

*Fossil Collecting Near Chicago . . .***COAL-AGE PLANTS AND ANIMALS OF THE BRAIDWOOD AREA**

By EUGENE S. RICHARDSON, JR.  
CURATOR OF INVERTEBRATE FOSSILS

**M**OST of the inhabitants of large cities are too concerned with other matters to devote much attention to the aspect of their countryside in the far-distant days before the appearance of man and his prob-

collect fossils of Ordovician, Silurian, Devonian, Pennsylvanian, and Pleistocene age (*see table*). An exhibit showing where to find the rocks of these various ages will be seen in Hall 37 (Frederick J. V. Skiff Hall) when it is opened following the current reinstallation of the cases.

and broken rock ("spoil heaps") 50 feet high, beside the cuts from which the coal has been removed.

From this area, bounded by Wilmington, Braidwood, and Coal City, and reached from Chicago by U. S. Highway 66, Museum parties and amateur collectors have for many years brought back fossil plants and animals of the coal swamps of Pennsylvanian time (about 250,000,000 years ago). For an even longer time—since 1857—similar fossils have been collected from the bed of Mazon Creek, a tributary of the Illinois River a few miles southeast of Morris.



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**ANOTHER PART OF THE CARBONIFEROUS FOREST DIORAMA**

This section adjoins that depicted on the cover. Note the giant cockroach on tree at left—in those days these creatures grew to lengths up to three and one-half inches.

lems. Nevertheless, an interest in the fossil remains of our long-extinct predecessors brings many thousands of people to the Museum every year to see our collections. Some of these people, indeed, collect fossils in or near the city and bring them here to learn their names and history. Chicago is almost unique among large cities of this country in being built on bedrock containing an abundant fossil record of the life of millions of years ago.

Beneath the cover of gravel, sand, and clay left here by the ice sheet that 25,000 years ago moved most of Canada's soil down south of the border is the bedrock on which Chicago is built, a hard dolomite of Silurian age (about 375,000,000 years old) deposited in a sea that teemed with living things in and around great submerged reefs. Fossils weathered or broken from this rock are often found in quarries or on the city beaches.

Within fifty miles of the Loop, one may

One of the most rewarding near-by areas for those wishing to collect fossils is on the southern edge of the imaginary fifty-mile circle around Chicago. There, strip-mining operations have dug up the bedrock shale lying above a vein of coal (the so-called No. 2 Coal) and have left it, in great piles of clay

**TABLE**

Period	began, years ago
Pleistocene	1,000,000
Tertiary	75,000,000
Cretaceous	110,000,000
Jurassic	175,000,000
Triassic	200,000,000
Permian	240,000,000
Pennsylvanian	280,000,000
Mississippian	310,000,000
Devonian	350,000,000
Silurian	380,000,000
Ordovician	450,000,000
Cambrian	540,000,000

**NODULES BY THE BUSHEL**

The gray shale removed from above the No. 2 Coal quickly weathers to a brown or buff clay when exposed in the spoil heaps, and in about ten years becomes covered with small trees and weeds. But in the interval during which the heaps lie bare, the fossil collector finds happy hunting, for the shale contains numerous concretions or nodules (*see illustration*). These are spheroidal bodies formed by the deposition of iron compounds, within the shale, surrounding a core of some foreign material, very commonly a fossil. When the shale crumbles to clay in the open air, the concretions, being harder, remain intact, and one may pick them up by the bushel from the surface of the spoil heaps.

A sharp blow with a hammer on the narrow edge of the nodule should split it open, revealing a fern leaf or animal fossil as the center. The ferns are represented by

**A NODULE OR CONCRETION**

It has been split open by a hammer blow, disclosing as the core a leaflet of the seed-fern *Neuropteris*.

a very accurate impression in the fine-grained rock covered with a film of carbon, the residue of the plant tissues, the other ingredients having been slowly distilled away over millions of years of burial. The



animal fossils are less common and are usually not carbonized.

In the last nineteen years, Mr. George Langford, Assistant Curator of Fossil Plants on the Museum staff, has collected more than 500 different species of plants and 100 species of animals in nodules from these spoil heaps. Thus we know that the swamps



Drawing by Curator Richardson

#### 'NUT-CRACKING' FOR SCIENCE

A collector cracking nodules in the field. He uses a flat-faced hammer, holding the nodule edgewise on a convenient stone "anvil." He has thoughtfully brought along a galvanizing pail to carry home the nodules that contain good fossils.

from which the Illinois coal was derived were unusually rich in life forms as compared with even present-day swamps. The plant remains range from tiny spores and ferns to pieces of the trunks of large tree-ferns and club mosses. The animals include horse-shoe crabs, mussels, shrimp-like forms, millipedes, insects, spiders, and fishes. The climate in which they all lived was warm and humid, with shallow fresh water underfoot, probably moving sluggishly toward the sea that then covered the Missouri and Kansas region. Overhead were tall fern-like trees, such as may be seen in the famous diorama of a coal-swamp forest in Ernest R. Graham Hall (Hall 38), shown on the cover of this BULLETIN and on page 3.

