

SOCIOLOGY

Intellectually Trained Jobless To Get Immediate Employment

Relief Administration Announces Plan of Adult Education Which Will Absorb Scientific Workers as Teachers

THE INTELLECTUALLY trained but jobless victims of the depression now have a chance to get federal work-relief jobs at once.

As a part of the gigantic drive by the Federal Emergency Relief Administration to transfer those receiving or needing relief to work relief pay rolls, an extensive adult education program is being put rapidly into effect by the Federal Emergency Relief Administration.

Any person now on relief or urgently in need of a job who is a college graduate or has other intellectual ability will be fitted as rapidly as possible into the plan and put on the emergency federal pay roll.

The actual administration and local plans will be in the hands of the states. The local superintendent of schools in each city or town is the person who will have immediate contact with the intellectual jobless.

"We are engaged in a major attempt to conserve our human resources," Dr. Lewis R. Alderman, in charge of the

adult education program for the FERA, explained to Science Service. "It is believed that every person capable of constructive intellectual work should be given an opportunity to aid in the great task of adult education and safeguarding of human abilities that is involved in this work relief program."

The adult education program of the FERA is divided into six parts:

1. Rural schools, which involves the paying of teachers of closed schools which were forced to close before a certain date.

2. Teaching of illiterates, which is construed to mean education of adults up to sixth grade level.

3. Vocational education, a broad program of education in trades and mechanical callings.

4. Vocational rehabilitation, a limited program directed at those physically handicapped.

5. General adult education, a large general program.

6. Nursery schools.

The hiring of the unemployed will be conducted through the states, as a state matter, financed by federal funds. The function of Dr. Alderman's work at the FERA is to approve state plans.

The mechanism of hiring the intellectual unemployed will be operated through the superintendent of schools of the local divisions such as cities and towns, under the general supervision of the state superintendent of schools.

Greatest immediate employment of scientifically trained workers out of jobs will occur under the general adult education project. The procedure will be relatively simple. Teaching certificates or special teaching training will not be required. Where the local organization is slow in taking up the project and working out its own scheme, it will be possible for a competent unemployed intellectual worker with sufficient initiative to work up his own class in an adult education subject, whereupon he will immediately go upon salary.

The rates of payment for this emergency adult education work have been



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DR. P. W. BRIDGMAN

The Comstock prize of the National Academy of Sciences has been awarded Dr. Bridgman, physicist of Harvard University, "for his investigations leading to increased understanding of the electrical constitution of matter." The prize is given every five years in recognition of notable research in electricity, magnetism or radiant energy. Dr. Bridgman is also an authority on the behavior of materials under extremely high pressures.

liberalized so that the salaries paid will not be limited to \$15 a week, previously announced as the maximum.

Many engineers who have been particularly hard hit by the reduction in building construction and in industrial activity will find that they fit into the vocational education activities of the plan. Under the nursery school project there will be opportunity for the employment of women who have had training in the psychology of young children or experience in teaching kindergartens and lower grades of schools.

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METEOROLOGY

Winter as Well as Summer May Bring Dust Storms

DUST STORMS like those that swept over the Midwest a short time ago and to some extent marred the closing of Chicago's Century of Progress are generated by the same air mechanics that build the beautiful fleecy cumulus clouds of the middle strata of the atmosphere. When the sun has been shining strongly on the earth for some time a consider-

JOBS FOR BRAINS OUT OF WORK

DO YOU KNOW anyone, with a college education, who is out of a job? Intellectually trained persons now in need of employment, who are capable of aiding in the extensive adult education plans of Federal Emergency Relief Administration will be considered for jobs almost immediately under the new work relief plans of the Federal Emergency Relief Administration, to be operated through the state and local school systems. Those who are now on relief rolls or in need of relief who think that they are qualified should apply to local Superintendents of Schools.

able mass of air is warmed, and since warm air is less dense than cold, it begins to rise, sometimes nearly vertically. If there is plenty of moisture in the soil and vegetation, these rising air currents carry up water vapor; which on cooling in the upper levels condenses into clouds.

If, however, there has been a drought of several weeks' duration, as frequently happens in the West in late autumn and early spring, the vertical air currents carry up quantities of fine soil particles, and these, swept along by the northwesterly storm winds, later descend on areas farther to the east as blinding clouds of dust.

