RARE SEA OTTERS OF ALEUTIANS IN NEW HABITAT GROUP

By COLIN CAMPBELL SANBORN
CURATOR OF MAMMALS

IT WAS THE QUEST for beaver that led to the first exploration of many parts of the western United States and Canada. More valuable fur-bearing mammals, the sea otter and the fur seal, played a large part in the exploration and colonization of the bleak and stormy Aleutian Islands and the coast of Alaska. A new habitat group of the extremely interesting sea otter was recently installed in the Hall of Marine Mammals (Hall N) on the ground floor of the Museum.

SEA OTTERS--A NEW HABITAT GROUP IN HALL N

Because their fur was so highly valued, these rare creatures from the Aleutians had narrow escapes from total extinction by ruthless hunters, under both the Russian and American regimes in the islands.

The Aleutian region was discovered in 1741 by Vitius Bering, a Dane, and Alexei Chirikof, a Russian, commanding two ships on a government-sponsored Russian exploring expedition. Accompanying the expedition was the naturalist George Wilhelm Steller who published the first accounts of the natural history of the area. Among other things, they brought back about nine hundred sea-otter skins. These attracted so much attention that years of sea otter and fur seal hunting for the Russian market resulted.

The natives of the region, the Aleuts, were pressed into service and sent out to sea in their frail skin-boats to hunt otter. Many of the Aleuts were lost on these hunts. The people were exploited in other ways also, and the population dropped rapidly.

One mammal of the region, Steller's sea cow, which was large and slow-moving, was soon exterminated because it was killed for meat. The fur of the sea otter was so greatly valued that the trade in its skins grew to enormous proportions. An estimated fifty thousand were killed in 1786. The slaughter could not go on forever and, as furs became scarcer, the Russians put certain conservation measures into effect to try to save the remaining animals.

PROTECTIONS REINSTITUTED

In 1867 the United States purchased Alaska and all restrictions on hunting were removed; so the ruthless hunt for fur began again. This continued until 1910 when both the fur seal and the sea otter came under government protection. The fur seal has once more become well established and the sea-otter population is increasing slowly but satisfactorily. The former range of the sea otter extended from southern California to Alaska. Today there is one small "pod" (the term for colonies of this animal) in southern California and numerous others on the southern Alaska coast and on some of the Aleutian Islands.

The sea otter is a typical marine mammal, more at home in the water than on land. The hind feet, with which it swims, have become flippers, but its front feet still resemble those of a land mammal. It sleeps on shore and comes ashore two or three times a day. The rest of its time is spent in the water hunting, feeding, and playing.

The sea otter's main article of food is sea urchins. Other favorite items are mollusks, crabs, and a few fish. It sometimes dives to great depths to get its food and is often seen a mile or more off shore. The food is eaten while the otter lies on its back, its chest and abdomen serving as a table. Some of the hard-shelled mollusks are broken open by hammering them on a rock, brought from the bottom for this purpose. The rock rests on the otter's chest and the mollusk is held in both forepaws and brought down against the rock. The ability to balance food on the abdomen, even in rough weather, is remarkable. The southern sea otter of the California coast feeds extensively on abalones.

AGILE IN WATER

When in the water, and not feeding, the otter is usually on its back. It cleans and scratches itself, often bringing its flippers forward for inspection or grooming. It can turn a somersault in the water from this position and often rotates itself lengthwise in the water, turning over and over. Mating takes place in the water. There seems to be no particular mating season, but mating has been observed more often in spring than at any other time of year. There is only one pup produced and it is born ashore in a sheltered place among the rocks.

Full-grown otters are about four feet in length and weigh around seventy-five pounds. The color varies from a black to a dark brown and some old ones have a silvery gray face, head, and neck. The fur is quite oily, so that it does not absorb water. The voice is high and sharp and, at a distance, sounds like a whistle. The killer whale is the only active enemy of the otter.

'TABLE MANNERS' OF SEA OTTER

The animal's eating habits are curious and amusing. It lies on its back in the water and places a rock on its chest. Holding a mollusk in both forepaws, as Artist Margaret G. Bradbury's drawing indicates, the otter cracks the shell against the rock. It then extracts the meat and uses its chest and abdomen as a table for its meal, undisturbed by rough seas.

