The Science Training Group in the Washington Area

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LOCAL EDUCATIONAL INSTITUTIONS have set up fully-accredited, off-campus graduate science courses for the convenience of government scientists in the Washington area. More than 700 physicists, engineers, chemists, and mathematicians have enrolled in one or more of 26 such courses, usually offered immediately after working hours in a room close to their place of work.

This citywide educational program was initiated by the Civil Service Commission's Advisory Committee on Scientific Personnel, already described on these pages (1946, **103**, 437), as part of its program "to improve the employment status of Civil Service scientists." The shortage of scientific personnel and the unwillingness of many of our best scientists to accept or to continue government employment have placed a serious handicap on the Government's entire science program.

The only way to relieve the shortage is to train more scientists. But to make government service more attractive to scientists, fundamental changes in the employment status of Civil Service scientists are needed. One of the most important of these is to provide *more opportunities for professional growth and development.* This will not only serve to attract and retain high-grade people, but it will improve the competence of those scientists presently employed and therefore increase the value of their service.

Professional advancement of scientists may be encouraged in various ways. One of the most important, however, is to facilitate attendance in the graduate science courses of leading universities. Government scientists usually find this impossible because the courses are given at an inconvenient time, or at too great a distance, or both. Experience has shown, during the months since the end of the war, that this single factor has led many of our ablest scientists to leave government employ and to accept employment where their graduate study may be begun or resumed, as the case may be.

It was for these reasons, as well as to help alleviate the shortage of scientific personnel, that the Advisory Committee created the Science Training Group in the Washington area to do a job similar to that suggested by the writer in an earlier issue (1945, **101**, 612). The assigned purpose of the STG is: "To evolve, subject to the approval of the Advisory Committee on Scientific Personnel, a program for facilitating and encouraging the further training of scientific personnel, initially at the graduate level, and to carry out this program."

The STG came into existence early in 1946, with representatives from the Departments of Agriculture, Commerce, Interior, Navy, and War, and the Federal Security Agency. Dr. Marsh W. White, professor of physics at the Pennsylvania State College and expert consultant to the War Department, was chosen chairman. The activities of the Group since then have been primarily to determine (1) the particular graduate courses most needed by government scientists in the Washington area, and (2) the best procedure for establishing these courses (if not already conveniently available) so as to ensure high quality and so that they will be acceptable for meeting graduate degree requirements.

Determination of the courses needed. Merely to pass a questionnaire around to the 10,000 scientists in the Washington area, asking them to indicate the courses they would like to take, is not an accurate means of determining the need. (This was done, however, in a preliminary fashion in the short time that was available to discover the most urgently needed courses prior to the beginning of the spring semester.) There are two reasons why the method is inadequate. First, a potential student needs a list of courses from which he may choose, and second, he needs the advice and counsel of a man experienced in working with graduate students.

For these reasons the STG adopted the following procedure:

(1) Each participating agency was advised to establish its own "Advisory Committee on Scientific Education and Training" for the purposes of (a) making intelligent guesses on the courses which ought to be available to its personnel, and (b) encouraging its personnel to obtain competent advice and counsel in planning educational programs.

(2) Each of these agency committees was asked to submit its suggested course list to the STG.

(3) All of these submitted course lists were then combined into one and circulated to scientists throughout the Washington area with a questionnaire and a note describing the procedure, and suggesting that a long-range program be planned as part of the process of filling out the questionnaire.

(4) The data were then analyzed to show not only what courses were needed but also *where* they were needed.

As a consequence, the STG now has a far more accurate picture of the graduate training needs in

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science in this area than has heretofore been available. The picture is expected to be continuously improved in accuracy through additional surveys, follow-ups on questionnaires received, further consultation with those now registered, and the activities of the various agency committees.

Establishment of the needed courses. Transportation difficulties usually require that the courses be set up on the premises of the particular agency where a majority of those needing a given course are employed. It is not customary, however, and in some cases not feasible, for universities to establish fully-accredited graduate science courses off the campus. The necessary controls to assure high quality become more precarious, and the additional burden on universities already overwhelmed with students is almost unbearable. Nevertheless, it was believed essential by the STG that these difficulties be overcome. The cooperation of local educational institutions, in particular the University of Maryland and the U. S. Department of Agriculture Graduate School, is making it possible to establish many of the needed courses.

To assist the educational institutions in carrying this additional burden, the STG established within itself a "Standards Committee" composed of members familiar with graduate study problems. This Committee

(1) Reviews the data to ascertain the genuineness of the need for a given course in a given agency, in order not to bother an educational institution with a request for a course which will not be supported by a sufficient number of qualified students.

(2) Locates potential instructors, reviews their qualifications, and, if acceptable, recommends them for consideration by the particular educational institution involved as a possible addition to its staff. (This is, of course, unnecessary, if the institution is already adequately staffed to handle the course.)

(3) Assists the institution in ensuring that those who register in a given course have the proper prerequisites.

(4) Reviews the proposed course in all other matters pertaining to its quality. It is intended that the courses established through the STG requests shall be unexcelled.

(5) Evaluates the quality of each course as it is taught.

In order that there shall be complete understanding in matters of policy and procedure, an informal agreement has been reached between the Standards Committee and the cooperating institutions. This agreement makes clear the over-all purposes of the program as well as the registration procedures, the role of the Standards Committee, and the full accrediting of all the STG-requested courses.

Of the 26 courses being established this fall in the fields of physics, mathematics, chemistry, and electrical, mechanical, and aeronautical engineering, the largest group (10) is being established at the Naval Research Laboratory, which, along with the Naval Ordnance Laboratory and the David Taylor Model Basin, had initiated programs of their own before the organization of the STG.

As an additional service to Washington scientists planning graduate study programs, the STG prepared and distributed 6,000 copies of a list of *all* graduate science courses being offered in the area this fall. The list gives the course numbers, titles, credits, times and places, and the instructor, along with pertinent information about registration and sources of additional, more detailed information. The graduate offerings in science of the U. S. Department of Agriculture Graduate School, the Catholic University of America, Georgetown University, George Washington University, Howard University, the University of Maryland, and the National Bureau of Standards Graduate School are listed.

This program of the STG, now in its initial stages, is frankly directed toward cooperating with the local educational institutions so as to make Washington a center in graduate science education which is commensurate with its role as a center of scientific research.

There are other areas into which the STG may expand its activities if so directed by the Advisory Committee on Scientific Personnel. These include (1) the encouragement of similar programs outside of the Washington area, (2) the development of a similar program at the undergraduate level, and (3) the organization of cooperative "in-service" training programs for scientific personnel. All three of these areas are already developing independently of the STG. Cooperative programs between universities and government agencies are under way and in a few cases are of long standing in several parts of the country. The undergraduate area is being explored by the Naval Research Laboratory and the Bureau of Ships, Navy Department. The Department of Commerce, in cooperation with several other departments, has recently conducted an in-service training program on wartime developments in electronics.

Although these training programs operate on only a portion of the problem, they should nevertheless go far toward improving the attractiveness of Civil Service employment for high-caliber scientific personnel. The extent to which these scientists can be both attracted and retained will determine the extent to which the Government will actually accomplish the tremendous scientific tasks which the people of the United States have declared through Congress should be done.