

Ethnobiology

Involvement in the definition of any scientific field is a decision as to not only the characteristics to be adopted, but also the orientation that one wishes to give to the field, or which may emerge from analysis of its historical development. In the case of ethnobiology, for instance, we can follow the example of Whiting in 1938 with respect to ethnobotany¹ and opt for a simple record of what all the authors are doing, thereby including in the equation a whole range of elements which may in the end seem extremely disparate and heterogeneous. This position, which is the one adopted by most early and contemporary ethnobotanists and ethnozoologists, posits ethnobiology as a science which proposes to study *all* interactions between humans and biological elements. In a brilliant assignment submitted to Volney Jones² for one of the courses offered at the Ethnobotanical Laboratory of the University of Michigan at Ann Arbor, Grossinger (1968: 1) in fact commented that this "can be done to an obsessive degree as in *An Introduction to Ethnobotany* by P.J. Faulks [1958]; here we are told of every possible [and impossible] connection between plants and man right down to the lodgement and protection of nuisances (such as noisy birds and insects),"³ and all connection to the original field has virtually vanished.

There is however a second possibility, which is to attempt to discover in the work done a main strand by which one can situate oneself. This strand must meet certain very specific requirements: for example, it must be theoretically and methodologically homogeneous enough to provide meaning or direction to the entire history of the discipline. From this perspective, and in light of a study we are currently conducting on the evolution of ethnobiological research from 1860 to the present, the following definition of ethnobiology seems to us central to the movement, in that it constitutes its solid, classical nucleus, encircled by other trends which have been developed to varying degrees.

Ethnobiology is the study of the biological sciences as they are practised by the various ethnic groups studied by ethnology. In other words, ethnobiology is concerned with all of the knowledge of the various ethnic groups (including those in Western societies) on the subject of plants and animals; "science" derives from the Latin *scientia* which means "knowledge."⁴ Neither is the verb "practise," to describe the relation between the various peoples and their sciences, an accidental term: it accurately conveys the theoretical and practical duality of the sciences, something which French ethnobiologists often endeavour to describe using the dual notion of

savoir and *savoir-faire* in the matter of recording the knowledge of other societies.

Ethnobiology is comprised of two branches, ethnobotany and ethnozoology, and the first of these is fundamental by virtue of the number, quality and earliness of the work produced under its name. The historical beginnings of ethnobiology are lost in the mists of time, and vary with different cultures, where interest in botanical and zoological knowledge is intermingled with myths of origin, genesis texts or sacred books. Here we understand it to begin in the period which saw the appearance of the first Western designations directly related to the discipline, that is, in the 1860s. Ethnobiology is to be distinguished from sociobiology, with which it is not connected. While the latter aims to study, at least so far as the social sciences are concerned, various social behaviours such as incest, matrimonial rules and filiation phenomena, which it attempts to explain solely by means of biology, the former is more concerned with discourse and actions upon material than with behaviour, and ascribes to biology nothing more than a secondary role. As Conklin so aptly stated (1954b: 11) with regard to his primary objective, namely, the study of semantic systems, in ethnobiology biological data must not take precedence over interest in the representation of modes of cultural knowledge of natural elements; in this sense, ethnobiology would partake far more of the social sciences than of the exact sciences.

The brief historical description which follows constitutes an introduction to ethnobiology. Its intention is to situate the main trends, describe their origins, and outline the principal theories and methods used. The history of ethnobiology is presented in seven parts, which themselves reflect three main eras: the pre-classical period, which extends from 1860 to 1953 and which saw the emergence, as Portères puts it, of the first "ethno-"s (Portères, 1977) and the first syntheses; the classical period⁵ (1954-1980), when the study of natural representations tends to take more account of the viewpoint of the persons primarily concerned—this marks a transition from an exterior or etic study of phenomena (such as economic uses) to a more emic⁶ or interior study of the same phenomena (such as the systems of nomenclature and classification peculiar to the culture studied); and the post-classical period (1981 to the present), which raises new problems and questions for both researchers and the populations studied, questions which relate in particular to the appropriation and management of plant and animal resources. The seven parts which form the structure of this history have the following key themes: (1) the economic uses of plants and animals (1860-99); (2) gather-

ing more information (1900-31); (3) the first syntheses (1932-53); (4) emic knowledge (1954-68); (5) classification (1969-80); (6) associations (1981-92); and (7) resources and their management (1993 to the present).

*Economic Uses (1860-99)*⁷

For his collection of papers in ethnobiology, Richard Ford (1986) selected as the oldest essay one by a Canadian author, B.R. Ross, an agent of the Hudson's Bay Company, who wrote about the economic uses of animals made by the Chipewyan Indians of Canada. B.R. Ross (1861, 1862a, 1862b) in fact published a number of texts on the economic uses of plants, animals and minerals by these Amerindians. Ross, who also collected specimens for the Royal Industrial Museum of Edinburgh, provides a very good reflection of the concerns of his time and the context which yielded the first designations for ethnobiology. These concerns were economic, material and museological in nature, for they were oriented by interests in the economic uses of plants and animals which led researchers to investigate not only products of the industrial arts but also the actual plant and animal materials used to manufacture those products. Such concerns permeate most of the research done during this period.

