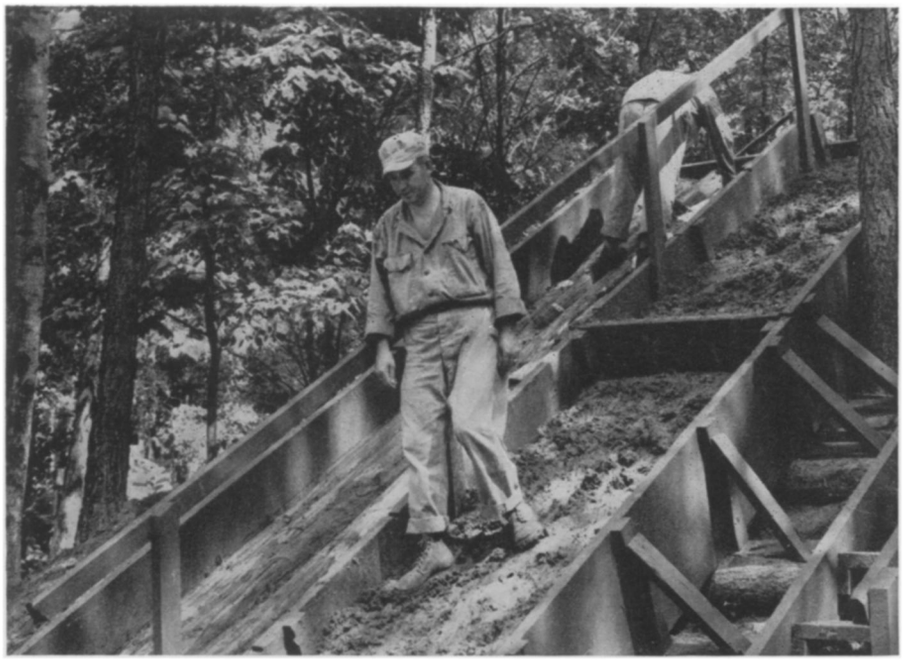

TESTING GI SHOES—Longer-wearing footwear for civilians and Army is expected from the experiments made at the shoe track at Camp Lee, Va. Here a soldier is shown in the process of testing new shoes on mud and log traction slides. As a result of this program a type I leather-soled shoe was found early in the war to last 150 miles while a recent type III shoe, using synthetic rubber material in the sole, has a life expectancy of 2,500 miles.

GEOLOGY

Find Bikini Is Very Old

It is estimated to be more than 20,000,000 years old from the holes drilled through the coral. Need 10,000-foot hole to reach basement rock.

➤ BIKINI atoll has been a-building for more than 20,000,000 years. That much can be stated on the basis of the deep holes drilled there last summer. How much older this submerged mountain of coral may be cannot be determined until a far deeper hole—perhaps 10,000 feet—is bored, reaching to the still-unknown basement rock beneath the coral.

In the journal, *Science,* (Jan. 16), Dr. H. S. Ladd and J. I. Tracey of the U. S. Geological Survey and G. G. Lill of the Office of Naval Research tell of the five holes bored on the atoll to find out what it is made of. To the bottom of the deepest one—2,556 feet—it was all coral, mostly rather loose and soft. Earlier records made by seismographs indicate that much farther down, at depths between 6,000 and 13,000 feet, the solid basement rock begins. This is presumably basalt.

The top few hundred feet as shown by samples taken with core drills, is geologically recent—that is, it does not go as far back as the beginning of the latest Ice Age, a million years or so ago. Pre-Ice-Age fossils belonging to the Tertiary epoch were found at 930 feet.

From 1,790 feet to as far down as the drill went, the limestone was definitely of early Miocene age, which puts it well down into the Tertiary. Years do not mean much here; a good guess is about 20 millions.

The cylindrical limestone samples brought up by the core drills have all been deposited with the National Museum in Washington.

Dr. Ladd and his associates express the hope that a 10,000-foot hole may be drilled in the middle of Bikini lagoon, to reach basement rock. They propose to sink a barge onto the top of a coral pinnacle in the lagoon, for use as a working platform for the drilling apparatus.

Science News Letter, January 31, 1948

NUCLEAR PHYSICS

Man Is More Vulnerable Than "Bugs" to Radiation

➤ "BUGS" will have a better chance to survive than man in an atomic war.

This was pointed out by Dr. Douglas M. Whitaker, dean of the Stanford School of Biological Sciences, who last summer was a member of a scientific expedition to Bikini Atoll.

Dr. Whitaker stated that bacteria and lower forms of plant and animal life tolerate vastly greater quantities of radiation than man.

"If man should eliminate himself from the earth, which is highly unlikely," he continued, "these lower forms may still be expected to persist on earth."

Radiation damage to cellular tissue, whether it be that of plants or animals, is closely tied to the process of growth, Dr. Whitaker stated.

"The bodies of plants and animals, including man, are composed of microscopic units called cells. Growth takes place when these cells increase their number by division.

"When cells are in the act of dividing, they are much more easily damaged by an adverse influence, including penetrating radiation, and for this reason we find that atomic radiation selectively damages those tissues of the body which are undergoing rapid cell division.

"This includes developing embryos, the germ cells in testes or ovaries, and blood cells—both red and white.

"Accordingly, abnormal embryos may be produced, and in the adult body, sterility, anemia, and inability to combat diseases due to lack of white blood cells commonly result from irradiation.

"If the dosage is small, recovery will be complete, but death results from large doses."

Dr. Whitaker also noted that the disfiguring scars characteristic of radiation burns are due to the fact that heat from atomic radiation cooks the skin or the entire body at close range.

"Even more important, however, than these damages to the individual are the hereditary changes, known as mutations, that are induced by radiation in the nuclei of cells," he continued.

"Mutations in spermatozoa or eggs are passed on to succeeding generations, and the vast majority are of a sort to cause damage and abnormalities.

"Most of them, however, will not appear until the second or third succeeding generation."

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