

GENERAL SCIENCE

Draft Taking Scientists

► IN FACE of a serious decline in the number of graduate students in science, the draft is now putting into the army specialists immediately upon their receiving undergraduate degrees.

This situation, highly dangerous to the future supply of scientists and engineers, has been revealed by Dr. Howard A. Meyerhoff, executive secretary of the Scientific Manpower Commission, Washington.

The draft will come to mean that every able-bodied male of military age who is not in service or in the ministry will be selected for service, Dr. Meyerhoff warns. Since May 1, 1953, local draft boards have been taking graduation from college as their cue to reclassify recipients of the bachelor's degree.

Graduates lose their deferment, even though they go on to graduate work with scholarships and fellowships in many cases actually awarded by the Government itself.

First-year graduate enrollment dropped to 8,000 in the academic year 1952-53, whereas it was 11,721 in 1951-52.

The mortality during the summer months was especially appalling, and many departments found themselves without graduate assistants when classes started in September.

National Science Foundation fellows and Office of Naval Research and Atomic Energy Commission research assistants were prominent among the casualties, as revealed by a sample survey of 34 depart-

ments in 19 institutions. This spot check, which was made in October, indicated that more than 2,000 advanced graduate students had been inducted without regard to the status of their work.

The disregard of the best and most disinterested educational judgment and advice can be substantiated by innumerable specific cases, Dr. Meyerhoff declares.

Selective Service has virtually taken over our system of graduate instruction in science, he charges. It has drastically cut the number of students, and is thus disrupting the supply and the flow of carefully selected manpower into fields where there are already disturbing shortages.

It is seriously impairing the effectiveness and the pattern of instruction at the undergraduate, as well as the graduate, level. It is pursuing a course that runs counter to the advice of the scientists from whom it sought advice, and counter to the national welfare as the Department of Labor sees it. It is depriving the Armed Forces of people with highly specialized training, insofar as there is a need for such men in uniform.

It is, however, a real benefactor to foreign students who, of dire necessity, are being hired, according to Dr. Roger Adams of the University of Illinois, to fill 50% to 75% and more of the vacant assistantships in our graduate schools.

Dr. Meyerhoff's statement is appearing in *The American Psychologist* (June).

Science News Letter, June 5, 1954

price for coal is said to be that now paid in a number of places in this country.

The atomic fuel will be enriched uranium, and the breeder reaction will be used to supply part of the fissionable material. A burn-up of one percent of the fuel is expected, and the exposure of the fuel in the reactor is figured at 10,000 megawatt days per ton. This is a new unit in fuel calculations.

Industry thus gives evidence of considering as soon the time when electricity from atomic reactors will compete with that from other sources.

Meantime, Congress will postpone setting up the ground rules for such competition, if Rep. Cole has his way. Passing the buck to the 85th or 86th Congress was his recommendation to the group.

Science News Letter, June 5, 1954

TECHNOLOGY

Rubber Vulcanized by Atomic Radiation Alone

► RUBBER VULCANIZED without sulfur or other chemical agent has been produced by atomic energy in Britain's nuclear reactor pile at Harwell.

Oxidation is not a factor in this atomic energy vulcanization process. Contrary to widely accepted theory, the hardening change in rubber structure can take place when no oxygen can get to the material.

Energy alone is responsible for the change in structure of the rubber, since the same result is obtained no matter what type of radiation from the atomic reactor is used.

Similar changes in the structure of paraffin waxes irradiated in the pile result in a material with a very high melting point.

Theoretical explanations of these changes in structure as the result of atomic irradiation may lead to new applications of atomic energy in the production of new plastics and other useful materials. The studies in progress are reported by Dr. Arthur Charlesby of the Atomic Energy Research Establishment in *Proceedings of the Royal Society* (A. Vol. 222, 1954) and in *Atomics* (Jan.).

Science News Letter, June 5, 1954

TECHNOLOGY

Cheap A-Electricity

► A DECADE from now, or earlier, electricity will be produced commercially from uranium at a cost less than coal-fueled power.

This prediction by Francis K. McCune, General Electric's general manager of atomic products, made at the Atomic Industrial Forum in Washington, has put a new time and cost dimension upon the harnessing of the atom to industry. Heretofore, electricity from the atom has cost more than electricity from coal in computed estimates.

While industry is ready to move in, Congress has not yet set the "ground rules" to regulate such atomic power development by industry.

Rep. W. Sterling Cole (R., N. Y.), chairman of the Joint Congressional Committee on Atomic Energy, believes that the Atomic Energy Commission should in the future confine its activities to military applications of atomic energy.

Patent laws which have been in effect in the United States for 150 years are adequate to insure satisfactory industrial operation of atomic energy power plants, in his opinion.

No cutting of an atomic "melon," but rather planting the seed, is the present status of industrial participation, Rep. Cole said. Returns to industry from its investment are still half a billion dollars away in terms of experimental installations, according to his calculations.

The operating costs of a coal burning power plant are figured by General Electric at two-tenths of a mill per kilowatt hour higher than for a plant using nuclear fuel. This figure includes the fixed charges resulting from original cost of erecting the plant. The saving comes in the enormously greater energy that can be wrested from atomic fuel.

Costs for an atomic energy electric plant using the new boiling reactor are figured by General Electric at 4.65 mills per kilowatt hour for fixed charges, 0.7 mill for operating cost and 1.35 mills for fuel, giving the total of 6.7 mills per kilowatt hour.

In contrast to this, a coal burning plant is estimated to cost 3.0 mills for fixed charges, 0.5 mill operating cost and 3.4 mills for coal figured at 35 cents per million BTU, the measure of fuel efficiency. This

New Hearing Aid Without Tubes

Costly B-Battery eliminated! All battery costs slashed 80%! Powered by 3 genuine Raytheon Transistors! Vacuum tubes banished forever! For full information, use handy coupon below. No obligation whatsoever. A postcard will do.

Electronic Research Director
Belton Hearing Aid Co., Dept. 3568
2900 W. 36th St., Chicago 32, Ill.
Please rush complete facts on new miracle all-transistor tubeless hearing aid.

Name

Address

City..... State.....