Rochebrune, Stearns, Coville, Harshberger and Mason, who were among the founders of ethnobiology, were all researchers affiliated with certain museum institutions and their interests were essentially of an economic nature. Rochebrune (1879, 1882-83), for example, was an assistant naturalist working at the Paris Muséum with archaeological collections from Peru; he is noteworthy as one of the first to attempt to delineate the study of usages of both plants and certain animal species by creating the terms "botanical ethnography" and "ethnographic conchology." Stearns (1889), whose research was known to Rochebrune, was an associate in the Department of Biology of the Smithsonian Institution who was interested in the use of shells by Amerindians; he proposed that this specialty be designated "ethnoconchology," which he defined at the time as the study of conchology "in its ethnological aspect." Coville (1895), a curator in the same department, was the first to write a text exclusively devoted to the methods of investigation proper to ethnobiology, namely, his "Directions for Collecting Specimens and Information Illustrating the Aboriginal Uses of Plants." Harshberger (1896) was a professor of biology at the University of Pennsylvania, and it was in connection with the possibility of creating an "ethno-botanic" garden adjoining a future museum planned at the same university that the term was introduced (Anonymous, 1895a). The new discipline was bet-

ter defined in an article published the following year, 1896, which outlined its four basic objectives, illustrated primarily by means of an archaeological collection of artifacts from the American Southwest (Anonymous, 1895b; Harshberger, 1896). These objectives, essentially economic in nature, can be summarized as the study of the evolutionary stages of peoples as reflected in their use of plants, and analysis of these plants also as means of providing invaluable information about plant distribution routes, the trade routes of human groups, and in certain cases, the discovery of new manufacturing uses or techniques for Western societies. Finally, Mason (1899), a curator at the Smithsonian's Department of Ethnology, coined the term "ethnozoölogy" in 1899, the definition of which amounts to a mere list of the species used in a given culture. Mason includes this ethnozoölogy within a broader whole which he calls "zoötechny," which encompasses knowledge about animals.

Other authors also left their mark during this period, and should not be overlooked. Apart from all those known for having inventoried the many uses of plants and animals, such as Palmer (1871, 1878), Havard (1895, 1896), Heckel (1897), Sébire (1899) and others, Powers (1875), for example, proposed the term "aboriginal botany" for the new science, which met with some success during these decades (Coville, 1895; Mason, 1889). There was also Paso y Troncoso (1883-84), whose ideas were however too advanced for his time and had little impact on it; in one extremely intelligent work, he demonstrated how the botanical knowledge of the ancient Nahuas of Mexico could lay claim to the status of science. Even today, he remains largely unrecognized.

With a few exceptions, all late 19th-century American and French research on Aboriginal knowledge of plants and animals nonetheless presents this knowledge within an evolutionist framework. Natives are not civilized and have no classification system (Powers, 1875: 373); their medical knowledge is worthless (Mooney, 1891: 322) or derives from superstition (Heckel, 1900: 552), fantasy (Lasnet, 1900: 171) or fetishism (Sébire, 1899: xii). Under such conditions, the only possible interest they can arouse is utilitarian in nature. Hence there was a search for food, medical, textile, forage, rubber and other products most likely to contribute to the development of more civilized societies. Analysis to determine the nutritive, pharmacological or industrial value of these newly "discovered" products proliferated. Given this context, it is no surprise that the first definitions were all oriented toward the economic uses of plants and animals by the populations studied.

More Information (1900-31)

The next period saw the field of ethnobiology expand proportionally to the range of information sought. The interest in economic uses was gradually, sometimes imperceptibly succeeded by an era when the search for new data definitely reflected a desire to understand cultures other than Western society, an era no longer confined to economic concerns. Its marching orders were given by Robbins, Harrington and Freire-Marreco (1916), the second of whom is recognized as one of the first to have written work devoted exclusively to ethnobotany and ethnozoology (see also Henderson and Harrington, 1914):

It is a comparatively easy matter for one to collect plants, to procure their names from the Indians, then to send the plants to a botanist for determination, and ultimately to formulate a list of plants and their accompanying Indian names, with some notes regarding their medicinal and other uses. Ethnobotanical investigation deserves to be taken more seriously: *it should yield more information than this*; it should strike deeper into the thought and life of the people studied. (Robbins, Harrington and Freire-Marreco, 1916: 1; emphasis added.)

This change of direction was expressed in various ways. The search for more information still revealed some interest in economic uses, since certain researchers required data to improve known products or to discover new ones. This, for example, was the program of the *Revue de Botanique appliquée et d'Agriculture coloniale*⁸ which was born in 1921 as the successor to the *Revue des cultures coloniales* (1897-1904) and the *Journal d'Agriculture tropicale* (1901-19), whose aims were much the same. Auguste Chevalier, its long-standing editor, explicitly recognized the interest of colonial products when, in presenting the objectives of the Laboratoire d'agronomie coloniale (which he also directed), he stressed the need to "assemble constantly updated documentation on the principal colonial products: cotton, rubber, oil plants, coffee and cacao trees, tea plants, food plants, spices, sericulture, wood" (Chevalier, 1921: 5).

But this research was not confined to uses only. The importance of recording the vernacular names of species gained ground, preparing the way for the more sophisticated linguistic studies of the 1960s. Noteworthy in this regard is the work of Camus (1913) in Indochina, Bartlett (1926) in Sumatra, Popenoë (1926) in Morocco, Watson (1928) in Malaysia, Father Walker (1930, 1931) in Gabon and above all the authoritative work by Rolland (1967a

[1877-1915]; 1967b [1896-1914]), an undertaking of pure nomenclature with a plethora of natural history, linguistic and mythological data relating to numerous languages of Europe, the extreme north of Africa, and Western Asia.

