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**A BRIEF EXPEDITION
INTO SCIENCE
AT
THE AMERICAN MUSEUM OF
NATURAL HISTORY**

It has been suggested that in certain respects The American Museum of Natural History is like an iceberg: that which is visible represents only a small part of the total reality.

At the Museum, of course, the magnificent exhibits are what the public sees. What is invisible—and what constitutes the solid foundation on which the Museum has grown—are the scientists whose work is not only essential to the exhibits, but is also a continuing contribution to the community of Man.

This booklet is dedicated to these scientists. It is a modest presentation of who they are and what they do. Time and space permit neither mention of all the scientists nor descriptions of all the research they do, the books they have written, the awards they have received.

Those mentioned here are the departmental chairmen, curators and associate curators. Many other scientists also work at the Museum, and they contribute greatly to its research program.

With this preface, then, here they are: some of the scientists whose behind-the-scenes work, perhaps more than anything else, has earned this Museum its lofty reputation in the world of natural history.

Dean Amadon

Chairman and Lamont Curator of Birds, Department of Ornithology

Joined the Museum Staff in 1937

B.S., 1934, Hobart College

Ph.D., 1947, Cornell University

Residence: Tenafly, N.J.

Spending your youth on a farm in western New York is one easy way to develop an interest in birds, but convincing your father that you ought to spend your life studying birds is more difficult.

Dr. Dean Amadon's father did not question the value of an ornithological existence; rather, he expressed severe doubts over the number of good job opportunities in this field.

He needn't have worried. His son not only found job opportunities, but in short order also established himself as one of the most distinguished ornithologists in the United States.

Not that the beginning was easy. Dr. Amadon went to school during the Depression, and in 1936 was financially forced to leave Cornell, where he was studying for his Ph.D., and take a job with the Connecticut Fish and Game Department. A little more than a year later, he landed a position at the Museum—at the underwhelming salary of \$1200 a year.

No sooner had the Depression ended than the war was on, and from 1943 to 1946 Dr. Amadon served in the Army Medical Corps doing research on mosquito control. During this period, he managed to maintain his interest in birds, often walking through the Philippine hills despite his knowledge that some Japanese might still be holed up nearby.

A quiet, reflective man, Dr. Amadon today considers himself a generalist in the field of ornithology. He is primarily interested in systematic and classification studies from an evolutionary perspective. His work has taken him to such far-flung places as Australia, Africa and South America.

Quite naturally, Dr. Amadon has become increasingly interested in conservation as his career has progressed. In his role as President of the John Burroughs Memorial Association, he has worked on numerous conservation projects to insure, among other things, that there will continue to be enough birds around to allay any doubts over good job opportunities for ornithologists.

Lester R. Aronson

Chairman and Curator, Department of Animal Behavior

Joined the Museum Staff in 1938

B.A., 1932, Cornell University

Ph.D., 1945, New York University

Residence: Hillsdale, N.J.

"Instinct," according to Dr. Lester Aronson, "is merely a type of behavior and not an explanation for it."

Three decades ago, when animal behaviorist Aronson first began his work, such a statement would probably puzzle and possibly offend the sensibilities of a public who, in lofty complacency, preferred to believe that animals were driven by a set of inherited behavior patterns in much the same way that a machine is controlled by its built-in gears and engine. More recently, chiefly because of the work of men like Dr. Aronson, such a pronouncement falls on eagerly receptive ears.

Looking back, it comes as no surprise that an individualist such as the dynamic Dr. Aronson should help pioneer a science. It was, however, a bit of a surprise to Dr. Aronson himself, who began his career with the Museum not as an animal behaviorist but as a neurologist. Indeed, his first assignment was to study the structure of fish brains. Within months after his arrival, the study of dead fish gave way to the observation of live frogs, and, for the next five years, he became the patient observer of their spawning behavior and its control by the brain.

From frogs, Dr. Aronson turned next to a protracted study of the behavior of the West African mouthbreeder—a species of fish in which the male incubates the eggs in his mouth. This study, destined to become a classic in the annals of animal behavior, eventually took Dr. Aronson and his family to Nigeria where, for nearly a year, the scientist observed the mouthbreeder breeding on his home grounds.

Another classic in Dr. Aronson's career was a study with cats in which he set out to investigate the prevalent hypothesis that the more complex the neural development of an animal, the less likely there is to be an immediate correlation between sexual activity and the influence of the sex hormones. By observing various control groups of castrated cats, Dr. Aronson was able to demonstrate that those animals in which sexual behavior persisted the longest were precisely those who, prior to castration, had some sexual experience and vice versa.

Recently Dr. Aronson has returned to the subject which started his career—fish brains. Where he began with a study of brain structure, however, now he is investigating the function of the brain. Through first teaching his African mouthbreeders to respond on signal and then removing the forebrain or cerebellum, Dr. Aronson has demonstrated that these regions contribute in important ways to learning processes. Previously, it was widely held that the forebrain was concerned primarily with olfaction while the cerebellum served exclusively for the control of locomotion and balance.

Franklyn M. Branley

**Chairman and Astronomer, Department of Astronomy and the
American Museum-Hayden Planetarium**

Joined the Planetarium Staff in 1956

B.A., 1945, New York University

Ed.D., 1957, Teachers College, Columbia University

Residence: Woodcliff Lake, N.J.

The world of today's child reaches from the center of the atom to the outer bounds of space. His heroes are astronauts and, like as not, his homework includes the rudiments of quantum physics and simplified theories of curved space.

The horizons of yesterday's youngster were somewhat more limited. As early as 30 years ago, elementary science teaching was barely heard of in the public schools.

Yet it was precisely at that time that Dr. Franklyn M. Branley began to develop techniques and methods for teaching science to children—radical then; commonplace, now. Precisely at that time that he invented his own astronomy kit for children—years before today's popular science kits—in which he translated planets and stars, moons and meteors into toy models and charts and do-it-yourself experiments.

Dr. Branley, who believes that "one definition of science is simplicity," has been simplifying complex concepts ever since. As author of more than 56 science books for children that range from "Rain and Hail" for six-year-olds through "Solar Energy" for teenagers, Dr. Branley's advice to a children's science writer is as deceptively simple as his definition of science:

"The science writer who writes for children," he points out, "must think as a child, so that his viewpoint is fresh, uncluttered by the traditional bounds of a subject, unhampered by its usual phraseology."

Prior to his recent promotion to Chairman of the Department, Dr. Branley directed the Planetarium's program of courses in astronomy and space science. Nowadays his various projects include a new Space Theater.

Redesigned from the rotund Copernican room, the Space Theater will use cinemascope projection to explore the mysteries of outer space. It will seat some 750 people, most of them on the floor.

When not busy with plans and projects at the Planetarium, Dr. Branley occasionally finds time to speak with the children whom he has initiated to the wonders of our universe. A welcomed visitor to the high schools, grade schools and kindergartens of New York and neighboring states, Dr. Branley is master at handling even the most grueling question-and-answer sessions. A story is told, for example, of a response he gave to one little kindergarten girl who had rambled on at great length and with little coherence.

"True, all true," Dr. Branley nodded gravely, "but what was your question?"

Richard Charmatz

**Assistant Curator and Acting Chairman, Department of
Micropaleontology**

Joined the Museum Staff in 1957

B.A., 1957, New York University

Ph.D., 1967, New York University

Residence: Manhattan

When Dr. Richard Charmatz was ten years old he decided to become a geologist. This momentous decision was, at the time, more sybaritic than sober. That summer, he used to go to the beach with geologist friends of the family who, after splitting open rocks for him to see, would discourse upon their exposed configurations.

"What better life could there be, I thought," he recalls, "than to sit on a sunny beach all day and crack open rocks."

That decision carried Dr. Charmatz into graduate work at New York University where fate, in the person of the famed micropaleontologist and former Chairman of the Museum's Department of Micropaleontology, Dr. Brooks Ellis, ordained otherwise. Thus, Dr. Charmatz soon found himself spending his weekends aboard the Sea Owl, a 100-foot vessel that was specially outfitted to collect Foraminifera (a form of microfossil) from the mud of Long Island Sound. Those collecting weekends on the boat soon turned into working weeks at the Museum and now Dr. Charmatz is more likely to be found in his office squinting through a microscope than lolling on sun-lit sands.

The objects of his study are two groups of microscopic creatures: the protozoan, Foraminifera, and the equally tiny crustacean, Ostracoda. Some of these minute organisms lived millions of years ago, and are now fossilized in rock. Others are alive today in various aquatic environments.

The task of describing and cataloging these microfossils is as gargantuan as they are miniscule and, since Dr. Charmatz came to the Museum twelve years ago as a graduate student, he has worked on all of the many publications that originate in his department: the famed catalogues of Foraminifera and Ostracoda; and the quarterly magazine, "Micropaleontology."

When he isn't researching or describing or checking page proofs, Dr. Charmatz relaxes with geology; and on his vacations has been known to drive 800 miles out of his way just to take a look at an intriguing rock formation. His second love, microfossils, comes first and, if he recalls rocks with nostalgia, he becomes almost lyrical in his description of Foraminifera with "their endless variation of form and infinite diversity of color."

William K. Emerson

Chairman and Curator, Department of Living Invertebrates

Joined the Museum Staff in 1955

A.B., 1948, San Diego State College

Ph.D., 1956, University of California at Berkeley

Residence: Manhattan

The sandy bottoms of the coastal waters off tropical West Africa and West America are today populated by numerous specimens of harpshell snails. Three million years ago, however, these snails' ancestors flourished in the Caribbean only to become extinct in this area. What caused the extinction of this species and other elements of the fauna at this time?