GROUP FROM AMCHITKA

The material for the new group in the Museum was collected on Amchitka Island by the Aleutian Zoological Expedition in 1952, conducted by the writer, with the

(*Continued on page 8, column 1*)

WEST INDIES EXPEDITION SAILS ON SCHOONER

The Museum's West Indies Zoological Expedition began operations in the last week of March with the sailing of Donald Erdman from Puntarenas, Costa Rica, aboard his 37-foot auxiliary schooner, the *Booby*. Mr. Erdman, an ichthyologist formerly on the staff of the United States National Museum, Washington, D. C., is conducting this expedition under a special arrangement with Chicago Natural History Museum. Cruising the Caribbean until some time in August, Mr. Erdman and his shipmates will collect fishes in the waters along the coasts of various Central American countries and islands of the West Indies. His first port was to be Balboa, Panama. Mr. Erdman, who is now a resident of Costa Rica, acts as his own sailing skipper.

A 'BUSMAN'S HOLIDAY' IN SOUTH AMERICA

By BRYAN PATTERSON
CURATOR OF FOSSIL MAMMALS

WHEN a Museum scientist leaves for an extended stay on another continent, those who happen to read about his departure usually visualize him as spending his time in a tropical rain forest, in a desolate, arid region, or in comparable exotic surroundings. Usually he does, but not always. In my own case, I have just returned from a fourteen-month stay in Argentina, all but three weeks of which was devoted to intensive work on fossil mammals contained in museums—exactly the sort of work that I do in Chicago.

The explanation of this does not lie in any aversion on my part to field work—quite the contrary—but in the fact that in regard to the particular problems on which I was engaged the field work had already been done. Thanks to the support of Marshall Field, now First Vice-President of the Museum, the institution conducted a series of paleontological expeditions to Argentina and Bolivia from 1922 to 1927 under the leadership of Elmer S. Riggs, formerly Curator of Paleontology, These expeditions brought back to Chicago a magnificent representation of the fossil mammalian faunas of southern South America that range in age from Eocene to Pleistocene. I joined the Museum staff too late to participate in the fun of collecting the material, but I fell heir to the numerous research problems involved.

HOME WORK IS HARDEST

The year 1927 in which the expeditions closed is a long time ago, measured in terms of a human lifetime, and it may well be asked, "Why the long delay?" The collecting of specimens, although it may involve travel to far corners of the earth, strenuous work, difficulties and even hardships in the field, is actually the simplest part of museum research work. The more difficult part begins after the collections have reached the museum. First, the specimens have to be put in condition for study, a task that of course varies with the nature of the materials. For fossil vertebrates, this is very laborious and time-consuming. The bones, often fragile and delicate, have to be freed from the surrounding matrix, which is often very hard, and months may be spent on the preparation of a single specimen.

In the case of the collections brought together by the Marshall Field Expeditions, some ten years elapsed before all of the material was prepared for study. With the specimens available, the next step is to determine the species represented. Only after this has been done can the contribution to knowledge represented by collections be accurately assessed and the preparation of detailed reports undertaken. Determination of material may range from a rather simple to a very difficult task. The degree depends directly upon the state of previously published work and the accessibility of adequately determined earlier collections that are pertinent to the new collection under study. If the literature is inadequate and earlier collections are very widely scattered and in large part not properly determined, the difficulties can be enormous. This was the situation confronting anyone who attempted to determine the material obtained by the Marshall Field Expeditions.

A UNIQUE FOSSIL FAUNA

Major collections of South American fossil mammals are contained in more than a dozen institutions in three continents—South America, North America and Europe. The type specimens, that is those on which the descriptions of the species were originally based, are mostly in Argentina. Most of the material contained in North American and European museums has never been compared with these types, and it is not possible to identify specimens with any assurance from the descriptions given in the literature. This is due to special and interesting circumstances. Our knowledge of South American fossil mammals and of the chronology of Cenozoic continental deposits is in very large measure due to two remarkable Argentines, the brothers Florentino and Carlos Ameghino. Between them they brought to light what was in effect a new world of life, the mammals of Tertiary South America, which are completely unlike any occurring elsewhere in the world.

