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Monday, Nov. 15, 1937

TIME

Science: Hydroponic Troubles

FILED IN OFFICE
PART SUPERIOR COURT
JANUARY 21 1938
RANKIE H. GRAY, CLERK

The founder of the science of hydroponics was annoyed with the world last week. He had just heard that one more company had been organized to market plant-nourishing chemicals for growing plants in water, and in his testy opinion one more company made about a dozen too many.

The fact that vegetables and flowers will grow in water if nutrient salts are added has been known for nearly a century. At the University of California ten years ago, however, William Frederick Gericke, who has the big, gnarled, capable hands of a born farmer (he was born on a farm in Nebraska), got the idea that not only experimental plants but commercial crops might be grown in water. So successful were his experiments that last summer the National Resources Committee listed "tray agriculture"—along with air conditioning, synthetic rubber, television, mechanical cotton pickers et al.— as one of the things that must be watched in the future development of the national economy.

In shallow tanks of nutrient solution, Dr. Gericke has grown tomatoes, potatoes, corn, beans, gladioli, begonias, dozens of other plants and vegetables—free from drought, disease, insects, floods, erosion (TIME, March 1). In a tank of 1,100 of an acre area he grew 1,226 lb. of lush red tomatoes. His giant tobacco plants are especially impressive (see cut). From 25 sq. ft. of water he got 100 cantaloupes, declared this to be 20 times the yield expected from soil. Pushing against the roof of his greenhouse, with its massive roots in water, is an 18-ft. banana plant, now only eleven months old. Dr. Gericke's current researches are directed toward controlling the colors and mineral contents of vegetables by varying the kinds and quantity of salts in the solution. He has grown tomatoes with double the normal content of beneficial minerals. In his ice box on the second floor of the university's Life Science Building are jars of tomato juice of different colors, one of which is a rich, ruddy red which he believes could be sold at a premium.

Four commercial growers are using the Gericke methods, under his supervision. One of these, at Montebello, Calif., has grown premium tomatoes which sold for \$262 per ton at the rate of 100 tons per acre of water. Gericke does not ask for fees from these companies. "All I want," he says, "is for them to set aside sufficient funds for me to carry on experiments."

He objects to the fact that a dozen or more small chemical companies have sprouted up to sell nutrient salts to amateurs or professionals experimenting with hydroponics. These have names like Chemi-Grow, Chemi-Crop Co., Shur-Gro Fertilizer Corp. They are legally within their rights, since hydroponics cannot be patented. The only patent which Dr. Gericke holds is for a container to diffuse the chemicals through the

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solution. But he argues, against the companies, that no formula works well for all plants, all climates, all conditions: and that even if they made a great variety of formulae there are other factors such as temperature and acid-alkali balance which must be thoroughly studied for successful hydroponics. Also, in his kindly if eccentric way,, he accuses them of victimizing "poor people" by selling chemicals worth a few cents at fancy prices ranging from \$1 to \$3.

Dr. Gericke's present relations with his colleagues and superiors in the College of Agriculture are strained almost to the point of diplomatic severance. He accuses his critics of not appreciating the importance of his labors. They reply that he is, on the one hand, too secretive about his technical developments and, on the other, too attentive to publicity and commercialization. They say that the scientific use of hydroponics should be to learn more about the physiology of plants, that its commercial possibilities are not proved, that it is unsound to compare water-grown with soil-grown crops on the basis of acre for acre yield.

Three years ago Gericke befriended a roving photographer named Arthur G. Pillsbury. After taking many pictures of hydroponic plants, Pillsbury became so engrossed in the subject that he went to Evanston, Ill., enlisted the interest of a truck-body manufacturer, a hosiery executive, a lawyer, a banker. Then he went back to Berkeley, asked Gericke for technical information. The scientist flatly refused. Pillsbury then turned to the dean of the College of Agriculture who gave him a pamphlet, available to anyone who asked for it, containing some information on temperature, formulae, aeration, etc. Pillsbury and his associates were incorporated as Chemical Garden Co., with an initial capitalization of \$10,000, and last week they were going ahead with plans to market chemicals at a price of \$1 for 25 oz., and small steel tanks for \$6 each. They have 11,000 sq. ft. of hydroponic tanks under experimental cultivation, have acquired the services of a trained plant physiologist. When Dr. Gericke heard of the enterprise, his principal comment was "Humph!"

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