Beyond nomenclature, there was no lack of subjects in this exciting period. Vernacular classifications (Gilmore, 1919: 137-138; Setchell, 1924: 220-224; Steedman, 1930: 454), knowledge relating to the names of parts of plants or animals and their functions (Chamberlain, 1906; Henderson and Harrington, 1914: 9; Robbins, Harrington and Freire-Marreco, 1916: 11-25), knowledge about animal behaviours (Jenks, 1911) and beliefs and myths about flora and fauna (Griaule, 1930; Hocart, 1916; Swanton, 1913) were all topics which would eventually make it possible, as Gilmore put it, to more intelligently interpret the cultures from which such information was drawn:

Another potent reason for gathering such information while it may still be obtained, before the death of all the old people who alone possess it, is that it is only in the light of knowledge of physical environments that folklore, ritual, ceremony, custom, song, story, and philosophy can be interpreted intelligently. (Gilmore, 1919: 45)

However, there was as yet no recognition that Natives had genuine classification systems, despite some general anthropological studies on the subject (Durkheim and Mauss, 1901-02) or certain ethnobotanical research which took a step in this direction: for example, Setchell (1924: 220-224), who admits that the Samoans have a system of nomenclature and some ideas about the evolution of species and that they establish affinities between plants. Unlike the preceding period, however, researchers are surprised at the scope and diversity of knowledge. Confining ourselves to works whose titles refer explicitly to ethnobotany or ethnozoology, there were 11 ethnobiological monographs published between 1900 and 1931 which testify to this (Barrows, 1900; Beckwith, 1927; Chamberlin, 1911; Henderson and Harrington, 1914; Robbins, Harrington and Freire-Marreco, 1916; Roys, 1976 [1931] Setchell, 1924; Smith, 1923, 1928; Steedman, 1930; Stevenson, 1915). These monographs frequently emphasize the possibility of comparative studies and the standardization of methods of investigation (criteria for selecting informants, the importance of language during the investigation, use of specimens or plates, details about the mounting of specimens). The one by Steedman,⁹ based on the field notes of Teit and discussing the Thompson Indians of British Columbia, is among the rare works which formally present Aboriginal knowledge according to the vernacular

names of species and not according to their order in Western biology, whether scholarly or popular. Such an approach breaks with the practice of the age and heralds the classical period of ethnobiology.

The First Syntheses (1932-53)

In view of the above situation, the ethnobiologist is constantly confronted with the problem of delimiting his attitude toward the field of investigation, of defining his point of view or "centre of gravity." This, in addition to the rapid progress made in ethnobiology during the last decade, and the recent emergence of the subject as a rather distinct field of inquiry, have motivated several investigators to attempt to circumscribe and define the field of ethnobiology, more particularly ethnobotany (Castetter, 1944: 161)

It would appear that the collection of data advocated by Harrington bore fruit. This fact was noted chiefly in ethnobotany ("A large amount of data associated in some manner with the contact of primitive peoples and plants has accumulated" [Jones, 1941: 219]), and the need if not the necessity was felt to better orient research efforts and provide some order to this mass of information. Manifestations of this need included the creation of a specialized centre, production of works in a specialized series and the writing of numerous syntheses.

In 1932, the ethnobotanist Gilmore published such a synthesis on the activities of the Ethnobotanical Laboratory of the University of Michigan, which had begun the botanical identification of archaeological material in 1930. The laboratory received its letters patent in 1938¹⁰ and is the oldest of its kind in the world. This synthesis, as well as numerous others published between 1932 and 1953, whether theoretical (Castetter, 1944; Harrington, 1947; Hédin, 1946; Jones, 1941; Maldonado-Koerdell, 1940; Schultes, 1941), or regional (Hill, 1945 and Yepes Agredo, 1953), did not yet present the knowledge of the ethnic groups studied by ethnology as genuine sciences, although a tendency to purge ethnobiology of its strictly utilitarian aspect marked another step in that direction. The most obvious expression of this demarcation was the emerging distinction between ethnobotanical studies on the one hand and economic botany studies on the other, with which other researchers would align themselves.

The noticeable distinction between these two approaches lies in the importance attached to the use of plants. Economic botany is in fact applied botany, where interest in the other society takes second place to the white man's interest in products and the plant matter on which those products are based (Castetter, 1944; Jones,

1941). For example, economic botany places far less emphasis on the linguistic aspect of interaction between humans and plants, gives marginal treatment to vernacular nomenclature and, when it does so, tends to produce scholarly works rather than analyses that strike "deeper into the thought and life" of the peoples studied. Harrington stresses study of the vernacular language in ethnobiology, and in 1947 even speaks of an elementary taxonomic system in Aboriginal cultures. This position contrasts sharply with that of economic botany—though it matters little, as Grossinger so rightly points out (1968), whether or not these various supporters see themselves as engaged more in economic botany than in ethnobotany—for which the study of cultivated plants, narcotic plants, techniques and the experimental (genetic) nature of plant analyses takes precedence over the emic aspects of relations between human groups and their natural environment.

As so clearly expressed by Castetter, who coined the term "ethnobiology" (Castetter, 1935), economic botany "does at times inquire into the relations between primitive man and plants, but rarely does it do so because of any interest in such primitive relationships for their own sake" (ibid., 1944: 161). In this period, however, it is difficult to classify certain authors in terms of their support for either of these trends. In his series of seven ethnobiological monographs,¹¹ Castetter, who is an ethnobiologist, often falls into what is essentially utilitarian description, while at the other extreme, the primary interest of authors such as Schultes (Vestal and Schultes, 1939) or Haudricourt¹² (Haudricourt and Hédin, 1987 [1943]) in relations between human groups and useful plants leads them to take into account the study of languages. In the 1930s, therefore, it might be better to speak of trends rather than actual schools, which would see greater development only later, for example, with the creation of the journal *Economic Botany* in 1947.