The greater part of the work the Ameghinos accomplished over half a century ago was carried on without any official support. Florentino operated a small stationery store, and on the slender profits from this supported himself and financed Carlos in a long series of collecting expeditions in Patagonia, then among the least-known regions of the world. Patagonia is one of the world's great fossil fields and the Ameghinos were the first to explore it. The new and fascinating specimens discovered in a constant stream by Carlos were rapidly described by Florentino, who, working early and late, could barely manage to keep abreast of the flood. The preparation of detailed, properly illustrated monographs was obviously impossible under such conditions, and the legacy left to posterity by Florentino, who died at the relatively early age of 56, consists in large part of a long series of papers containing brief, unillustrated diagnoses of new forms. Without access to the specimens on which they were based, the great majority of these diagnoses cannot be utilized for purposes of identification, nor can the validity of the numerous species proposed be determined. The Ameghino Collection was, of course, private property. After Florentino's death, it was boxed up to remain relatively inaccessible until the early 1930's, when it was purchased by the Argentine government and placed in the Museo Argentino de Ciencias Naturales. Due to these various difficulties, few of the collections of South American fossil mammals contained in North American and European museums are adequately determined.

TWO FOUNDATIONS GIVE AID

In 1938, thanks to the grant of a Carnegie Corporation grant-in-aid for travel from the American Association of Museums, I was able to visit France and England and to examine South American fossils in Paris and London. This solved certain problems, but on the other hand made it even more evident that only an examination of the Ameghino Collection would suffice for complete identification of the Marshall Field collections. I had hoped to do this in the early 1940's, but the war years and other work that had come up in the meantime intervened. In 1951, however, through the award of a John Simon Guggenheim Memorial Foundation Fellowship, it was at last possible to make the long deferred journey to South America and to examine the Ameghino and other collections contained in the excellent museums of Argentina. Every possible facility for work was afforded me while there, and amid such pleasant surroundings and with so much of interest to examine, the months passed by like weeks. Nearly every question that had been insoluble at long range proved capable of solution with the original types at hand. It is now possible, twenty-five years after they were collected, to begin the final phase of work on our South American fossil mammals.

Visiting Hours Change May 1

Beginning May 1, summer visiting hours, 9 A.M. to 6 P.M., will go into effect, continuing until September 7 (Labor Day).

THE BIRTH AND DEATH OF PARICUTIN VOLCANO IN MEXICO

By SHARAT K. ROY*
CHIEF CURATOR, DEPARTMENT OF GEOLOGY

"ONE that with a flash begins ends in smoke"—that is the life story of *El Monstruo*, the Tarascan Indian name for the volcano Parícutin. As volcanoes go, Parícutin died a premature death, but while it lived, it put on one of the greatest shows on earth. Bypassing infancy, it reached adolescence in a matter of hours. Its fiery bosom outswelled a maiden's prayer and rose to a height of 150 feet in less than a week. On the first anniversary of its birth, the cone attained an altitude of better than 1,000 feet and assumed a perfect geometric shape —one that Euclid might well have envied. From the vents of the cone, red-hot lava poured out at an average rate of 2,700 tons per minute and crept forward fanwise like a crevassed glacier aflame, leaving death and desolation in its wake. The temperature of the lava a mile from its vent registered 1994° Fahrenheit.

Every six seconds, occasionally at longer intervals, either in the dark of night or in the light of day, amidst billowy clouds of steam, gas, and dust, fountains of fire lit the sky; terrific blasts shook the peaceful countryside; dust columns borne aloft by the uprushing gases behaved like a thunder cloud; lightning and thunder added their din to the clatter of the blazing inferno; flaming arcs leaped out of the crater and bursting gas bubbles sent out fiery umbrellas; cherry-red chunks of lava, cinders, and ashes hurtled 3,000 to 4,000 feet into the air and fell crashing down the cone, gleaming incandescently. It was the most awe-inspiring display of nature's fireworks the land of the Aztecs has ever witnessed. Vesuvius in its heyday had nothing more spectacular to show. Stunned spectators stood motionless, even burst into cheers, unmindful of the fact that they were cheering a volcano.

