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THE DIVISION OF ANTHROPOLOGY AND PSYCHOLOGY OF THE NATIONAL RESEARCH COUNCIL[1]

A GENERAL of the regular army listening to a description of the National Research Council remarked, "You are the General Staff of the army of American men of science." The analogy is suggestive. Our war against the realm of the unknown calls for a determination of broad policies of strategy, as well as for skill in the tactics of attack. Ample resources must be planned for. The relative need for men trained in the various specialized duties of a complex organization must be ascertained. The most effective plans for employing both men and materials must be blocked out. Programs for meeting possible contingencies must be thoughtfully elaborated. New suggestions of method in organization must be pondered and tested. The Division of Anthropology and Psychology of the National Research Council should serve the army of research workers in ways similar to these.

But the analogy breaks down absolutely in one respect. The National Research Council must not, will not, be autocratic. With a representative membership democratically constituted by election from the scientific societies of America it is in no sense our province to dictate, but only to serve. A better analogy compares the National Research Council with the Coordination Branch of the General Staff.

The Division of Anthropology and Psychology of the National Research Council aims to be of service chiefly in three directions: first, assistance in the coordination of research activities already in progress or in contemplation, to encourage team work, minimize duplication of effort, and decrease the magnitude of

[1] Address delivered at Cambridge, December 30, 1919, before a joint session of the American Anthropological Association and the American Psychological Association.

the gaps in our front line of attack on the most vital problems of scientific investigation; second, assistance to the representatives of industries, museums, government departments and other agencies, in the definition of their research problems; and, third, assistance in bringing these agencies into touch with the scientists who are in a position to aid in the solution of their problems.

As Mr. Elihu Root has pointed out, men of science have given to American business and industry the principles underlying a marvellously economical and effective organization; but they have hitherto failed to apply these same principles of organization to their own research activities. While conceding that the production of research output is in essential respects a radically different undertaking from the production of railway equipment or the manufacture of automobiles, we may still insist that in other respects the fundamental principles of organization and of cooperative effort may wisely be directed toward scientific productivity. Such an effort toward multiplication of valuable output is the aim of the Division of Anthropology and Psychology of the National Research Council.

The Division was organized on October 20, 1919, with the following personnel:

Elected by the American Anthropological Association: Franz Boas,[2] Columbia University; Roland B. Dixon, Harvard University; J. Walter Fewkes, Smithsonian Institution; A. L. Kroeber, University of California; Berthold Laufer, Field Museum of Natural History, Chicago; Clark Wissler, American Museum of Natural History, New York City.

Elected by the American Psychological Association: James R. Angell, University of Chicago (chairman, National Research Council); Raymond Dodge, Wesleyan University; Walter D. Scott, Northwestern University and The Scott Company, Philadelphia; C. E. Seashore, State University of Iowa; E. L. Thorndike, Columbia University; G. M. Whipple, University of Michigan.

[2] Dr. Boas resigned his membership in the National Research Council December 30, 1919.

Anthropologists, members at large: A. Hrdlička, United States National Museum; A. M. Tozzer, Harvard University; P. E. Goddard, American Museum of Natural History.

Psychologists, members at large: S. I. Franz, Government Hospital for the Insane; L. M. Terman, Leland Stanford, Jr. University; M. F. Washburn, Vassar College.

Chairman of the Division: W. V. Bingham, Carnegie Institute of Technology; Vice-chairman, Clark Wissler, American Museum of Natural History.

Executive Committee: W. V. Bingham, chairman, Clark Wissler, Franz Boas,[2] J. W. Fewkes, W. D. Scott and C. E. Seashore.

A brief sketch of some of the activities of the Division since its chairman assumed his duties in Washington, November 17, will help in understanding the aims, possibilities and limitations of the Division.

The chairman found himself plunged at once into a swirling eddy of scientific enterprises under discussion by the other scientific and technical divisions of the council. These divisions, with the advantage of several months start over us, had already surveyed their fields, created committees, gone after funds, and settled down to hard work.

On the formulation of some of their projects they sought and welcomed our help. The Division of Biology and Agriculture, for example, had a committee for the formulation of an enormous project for research in South America. Any such project for scientific expeditions and the establishment of research stations might advantageously include in its program plans for archeological, ethnological, and linguistic investigations. Another similar project for oceanographic research among the northern islands of the Pacific was being formulated by the Division of Geology and Geography.

The Division of Biology and Agriculture asked for suggestions of psychological personnel to be included on its Committee on Eugenics. From another source came an inquiry for a consultant competent in the psychology of sex.