In Canada, some interesting work was being produced in ethnobiology, led by Jacques Rousseau, who was one of the first to use in French, in Quebec and abroad, the terms "ethnobotanique" (1935), "ethnozoologie" (1946b) and later "ethnobiologie" (1961).¹³ In chronological order, he also wrote about the botanical knowledge of Jacques Cartier (1937), the inhabitants of Île aux Coudres, Quebec and the Mohawk Amerindians of Caughnawaga (Rousseau and Raymond, 1945), the inhabitants of Anticosti Island (1946a), the Abenaki Amerindians (1947) and the botanical and zoological knowledge of the inhabitants of the Gaspé (1948). Although the vocabulary he uses to describe this knowledge (folklore, popular notions, simple herbalism, parascience) clearly re-

flects a hierarchical view of human knowledge in which academic science is the best yardstick, Rousseau nonetheless remains the most prolific representative of the French and American approaches: he was highly informed about U.S. publications, corresponded with the Ethnobotanical Laboratory in Michigan, and eventually went to Paris to teach and work with the ethnobotanists of the Muséum national d'Histoire naturelle. What better choice to be vice-president of the Eighth International Botanical Congress, held in Paris in 1954, and at the same time to chair the Ethnobotany section, another first in the history of ethnobiology.

Emic Knowledge (1954-68)

Conklin's doctoral dissertation, defended the same year as this 1954 congress, is one of the most formative works in the history of ethnobiology.¹⁴ Its effect at the time was not only to imbue all research with a new direction, but also to move the discipline beyond the limited circle of specialized researchers where it had been confined since its humble beginnings. This dissertation, on the botanical knowledge of the Hanunóo of the Philippines, was a first, spectacular presentation, in clear terms, of the extent of the knowledge held by non-Western societies. The fact that the Hanunóo had 1 625 different plant type names (1954b: 116) was a revelation, not to mention that this number was also higher than the 1 300 species distinguished by academic science at the time of the survey by Conklin (Conklin in Lévi-Strauss, 1962: 202-203). Lévi-Strauss made extensive use of this work in the opening of his *Pensée Sauvage* (1962), along with other examples from the research of well-known ethnobiologists such as Barrows (1900), Henderson and Harrington (1914), Robbins, Harrington and Freire-Marreco (1916), Whiting (1939), Fox (1952), etc., to illustrate the scope of Aboriginal nomenclature and classification systems.

This set the ball rolling. Researchers began to consider academic botany or zoology, in which most of them had their basic training, as secondary, and more emphasis was placed on a reading of the perception of living organisms by the populations being studied: "Our primary concern is not with the taxonomic botanical data, but with Hanunóo folk botanical knowledge and its organization. Scientific botanical considerations are secondary, and are included mainly for purposes of illuminating the comparison of two semantic systems" (Conklin, 1954b: 11).

It must also be noted that the linguistic work being done during the same period converged in a similar direction, and had its share of influence on the development of ethnobiological research. For example, Sapir-

Whorf's hypothesis that social reality follows the imperatives of the language of a given group, the concept of world view previously used by the German linguist Humboldt at the turn of the 18th to 19th centuries to express cultural differences in perception, the componential analysis method—a method designed to analyze a given set as a function of its segregates and their contrasting features—developed by Frake (1962), Goode-nough (1956), Lounsbury (1956) and other U.S. linguists, the differentiation between emic and etic made by the linguist Pike (1954): all of these theories, which had been applied in various fields of knowledge (kinship nomenclature, colour perception, disease terminology, etc.), also became increasingly common in ethnobiological studies (for example, Black, 1967; Bright and Bright, 1965).

The same researchers—linguists, anthropologists or ethnobiologists—also showed a notable interest in classification systems, a subject which was to become fundamental in future work and which is not unrelated to one of the new designations of the American movement described below and known variously as New Ethnography, Cognitive Anthropology or Ethnosemantics, and also as Ethnoscience. The latter term, which appeared in 1950 in the index of *Outline of Cultural Materials* by Murdock et al. (3rd ed.)—a document used to organize the data accumulated in the *Human Relations Area Files*—and which originally referred to "Ideas about nature and man" (this included ethnobotany and ethnozoology but also ethnometeorology, ethnophysics, etc.), quickly came to mean on the one hand, by reduction, the purely classificatory aspect of these ideas (Sturtevant, 1964), but also, on the other, a method of semantic analysis to reveal the same aspect (Anthropological Linguistics, 1966 n.s. *Ethnoscience*). This ambiguous use of the term "ethnoscience" as at once subject of study and method was criticized by Barrau (1984; 1985), a fact which in no way hampered its dissemination in France, where it is still readily used today to designate ethnobiological research or instruction.

When it first appeared, the term "ethnoscience" was also criticized for another implicit ambiguity, one of great significance in terms of the evolution of ethnobiology. This involved the "scientific" character of Aboriginal classifications, which was no sooner challenged (Spaulding in Sturtevant, 1964: 99) than immediately defended by certain anthropologists: since science is essentially an ordering of the universe, Aboriginal classifications could not be considered otherwise (Sturtevant, 1964: 99).

This position notwithstanding, the overall knowledge of others is still described in the work published in

these two decades as being at the opposite pole from science, if not as pre-science: it remains a "world view" (Black, 1967), "natural history" (Malkin, 1962: 3), knowledge equivalent to that of pre-Linnean biologists (Wyman and Bailey, 1964: 16), even if, on the other hand, certain works show the field of ethnobiological research expanding beyond mere taxonomic studies. For example, Malkin (1956a, 1956b, 1958, 1962), known for his ethnozoological work, records a good deal of data on Aboriginal knowledge about animal ecology, reproduction, behaviour, etc.

As had been the case in the U.S.A., there was also a separation between ethnobotany and economic botany in France. Portères, who was to head the Laboratoire d'Ethnobotanique founded in 1963,¹⁵ the successor to the Laboratoire de Botanique tropicale, clearly refers to this in a theoretical paper of the time: "Economic Botany treats of useful Plants, whether cultivated or not. . . . It lies more or less at the margin of Ethnobotany, as Botany applied to Man, to Human Societies" (Portères, 1961: 103). As for Rousseau, he continues to regard it as one of the major divisions of ethnobotany, another one being "analysis of folk concepts of plant biology" (Rousseau, 1961: 93).