This is but one of the riddles that Dr. William Emerson seeks to unravel. Through expeditions and in the laboratory, he coaxes living fauna and petrified fossils to yield up clues that will guide him back through the evolutionary paths the mollusks, crustaceans and other such living invertebrates have followed.

His explorations into the distant past have carried him around the world. As head of a Museum expedition on the 103-foot schooner, *The Puritan*, he spent three months studying, collecting and exploring in the waters off western Mexico. The venture netted not only hundreds of known specimens, but also new species of sea shells that extended the spectrum of invertebrates. It also enabled him to uncover, at the Carmen Island, a bed of marine deposits that was formed some 10 million years ago. Awhile later, as part of another Museum-sponsored voyage—the “Belvedere” Expedition—Dr. Emerson journeyed to the islands in the Gulf of California. There, during the six-week cruise, he collected fossil invertebrates, ranging in age from Pliocene to Pleistocene, from 14 different localities.

Before coming to the Museum, Dr. Emerson had already participated in several important projects. A year after World War II, as part of the United States Navy Crossroads Project, he made an exhaustive study of mollusks collected in the Marshall Islands prior to the Bikini bomb tests. Again, in 1950, he studied similar specimens collected from the same waters as part of a program to determine the effects of radiation on these organisms.

As dedicated an author as scientist, Dr. Emerson has published more than 80 scientific papers and co-authored the handbook, “Shells of the New York City Area,” a succinct guide for the layman to carry as he explores local beaches and coves.

D. V. Manson

Assistant Curator and Acting Chairman, Department of Mineralogy

Joined the Museum Staff in 1965

B.Sc., Hons., 1959, University of Witwatersrand, South Africa

M.Sc., 1964, University of Witwatersrand, South Africa

Residence: Teaneck, N.J.

About ten years ago, while still living in South Africa, D. V. Manson and a fellow geologist, on a surveying expedition, assisted some Africans by shooting a crocodile that had been preying on their cattle. They planned to keep the skin for themselves, but their plan fell through when the local commissioner commandeered the crocodile for a sacrifice to a rain god. "At first we were rather put out," recalls Mr. Manson with a smile, "but the next morning, as we were caught in a deluge of pouring rain, we decided our crocodile had lost his skin to a good cause after all."

That expedition took place shortly after Mr. Manson received a B.Sc.Hons. from the University of Witwatersrand. Although today, as Acting Chairman of the Department of Mineralogy, he has little opportunity to tangle with crocodiles, he maintains the same open-minded wonder at the multiple phenomena of nature; for, in his words:

"Man, wherever he is, must be aware of the world in which he lives and be in tune with it."

To this end, Mr. Manson is devoting an increasing portion of his time to educating the layman through the facilities of the Museum: through research, through exhibits, through lectures, through appearances on radio and television. He is also in the midst of writing his first book—whose purpose is to integrate the various aspects of earth science into a cohesive whole.

Correlations, relations and interrelations have always fascinated Mr. Manson, who adopts an integrated approach to science. Over the past four years he has developed a new technique—based on the use of mathematical analysis combined with the aid of a computer—which enables the geologist to better handle the inter-relationship among rocks. Although developed primarily for the geologist, Mr. Manson has applied the technique in other fields including oceanography, psychology, business and medicine.

A great concern of Mr. Manson at the moment, however, is the relationship between the scientist and the layman:

"The need for communication," he says, "is greater than ever before; or, perhaps, I should say more urgent. In today's world of increasing technology and complexity, man is confronted with the problem of living with the earth instead, as he has in the past, off the earth. As a geologist and curator, one of my primary aims is to involve the public in the drama of our earth's evolutionary history. Such involvement is as vital to our survival on this planet as it is to our growth as rational human beings."

Norman D. Newell

Chairman and Curator, Department of Fossil Invertebrates

Joined the Museum Staff in 1945

B.S., 1929, University of Kansas

Ph.D., 1933, Yale University

Residence: Leonia, N.J.

An invertebrate paleontologist and geologist of world renown, and pioneer of one of the newest scientific disciplines—paleoecology—Dr. Norman Dennis Newell has traveled the world, from the Urals to the Andes, to read the records left by organisms that lived hundreds of millions of years ago. His precise interpretations of evolution's often confusing scrawl have placed him among the foremost natural scientists of the world.

Of the many places in which he has worked, Dr. Newell has shown a particular penchant for Peru. There, often living for months on end in uncharted jungles and rain forests, he has made discoveries that run the gamut from oil fields in the rain forest to seashells on mountain peaks.

On one expedition to the Andes, for example, he calculated the time of origin of the predecessor of its present cordillera, fixed the date of the earliest volcanic eruptions at around 250 million B.C., and was one of the first to discover and describe the remains of shell fish scattered through rocks of the high Andes. From a year's survey he made of Lake Titicaca, lying two and a half miles above sea level, came the first map of this area and a Newellian theory of Andean structure. Another trip, sponsored by the Peruvian Government, took Dr. Newell into the tropical rain forests. There he discovered a new petroleum site but—such is the way of the world—it was fifteen years before the oil field had its first well.

As one of the founders of paleoecology—a discipline which integrates the geological process of the past with those of today—Dr. Newell has simultaneously studied the 25-mile fossil barrier reef in the Guadalupe Mountains of Texas, and its modern counterparts some thousands of miles and millions of years away—reefs being formed beneath the waters of the West Indies and South Pacific.

At the moment, Dr. Newell is hard at work on what may prove to be one of the most important ecological theories of our century: a general theory of mass extinction. According to him, evolution proceeds in episodic stages with extinction as important to the process as growth.

"We are now," Dr. Newell explains, "living in a time of one of the greatest of all mass extinctions... This started a few hundred years ago and is still in process. Approximately 500 species of animals and plants have recently disappeared or may soon become extinct."

In ages past, these cataclysmic devastations have occurred through the vicissitudes of nature. More recently, however, nature has evolved a substitute whose powers of destruction match her own. According to Dr. Newell: "The current mass extinction clearly is the result of ecological disturbances caused by man."

Donn E. Rosen

Chairman and Associate Curator, Department of Ichthyology

Joined the Museum Staff in 1961

B.A., 1955, New York University

Ph.D., 1959, New York University

Residence: Closter, N.J.

When Dr. Donn Rosen first noticed the eel-like fish, he assumed it was a synbranch. The Bolivian collection, sent to the Museum for routine curating, contained several specimens of this fish—at that time the only known species of this kind of eel in the New World. This specimen, different enough to catch Dr. Rosen's eye in the first place, kept drawing him back, and the more he looked, the more deviations he discovered. At last, following an intuition, he X-rayed the fish and found his suspicions confirmed: the number of vertebrae in this fish differed markedly from that of the only recognized New World synbranch.

"Since," Dr. Rosen explains, "the other, authentic synbranch was living in the same pond, the deviations could not be attributed to geographic variation. Relying on evidence of what is the closest setup to a controlled experiment in nature—a closed pond—we had discovered a new species of fish."

Synbranch sleuthing is but one of many episodes in Dr. Rosen's career. In his six years as Chairman of the Ichthyology Department, he has initiated the reorganization of the half a million specimens in the Museum collection; worked on over a dozen research projects of his own; and gone on numerous expeditions to Central America. He is co-author of the major work, "Modes of Reproduction in Fishes," and author of scores of studies on the genetics, anatomy, ecology and taxonomy of fishes. Recently, he co-authored a new classification of fishes—the last formal one having been written almost twenty years ago by a Russian ichthyologist.

If Dr. Rosen has accomplished much, he also had the advantage of an early start. At seven, he volunteered to work in the School Nature League at the Museum; at 14, he went to work in the Genetics Laboratory of the New York Zoological Society; at 20, he started his own project—tracing inheritance of certain genital structures in fishes under the tutelage of Dr. Myron Gordon, a pioneer researcher in genetic determination and the inheritance of cancer in vertebrates; and, two years later, while still a student, he and that eminent natural scientist published the first of several joint papers.

Dr. Rosen's spirit of enterprise extends to his expeditions. An expert in Guatemalan fishes, he has ventured into the depths of Central American jungles, via jeep, mule, dugout, foot and light plane—to return with species of fish hitherto unknown to the world. For all his adventurings, he fell ill only once:

"And that time," he recalls with a smile, "was in the city. You never get sick in the jungles or forests."

Jerome G. Rozen, Jr.

Chairman and Curator, Department of Entomology

Joined the Museum Staff in 1960

A.B., 1950, University of Kansas

Ph.D., 1955, University of California at Berkeley

Residence: Closter, N.J.

From Henri Fabre onward, the habits and habitats of the social bees—the honey and bumblebees—have been chronicled by a host of admiring entomologists. Until the latter half of this century, however, the solitary and parasitic bee have pursued their equally intriguing, although somewhat less complex lives without attracting much publicity.

One of the foremost authorities to observe and document the evolution, biology and classification of these two groups is Dr. Jerome Rozen. An exuberant, out-going scientist, Dr. Rozen is known throughout the world for his work with immature bees. For much of the past ten years, he has been witness to, and chronicler of, the dark dramas that daily unfold within those nests that contain the larvae of both solitary host and parasitic intruder.

The drama is classic in its succinctness. It begins with treachery and ends in tragedy.

“Most parasitic bees,” as Dr. Rozen relates, “secretly deposit their eggs in the cell walls of the nests that the solitary bees have built for their own larvae. In most cases, the host or solitary egg grows into an immobile larva while the mobile larva of the parasitic intruder hatches with long sickle-shaped jaws. Next, the parasite larva searches out the host egg or larva and kills it with these highly modified mandibles. The parasite larva then develops on the food supplied for the host larva.”

