CHEMISTRY

New Process Fertilizers

Economical production of more concentrated plant food foreseen from fertilizers made by new methods, in one of which phosphoric acid replaces the usual sulfuric acid.

➤ FERTILIZERS WILL be made by new processes for economical production of more concentrated plant food, the American Chemical Society was told at its meeting in Atlantic City.

Production of ammoniated phosphorus fertilizer in an alkaline solution is a novel process described by Dr. Louis E. Andres of Potasse & Engrais Chimiques, Paris.

Use of phosphoric acid to replace all or part of the more usual sulfuric acid, now in short supply, and at the same time to aid in by-product uranium recovery was described by L. D. Yates and F. T. Nielsson of the Tennessee Valley Authority and E. J. Fox and R. M. Magness of the U. S. Department of Agriculture.

Increased amounts of ammonia are incorporated into phosphate fertilizer without loss of material in insoluble form in the French alkaline process of Dr. Andres. This can be done by addition of ammonium citrate if small amounts of magnesium salts are put into the mix.

The Atomic Energy Commission's request that more phosphoric acid be manufactured to aid in uranium recovery as a by-product from fertilizer manufacture has stimulated experiments by the Department of Agriculture and TVA on improved uses of phosphate rock. Phosphoric acid is used to make higher grades of superphosphate fertilizer, for which increasing demand is noted.

Another development in fertilizer manufacture reported to the meeting is partial replacement of sulfuric by nitric acid in making superphosphate, described by David McKnight, J. F. Anderson, Jr., M. M. Striplin, Jr. and T. P. Hignett of the Tennessee Valley Authority, Wilson Dam, Ala.

Fertilizer for areas where magnesium is needed in the soil, but sufficient nitrogen is available, is produced by melting rock phosphates with magnesium and potassium sulfates in a new process described to the meeting by G. L. Bridger and D. R. Boylan of Iowa State College, Ames, Iowa.

Improvement of mixed fertilizers by study of the results of adding ammonia in various amounts was reported by F. L. Turbett and J. G. MacArthur of the Spencer Chemical Co., Pittsburg, Kans.

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GENERAL SCIENCE

Science Manpower Short

➤ IT WILL be very difficult or impossible in the next few years to obtain a supply of scientific and engineering personnel equal to the expanded demand brought about by civilian production plus defense requirements.

This was the opinion of the Flemming Manpower Committee when it announced a broad program in an effort to cope with the serious problem. The Flemming Committee advises the Office of Defense Mobilization on manpower problems.

Pointing to a rapidly increasing shortage in the two vital fields, the committee asked industry and government to tighten up on its uses of scientists and engineers, and colleges to shorten teaching programs wherever possible.

Both industry and the Defense Department were asked to make sure that scientists and engineers in their employ are doing jobs making use of their fullest capabilities. In addition, where scientists and engineers are not necessary, the committee asked that sub-professional personnel be assigned.

Only one percent, or 600,000, of the total number now employed in the nation are in engineering or in the biological and physical sciences, the committee pointed out. Nevertheless, on this numerically small but vitally important segment of our manpower depends in very large part our national security and future increases in our standard of living. New discoveries and the development of new techniques of inquiry call for an increasing number of scientific investigators, the committee said.

Besides checking over current utilization of scientific and engineering manpower, industry was asked to help develop new scientists and engineers through expanded fellowship and scholarship programs. In the plants new sub-professional personnel who can do some of the easier jobs for the more qualified men and women could also be trained.

Industry was asked not to conduct any raiding expeditions, and to cooperate with other corporations on utilization of hard-to-get scientist and engineers. Corporations should also utilize scientists and engineers who are members of minority groups to the fullest extent, the committee urged.

High schools that do not teach the subjects required for entrance into engineering schools were asked to do so, while engineering schools were asked to make special provisions for students with an aptitude in engineering who have not completed the required courses.

Government agencies were asked to strengthen their programs of information and reports on specific shortages of scientific and engineering personnel. In addition they were urged to cooperate with industry and colleges on training programs.

The committee urged continuance of present policies on college student deferment and on deferment of scientists and engineers in the reserves who are working on essential projects.

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BIOCHEMISTRY

Vitamin A to Protect Arteries of Diabetics

➤ DIABETIC PATIENTS in the future will be getting extra doses of vitamin A to protect their arteries if a research finding reported to the American Chemical Society meeting in Atlantic City proves true for humans as well as laboratory rats.

The finding is that rats with diabetes cannot convert carotene into the vitamin as efficiently as normal, non-diabetic rats can. Carotene is the yellow-colored chemical in carrots and other plants which humans as well as rats and other animals convert into vitamin A by body chemical processes.

If diabetics cannot convert the yellow pigment into the vitamin, this may have something to do with the hardening of arteries which comes on prematurely in diabetics, it is suggested.

In reporting their discovery, Drs. Albert E. Sobel and Abraham Rosenberg of the Polytechnic Institute of Brooklyn and the Jewish Hospital of Brooklyn state:

"The discovery that the conversion of carotene to vitamin A is impaired in experimental diabetes can be regarded as the first step toward the discovery of an agent to control the premature aging of the arteries (arteriosclerosis) found in individuals suffering from diabetes mellitus."

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ASTRONOMY

U. S.-Made Planetarium Is Featured at Swiss Fair

➤ AN AMERICAN-MADE planetarium is being featured at the Swiss National Fair, Comptoir Suisse, now being held in Lausanne.

Installed in a special domed chamber, the planetarium will project the skies as seen from almost anywhere on earth at any time in the past, present or future.

The instrument, manufactured at the Spitz Laboratories in Philadelphia, is the first American-made planetarium ever to be opened to the general public in Europe. Until recently, all such instruments, including a few in the United States, were made in Germany.

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