VOLCANO IN ACTION

How Parícutin looked in the early days following its sudden eruption in a cornfield in 1943.

NOW ASLEEP OR DEAD?

Is Parícutin now dead? Except for a wisp of steam and gas spouting around the crater, it shows no other sign of life today. Perhaps, like its extinguished neighbors, it has gone to a sleep from which there is no awakening. Yet, it is impossible to predict the life-span of a volcano. Krakatoa, near Java, became disastrously active after a repose of two centuries, destroyed scores of towns and villages, and snuffed out the lives of 36,000 people. Vesuvius had been dormant so long that it was overgrown with thick vegetation, but in 1631 it became violently active and has been intermittently active ever since.

The name "volcano" comes from Vulcan, the Roman god of fire. The traditional concept of a volcano is that it is a cone-like hill or mountain with a crater at its summit, whence at times are ejected rocks, cinders, ashes, and lava. Actually, a volcano is a vent from which hot or molten material is ejected from the depths of the earth. The essential feature of a volcano is the conduit or volcanic pipe that connects the magma chambers of the interior with the exterior of the earth. This does not mean that the interior of the earth is molten. Seismic records (earthquake records registered on a seismograph) indicate that the outer shell of the earth behaves like a solid for about

PARICUTIN CRATER AS IT IS TODAY

An aerial view of the famous Mexican volcano, now dormant. The crater has two throats with a long ridge between them. Until recent months it was belching forth smoke, sparks, and thousands of tons of lava that ravished the countryside for miles around. In the volcano's present inactive state, it was possible for Chief Curator Sharat K. Roy to reach the rim after an arduous climb. Photograph is by courtesy of Dr. Carl Fries.

Dr. Sharat K. Roy, Chief Curator of Geology, returned in April from a two-month journey in Mexico during which he studied the now dormant Parícutin volcano and collected volcanic rocks. He also visited silver and other mines and collected specimens of ores and minerals.

1,800 miles. But there are magma chambers or reservoirs of molten rocks underlying certain regions known as volcanic belts or belts of fire. There are two such belts and Parícutin lies in one of them—the one that encircles the Pacific Ocean and extends along the Andes, Central America, Mexico, the United States, Canada, Alaska, the Aleutian chain, Kamchatka, Japan, the Philippines, and Java.

NEW VOLCANOES PROBABLE

The volcanic belts are lines of weakness characterized by fracturing, faulting, and folding in the earth's crust. They thus are favorable sites for volcanic activities. Volcanic forces, however, could be sufficiently powerful to make their own outlets and volcanoes may originate where no connection between them and a fracture line appears to exist. Such is the case in the Highwood Mountains in the great plain of central Montana where no evidence of a line of weakness could be determined. As a rule, though, new volcanoes break out only in volcanic areas. That there will be new volcanoes at the site of Parícutin is almost a certainty. Judging from the numerous extinct volcanoes surrounding Parícutin it can be safely assumed that underlying the region there is a magma chamber restlessly awaiting to break through.

The immense weight of the crust exerts a tremendous pressure on the gases dissolved in the magma. They are forever seeking an escape outlet. The chief magmatic gas is steam. The combustible gases are hydrogen, hydrocarbons, and various compounds of sulphur. The combustion of these gases, especially that of the hydrogen, produces the only true flames seen at an eruption. Other "flames" are merely incandescent lava fragments shot into the air. Parícutin never did emit sulphurous gases; chlorides, ammonium chloride in particular, formed abundantly. The gases, especially the super-heated steam, play the most dominant and active role in volcanic eruptions. It is these gases that cause the explosive puffs and send solid rocks, cinders, ashes, dust, and bombs flying from the crater. A volcano builds its cone from these fallen fiery objects, not from lava flowing out of the crater. The only lava that helps in the building up of a cone is that which is blown out. Ejected lava clots, exposed to the air, harden and fall, assuming various forms, usually with spirally twisted ends (bombs, lapilli, etc.). Exploded lava in the crater forms dust and ashes. Cinders are ejected lava-fragments from which gases have escaped. Volcanic dust, because of its light weight is carried away hundreds of miles by the prevailing winds. The dust from Parícutin is known to have drifted to Mexico City, a distance of 200 miles.

