hind such a device as this and that it is the people of the country in the long run who profit by the work of the investigator; and that such work is worthy of more stable support than the chance generosity of some multimillionaire. From an economic standpoint scientific research is a well-established business, not the mere whim of a few individuals; a business involving perhaps a long-term investment but which nevertheless is just as worthy of support, and economically just as important, as is the postoffice department or the railroads, differing from these only in the fact that these supply the present generation while scientific research, like the public schools, is for the next.

Whether we shall see government support of research in pure science depends, I believe, only on whether the scientific societies of the country, of which Sigma Xi is as representative and potentially as influential as any, can agree upon and present to Congress a concrete statement of the responsibilities of the federal government in this matter as well as a workable plan for administering such support. In a democratic country it seems impossible that ever again should it be left to accidental philanthropy to provide funds for building the very foundations of economic and industrial progress.

Of the possibilities of making the influence of Sigma Xi international, little need be said except in amplification of the statement that even now the matter is under informal consideration and will probably come before the society for formal action some time within the next two years, in response to inquiries from two foreign countries, England and Norway. The sentiment of the society, so far as voiced, is in favor of such an extension, and there seems to be nothing either in our constitution or our traditions which prevents. May we not look forward therefore with much hope to an international fraternity of scientific workers, the influence of which, even though sentimental rather than scientific, will serve as one additional bond to tie together that which we all hope to see some day: a great family of nations. F. K. RICHTMYER

CORNELL UNIVERSITY

ZOOLOGICAL AIMS AND OPPORTUNITIES

IN its recent numbers SCIENCE has printed two addresses made before the Baltimore meeting of the American Association for the Advancement of Science last winter, both of which deal with the same general subject; the aims and purposes which in the present critical period of the world's history should guide or influence zoological and botanical work, and the opportunities offered and responsibilities imposed by the present conditions on those engaged in such work.

Both of the addresses contain much that is interesting and inspiring and make suggestions that are well worth trying out, but neither of the two speakers seems to have felt it necessary to extend his survey of the field beyond the two subjects of teaching and research, though of course including under the latter heading investigation for practical and economic purposes as well as for the increase of knowledge without immediate prospect of its application. This limited conception of their proper aims and obligations is unfortunately held by a large proportion of scientific workers, probably more often because it falls in with their inclinations and convenience than because of any conviction of its sufficiency; it may have answered well enough in the earlier stages of the development of science and may still do so in some departments of it, but it is now very far from sufficient in the case of zoology, botany, ecology, forestry and other allied branches. The rapid economic expansion of the present time is making demands on natural resources to an extent that was never before approached, and improved and quicker means of transportation are extending the resulting destructive effects to every part of the world. Only prompt and scientifically directed effort can save from complete and permanent destruction and disappearance a large part, and perhaps much of the most interesting part, of the subject matter with which these sciences deal. It is only those with more or less scientific knowledge of animals and plants who can see in advance the need of protective or remedial measures and

can direct and carry them out with any hope of success. It therefore seems as if the speakers themselves missed an important opportunity and failed in an even more important responsibility in addressing such audiences as were gathered in Baltimore, and the vastly larger circle that is reached when the addresses are published, without a word, and apparently even without a thought, of what might and ought to be done by scientific men for the preservation from extinction or destruction of the hundreds of interesting species of animals and plants and the many places of unusual scientific interest that are being sacrificed for the selfish interests of a few, or even merely by neglect and indifference, with resulting advantage to nobody.

