

# SCIENCE

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## THE FUNCTIONS AND ORGANIZATION OF THE AMERICAN SOCIETY OF NATURALISTS<sup>1</sup>

THE American Society of Naturalists was founded, under the name of The Society of Naturalists of the Eastern United States, in 1884, by a group of the leading biologists of the day. Some of these have long since passed away. Others yet remain with us and are among the most active and most distinguished representatives of biological science in America to-day.

The motives underlying this movement are not difficult to discover. They are to be found in the great trend toward an intense specialization which at that time began to attract wide-spread attention and called for great concentration of effort and more exacting methods; in the rapid development of a refined and precise technique; in a growing demand for improved science teaching in schools, and in an appreciation of the fact that the arbitrary distinctions hitherto maintained between the two great schools of biological research must shortly disappear in joint efforts toward the solution of the great problems of life. The logical outcome of this point of view necessitated careful consideration of the relations in which the new order of scientific thought and progress must stand toward methods of research and the constitution of societies and academies of science.

But above all, it became a matter of first importance to determine the relations of the new order to the rising generation and through them to the future specialist and scientist. In other words, it became clear that the methods of science teaching must

<sup>1</sup> Presidential address delivered at the Baltimore meeting, December 31, 1908.

be made to so far conform to the trend of scientific thought and to actual progress, as to secure to the public at large correct conceptions, and to the future student of science a proper basis on which to found more advanced studies. It is, therefore, in no way surprising to find that some of the very first discussions of the newly formed society were directed toward a careful consideration of "methods of teaching" and "the employment of specialists by the educational institutions of the country."

It is not our present purpose to analyze fully the important influences which have extended from these discussions broadcast over the land, carrying with them the full weight of the highest authorities of the day, as it would take us altogether too far from the immediate purposes of this address; but it is, nevertheless, worth our while to point out that the spirit of cooperation in scientific endeavor, the high purpose to influence and improve the standard of scientific thought and effort, and the intention to so dignify and enrich scientific achievements that the society might stand as an exponent of the highest and best scientific thought, and as an inspiration to the rising generation, were ideals which constituted the fundamental concept and have been adhered to during the quarter of a century of usefulness which has marked the career of this institution. It was in this spirit that the society set before itself lofty ideals of usefulness, and in the period that has since elapsed I fail to discover that there has been any retrograde step or any serious lapse from the first declaration of policy. The only opportunity for criticism would appear to lie in the possibility that this policy, while fully maintained, has not proved sufficiently elastic to permit of ready adjustment to altered conditions imposed by the lapse of time and the progress of scientific thought; but I am not pre-

pared at this time to admit that such is, in reality, the case.

This society numbers, to-day, 376 members, among whom we proudly reckon the majority of the leading scientific men of the country, while in its organization it represents a powerful, coordinating and centralizing body for various groups of specialists joined for their particular purposes into small societies devoted to restricted lines of research. Few will venture to deny the preeminent position the society occupies, the great influence it has exercised or the eminent character of its work. Nevertheless, we are suddenly faced with a grave problem which threatens nothing short of the very existence of the organization.

Within the last two years we have heard much to the effect that the society is in a moribund condition, that its usefulness is a thing of the past, and the faint-hearted even insist that it is time for it to gracefully die. These statements have been repeated with such insistence and frequency, in spite of the firm belief of many that the society has a very definite and important function to perform, and that never in its history or in the history of science, was there a time when its efforts and influence were more needed than now—that the more progressive, and, I am also bound to say, the more thoughtful among us are led to consider the situation as one which requires to be dealt with firmly but without further delay, to the effect that the usefulness of the society and its functions must be redefined in the light of present-day needs and present-day conditions, and that it shall be rehabilitated. Or, failing this, that it shall be promptly and finally relegated to the things that have served their purpose and no longer meet a want in the economy of scientific thought and development—that its career must be terminated. This is the direct issue with which every member of

this society is faced to-day, and the result must be determined by the vote which you will presently be called upon to cast.

My task is certainly not a congenial one, but as your president to whom the issue has been presented in a most unexpected manner, it is my duty to bring before you as clear an analysis of the situation as it is possible for me to give, and then leave the final decision in your hands.

