

R. L. Luckhardt of Brea's Agricultural Technical Service points out the method of aqua ammonia soil injection while tractor tanks are filled from portable storage tanks. Small pipes attached to rear of each chisel shank place nitrogen at depths from four to eight inches. Tanks can be filled with same pump which forces liquid through shank pipes

great as other agricultural chemicals. Despite seasonal demand for fertilizer the product can be stored in sufficient quantities to provide a steady year-round production schedule. The liquid can be transported in existent standard transportation facilities. There is a possibility of combining aqua ammonia with other plant nutrients or soil conditioners.

Brea has selected the Pacific Coast and the Territory of Hawaii as the initial areas for marketing its branded product.

Aqua ammonia will be marketed to consumers by independent dealer organizations throughout the Pacific Coast. The chemical company will maintain 12 major distribution stations in the area with a total storage capacity of over 20 million gallons, equivalent to 16,000 tons of nitrogen.

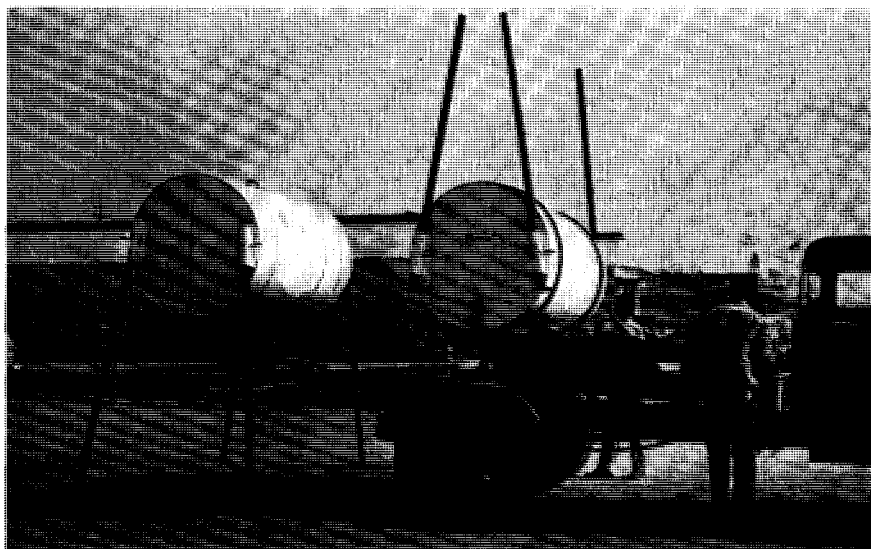
Economics will dictate shipment of

ammonia to distribution points. The two distribution stations in Hawaii will receive aqua ammonia by tankships, while anhydrous ammonia will be shipped to such overland points as Bakersfield, Calif., to be converted to aqua ammonia.

Shipment of aqua ammonia by rail is not economically feasible and for overland transport, Brea will utilize high pressure tank car cylinders. At the distribution points, however, the anhydrous ammonia is converted to the aqua form, 24.5% ammonia, 20% nitrogen, for ease of storage.

Boat shipment of aqua ammonia, on the other hand, is practical and costs per pound of nitrogen are competitive. Anhydrous ammonia requires about 2.5 pounds of steel per pound of ammonia, and the containers must be returned to the manufacturer. With aqua ammonia

Leg tanks allow truck delivering fertilizer to drive out from under a 500-gallon tank. Turntable bed enables truck to carry two tanks and unload them both in less than 10 minutes



at three pounds of water to a pound of ammonia, shipment in conventional tank ships of type used for oil and gasoline offers competition to anhydrous ammonia.

The aqua ammonia will be sold at the same price per pound of nitrogen as anhydrous ammonia. However, Brea claims that ease of application and handling make it a cheaper source of nitrogen for plants.

The company says that aqua ammonia is more efficient in nutrient action especially in dry territory than either anhydrous ammonia or ammonium salts.

The company also expects advantages from ease of application as compared with anhydrous ammonia. The comparatively low pressures, about 50 pounds per square inch, of storage and application of the solution means that the consumer can economically buy and operate his own application equipment.

Brea Chemicals is a wholly owned subsidiary of Union Oil Co. of California. The ammonia plant will receive natural gas from the union wells in the vicinity. Water, the other basic raw material, will be obtained from the Los Angeles Metropolitan Water District. Only natural gas will be burned for steam production, and the only material freed to the atmosphere is oxygen, a by-product of the nitrogen purification process.

### New Du Pont Lab for Toxicology And Industrial Medicine

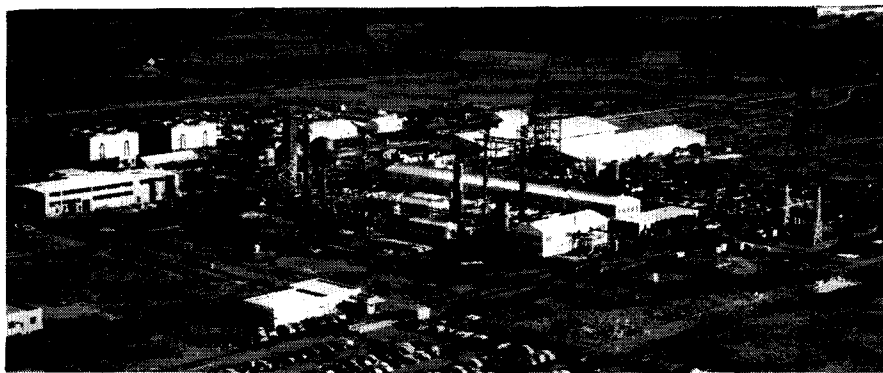
Du Pont dedicated its \$2 million laboratory for research in toxicology and industrial medicine in Wilmington on March 29. The new building provides enlarged facilities for this research project which was formerly located at the company's experimental research. The project was formerly concerned almost entirely with learning the toxicity of certain Du Pont products, but its assignment has now been enlarged to include research on ways and means of safeguarding the health of employees.