Obstruction of important conservation measures until everything that they were designed to protect has been made away with, and laws and efforts that fail of their purpose because unwisely directed or inefficiently carried out, would not be so frequent were it not for the easy-going indifference and irresponsibility of those who are the only ones who can fully realize the needs and urgency of the situation, and who should therefore feel it a duty to make others understand also. We may be shocked and indignant at the vandalism of the Huns of ancient and modern times in respect to works of art and the results of human industry, but we ourselves act no better toward natural objects of unique interest, value and beauty, and more intelligent generations in the future who will find themselves deprived of much that it was our duty to preserve for them will no doubt regard us with the same kind of feeling as we look upon the despoilers of Belgium, France and Serbia. Yet there are few scientific men who concern themselves with such matters to any extent greater than occasional expressions of regret; sentiments which would seem more sincere if accompanied by some effort to assist the small minority who do take up the burden of active work to bring about a better order of things. One often can not help wondering whether zoologists, botanists and foresters do not as a class care less about the living things they occupy themselves with than most other people. If they are not to be open to such an accusation, now that the war is over and a period of economic expansion begun that will be even more destructive to the small part of the world that still remains in what we call for lack of a better term its natural state, there should be no delay in starting more extensive and efficient cooperative work on the part of scientific men and societies for the preservation of those natural objects of scientific interest and those species of animals and plants that are most immediately threatened with extinction or annihilation.

Very few scientific societies or institutions have any committee or representative with the duty of engaging in such work or cooperating with others in it, or of watching out that those to whom such work is intrusted by the government or by societies supported by private subscription are doing their work as diligently and as effectively as the means available will permit. Many more should have them than is now the case. The need is so urgent and immediate that a share of the responsibility now extends to many associations and institutions whose main aims and purposes lie so much in other directions that under ordinary conditions they could justly claim that to devote means and efforts for such purposes would be outside of their proper duties. But emergencies impose new obligations, and however unwelcome they may be, if they are shirked the result can only be discredit and regret after it is too late for any remedy.

No one should delude himself with the idea that because there are in this country certain societies for the protection of birds and animals or because the federal government has at length begun to take a small part in it, that there is nothing more to be done by others. One might suppose that after over twenty years of agitation of the matter, and after abundant evidence of much interest on the part of the general public, that our native North American birds would now be receiving proper protection, but at the present time one of the most discreditable and inexcusable acts of

systematic vandalism that has ever occurred on this continent is being carried out at the public expense by the Alaskan territorial government, which in 1917 placed a bounty on eagles. In less than two years about five thousand six hundred of these birds, which must be of a large percentage of the entire number inhabiting North America, have been killed for fifty cents each, and the slaughter is still going on. From what is known of the habits of the bald eagle it can not be doubted that reports of its depredations have been grossly exaggerated, and that an impartial scientific investigation would prove that much persecution that it is suffering is both unnecessary and unjustified.

Places in North America outside of Alaska and some of the neighboring British territories where eagles can still safely breed are now very few; they rarely successfully raise more than one or two young in one brood, and the growth of the young birds is slow, so that the same pair can not raise young every year. Eagles are naturally very long-lived birds and a large part of those now living were raised many years ago when conditions for breeding were more favorable, and at best the birds would not be able to maintain even the present small numbers still existing under the conditions now prevailing. It is evident that such destruction as that which is going on in the only part of the continent where these birds are still numerous has already advanced a long way toward adding our national emblem to the list containing the Labrador duck, the passenger pigeon, the whooping crane, the trumpeter swan, the Carolina paroquet and others that have now disappeared forever. With more active interest on the part of those with scientific knowledge, the passenger pigeon might not have become extinct, since it might have been preserved by the simple expedient of protecting its breeding places; the few remaining individuals of the heath hen would not have been allowed to remain where a single forest fire could wipe them practically all out; the small remaining colonies of the California sea elephant found a few years ago might not have been left without protection, and the golden plover, which is on the verge of extinction, would not be especially excepted from protection by the present federal migratory bird law. With more scientific and intelligent judgment applied to such matters the Klamath lakes, which are among the most important remaining breeding places for wild fowl in the United States, would not now be being drained; and many other mistakes or worse than mistakes might have been avoided, or in some cases might even still be corrected.