The Engineering Foundation had for several

months been formulating a comprehensive program of research on industrial personnel, and welcomed suggestions regarding psychological aspects of the problem.

From two branches of the War Department had come requests for advice and suggestions with reference to the psychological service in the army and the development of tests and standards for use in the new army educational system. An Advisory Committee on Problems of Military Psychology was at once appointed, consisting of Colonel Walter Dill Scott, Major C. S. Yoakum, and Major G. F. Arps. This committee has already been of service, in conference with officers of the General Staff.

These activities of the Division of Anthropology and Psychology are illustrative of a type of usefulness which does not entail the raising or the expenditure of funds. This also holds true of our assistance in formulating a research program for the Washington Diet Kitchen Association, an agency which maintains eight stations to which are brought for examination some 2,000 infants a month. While its research, past and future, focuses primarily on psychological problems of nutrition and growth, it was recognized that here is an exceptional opportunity to gather also data of value in the study of infant psychology, anthropometry and eugenics.

Meanwhile we have been assembling suggestions regarding scientific enterprises toward the promotion of which the Division might wisely bend its efforts. Improvement of facilities for prompt publication of research is a need which several have advanced. Others, particularly among the psychologists, have stressed the growing necessity for a journal to publish a cumulative system of analytical abstracts, such as are available in chemistry, botany and some of the other sciences.

Development of the supply of competent research personnel is another need of our science. This might be accomplished by urging the establishment of more and better fellowships with which to attract and hold for our science the abler minds. Parallel with such a program should go a systematic search for promising student material in the senior classes of the colleges. Such an inventory of talent would be a matter of interest to all the sciences, and should be administered by the Division of Educational Relations. The contribution of our own Division should be merely in supplying the technique of the student survey.

Suggestions regarding specific research projects are being considered. From among them, the Division will select a few of the most promising and important, and bend its efforts toward promoting these. One or more of these projects are to be cooperative undertakings which do not cost money, because the Division wants early to demonstrate its usefulness simply as an agency for correlation of effort. The standardization of procedure in making anthropometric measurements of college students may be a project of this sort.

Other projects of limited scope will require the raising of certain funds as well as the cooperative effort of research workers, such as the determination of the predictive value of various forms of examinations and tests for students entering colleges and engineering schools; or the recording by means of motion picture films of the industries and ceremonies of the North American Indians, to insure a permanent record and permit analytical study of actual movements.

Other proposals are still more elaborate and would call for larger funds. A systematic survey of archeological material and sites in Indiana, Illinois, Iowa and Missouri is an undertaking which could be completed within five years at an annual cost of from $5,000 to $7,000. The function of this Division in such an enterprise would be, first, through a special committee to map out the program in detail, and then, probably through the Division of States Relations on which we are represented by Dr. Fewkes, to encourage state legislatures, historical societies, universities and museums to supply the requisite funds and personnel.

It is intended to select and concentrate on some one major research which is of interest to both anthropologists and psychologists, which can be brought to completion within a relatively short period of one or two years and which gives promise of substantial scientific

results, whose practical value would be generally appreciated. The research problems which best meet these specifications are found within the field of racial differences among the people of the United States. Illustrative of such a project, let me quote from a memorandum by Terman, who suggests securing

> Mental and physical measurements of as nearly as possible unselected representatives of two to four racial stocks represented in the United States, with supplementary social and educational data.
>
> By ordinary methods of selection large numbers would have to be measured in order to insure representative results. The number it would be necessary to measure could, however, be enormously reduced by confining the measurements to children of a given age, say 12-year-olds. Such a group would give more nearly one hundred per cent. availability than any other group that could be selected. Entire villages, counties, or other civil units could be covered in selected parts of the country. The investigations ought to involve measurements of at least 3,000, and preferably 5,000 individuals of each race group. The results would give a fairly reliable cross-section picture in the race groups chosen for study.
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> Incidentally, also, the study would go beyond any investigation that has been made in the direction of determining the relationship between intelligence and important physical traits *within a given race group*. The method indicated is, I think, the ideal approach to this latter problem, all previous investigations of the problem having utilized faulty methods of selecting subjects.

Other projects similar in scope and promise include a study of the inheritance of intellectual ability; a study of mental and physical variability in selected traits, and the correlation of mental and physical measurements; culture studies of representative community groups as a basis for a rational Americanization program, etc.