Where, then, did the lava that engulfed two villages—Parícutin and Parangaricutiro—and spread over acres and acres of fertile land issue from? From vents in Parícutin's sides, not from the crater. Will this stupendous outpouring create an empty tunnel within the earth from which it came? So far as is known, it will not. Magma reservoirs are constantly making readjustments of their lost contents. There might be some subsidence of the overlying area, but it would be hardly noticeable.

Lava is the name applied for magma (molten rock) issuing at the earth's surface. Both the liquid material and the rock formed from magma are called lava. Different types of volcanoes discharge different kinds of lavas. Even one and the same volcano may erupt a variety of lavas. In the main, however, there are two kinds of lavas that volcanoes eject—silicic or rhyolitic, and basic or basaltic. The silicic kind may contain as much as 75 per cent of silica; the basic about 50 per cent of the bulk composition. The lava of the former is viscous, even at a very high temperature (2000° Centigrade), and its contained gases escape with difficulty, giving rise to explosive eruptions; that of the latter is much more fluid and remains so down to much lower temperature (800° Centigrade). The gas thus escapes much more rapidly without explosive violence. There are, however, exceptions to this general rule. Parícutin is a point in the case. The lava of Parícutin is basaltic or basaltic-andesite. According to the general rule its lava should be fluid and it should be less explosive than it had been. The explanation for the exception is that even the much more fluid basaltic magma may become viscous by standing in the conduit and behave as viscous acidic lava, both in the manner of its flow and its explosive character.

A PEACEFUL VILLAGE BEFORE THE LAVA FLOWED

The tiny community of Parangaricutiro, which was wiped out and buried, as was also its sister village of Parícutin from which the volcano receives its name.

EXCEPT FOR A STEEPLE TOP, VILLAGE HAS VANISHED

The flow of lava has completely engulfed the little settlement of Parangaricutiro. All of the inhabitants were forced to evacuate. No trace of their homes remains.

Parícutin was born in a cornfield on February 20, 1943. Dionisio Pulido, a Tarascan Indian from the nearby village, Parícutin, state of Michoacan, Mexico, and his boy were the only eye-witnesses of the momentous occasion. The elder Dionisio was plowing for corn when he heard a low rumble and saw a spiral of smoke (steam) behind his furrow. The initial explosions shook the fertile fields and ejected fragmental materials, clouds of dust, gas, and ashes. From these ejected projectiles Parícutin built a 1,500-foot-high cone. At the beginning, the cone gained height rapidly, but as its base broadened more and more material was needed and altitude was gained slowly.

FIERY LAVA TERRIFIES

Lava first issued from the vents at the base of the cone as an incandescent viscous liquid, but, as it advanced, it became coated with a crust that broke off at cascades exposing a molten glowing interior. The moving of the tumbling, jostling mass of fiery lava is a fearful sight. The individual flows were from 12 to 20 feet thick, but the total thickness of all the superposed flows adjacent to the volcano ranged from 300 to 450 feet. In the nine years of Parícutin's activities it has discharged nearly 700 million

cubic feet of lava encompassing some 16 square miles.

The lava was not alone destructive—the ash killed most of the trees, particularly the resinous pines, within a radius of several miles from the volcano. This ended the tapping for turpentine and livelihood for hundreds of people who have seldom enjoyed three square meals a day. With the destruction of vegetation, the animal life disappeared also. Birds that fed on seeds took to wings for happier grounds; small animals —deer and rabbits—migrated to fertile fields and with them, for obvious reasons, went the coyotes.

Good sometimes comes of evil. So will it come for the thousands living by the simple faith of Indians. Volcanic ash, on decomposition, makes good soil. Dionisio may not plough the lava fields of Parícutin for corn again, but the Dionisios to come may, and perhaps they will reap a far richer harvest than ever before.