While on a field trip in Trinidad, Dr. Rozen uncovered another kind of parasitic bee which enters the nest of the solitary bee, opens a cell, pulls out the larva and, after laying her own egg on top of the food, seals up the nest. “This time,” he comments wryly, “the parasitic larva does not develop sickle-shaped mandibles. No need. The competition has been removed by the mother.”

Dr. Rozen’s research includes the more pacific habits of bees as well. He has done extensive studies, for example, of those solitary bees which nest communally and which may form an evolutionary link between the solitary bees and the hive community of social ones.

At the Museum, his duties include responsibility for one of the world’s finest insect collections and supervision of the department’s scientific staff. Whenever possible, Dr. Rozen goes on expeditions, which have taken him as short a distance as a few steps from his back porch and as far away as the southern tip of Africa. All for the purpose of investigating the evolution, biology and classification of those flower-loving wasps—the bees.

Bobb Schaeffer

Chairman and Curator, Department of Vertebrate Paleontology

Joined the Museum Staff in 1946

B.A., 1936, Cornell University

Ph.D., 1941, Columbia University

Residence: Tenafly, N.J.

Nearly every summer Dr. Bobb Schaeffer pulls out his collecting pick shovel, rerolls his sleeping bag, and heads West for them thar' hills. Despite the gear, he is not off to prospect for uranium ore but to unearth nuggets worth far more: the remains of fish that hundreds of millions of years ago swam through what are now chalky canyons and prairie wastelands.

Dr. Schaeffer is a seasoned hand at the prospecting game. He made some of his first discoveries over two decades ago at a site no less exotic than North Bergen, New Jersey. This initial dig yielded a catch of fossil fish rich enough for him to write his first paleontological paper. Years later and some thousand miles away at the bottom of a dry wash river bed in Colorado, Dr. Schaeffer discovered a fossil coelacanth with all the characteristics of the coelacanths he found in the North Bergen haul.

In lieu of treasure maps or divining rods, Dr. Schaeffer relies largely upon geologic maps and enterprising rockhounds to help him locate fossil troves. Frequently, he points out, "fossil fish localities are found by somebody who is looking for arrowheads." The famed fossils from Dolores River Canyon, Colorado, for example, were first spotted by Sunday picnickers, while Dr. Schaeffer himself has practically stumbled upon whole skeletons of fossil fishes from the Age of Dinosaurs while tramping over ancient sea beds in western Kansas and eastern Wyoming.

Dr. Schaeffer's pioneering instincts are not confined to collecting trips. Under his direction, more than 100 years of research by American and European paleontologists was assembled and displayed in a fossil fish exhibit at the Museum that traced the history of the fishes through nearly 500 million years. He also pulled off a minor curatorial coup while researching in Paris. There, he acquired for the Museum's collection a plaster cast of the fish *Latimeria*, which belongs to a group (the coelacanths) believed to have become extinct 70 million years ago—until a living example was caught in 1938 off the coast of South Africa.

Dr. Schaeffer's primary interest — the evolution of fishes — unites all his work, whether it be in collecting, acquiring or exhibiting. He sees himself working on "a giant puzzle in which it is impossible to acquire all the pieces." Every so often, he continues, "chance tosses us a link and we can fill in a tiny portion of the puzzle. For the rest, we research and speculate. If it is impossible to find all the pieces, it is equally impossible not to try."

Harry L. Shapiro

**Chairman and Curator of Physical Anthropology,
Department of Anthropology**

Joined the Museum Staff in 1926

A.B., 1923, Harvard University

Ph.D., 1926, Harvard University

Residence: Manhattan

Some four decades ago, a young man, just out of Harvard, undertook his first project: the study of a racially mixed group. He chose for his pioneering study the natives of Pitcairn Island, offspring of the mutinous crew of the *Bounty* and the Polynesian women they married. The book he published, "Heritage of the Bounty," was the first of scores of books and articles, while the study began a series of projects in physical anthropology that continues today and has made Dr. Harry L. Shapiro the dean of American physical anthropologists.

Not only has Dr. Shapiro given a great deal of thought to America, but he has also set America to thinking about itself. He has appeared on TV panels to discuss the problems of aging, and has sponsored meetings to probe the causes of delinquency. He has written numerous articles for popular magazines and newspapers, and his professional interests have involved him in areas that range from murder trials to women's fashions.

Dr. Shapiro's work, however, has extended far beyond America's boundaries. He has made studies of the physical anthropology, race mixtures and genetics in Polynesia, Quebec; Hawaii, Japan, China, the Eastern Pacific Peoples, the Point Hope, Alaska Eskimo and many others.

He has not only studied great masses of people, but has also educated them as, through major exhibits and halls, he introduced millions to the physical and cultural evolution of humanity. Under his personal supervision the Museum's famous Hall of The Biology of Man was conceived and constructed. As consultant for the "Triumph of Man" at the New York World's Fair, he was in good measure responsible for the creation of this spectacular exhibit which swept millions through the 2,000,000 years of man's cultural evolution. Currently, he is directly in charge of the Museum's Centennial exhibit, "Can Man Survive?"

Despite his many administrative and curatorial commitments, Dr. Shapiro's anthropological calendar is as crowded as ever. Foremost on it are two studies, one a pioneer project on the effects of urban tensions with Calcutta as the controlled base. The second involves the Belgium community of Gheel. There, in the Middle Ages, a town grew up around a shrine that people, possessed of "demons," visited to be exorcized. Nowadays, the entire village is devoted to caring for the insane who live among the villagers as members of the household.

Richard G. Van Gelder

Chairman and Associate Curator, Department of Mammalogy

Joined the Museum Staff in 1956

B.S., 1950, Colorado Agricultural and Mechanical College

Ph.D., 1958, University of Illinois

Residence: Manhattan

Ask Dr. Richard Van Gelder what he is, and he will reply, "A mammalogist." Ask Richard Van Gelder what he does, and he will lock his hands behind his head, tilt his Vandyke beard toward the ceiling and rattle off a list that runs from trapping skunks to checking page proofs. Sandwiched between are the seven books he has already published—five for children; the eighth he is now writing; courses he has taught to undergraduates at Columbia University; lectures he has given to teenagers and businessmen at the Museum; committees he has served on; conferences he has organized; expeditions he has gone on and expeditions he is planning. As ardent a protector of nature as he is an explorer of its realms, Dr. Van Gelder is an active conservationist whose voice has been heard frequently and effectively. All this plus the usual assortment of administrative duties that pass through the office of every chairman.

Dr. Van Gelder's beginnings with the Museum are typical of the crowded years that followed. He had not been with the Museum for six months when he joined the Puritan expedition to the Gulf of Mexico. His project? To study island evolution of mouse populations and compare them with the evolutionary processes on the mainland. He returned with some 500 specimens and a new subgenus of bat that he discovered in an island cave just off Mexico.

That was the first of numerous expeditions. The most recent was a two-month field trip to Africa from which he returned just in time for Thanksgiving with his wife and two small sons. Others include several months in the jungles of Bolivia working from a houseboat. There he collected not only mammals but also parasites concealed in their hides such as lice, ticks and fleas. This project, financed by the United States Army Medical Research and Development Command, was initiated to research those South American mammals which might transmit hemorrhagic fever.

If Dr. Van Gelder's projects are varied, they are also comprehensive. A leading authority on skunk classification and an expert on the spotted skunk, he is author of the first revision of that species since 1906. Contrary to popular belief, mammalogist Van Gelder endured not the slightest odoriferous distress as a result of his work. He has, however, retained what may prove to be a permanent memento; a thick callous on the side of his thumb acquired from measuring thousands of his spotted subjects.

Richard G. Zweifel

Chairman and Curator, Department of Herpetology

Joined the Museum Staff in 1954

B.A., 1950, University of California at Los Angeles

Ph.D., 1954, University of California at Berkeley

Residence: Northvale, N.J.

When Dr. Richard Zweifel sets out on a research expedition, his list of equipment generally falls somewhere between the inventories of an army-navy store and a medical supply shop: sleeping bags and butane stoves, hipboots and field glasses, microscopes, formaldehyde, forceps and scalpels, mosquito netting, cameras and once—when his son Matthew, then three months old, accompanied the Zweifels on an expedition to Arizona—disposable diapers, bottles and bibs.

Once arrived at his destination—whether it be the California desert or the rain forest of New Guinea—Dr. Zweifel transforms this cumbersome gear into a portable laboratory-cum-living-quarters. From this base, he tramps forth to study at first hand the ecology and taxonomy of reptiles and amphibians.

New Guinea provides an ideal ambiance for Dr. Zweifel:

“It is,” he points out, “one of nature’s most fascinating laboratories. It combines the environment, the flora and fauna, of a continent with the geographic isolation of an island. A microcosm of evolution.”

It was from New Guinea that Dr. Zweifel recently returned and where, on this and a previous trip, he made hundreds of feet of tape recordings of frogs’ croaking—documenting the modulations that in amphibian vocabulary convey everything from challenge to courting. There, too, he discovered many new species of frogs which he dismisses with the off-hand grin of a man secure in his science:

“If you’ve seen one new species of frog, you’ve seen them all.”

As at home in desert as in jungle, Dr. Zweifel has spent many an hour under the broiling sun patiently collecting or observing lizards. One pioneering study he made concerns a species of lizard in which the female lays eggs that develop without being fertilized by the male. “Indeed,” says he, “the males of this species are virtually nonexistent.”