Classification (1969-80)

The emic theories of the 1950s and 1960s were followed by what we shall call the major works in ethnobiology. These analyses are practical and sophisticated in their innumerable details, drawing on all of the theoretical and methodological progress of the preceding years. They deal mainly with classifications, but there are certain important developments in terms of nomenclature and overall knowledge.

The impetus came from the collection edited by Tyler (1969), *Cognitive Anthropology*, featuring a group of essays by ethnolinguists, anthropologists and ethnobiologists. A number of the ethnobiology texts, previously unpublished, exploit the various possibilities offered by linguistics and other disciplines in classification analysis and data acquisition methods: notions of structure, taxonomy, segregates, salient features, levels of contrast, paradigms; ways of presenting data: in boxes, trees or Venn diagrams; methodological refinement of data acquisition, such as techniques of controlled eliciting or Black's "white room"; consideration of variation among informants, etc.

Two major American works are particularly outstanding during this period: the monumental project by Brent Berlin and his colleagues (1974) on the principles of Tzeltal plant classification, and the zoological counter-

part on the same Tzeltal of Chiapas, Mexico, the study by his student, Eugene Hunn (1977). The baseline data and field of the former are impressive. This is a study conducted over more than 10 years, for which more than 100 000 plant specimens were collected and 64 informants questioned. The lexemic data total over 1 000 different names to refer to plants (Berlin et al., 1974: 37), and for the other project, no fewer than 557 names for animals (Hunn, 1977: 79). The analysis of these terms is highly sophisticated, in terms of both nomenclature (analyzable and unanalyzable primary lexemes and secondary lexemes) and classification (division into five principal ranks,¹⁶ namely, the unique beginner, life form, generic, specific and varietal). Berlin et al. also propose certain methods of evaluating correspondences between vernacular and academic systems, which were to receive their most advanced methodological development in Hunn (1977).

However, Americans were not the only ones to propose data analysis models, even though their influence was felt much farther afield (for example, in Japan:¹⁷ Matsui, 1975a and b). Bulmer (1976), known for his ethnozoological studies in New Guinea, would propose another basic terminology (analysis of lexemes as monomials, binomials, trinomials and expressions, and concepts of "logical species," "specieme," etc.). The same applies to Friedberg (1974) who—following the route shown by Conklin—would suggest using instead the expressions "basic plant name," "attribute" and "plant type" to refer to vernacular categories and names, as well as taking into account the plurality of the classificatory phenomenon, which can be considered under at least three distinct aspects, namely, identification, nomenclature and classification.

Parallel to these authors who drew upon U.S. research even as they criticized it (see also Martin, 1975), others were producing more research and initiating numerous activities more or less directly related to ethnobiology. In France, for example, we should note a first symposium dedicated exclusively to ethnozoology, its proceedings published by Raymond Pujol (1975); the educational activities surrounding the Laboratoire d'ethnobotanique et d'ethnozoologie of the Muséum national d'Histoire naturelle, including instruction¹⁸ by Portères, Barrau, Pujol and others (Portères et al., 1969-70); and the publication in 1971 by Luc Bouquiaux and Jacqueline Thomas¹⁹ of a guide to study and describe unwritten languages (with numerous subsequent reissues and an English translation in 1992 by the Summer Institute of Linguistics). This guide includes invaluable methodological essays by Thomas, Friedberg, Venot and Bulmer in-

tended for students wishing to conduct specialized research in ethnobotany or ethnozoology.

The Spanish-speaking countries of the Americas were another focus of growing interest for ethnobiology, and ethnobotany in particular (Barrera-Marín, Barrera Vázquez and López Franco, 1976; Cavalcante and Frikel, 1973; Martínez-Crovetto, 1971; Tapia, 1978, 1980). Overall knowledge proved a subject of increasingly refined study—for example, Heinz's work (1971, 1976-77; Heinz and Maguire, 1974; etc.) on the botanical and zoological knowledge of the Bushmen—which however did not extend beyond the descriptive stage. Theoretical developments remained the province of the work on nomenclature and classification,²⁰ the main focuses of the American ethnoscientists (see the mathematical models of Kay, 1971) and their successors (the quest for lexemic universals, as in Brown, 1977, 1979).

Associations (1981-92)

In the 1980s ethnobiological research reached full speed and has never since slowed. A substantial number of works were produced, and ethnobiology became an international discipline with solid bases not only in the United States and France, but also England, Mexico, a few South American countries, India and China. The classic themes such as classification and nomenclature were more thoroughly investigated, or gave rise to monographs or publications reflecting some of the production of previous years by experienced researchers (Alcorn, 1984; Berlin, 1992; Brown, 1984; Ellen, 1993; Friedberg, 1990; Posey, 1981, 1984). One sign of the times was the new themes introduced, mirroring more contemporary interests in ethnology: for instance, the role of women in relations with plants (Norton, 1985), the utilitarianism/intellectualism debate (Hays, 1982; Hunn, 1982, etc.), the cultural importance of biological elements and a scale for measuring it (Turner, 1988), the non-arbitrary character of sound in the names of biological elements (Berlin and O'Neill, 1981) and reconstruction or historical study of Aboriginal (Fradkin, 1990) or Western (Atran, 1986) biological sciences.

So great was the output that it resulted in certain local or historical syntheses. Initiated by Ford (1978), these syntheses, chiefly in ethnobotany, remained however limited to Latin America (Friedberg, 1981; Gómez-Pompa, 1982; Martínez Alfaro, 1991; Toledo, 1982). New subdisciplines were confirmed, such as paleoethnobotany, a term which dates from 1959 (Helbaek, 1959). This field is concerned with the interpretation of archaeological remains in order to understand the interactions between human populations and plants. In particular,

many collective or methodological works were produced during this period (Hastorf and Popper, 1988; Pearsall, 1989; Van Zeist and Casparie, 1984).

