he pointed to the fact that when American production was halted in 1950 by a strike, a Russian potash was offered on the East Coast for $51 per ton. (The striking union was the mine, mill, and smelters workers, which was ousted from the CIO as being Communist dominated). Now, however, with American production at a high level, augmented by imports from free enterprise countries, the Russians are selling the same potash for $29.50 a ton.

Pettit testified that East Germany alone exported the equivalent of 55,000 tons of K_2O to the U. S. last year and that the Russians are making desperate efforts to get contracts for this year at their cut rate prices.

Other representatives of the potash and fertilizer industries testified that we now have adequate sources of supply with domestic production and imports from free enterprise countries and that if the dumping practices of the Communists are allowed to continue the tonnage from behind the Iron Curtain may increase.

The potash interests contend that the importation of the Communist product at prices which undercut an efficiently run American industry violates the spirit of existing legislation designed to protect American industry.

Solution of Animal Health Problem Up to Agricultural Industry

NEW YORK.—Livestock diseases cost the nation $2 billion last year, and only 7% of this amount was spent in an effort to stop this loss. We have the necessary know how, money and equipment to eliminate this unnecessary "disease tax," said Mark Welsh at the scientific session of the 13th annual meeting of the Animal Health Institute on April 9. A critical area in the fight against animal disease is the basic research which should be done in the laboratories of the Government and the universities. Dr. Welsh, animal industry consultant to the Lederle Laboratories at Pearl River, declared that industry, which spends 10% of its income on research, is forced by competition to concentrate on applications rather than basic work. He also warned that the use of synthetic materials in clothing and shoes is threatening a valuable market for animal products.

An increase in rate of growth, improvement in efficiency of feed utilization, slight improvement in livability, and a tendency to eliminate small or "runty" animals were given by G. E. Hawley of Chas. Pfizer agricultural department as the main benefits of the use of antibiotics for nutritional purposes. In a paper coauthored with H. G. Luther, Dr. Hawley reported the growth stimulation effect of various antibiotics on specific species of animals. Penicillin was found to be excellent for poultry, causing a 22% faster rate of growth than normal, when added to feed at a level of 2 to 3 grams of sodium penicillin activity per ton of feed. "Terramycin, aureomycin and bacitracin can be observed to give very good response in chick ration, giving an increased growth response in the order of 15%," at a level of 5 grams per ton.

Terramycin and aureomycin were found to be especially effective on swine and calves, while terramycin and especially a combination of terramycin and vitamin B_{12}, results in larger and more valuable pelts in mink. The antibiotics tested were found to have no undesirable effects on the benign microflora of the ruminant animal, and a 3 to 6% saving in feed was observed. "It is probable that the favorable effects of antibiotic supplementation are due at least in part to a slight adjustment in intestinal flora," said Dr. Hawley. Control of a subclinical disease level, and marked increase in water intake may be other contributing factors.

Therapeutic Levels. High level feeding of antibiotics to animals has proved to be a convenient and effective means of medication in the treatment and control of many types of infectious diseases. Blue comb disease in poultry has been successfully treated by the addition of 75 to 100 grams of terramycin hydrochloride activity per ton of finished feed, while 30 grams per ton has been shown to be prophylactic against this disease. When sick animals or birds are off feed, antibiotics can be effectively administered in drinking water. Early chick and poultry mortality has been effectively reduced by the addition of 100 grams of terramycin per ton of feed, when fed for the first two weeks of life. High level water and feed supplementation has been successful in treating shipping fever, scours, and infectious scours of suckling calves, overeating disease of sheep, swine enteritis, vibronic dysentery in swine, and mucoid enteritis.

Chronic respiratory disease, which causes great losses to the poultry industry, shows signs of control by high level terramycin feeding. Terramycin and magnamycin have been most effective in tests, and an injected repository form of terramycin has been formulated which supplies a constant level of efficacious medication for a definite time. The spotted liver and thickened, inflamed air sacs typical of poultry infected with chronic respiratory disease were described in a preceding talk by Henry Van Roekel, head of the department of veterinary science of Massachusetts State University. In a discussion of the symptoms, effects and course of the disease, Dr. Van Roekel said that the great similarity to infectious sinusitus suggested some close relationship between the two diseases.

