Field Museum of Natural History

Founded by Marshall Field, 1893

Roosevelt Road and Lake Michigan, Chicago

FIELD MUSEUM NEWS

Stephen C. Simms, *Director of the Museum*.....*Editor*

CONTRIBUTING EDITORS

Paul S. Martin.....*Acting Curator of Anthropology*
B. E. Dahlgren.....*Curator of Botany*
Henry W. Nichols.....*Curator of Geology*
Wilfred H. Osgood.....*Curator of Zoology*
H. B. Harte.....*Managing Editor*

Field Museum is open every day of the year during the hours indicated below:

Nov., Dec., Jan., Feb., Mar.	9 A.M. to 4:30 P.M.
April, September, October	9 A.M. to 5:00 P.M.
May, June, July, August	9 A.M. to 6:00 P.M.

Admission is free to Members on all days. Other adults are admitted free on Thursdays, Saturdays and Sundays; non-members pay 25 cents on other days. Children are admitted free on all days. Students and faculty members of educational institutions are admitted free any day upon presentation of credentials.

The Museum's natural history Library is open for reference daily except Saturday afternoon and Sunday.

Traveling exhibits are circulated in the schools of Chicago by the N. W. Harris Public School Extension Department of the Museum.

Lectures for schools, and special entertainments and tours for children at the Museum, are provided by the James Nelson and Anna Louise Raymond Foundation for Public School and Children's Lectures.

Announcements of free illustrated lectures for the public, and special lectures for Members of the Museum, will appear in Field Museum News.

A cafeteria in the Museum serves visitors. Rooms are provided for those bringing their lunches.

Chicago Motor Coach Company No. 26 buses go direct to the Museum.

Members are requested to inform the Museum promptly of changes of address.

MEMBERSHIP IN FIELD MUSEUM

Field Museum has several classes of Members. Benefactors give or devise $100,000 or more. Contributors give or devise $1,000 to $100,000. Life Members give $500; Non-Resident Life and Associate Members pay $100; Non-Resident Associate Members pay $50. All the above classes are exempt from dues. Sustaining Members contribute $25 annually. After six years they become Associate Members. Annual Members contribute $10 annually. Other memberships are Corporate, Honorary, Patron, and Corresponding, additions under these classifications being made by special action of the Board of Trustees.

Each Member, in all classes, is entitled to free admission to the Museum for himself, his family and house guests, and to two reserved seats for Museum lectures provided for Members. Subscription to Field Museum News is included with all memberships. The courtesies of every museum of note in the United States and Canada are extended to all Members of Field Museum. A Member may give his personal card to non-residents of Chicago, upon presentation of which they will be admitted to the Museum without charge. Further information about memberships will be sent on request.

BEQUESTS AND ENDOWMENTS

Bequests to Field Museum of Natural History may be made in securities, money, books or collections. They may, if desired, take the form of a memorial to a person or cause, named by the giver.

Cash contributions made within the taxable year not exceeding 15 per cent of the taxpayer's net income are allowable as deductions in computing net income under Article 251 of Regulation 69 relating to the income tax under the Revenue Act of 1926.

Endowments may be made to the Museum with the provision that an annuity be paid to the patron for life. These annuities are tax-free and are guaranteed against fluctuation in amount.

COLLECTION OF REEF FISHES FROM THE SOUTH SEAS

By Alfred C. Weed
Assistant Curator of Fishes

Field Museum has received, from the recent expedition of the John G. Shedd Aquarium to the South Seas, a large and very valuable collection of fishes taken in Hawaii and Fiji. Most of the collecting was done on the reef at Suva and around the coral reefs, beaches and rocky shores near Honolulu.

The work of collectors of fishes is often thought of as fishing with hook and line or nets, or else buying specimens caught by market fishermen. On this expedition there was a large amount of more violent exercise. Many hours were spent in turning over large blocks of coral to find the small, brilliant fishes that had hidden under them during low tide. Large coral heads were broken up with hammers to get out fishes that had taken refuge inside.

Some little rock skippers were found in tide pools on the lava shores. When the collectors came near these pools, some of the fishes would rush across the rocks and dive into the sea. The only way they could be taken was by having one man stand in the surf to catch them in a hand net after they had been herded into the water by the others. It is reported that they traveled over the wet rocks faster than a man could run.