But the decade of 1980-90 was chiefly marked by a tendency for researchers to enter into association. One of the manifestations of this was increased collaboration between academic specialists and Natives, to the point that certain Natives became equal partners in ethnobiological research. Ample testimony of this is provided by Saem Majnep, a Kalam of New Guinea, who became famous as the co-author of a book written with Ralph Bulmer on the birds of his country (Majnep and Bulmer, 1977). During these years he also produced with Bulmer a series of works on the botanical and zoological sciences of the same Kalam (Majnep and Bulmer, 1983, 1990).

This type of association is not unrelated to growing recognition of the importance of Aboriginal sciences. While such recognition was not yet visible in the designations used to refer to non-Western knowledge (the concepts of "folk knowledge," "naturalist knowledge" and "natural history" remained in fashion, not to mention the latest in this series, TEK for "Traditional Ecological Knowledge," or sometimes "Traditional Environmental Knowledge"), it was manifested in attempts to integrate this knowledge in decisions made concerning the resources of the populations concerned. This development, to which we shall return later, began in the 1980s (Alcorn, 1981; Posey, 1988) but became widespread in the following decade.

The tendency to associate during this period is also confirmed by the creation of a multitude of specialized societies and journals and the holding of national and international congresses in the 1980s. In the United States, the Society of Ethnobiology, Inc. was established in April 1982; its *Journal of Ethnobiology* has been published since 1981 and it has held annual conferences since 1978. On the world stage, the International Society for Ethnobiology was founded at its first congress in Belém, Brazil in 1988. The proceedings of this congress (Posey and Overall, 1990), as well as of the second (China, 1990) and fourth (India, 1994), have also been published (Jain, 1996; Shengji et al., 1996). In India, the Society of Ethnobotanists was founded in 1980; it has published *A World Directory of Ethnobotanists* (Jain, Minnis and Shah, 1986) and is currently producing a specialized journal, *Ethnobotany*, whose first issue appeared in 1989. In France, Raymond Pujol organized a second symposium on ethnozoology in 1989, some of the papers of which were published in 1996 in the *JATBA*, which since 1994 has had the subtitle *Revue d'ethnobiologie*. In 1985 Serge Bahuchet launched the Ethnoscience collec-

tion (SELAF, Peeters), which features a number of specialized ethnobiology monographs. Again in France, in 1984 a group at the Laboratoire d'anatomie comparée of the Muséum national d'Histoire naturelle founded a society called L'homme et l'animal, Société de recherche interdisciplinaire, whose organ of distribution, the journal *Anthropozoologica*, appeared the same year. In China, a department of ethnobotany was formed in 1984 at the Kuming Institute of Botany; it has since published over 120 articles and 11 monographs in ethnobiology and held some 10 specialized workshops and symposiums on related subjects. In Colombia, the Grupo Etnobotánico latinoamericano was founded in 1986; it has since published a directory and a newsletter, *Etnobotánica*, which appears sporadically. In Mexico, a number of symposiums were held between 1976 and 1984, whose proceedings, to mention only those of the first, were published in 1982 (Bárceñas et al., 1982); the first issue of the Mexican journal *Etnoecológica* appeared in 1992. Lastly in the United States, the International Society for Anthrozoology was created in the early 1990s. Its organ of distribution, a resource guide to the literature, has borne the name *Human & Other Species* since 1997.

Resources and Their Management (1993 to the Present)

Concurrently with the development of all of these associations, the production of other detailed studies (Balée, 1994) and the appearance of new methodological manuals (Martin, 1995), international concerns with respect to renewable resources, relations between rich and developing countries, economic globalization and the search for new products and commercial outlets were exerting increasing influence on ethnobiological research. The first editorial of the *People and Plants Handbook*, a bulletin for ethnobotanical liaison produced by WWF-International, UNESCO and the Royal Botanic Gardens, Kew, aptly expresses these influences in opening as follows:

Traditional ecological knowledge . . . Biodiversity conservation . . . Access to genetic resources . . . Community development . . . Intellectual property rights. These are the keywords that spark many debates on the role of local people in the management and conservation of the world's natural areas and biological resources. (Martin, 1996: 1)

Needless to say, these fashionable subjects can find much nourishment in the work being done in ethnobiology. For some years now, we have seen a proliferation of studies done by or in collaboration with well-known ethnobiologists on products of economic value, whether on

food plants and their nutritive character (Kuhnlein and Turner, 1991) or medicinal plants and the possibilities they offer (Grenand, Moretti and Jacquemin, 1987; Schultes and Raffauf, 1990). There has been a resurgence in chemical analyses, and one might think oneself to some extent back in the early days of ethnobiology when interest in economic products was omnipresent.

There are a few differences, however. First of all, economic uses are no longer the sole point of interest; ethnobiological research has now established certain important elements of theory and methodology in terms of nomenclature and classification, and the cultural aspect so strongly advocated by Gilmore, Harrington and others is now fully ensconced in many reports. Second, the local populations where this research is being done are no longer so naïve; they want their slice of the pie, especially since their own resources and territory make up its ingredients. The presence of these new partners, plus other cultural and historical factors peculiar to Western societies which we are not at liberty to explore here, are the source of numerous debates, stands and new orientations which are now evident in research in ethnobiology and related disciplines.