Years of patient observation establish close bonds between Dr. Zweifel and his reptilian subjects; and the herpetologist often does follow-up studies that will extend for several years. Happily, the sedentary habits of reptiles and amphibians facilitate such endeavors. As Dr. Zweifel explains:

“Many tend to keep close to certain spots and once having established squatters’ rights, refuse to vacate.”

Dr. Zweifel, of course, is pleased that his marked subjects are still there to be studied, but expresses some doubt as to whether the pleasure is reciprocated.

Roger L. Batten

Curator, Department of Fossil Invertebrates

Joined the Museum Staff in 1962

B.A., 1948, University of Wyoming

Ph.D., 1955, Columbia University

Residence: Fort Lee, N.J.

Dr. Roger Batten, invertebrate paleontologist, likes to compare himself with the man who set off to buy tools for a birdhouse he was planning to build and ended up by buying a tool factory.

"I began researching the population dynamics of gastropods—primitive snails—that lived around 250 million years ago in the Permian Age; and found myself studying the fauna from the Carboniferous Age, which goes back about another hundred million years."

Dr. Batten's backward leap in time landed him in Somerset, England, which nowadays, he says, "has the best hard cider in the world," and which 345 million years ago "was covered by a marine sea." Dr. Batten helped himself sparingly to the cider and liberally to the snails, the latter being encrusted in the limestone reefs nearby.

Thus began the first of a series of trips in quest of the elusive gastropod. By the time he was done, Dr. Batten and his graduate students from Columbia University could map out one network of gastropods that reached from Scotland to Illinois, and another that, beginning in Edinburgh, wound into northern Ireland and again, crossing the Atlantic Ocean, stretched as far west as Wilkes-Barre, Pennsylvania. (Just how these pebble-sized snails managed to distribute themselves is a subject that has gained high priority on Dr. Batten's agenda.)

During the past two years, Dr. Batten has added yet another project to this crowded calendar: work on the Museum's new Hall of Earth History which opened last February. Among his tasks was responsibility for assembling displays that explain the biology of fossil invertebrates, exhibits that trace their evolutionary path and showcases that contain representative fauna from the various geological ages. One favorite are dioramas that reconstruct—"or rather that we hope reconstruct," amends Dr. Batten—sea bottoms as they existed millions of years ago.

Although Dr. Batten deals in hundreds of millions of years, he has very little time to spare. Besides himself, there are only two other invertebrate paleontologists in the world working with primitive gastropods. When a new primitive snail is discovered, it invariably finds its way to one of the three. "This," says Dr. Batten, "is fine with me but it makes it a little difficult to concentrate exclusively on one project—like the man who wanted to build a birdhouse."

Junius B. Bird

**Curator of South American Archeology,
Department of Anthropology**

Joined the Museum Staff in 1934

Residence: The Bronx

Equally at home sailing a whaleboat in the Arctic Ocean or washing 4,000-year-old garments in his office on the Museum's fifth floor is anthropologist Dr. Junius Bird, whose quests have taken him from one tip of the Western Hemisphere to the other. His aim: to obtain information about the early Americas and the cultures that once flourished there.

Dr. Bird's career began when he was nine years old with the discovery of an arrowhead near his home in Westchester County. Since that time, he has made other discoveries, including a 5,000-year-old pre-pottery site on the coast of Peru, and positive proof that 11,000 years ago, man reached the southern tip of South America—before the ground sloth and horse became extinct there.

Dr. Bird has made many trips to the North for Polar archeology and conservation work at the Viking site in Newfoundland. His work has been complicated by attacks from such varied predators as polar bears and Eskimo body lice. In Central America, Dr. Bird was caught in the middle of a hurricane while on a sailboat that once belonged to a smuggler.

Boats of different types have played a large role in Dr. Bird's career as an archeologist-anthropologist. For six months he and his wife sailed the Western Channels of South Chile in a 19-foot sloop. From this expedition came the first outline of prehistory in that area. Later, Dr. and Mrs. Bird improvised another "boat" of sorts near the Straits of Magellan where, miles from help, their model-T-Ford ran out of gas. The land was very flat and so they rigged a sail onto the model-T and cruised along for about ten miles until someone drove to their rescue.

Occasionally even a dedicated explorer like Dr. Bird returns to his laboratories, but even in such quiet confines he finds adventure enough. On Chilean and Peruvian expeditions, for example, he has collected quantities of fabrics, some around 4500 years old. These posed various problems in cleaning, conservation and analysis. Dr. Bird has risen to the occasion, however, and now one may find him in his office experimenting with strange systems of laundry or coding detailed information for computer analysis.

Dorothy E. Bliss

Curator, Department of Living Invertebrates

Joined the Museum Staff in 1956

A.B., 1937, Pembroke College

Ph.D., 1952, Radcliffe College

Residence: West Nyack, N.Y.

Seated in her Museum office with its diagrams and drawings, its filing cabinets and crowded bookshelves, Dr. Dorothy E. Bliss, slender and bright-eyed, looks as though she were about to dissect or to measure or to observe one of the land crabs that she has studied for almost two decades. Chances, however, are against such an experiment. More likely, she will edit a manuscript, type up a report or write out a label for one of her exhibits.

Standing above a wooden table in the basement of her home with a mug of hot coffee steaming at her elbow and three golden retrievers sprawling at her feet, Dr. Dorothy Bliss, bundled in warm sweaters against West Nyack's chill dawn, is now, indeed, in the midst of that dissection or measurement or observation.

"In my office," says she, "I generally do office-type work. At home, I do most of my thinking and some experiments as well." Dr. Bliss's gaze wanders to an impressive-looking stack of metallic boxes that contain more than a thousand color slides taken in her laboratory-cum-darkroom in West Nyack. Together they document an important stage in one current research project: to determine what happens to crabs' water balance during the moulting cycle.

This project represents but one aspect of Dr. Bliss's work with neurohormones in tropical land crabs. Overall, she is concerned with hormonal control of growth. What is the relationship between the hormones produced in the cells of the crabs' central nervous system and the crabs' growth? Their water balance? How are other physiological processes controlled by the hormones the nerve cells of these crabs produce and secrete?

Since moulting is a crab's way to grow and since crabs generally moult at night, these are the questions that keep Dr. Bliss up long after her neighbors' lights are shut off.

When she isn't researching, Dr. Bliss is busy writing up the results of her research. She already has an extensive scientific bibliography to her credit and is more than halfway through a book for the student, teacher and layman on shrimps, lobsters and crabs. Why did she decide to write such a book?

"Well," she smiles, "I keep on answering telephone calls from people who want to know where shrimps live, why lobsters turn red in the pot and finally, the monotonous—'Where can I get a good book on crustaceans?' In a year or so, I can answer that one, too."

When not researching or writing, Dr. Bliss relaxes by training her golden retrievers or working in her garden. As for the rest of her spare time, her reply is a quizzical:

"Spare time? Spare time... What's that?"

Edwin H. Colbert

Curator, Department of Vertebrate Paleontology

Joined the Museum Staff in 1930

B.A., 1928, University of Nebraska

Ph.D., 1935, Columbia University

Residence: Leonia, N.J.

"I suppose you'd call me a drifter," assesses Dr. Edwin H. Colbert, a paleontologist of world repute, an author of ten books and more than 250 scientific papers, and a recipient of enough honors to sink any man one whit less buoyant than he in a bog of self congratulation.

The "drifter" of the assessment refers to a stance Dr. Colbert recently adopted in favor of continental land drift—he once upheld the theory of fixed land masses—but add the adjective "dynamic" onto the appellation "drifter" and it might well be extended to cover other phases of Dr. Colbert's life.

His academic career, for example, began with a B. A. in English literature and ended with a doctorate in paleontology. Some years later, on his way to work in the Petrified Forest of Arizona, he stopped off "to poke around" near Ghost Ranch, New Mexico, stayed on for several summers and returned to the Museum with a collection of Triassic dinosaurs that is one of the best in the world. Last year, the unexpected arrival of a fossil jawbone—sent by a team of geologists just back from Antarctica—precipitated not only Dr. Colbert's re-evaluation of his position on continental land drift, but also plans for a forthcoming trip to Antarctica. There he will search for fossils in the area where the jawbone was found—a mountainous region some 10,000 feet above a sprawling glacier.

The ice cliffs of Antarctica will be a new experience for Dr. Colbert, a scientist whose world is built of new experiences. Some of them, as part of his long-term study of reptiles from the Age of Dinosaurs, have been collecting expeditions throughout the deserts of America, across the hot sands of the Negev, into the humid jungles south of Calcutta, onto the veldt of South Africa and, several years ago, beneath the coastal waters of Australia. There, near a town called Broome, is a spot where once a month the tide recedes for forty-five minutes to expose—some 150 feet from shore—a group of dinosaur tracks. Dr. Colbert stopped off to race the tide waters and, as first prize, took back with him to the Museum four perfect casts of dinosaur footprints.

Other stop-offs in Dr. Colbert's crowded itinerary include time out to write books on paleontology for layman and scientist—some already translated into German, Spanish and Japanese—and a research probe into possible causes of the extinction of the dinosaur.

Gordon F. Ekholm

Curator of Mexican Archeology, Department of Anthropology

Joined the Museum Staff in 1942

B.A., 1933, University of Minnesota

Ph.D., 1941, Harvard University

Residence: Pleasantville, N.Y.

For a Curator of Mexican Archeology and a leading authority on pre-Columbian art to think in terms of a study trip to Southeast Asia may seem, to some, unorthodox. For him to do so in order to work on his specialty may seem, to others, downright contrary. But to Dr. Gordon Ekholm, who is doing just that, such a trip would make perfect sense. Indeed, it would be completely consistent with his current research.