Uruapan, the nearest town to Parícutin, famed for its lacquer work, may be reached from Mexico City by automobile, plane, bus, or train. The road to Parícutin is bad, dangerously so. Part of it is traveled by automobile over bridges constructed of two planks that are little wider than the tires, and part of it on horseback. At the journey's end you are at the edge of the lava flow. Here you must decide if you care to have a look at the crater. You have but two choices: walk across the lava—three and one-half miles as the crow flies—or go around it (a distance of twelve miles). Do not cut across if you are not surefooted or if you happen to tip the scale heavily. Go around it, and the chances are you will get there. Return by nightfall. It is hardly the place to be wandering around in the dark.

Battle of the Sexes . . .

THEIR DIET DIFFERENCES MAKE THEM DIFFERENT

By AUSTIN L. RAND
CURATOR OF BIRDS

I USED TO THINK that the battle of the sexes so ably portrayed by James Thurber in his drawings and in his prose was artificial, a man-made and woman-made thing, a product of civilization, certainly. Thurber, of course, only deals with one species of animal—humans. But recently I've come to see the competition between the sexes as widespread and of far-reaching consequences. It is probably as old in the animal world as sex iteslf.

In a booklet with the severe title *Secondary Sexual Characters and Ecological Competition*, published by the Museum, I've outlined the possibility of competition for food between the sexes being a factor in evolution and responsible in part for characteristics of structure and traits that distinguish the sexes.

In circles that discuss evolution the idea is current that food-competition is important between species. It may even be stated as a rule: two species with the same food habits cannot live in the same place. Competition drives one out unless the other has different food habits. Differences in food habits seem especially evident when you look at closely related species, and these differences are brought about in a variety of ways. One very common way is a difference in habitat. The long-eared owl hunts in the woods and its cousin, the short-eared owl, hunts in the meadows; the song sparrow favors drier shrubbery while its cousin, the swamp sparrow, lives in wetter shrubbery.

THE SIZE FACTOR

Another way is a difference in size. The downy and hairy woodpeckers of our woodlots are very similar except that one is larger and adapted to take larger prey while the other is smaller and adapted for smaller food items. Sometimes species feed differently. The Baltimore oriole picks flowers and pecks through their sides while the orchard oriole probes into flowers as they hang on the branches.

The same factors may be at work within a species. When a pair of birds "sets up housekeeping" and starts "raising a family" they can no longer drift about looking for easy living and places where food is plentiful. Their wanderings are restricted by having a fixed point, the nest, as their center of interest. The two individuals must draw on the food supply from an area about the nest. If their food habits were the same, competition would be extreme and, if food were scarce, perhaps critical.

We know how different in appearance the sexes may be—how different is the appearance of the rooster and the hen of our domestic fowl, the drake and the duck of the mallard, or the red male and the green female of the scarlet tanager. These sexual differences have been mostly correlated with display and mating. But logically there should be differences between the sexes in feeding behavior and food adaptations. The basic idea is contained in the old nursery rhyme:

> "Jack Spratt could eat no fat,
> His wife could eat no lean,
> So betwixt them both, you see,
> They licked the platter clean."

To the two birds of a mated pair, limited to a single area, it would be a decided advantage to have different food preferences or adaptations for food-getting. And we find that there are cases of this. The most striking is that of the huia of New Zealand, about which I've written in a recent BULLETIN (June, 1952). Both sexes have similar food preferences—both like especially wood-inhabiting insects—but they get their food in different ways. The male has a short, straight, stout bill for digging out the wood-boring grubs, woodpecker-fashion. The female has a long, slender, curved bill for probing into holes for them, creeper-fashion. The female may get grubs in wood too hard for the male to chisel.

DIET VARIATION BY SEX

It is possible that further study may bring to light additional cases of sex differences that are of advantage to the species in enabling the sexes to eat different things. The larger size of female hawks probably fits them to take larger prey than their smaller mates are able to take, and the smaller size of certain female songbirds probably fits them to take smaller prey than their larger mates can take. The larger bill of the male hornbill, the smaller bill of the female, the straight bill of the male western grebe, and the upturned bill of the female perhaps give each sex slightly different advantages in getting food.

