



**ELECTRON SCATTER APPARATUS**—Using the equipment shown here, these scientists, Harry R. Fechter (left), Dr. Robert Hofstadter (center) and John A. McIntyre (right) of Stanford University, have probed deeper into the atomic nucleus than man has ever gone before.

## PHYSICS

## Dense Core for Matter

► **THE HEART** of matter, the nucleus of the atom, is not as hard and solid as previously believed. But the core of the nucleus is five to ten times denser than previously predicted, and about 130 trillion times as dense as water.

The extremely minute area within the atom was probed by the world's most powerful electron linear accelerator combined with a high-energy electron scattering apparatus, designed by Dr. Robert Hofstadter, assisted by Harry R. Fechter and John A. McIntyre, all of Stanford University.

Considerable space was found between the particles in the nucleus where once scientists thought a uniformly dense solid existed. This suggests that it may be possible to compress the heart of matter, where most of the mass is concentrated.

The particles within the nucleus are so densely crowded at the core that the structure appears to be solid, but they gradually thin out almost into nothingness toward the edges. The average density is about the same as previously predicted, but the core is such that a mere drop of water of that density would weigh about two million tons.

Such conclusions were drawn by the Stanford scientists from elastic scattering of electrons from nuclei at energies of 135,000,000 electron volts. A double-focusing spectrometer magnet was constructed that

bends the high-speed electrons so that their effects can be measured.

The apparatus allows distinguishing particles within the nucleus only two one-hundredths of a trillionth of an inch apart, they report in the *Physical Review* (July 15).

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## EDUCATION

## Radio-Listening Indians Learn English From Film

► **HOW TO** teach Indians English when they cannot even read in their own language is the problem faced by Cornell University scientists on the Navaho reservation at Fruitland, N. Mex.

Navaho Indians need English to do their shopping, to talk to Government agents, few of whom speak Navaho, to listen to the radio now becoming popular, and to keep their jobs off the reservation.

There are, however, no English language textbooks in Navaho. Anyway they would be useless because the Indians cannot read their own language.

Solution of the anthropologists who tackled this problem lies in film strips with tape-recorded dialogues in Navaho and English. Photographs are taken in Fruitland and show everyday scenes and events.

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## MEDICINE

## Anti-Malaria Drug Helps Clear Scaly Skin Disease

► **ONE OF** the modern anti-malaria drugs, chloroquine diphosphate, can help clear up a scaly skin disease called discoid lupus erythematosus.

After four months of treatment, nine of 14 patients were greatly improved, three others showed some improvement and two showed no change in their condition, Drs. Leon Goldman, Donald P. Cole and Robert H. Preston of the University of Cincinnati College of Medicine report to the *Journal of the American Medical Association* (Aug. 8).

Some toxic symptoms from the chloroquine developed but these were less than with quinacrine, or atabrine, another anti-malaria drug previously used successfully to treat the condition.

The skin disease is a superficial inflammation marked by disk-like patches with raised reddish edges and depressed centers covered with scales or crusts. These fall off leaving dull-white scars.

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## ETHNOLOGY

## Primitive Indians Are Awed by Compass

► **A NAKED** people using only the most primitive implements and living a Stone Age existence in the jungles of Brazil have been found by Dr. Edward M. Weyer Jr., anthropologist and editor of *Natural History*, who has just returned from a visit to the Mato Grosso.

Armed with camera and tape recorder instead of gun, Dr. Weyer found that these primitive people who had never before seen a white man were very friendly and welcomed him warmly. He was allowed to sling his hammock with the family of the chief. He was entertained with a continuous round of ceremonials and dances, many of which he recorded on film and sound tape. He traded trinkets from New York for an elaborate headdress made of red and yellow macaw feathers, ceremonial masks, bows and arrows and musical instruments.

Although these Camayura people, who live on the shores of a magnificent lake at the headwaters of the Xingu River, have a reputation for being very fierce and hostile, Dr. Weyer found that, when they are treated with respect, they are friendly and hospitable and posed for his pictures willingly.

He did have some bad moments, Dr. Weyer admits, when he tried in his limited vocabulary in their language to explain to the Camayuras the gyrations of a compass when they saw one for the first time. They thought the movement was due to supernatural causes.

Dr. Weyer also visited and made friends with a band of Chavantes, another tribe said to be among the fiercest and most primitive on earth.

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