In the last presidential address delivered to this society, Dr. McMurrich defined the great function of the Society of Naturalists in a very concrete but comprehensive phrase, when he said that "It makes for the solidarity of those sciences which, in the older days, were included in the term natural history," and he then proceeded to show how the necessary development of the biological sciences in particular wrought a change in the work and character of the society, and even threatened to obliterate its *raison d'être*. It is not my purpose to enlarge upon the line of thought which these remarks naturally suggest, but rather to employ them as the starting point for further consideration of those activities which properly devolve upon an organization of this kind, to indicate further directions of usefulness, and, if possible, convey to the minds of my hearers some small measure of that conviction which assures me that there is, more than ever, an open, fertile and as yet unoccupied field which it should be our special duty to cultivate in the interests of pure science.

One of the essential features in the activity of the Society of Naturalists has been the opportunity for the unreserved discussion of abstract scientific problems in which specialists alone are competent to engage, and who alone could derive benefit from such deliberations. Complete removal from the distractions of social life and large public gatherings, are conditions essential to success, and these conditions have been met

in the past by placing the meetings at the time of the mid-winter recess when members could find a few days of relief from their professional work. So long as these conditions were observed, the work of the society was not only successful, but it commanded wide consideration and respect, and there was an atmosphere of enthusiasm and *esprit de corps* which made membership a thing to be sought for and valued.

The American Association has been accustomed from the time of its organization to hold its meetings in summer, usually the latter part of August or early September. In 1902, however, for reasons which we need not stop to analyze or discuss at this time, the association resolved to hold winter meetings, and to make these events synchronize with the meetings of the Naturalists. By many this unfortunate step was viewed with alarm, since they clearly perceived that there could never be room for two such bodies, occupying such distinct fields of endeavor, and with such distinctive methods and objects, in joint sessions, and that sooner or later there would be dissatisfaction and one must yield.

The American Association, by reason of its very constitution, must always remain distinct and apart from the Society of Naturalists. The two organizations occupy distinct spheres of usefulness which should not be compromised by being brought into too close contact, and it is well that this relation should not only be recognized but maintained, since in that way alone may they strengthen and supplement each other's work in the most effective manner. The great purpose of the American Association is to popularize scientific knowledge and effect its widest distribution. In this way it aims to secure for scientific men the widest recognition and the most perfect facilities for their work. It seeks, therefore, first of all, to gather about a relatively small nucleus of scientific men, the largest

possible popular membership collected from the population of the town or city in which its meetings may be held. No one would think of questioning the value of such a proceeding for the particular purposes of the association, but it will be readily admitted by all that such methods are not in harmony with the purely scientific spirit, that they are inconsistent with sober scientific thought, and that the meetings are not expected to be productive of the best results of investigation. Indeed, it is a matter of common repute that the meetings of the association are not the places for specialists to give serious attention to the problems they are endeavoring to solve, but rather that they afford convenient opportunities for cultivating the social side of scientific life. All this is eminently praiseworthy and desirable, but such work must not be confounded with or allowed to intrude upon opportunities for purely scientific deliberations.

Members of the Society of Naturalists are also in most, if not in all cases, likewise members of the American Association. In such joint membership there is nothing which need imply antagonism or duplication of work, but, on the contrary, such a perfectly natural relation should operate to the advancement of each, particularly of the latter association, by bringing to its ranks the very scientific strength it requires in the execution of its chief function—the popularization of scientific knowledge.

Since the institution of joint meetings there has been a growing feeling that it is impossible to do justice to both interests, that in the multiplicity of sections and societies, of meetings and social functions, there is left no opportunity for the sober work of the Naturalists which has, in consequence, resolved itself into a perfunctory discussion of some large problem of immediate interest. The most recent phase of this particular aspect of the question is

found in the fact that other bodies are now entering this field and thereby tending to still further diminish the value of the work originally undertaken by the Naturalists, through useless duplication and dissipation of energy. The members feel that their time is not being occupied in the way they could wish; that they do not gain from their colleagues the interchange of ideas and experience they had hoped for. Under such circumstances dissatisfaction soon follows; fading enthusiasm treads hard upon the heels of fleeting ideals, and we shortly hear of moribund conditions; references to the greatness of the past and dismal forebodings for the future, coupled with the hope that the society may soon disband. These results must be regarded as the logical expression of forces set in motion when it was decided to establish joint sessions, since it has been observed that during the six years this relation has been in operation, there has been a gradual waning of interest in the public debates, which have also exhibited diminishing importance and force as the leading function of an important scientific body.