Vesicular exanthema is endangering the entire hog population of the United States in its expansion from California since 1952, declared F. M. Murdock, executive vice president of the Anchor Serum Co. This disease, which is spread largely by garbage feeding, has appeared in 39 states to date. Although it usually does not result in death, vesicular exanthema seriously cuts the weight of its victims, and complications often result from secondary infections of the open lesions. Since the herds of swine used to produce hog cholera serum are almost exclusively garbage fed, they are fair game for this disease, and the aggravation of an already seriously short hog cholera serum supply would involve serious risk for the entire industry. Laws requiring the precooking of feed garbage, or even outlawing garbage feeding were recommended by Dr. Murdock.

Chlorinated Products of Dioxane Prove Effective Insecticides

Insecticides almost as effective as DDT have been prepared by chlorinating 1,4 dioxane. Relatively mild conditions are required and chlorine atoms can be introduced to obtain several products, including a good-crystallizing octachlorodioxane.

The work on the chlorinated dioxanes was reported by W. Stumpf, University of Heidelberg, at a recent chemical conference in Innsbruck, Austria. The conference was a joint meeting of the Association of Austrian Chemists, the Society of German Chemists, and the Swiss Chemical Society.

All of the chlorinated dioxanes have insecticidal properties. Although the mono- and dichlorodioxanes are sensitive to air and moisture and spontaneously split off hydrochloric acid, the more highly chlorinated products are extremely stable materials.

The most effective are the hepta- and the octachlorodioxanes. Both have a low toxicity against the rat. The dioxane products are said to act more rapidly than either DDT or the gamma isomer of benzene hexachloride.

The mechanism of chlorination differs

basically from the chlorination of aromatic and aliphatic hydrocarbons in that it involves oxonium compounds. Iodine is used as a catalyst and iodine trichloride is considered a chlorine carrier.

Industry

Continental Can to Triple Warehouse at Malden Plant

Continental Can Co. has announced that it will construct a warehouse to triple storage facilities at its Malden, Mass., plant. Metal containers for many food items are produced at Malden and the new storage warehouse is planned to meet growing New England demands for these items.

The steel and concrete building, which will have three truck spots and additional freight-loading facilities, will provide 19,200 square feet of space, it was said.

Contracts for the construction have been let to William H. Porter Co., Inc., of Watertown, Mass. Construction is to start immediately and is scheduled for completion by July 15.

Pfizer Opens Experimental Animal Farm at Terre Haute

Chas. Pfizer & Co., Inc., formally opened its experimental farm and laboratories near Terre Haute, Ind., earlier this month. The laboratories, located on a 700-acre tract formerly occupied by a federal ordinance plant, combine facilities for research on both animal nutrition and veterinary medicine.

The veterinary medicine and animal nutrition centers are separated to provide efficient disease control. Hundreds of pigs, chickens, cows, and small animals in all stages of maturity are available.

Tests are under way on feeds containing antibiotics and on the nutritional requirements of animals for various vitamins, choline, pyridoxine, biotin, and unidentified growth factors. Veterinary studies include treatment of chickens for chronic respiratory disease, mastitis, scours in calves and pigs, and the effects of antibiotics on the rumen of cows.

Director of the laboratories is Herbert G. Luther, known for his work on fortified artificial sow's milk. James McGinnis, on leave from Washington State College and a leading poultry nutritionist, is assistant director.

