

GENERAL SCIENCE

# Scientists for Defense

## Half Million of Them Will Ultimately Be Listed in National Roster; Machines Facilitate Selection

By MARJORIE VAN DE WATER

**N**OW 150,000 scientists and specially trained experts are registered in the National Roster of Scientific and Specialized Personnel. A thousand cards are being added to this unique file each day.

These experts are not registered for any sort of "draft." But they have voluntarily supplied the government with information about their training, special talents, scientific apparatus and facilities for research so that the greatest possible use can be made of this important national asset of trained and gifted minds.

The Roster is a key part of the concerted effort of the government to find qualified men for America's defense effort.

An "all-out" attack is being made on the problem of discovering, picking and placing men with all sorts of abilities—explosives expert, typewriter repair man, instrument maker, airplane mechanic, cook.

The attack is being made on several fronts, but all of them are meshed together in a harmony of effort and standardized system that will help to prevent duplication of effort and waste of time or misuse of manpower.

Employment in private industries working on defense orders is being handled by the U. S. Employment Service. It is there that an industrialist goes when he has the problem of increasing his staff from 5,000 to 18,000 or from 15,000 to 45,000 to handle new defense orders.

Hiring for the government itself is done mostly by the U. S. Civil Service Commission, which has streamlined and mechanized methods to keep pace with the demands of defense urgency.

Within the Civil Service, a new Interdepartmental Placement Service is making government service more flexible, speeding workers into defense jobs for which they are specially qualified by transfer from other government jobs of a less urgent nature.

The Government Service is one of the largest industries in the United States,

employing more than a million persons. And expansion may be expected to be rapid to care for the defense work in the months ahead. It is estimated by a Civil Service official that more than 400,000 civilian employees will be added to the government payroll each year.

Untrained men and youth and individuals whose skills have grown "rusty" through years of depression and unemployment are being given training courses. In this, five government agencies are cooperating.

But the most unusual attack on the problem of finding qualified men for jobs is that undertaken by the recently organized National Roster of Scientific and Specialized Personnel.

No one knows today how many scientists and experts in specialized fields Uncle Sam has to call upon. No one knows just where they are located, what unique knowledge they each possess,

how urgent the work on which they are now engaged.

England, on her Central Register, which lists scientists and specialists, has 200,000 names.

In about four months, America's Roster has built up this country's list to 150,000, and it is hoped that eventually a half million will be included in this index to the nation's best scientific brains and vital technical skill.

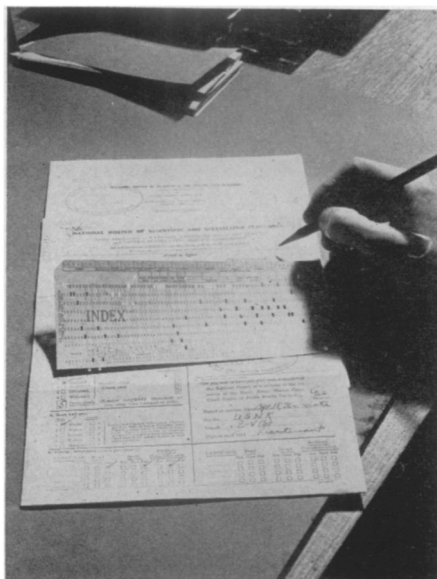
Officials of the Roster, under the direction of the psychologist-college president, Dr. Leonard Carmichael, of Tufts College, began by rushing the listing of physicists and psychologists because it was in these fields that the demand was greatest.

Questionnaires have now gone to experts in: aeronautical engineering; anatomy; anthropology; automotive engineering; bacteriology, immunology and pathology; botany; chemistry; chemical engineering; civil engineering; economics; electrical engineering; foreign languages; forestry; genetics; geography; geology; geophysics; heating, ventilating,



**CROWDED**

*National Roster employees share the crowded quarters of the U. S. Civil Service Commission. Note the files which extend to the ceiling and the improvised coat racks. These workers are transferring the information provided by scientists on their questionnaires to the punch cards.*



### PUNCHED

*The holes in the card tell the same story, in code, as does the questionnaire which has been filled out and returned by one of the half million scientists who will some day be included in the National Roster.*

air conditioning, and refrigeration engineering; history and political science; mathematics; mechanical engineering; mining and metallurgical engineering; personnel administration; physics and astronomy; physiology; plant pathology; horticulture and agronomy; radio engineering; psychology; sociology; safety engineering; speech pathology; statistics; testing materials; tropical medicine, and zoology.