#### BEST SPECIMENS NOT SHOWIEST

Since new or rare species of plant and animal fossils are continually being discovered in the Pennsylvanian nodules of the Braidwood area, it is highly desirable that anyone collecting in that area should have his specimens identified and should make some provision for depositing the scientifically valuable material in the Museum. Let him who wants to build a collection of his own be not alarmed that he will lose it in this way, however. The scientifically important nodules in his cabinet will most likely not be those that are the most spectacular to look at. Ex-

perience has shown that the showiest specimens belong in general to the commonest species; the rare ones are very frequently thrown away by the amateur collector without even being taken home.

### THE MUSEUM AND STUDY OF LIVING PEOPLES

By ALEXANDER SPOEHR  
CURATOR OF OCEANIC ETHNOLOGY

As part of the program of research and exhibition carried on by the Department of Anthropology, one of the Museum's major interests has been in ethnology—the study of the cultures of living peoples.

Ethnology is often supposed to be restricted to the observation of primitive peoples only, as these existed in their native state, unaffected by contact with the western world. However, there are few if any groups left that remain completely undisturbed by the expanding industrial civilization of Europe and America. If ethnology is only the study of primitive peoples in their pristine state, then its subject matter has almost disappeared.

Ethnologists, however, do not accept this limitation of their field. It is perfectly true that they have concentrated attention on the lesser-known, often technologically primitive, peoples of the world. The reason for this is to be found in the broad comparative framework in which anthropological study proceeds.

#### BROAD AS THE EARTH

Anthropology, of which ethnology is a subdivision, is oriented around the conviction that man and his works should be observed and studied wherever man, or evidence for his former presence, is to be found. The proper study of mankind is as broad as the earth and extends as far back in the corridors of time as the evidence permits. In implementing this approach, ethnologists concentrated on those living peoples of the world about which little or nothing was known. They concerned themselves with learning more about exotic groups, some of them possessors of only the simplest techniques with which to make a living, others with an advanced technology and a sophisticated art. Great museum collections illustrating the native cultures of Africa, Oceania, Asia, Australia, and the Americas were established in the urban centers of Europe and America.

In the relatively short span of its existence, ethnology has been able to block out the major indigenous cultures of the world. Through the continuous improvement of its exhibits, this Museum has as one of its jobs to show the diversity of form and the essential characteristics that the world's cultures display, in order that we may deepen our perspective of man in relation to his culture and come to understand better the

variety of culture types that have been associated with human groups over the earth.

So far, we have emphasized two things about ethnology: its comparative nature and its interest in men wherever they live. These prompted the sending of ethnological expeditions to isolated places. Although the native cultures of even the most remote peoples now have been affected by the expansion of western civilization, there is no sound reason to believe that humanity the earth over will soon be the possessors of a uniform culture. There will remain great blocks of peoples in Asia, Africa, and the Pacific whose cultures will continue to be very different from our own.

#### 'AREA STUDIES'

At the moment one of the major interests in research and teaching in universities is in foreign "area studies"—the thorough understanding of a major world area with its human population and its culture. The prominence of the United States in world affairs demands a wider knowledge of the people of such major areas if our relations with them are to be in any degree satisfactory to us and to them. Ethnology is particularly suited to the furtherance of such area studies.

In striving for a fuller understanding of the historical relations of peoples the world over, ethnology joins hands with archaeology and documented history. Ethnology has been a major contributor to one of the principal demonstrations that anthropology has made: the importance and nature of culture—that entity consisting of a traditional heritage of meanings shared in by a society. And it has developed the comparative method in its techniques for showing the stuff of which cultures are made and wherein they differ. It has striven for objectivity, so necessary for understanding.

This contribution of ethnology to foreign area studies is not merely academic. With the conclusion of World War II, the United States assumed the responsibility for the administration of the ex-Japanese Mandate in the Pacific, consisting of most of the islands of Micronesia. Yet in this country little was known of the people who lived there. Accordingly in 1947 and 1948, a program of ethnological research, in which the Museum participated, was conducted in Micronesia to find what the cultures of the area were like—in what ways they were similar and how they differed. The information obtained will be of use not merely to anthropologists but also to the administrators of the area, who must have a basic knowledge of the people if administration is to be successful.

#### SOCIAL ANTHROPOLOGY

Growing out of the comparative nature of ethnology there has also crystallized a special interest, which has come to be called social anthropology. The aim of social





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