His interest—tracing the origins of the American Indian civilization—places Dr. Ekholm squarely in the middle of one of the most hotly debated issues in American archeology. This suits him just fine. The Asian trip is contemplated to look for evidence to support his highly controversial position that Asia played a role in the development of New World civilizations. While it is generally acknowledged that Asian populations helped people the New World, the extent, or even the possibility, of Asia's continued influence is far from being accepted.

Since the New World civilizations left no written records, Dr. Ekholm must painstakingly ferret out clues to support his thesis. Already he has built up an impressive case to show that there were contacts with Asiatic cultures at various times during the history of the ancient civilizations of Middle and South America.

There are, Dr. Ekholm points out, some striking similarities in art motifs. The two areas of civilization also share certain technical skills, such as metal working and pottery and barkcloth making.

Possible contacts between trans-Pacific and ancient American groups of people all lead to larger studies that involve Dr. Ekholm with the origin and growth of civilizations and the role that cultural contact played in the development of societies. And toward these ends, Dr. Ekholm continues to pursue the origins of the American Indians—hopefully, into the heart of Asia.

Kenneth L. Franklin

**Assistant Chairman and Astronomer,
Department of Astronomy and the
American Museum-Hayden Planetarium**

Joined the Planetarium Staff in 1956

B.A., 1948, University of California at Berkeley

Ph.D., 1953, University of California at Berkeley

Residence: Rivervale, N.J.

Dr. Kenneth Franklin, whose work with celestial bodies keeps him very busy here on earth, likes to refer to himself and America's other astronomers as "an important impurity" in the population.

"There are about two thousand of us," he explains, "which means we make up about ten parts per million and so we have to spread ourselves liberally about. That's why we are an important impurity: a drop goes a long way."

If Dr. Franklin's career is at all typical, that small per cent is about the most active ingredient in the land. A scientist who was the co-discoverer and the first to hear the radio signals emitting from Jupiter and know their origin, Dr. Franklin produces every other sky show at the Hayden Planetarium; lectures in metropolitan universities on everything from descriptive astronomy to astrophysics; consults with newspaper editors and aerospace executives; appears on television; and broadcasts as easily from 20,000 feet in the air as from a control booth on the ground. Not only that. In addition to being interviewed, he has produced a radio show of his own and is in the process of preparing tapes for another.

Although the heavens seemed to have smiled on Dr. Franklin—he contends that the "identification of Jupiter as a radio source was not based directly on reasoning but more on luck"—his work schedule belies his modesty. When the comet Ikeya-Seki plummeted into the New York scene, he was on hand for a good part of the following weeks to help deal with the 24,000 calls that came into the Planetarium. When the Leonid Meteor Shower inundated the heavens at the rate of 100,000 an hour, Dr. Franklin flew up in a jet to observe, at 41,000 feet, the celestial fireworks.

In addition to his other projects, Dr. Franklin continues research on the radio noise from Jupiter. Each summer, with the help of undergraduate students, he accumulates and analyzes data collected from this distant planet's signals.

With all the seriousness of his commitment, Dr. Franklin's approach is far from ponderous. He once ended a lecture on Jupiter's signals by pointing out the difficulties of detecting radio sources.

"As a reminder to the prospective observer of extraterrestrial radio noise," he concluded, "I would like to offer the following motto for radio astronomers (with apologies to Gertrude Stein): Signals in the grass, alas!"

Wesley E. Lanyon

Curator, Department of Ornithology

Resident Director, Kalbfleisch Field Research Station

Joined the Museum Staff in 1957

A.B., 1950, Cornell University

Ph.D., 1955, University of Wisconsin

Residence: Huntington, N.Y.

Birds of a feather, according to Dr. Wesley Lanyon, do not necessarily flock together. Indeed, the eminent ornithologist has come up with convincing evidence that although two birds may appear identical to the human eye, a bird's eye appraisal relegates them to two distinct species.

With isolated breeding as one of the tests of species grouping, how does a bird find a mate? And what about taxonomists? If plumage is no criterion, how are ornithologists to distinguish between species that are closely related but not the same?

Dr. Lanyon, who has devoted his career as an ornithologist to the comparative behavior and ecology of closely related birds, has chosen the same standard of identification as the birds: their calls. During the past eight years, he has journeyed all over the Western Hemisphere to make hundreds of miles of tape recordings. By playing back the tapes to his avian subjects and noting down their reaction, he has evolved a vocabulary of bird call and response so accurate that he can capture live specimens by enticing them into his nets with playbacks of their own 'luring' notes.

Dr. Lanyon's tapes have won not only the full cooperation of the birds, but also the whole-hearted applause of his colleagues who recently awarded him The Brewster Medal, an ornithological honor equivalent to Man of the Year. In part, the award pays tribute to one of the many debatable issues his recordings have clarified: the case of *M. tryannulus* vs. *M. nugator*.

Formerly, it was widely believed that a species of South American flycatcher, *M. tryannulus*, had colonized all the Lesser Antillean islands and that the island population, principally *nugator*, was a subspecies. When, however, *nugator* failed to respond to playbacks made from the calls of *M. tryannulus* on the mainland and vice versa, Dr. Lanyon proposed that *nugator* be elevated to species status.

When Dr. Lanyon is not on expedition, he often can be found at the Museum's Kalbfleisch Field Research Station at Huntington, Long Island where, as Resident Director, he has charge of its many affairs and has also the opportunity to develop his own projects. Primary among these is his work with the sound spectrograph, a machine which furnishes a visual representation of each song by reducing field recordings to a graph.

"Eventually," envisions Dr. Lanyon, "it may be possible for an ornithologist to mail in a tape which we can then translate into a graph and, by comparing it with our files, make a speedy and precise identification."

James N. Layne

Archbold Curator, Department of Mammalogy

Joined the Museum Staff in 1967

B.A., 1950, Cornell University

Ph.D., 1954, Cornell University

Residence: Lake Placid, Fla.

Most people who sit in their offices and look out the window may be trying to get away from something. On the rare occasion that Dr. James N. Layne looks out his window, he usually ends up getting into something.

Such was the case not long ago when Dr. Layne was gazing through his window pane and noticed a squirrel scurrying up automobiles in a parking lot and poking around the radiators. Dr. Layne's curiosity moved him to a closer look, which revealed that the squirrel was systematically locating and devouring the insects which had been crushed against the cars' radiators while the automobiles were being driven. The result of this observation was a paper on gray squirrels feeding on insects in car radiators.

Spirited resourcefulness and a variety of interests have played a key role in Dr. Layne's career as a mammalogist. Working at the Museum's Archbold Biological Station in Lake Placid, Florida, he has in recent years been involved in a spectrum of subjects so broad as to include the behavior of dolphins, the population of beavers, and the morphology of white-footed mice. As further evidence of his broad concerns and ingenuity, Dr. Layne took an early interest in the parasites he routinely picked off mammals he had collected, started studying them, and has published two papers on fleas.

Many scientists become increasingly specialized with time, but for Dr. Layne the process has worked in reverse. He entered college planning to study birds, but found a professor's enthusiasm for vertebrates in general and mammals in particular to be contagious. "As a teacher myself," he notes, "I find broad interests are very helpful in giving guidance to students who are often uncertain about their futures."

Like his college professor, Dr. Layne's enthusiasm is obviously catching. It is perhaps coincidental that so many of his students soon start wearing the same desert boots that he does. But it could hardly have been an accident that not long after Dr. Layne's study on squirrels and radiators, one of his students began to study another group of squirrels who were stealing peanuts from vending machines.

Malcolm C. McKenna

Frick Curator, Department of Vertebrate Paleontology

Joined the Museum Staff in 1960

A.B., 1954, University of California at Berkeley

Ph.D., 1958, University of California at Berkeley

Residence: Englewood, N.J.

When Dr. Malcolm McKenna went to the Soviet Union several years ago, he packed a broken half of fossil jawbone along with his notes for a month's study of Soviet collections from Mongolia. The jawbone, he explains, was collected in 1923 on one of the Roy Chapman Andrews Expeditions into the Gobi Desert. One afternoon, while working with the fossil collections at The Moscow Museum, Dr. McKenna came across what he suspected he might find: a very familiar piece of jawbone, this half collected by a Russian team in 1948. Reaching into his briefcase, he matched it with his own. The fragments fitted perfectly. The two halves, collected at an interval of 25 years, were once more joined.

This combination of acumen and enterprise has characterized Dr. McKenna's career throughout. At seventeen, he found a titanothere skull during the first ten minutes of a collecting trip in Nebraska he took with his high school biology teacher. As an undergraduate, he decided he wanted to go on an expedition with Dr. George Gaylord Simpson, then of The American Museum of Natural History, and relayed the message without the slightest hesitation. The famed paleontologist agreed to take him along, although, as Dr. McKenna recalls:

"When I put down the telephone, I realized that it was my collecting experience and luck rather than confidence that convinced him."

As it turned out, Dr. McKenna's belief in himself was as sound as his credentials. During the trip to Tabernacle Butte, Wyoming, the two jointly discovered and subsequently described a new relative of the shrew and moles.

Since that time, Dr. McKenna has gone on to many new discoveries and descriptions in his discipline, fossil mammals, finds that from North America have included the discovery of the earliest known hedgehogs. His field methods continue to be as enterprising as they are successful. For a while, he reconnoitered new fossil sites with his single-engine plane and, some time back, refined a technique for mass washing and screening matrix—three or four tons a day—that has yielded rich deposits of fossils in rocks that were once thought to be barren.

