

# ANT COLONY ASSISTS FOSSIL COLLECTORS IN WYOMING

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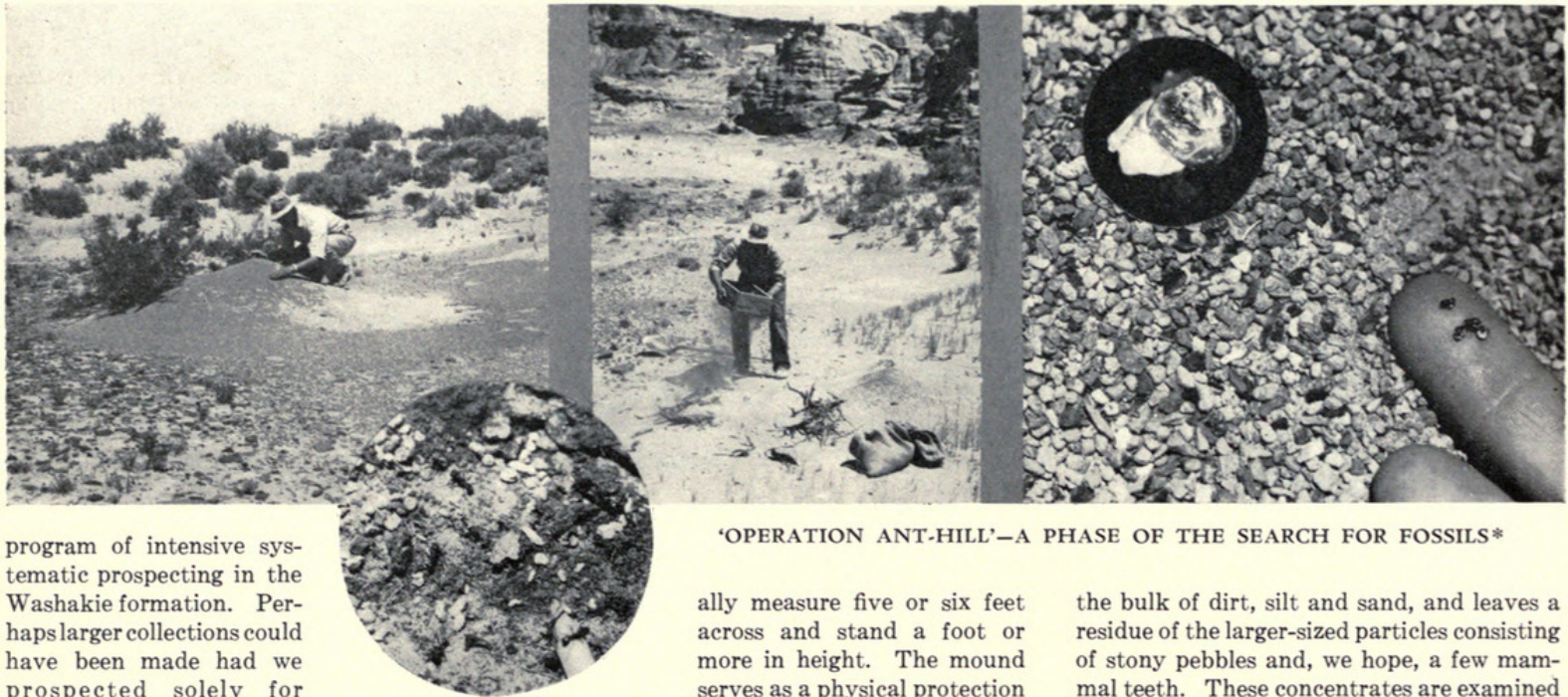
FOR the fourth consecutive year, the Museum sent an expedition this summer into the Washakie Basin of southern Wyoming to collect fossil mammals. This season's work was limited to a six-week period in June and July during which time Preparator Ronald Lambert and I collected mainly from the Lower Washakie beds. Inasmuch as these trips have yielded an adequate collection upon which to base a faunal study, this trip also marks the end of our

and bones of the rare, 50,000,000-year-old rodents and insectivores. The technique of collecting fossils from ant-hills is long established, having been in use by paleontologists before the turn of the century. As a result of my reference to this technique in the October, 1958 issue of the BULLETIN, many inquiries have been made concerning it. Therefore, Mr. Lambert and I assembled a photographic record of our technique which is described below.