It is worth while to recall in this connection that the institution of joint sessions did not affect the Naturalists alone, but involved the Geological Society and all those specialists' societies in affiliation with the Naturalists. From these, complaints and protests are already beginning to be made, and I have it on the best of authority that at least one society is now considering what measures it shall adopt to counteract the undesirable situation in which it finds itself.

It is quite possible that a feeling of indifference or of complacency may have developed among a certain section of the society, and that in the annual house-cleaning which is supposed to take place with the installation of a new executive, there has not been sufficient removal of the waste

of previous years, and a proper introduction of that fresh atmosphere which brings with it renewed endeavor, a broader and more hopeful outlook and the inspiration to new activities and new conquests. I say this because we must be quite sure that neither the whole fault nor even a part of it lies with ourselves. But viewing the progress of events in the light of this qualification, as well as of the fact that we do not stand alone in our dilemma, the conviction is forced upon us that our difficult situation is primarily and chiefly due to the anomalous relations which have been established between us and the American Association. It appears to me, therefore, that while the general sentiment has forced conclusions based upon the alternative of a revision of our relations to that body or extinction, the real issue should be stated in terms of continued companionship. To my mind there should be no question of the society abandoning its chosen field of usefulness in which it has won such distinction. The issue is a clear one and should be won or lost on the simple question as to whether we shall continue to meet with the American Association or choose our own time and place.

Never in the history of the biological sciences, using that expression in its most comprehensive sense, have there been such rapid, extended and far-reaching changes, both of thought and method, as during the last twenty years, and without assuming the rôle of a prophet, it is probably safe to assert that the next two decades will witness even more profound changes. A society such as this, therefore, should always hold itself in readiness to adjust itself to altered conditions, and while exercising a due conservatism, it should, nevertheless, be prepared to meet the situation imposed by altered points of view, new methods, fresh hypotheses, newly ascertained facts and proved generalizations. In such ways

alone does it become possible to infuse new life into those whose ripe experience may excuse a certain degree of complacency; or to awaken enthusiasm in those who are at the threshold of the richest experience that can fall to the lot of man.

Our last president indicated in his address before the society, that the changes introduced by abandoning the generalized methods of the old school of natural history for the more specialized methods of the new school of science introduced some thirty years ago, shortly led to a cleavage between the biological sciences which extended to a similar separation of geology and paleontology. That botany and zoology should become more independent was regarded as both natural and unavoidable, and, from many points of view, most desirable. Viewing the cleavage of paleontology from geology, from the standpoint of efficiency in scientific development, and the normal relations of cognate subjects, we need express no feelings of regret, for however valuable the evidence of fossil forms may be to the geologist as a working force, there is no natural relation between the two. It has, however, been a slow and somewhat tedious process to gain recognition of the fact that paleontology is not a science in itself, and that it does not bear any direct or precise relation to geology; but that it is a composite subject whose chief members belong to the domains of zoology and botany. Were the results of this cleavage to be expressed in no more extreme form than what has been indicated, they might be regarded with seeming indifference, but, as in all reforms, the swinging pendulum has been allowed to continue too far on its one-sided course, and for years the biological sciences have suffered an unsymmetrical development which at times has given rise to many heart burnings and false conceptions of what the science really stands for. The lingering tendency to per-

petuate a distinct scientific status for each of the older subjects, without reference to their cognate relations, has found expression in the recent attempt to organize an independent society for paleontology, a movement which I conceive to be unscientific in spirit, at variance with the present tendency of the times, and one which should receive the prompt discouragement of this and every other scientific body.

When Huxley and Martin introduced their meritorious scheme of general biology, they can hardly be said to have deliberately contemplated the absorption of the entire science of life by either the zoologist or the botanist, but, unfortunately, such was really the outcome of the forces set in motion by them. The relative conditions of development in zoology and botany in their day were such as to lead to the natural conception that a course in general biology must consist of a major quantity of the former and a minor quantity of the latter. This arose from the recognized fact that the development of zoology had proceeded along advanced lines for many years, while botany was yet struggling with questions of taxonomy, nomenclature and general morphology so-called—concerning itself but little with the more important aspects of the subject. It was not until twenty-five years ago that plant physiology, pathology, paleobotany and ecology began to attract attention, either as important educational subjects or as departments of research likely to be productive of great scientific or economic results. It would have been contrary to all human experience had the zoologists failed to promptly seize and exploit the rich fields which lay before them, and botanists have only themselves to thank for the fact that the zoologists not only appropriated their rich inheritance, but delayed a recognition of their rightful share until within the last decade. Grati-fying as the present progress in this direc-