Dust storms are possible even in the depth of winter, if there are areas left free of snow for any length of time. Such dust storms frequently become mingled with snow to form the blizzards that have well earned the soubriquet, "the gray tiger of the North," for such blizzards have so much dust in them that the air appears not white but gray.

The dust storms that seem so distressing to us nowadays are mere zephyrs by comparison with those that swept the mid-latitude of the earth at the close of the last great Ice Age. These, raging for probably scores of thousands of winters, piled up thick deposits of that peculiarly fine-grained soil known as "loess."

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MEDICINE

Smallpox Virus From Eggs "Takes" in Vaccination

SMALLPOX virus grown on fertile hen eggs has been used successfully to vaccinate eleven persons in Nashville, Tenn., Prof. E. W. Goodpasture and G. J. Buddingh of Vanderbilt University Medical School report in *Science*.

The vaccinations "took" as well as those performed on a group of controls vaccinated with the usual virus from calf lymph. Further studies are in progress to test the durability of the protection this method gives.

The method was developed by Prof. Goodpasture and his associate, A. M. Woodruff. German and British investigators have recently repeated the experiments successfully. Some advantages of the method are the ease with which the vaccine may be produced at any time fertile hen-eggs are available and the absence of bacteria or other contaminating agents.

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PHYSICS

10,000 Observations Yield New Cosmic Ray Theories

Conclusions That Rays Are Positive and More Abundant Conflict With Lemaître and Millikan Hypotheses

COSMIC rays are probably the hearts of atoms of ordinary matter, positively charged by the action of starlight on interstellar gas, and accelerated in some cosmic or possibly terrestrial electric field.

Ten thousand observations of cosmic ray intensities just completed in Panama and Peru and earlier studies in this country and Mexico have led Dr. Thomas H. Johnson of the Franklin Institute's Bartol Research Foundation in Swarthmore, Pa., to this conclusion, which is contrary to other theories of cosmic ray formation.

Using a sort of cosmic ray "telescope" that "sees" on a motion picture film only the cosmic rays that pass through three-in-line Geiger-Mueller counting devices and set off in them simultaneous electrical pulses, Dr. Johnson has now definitely established that the western sky is "brighter" with cosmic rays than the eastern sky. If our eyes could see the cosmic ray corpuscles as they do the waves of ordinary visible light, they would see more cosmic ray light in the west. This difference in cosmic ray brightness between the east and west is also greater at higher elevations and nearer the magnetic equator.

Less Near Magnetic Equator

Dr. A. H. Compton, University of Chicago Nobel physicist, and Dr. J. Clay, a Dutch physicist, have shown by their researches that the local intensity of the cosmic radiation decreases towards the magnetic equator. The lower equatorial intensities were readily explained by the supposition that part of the primary radiation consisted of electrified particles but these studies could not determine whether the electrical charges were positive or negative. By the same physical laws that make it possible to determine which way the electric current is flowing in the wires of a motor from the direction in which its armature rotates it is also possible to determine whether the charges of the cosmic rays are positive or negative

from the way their paths are bent by the magnetic field of the earth. The fact that they are bent towards the east and therefore enter from the west means that the rays are mostly positively charged as any high school physics student can verify. This fact was first indicated a year ago as a result of Dr. Johnson's studies on Mt. Washington.

No Negative Rays

His most recent work on the equator in Peru now gives him data which allow him to conclude that all of the cosmic ray corpuscles in the energy range which is affected by the earth's magnetic field in equatorial latitudes are positive and there are no negative rays. The fraction of the total radiation which now can be directly attributed to the electrified radiation is also much higher than had been supposed previously. In fact, these measurements show that at least forty per cent. of the total radiation is of this nature.

Most of the rays which are actually observed are known to be of secondary origin, produced in the atmosphere by the bombardment of the primary radiation. These secondary rays are positively and negatively charged corpuscles in about equal numbers, as Dr. Carl D. Anderson of California Institute of Technology has shown, but since their directions of motion are the same as those of the primary rays it is possible to use their directions as an indication of the directions of the primary rays before they enter the atmosphere.

His results lead Dr. Johnson to challenge several proposed theories of cosmic ray origin and propose a theory himself.

Favored Theory

One of the most favored theories was advanced by Abbé Georges Lemaître, the Belgian priest-cosmologist now lecturing at the Catholic University of America. The Lemaître theory supposes that cosmic rays were produced during the earliest stages of the evolution of the universe by the disintegration of huge