Of course, there was also fishing with hook and line and some species could only be caught on the smallest hooks in the most violent surf. Not much fishing was done with long nets because of the coral, but dip nets were used freely.

Besides the labor of getting the fishes out of their hiding places, the men had to be careful not to be injured by the specimens they were taking. Some of the eels were vicious and made savage attacks when driven from the holes where they had taken refuge.

Many species with dangerously poisonous spines were brought back. Among them are: the lion fish, with long spines as thin, stiff and sharp as the finest needles, each with a poison gland near its tip; a black catfish marked with white stripes, that is as dangerous as any of the mad toms of our brooks; a fish that looks just like a lump of wave-washed coral covered with a growth of all manner of marine plants and animals, and a row of deadly spines along its back; and a fish that is sometimes called "stinging-fish." Most of these are simply called "poison-fish" by the natives and all are strictly avoided.

There are also many scorpion-fishes, with sharp, dangerous spines on head and back; surgeon-fishes, with sharp, knife-like spines on the sides of the tail; and tangs, that carry in sheaths at the sides of the tail sharp spines like small knife blades, that can be opened out and used as dangerous cutting weapons. Many of the other fishes had sharp teeth or spines which they tried to use on the collectors.

In the collection are many brilliant species of butterfly-fishes, wrasses, parrot-fishes, squirrel-fishes, trigger-fishes, file-fishes and others that have no names in English. There are several species of Amphiprion, a small reef fish that lives in close company with a sea-anemone. Every few minutes one of these fishes will settle down onto its pet anemone and rub its sides along the mass of tentacles. When the fish wishes to rest it will lie in the center of the sea-anemone, which will then curl its filaments around it.

In color, these fishes show the most amazing combinations of reds, blues and yellows, set off and accented by black and white. The alcoholic specimens for the study collection show none of this brilliant color and would hardly be recognized as the same fishes.

So far, the Museum has received about sixty species collected on the reef at Suva, Fiji, and about the same number from Hawaii. Since many of the species found at one place were not taken at the other, there will be nearly a hundred species in the entire collection.

SUN'S RAYS BREAK ROCK

By Henry W. Nichols
Curator, Department of Geology

A collection recently installed in Clarence Buckingham Hall (Hall 35) illustrates a destructive action of the sun's rays upon rock which seems to be little known to others than geologists. This destructive action is especially evident in western Iraq and eastern Transjordania, where most of the specimens shown were collected by Mr. Henry Field, leader of the Marshall Field North Arabian Desert Expedition of 1927–28.

Insolation, which means exposure to the influence of the sun's rays, has, in some climates, a destructive action upon surfaces of rock. The destruction is greatest in regions where the sunshine is hot, where there is a great difference between the temperature of day and night, and where the air is dry.

Naked rock surfaces are strongly heated when exposed to the sun's rays and cool rapidly by radiation at night. The rock surface expands when heated and contracts as it cools during the night. Strains induced by the continual expansions and contractions may become greater than the rock can endure. Fragments break away from the surface in the form of sand, gravel and chips. Even large fragments are broken from the parent rock in this way. This destruction is particularly evident in desert regions on account of the unusually favorable conditions there. The difference between the temperatures of day and night is extreme, the sunshine is hot, and the dryness of the air favors both rapid heating during the day and rapid radiation of the heat during the night.

Coarse-grained rocks like granite acquire a rough surface from the breaking away of individual crystals. Dense, flinty rock surfaces are often covered with pits of a characteristic form called conchoidal because the curved, often ridged, depressions suggest impressions left by shells or fragments of shell.

Other places where the effects of insolation are especially evident are exposed mountain peaks where in the rarefied atmosphere the heating effects of the direct rays of the sun are great and the cooling at night extreme. Much of the loose rock which mantles the tops and slopes of such peaks is due to insolation, although much of it is a consequence of the action of frost.

The collection of gems and jewels in H. N. Higinbotham Hall (Hall 31) includes a cut brown-pink gem tourmaline weighing 58 carats.

Of unusual interest among the reptile exhibits is the rare giant dragon-lizard of Komodo, which may be seen in Albert W. Harris Hall (Hall 18).