tion may be, it is nevertheless far from satisfactory. In many cases our best educational institutions show a lingering conception that botany plays only a subordinate part in any general biological scheme, and that biology is substantially a knowledge of animal life only. Professors even openly advocate courses, or persist in maintaining courses in general biology in which this feature is given special prominence. Among the general public highly educated people commonly discuss botany and biology as wholly distinct and largely unrelated subjects, a point of view for which we can make some allowance when their leaders in science ignore first principles. Such persistent, and one might almost say willful, blindness to the proper correlation of subjects begets a disastrous confusion of ideas and intellectual sterility. Witness the recent instance of a medical practitioner in good standing, and only a few years out of a leading medical school, expounding to a public audience the principles of preventive medicine as applied to tuberculosis. His advice was good, but when he left the immediate field of his own profession for that of science, his statement that "*Bacteria are little animals about half way between a spore and a seed*" was far from comforting to those who had fondly hoped some fertile soil was to be found in the ranks of the rising generation of medical men, wherein to sow the seeds of correct biological principles.

The recently exploited work of Mendel and the brilliant achievements of de Vries, whose results are now being utilized so extensively by zoologists in elucidation of hitherto obscure problems, the light thrown on general biological problems by the long and brilliant array of investigations in plant cytology, the advances in plant pathology which have led to results of the greatest economic importance and have thrown a brilliant side light upon many

obscure problems in animal pathology, recent progress in our knowledge of the laws of hybridization and inheritance, and a dawning recognition of the place which paleobotany properly occupies—all indicate not only that the subject of botany is rapidly gaining its rightful position, but that zoologists are becoming more and more dependent upon a knowledge of plants for a clear and rational explanation of many phenomena of animal life. I do not desire to leave the impression that zoologists as a whole are given to cultivating the erroneous ideas I have endeavored to indicate, because, as a matter of fact, there are many of our leading animal biologists who cheerfully and freely recognize the great and important position of botany as a channel through which some of the most important laws of life receive their best exposition. But that there is certainly need of reform with respect to the general attitude of both our educational bodies and the general public can not be questioned, and that this society should lend its influence in this direction I conceive to be among its most important functions.

The present tendency in science, received as a legitimate inheritance from the great upheaval of the latter part of the nineteenth century, is toward an undue specialization, and an undue haste to attain to the positions occupied by the older men of the professions. The introduction of the system of unrestricted options so fashionable a few years since, has led to efforts to specialize in the undergraduate course, a tendency which still receives far too much encouragement on the part of those whose experience and position should lead them to advise otherwise. My attention is more particularly directed to this with respect to the biological sciences for which a thorough grounding in chemistry, physics and geology is not only indispensable, but because such fundamental knowledge becomes

more essential with every fresh advance that is made. The more deeply one specializes, the greater the need for that help which comes from other fields of learning. Plant physiology demands an accurate and somewhat extensive knowledge of both physics and chemistry. Pathology, to be profitable, must be studied from the comparative point of view. Paleobotany demands an extensive knowledge of geology. What is true of the science of plant life is more or less true of the sciences which deal with life in any one of its numerous phases. For the broad foundations in general science thus required, our educational institutions must provide opportunities for all-round and thorough training, and the present tendency to an early and undue specialization must yield, as it is already giving way to, a more rational group system. Above all, students must be brought to realize that a patient apprenticeship through which the successive steps are taken with deliberation and on the basis of thorough knowledge, is the only medium through which to secure the highest reward and the greatest satisfaction when the goal is finally attained.

Specialization, however, is not confined to individuals, but extends to societies and not only tends to lead them too far from the central idea of coordination, but involves an undue multiplication of organizations engaged in essentially the same lines of work. Such duplication is as unnecessary as it is deplorable.

Specialization is recognized as a necessity of modern scientific development, but its unrestricted exercise involves lack of coordination, narrowness of view, unsymmetrical development. While we fully agree with Dr. Farlow, as expressed in his presidential address before the American Association, that the object of scientific organization is to encourage diversity of work, he would undoubtedly agree with our point

of view that in exact proportion to such diversification or specialization, does it become of increasing importance that there should be a strong, centralizing power operating for breadth of view, coordination of results and a symmetrical development.