If you are an expert in any of these fields and have not received a questionnaire, you may obtain one by writing to the National Roster at Washington.

The response has been excellent. Among the physicists, the first scientific field canvassed, 75 to 80 per cent of the questionnaires were put on file after a single mailing and one post card reminder to those whose response was somewhat delayed.

Complete listing of all the questionnaires from these fields probably cannot be finished for several months.

This is not delaying the handling of requests for experts, however. Demands for men with special knowledge or unusual skill and experience are being sent frequently to the Roster, practically all from the government's defense agencies. Usually, the official making the request has before him the list of names he has asked for in a matter of hours. Every request received so far by the Roster has been filled, although in about

5% of the cases it was necessary to resort to correspondence or indirect means.

Modern machines that are almost uncanny in the speed and ingenuity with which they work make possible this swift filling of defense orders for more scientific brain power.

Einstein, Compton, and every other scientist whose name is included in this Roster, filled in a questionnaire in which he listed his fields of research or writing or other work, the languages he reads and speaks, the scientific instruments he owns or operates, and even his hobbies. All these things are indicated by means of holes punched according to a code in the card assigned to that individual.

Even the name itself is coded. This is done by an ingenious system called the "alpha numerical index." As each questionnaire is received from a scientist, it is assigned a number. And the method of number assignment is such that after all the questionnaires have been received and put in file in numerical order, they will also be in strict alphabetical order.

Numbers up to 9,999,999 are being used. These are apportioned among alphabetic divisions, so that each block of 10,000 numbers is devoted to a section which will contain 1,000 names out of the half million total expected.

The file clerk who wants to find the papers of John X. Doe, for example,

needn't search laboriously through all the D's, or the Does, or even the John Does, she can go directly to number 1,882,005 and there she finds the file.

Each card on the Roster has a duplicate. One is filed alphabetically by number. The other is filed in a special section devoted to the science of the man registered.

When a request comes to the Roster for a psychologist who has traveled in South America, can speak Spanish and can fly an airplane, the punched cards can be run through a mechanical sorting machine which will select, within a matter of minutes, every individual on the list who meets those particular requirements.

### Listed Automatically

The names of scientists selected and all the information about them, in code, are automatically listed on a tabulating machine and a messenger can be dispatched with the request filled!

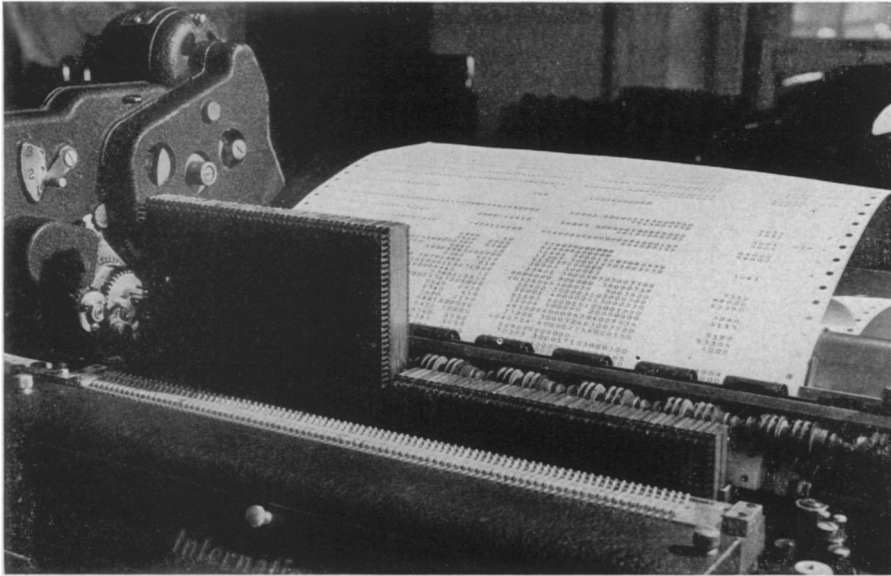
These same kinds of punch cards and sorting machines—and as far as possible, the same code—are being used to speed the selection of workers in the U. S. Employment Service, the reassignment of employees in the Placement Service, and the classification of draftees in America's new army.