Selection could have its effect in the populations, the forms with the greater difference in feeding habits of the sexes being the more successful in raising and leaving progeny. Thus, slowly, differences between the sexes would accumulate. However, it must be kept in mind that this sort of evolution would be limited. The drifting apart of the sexes would be checked by the necessity for their coming together periodically, for at least a short period, at nesting time.

HERPETOLOGIST RETURNS FROM WEST COAST

On February 4 Clifford H. Pope, Curator of Amphibians and Reptiles, left Chicago with a double purpose: to make a reptile and amphibian reconnaissance of the northern part of the western coast of Mexico and to study the habitats of the salamanders of our own West Coast. The lower parts of northwestern Mexico are too dry for salamanders, whereas the humid coastal regions of Washington, Oregon, and California are ideal for them and harbor one of the distinctive faunas of the world.

Two and a half months of work and 11,000 miles of travel were required to complete the project. All but two or three of the twenty-two salamander habitats were visited. Success of this part of the venture depended largely on two weather conditions, temperature and rain. The field trip was favored by abundant rain but hindered to some extent by cool weather. The low temperature was not a serious handicap but merely prevented the collecting of large series, a minor object of the work. One of the two habitats missed lay beneath the snows of the High Sierras and presented a considerable dilemma because at the time of the year when it is available most of the other habitats have already become too dry. It might be remarked that herpetological collectors are forever confronted by similar weather dilemmas, Curator Pope comments.

SEA OTTERS—

(*Continued from page 3*)

co-operation of the United States Fish and Wildlife Service. The time of year represented is March, before the sea growth such as kelp has appeared. The rocks are bare and the land partly covered by snow. A large male otter and a female with pup are shown resting on the rocks in a sheltered bay.

The U. S. Fish and Wildlife representative on Amchitka, Robert D. Jones, Jr., was host to the expedition and generously provided information about the otter as well as such material facilities as transportation, lodging, and food. The staff of the Arctic Health Research Center in Anchorage, Alaska, was extremely helpful in many ways. Major Robert Rausch of the Center, who is studying the parasites and diseases of the otter, accompanied the expedition. The Museum expresses its thanks also to the officers of Headquarters, Alaska Command, for permission to visit Amchitka, and to them and the Air Base officers at Shemya Island for transportation.

The animals were prepared for exhibition by Staff Taxidermist Frank C. Wonder. The background is the work of Artists Douglas E. Tibbitts and Leon L. Pray.

PHONOGRAPH RECORDS

AMERICAN BIRD SONGS, Volume II. Recorded by Dr. P. P. Kellogg and Dr. A. A. Allen. Comstock Publishing Company, Ithaca, New York. Fifty-one bird songs on five vinylite records. Price $10.50.

It scarcely needs to be stated that the voices of birds are equally of interest to the most technical of ornithologists and to the amateur naturalist and bird-lover. The new album of bird songs includes the voices of a series of ten familiar birds of gardens and shade trees, ten familiar birds of the roadside, nineteen birds of lakes and marshes, and twelve warblers. The quality of reproduction is greatly improved over that of the first album of bird songs and compares favorably in fidelity with the reproductions of frog voices in "Voices of the Night."

The capture on records of the voices of some of the birds most characteristic of the North American wilderness, like those of the common loon, whistling swan, and sandhill crane, is a triumph of ornithological field work. It is especially satisfying to have on record the voices of other marsh birds that are heard by the general public, or at least by the farm boy, but are not associated with the birds from which they come. The "slough-pumper" (bittern), the pied-billed grebe, and the rails may be named in this class. We ordinarily see so little of the transient warblers, on their way to their northern nesting grounds, that the series of notes of twelve species of warblers is of technical interest. Finally, it is comforting to be able to play the familiar bird songs of our dooryards to visiting children and other bird-lovers.

It should be mentioned that the Albert R. Brand Bird Song Foundation, of Cornell University, has made a magnificent record of some of the characteristic sounds of the Panama rain forest, at the Barro Colorado Island Laboratory, through a complete diurnal cycle from dawn to dusk and dusk to dawn.

KARL P. SCHMIDT
Chief Curator of Zoology

Botanist Returns from Cuba

Dr. B. E. Dahlgren, Curator Emeritus of Botany, recently returned from a field trip of nearly three months in Cuba. He continued studies, in which he has been engaged for several years past, of the Copernicia palms native to the provinces of Camaguey and Oriente. He was accompanied by John W. Thieret, a botanist from the University of Chicago.

