

## ENTOMOLOGY

# Mosquito War Chemicals

► FUTURE GENERATIONS of mosquitoes that light on man to enjoy a good meal are in for a surprise. A U. S. Department of Agriculture entomologist reported to the Entomological Society of America meeting in Houston, Tex., the discovery of 11 new mosquito-repelling chemicals.

Dr. Carroll N. Smith described all of them as superior against one or more species of mosquitoes to repellents now being used.

One of the new compounds, designated 20218 and known chemically as N,N-diethyl-m-toluamide, showed remarkable repelling qualities to the malaria, yellow-fever, glades, and two species of the salt-marsh mosquitoes, Dr. Smith stated.

When spread on a man's arm, 20218 prevented bites from the yellow-fever mosquitoes for four hours. Presently used standard military repellents protect a man for only one and one-half hours against the same pest.

In further tests, it was found that the bites of the salt-marsh mosquitoes could be prevented for four and one-half hours by applying 20218, whereas standard repellents gave protection for only two and one-half hours. Against the glades mosquitoes, protection was effective for nearly two hours, or one-half hour more than repellents now used.

In tests for protection against the malaria mosquitoes, 20218 proved superior to all other test repellents, and equaled the repellency of standard repellents, the entomologist claimed.

Dr. Smith stated that it is not likely the repellents be available to the public in the near future. Although the new chemicals appear to be safe to use on the skin, further testing is necessary. The research was carried on with funds from the Department of Defense.

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During such storms, users of shortwave radio for long-distance communications are plagued by bad reception and, sometimes, by complete black-outs. Displays of "northern lights," or aurora borealis, are often seen at these times and, occasionally, currents of electricity induced about the earth can interfere with telegraph and telephone communications.

When sunspots are at a minimum, the number of such storms is considerably reduced and, often, weeks will pass without any of the serious ionospheric disturbances that hamper long-distance communications, particularly by shortwave radio.

The storms that do occur at sunspot minimum, however, usually last much longer than those at sunspot maximum, when the disturbances are apt to be short and very intense, according to some scientists who specialize in forecasting such storms.

Forecasts of shortwave radio reception are made by radio experts of the Central Radio Propagation Laboratory of the National Bureau of Standards, with headquarters in Boulder, Colo., for the North Atlantic region at Ft. Belvoir, Va., and for the North Pacific area at Anchorage, Alaska.

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## GEOPHYSICS

# Sunspot Cycle Minimum

► THE LOW point in the 11-year sunspot cycle was reached last April, radio experts at the National Bureau of Standards have now been able to calculate.

Because of the way the sun's activity is measured, known as the "smooth sunspot number," it takes seven months to learn when sunspots were at minimum or maximum. The smooth sunspot number is an average of two 12-month averages.

This numerical index for March, 1954,

was 4.1. In April, it dropped to 3.2, then turned up to 3.4 in May.

The sunspot number for each month is obtained by averaging, according to an internationally-used formula, the number of sunspots seen on the sun each day.

There is a definite relation between the abundance of sunspots and changes in the earth's magnetic field. Irregularly, sudden and violent disturbances in this field, known as magnetic storms, occur.

## DERMATOLOGY

## Cut Cost of Treatment With Hydrocortisone

► TREATMENT OF skin diseases with the famous adrenal gland hormone chemical, hydrocortisone, can be less expensive and just as effective if the chemical is applied locally in a lotion or in a salve, Dr. Harry M. Robinson Jr. of the University of Maryland School of Medicine, Baltimore, reported at the meeting of the American Academy of Dermatology and Syphilology in Chicago.

In a two-year study of 1,566 patients conducted with his collaborators, Drs. R. C. V. Robinson and John G. Strahan, Dr. Harry Robinson has found that the local application has great value in producing temporary remission of symptoms in cases of housewives' dermatitis of the hands, atopic dermatitis, neurodermatitis, allergic contact dermatitis, stasis dermatitis, pruritus ani and pruritus vulvae.

After the symptoms in 60% to 90% of the cases of responsive dermatoses were relieved, depending on the kind of lotion or salve used, this relief was maintained by applications varying from twice a day to every other day or by reducing the concentrations of hydrocortisone.

"The oily base ointments proved to be superior to greaseless base creams for dispensing the steroid because they were less irritating and also because a smaller quantity of oily base covers a larger surface area," Dr. Robinson explained.

"The addition of antibiotics," Dr. Robinson said, "did not alter the effect of the steroid and had the additional therapeutic advantage of combating secondary pyogenic (pus) infection."

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