SCIENCE NEWS

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RUBBER PLANTS FOR THE UNITED STATES

RUBBER-RAISING in the United States, a project which enjoyed a renewal of public interest following Mr. Edison's recent visit to Washington, is at bottom a problem of the relation of plants to climate. If Mr. Edison's hopes of establishing rubber plantations in the United States are to be realized, either hardy forms of the present rubber-yielding plants of the tropics will have to be evolved, or certain rubber-yielding plants native to the temperate zones will have to be bred up to a point where their rubber content will pay for its extraction.

All the present rubber trees and vines are warm-climate plants. The Para rubber tree, Hevea, which now produces by far the larger part of the world's crop on the East Indian plantations, is decidedly a tropical form. It will just consent to grow in southern Florida, but will not grow for money unless it is permitted to hug the equator. It is out of the question for the United States proper, though it would thrive in the Canal Zone and the Philippines.

The original "India rubber" of the Orient was the product of a species of fig, the same tree used as an ornamental in thousands of apartments, and in larger size as a display piece in many greenhouses. This tree is slightly hardier than the Hevea, but is still very sensitive to frost, and could hardly be expected to pay its way even in the South unless new varieties better adapted to our climate can be produced.

Perhaps third in present importance as a rubber-producer is the Madagascar rubber vin , related to our milkweeds, which Mr. Edison is now trying out in the South. Even in the tropics, it now produces only a small fraction of the world's rubber, but it might be exploited more advantageously by plantation methods and with more means of extraction than those now practiced in its native home.

In our own semi-arid Southwest, and more extensively in the adjacent states of Mexico, there is a native bush, the guayule, which contains rubber in paying quantities. It has the distinction also of yielding its rubber as tiny bits of the pure substance, not as a milky juice or latex which has to be given complicated and expensive treatments before it can be used. Guayule is now being cultivated by a corporation which has a large plantation in southern California, but even this native rubber plant requires the desert heat for profitable growth and holds out little hope of becoming adapted to the colder North.

There remain native plants like the milkweeds and dogbanes, which yield a milky juice containing a little rubber or rubber-like material. These are perfectly hardy in the North, and very prolific—frequently too prolific from the point of view of the farmer. But their content of resilient gums is so low that it would be a bold undertaking to try to make them into commercial sources of rubber, even with the best methods now at the disposal of the plant breeder.

THE PREVENTION OF EPIDEMICS AFTER THE FLOOD

PESTILENCE outbreaks in the Mississippi Valley have been prevented by the nation's health armies. Not only have there been no epidemics in the trail of the great disaster, but the incidence of disease has been less than that normally to be expected, says Dr. Ira V. Hiscock, of the Yale School of Medicine, in a report of the huge scale health operations called into action during the flood, that will appear in a forthcoming issue of *The American Journal of Public Health.*

The Red Cross, working in cooperation with federal and state health authorities, made a concerted drive on the three most feared diseases, malaria, typhoid fever and summer diarrhea. Immunization clinics were established in camps, stores, doctors' offices and any convenient place where some 560,000 people were completely immunized against typhoid and 161,000 were vaccinated for smallpox.

Two tons of quinine and 200,000 gallons of spray oil for mosquito control were supplied for the war on malaria, and a program is in progress for the complete screening of 15,000 malaria patients. As far as possible water supplies were safeguarded and purified, but when such precautions were out of the question educational campaigns were instigated to boil drinking water and milk to protect hundreds of homeless babies from summer diarrhea.

About 600,000 people were given complete care throughout the refugee period. A thirty-day clean-up period followed with the return of the refugees to their homes, free rations and medical service for two weeks.

The need of continuing the public health work in the flooded areas is extremely important. Fortunately a joint program under the auspices of the U. S. Public Health Service, the states and counties affected and the Rockefeller Foundation has recently been developed that will provide full-time county health units throughout the flood region and will put the Mississippi Valley years ahead in the matter of health protection.

THE EARTHQUAKES IN CHINA

THE earthquake of May 22 in the Kansu province of China, happening so soon after that of 1920 in the same region, sets a new record. Never before in the knowledge of Commander N. H. Heck, in charge of the U. S. Coast and Geodetic Survey's earthquake investigations, have two such severe earthquakes in the same region occurred so close together. It was Commander Heck and his associates, using data gathered from seismograph observatories by Science Service, who located the position of the earthquake long before reports from the devastated area reached civilization.

In the earthquake of 1920, an estimated total of half a million people were killed, but according to reports from the region the casualties of the May earthquake numbered about 100,000. The 1920 earthquake was a little nearer

to Peking, but other reasons are probably responsible for the lower loss of life in this latest one.