Under its present organization the Society of Naturalists is the coordinating and centralizing force for eight other societies which represent the work of specialists in their several fields of activity. These are: The American Anthropological Society, The Physiological Society, The Psychological Society, The American Society of Vertebrate Paleontologists, The American Society of Zoologists, The American Society of Anatomists, The Botanical Society of America, The Society of American Bacteriologists.

It would be a very fitting and natural association if to this important group there were added the Geological Society of America, whose deliberations involve so much in common with some of the other societies, and we may indulge the hope that such a union may be realized in the near future and be so extended as to embrace all of the other specialists' societies not represented at this time. With one or two exceptions this group may very well be regarded as an ideal division of activities without undue subdivision or duplication of work. The only ground for real criticism might be found in the separation of the vertebrate paleontologists from the zoologists, and of the bacteriologists from the botanists. With respect to the former I may reserve my remarks for another connection. With respect to the latter, it might seem better on general grounds that the bacteriologists should be merged with the botanists; but when it is recalled that membership includes many who are not botanists in the general acceptance of that term, that a large number are physicians and zoologists, and that bacteriology involves a peculiar

and elaborate technique, almost exclusively applicable to these minute plants in their various economic relations, it must be conceded that here, at least, there are special reasons for a subdivision which, on other grounds, would not be justified.

It is obvious that specialization among societies may readily be carried too far—much beyond the bounds of scientific requirements. Among botanists this view has made great headway during the last ten years. Thus it is now generally agreed that a satisfactory knowledge and treatment of the science demands familiarity with the extinct forms of plant life, quite as much as with existing types. The methods involved in the study of fossil plants are essentially the same as those applied to the anatomy of recent plants. It is true that a certain and often detailed knowledge of geology is essential in this connection, but this does the botanist no harm and is more likely to be beneficial. The more we are called upon to deal with questions of phylogeny and evolution, the more essential does it become that fossil botany should be as familiar as recent botany. The two are, in fact, inseparable. It becomes clear, therefore, that it is an utterly false conception which endeavors to perpetuate the idea of a separate science of paleobotany. To encourage such a division is to retard the development of the science as a whole, and I am of the opinion that the remarks which apply to botany in this respect must also apply with equal force to paleozoology. No better service to the cause of consolidation, unification of interests and cooperation has been rendered in recent years, than by the union of the Society of Plant Morphology and Physiology and the Mycological Society of America, with the Botanical Society of America. These societies enjoyed separate existence for several years by reason of special circumstances which no longer exist. That the Botanical So-



ciety of America alone represents all the most important botanical interests of the country is a matter for congratulation.

Under the present system of joint meetings, or, as stated in the most recent official announcement, "under the scheme of affiliation" now in force, the following relations exist between the American Association and the Society of Naturalists, together with the various specialists' societies. Placing the latter in parallel columns with the former, it will be seen at a glance to what an extent there is duplication of work and a conflict of interests between the purely popular side and the purely scientific side.

AMERICAN ASSOCIATION		SOCIETY OF NATURALISTS	
A—Mathematics and Astronomy .....		American Mathematical Society.	
B—Physics .....		American Physical Society.	
C—Chemistry .....	{	American Society of Biological Chemists.	
		American Chemical Society.	
D—Mechanical Science and Engineering.		.....	
E—Geology and Geography .....	{	Geological Society of America.	
		Association of American Geographers.	
		Association of American Anatomists.	
F—Zoology .....		American Society of Vertebrate Paleontologists.	
		American Society of Zoologists.	
G—Botany .....	{	Entomological Society of America.	
		Botanical Society of America.	
		Society of American Bacteriologists.	
		The American Psychological Association.	
H—Anthropology and Psychology .....		Southern Society for Philosophy and Psychology.	
I—Social and Economic Science.		American Anthropological Society.	
K—Physiology and Experimental Medicine .		American Folk-Lore Society.	
L—Education.		.....	
.....		Physiological Society.	
.....		.....	
.....		American Philosophical Association.	

The large number of specialists' societies here represented makes it clear that their separation from corresponding sections of the American Association for the Advancement of Science must be based upon the impossibility of properly conducting their work in such sections.