Dixie Guano Enlarging Laurinburg, N. C., plant

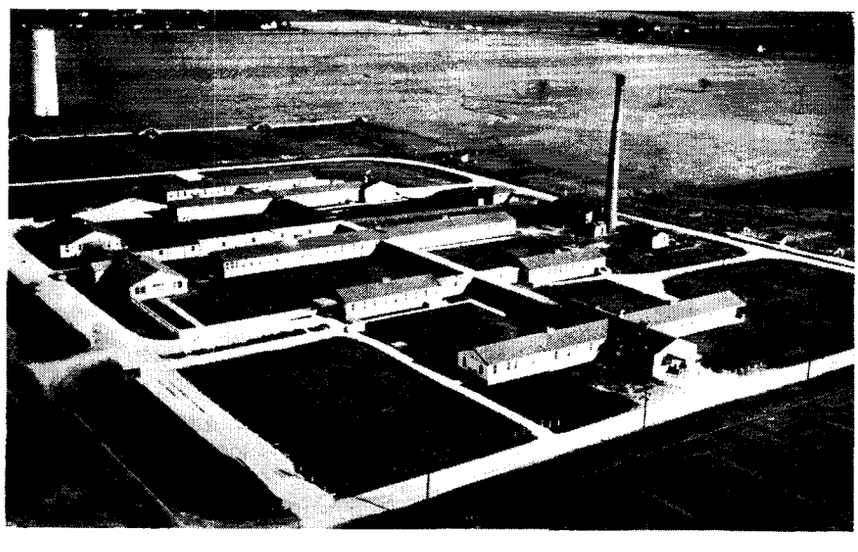
Dixie Guano Co. has announced that it is constructing a fully automatic, 39,000-square foot addition to its plant at Laurinburg, N. C. Dixie explains that the expansion is designed to step up production and facilitate deliveries during rush periods.

As a result of the automatic facilities, only one man will be required during seasonal lulls to fill the entire bulk storage area with 12,000 tons of bulk mixed fertilizer. Dixie says it will thus be possible to have a substantial inventory ready for processing and packaging when orders reach their peak during the spring.

A feature of the plant will be a 150-foot-long bridge spanning three railroad tracks and connecting the new and present plants. Conveyor belts will carry the bulk mixed fertilizer over the bridge from the present plant to the new building.

The other section of the addition will house equipment for screening, mixing, packaging, and shipping the fertilizer. A 20-foot, side concrete loading platform will accommodate railroad shipments.

Air view of the center of the Pfizer animal farm near Terre Haute, Ind., where the company conducts experiments on both animal nutrition and veterinary medicine



The structure is to be of standarized steel frame, measuring 150 by 260 feet. The storage area will measure 80 by 260 feet with 20-foot work aisles on each side.

New Mississippi Firm to Make Aluminum Irrigation Systems

Citizens of Gulfport, Miss., in a recent bond election approved a $550,000 bond issue to purchase land and construct a building to house the Mississippi Aluminum Corp. Principal product of the new company will be extruded aluminum pipe and pumps to make up complete irrigation systems for a South-wide agricultural market.

Aluminum ingots from Aluminum Co. of America and Aluminum Co. of Canada will be processed in the plant, which, in its 60,000 square feet of floor space, will include three interior craneways and a deep heat treat pit.

Research

Dairy Industry Must Step Up Research, Parker Warns

The dairy industry must continue and intensify its development research if it hopes to maintain leadership in the field of food processing in America, maintains Milton E. Parker of Illinois Institute of Technology. In an address before the Milk Packaging Conference at Urbana, Ill., Dr. Parker reviewed the recent history of food packaging and the enviable position which the dairy industry has had as a leader in that field. However he pointed out that it cannot afford to rest on laurels in the face of growing competition from other food processors.

With the increasing emphasis in nutritional circles on the importance of the food values of animal proteins Dr. Parker believes that the dairy industry should capitalize on the high protein values present in skim milk. He pointed to the discard of skim milk and buttermilk from butter manufacturing as an extreme form of waste of these food values. A processed food for the utilization of skim milk proteins would not only be an important development for the industry but also will be a contribution to the problem of feeding our increasing population.

Dr. Parker recalled Secretary of Agriculture Benson's recent address in Chicago in which he suggested to the American Dairy Association that dairy farming should look to more mechanization. Dr. Parker feels that the answer to the problem reviewed by Benson may be found in increased basic research on ways

and means to increase the ingestion of more animal protein, specifically skim milk protein, by humans.

An example of this sort of technological development was seen in the new low-cost, all-dairy spread recently under discussion in the dairy industry. The product which is reported to be made of more milk solids and less butterfat might be nutritionally superior to both butter and margarine.

Role of Vitamin C in Fat Metabolism Announced

The first demonstration that Vitamin C, ascorbic acid, regulates the formation of cholesterol in the animal body has been announced by Charles Glen King of Columbia University. Dr. King's work is reported in a communication to the Editor in the April 20 issue of the *Journal of the American Chemical Society*.

