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THE NATIONAL ROSTER OF SCIENTIFIC AND SPECIALIZED PERSONNEL

By LEONARD CARMICHAEL

PRESIDENT OF TUFTS COLLEGE

THE National Roster of Scientific and Specialized Personnel is a project of the United States Government, planned to make available in one central office an index of all American citizens who have special scientific or professional skills which may be of importance to the nation in periods of emergency and in normal times.

A somewhat similar register has been completed in England under the sponsorship of the Royal Society. There is no doubt that similar catalogues are available in the totalitarian nations.

The American Roster of Scientific and Specialized Personnel is being developed as a means of recording in an accurate way one of the important areas of the human resources of the nation. It is peculiarly appropriate, therefore, that the national roster is being developed by the federal government as a joint project of the National Resources Planning Board and of the Civil Service Commission. The latter agency is especially concerned in the matter because its executives have seen clearly that the modern advance of scientific and technical specializations has rendered it necessary that the nation should be able to call upon its specialized personnel in an intelligent and efficient manner.

Thus, the fundamental idea behind the new roster is conservation. It is recognized by all that the services of experts may be crucial in preserving the welfare of the nation. A chemist whose work has been done in some specialized and relatively obscure field

may suddenly become the one man in the country able to devise a means of protection against some new chemical weapon. A specialist in an obscure dialect of a foreign language may possess a skill which will have far-reaching significance in an emergency. The conservation of specialized work now in progress is also important to the nation. It is most desirable not to disturb an important cooperating group of scientists in a certain laboratory if similarly trained experts not so engaged can be found elsewhere.

All these facts point to the desirability and, indeed, the necessity of a national roster of the sort now being compiled. In England, because of the smaller size of the country and because of the nature of its university system, such a roster would have seemed much less necessary than in the United States, but the scientific register completed there last year has, according to published accounts, proved to be of great national value.

It is significant that the demand for the national roster in America arose from governmental agencies concerned with national resources and with Civil Service appointments on the one hand, and on the other hand from the great non-governmental councils which represent the specialized scientific and professional personnel of the country.

The organization meeting of the national roster was held in the office building of the Department of State in Washington on June 28. Frederic A. Delano, president of the National Resources Planning Board, was in the chair. Present also were Thomas C. Blaisdell, Jr., of the National Resources Planning Board, and Arthur S. Flemming, Civil Service Commissioner. Among others present were the following: Representing the National Research Council, Ross A. Harrison and Albert L. Barrows; representing the American Council on Education, W. H. Cowley; representing the American Council of Learned Societies, D. H. Daugherty and H. G. Doyle; and representing the Social Science Research Council were R. T. Crane and Carl C. Brigham. Charles F. Ascher and Joseph G. Harris also attended. It was announced that Leonard Carmichael had been chosen as chairman of the consulting committee and director of the project, and that James C. O'Brien, an experienced executive of the Civil Service Commission, had been made executive officer of the new project. J. S. Nicholas has subsequently been appointed to represent the National Research Council.

The committee decided to consider that the ultimate field to be embraced by the roster should be the inclusion of all scientific and professional workers in the United States. When such a comprehensive classification is worked out, it will complement and supplement any general register of American personnel in all walks of life if such a general register is later established. Again to refer to the English precedent, it may be said that in spite of the general register in that country, it was recognized that a separate and detailed index of the specialized personnel of the nation was necessary.

The ultimate scope of the register having thus been agreed upon, it was at once recognized that the achievement of this aim could not be realized at once. Two criteria were then agreed upon to determine the professional areas in which the register should then begin its work: (1) it was decided that the fields of greatest present need, as already expressed by agencies of the government, should determine the sectors in which information should first be collected. (2) it was also decided that, given two fields of relatively equal significance for the present needs of the government, that field should first be catalogued in which personnel records are at the present time least complete.

Incidental to starting work upon the register, the Civil Service Commission is now engaged in collecting lists of the membership of all scientific and professional societies of the country. In collecting these lists, the constituent societies of the National Research Council and the other councils of learned societies are being especially canvassed.

The register itself is planned as a card index punched with the appropriate information concerning each individual in the register. The preparation of punch cards to make the analysis of large and divergent categories of information analytically available is a technical problem. An expert administrative staff will direct this aspect of the development of the register. It is agreed, in this connection, that the existing federal codes of occupations, such as that prepared by the Civil Service Commission in its project looking to the coding of all positions in the federal service, shall be used in all cases as a basis for the new and highly specialized classification required in the register.

