PHYSICS

Shortage of Physicists A National Emergency

Large Percentage in Vital War Research Leaves Too Few for Training of Numbers Needed in Future

THE shortage of manpower in physics, especially for teaching, has reached the proportions of a national emergency, the War Policy Committee of the American Institute of Physics declared in a report.

There are only 7,000 physicists in this country. The large proportion of them devoted to vital war research leaves too few for the training of the large numbers of men needed for the operating and maintaining of technical mechanisms like airplane and submarine locators, signalling devices, anti-aircraft fire control, etc.

The Committee, composed of leading physicists, estimates that as many as 200,000 men and women will require some training in physics within a year. These will be mostly next year's college and university students, who expect to enter the Army or Navy reserve training courses to be carried out at these institutions. The teaching load in college grade physics in 1942-43, the Committee believes, will be two to three times greater than the highest ever reached before, and will fall on faculties depleted for war research.

The Committee urged that every possible step be taken to increase our physics manpower and to use the present supply in the most effective manner. They recommended the establishment of government-sponsored teacher-training courses, the adoption of wise occupational policies by the Selective Service System, financial aid to qualified students so that they may continue and finish their studies (especially graduate students who are already shouldering a large part of the teaching load), and use of physicists in the Army and Navy only for work requiring their training.

The Committee complained that there is not sufficient understanding of the importance of physics in the war effort, especially on the part of the general public whose approval is needed, and on the part of some local boards of the Selective Service. They urged that a public relations program be inaugurated to remedy this, and that high Army and Navy officials point out that it is the highest patriotic duty of students and teachers of physics to continue their work.

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ENGINEERING

Millions of Kilowatt-Hours Saved From Engine Tests

SEVERAL million kilowatt-hours of electrical energy are being recovered monthly from the power developed by airplane engines on test in one factory alone. This power, formerly wasted, is helping to bolster the supply of electrical energy sorely needed in the war industries.

Every airplane engine is tested before being mounted in the plane for about 12 hours, during which time large quantities of high octane gasoline are consumed. The long test is necessary to insure not only that all parts are mechanically perfect and function properly, but also to break in the engine. Unlike an automobile engine, which can be broken in by slow driving, the airplane must be ready to develop full power at the first take-off—or else.

Formerly a special propeller was attached to the engine and the entire power developed was dissipated in merely churning up the air about the factory. Now an alternating-current generator is attached as "load" and the electrical energy developed is pumped into the power system. In one factory alone, the engines under test developed more than half the power required to operate the entire plant at full capacity.

Many airplane engines of today develop 2,000 horsepower or more, enough to light 30,000 lamps of 50 watts or to supply a small town with all its electrical needs.

The first power-recovery system was developed by General Electric Company in collaboration with Pratt & Whitney Aircraft. Since then several large airplane engine manufacturers have installed the system which, if applied by all of them, would make a substantial contribution to the mounting demand for electric power.

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