Committees of the Division have just been designated, to proceed with the elaboration of specific proposals. One of these committees, on anthropological and psychological study of the people of the United States, will designate subcommittees on specific projects which are deemed most promising and important. Another committee will determine what most needs to be done in order to utilize the immense accumulations of army data which have hitherto been only meagerly studied. A third will formulate programs for specific researches outside the United States, particularly in Tropical America, and in Polynesia where the effects of racial intermarriage are most readily determinable.

It will then be the duty of the Division to see what research agencies, governmental or educational, can be brought to concentrate their efforts toward a concerted attack on these major problems, problems which could not be treated with adequacy by investigators working individually.

These samples will serve to illustrate the major functions of the Division of Anthropology and Psychology; but its usefulness will, I trust, be demonstrated partly in the minor and perhaps incidental services it can render from time to time to individual workers. Requests for aid are frequent and varied. For example, one investigator who has been engaged on plethysmographic research on stutterers has succeeded through wide advertising in locating in another city a trephined stutterer. Two hundred dollars is needed to transport the subject to the laboratory, in order to secure records of fluctuation of blood pressure in the brain during stuttering. Another investigator, studying the phenomena of memory, habit formation and glandular activity under hypnotism, has found a senior medical student with exceptional skill as a hypnotist, who can at will make the hypnotized subject weep out of the right or the left while the other eye remains dry. A thousand dollar fellowship would make it possible to retain this student for a year of service in research.

Unfortunately the council has no permanent funds from which grants and subsidies can be made. Such financial aid as it extends to important projects ordinarily takes the form of an effort to interest a donor in a specific undertaking which has been selected from among many projects, for endorsement by the division concerned.

Nor is the council in a position always to lend its official approval and moral support to

every worthy research undertaking, unless its opinion of the enterprise has first been sought by the government or other agency concerned. But this division will always hold itself in readiness to help any member of these associations, so far as it can, by supplying desired information and particularly by bringing the research worker in touch with other investigators who are engaged on identical or overlapping problems.

One reason why Germany, fighting against the world, was able to stave off defeat for four long years, is that she had to a remarkable degree mobilized her scientific brains. To the same marvellously planned and coordinated development of science in its applications to production, is traceable the world leadership she had won in many phases of industry.

What Germany was able to do under an autocratic régime in the way of fostering scientific investigation and making the results of research in pure and applied science of value to government and industry, it is distinctly up to America to do in a democratic way.

E. B. Woods, the distinguished sociologist, observing the trends of human progress, recently remarked, "The past fifty years have belonged to the men who could organize material production, but the present and the future belong to those who can organize men." He was evidently thinking of the organization of activities in public affairs, in religion, in business and manufacture, in labor relations, and in all movements for human betterment. A third group of leaders to whom both of these groups will turn for guidance consists of those who can organize ideas. I conceive it as a prime function of the National Research Council to organize American men of science for multiplied productivity in the organization of ideas. To such a program of cooperative effort within the enormously important branches of the sciences of man, the Division of Anthropology and Psychology of the National Research Council is dedicated.

W. V. BINGHAM

WASHINGTON, D. C.

THE TECHNOLOGY PLAN

THE Technology Plan is an organized attempt to effect a closer cooperation between scientific and industrial effort; between the technical school and the individual industry throughout the country. Although a working relationship between educational institutions and industrial organizations has been discussed at great length, and on many occasions, little real practical progress has as yet been made.

The Technology Plan recognizes that for the present, at least, there must exist somewhere in this scheme of cooperation an element of individual and mutual responsibility on the part of those engaged in it. It recognizes that a purely philanthropic enterprise does not engender in the managers of industry that confidence which is an essential element in its success. Such men are not yet deeply interested in a strictly *pro bono publico* method of cooperative work. Hence, the Technology Plan is neither eleemosynary in organization nor philanthropic in its aims and methods.

The essential feature of the plan is an agreement, expressed as a contract, between individual industrial organizations and the Massachusetts Institute of Technology, under which the industry pays an annual retaining fee to the institute, in return for which the institute assumes certain definite obligations of such a character as it is in position to meet. These obligations are in very general terms as follows:

The great demand of the industries to-day is for men trained to solve the many problems with which these industries are confronted. This requires, first, a knowledge of the principles of science, and second, a training in the application of this knowledge to the solution of the ever-recurring difficulties. While the first requirement is reasonably well met by the undergraduate courses of instruction at the institute, only to a limited extent can the second be obtained in the four years allotted to undergraduate work. The student must be encouraged to spend an additional year or more in a research laboratory or advanced study. Since the best way to learn an art is