It is difficult to conceive what good purpose is served by announcing, let us say, that the American Physical Society will meet jointly with Section B (Physics) of

the American Association. So far as the mere machinery of the meetings is concerned, there is an obvious saving of time and energy; but from the standpoint of scientific results, nothing can be gained for the simple reason that the majority of members of the Physical Society are also members of the American Association, Section B. From this it follows that the Physical Society would be simply meeting *with itself* while preserving the pleasing fiction that it was meeting with some other body.

Our analysis of the relations of the societies shows that there is not only an evident

and unnecessary duplication, but that the work of one body interferes with that of the other; members often know not what meeting to attend; important papers are missed through unexpected changes of program and the impossibility of being in two places at once; confusion reigns supreme. It is clear that some radical and general readjustment of these relations is imperatively demanded in behalf of the general public whose interests are at stake, and for

the welfare of science, which is likely to suffer serious deterioration.

Apart from the considerations thus dealt with, there is another factor of great personal importance, since it bears directly upon the ability of the individual scientist to participate in the work of societies, and makes for the diminution of such organizations rather than their multiplication. In the pressure which is brought to bear upon the scientist to become a member of various societies, it is commonly overlooked that there is an absolute limit to his ability to meet the attendant expenses of such membership together with the ordinary requirements of his position and of his profession, and this limit is soon reached in the case of a large number of men. It was a recognition of this fact that led the Naturalists, some years since, to establish two branches, known as the Eastern and Western Branches, with such a form of organization as would enable them to meet separately or jointly as circumstances might determine. Few scientists are endowed with private means through either inheritance or marriage, and there are certainly several of the professions in which it would be impossible for them to amass even a moderate competency through the exercise of their technical knowledge.

Toronto, Chicago and Columbia have recently been enabled to advance their scale of salaries somewhat in accordance with the advance in the increased cost of living, but the great majority of institutions of learning adhere to the salaries which were barely adequate fifteen or twenty years ago. Taking the most common average salary at \$2,000, an examination of the relations of a college professor to the responsibilities of his profession will probably justify the statement that he is called upon to expend from fifteen to twenty per cent. of his net earnings for the mere maintenance of his position without reference to the require-

ments of progress. "Low living and high thinking" finds neither place nor sympathizers under the present-day conditions, for he who would think high must not only be properly nourished, but his general environment must stimulate, not depress. We are in full accord with the attitude of a recent contributor to *SCIENCE* when he says:

If we take \$2,000 as the average salary of our college professors, we may say that on an average our professors will be drawn from homes where the scale of living is adjusted to the same figure. It should, therefore, be the aim of the college to pay such salaries to its professors as would enable them to give to their children what the college would regard as a perfect preparation for professional work. Only in this way can it draw its teachers from a class in which such preparation is possible.

The conditions indicated impose a grievous burden, and in the face of the education of children and support of families, it is often prohibitive of participation in those activities with which every scientific man should be identified. They carry with them also the additional burden of an undue strain upon the nervous system, and it is now a commonplace that the average professor is in a position of undue stress with respect to ways and means for the necessary expenses imposed by the position he holds, the maintenance of his family and the education of his children. It is within my own observation that this condition has more than once brought men to the verge of despair. It not only denies educated men of the very advantages they are expected to enjoy, but it places a premium upon celibacy and the imperfect education of children. These are not considerations in which sentiment forms a factor, but elements which are directly concerned in the best social organization. But, wholly apart from purely personal elements, putting the case upon the ground of correct business principles and business expediency, we may

safely ask if it is good business policy to engage the services of a highly trained man, impose upon him the most exacting physical and mental labor, and at the same time place him under conditions which compel him to expend from twenty-five to fifty per cent. of his nervous energy in attempts to meet situations altogether foreign to his professional work?

A confirmation of these views comes to us in a wholly unexpected manner through the death, on the twelfth of November last, of one of the most distinguished zoologists of the world. A man of singular modesty but charming personality, he saw in the needs of the younger generation demands which rose superior to all personal considerations. The story comes to us that much needed rest from most exacting labors was refused in the interests of his children. Who will dare say that we have not in this picture an exhibition of the highest type of noble self-sacrifice, and who is in a position to deny that he might yet be with us and prosecuting his work, had he been granted that pecuniary recognition which would have given him an opportunity for the proper care of his children without unnecessary hardship?