*Science News Letter, March 29, 1941*



### SORTING

*James C. O'Brien, executive officer of the National Roster of Scientific and Specialized Personnel, is watching the operation of one of the machines which automatically sorts the thousands of cards in the Roster to select those scientists with certain desired qualifications.*



### INVENTORY OF BRAINS

*This machine, with almost uncanny talents, lists automatically all the scientists who fill the specifications of defense officials, together with the information they have provided about themselves.*

the Sudan, where a sharp epidemic involving thousands of cases and many deaths occurred in 1940. Another 250,000 doses will be sent in the near future.

The outbreak was in no way related to the movement of troops and was largely confined to the native population, Mr. Fosdick said he had recently been informed.

The risk to human beings entering South American jungle regions where yellow fever may lurk can now be determined without waiting until human deaths show the presence of the disease in a particular jungle region. Tests of wild animals can be made in advance and if the tests show that the wild animals of the region have the yellow fever virus in their veins, men entering the region can protect themselves by vaccination. Yellow fever is primarily a disease of jungle animals, transmitted from animal to animal, as from man to man, by mosquitoes.

*Science News Letter, March 29, 1941*

#### PUBLIC HEALTH

## Fifth Columnist Mosquitoes Crushed By Malaria Fighters

### No Sign of Dreaded Disease-Carrying Insect From Africa Found in Brazil at End of Year 1940

**F**FIFTH columnist mosquitoes that slipped unnoticed into Brazil and for more than a decade have wreaked destruction on human lives have been driven from their last stronghold.

No sign of the dreaded malaria-carrying mosquito from Africa, *Anopheles gambiae*, was found in Brazil during the last 47 days of 1940, the Rockefeller Foundation announces.

"Those directing the campaign no longer consider it rash to speak of the eradication of *gambiae* from Brazil," the Foundation's president, Raymond B. Fosdick, stated in his review of the Foundation's activities during 1940. (*Reviewed, SNL, this issue.*)

"It must be remembered," he added, "that the struggle will not be won until the last fertilized female *gambiae* on this side of the Atlantic is destroyed."

The mosquito had been spreading at an alarming rate in northeastern Brazil and the malaria which it produced was of a very virulent character. It is believed that it came into Brazil on an

airplane or one of the fast French destroyers which at the time of the discovery of the mosquito in Brazil in 1930 were serving the French air line between Dakar in West Africa and Natal in Brazil.

This hemisphere defense job of routing the African mosquito invaders was carried out, with the collaboration of the Brazilian Government, under the direction of Dr. Fred L. Soper, of the Rockefeller Foundation. Enlisted under him in the battle was a staff of over 2,000 doctors, technicians, scouts, inspectors, guards and laborers.

Health defense in the Western Hemisphere and in Africa also has been aided by the yellow fever vaccine developed in the Rockefeller Foundation's International Health Division laboratories. Enough vaccine for 1,000,000 or more doses is being supplied to the United States Army for vaccination of military personnel and to the U. S. Public Health Service. At the request of the British Government, 250,000 doses were sent to

### Three Flu Vaccines

**V**ACCINES to protect against three different types of influenza will be ready for experimental testing by the winter of 1941-1942, is the hope of Rockefeller Foundation authorities and influenza researchers.

During 1940 a vaccine against one type of influenza was developed and tried in Puerto Rico, Cuba, California, Florida and Alabama. In the first two places the vaccinations were done too late to give any evidence of the protective value of the vaccine. In California "there was a suggestion" that there was less influenza among the vaccinated than among the unvaccinated groups.

In Florida and Alabama the vaccinations had been given four months before the influenza outbreak occurred. It will be months, however, before completion of the laboratory studies necessary to determine accurately the percentage of persons who suffered from influenza A in this epidemic. Final conclusions about the effect of the vaccine cannot be made as yet.

"However," the report states, "the results which are available to date suggest that, although this vaccine is by no means perfect, it may have some practical value as a prophylactic measure against one type of influenza."

A surprising discovery was made during the 1940 investigations. The cases during a single epidemic were not all caused by one (*Turn to page 207*)