Commenting on the implications of the discovery Dr. King said: "Our work shows that a deficiency of vitamin C results in complex fat formation in the test animal getting out of balance. Noting that the adrenal glands in particular showed a marked acceleration in the synthesis of cholesterol Dr. King reported: "Vitamin C deficiency in this case caused a failure of adrenal function which is related to the reproductive cycle and lactation, mineral balances in the body, and such conditions as arthritis."

Dr. King who is the director of the Nutrition Foundation, believes that this discovery will open a new approach to research on normal fat and fat like hormone metabolism, and also on atherosclerosis and associated diseases.

Foreign

Grasshopper Plague Averted in Honduras

Aldrin and dieldrin were the principal weapons in a recent campaign against a threatened locust plague in the rugged valleys of Northern Honduras. In a progress report from the Institute of Inter-American Affairs which reviewed the progress and extent of the control operation, it was pointed out aldrin and dieldrin were picked for their residual control. Benzene hexachloride, the other insecticide used, was found to be effective as a contact poison but its residual action disappeared in from two to three days compared to dieldrin which was effective for about a week. The residual effects were the determining factors in the campaign to control the insects in the jungle.

In Honduras most of the grasshoppers are hatched in the jungles of the mountainsides and emerged full grown onto the fields of the small farmers in the valley

Jungle undergrowth in which Honduran grasshoppers breed

below the jungle. Attempts at control in the cultivated areas only were not successful, and eventually with the help of a helicopter the jungle areas where the hoppers hatch were sprayed with insecticide. The report points out that the best method for control of the insects was to get them in the hatching stages as the mature flying insects are more resistant to most insecticides. Although the helicopter was an expensive tool for this work it was the only possible way to get insecticides into the impassable jungle.

The grasshopper control campaign was undertaken as a part of the Point Four program of the IIAA in south America.

Portugal Expanding Ammonium Sulfate

Portugal has recently allocated $5.85 million for expansion of existing ammonium sulfate plants. The expansion is part of the government's six year plan for economic development.

The Portuguese have recently completed two ammonium sulfate plants and have two more in construction. The expansion is probably planned to increase the production of one of the completed plants.

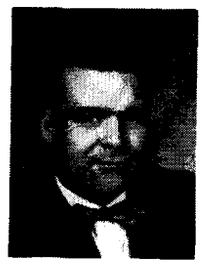
The ammonium sulfate program has been undertaken to meet increased demands for nitrogenous fertilizers previously met by imports from foreign sources, which was a drain on exchange reserves.

By the expansion program it is hoped to increase the domestic production to 114,000 metric tons, estimated to be sufficient to meet existing requirements. The ammonium sulfate program is planned for completion in 4 years, but is dependent upon the completion of a parallel program of hydroelectric plant development.

People

G. Don Emigh has recently been appointed director of mining for Monsanto Chemical Co.'s phosphate division. Emigh has previously been production superintendent at Monsanto's Soda Springs, Idaho, phosphate plant.

Robert Q. Parks, former USDA agronomist, is the new manager of agricultural services for Grace Chemical Co. Dr. Parks has been associated with the Ohio Agricultural Experimental Station, the plant, soil, and nutrition laboratory at Ithaca, N. Y., and the USDA experiment stations at Auburn, Ala., and Beltsville, Md. Dr. Parks will reside in Memphis, where Grace Chemical is building a $19 million nitrogen plant.



Allison S. Burhans has been named director of research and development for Beech-Nut Packing Co. He has been serving as acting head of the laboratory since January. Mr. Burhans joined the laboratory in April 1947 and was appointed assistant director in July 1952.

Willard B. Robinson, division of food science and technology, New York State Agricultural Experiment Station, Cornell University, has joined the staff of the National Research Council's Food Protection Committee. Dr. Robinson, who is on sabbatical leave, will serve the committee as its technical secretary.

C. P. Cunningham has been made production superintendent of Monsanto Chemical's Trenton, Mich., plant. He has been serving as production supervisor since April 1952. **W. K. Belin**, former production superintendent, has been made maintenance superintendent.

Robert G. Tischer, former professor of food technology at Iowa State College, has been named director of the food laboratories for the Quartermaster Food and Container Institute for the Armed Forces. He will direct the work of four research divisions.