If the Society of Naturalists could lend its influence in the direction of an improved public appreciation of the services of the college professor, the real relation he bears to advancement in all departments of intellectual and industrial life, and a proper financial recognition of his services, it would confer upon society at large a benefit for which an adequate standard is difficult to find.

But I must hasten to direct your attention to the problem which demands immediate consideration, "How to find a remedy for the difficult situation in which the society is now placed?"

As the result of a very careful consideration at the hands of your executive body,

and after obtaining a wide expression of views and some detailed plans, a proposition has been formulated which may serve as the basis of action by the society as a whole.

The general sentiment appears adverse to maintaining the society as a mere holding body. This opinion correctly indicates that the society must have some broader and higher function than that implied by an annual banquet and a public discussion. The various affiliated societies must be led to feel that there is a living force which brings them into harmonious relations with all kindred societies; that the central organization deals with the larger and broader questions in a spirit of coordination and in a way not possible to those engaged in the pursuit of specialties; that it lends its active influence in the promotion of research; that it is alive to the interests of the scientific professions, and that it has regard to problems of broad policy—in a word, that it is a living bond which makes for solidarity, community of interests, enthusiasm. The society should not only concern itself with the progress of science, but it is quite as much within its province to have regard for what may be called the economics of the scientific professions—the various conditions which affect the status, welfare and capacity of the individual.

In view of the overshadowing influence which larger and more popular bodies must necessarily exert, it is proposed that, hereafter, the meetings of the Naturalists shall remain independent of other general societies. This does not exclude the use of convocation week, but it does imply that we shall henceforth select some other time and place of meeting than that chosen by any society of a general and more or less popular character.

The present relations of specialists' societies to the Society of Naturalists is satisfactory in principle, though in practise

ways and means may be found to make it more advantageous to all than in the past. It is believed that under the proposed reorganization, it would be highly advantageous to include in the general scheme of affiliation all specialists' societies whose standard of membership is sufficiently high to conform to the requirements of the Society of Naturalists.

To further identify our interests with those of the specialists' societies, it is proposed that all matters of cooperation shall be dealt with by the executive committee, which shall be selected with a view to the establishment of such external relations. This phrase might well be interpreted to mean that each affiliated society shall have its chosen representative on the executive committee of the Naturalists, thereby ensuring the only relation between the several societies through which it will be possible to secure solidarity and identity of interests through cooperation.

It is designed to redefine the general policy in such a manner as to readjust it more definitely to the encouragement of research in the larger fields of science. It should be one of the first objects of our most earnest endeavor to secure a permanent fund which should be devoted to the encouragement of research by any properly qualified investigator within the limits of the United States and Canada, but the subject of investigation should fall within the field occupied by one of the affiliated societies.

The central idea of the society should find expression in some one line of endeavor which makes for the general progress of scientific thought. Of all the societies enumerated, which may be fittingly associated with the Naturalists, there is not one whose work may not be regarded as comprised in general biology, or as having an important collateral bearing upon that science. Whether expressed through the medium of

the botanist, zoologist, physiologist or anatomist; through the more indirect channel of the anthropologist and the folklorist; or through the yet less direct channel of the chemist, the geologist or the physicist, the development of the earth, organic life and even thought itself, is the underlying motive for all. Evolution is, therefore, a great central idea which appeals to all investigators of natural phenomena, and this subject is suggested as one which should be the chief endeavor of the parent body.

In order to give working effect to this idea, it is proposed that each year original contributions dealing with one or more aspects of evolution should be presented to one or more meetings of the Society of Naturalists. Furthermore, it is regarded as desirable that there should be a presentation, annually, of reports upon the most important of recent works dealing with evolution. Both reports and the special contributions should be entrusted to men eminent in their respective fields of research. To occupy a position of this kind should imply a compliment.

It is believed that a general policy, wisely carried out, which keeps alive the enthusiasm for research in the ways indicated, would not only constitute a strong bond of union between the members of the entire organization, making for solidarity of interests, but that it would enlist the sympathy and cooperation of the younger generation of scientists.

D. P. PENHALLOW

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GEORGE WASHINGTON HOUGH

ON New Year's morning, at about ten o'clock, occurred the sudden and unexpected death of Dr. George W. Hough, director of the Dearborn Observatory, at Evanston, Ill. Death came suddenly and painlessly to him, in the way that he had always hoped for it,