under development at the Massachusetts Institute of Technology. Instead of being housed in a separate building, it is divided into many units, scattered through the three miles of corridor and utilizing various foyers and stairwells. The reason for this arrangement is that each department is to have its own exhibits in its own domain, and under its own immediate supervision. A central committee, under Professor Edwin S. Burdell, professor of sociology and dean of the newly created Division of Humanities, is correlating the departmental programs.

It is expected that future growth will come to a large extent from the initiative and enthusiasm of the staff and the student body, and that cooperation will come from the alumni. A museum is visualized which will be of benefit to student and general public alike, and which will show not only the activities of the school but also the great movements in science and engineering that have affected and are affecting the social destinies of mankind. The committee has as its ideal this accent upon the connection between science and the individual—a connection which is becoming more and more appreciated, but by no means clearly understood.

Though the institute's charter in 1861 made provision for a museum, it was not until 1920, when the department of naval architecture and marine engineering was opened, that anything resembling a museum came into being. That department was created by the bequest of Charles Herbert Pratt, which stipulated a