SCIENCE NEWS

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THE INTER-AMERICAN INSTITUTE OF AGRICULTURAL SCIENCES AT TURRIALBA

RUBBER, cinchona, tropical fruits and many other crops of importance to America in both war and peace are expected to benefit by research at the new Inter-American Institute of Agricultural Sciences at Turrialba, Costa Rica, which it was planned to dedicate on the occasion of Vice-president Henry A. Wallace's visit there, shortly after his arrival in the capital, San Jose, on March 18.

As Secretary of Agriculture, Mr. Wallace was greatly interested in the promotion of agriculture in the American tropics, as a means for providing the countries to the south with products which would supplement, rather than compete with, North American agriculture, and thus afford a substantial basis for the "good neighbor" program.

At Turrialba, the Costa Rican government has provided 1,200 acres of the finest upland soil to be found in the American tropics. Formal title was transferred to the institute late last month, although initial phases of actual field work had already been in progress for some time. This locality, at 2,000 feet above sea level, was chosen because less than two hours' ride by car or train can carry the investigator through an almost complete cross section of tropical American conditions.

Scientific work at the institute is to be entirely research on the post-graduate level; no undergraduate courses are contemplated. Facilities of research stations in other Latin-American countries have already been made available. Until the war is over, only temporary buildings will be erected. However, plans for the permanent plant are already drawn up, and construction can go forward rapidly once materials and manpower are released.

Research is already in progress on rubber, cinchona, foodstuffs and tropical hardwoods. Work will begin soon on plants providing oil, fibers and insecticides.

At a press conference immediately before taking off, Vice-president Wallace expressed great interest in the plant breeding program to be carried on there, especially in the breeding of rubber trees of higher productivity and greater resistance to disease. He expressed the opinion that "Plant breeders have been making, and can and will make, as rapid progress in increasing production of natural rubber as chemists can make in the production of synthetic rubber."

The director of the new institute is Dr. Earl N. Bressman, formerly with the Coordinator of Inter-American Affairs. The secretary is José L. Colom, of the Pan American Union.

From Costa Rica the Vice-president and his party will proceed to Panama, thence southward for visits in Chile, Bolivia, Peru, Ecuador and Colombia, returning to Washington late in April. As much time as possible will be spent in the field, obtaining first-hand information about agriculture, forestry and mining in the countries visited. At his press conference, Mr. Wallace expressed regret that time does not permit visits to all the South and Central American republics on the present trip, but he added that he hopes to see these countries in the not too distant future.

Accompanying the Vice-president are Laurence Duggan, of the Department of State, and Hector Lazo, of the Board of Economic Warfare. James Le Cron, of the Office of Inter-American Affairs, went with the party as far as Panama, returning to Washington from there.—FRANK THONE.

ADVANCES IN MEDICINE AND SURGERY

"THE remarkable advances in medicine and surgery since the first World War are now paying large dividends in saving the lives of soldiers wounded in combat," is pointed out by statisticians of the Metropolitan Life Insurance Company in the official bulletin. The sulfa drugs, blood plasma and new anesthetics are listed as outstanding discoveries contributing to reduction of war wound casualties.

Gross statistics, even where available, are of little value in measuring the achievements of our military physicians, it is pointed out, for two reasons:

1. Changes in military technology and the type of warfare, including greater use of tanks, planes and other mechanized equipment, and the creation of deadlier weapons and projectiles, such as heavy and incendiary bombs, are likely to cause more numerous and more severe wounds of fighting men to-day than in the last war.

2. Better organization of medical services in the field, on the other hand, probably will result in inclusion among the wounded of some men who, in previous wars, would have been recorded as killed in action because they died of their wounds before they were found.

The report states that "Despite all this, definite indications of improvement in wound fatality rates are available from scattered sources."

Preliminary data on our Army casualties up to December, 1942, show a fatality rate of about 4 per cent. compared with 7.7 per cent. in the first World War. In the Solomons fighting, deaths from abdominal wounds were less than 5 per cent., although the rate for mortality from this type of wound in previous wars has usually been higher than 50 per cent. The fatality rate from chest wounds, formerly running over 25 per cent., was reduced in one British medical unit to about one fifth of that figure among casualties evacuated from Dunkirk.

Wound infections and gas gangrene have been relatively infrequent, largely as a result of routine use of the sulfa drugs. Tetanus has been practically eliminated by the routine protection given our men by tetanus toxoid.

Shock and hemorrhage are being successfully fought by plasma transfusions of wounded men in the field. Sedative drugs promptly given in the field are also reducing the danger of shock. In many cases these measures have made it possible to defer major surgery until the wounded could be transported away from the fighting zone to base

hospitals where more adequate surgical and nursing care can be given. Air transport has aided greatly here. With its aid, many of those wounded in North Africa were being treated in the United States only a few days after being wounded.