As a teacher, Dr. McKenna is no less enterprising, and part of his method is to encourage students to be as resourceful as he. Several years ago, for example, he handed a graduate student an undescribed skull with a single question: "What is it?" Several months later, the student returned both skull and a completed paper that has now been published by the Museum.

Margaret Mead

Curator of Ethnology, Department of Anthropology

Joined the Museum Staff in 1926

B.A., 1923, Barnard College

Ph.D., 1929, Columbia University

Residence: Manhattan

Dr. Margaret Mead, a magazine writer observed not long ago, is as much an institution as she is a human being. If the criterion for becoming a human "institution" is to be a household word, then Dr. Mead is surely in this category.

Statesmen, artists and athletes can be counted in relatively large numbers among those who have become household words. For a scientist, or more specifically an anthropologist, to achieve that status is something else again.

Dr. Mead has reached this peak by building a bedrock of solid achievement under her. So many are her achievements that she has been presented with seventeen honorary degrees and is the holder of a similar number of other awards.

Author of thirteen books, and co-author or co-editor of fifteen others, Dr. Mead has concerned herself over the years with subjects which range from primitive cultures of the South Pacific to the future of the United States. Her specialities include the relationships between education and culture, personality and culture, and character structure and social forms. She is also a specialist on nutrition, mental health, cultural change, culture building, and other areas which are vital to man's understanding of himself.

Anthropologist, psychologist, writer, lecturer and teacher, Dr. Mead is perhaps best known to the public for her eleven expeditions to the South Seas and her books on that area such as *Coming of Age in Samoa* and *Growing Up in New Guinea*.

Her career represents much more than these accomplishments, of course—so much more that the director of a film about her work in New Guinea was inspired to remark not long ago: "What can you say about Margaret Mead? It is like talking about life. But I can say that because I love life, I love Margaret Mead."

Frederick H. Rindge

Curator, Department of Entomology

Joined the Museum Staff in 1949

B.S., 1942, University of California at Berkeley

Ph.D., 1949, University of California at Berkeley

Residence: Alpine, N.J.

Butterfly collectors have been the subject of many jokes over the years, but when applied to Dr. Frederick H. Rindge, this humor has about as much substance as a net swishing through empty air.

Dr. Rindge has been collecting butterflies and moths—Lepidoptera—since he was a third grader in Los Angeles, and has since become sufficiently specialized and knowledgeable to be the only scientist studying the North American Geometridae, a large family of rather drab-looking moths that includes the inchworms.

An anti-submarine warfare officer during World War II, Dr. Rindge chose the Geometridae precisely because so little was known about them. And although he has already named more than 100 of the some 1200 North American species (“discovering new species is not so exciting after the first few”), he estimates that it will take several more men several generations to learn most of what there is to be learned.

Dr. Rindge works on his moths seven days a week, an interest that is shared by his wife and three daughters. His main collecting is done during the summer, when he travels with his wife and at least one daughter to such places as the Rockies and Canada. Equipped with camping equipment, insect nets, cyanide bottles, glassine envelopes and the other tools of his profession, he hunts Geometridae both by day and by night with a generator. Each year he brings back thousands of specimens to be studied, written about, and added to a Lepidoptera collection which has more than doubled to 1½ million specimens since he joined the Museum staff in 1949.

Some may find it difficult to understand why a man will spend his life collecting and studying a single family of moths instead of, say, writing brisk advertising copy. Dr. Rindge has no such difficulties. He knows that he loves his work and wants to “learn more and more about less and less.” Some people climb mountains because they are there. Dr. Rindge climbs mountains because the Geometridae are there.

Charles Vaurie

Curator, Department of Ornithology

Joined the Museum Staff in 1946

D.D.S., 1928, University of Pennsylvania

Residence: Manhattan

Imagine trying to assemble a giant jigsaw puzzle with its pieces scattered all over the world and with clues to their whereabouts buried in old military documents, scattered throughout the pages of museum catalogues and hidden in stacks of books, papers and articles.

This was approximately the situation which faced Dr. Charles Vaurie some seven years ago when he decided to publish a book that would contain every specimen of bird ever collected in Tibet. It would be the first of its kind and, as such, would entail combing museums and archives the world over.

If Dr. Vaurie had set himself a difficult task, he was also uniquely prepared to cope with it. Not only was he supported by nearly two decades of ornithological research, surrounded by a world-wide reputation, but had, in addition, easy access to the collections of Russia wherein lay much valuable material. Indeed, Dr. Vaurie's comprehensive works on Northern Eurasia are well known to the Russians and carry great authority.

In order to assemble material for his book, Dr. Vaurie traced the footsteps of everyone who ever collected birds in Tibet. Many of them were military men who were also competent explorers and naturalists. The most famous was General Przhevalsky, who explored eastern and northern Tibet from Russia on four memorable trips, while other records have been gathered from the notebooks of Englishmen.

Dr. Vaurie has traveled to almost every country on either side of the Iron Curtain to track down and record the specimens collected in Tibet. To date, he has documented as many as five hundred species, more than twice the number that had been expected.

While Dr. Vaurie was working on Tibetan birds, he also found time to publish a major study on a family of game birds from Tropical America.

"This way, I could take a vacation from one study by working on the other. I like the idea of having one foot in one part of the world and one foot in the other."

Pedro W. Wygodzinsky

Curator, Department of Entomology

Joined the Museum Staff in 1962

Ph.D. (Sc. Nat.), 1941, University of Basel, Switzerland

Residence: The Bronx

To put it simply, Dr. Pedro W. Wygodzinsky now studies bugs instead of butterflies because as a boy in Europe, he could not afford the boxes into which his butterfly collection should have gone.

So he began pinning bugs, a quirk of economic fate which has left him anything but bugged. "I am continuously amazed that I get paid for doing work which I love enough to do for nothing," he says seated in an office that includes a beautiful tropical fish aquarium "which I keep for resting my eyes."

It is understandable that his eyes occasionally need resting. About two months a year, Dr. Wygodzinsky and his wife comb the high altitudes of the Andes in search of small black flies. Of particular interest to him are the larvae and pupae which he finds in mountain streams, gently picks up with forceps, and puts into individual vials to be reared into maturity.

Back in his Museum laboratory, Dr. Wygodzinsky begins the painstaking job of studying and writing about scores of the tiny specimens he collects each year. More than that, he makes incredibly detailed analytical drawings of many insects—recently he published a paper that included more than 3,000 such drawings, the product of a decade's efforts. "To be able to draw well requires more interest than ability," he modestly suggests, "and to draw is to see closer. I think it's very important for every entomologist to do his own drawing."

Even to a man of Dr. Wygodzinsky's stability, this kind of work involvement can on occasion produce curious side effects. Dr. Wygodzinsky recalls that some years ago he received scores of black fly bites in South America. For a short time after he returned to the Museum, when he would sit down to write about these insects, Dr. Wygodzinsky broke out in what looked remarkably like the results of black fly bites.

Sydney Anderson

Associate Curator, Department of Mammalogy

Joined the Museum Staff in 1960

B.A., 1950, University of Kansas

Ph.D., 1959, University of Kansas

Residence: Closter, N.J.

Many a fixed smile over a glass of dry sherry or at a P.T.A. meeting led Dr. Sydney Anderson to the terse conclusion that "most people have heard of curators and are vaguely aware that they are kept in museums."

The vagueness, however, is strictly in the eye of the beholder. There is nothing vague about Dr. Anderson, a dapper, precise mammalogist. Nor is there anything vague about the curatorial duties which have carried him into the very specific rain forests and deserts of South America, led him to develop a very exact and complex information retrieval system, and even impelled him to write a delightfully succinct essay entitled, "Confessions of a Curator."

"A curator is a custodian of knowledge," points out Dr. Anderson, "and, as such, not only uses his department's facilities for his own research but makes them available to both professional and layman. Thus our collections can be compared to the resources of a library. If a book is on the wrong shelf, it may as well not be there at all. It's up to us to know where every book lies."

That "book" might well be any one of the Mammalogy Department's more than 200,000 preserved specimens filed away in locker-sized cabinets. It may refer to any one of more than 70,000 publications in the field of mammalogy. It may even be a nugget of information tucked away in the memory of a scientist. Whatever it is, if it can be found in the Mammalogy Department, Dr. Anderson knows where to go or whom to ask.

For all his responsibilities, Dr. Anderson's view of himself and his colleagues is far from ponderous. After designing and producing the Hall of Primates—a comprehensive exhibit that traces the evolution of man from monkey—he was faced with this perplexing problem: which figure should represent *Homo sapiens*? At first, he thought to borrow a wax model of an American Indian from the Anthropology Department, but decided against it. Perhaps, he reasoned, an overly sensitive visitor might think that the Museum considered Indians a higher form of ape. The next alternative that occurred to Dr. Anderson was to have a wax model made of himself for the display. After due deliberation, he ruled this out:

"After all," smiles he, "we wouldn't want the public to think that the Museum considered a curator to be the highest form of animal life."

Giving the matter much thought, Dr. Anderson at last decided to display a human skeleton, thus exhibiting the diplomatic finesse that separates a true curator from a mere caretaker.

James W. Atz

Associate Curator, Department of Ichthyology

Joined the Museum of Staff in 1965

B.A., 1936, Cornell University

Ph.D., New York University

Residence: Port Washington, N.Y.

"Bibliographers are inspired idiots," quotes Dr. James Atz and casts a fond look at the two stacks of books, journals and pamphlets on his desk. Their combined height would just about match his own six feet. "I didn't coin the phrase," he adds, "I can only swear by it."

