



Dedicated to
JOHN W. HARSHBERGER
1869-1929

A prolific floristic and taxonomic botanist,
who in 1895 first coined the word *ethnobotany*

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ETHNOBOTANY
Evolution of a Discipline

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Preface

Ethnobotany is a very old discipline. Knowledge of useful plants must go back to the beginning of human existence; even today there is evidence that simian animals seek out plants useful to their purpose. But primitive men and women must of necessity have been something approaching ethnobotanists: they certainly had to classify plants into those without any use, those from which they could obtain nourishment or stimulation, those which could alleviate ills or even cure sicknesses, those with psychoactivity, and those which, if ingested, could kill a person. Imagine their astonishment to discover that a few plants, the hallucinogens, put them, through visual and other hallucinations, in contact with the supernatural world, the ancestors, and the malevolent or benevolent spirits who controlled all the affairs of the human race on earth.

In every culture, and probably very early, there were men or women especially knowledgeable in the properties of plants. These individuals often rose to an exalted rank. To this day, in many unacculturated and superficially acculturated societies, the medicine men and women or shamans still hold a high position in many phases of tribal life. These individuals diagnose and "treat" illnesses, determine the causes of death, assure good harvest through rituals, explain climatic and natural phenomena, control methods of hunting and fishing, are the repository of tribal mythology and history, and usually are the specialists who manipulate and control hallucinogenic drugs that are held to be sacred.

Over millennia, the human race's dependence on the Plant Kingdom for most of its needs increased. Eventually agriculture, the ability of humans to domesticate certain plants, was discovered, first in the Old World, slightly later in the New World, leading to a different kind of dependence, particularly on food plants. The advent of agriculture had sundry effects on the old-fashioned ethnobotany, an effect which today is evident in the extremely significant knowledge of biological diversity found in many primitive societies.

Only in the twentieth century, however, has ethnobotany assumed the status of a distinct branch of natural science. Ethnobotany today has numerous definitions. The most widely employed explanation is "the use of plants in primitive societies," as opposed to the term *economic botany*, which is normally meant to indicate the study of plants used in advanced agroindustrial societies. Another definition maintains that ethnobotany comprises the complete registration and understanding of the classification, uses, and practical, religious, and superstitious concepts concerning plants in primitive or unlettered societies. Our own belief is that a broader definition is desirable, and we propose to consider the term to mean "the study of human evaluation and manipulation of plant materials, substances, and phenomena, including relevant concepts, in primitive or unlettered so-

cieties." It is obvious from such inclusive definitions that ethnobotany must be highly interdisciplinary, drawing from aspects of botany, anthropology, archaeology, phytochemistry, pharmacology, medicine, history, religion, geography, and numerous other tangentially pertinent sciences and arts.

The study of ethnobotany and research has undergone changes and has been significantly amplified in the century since the term was first used in 1895. Its constant growth resulted in the necessary proliferation of terms to describe sundry specialized subdivisions of the study: ethnobiology, ethnopharmacology, archaeoethnobotany (often called paleoethnobotany), ethnoecology, ethnomedicine, ethnomycology, socioethnobotany, and a number of others.

The first half of the twentieth century has seen a rapid development of interest in ethnobotany, as an admittedly incomplete enumeration of events and activities will illustrate. In the United States and Canada more research is being carried out each year; many more university courses in ethnobotany are now being offered and the number of doctoral dissertations based on ethnobotanical field work has proliferated. The discipline is alive and prospering in many other countries around the globe: Mexico, Colombia, Brazil, Germany, Spain, Italy, the United Kingdom, and especially France, India, China, and Kenya—to name only a few. National and international societies dedicated to ethnobotany or one of its specialized subdivisions have been formed. The Society of Ethnopharmacology, for example, was founded in 1990 during an international symposium held in Strasbourg, France. Symposia and meetings, national and international, are being held with more frequency; *Ethnobotanica '92*, for example, was held in Córdoba, Spain, in celebration of the 500th year of Columbus's arrival in the Western Hemisphere. National and international conservation organizations are devoting evermore attention to ethnobotanical conservation to salvage some of the remaining knowledge possessed by still aboriginal societies in various parts of the world. There is growing interest in the pharmaceutical industry in a number of countries, and in the United States an organization was established exclusively to study plants used in primitive societies.

