

SCIENCE

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THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

SECTION F—IS IT WORTH WHILE?

THE first meeting of the American Association for the Advancement of Science was held in September, 1848. The society was not then organized into sections, but a committee on organization was empowered to "divide up sections" or "combine sections" as it deemed advisable.

The *Proceedings* of the Association indicate that for many years this committee was at least an active one, for the particular organization into sections and subsections of any one meeting rarely survived for another meeting.

At the sixth meeting, held in August, 1851, the following sections were recognized: A—Mathematics and Physics, B—Chemistry and Mineralogy, C—Geology and Physical Geography, D—Natural History, including Physiology, E—Ethnology and Geography, and F—Mechanical Science.

At the seventh meeting held in July, 1853, botany and zoology were recognized as subsections of Section B, which had been changed from "Natural History including Physiology" to "Chemistry and Natural History." The next year zoology was conspicuous by its absence, but two zoological papers were read in the subdivision designated "Physiology." The year following "Physiology" was omitted and "Zoology" was reinstated. Thus zoology, now prominent and now not in evidence, drifted in

¹ Address of the vice-president and chairman of Section F—Zoology—American Association for the Advancement of Science, Cleveland, December, 1912.

and out down to the thirty-first meeting held at Montreal in August, 1882. At this meeting "Biology," including botany and zoology, was designated as Section F and "Histology and Microscopy" as Section G.

For ten years the twins—botany and zoology—constituted Section F. At the forty-second meeting held at Madison, Wisconsin, in August, 1893, the twins parted company, zoology becoming Section F and botany, Section G. The Vice-president of Section F was Henry F. Osborn, who delivered the first vice-presidential address before the section. The secretary of the section was L. O. Howard.

But few vice-presidents have failed to follow the example of Vice-president Osborn. Two years ago sickness prevented the vice-president attending the meeting held at Minneapolis, but his address was read by another member of the section. Last year the vice-presidential address was omitted from the program because Vice-president Reighard and the other officers were convinced that but few zoologists would attend the Washington meeting. Their judgment was vindicated in so far as the number in attendance can be considered a vindication.

On the whole, the record of Section F as preserved in the *Proceedings* of the Association is very creditable and can hardly be called discouraging. Moreover, the list of zoologists who have taken an active part in the meetings of the association includes the names of most of our eminent and honored zoologists.

Why then ask you to consider whether it is worth our time and energy to maintain Section F as an active, vital unit in the Association?

Well, Section F can be thought of as an organism—at least it is an organization composed of living animal units—and I dare say it is no reflection upon you to as-

sume that as zoologists we are all interested in living things and their functions and all the conditions that affect their vitality and effectiveness. But let me put you at ease, so far as I can, by assuring you that I am not going to tire you with an effort to work out this figure in detail.

The immediate suggestion and justification for my apparent disregard of the traditional character of vice-presidential addresses lie in the unrecorded facts pertinent to the life of Section F and in the attitude of indifference to and even open repudiation of the section assumed by some zoologists in recent years. It may be that the phenomena interpreted as evidences of destructive metabolism are merely expressions of efforts at readjustment. If so, I hope I shall be considered among those who desire a proper readjustment. If, on the other hand, the phenomena are indications of a real tendency toward disintegration, I trust I may have some part in at least checking that tendency long enough to enable us to come to a full realization of what disintegration of the section would mean for zoology in general.

Bear with me, then, while I bring to you some of the facts and observations which have a bearing upon the position of Section F as I see it.

Section F, as already stated, was organized in 1893. The objects of the section, as expressed in the constitution of the Association, are:

by periodical and migratory meetings, to promote intercourse between those who are cultivating science in different parts of America, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness.

The American Society of Naturalists was organized in 1883 with the object of associating

working naturalists for the discussion of methods of instruction, museum administration, and other objects of general interest to investigators and teachers of natural science; and for the adoption of such measures as shall tend to the advancement and diffusion of the knowledge of natural science.

The list of meeting places of this society clearly indicates that the society practically has been an eastern organization. The addresses and discussions, in so far as one can judge by their titles, indicate that some of the objects announced in section 2 of the constitution either have been overlooked or are not what the language of the section suggests.