NEW MEMBERS

The following persons became Museum Members from March 14 to April 15:

Associate Members

Thomas W. Alder, Frank C. Dumelle, Edward Howard Feinstein, Frederick D. Gardner, G. A. Huggins, E. A. Krider, Oren Elmer Miller, Miss Clara A. Scheiner

Annual Members

Lester H. Boatwright, Harry J. Burkema, John F. Christian, David Cohn, J. J. Collier, Harry L. Cook, A. Frank Coubeau, Frank F. Fowle, Jr., Mrs. Nellie T. Guernsey, Roy C. Ingersoll, Lester Ivry, T. L. Kelce, Rudolph Kelemen, Edmund Kutchins, Ferdinand W. Lagerholm, Hervey L. MacCowan, J. A. Middleton, W. F. Mont Pas, Miss Elizabeth Phelps, Emil T. Rank, Adolph A. Rubinson, Earle A. Shilton, G. A. Shields, Charles Lambert Smith, Harry Starr, Elmer H. Stonehouse, Walter Paul Suter, Albert B. Tucker, Leon F. Urbain, Maurice B. Vick, Dr. Mark Wicks, Truman Wood

PLEASE NOTIFY MUSEUM IF YOU'RE MOVING

Members of the Museum who change residence are urged to notify the Museum so that the BULLETIN and other communications may reach them promptly.

Members going away for extended periods may have Museum matter sent to their temporary addresses.

GIFTS TO THE MUSEUM

Following is a list of the principal gifts received during the past month:

Department of Botany:

From: Otto Rohweder, Hamburg, Germany—33 Commelinaceae and Bromeliaceae, San Salvador; Dr. E. E. Sherff, Chicago—11 type-specimen negatives

Department of Geology:

From: B. F. Hazel, Fort Peck, Mont.—2 fossil invertebrates, Montana

Department of Zoology:

From: A. Bognar, Whiting, Ind.—16 mammals, Indiana and Texas; University of California, College of Agriculture, Berkeley—5 beetles, Oregon and California; Dr. Alfred E. Emerson, Chicago—world-wide collection of termites; Lucien Harris, Jr., Avondale Estates, Ga.—2 cocoons of a skipper, Georgia; Harry Hoogstraal, Cairo, Egypt—49 worm snakes and 20 ticks, Egypt; H. Souza de Lopez, Rio de Janeiro, Brazil—19 lots of non-marine shells, Brazil; Dr. Henry van der Schalie, Ann Arbor, Mich.—collection of non-marine shells, Ontario, Canada

STAFF NOTES

Eugene S. Richardson, Jr., Curator of Fossil Invertebrates, presented a paper on "Techniques in the Study of Pennsylvanian Insects" before the meeting of the Pennsylvania Academy of Science held in April at Annville, Pennsylvania . . . . **Loren P. Woods,** Curator of Fishes, and **Robert F. Inger,** Assistant Curator of Fishes, last month attended the meetings of the American Society of Ichthyologists and Herpetologists in New York. Mr. Inger gave a paper on the distribution of the fresh-water fishes of Borneo . . . . Before his recent departure on a botanical expedition to "the lost world" area of Venezuela, **Dr. Julian A. Steyermark,** Curator of the Herbarium, was heard over Radio Station WBBM in an interview about his project. "Chuck" Wiley was the interviewer . . . . **Dr. Theodor Just,** Chief Curator of Botany, spoke on "Evolution and Paleobotany" at a seminar of the University of Notre Dame on April 14. He was also one of the speakers in a conference on "The Needs of Systematics" in Washington, D.C., April 22, under the auspices of the National Research Council.

Dallwig Lecture Season Ends

The popular Sunday afternoon "layman lectures" of Paul G. Dallwig ended for the current season with his appearances at the Museum during April. Mr. Dallwig will begin a new season in the autumn, for which details will be announced later.

He was the speaker at the April 23rd meeting of the Publicity Club of Chicago. His topic was "Let's Begin to Live."

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