Publishers are offering each year more books in ethnobotany. Numerous scientific journals are devoted to articles in this discipline: *Journal of Ethnopharmacology*, *Journal of Ethnobiology*, *Planta Medica*, *Ethnobotany*, *Social Pharmacology*, *Diversity*, *Environmental Conservation*, and *Environmental Awareness*, to name but a few. Sundry long-established botanical and anthropological publications are now accepting ethnobotanical papers of various kinds; *Bulletin d'Agriculture Tropical et Coloniale* has had a long history of publishing ethnobotanical studies; *American Anthropologist* readily accepts articles in this field; and the German journal *Curare* is mainly ethnobotanical. Numerous journals formerly devoted exclusively to taxonomy or other fields of botany have realized the tangential importance of ethnobotanical research to many more specialized areas of research in the plant sciences. Even widely read popular publications (e.g., *National Geographic* and *Smithsonian*) welcome material on the uses of plants and their importance among indigenous peoples; and newspapers and the television are devoting more space and time to ethnobotanical conservation.

In the main, two kinds of goals influence ethnobotanical research. One—of great interest and significance to anthropologists, archaeologists, sociologists as well as to students of mythology and the origin of religions and related fields—concerns the psychological aspects of the ways that aboriginal peoples interpret and treat their useful plants. This aspect is of deep interest from an academic viewpoint. The other goal concerns the possibility of finding new species valuable for agriculture or industry or of discovering and salvaging new chemicals from the wild floras of the world.

Modern medicine or industry may never use some of the many new chemical compounds isolated from plants, but literally thousands of new secondary constituents of

plants have been reported in the twentieth century: in 1950, for example, fewer than 5000 alkaloids were known, but in 1990 more than 10,000 were known, a majority from tropical species. From the chemical viewpoint, the world's flora—estimated to consist of up to 500,000 higher plants—has hardly been touched; it has been stated that fewer than 10 percent of the calculated 80,000 species of Amazonia, for example, have been superficially analyzed. Phytochemists would undoubtedly find it well nigh impossible to collect enough material from such a remote region to analyze 80,000 species. Concentrating on those plants that Amazonian tribal peoples by experimentation over the centuries have found to be bioactive could provide chemists with a kind of short cut.

The value of learning from the perspicacity of many aboriginal peoples about the biodiversity of plants—those which they use and those which they know only as elements of the forest—should not be overlooked. Ethnobotanical studies devoted to this aspect of field research should be given greater and immediate attention in view of the unchecked and wanton destruction of vast areas of the world's forests.

The use of plants usually requires some kind of technology. It may be simple, such as cooking, or complex, such as the elaboration of curare. Two general types of technology can be recognized. One concerns the technological treatment by indigenous peoples; this type might be termed *aboriginal technology*. The second type is the *advanced or complex technology* of modern industry and science. Although it is not generally realized, modern, advanced technology has to a great extent utilized and built upon some of the discoveries which were made in primitive societies over the centuries and which still comprise present-day aboriginal technology.

More and more has the practical value of ethnobotanical conservation been appreciated for the many contributions that it has offered to science. One of the most significant contributions is the intricate knowledge of minute and often hidden differences in species—that is, biodiversity—of such extreme importance to modern genetics. Aboriginal peoples usually possess an uncanny ability to appreciate diversity, even within a single species, often when trained botanists cannot distinguish the characters that indigenous peoples use to differentiate the strains, races, or ecotypes. Protecting areas of virgin vegetation believed to have an unusually high density of biological diversity has become one of the major aims of environmentalists, and attention to the ability of indigenous peoples to distinguish the aboriginally recognizable differences will be one of the most important contributions of ethnobotanists in the future.

A basic need—and one that has already begun to be met—is the training of more young people for ethnobotanical research and field work. A concurrent need is the availability of research funds from a variety of sources to support this urgent research. Along with these is the need to put international pressure on countries with government-supported or government-condoned programs that involve the invasion or systematic destruction of regions where defenseless indigenous peoples have lived for centuries—programs that promote reckless burning of forests, poisoning of rivers, leveling of indigenous housing, disintegration of cultures, and, not infrequently, the physical annihilation of whole tribes.

It is in the interest of crystallizing the urgency of intensifying ethnobotanical research that we have prepared this volume. While it has not been possible to publish material representative of all the many phases of ethnobotany nor from all the outstanding specialists, we have tried to present a broad spectrum from numerous geographical regions. Most of the contributions are original, written for this book, but we have reprinted a few because (1) they consider aspects not otherwise covered in this book, (2) they were published in obscure journals, (3) they are botanically significant though they are in fields not commonly associated with ethnobotany, or (4) they are simply outstanding.

Why explore the status of ethnobotany today? Because the time has come to evaluate

this discipline and its position in the sciences and in environmental conservation, particularly from the point of view of the welfare of future generations. It is our sincere hope that publication of this collection of essays will help in increasing the preparation of more ethnobotanists, a distinct necessity for all humanity in view of the rapid disappearance of native knowledge with acculturation and the disappearance of the precious ethnobotanical knowledge of so-called primitive cultures.

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Richard Evans Schultes

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