The ant colonies construct cone-shaped mounds for their nests. These mounds usu-

work more energetically at its collecting task. The rest is up to us.

There are three stages to the technique: first the surface of any ant-hill in the vicinity of an eroding outcrop is examined for fossils. (Caution: the ants have a fiery bite which stings for 15 minutes!) Generally none are found, but once a hill is located containing specimens, its surface is scraped, shoveled clean of the pebble shingle, and the removed material is dry-sieved, or preferably it is sacked up, and hauled to water to be wet-sieved. This treatment eliminates much of



'OPERATION ANT-HILL'—A PHASE OF THE SEARCH FOR FOSSILS\*

program of intensive systematic prospecting in the Washakie formation. Perhaps larger collections could have been made had we prospected solely for specimens, instead of searching the less promising looking rock facies too, but the collections would then have been representative of fewer paleoecological situations. It is doubtful, for example, that we would have found our microfauna localities with their treasures of rodent, insectivore, carnivore and other small mammalian materials had we followed any other method of prospecting.

This year we put further effort into reworking these microfauna localities. At the 1957 locality in the Upper Washakie beds we obtained a small block of fine-grained sandstone with two clumps of rodent bones showing on the surface. Only careful preparation of the slab will reveal whether or not we have collected nearly complete skeletons. The prospects are encouraging.

At the 1958 ant-hill locality (Lower Washakie) we again employed the same crew of thousands of industrious red ants that last year helped us to collect the tiny fossil teeth

ally measure five or six feet across and stand a foot or more in height. The mound serves as a physical protection for the nest which is within and beneath it, and in addition helps to regulate the internal environment of the chambers and passageways. Worker ants build, repair, and enlarge the mound by hauling in sand grains, pebbles, small stones, and any other object of a size and weight they can transport. Winds further modify the surface of the mound by blowing away the finer sand until a shingle of the coarser materials is concentrated over the entire surface.

If one of these ant-hills happens to be located on, or near (within an ant's walking distance, that is), a rock outcrop that contains even a small number of the rare little fossil bones or teeth, it is certain that the pebble-sized fossils will eventually be incorporated into the mound by the indiscriminating ants. This nearly tells the story of the ants' efforts on our behalf—as described below, a kind of incentive compensation scheme can usually induce the colony to

the bulk of dirt, silt and sand, and leaves a residue of the larger-sized particles consisting of stony pebbles and, we hope, a few mammal teeth. These concentrates are examined under low magnification at the Museum and each rare tooth or bone is picked out. The vast majority of the isolated teeth obtained by this technique are those of small fish, reptiles, rodents and insectivores. Occasionally a small carnivore, primate or marsupial tooth will turn up too. The incentive compensation plan I mentioned above depends upon the instinctive survival reaction of the disrupted ant colony. Provided that little damage is done to the ant-hill or its colony, beyond the removal of the surface of the mound, the colony will survive. Then the ants appear to work with frenzied vigor at the task of repairing their roof and the hill may profitably be re-collected the following year.

Actually, ant-hill collecting occupied us for but a few days' time. Most of the time was spent in prospecting and collecting in the more conventional manner which yielded several fine specimens each of titanotheres and Uintatheres post-cranial materials. These

\*Photos indicate how tiny insects aid Museum paleontologists in Washakie Basin area in Wyoming. Left: Typical ant-hill being inspected for the presence of tiny fossil mammal teeth concentrated there by the ants. Center: Sieving the surface shingle of a hill to concentrate further the tooth-sized particles. Right: Closeup of the surface of a hill. Four mammal teeth found in it lie on the man's finger. Left inset: Closeup of a hill after the pebble-shingle has been removed, showing ants actively at work. Right inset: Enlargement of a rodent's molar tooth from the hill. (Photos by Preparator Ronald J. Lambert.)



will enhance the study collections notably. We discovered two interesting crocodile skulls; and a weathered-out, but nearly complete, little uintathere skull was found for us by young Mr. Potter, the son of Gardner Potter, operator of the Eversole Ranch. The Roy Eversoles, John Corsons, Elza Eversoles and the Potters have all been good, helpful neighbors and friends to us during these collecting trips and we are much in their debt for the help they have given us.

Now that the collecting phase of the work is finished, facing us is the task of getting the collections prepared before the materials can be studied in earnest. Several years of work with the Washakie collections lie ahead.