The particular purpose of this communication is however to call attention to one phase of protective work which is very important for science, and in which scientific men and societies must especially interest themselves if it is to be taken up at all, for the general public can not be expected to appreciate its importance. This is the protection of what remains of the unique and peculiar forms of animal and plant life that inhabit many of the remote islands and isolated island groups in various parts of the world. These contain many species of birds, animals and plants peculiar to themselves, and represented, on account of the small area they inhabit, only by few individuals. They are thus very likely to disappear, either through changes caused by, or direct destruction by man or by noxious animals, as the mongoose, domestic cats and rats introduced by man. Hundreds of interesting island species, including birds, reptiles, insects, mollusks and members of other groups, have already become totally extinct through human agency, and many of the remaining ones are immediately threatened with the same fate. On such islands there usually were, and on many there still remain, forest tracts containing plants found nowhere else and presenting ecological conditions entirely unique and therefore of great scientific interest. If they could be preserved, which is desirable for their own sake, they would serve as reservations for preserving the native animals also. This would in many cases not be an expensive undertaking, as it is chiefly in land unfavorable in character or situation for agricultural purposes that such forests have been allowed to remain, and it is probable that

in some cases the local governments could be induced to set them aside as reservations if the reasons for it were made clear.

Such islands as those here referred to, do not however have a sufficient proportion of inhabitants with scientific interests and with the means or enterprise to take any effective steps toward preserving their native plants or animals, nor do they appreciate their unique character, or fully realize that the things they see about them all the time are found nowhere else in the world. The initiative, encouragement, and no doubt some money (it would in many cases not take a great deal) must come from outside. This is not a matter of local interest only, it concerns nature students, zoologists, botanists and foresters throughout the world, particularly those interested in these sciences from an ecological point of view.

There never has been a time when international jealousies and mistrust and obstinate conservatism have so nearly disappeared from among the nations holding colonial possessions as they have to-day. The international cooperation of scientific societies and of the local and general governments necessary to carry on such work is not nearly so far outside the range of probability now as it would have seemed a few years ago. It seems a favorable time for some of our larger and more influential scientific associations and institutions to make a beginning by the appointment of a committee to communicate with others that might be interested, and discover what support and encouragement such a movement could hope for. The need is urgent, every year's delay will increase the difficulty and greatly diminish the results that it will be possible to achieve.

Willard G. Van Name

SCIENTIFIC EVENTS

THE ANTHROPOLOGICAL SOCIETY OF PHILADELPHIA

An article in the *Pennsylvania Gazette* reports that for the past ten years a small group of men, interested in some aspects of anthropology, have held meetings (informal at first, before 1914) for the interchange of ideas and the stimulation of interest. The nucleus of this group was certain members of the faculty of the University of Pennsylvania and of the staff of the university museum, whose work lay in this field. The remainder were students and "laymen" who had some interest in anthropological studies, and who served to leaven the whole and widen the usefulness of associating together.

In the beginning no attempt was made to keep any definite object in view nor to expect anything more than that sociability would grow out of these gatherings. But when a man came home, after a bit of interesting field-work, one of the first things he did was to look up the next meeting of his friends and co-workers, to talk over his trip and perhaps to display photographs and specimens. In this way there arose evening meetings devoted to particular topics, with "speakers," meetings which were informal, but which tended toward a definite purpose. The café in which these friends usually met gradually became a sort of headquarters for the entertainment of anthropologists, visiting field-workers and members of societies from other cities.

In March, 1914, a serious attempt was made to increase the usefulness of these informal gatherings by adopting a regular date and place of meeting. The first step in this direction was to elect a president, a secretary-treasurer and an executive committee. Thus formed, and under the name of The Anthropological Society of Philadelphia, those interested began to hold regular meetings and to hear prepared papers and discussions once each month during the winter. The social character of the meetings was kept as much as possible and all formality was avoided, just sufficient, indeed, to preserve a natural cohesion of interest and companionship.

During the past three years funds have been appropriated by the provost through Dean Ames, of the university to pay the expenses of non-resident speakers to address the students of the department of anthropology; permission was obtained, through the efforts of Professor Frank G. Speach, of the department,