Dr. Atz's oath is not in vain. For the past year, he has been heading up one of the most ambitious bibliographic projects yet to be undertaken by any ichthyology department here or abroad. The goal is nothing less than to place the world's literature on fishes at the fingertips of ichthyologists, zoologists, conservationists, and medical experimentalists the world over.

"The last complete bibliography of fishes," explains Dr. Atz, filling in background, "ends in 1915. It contains about 42,500 references. Since then various lists have been compiled, but not," he grins, "to the satisfaction of at least 74 per cent of the American and Canadian ichthyologists we queried."

So, with the aid of government funds, ichthyologist Atz and his associates undertook to remedy the situation. They devised codes, and with the computer expertise of the BioSciences Information Service, assembled a team whose formidable linguistic talents include Russian, Japanese, Hebrew and Hungarian.

The *modus operandi* is deceptively simple. Dr. Atz and his team scan and at least partially digest every piece of literature published on fishes; extract the essence; and fill in index keys on special forms which will then be turned over to the computer operators. What complicates the procedure is the quantity of the material—some 3,000 pieces are published yearly—and the quality of attention each piece demands, whether it be a 3,000-page tome or a one-paragraph text.

Happily, Dr. Atz lists among his credentials some 30 years experience in the discipline, an appetite for bibliographic work already whetted by experience, and a broad, rather than specialized approach, to ichthyology.

Among his numerous projects is one particular favorite. Off and on, throughout the years, Dr. Atz has been researching the biology and behavior of the eartheaters, a group of South American fishes that scoop up mouthfuls of gravel and patiently sift through it to extract bits of food.

"After all these years of observing that fish, now I know what it feels like to be one," laughs Dr. Atz and glances at the stacks of books and journals that await his patient perusal.

Robert L. Carneiro

Associate Curator of South American Ethnology, Department of Anthropology

Joined the Museum Staff in 1957

B.A., 1949, University of Michigan

Ph.D., 1957, University of Michigan

Residence: Riverdale, N.Y.

"The best way to develop a theory," according to Dr. Robert Carneiro, "is to immerse yourself in the facts." A theory itself, perhaps, but one which has stood up well during almost two decades of work in anthropology.

Dr. Carneiro's first encounter with the anthropological facts of life occurred in the rain forest of Brazil where he and his wife, also an anthropologist, lived among the Kuikuru Indians. After allaying tribal fears that they had been summarily exiled from their own group, the Carneiros settled down for a five-month stay. During this time, Dr. Carneiro recalls, "we learned a fair amount of the language, accumulated reams of notes, ate mostly rice and beans and lived by the sun."

And by their wits as well.

One day, the Carneiros were told that they would have to leave the tribe. Having given away all but a few bars of soap, they refused an Indian who took revenge by telling his friend—one of the more volatile tribesmen—that they were stingy, and they would have to leave.

"I knew I had to act quickly," remembers Dr. Carneiro, "and so I decided to hold an enormous potlatch during which Gertrude and I distributed all our presents at once instead of spreading them over the length of our stay. It was a great success, our potlatch. Not only did our generosity confound our troublesome friend, but all the tribesmen could see that we had nothing left to give away from then on."

Himself a member of a small but active tribe of anthropologists called cultural evolutionists, Dr. Carneiro often uses his specific field experience as a springboard from which he plunges into the broad stream of humanity. Thus his expeditions to South America led to such formulations as his theory of the origin of the state and elaboration of his views on cultural ecology.

If Dr. Carneiro lines up his facts with the precision of a drill sergeant, he reserves his enthusiasm for the theories that emerge. It was that way from the beginning. Indeed, it was the theoretical aspects of anthropology that first drew him toward the discipline.

At the Museum, his current project is one in which he can combine his love of theory with his reverence for fact. Nowadays, Dr. Carneiro can be found hard at work in his fifth floor office, synthesizing data gathered over the last seven years in an attempt to work out the sequence of cultural development through which societies have passed.

Stanley A. Freed

Associate Curator of North American Ethnology, Department of Anthropology

Joined the Museum Staff in 1960

B.A., 1951, University of California at Berkeley

Ph.D., 1957, University of California at Berkeley

Residence: Manhattan

For a man who believes that "life is made up of small accidents," Dr. Stanley Freed has followed a singularly purposeful path.

An exploratory summer spent with the Washo Indians developed into a doctoral dissertation. This, in turn, enabled him to win fellowships which funded almost two years work in India. After India, Dr. Freed briefly detoured to teach full time, but returned to research and field work with his appointment to the Museum. Here, he has been largely responsible for the conception and creation of the major permanent exhibits, The Halls of the Indians of the Woodlands and the Plains and the Hall of Eskimos.

Accident, however, is not without design in Dr. Freed's life. Indeed, it set him on his way. The fortuitous—and, as it turned out, fortunate—combination of a balmy May day and a biology class assignment catapulted him from the physical sciences into the social sciences and anthropology. There was more to life for him, he decided, than calculating the effect of a saline solution on a frog's heart—especially when the sun was shining so brightly outside. Another happy accident—this time a chance cup of coffee with a professor on the Berkeley campus—directed him to the Washo tribe which, eventually, formed the subject matter of his doctoral thesis.

Opportunity is always a welcomed visitor to the Freed household. For example. When the Drs. Freed (Mrs. Freed is also an anthropologist) first came to India, opportunity—in the guise of a casual invitation—intervened to ensure the success of their project.

"When Ruth and I first settled down in the village we had chosen to study, we were inevitably drawn into a circle of high-caste families. One day, a high-caste man we knew rather well arranged for us to be invited to a wedding in a low-caste household. There, we accepted food, a symbol of equality. A high-caste person could not do this and so our visit caused a great sensation among the high-caste families. Nonetheless, our friend remained calm throughout the commotion, merely remarking:

"'Before, you belonged only to the high-caste families, now you belong to the whole village.'

"And, from that time on, so we did."

Karl F. Koopman

Associate Curator, Department of Mammalogy

Joined the Museum Staff in 1961

A.B., 1943, Columbia University

Ph.D., 1950, Columbia University

Residence: Manhattan

Some two thousand years ago, Aesop wrote bats out of the kingdoms of the birds and the beasts. In European folklore, bats remained in limbo until the 17th century when John Ray, father of mammalogy, smoothed the way for their classification as mammals along with whales, porpoises, and armadillos.

Despite their new status, bats continued to haunt the poetic consciousness of mankind—first in superstitious lore, then in gothic tales—until the late 18th century when mammalogists first began to seriously study them.

Primary among these scientists' objectives has been to discover what species of bats exist in the world and where they live. One of those who more recently has undertaken the challenge is Dr. Karl Koopman who, for the past ten years, has devoted himself almost exclusively to the classification and distribution of bats in tropical America and Africa.

Dr. Koopman's approach is not unlike that of an artisan. He concentrates on the part in order to create the whole. Thus, from the already existing collections as well as from the individual bat specimens he has personally collected on his expeditions, he has pieced together evidence of chains of bat populations that sweep from southern Brazil through Mexico and into the West Indies.

Sweeping distribution is not infrequent among bats. Our red bat, Dr. Koopman explains, ranges from southern Canada through the United States, into Central America and reaches as far down as Tierra del Fuego. While upper portions of the chain migrate to warmer climates during the winter, it has not yet been ascertained, he says, at what point they stop migrating and become permanent residents.

In order to assemble the links of the chain, Dr. Koopman journeys into the forests and plains of the Americas. There he collects bats from caves, crevices, tree hollows, and even from houses.

These expeditions sometimes net a new species; sometimes add another link to an already established chain; and sometimes turn up a specimen that was known only through fossils and owl pellets.

"Some owls are hunters of bats," Dr. Koopman explains, "and what they can't digest, such as bone and hair, they regurgitate in pellets. We've learned a lot from those pellets." Owls, he concludes wryly, "are often more successful in securing specimens than mammalogists."

Evelyn Shaw

Associate Curator, Department of Animal Behavior

Joined the Museum Staff in 1957

B.A., 1947, New York University

Ph.D., 1952, New York University

Residence: Manhattan

It may be commonplace for a person to hook a fish, but fish hooking a person is a different line altogether.

In fact, it is the line of Dr. Evelyn Shaw, who was "hooked" by fish some 20 years ago and has, therefore, spent most of her professional life studying them.

For more than 10 years, Dr. Shaw has been working to solve the fascinating puzzle of how fish swim in schools. It all began when a colleague at a scientific meeting happened to ask her if she knew anything about the subject. She didn't, and one of the first things she learned was that nobody else did either.

To find the answers, Dr. Shaw has traveled to such diverse places as Naples, Italy; Bar Harbor, Maine; and Bimini in the Bahamas. Armed with bathing suit, snorkel and an underwater camera, she has been able, among other things, to provide commercial fisheries with invaluable information on the best ways to land big catches.

Dr. Shaw—it would be no fish story to describe her as a striking redhead—opted for a career in science instead of creative literature and Romance languages, but still pursues the latter as avocations. Having chosen science, she became interested in embryology, "but I soon realized that I had no taste for grinding up or macerating my material. So I wound up in animal behavior, where I could study the whole organism."

Now that Dr. Shaw's research on the schooling behavior of fish is drawing to a close, she must decide what to do next. Will she study polar bears, cobras, humming birds? Doubtful. Proving that a hook once swallowed is not easy to remove, Dr. Shaw says: "I think that I'd like to get into the problem of migration in fishes. It's very interesting, and so little is yet known."