### Education

#### Summer Session on Food Technology Offered by MIT

Massachusetts Institute of Technology has announced that its special summer session on food technology will be held from July 12 to July 30. The session, for which no academic credit will be given, is intended for those in the food industry who wish to study recent developments in food manufacture and control. It is also planned for advanced students in chemistry and engineering who wish to investigate the field.

During the first two weeks the program will include lecture, demonstrations, conferences, and visits to food plants. Content will concern such fundamental food



### Deere's Ammonia Plant Nears Completion in Oklahoma

Aerial view of Deere & Co.'s \$20 million nitrogen plant in final stages of construction near Pryor, Okla. The plant to produce anhydrous ammonia and urea will be the first production facility of Deere's Grand River Chemical Division. Ammonia production is expected to begin in June, urea production is scheduled for a later date. The plant has a rated daily capacity of 180 tons anhydrous ammonia, the majority of which will be used for synthesis of fertilizer grade urea which Deere will market as an adjunct to its traditional farm equipment business. L. A. Rowland, general manager of Deere's chemical division says, "The plant will serve the growing nitrogen demands in the broad central belt of the U. S. A tremendous fertilizer potential exists in this area which promises rapid development"

technology subjects as food chemistry and nutrition, effects of microorganisms on foods and food products, control of chemical changes in foods, flavor and food acceptance, unit operations, equipment, packaging, fermentation, and the like.

In the third week, participants may elect to participate in any one of four fields of specialization, including sanitation, nutritional evaluation of food processing, food acceptance and flavor evaluation, or radiation sterilization.

Tuition for the course is \$150. Further information and application forms can be obtained from Ernest H. Huntress, director of the Summer Session, MIT, Cambridge 39, Mass.

### Research

#### Configuration in Relation to Structure of Insecticide

The development of a practical technique for the synthesis of pyrethrin type compounds has resulted in the accumulation of evidence that the molecular configuration of the pyrethrin molecule may be important in the insecticidal action.

A paper reporting on the relative toxicity of the four stereoisomers of DL-allethrolone and the significance with respect to configuration has recently been published in the *Journal of Economic Entomology*, Vol. 45 (5), pp. 849-50 (1953) by W. A. Gersdorff and William Mitlin.

Briefly the principal conclusions of the paper are as follows:

The L-allethrolone D-trans chrysan-

themumic acid ester, the DL ester, the LL ester, and the DD ester are, respectively, 0.579, 0.138, 0.0224, and 3.37 as toxic to house flies as allethrin.

Two generalizations are made. With the same acid component the change from the L to the D form of the allethrolone component is accompanied by a six-fold increase in toxicity of the ester. With the same allethrolone component the change from the L to the D form of the acid component is accompanied by a 25-fold increase in toxicity of the ester.

The change in each component simultaneously from the L to the D form is accompanied by the product of the separate effects.

### On The Cover

#### The Modern Medicine Man

DESPITE THE EFFORTS of government agencies and private organizations to prevent and control false and misleading advertising, food faddists sell their wares by making wild and unsubstantiated claims for their products. These food faddists have become the modern medicine men. Although the products in themselves may be safe, harm results in the buyer's belief in their claims and the consequent neglect of proper nutrition. Public education is a problem for nutritionists and food processors, as it is for so many other scientists and reputable manufacturers.

Cover drawing from original by Ray Hight in "Trail Blazers in Advertising" by Chalmers Lowell Pancoast

### People

#### Sandstedt to Receive Osborne Medal in Cereal Chemistry

Rudolph M. Sandstedt of the University of Nebraska has been selected by the American Association of Cereal Chemists to receive its highest award, the Thomas Burr Osborne Medal, for his



"distinguished contributions to cereal chemistry." The medal, founded in 1926 but awarded only eight times since then, will be presented to Prof. Sandstedt at the AACC's annual meeting in Denver

in May (see page 380). Study of wheat and its components has been his major research interest, including the development of cereal laboratory equipment and analytical methods for evaluating flour properties. In addition, he has conducted long-term research on proteolysis of doughs. Recently he has been working in starch chemistry, a phase of which has been the use of lapsed-time photomicrographic techniques to study raw starch digestion. He is the author of over 70 publications and has produced eight photomicrographic motion pictures to date. He was managing editor of *Cereal Chemistry* 1944-48 and president of the AACC in 1947-48.

George S. Wheaton, assistant vice president of American Potash & Chemical Corp., has been named head of the company's Eston Chemicals Division.

Russell L. Jenkins has been appointed associate director of inorganic chemical research in Monsanto's Research and engineering division. John M. Butler and Milton Kosmin have been named assistant directors of the chemical research department. W. H. Yanko was named a group leader in the department.

Donald A. Schallock has left the post of assistant professor of agronomy at the University of Rhode Island to become extension agronomist in farm crops at Rutgers University. He will have responsibility for grain crops, succeeding Rodney Briggs. Curtis M. Wilson, a recent Ph.D. graduate of the University of Wisconsin, has been named assistant professor of plant physiology at the Rutgers college of agriculture.

Henry J. Peppler has been appointed assistant director of research and development for Red Star Yeast and Products Co. He has been director of the biochemistry laboratory since 1950.