The Belém declaration stands as evidence of these debates. This is a resolution adopted at the first international congress of ethnobiology in 1988, which dealt with such themes as compensation to local populations for the use of their knowledge and biological resources, return of research findings to the populations studied, inclusion of members of the communities studied in the research process, etc. The publications produced under the acronym TEK are another manifestation of this, even though they do not fall within the realm of ethnobiology as such. In fact, TEK is increasingly emerging as the product of administrators, geographers and ecologists making amateurish use of certain achievements of ethnobiology, to the point that, despite noble intentions at the outset to treat non-Western societies as equal partners in the exploitation of resources by Western societies, the end result is simplistic reductions which oppose Aboriginal science to academic science, thereby perpetuating the same inequality that supposedly was initially decried. One example will suffice: among all the oppositions/dualities used by the Tekians to define Aboriginal and scientific knowledge (intuitive/analytical, holistic/reductionist, subjective/objective, experiential/positivist, slow/fast, inclusive/selective, short-term cycles/short-term linear, etc., in Wolfe et al. [1992: 13], as repeated in various texts in Inglis, 1993 and elsewhere), there is the theme of classification, which suffers the same fate (ecological/genetic and hierarchical). Now, if the history of not only

ethnobiology but also anthropology teaches us anything, it is that non-Western societies have, and have always had, hierarchical classification systems which incorporate their knowledge of biological elements. This is a fact which has been confirmed since Durkheim and Mauss (1901-02) in anthropology and since the very first turn-of-the-century studies in ethnobiology. What is more, for a very long time researchers in ethnobiology have also found that non-Western societies have had evolutionist concepts about species ("In his nature myths, he [the Samoan] shows, or seems to, a definite appreciation of plant succession, as well as an extraordinary idea of evolution" [Setchell, 1924: 220]). And yet there are a few exceptions among the Tekians. We can only hope that, in their more knowing use of ethnobiological methods (for example, Nakashima, 1991), these figures will further influence the orientation of the work done under TEK or other acronyms of the sort (TEKMS, TUS, TBK, etc., respectively, for "Traditional Ecological Knowledge and Management Systems," "Traditional Use Studies," "Traditional Botanical Knowledge," etc.).

This brief historical overview, from initial research concerns with the economic uses of plants and animals, to the methodological and theoretical developments the discipline has undergone over 100 years, to contemporary world problems concerning renewable resources and how to share them (adding a political aspect to current research), constitutes the first phase of this introduction to ethnobiology. The following articles, all of them by highly reputed ethnobotanists and ethnozoologists, make up the second phase. They will clarify for the reader how today's research is based on a plurality of methods, theories and experiences which are driving the discipline and ensuring its continuous renewal. They will also permit an appreciation, in light of the context which has been broadly sketched above, of the current status of such classic subjects in ethnobiology as classification (E. Hunn), data comparison, which is winning its followers (N. Turner and D. Loewen), interdisciplinarity, which is serving to advance some very interesting hypotheses on relations between culture and biological elements (B. Meilleur), interest in expanding conceptual studies beyond nomenclature and classification and establishing models which truly reflect non-Western sciences (C. Haxaire), reflections on the history of the discipline (ourselves), and the concomitant publication of early manuscripts, which can spur such reflection (A.F. Whiting).

Eugene Hunn is editor of the *Journal of Ethnobiology*; his work on Tzeltal (Hunn, 1977) and Sahaptin (Hunn,

1990) have undeniably marked the history of ethnobiology. He is presently engaged in a study of the ethnobiological knowledge of a Zapotec community in Mexico (Mixtepec Zapotec Ethnobiology Project), the early results of which are published here for the first time.

Nancy J. Turner is currently president of the Society of Ethnobiology. She is the most prolific author in ethnobotany that Canada has ever produced (to cite just a few monographs: Turner, 1973; Turner and Bell, 1971; Turner et al., 1983; Turner et al., 1990), not to mention her recent theoretical (Turner, 1988) and historical (Turner, 1995) contributions. Since the start of this decade, she and her team have been engaged in the most complex of their ethnobotanical studies, among the Shuswap (Secwepemc) Amerindians of British Columbia, combining aspects of archaeology, botany and anthropology. Together with one of her research assistants, she presents the fruit of her reflections on the ethnobotanical data she has assembled in the documentation, data which she compares from the standpoint of trade among various Amerindian peoples of the Northwest Coast.

Brien Meilleur is president and executive director of the Center for Plant Conservation at the Missouri Botanical Garden. In 1997 he was cited in the *Anthropology Newsletter* (Givens, 1997: 17) as an example of an anthropologist establishing his niche in an unorthodox location. Brien Meilleur is well known for his work in France and Polynesia on traditional economy and the use of plants (Meilleur, 1985, 1996). These concerns are reflected in his essay.

Since 1986 Claudie Haxaire has been in charge of the ethnoscience and ethnopharmacology courses in one of the largest ethnology departments in France, namely, that at Université Paris X–Nanterre. She has an international reputation for her work on the Gouro of the Ivory Coast (Haxaire, 1987, 1992, 1993), particularly her research on botanical and medical knowledge. For this issue she has produced an article on the Gouro conception of life.

For Alfred Whiting, two of whose essays from the 1940s are published here, the reader is referred to the introduction to these texts, which presents a brief note on this ethnobotanist whose influence on U.S. ethnobiology was such that the *Journal of Ethnobiology* devoted its very first article to him in 1981.

The editor has been working in ethnobiology since the early 1980s; his credits include the editing of an issue of a specialized journal dedicated to Ethnoscience (Clément, 1987) and publication of two works on the botanical and zoological knowledge of the Montagnais Amerindians of the Eastern Subarctic (Clément, 1990,

1995). The essay here further explores the historical context which produced the first designations relating to ethnobiology.