The necessary information concerning individuals is to be secured by sending each professional man a general questionnaire to secure information concerning geographical location, age, sex, training, etc., and also a specialized questionnaire or check-list intended to cover in detail his own special field, as, for example, physics. The special check-lists or code analyses in each of the specialized fields are to be drawn up by experts in each field in relation to existing empirical data concerning the actual work of men in these fields. This information will be called for in a manner which will make it possible to attach it directly to the existing codes now in use in the government services. In securing this information, the hobbies of scientific and professional men will not be neglected. The English experience has shown that, for example, a biologist

who has as his hobby the designing of special radio circuits may be more valuable to the nation as a communications engineer than in his own special field of professional competence.

It is recognized that selection of men for important governmental posts and, indeed, for less important specialized activities can not be reduced to a mechanical card-sorting procedure. It is therefore planned to organize committees in each of the specialized fields based upon nominations of those working in these fields. These special committees of experts are to be asked in certain instances to evaluate the names of individuals who are presented to them by the automatic process of the punch-card technique. These special committees are also to be charged with the duty of protecting present educational and research endeavors which are performing important public services to the maximum degree possible.

Fundamentally, the aim of the national roster is the development of a means for the efficient and rapid but appropriate use of the specialized brains of America in the service of the nation. As the English commission has said: "The National Service Department is fully alive to the consequences of the errors of assignments made in the war of 1914–18 and is anxious to avoid repetition of those errors and to insure that each man who offers his services is assigned to that task for which his knowledge, training and capacities best fit him."

Once started and organized, it seems that the value of the roster to many constructive activities of peace time, especially in connection with modern personnel and employment services, will be obvious. It seems clear that with the passing of the present emergency, this roster should not be abandoned, but rather, maintained as a continuing and always up-to-date census of the specialized brains of America. Even in a complete and continuing form, the development and maintenance of such a register will not be expensive in comparison with some of the other projects already undertaken for the preservation and effective use of our natural resources. Moreover, the procedures which will be based upon the use of the roster are at once effective and truly democratic.

The time has come when our nation must be efficient. The National Roster of Scientific and Specialized Personnel is certainly a necessary tool of an effective democracy.

THE PRODUCTION, RETENTION AND ATTRACTION OF AMERICAN MEN OF SCIENCE[1]

By Professor E. L. THORNDIKE

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THE facts reported in this article are based on the persons listed on 1,500 of the pages of the 1938 edition of "American Men of Science." Wherever a number is stated as for all the persons listed in that book, it is (unless otherwise stated) obtained by multiplying the number obtained from these 1,500 pages by 1.0667. The divergences between the rates reported and those which a complete count of all 1,600 pages would have produced are of no consequence.

Column 1 of Table 1 states the number of A.M.S. entries residing in each state. Column 2 of Table 1 states the number of A.M.S. entries residing in each state per million population in 1930. The median is 189. There is a wide variation, from 46, 57 and 67 for Miss., Ark. and Ala. to 461 for Nev., 482 for Md. and 1,179 for Del. Six states are below 100 and nine are above 300.

Column 3 of Table 1 states the number of members of the A.A.A.S. reported for 1934 (*Proceedings* of the A.A.A.S., Vols. 82 to 87). Even without allowance for the number of memberships by institutions and by amateurs not listed in American Men of Science, the differences between column 2 and column 3 show regrettably large numbers of men of science who fail to cooperate with the American Association.

Column 4 states the percentage which the A.A.A.S. membership is of the A.M.S. enrolment for each state. It has a median at 61, and ranges from 26 for Delaware to 96 for Connecticut; 43 of the states have percentages from 40 to 80.

Column 5 states the number of A.M.S. persons born in each state. When this number $\times 1{,}000{,}000$ is divided by the sum of the 1890 and 1900 populations the result is as given in Column 6. The numbers in Column 6 may be called approximate relative birth-rates. They are by no means perfect as measures of the comparative productivity of the states, but the errors are small in comparison with the differences among the states. It would be impossible to obtain for each state and each period the percentage of those born in the state who would, before they died, or before they reached some specified age, be enrolled in any specified list.

The birth-years of American men of science are

[1] The work reported here was one item of a project supported by the Carnegie Corporation.