The Kansu province has been described as the "Wild West of China." Like our own wild west in the early days, it is a very unsettled region, and there have been frequent uprisings among the people of the region, who are largely Mohammedans. The last great uprising was in 1895, and since then the people have abandoned the cities in great numbers. Kulang, which is one of the cities reported as being destroyed, was described a few years ago by travelers, according to the National Geographic Society, as being nearly deserted and in ruins. Had the cities been as heavily populated as in past years, the loss of life would have been far greater, as the earthquake was one of the most severe on record.

It was across the Nan Shan Mountains, which lie near Thibet, that the May earthquake seems to have been most severe. A little distance to the north of the devastated region runs the famous Great Wall, which ends about 200 miles to the west of it. Practically through the region there ran in the past one of the great high roads into China. In recent times a railroad along the same route has been proposed. The great earthquakes do not necessarily mean that such a project is unsafe, however. Though the country contains geological evidence of earthquakes in the past, until 1920 none had occurred within historic times. Possibly the earthquakes in 1920 and 1927 have relieved the strain of the region, and no more will occur for centuries.

THE USE OF AMERICAN FISH TO FIGHT ITALIAN MOSQUITOES

THE Roman Campagna and other malaria-infested regions of Italy may owe their eventual reclamation for human uses to the voracious appetite of the American topminnow, Gambusia. According to information received by Lewis Radcliffe, deputy U. S. fish commissioner, these little fish have taken very kindly to the waters of their adopted country, and are practically wiping out the mosquito wigglers in all ponds, canals and ditches where they are introduced.

The report which Mr. Radcliffe quotes covers a six-year period. The first shipment was made by the U. S. Bureau of Fisheries in 1921, through the American Red Cross and the League of Red Cross Societies. Their history since then has been followed by Dr. M. Sella, an Italian scientist.

The fish were received in Madrid, in June, 1921, and some of them were sent to Italy in July, 1922. Since that date they have been widely disseminated in Italy and from that country shipments have been made to Germany, Russia, Jugo-Slavia and Palestine.

He states that the Gambusia has taken up its abode in all the malarial regions of Italy from Istria to Sicily. It does well in small ponds, large lakes, in the large artificial reclamation canals; in waters perfectly fresh and in waters which are slightly salty. It possesses great resistance to high temperatures and other unfavorable conditions, and survives in the smallest residuary puddles after all the native fishes have perished. Despite the difficulties attendant on acclimatization of a new species of fish, Dr. Sella concludes that Gambusia develop better in Italy than in their native land.

In certain ponds where mosquito larvae were counted by millions, now hours are passed in collecting a few dozen.

VITAMIN TESTS

COLOR tests that will tell the amount of vitamins certain types of food contain is science's latest practical project. Dr. Stanley G. Willimott and Frank Wokes, of the University of Cambridge and the University of Liverpool, have been trying out various reagents on foods of known vitamin content to see if it is possible to obtain a satisfactory test for the presence of vitamin A.

Since this is the vitamin needed for growth, the value of a color test that gives promise of actually gauging the quantity in different food stuffs is regarded by scientific men as of prime importance. Under present methods it is necessary to test such preparations as cod-liver oil by the time-consuming process of feeding them to animals and then watching their rate of growth.

It was found that antimony trichloride is the most satisfactory chemical test among those tried out. It produces a beautiful blue in the presence of vitamin A, the depth of which is measured by means of a tintometer. The technique of the process is exceedingly delicate and requires, according to Dr. Willimott, "the careful observation of a number of precautions, some of which are just beginning to be understood. In view of the laborious and costly nature of feeding experiments and the wide margin of error in the results," he explained, "it is obvious that any chemical means which give promise of really estimating the vitamin should be tried on as wide a range of natural products as possible. When the specificity of such tests has been definitely established and a quantitative technique worked out, the way may be open to a new field of investigation of the first importance in human nutrition and well-being."

ITEMS

A NEW plan to give hospital nurses practical training in caring for mental and nervous cases is being tried in Boston, according to a statement by Dr. C. A. Bonner, of the Boston Psychopathic Hospital. Six general hospitals are sending groups of nurses to the psychopathic hospital for three months' intensive training. The student nurses are taught that behavior is a symptom, and they learn to observe and to understand abnormal behavior in the same way that they would observe abnormal physical signs. "In spite of the fact that fifty per cent. of the hospital beds in this country are used for mental patients, only about five per cent. of the nurses who are preparing to care for the sick enter mental hospital training schools. Furthermore, the importance of the mental and emotional condition of patients suffering from physical diseases is gaining recognition. The physically ill person is almost always nervous, and the nurse who understands this aspect of disease is better equipped to care for any sick person."