Lester L. Short, Jr.

Associate Curator, Department of Ornithology

Joined the Museum Staff in 1966

B.Sc., 1955, Cornell University

Ph.D., 1959, Cornell University

Residence: Tenafly, N.J.

"Why does a woodpecker peck wood?" is a jingle that has kept children happily tongue-tied for generations and a question that has kept Dr. Lester Short busily occupied for the past fifteen years.

Not only the "whys" of woodpeckers, but the "hows" and the "whens" and the "wheres." How, when and where did woodpeckers evolve? What is the significance of their coloration; the meaning of their behavior? Which species congregate where? And why? How do species interact? How closely related are closely related species? And what about hybridization?

Since woodpeckers are a populous group—about 205 species—who, with characteristic enterprise have distributed themselves around the world, these questions have kept Dr. Short's passport as well worn as his microscope.

There is no such thing as a typical expedition in Dr. Short's experience. He has collected and observed woodpeckers in the woods of New Jersey and on the plains of California. He has listened for their drumming drill in the parks of Paris and the rain forests of Peru. Nor is there any set length of time. Some field trips last a few days; others, as long as six months.

And, each trip brings its own surprises. Although he has yet to bag a new species of woodpecker, Dr. Short did discover a new species of blackbird in the forest marshes of eastern Peru. (No small coup, since new species of birds are described on the average of one a year.)

Expeditions—especially in South America—bring other surprises as well. Thanks to his own fine plumage (a blossoming Vandyke) and such equipment as a movie camera, tape recorders and gun, Dr. Short is himself in danger of falling prey to over-zealous town guardians. Once, in Argentina, Dr. Short found himself summarily bagged by an officious petty official who, despite the ornithologist's protestations and credentials, held him captive for twelve hours. Finally, at eight that evening, the police captain of the district set him free with an embarrassed apology.

Such occupational hazards are all in an expedition's work and, undaunted, Dr. Short is planning future field trips to Africa and Southeast Asia where, on the veld and in the jungle, he will happily pursue the drumming cadence of the woodpecker pecking wood.

C. Lavett Smith

Associate Curator, Department of Ichthyology

Joined the Museum Staff in 1962

B.S., 1949, Cornell University

Ph.D., 1959, University of Michigan

Residence: Closter, N.J.

Although his title is that of Associate Curator of Ichthyology, Dr. C. Lavett Smith is really an underwater sociologist who observes his groups through a face mask using scuba equipment. His interest in the social relationships among fishes has led him to work in the Bahamas, where in a coral stack the size of an office desk, Dr. Smith has found as many as seventy different species of fishes living together.

Dr. Smith is quick to point out that the living arrangements are by no means haphazard. Early reports from his study indicate a highly organized form of community living. These fishes have a strong sense of territory and will guard their niche of coral against all outsiders, including Dr. Smith—who has been nipped at. These fishes also guard their eggs, and, in general, appear to act more as individuals than do open water fish which tend to travel in schools.

Not all of Dr. Smith's research is done under water, however. Even the computer has been brought into use to further his studies of interaction among fishes.

Dr. Smith also finds time to study another fascinating aspect of marine life . . . that of hermaphroditic fishes. These fish either fertilize their own eggs or else are capable of changing from one sex to another. Through this study, Dr. Smith hopes to gain clues to the evolutionary significance of sexual mechanisms in both the past and in the future.

In addition to all this, Dr. Smith does research in the classification of fishes, and general marine ecology. He is the author of many articles and has done field work in Puerto Rico, Guam, Bermuda, Kansas, and California as well as in the Bahamas.

Richard H. Tedford

Associate Curator, Department of Vertebrate Paleontology

Joined the Museum Staff in 1966

B.S., 1951, University of California at Los Angeles

Ph.D., 1960, University of California at Berkeley

Residence: Fort Lee, N.J.

Dr. Richard Tedford gets a certain gleam about the eyes when he talks about his work. The condition, as he himself diagnoses it, "is fossil fever, an incurable disease to which most of us vertebrate paleontologists gladly succumb."

Like many seemingly innocuous but subsequently virulent viruses. Dr. Tedford caught it by chance and at a tender age.

"I was a chemistry major at UCLA," he traces its origin, "and one weekend a friend and I decided to break up the routine of study by looking for fossils. The next weekend we went out again and the one after that. Before I knew it, I was tramping through the desert every weekend and vacation I could manage."

Once the fever took hold, there was no checking its spread. Although Dr. Tedford went on to graduate as a chemistry major—"I was too far into it to change"—he set out the following fall for Berkeley where "I registered for every paleontology, zoology and geology course I could fit in.

"At the time I was in graduate school," Dr. Tedford sketches in a few paleontological facts, "we knew next to nothing about the Tertiary marsupials of Australia." (The Tertiary Age ranges from two to sixty-five million years ago.) "Anyway, one day quite out of the blue, my professor said to me: 'How would you like to come to Australia? I want to find out about that sixty-three-million-year Tertiary gap.' It was like asking a child whether he wanted to come to the candy store. Of course, I wanted to go."

And so Dr. Tedford packed his gear and headed West on what would eventually prove to be the first of seven Australian expeditions. As a result of those trips, Dr. Tedford—in this order—met, courted and married his wife who worked for the South Australian Museum; wrote his doctoral thesis on the fossils of giant kangaroos found there; and, in collaboration with his professor, was able to build up a rough outline of the last 30 million years of the history of the marsupial in Australia.

Not content to rest on such impressive paleontological laurels, Dr. Tedford now wants to push the record back the remaining 33 million years.

"The most exciting work is yet to be done. The major period of marsupial diversification occurred during that 33-million-year gap, and we're still ignorant of it," he says.

And if Dr. Tedford's eyes light up when he remembers past fossil finds, his whole face glows with anticipation of what the future holds.

Ethel Tobach

Associate Curator, Department of Animal Behavior

Joined the Museum Staff in 1950

B.A., 1949, Hunter College

Ph.D., 1957, New York University

Residence: Manhattan

To most women, the sight of a single mouse is stimulus enough to run for cover and scream for help. To Dr. Ethel Tobach, the appearance of 200 rats is a sign that her work day is about to begin.

Dr. Tobach is a psychologist, or more specifically, a comparative behavioral psychologist who bid adieu to her pre-med program in college after concluding that the study of psychology might better answer the question: "Why do people do what they do?"

It is this question which unashamedly provides the foundation of Dr. Tobach's motivation, even as she observes her rats reacting to a new environment or attempts to isolate the conditions under which sea hares off Bimini will emit what looks like purple ink.

"What I believe my field offers," Dr. Tobach suggests, "is a theoretical orientation that enables a constant generation of hypotheses which can be tested." These tests, she goes on, have already uncovered basic principles of learning which are now commonly applied in such places as the nation's classrooms.

Although Dr. Tobach primarily studies rats because "they can be used reasonably well in a laboratory, their behavior is amazingly plastic, and their physiology is surprisingly similar to that of human beings," she also goes into the field to examine such animals as wild rodents, and feels comfortable working with human beings in a psychiatric setting.

Despite her heavy exposure to animals, Dr. Tobach describes herself as "not a pet fancier." That her affections are primarily reserved for fellow humans may be readily ascertained by a visit to her office. There, on an average day, one can find not only the perennial band of students who happily cluster under her expansive tutelage, but also a number of former students who somehow make regular migrations back to the breeding grounds of their minds. This, in the jargon of psychology, can only be conditioning that results from a positive learning experience.

Colin M. Turnbull

Associate Curator of African Ethnology, Department of Anthropology

Joined the Museum Staff in 1959

B.A., 1947, Oxford University, England

D.Phil., 1964, Oxford University, England

Residence: Manhattan

A funny thing happened to Colin Turnbull on his way back to London after studying Indian philosophy for two years at the University of Benares—he became an African ethnologist.

This somewhat startling turn of events took place after Dr. Turnbull decided to stop off and see a little of Africa on his return trip. The stopover, it turned out, lasted almost a year, and what Dr. Turnbull saw during that time inspired him to change continents and specialties in mid-flight.

Today, nearly twenty years later, Dr. Turnbull is recognized as one of the world's outstanding African ethnologists. He has spent more than six years doing field work in, and has written five books on, the peoples of that continent (and, most recently, a book on Tibet, indicating a continuing interest in Asia). Not long ago, he supervised construction of the Museum's Hall of Man in Africa, which drew rave reviews not only in the American press, but also from African journalists who covered the opening.

While Dr. Turnbull has studied African peoples as diverse as the nomadic Berber tribesmen of the Sahara and the Pokot herders of Kenya's grasslands, his first love and greatest authority undoubtedly rests with the pygmies of the Congo. Despite the dispassionate perspective which any good anthropologist must own, Dr. Turnbull would readily acknowledge that when he goes back to see the pygmies, he feels very much at home.

Just a few months ago, Dr. Turnbull went back to see pygmies—but not the Congo ones. Instead he went 1,000 miles to the west, to the Central African Republic, to launch a comparative study between a pygmy group there and the more familiar one in the Ituri Forest of the Congo.

All this might be enough to keep any five men busy. Yet on Dr. Turnbull's crowded agenda is still another major project: to study ghetto communities for the purpose of defining what black American culture is and how it compares to African culture.

And there is more: he has recently become involved with an informal program to help ghetto communities develop their own local exhibits with Dr. Turnbull and others acting as advisers.

The demands on Dr. Turnbull's time are so great that it is no surprise to learn that his spare time permits only one hobby, playing the harpsichord. And like everything else he does, Dr. Turnbull does this well—although not so intensely.

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