In 1899 a call was issued to the naturalists of the central and western states to meet at Chicago for the purpose of considering the organization of a western branch of the American Society of Naturalists. This meeting was so encouraging that another meeting was held at the University of Chicago in 1900. The second gathering was even more successful than the first. Indeed it was so large that, in the language of the minutes, it "became necessary to hold two sections, a zoological and a botanical."

The segregation thus forced upon the botanists and zoologists in 1900 was again observed in 1901, when the Eastern Branch and the Central Branch of the American Society of Naturalists and the American Morphological Society met at the University of Chicago. At this meeting the zoologists appointed a committee on organization and during Convocation Week of 1902-03 organized the American Society of Zoologists, consisting of an Eastern Branch and a Central Branch. The constitution of this society declares the objects to be

the association of workers in the field of zoology for the presentation and discussion of new or important facts and problems in that department of science and for the adoption of such measures

as shall tend to the advancement of investigation in that science in this country.

The scope of the society is further indicated by the restriction of membership to "active workers in the field of zoology and who have contributed to the advancement of the science."

The American Morphological Society was organized in 1890 in recognition of "a very noticeable increase in the number of persons in this country who are devoting themselves to the study of animal morphology," and also with a desire to break up the "scientific isolation" resulting from "the vast extent of territory over which our students are scattered." From the beginning this society was distinctively eastern, notwithstanding the fact that it recognized the vastness of our territory and expressed a desire to break up "scientific isolation."

In addition to the above there have been organized since the establishment of Section F, the American Association of Anatomists, the American Society of Biological Chemists, two societies of entomologists, the American Nature-study Society, the American Physiological Society, the American Psychological Association, the American Association of Museums and the American Breeders Association with a special section on eugenics. Each of these organizations has come into existence in response to a demand and each has some specific and circumscribed end or ends in view. All have drawn from the group of workers that but about twenty years ago constituted Section F. Membership in some of them naturally means separation from Section F, while membership in others ought to just as naturally mean active membership in Section F. For even when, as I have intimated, the declared objects of these organizations suggest a field of usefulness outside of the circle of the select

few the records do not suggest any activity beyond the circle. This is quite natural and under our conditions is inevitable.

I trust you will not misinterpret my brief comments on the declared objects of these societies. I am not criticizing, but am trying to present as briefly as possible some of the important facts and conditions that have a bearing upon my question.

Apparently there is still a demand for these organizations. All of them emphasize the fact that specialization and segregating grouping has become necessary. I dare say none of us will deny that the segregation of specialists is a natural process and that we shall always have the groups now organized, or others to be established as our points of view and interest shift. You may regret it and to some extent even rebel against it, but you can not ignore it and have a part in the progress of science. In yielding to this pressure, however, we may go to such an extreme as to fall far short of legitimate expectations. And I am constrained to declare that the tendency of eminent zoologists to ignore Section F and even to speak slightly of it indicates a sad misconception of our relations to society at large.

Only the declaration of the American Society of Naturalists to adopt such measures as shall tend to the advancement and diffusion of the knowledge of natural science indicates a recognition of our obligations to all our fellow-citizens that is somewhat differently suggested in the "increased facilities and a wider usefulness . . . for the labors of scientific men" of the American Association for the Advancement of Science.

Neither the Society of Naturalists nor Section F has lived up to the program of general usefulness. The addresses, and quite naturally the papers, have been prepared with reference to the zoologists

within the circle rather than with reference to those who are not specialists and in whom we should foster and develop an interest in the science for the general good.

In this, I think, lies the suggestion of the point where we shall discover our weakness and the hope for a wider influence and usefulness.

The Society of Naturalists can not be justified unless it really is what the name intimates, and under the present system of organizations and affiliations its meetings can not truly be meetings of naturalists unless the botanists, zoologists and other naturalists meet at the same place and time. The botanists have kept in close touch with Section G of the Association, but the zoologists have recently tended toward independence and separation from Section F by making the meeting places of the association a minor factor in the selection of the meeting places of their societies.