The expedition to Wyoming this year was financed by the Maurice L. Richardson Paleontological Fund.

## CHILDREN'S JOURNEY ON GIANT PLANTS

"How big is it?" youngsters often inquire. The query is a general one, asked indiscriminately about plants, animals, rocks, the earth, the universe. Children seem to derive a kind of satisfaction from knowing the size and weight of an object—"the bigger the better!"

Many giants are members of the Plant Kingdom. One of the oldest and largest of living things is a plant. Another giant plant is not only the largest of its kind, but it also grows at the almost incredible rate of 16 inches a day. Still another giant plant, surprisingly enough, consists mainly of water, being able to store up to 30 tons of it in its tissues during heavy but infrequent rainfalls.

Generally, giant plants grow in the warmer regions of the earth, but even the Chicago area can boast of one plant unique for its huge size.

Children can find out what these giant plants are on the Museum's Fall Journey (No. 19), "Giant Plants," offered during September, October, and November. It will direct children to some of the most unusual plants in the world.

The journey sheet is available to all boys and girls who can read. It may be picked up at either the North or South Door of the Museum. When completed, the journey sheet with the youngster's name and address on it is dropped in the barrel at either door.

A boy or girl who successfully completes four different journeys becomes a Museum Traveler. Eight different Journeys qualify aspirants as Museum Adventurers, and twelve as Museum Explorers. Upon the successful completion of 16 different Journeys, a youngster qualifies for a Special Journey, which may admit him to a Museum Club.

MARIE SVOBODA

Common wild flowers of the United States are well represented among the exhibits in Martin A. and Carrie Ryerson Hall (Plant Life, Hall 29).

## KATCHINA CULT TRACED BACK TO A.D. 1250

By PAUL S. MARTIN  
CHIEF CURATOR OF ANTHROPOLOGY

THE 1959 Archaeological Expedition to the Southwest under the leadership of the writer has found a remarkable ruin on the banks of the Little Colorado River, a few miles away from Springerville, Arizona. It

excellent and much better than that of the later walls.

Two large depressions probably indicate the location of kivas—ceremonial chambers or sanctuaries wherein were performed the esoteric parts of religious ceremonies. One of these may be excavated later this season.



MOUND IN SOUTHWEST YIELDS TRACES OF PAST  
Site of Museum expedition's excavations, near Springerville, Arizona.

is located on the ranch of Robert Hooper who has been most co-operative and friendly.

The ruin was first discovered and announced to scientists in 1917 by Dr. Leslie Spier, at that time a member of the staff of the American Museum of Natural History. Then, for approximately 40 years it was "lost" in the sense that archaeologists either did not know of the report in which the ruin was briefly described or were not interested in following it up. The local ranchers and collectors, of course, knew about it but did not realize its significance.

Work has not progressed very far as yet; but already we know that this ancient village was at least two stories high and that there are walls on top of walls, rooms upon rooms, walls under walls, sealed-up doorways deep down in the earlier parts of the town—all of which indicate earlier structures and changes in building plans. Thus the nickname "The Troy of Arizona." Other towns like this have been found; but the maze of earlier walls running under later ones is more complex than any we have ever before encountered and the nickname, although given in jest, seemed suitable.

### OLDER MASONRY BEST

The masonry of the earlier parts of the town, found many feet below the surface, is

Some of the earlier rooms had been despoiled by the later inhabitants who used the rooms as convenient garbage dumps. In this ashy refuse we have found many excellent tools of bone and stone plus discarded and broken pots and pieces of pots.

The dating of all parts of this hamlet is not yet fixed, but we feel fairly sure that the latest portions of it immediately precede Table Rock Site, dug last year. We also guess that perhaps the deeper rooms may be 50 to 100 years earlier than the latest ones—which are tentatively dated at about A.D. 1300.

### KATCHINAS DEPICTED

Two tantalizing fragments of a pottery bowl of remarkable significance have been recovered. When glued together, one can see two representations of masked figures called "katchinas." Katchinas were beneficent supernatural beings that, under certain circumstances, could be impersonated by a man wearing a mask. We cannot determine from these fragments whether or not several of these katchinas were depicted on the bowl interior, perhaps holding hands and dancing in a slow ceremonial rhythm, but we conjecture that such is probably the case.

Some years ago it was assumed that the katchina cult, masks, and other ceremonial

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