The problem raised in this war by burns from incendiary bombs, high explosives, gasoline and oil fires has been largely solved and many lives saved by new methods of treating burns, including plasma and the sulfa drugs, developed in the years between the wars.

THE SHORTAGE OF PHYSICIANS

A PLAN for meeting the present shortage of physicians by having the special type temporary licenses to refugee physicians issued by the War Manpower Commission was suggested at the National Conference on War and Postwar Planning for Medical Services held in New York City under the auspices of the Carlos Finlay Institute of the Americas.

The suggestion was made on an unofficial and personal basis by Dr. Frederick P. Keppel, director of the Equitable Life Assurance Society of the United States, who is now in Washington serving on the War Relief Control Board and also on a two-man board of appeals on immigration visas for refugees.

The postwar practices of American doctors now serving their country with the armed forces would be safeguarded, according to Dr. Keppel's plan, by making these special licenses good only for the duration of the present emergency. The licenses, furthermore, would be limited to practice in certain localities such as the towns that have mushroomed around war industrial centers and army training camps.

Dr. Keppel pointed out that the American people are ignorant and uninformed on the immigration problem. They are still laboring under the impression that hordes of unwashed, illiterate people are clamoring at the gates. Actually, if every application for a visa were granted, the number would be only one tenth that allowed under pre-war immigration quotas. Only about one half of the number is approved, however, and of those approved, only about one half manage to get to this country.

The immigrants to-day are to a large extent people of culture. A large proportion is made up of professional people, such as doctors, dentists, nurses and research workers, in all of which categories we have a serious shortage. Dr. Keppel's suggestion for temporary, special type licenses for physicians was made with the hope of helping to solve the problem of how to use these refugees to the best advantage of the United States and still protect the jobs of those Americans away at war.

ITEMS

THE current meningitis outbreak appears to be approaching the proportions of the 1929 epidemic, which was the biggest meningitis outbreak on U. S. Public Health Service records. For the week ending March 13, the latest on which figures are available, 514 cases were reported throughout the nation, exclusive of Rhode Island, whose report has not yet been received. This state reported 19 cases the previous week. A similar figure from that state for the week just ended will bring the week's total up to or over the 531 cases for the preceding week, ending March 6. Through the week of March 6 a total of 3,515 cases of meningitis has been reported this year, a figure more than 25 per cent. above any other nine-week period in the past sixteen years. The total of 4,029 cases from January 1 through March 13 this year is higher than any other year since 1937 when 5,484 cases were reported during the entire year. When the present outbreak will be over is impossible to predict. In nine of the past sixteen years the peak of the meningitis season has come before the end of March. In five years it came in April and in two years as late as May.

SUCCESSFUL use of blood plasma to fight shock from fever treatment for gonorrhea is reported, apparently for the first time, by Lieut. Arthur M. Pruce, chief of the section of physical and fever therapy at Stark General Hospital, Charleston, S. C. The report appears in the *Journal* of the American Medical Association. Lieut. Pruce explains that he is reporting this use of plasma "because our armed forces have instituted a rapidly expanding program of fever therapy to treat venereal diseases" and shock is one of the more dangerous complications of this kind of treatment. Rise in the pulse rate and fall in blood pressure, indicating impending collapse, forced discontinuance of the fever treatment after about five and one half hours in the case Pruce reports. In spite of treatment with the usual antishock measures, the patient went into shock six hours after the fever treatment was discontinued. At this point about half a pint of blood plasma was injected into the patient's vein. Within 20 minutes the patient recovered from the shock condition. "Interestingly enough," Lieut. Pruce adds, "the patient was cured of gonorrhea in spite of only five and three quarters hours of therapeutic fever."

SEEDS have assumed an importance out of all proportion to their size, and crop prospects are debated daily in Congress. Means for making each seed more efficient, covered by newly-granted U. S. patent 2,313,057, therefore take front-rank position in the week's news of inventions, along with more conventional mechanical, chemical and military novelties. Patentee is Albert C. Fischer, of Chicago. The invention, briefly, is a simple method for making each seed carry into the soil a small provision of fertilizer, fungicide, insecticide and (in the case of legumes) nitrogen-fixing bacteria that it needs in its first day or so after germination. This is accomplished by coating the seed with a water-soluble glue into which the initial life-needs of the seedling-to-be are impregnated. To protect the seed against possible ill effects of too-long contact with fertilizer and fungicidal compounds, it is first covered with a coating of neutral glue, then with one or more coats containing the chemical and bacterial growth aids.