Are there any reasons why zoologists should emulate the example of the botanists and show a keener interest in the possibilities of Section F? I think there are, and I shall try to present one that has been uppermost in my thoughts recently.

I shall not enumerate the social and personal advantages of meeting at the same time and place set for numerous other scientific societies and sections of the association. These advantages have been fully presented and without doubt are admitted by all of us. At present there is uppermost in my mind just one point of view, namely, Section F as the zoologists' natural avenue to the general public.

As a foundation for my plea for a wider usefulness of Section F, I postulate the following two propositions:

1. No scientific organization in this country receives such general attention and, for a time at least, creates so widespread an interest in human knowledge

and achievement as does the American Association for the Advancement of Science.

2. Every department of science that appears as a part of the association at its meetings shares this touch with the general public in proportion to its activity and the interest it expresses in the public at large.

In my judgment these propositions are statements of facts and not inferences. Accordingly, I leave them without attempting to support them by argument, and ask: Can we as zoologists afford to ignore—nay, are we doing our full duty when we give little or no thought to our possible influence outside of the circle of our laboratories?

When I see men and women rushing from city to city or racing across the continent in automobiles in search of health or invigorating “rest,” I soften my judgment with the fond hope that some day the zoologists and botanists of our universities, colleges and normal schools will send out teachers prepared to plant in the heart of every school boy and girl a love for nature that will become a heritage to be handed down from generation to generation as an invaluable asset for the health and happiness of the race.

Of course, the realization of this hope will not come until it is much more generally appreciated that, nature not being man-made, communion with her in “God’s out-of-doors” compels man to leave the worn paths of human activity and diverts his attention to the things that are ever attractive and vitalizing. There are relatively few of us who are teachers, and still fewer of those who are preeminently investigators, giving due weight to this point of view. As a rule zoologists are either ignorant of or indifferent to the opportunity open to them for service in this direction, and in consequence are failing to fully discharge their sacred obligations to society.

Everywhere I find among thinking men and women a strong undertone of an unexpressed, an uncrystallized sentiment that for some reason or other zoology is not meeting a demand that ought to—that must exist in the best civilization. And whenever I have outlined a plan of what might be called natural history courses designed especially for teachers and prospective teachers, I have been most enthusiastically urged to carry out the plan and provide something similar for the students who are not selecting zoology or botany as the major line of work.

The love of living things as individuals in a community is inseparable from the social or gregarious instinct. And when we have reached years of discretion and instinctively seize essentials, letting go the non-essentials, we are still children at heart. The child humanizes the actions of the animals that come into its experience and names them as spontaneously as it does the cousins, uncles and aunts. And no matter how absorbed we may become in chromosomes, we are content and happy only when we call the animals we see and hear by name. The intellect may find satisfaction in the contemplation of the obscure and the abstract but the man of heart must have the concrete individual.

I venture to assert that every successful teacher of zoology who awakens an active interest in animal life and who fosters a love for nature is successful by virtue of his personal experience with animals in their native environment. A class tired and weary of the scientific discussion of a morphological or embryological question can be put on the *qui vive* any time with a story personal to some particular animal or group of animals. Time and time again I have seen students weary unto sleepiness awakened and kept awake for an hour by an account of a simple but personal ex-

perience with some animal. What teacher has not been struck by the tenacity and even accuracy with which students hold the accounts of personal experiences and the lessons drawn from them when their minds were like quicksand for morphological data!

But let us be honest with ourselves and remind ourselves that most of our students go out to give in miniature or in more or less condensed form what we give them in our laboratories and lecture rooms. The kind of zoology to which the great majority of the coming generation is to be introduced will be largely, if not altogether, determined in our universities and colleges by the men and women who constitute the membership of Section F and affiliated societies.

It should also be remembered that the wider the circle of those interested in a science the greater will be the appreciation of the work and efforts of the investigators in that field and the greater will be the possibilities in every direction. To take thought of service to the general public through our general courses in zoology from the schools to the colleges and universities and through such natural avenues to the public as Section F, is to indirectly but certainly increase the appreciation and support of all lines of zoological investigation and to give the investigator, as well as the teacher, in the field of zoology a more honored and generously supported position. Consequently, in view of the unique position I have assigned to Section F it is natural for me to bespeak a warmer interest in the section and a sympathetic cooperation for the officers.

Before concluding my brief plea permit me to protect myself against a possible misunderstanding. My plea is for Section F and the recognition of a need which I feel most of us do not recognize in service. In

the presentation of this need and opportunity I am not decrying our present type of university course in general zoology. Neither do I advocate nor believe in replacing the usual university course in general zoology by a so-called old-fashioned natural history course or what some of the younger protestors are pleased to call ecology. No, I believe in what we may call the morphological course illuminated with a common-sense presentation of the machine in action and in its becoming. A critical examination of conditions I think will disclose as a fact that the protesting zoologists are misplacing their criticisms. The general dissatisfaction we hear about (which probably is not as general as some think it is) is not so much a result of the character of the courses offered as it is of the quality of our students. The courses, as a rule, are fit and proper and not a bit too exacting for a student of university caliber. But many of our students are not of university caliber in reference to zoology. That is the weak link in the chain. Our students should come from the high schools, preparatory schools and minor colleges with a better knowledge of animals as living individuals and with more knowledge of the physical sciences. But many of them come without any of this knowledge or with the background of a nature-study course often worse than nothing.

To crowd out of the university the exacting morphological course with a gossipy informational course of the hunter and fisherman and superficial poet is to replace sound learning and the development of mental fiber and capacity with sentimentality and undifferentiated—aye, undifferentiable protoplasm in the brain. We must not lower our standards and ideals to those of the vaudeville nor those of the moving picture shows nor those of the newspapers and current novels, but we must insist

upon keeping them up and do our best to make possible the proper preparation of the students.

With teachers prepared to teach zoology as probably we all feel it should be taught in our schools, and consequently with our students quite ready for a deeper look into animal life, and with a more widely distributed interest in zoological work, we shall find the more or less vague feeling for something that is wanting vanished and shall have a larger and more capable class of applicants for more special and advanced courses. Until this condition is realized we must as best we can provide for both classes of our students as well as for the preparation of the men and women who are to bring the rich blessing of a general interest in natural history to the commonwealth.

In the progress toward the realization of this worthy end Section F, in my humble judgment, can be made a most efficient factor by serving as the one sure and safe link between the general public and the zoologists as investigators and teachers.

The preparation being well done below the plane of the investigator, or, if you prefer, outside the circle of investigators, Section F will continue as a vigorous branch of a fruitful vine, and, being trained to meet the conditions of its general environment will yield to the people at large attractive, choice and satisfying fruit.

H. F. NACHTRIEB

THE UNITED STATES GEOLOGICAL
SURVEY¹

THE record of the work of the Geological Survey during the fiscal year 1912 may fitly be preceded by a statement of the conditions under which that work has been done, not as an apology for either the

quantity or quality of the results of the investigations made, but rather as an exhibit of the limitations forced upon this bureau—limitations on economy and efficiency which seriously hamper all efforts for better administration in the expenditure of public money.

The offices of the Geological Survey have become wholly inadequate and unadapted to its needs. Since 1884, when the Survey was first quartered in the Hooe Building, at 1330 F Street, the effort has been frequently made to provide for the growth of the organization by adding wings and extensions to the building, but every increase in floor space has been made at the expense of proper lighting of the older portions of the building, so that its fitness for the Survey's use has been steadily impaired, and the resultant conditions constitute an actual detriment to health and a menace to life and property, as well as an obstacle to efficiency. The conditions under which the Survey employees work in the Washington office are to be condemned for both humanitarian and business reasons. . . .

The present housing of this federal bureau is unworthy of the nation. Both the work and the workers of the United States Geological Survey have an international reputation, and visiting foreign scientists do not conceal their astonishment at the miserable environment in which these investigations are being carried on. Our neighbors on this continent, in Canada and Mexico, have erected buildings especially adapted to the work of their geological surveys, which are properly housed, as is nearly every other geological survey in the world, and yet the geological survey of no other nation compares in size of organization or scope of work with that of the United States. In fact, the surveys of several of the larger European countries are organizations whose personnel is com-

¹ Extracts from the Thirty-third Annual Report of the Director.