Notes

- 1 These comments made by Whiting, an American ethnobiologist, in 1938 ("We will not attempt a definition of ethnobotany here, for that would mean stating what ethnobotany should be; and that is not our purpose. Rather, we are interested in what has been called ethnobotany, and the kind of work that has been done by people who call themselves ethnobotanists" [Whiting, 1938: 341]; see also the original essay, in this issue) can be readily explained by the period in which they were made. As we shall see below, the discipline was still in its infancy, and even the creator of the term "ethnobiology" could not venture beyond a similar conclusion, which was self-evident given the limited volume of research done at that point: "The author does not look upon ethnobiology as a distinct science and discipline, but rather as a sphere of investigation in which scholars, trained in both biology and anthropology, can render a service to the two fields which neither biologist nor anthropologist as such would be competent to contribute" (Castetter, 1944: 163).
- 2 Volney Jones is an American ethnobotanist who in 1940 succeeded Melvin Gilmore as head of the Ethnobotanical Laboratory in Ann Arbor.
- 3 In other words, the study of plant environments containing hidden pests.
- 4 More specifically, science is understood here as an ongoing dialectic in the human mind between reason and sensory experience. This movement inspires all of the academic sciences, and can be isolated in the relations which all human groups maintain with their environment. In biology, it is particularly manifested as observations, comparisons and classifications (see "Science et zoologie," Clément, 1995: 5-61).
- 5 The word "classical" is borrowed from Murray (1982), who used it in a critical article to refer to the American anthropological movement of the 1960s, known by the names of New Ethnography, cognitive anthropology or ethnoscience. It is entirely appropriate for this period, which constitutes one of the main cores of the discipline. The terms "pre-classical" and "post-classical" used in this work are simply mnemonic devices whereby a rough division of the history of ethnobiology can be established. They have no connection to similarly denoted periods in literature, archaeology, etc.
- 6 The opposition between etic and emic is from the linguist Pike (1954), and is based on an analogous opposition between phonetics and phonemics. The first is concerned with external analysis of the phonetic apparatus (articulation of sound, the acoustics of the human apparatus), and the second with relations between the phonemes of a language and their semantic relationships, whence, by analogy, an etic or exterior anthropological analysis and an emic or interior approach.
- 7 A more thorough presentation of this period is given in the article "Les fondements historiques de l'ethnobiologie (1860-1899)," also published in this issue.
- 8 After it was created, the journal went through a number of different titles and subtitles. It is still published at the Muséum national d'Histoire naturelle in Paris, under the title of *JATBA (Journal d'Agriculture traditionnelle et de Botanique appliquée)*.
- 9 Steedman (1930) was not the first author to use the term ethnobotany for a study done in Canada. In 1917, Waugh wrote a little note on plant uses by the Ojibwa, Iroquois and other Amerindians.
- 10 In an article from the time, Schultes reports, probably in his enthusiasm for ethnobotanical research, that there are two other laboratories in the United States with "ethnobiology" in their titles ("El Departamento de Biología de la Universidad de New México posee un Laboratorio de Etnobiología que se ocupa principalmente en estudios etnobotánicos en la parte suroeste de los Estados Unidos y en las adyacentes regiones de México. También se dedica a estudios de esta índole, en cuanto a los indios del suroeste, el Laboratorio de Etnobotánica del Museo de Northern Arizona" [Schultes, 1941: 11]). Although Castetter, one of the most prolific authors of his time in ethnobiology—to whom Schultes alludes for New Mexico—had always dreamed of an ethnobiology laboratory in Albuquerque where he taught, the archival documents clearly show that this dream was never realized. As for a supposed ethnobotany laboratory in Arizona—Schultes is thinking here of the ethnobotanist Whiting who worked at the Museum of Northern Arizona for a few years—the archives of that museum do not mention its existence either.
- 11 Castetter, 1935; Castetter and Underhill, 1935; Castetter and Opler, 1936; Castetter and Bell, 1937; Bell and Castetter, 1937, 1941; Castetter, Bell and Grove, 1938.
- 12 In ethnobotany circles in France, there is but one name on everyone's lips: that of Haudricourt. The talk is not so much of his output as of the instruction he offered at the Muséum national d'Histoire naturelle in Paris, all of the students he educated and his insistence that plants and ethnography be related from every possible angle of study (technical, linguistic, utilitarian, etc.) so that all phenomena can be interrelated. This oral aspect makes recognition of the influence of Haudricourt on the history of ethnobiology difficult to circumscribe or evaluate.
- 13 Portères (1961) also uses the word "ethnobiologie" during the same period.
- 14 According to Toledo (1992: 6), we also owe to Conklin (1954a) the creation of the term "ethnoecology." This discipline, which sees itself as more comprehensive and holistic than ethnobiology, is going through some very substantial development at present (Toledo, 1992). A presentation of it lies outside our framework here.
- 15 The SEZEB (Société d'ethno-zoologie et d'ethnobotanique) would be created two years later by R. Portères, A.G. Haudricourt and J.M.C. Thomas. Responsibility for the ethnozoology section fell to Raymond Pujol in 1966. The Laboratoire d'ethnobotanique now bears the name Laboratoire d'ethnobiologie-biogéographie and is still housed in the Paris Muséum.
- 16 A sixth rank, the intermediate, is also suggested (Berlin, Breedlove and Raven, 1974: 25).
- 17 In the bibliography, the roman spelling used to transcribe the Japanese characters and the French translations of Japanese titles are from Laurent (1995), revised in part by Ben Seng Hoe of the Canadian Centre for Folk Culture Studies (Canadian Museum of Civilization).

- 18 This may represent the first formal university instruction in the field. Courses in ethnobotany are now offered at many universities worldwide. There are also certain complete programs which, even if they do not carry the actual name, are properly ethnobiological: for example, the doctoral program in ecological and environmental anthropology of the University of Georgia at Athens.
- 19 Another work the following year, edited by Thomas and Bernot (1972), also includes numerous papers on linguistic and environmental studies.
- 20 So predominant are the studies on classifications during these decades that Conklin (1972) devotes an entire bibliographic volume to them, even adding a second updated edition in 1980. From 1977 to 1979, B. Berlin, T. Hays and E. Hunn also produced an occasional bulletin on the same theme, the *Folk Classification Bulletin*.

Références / References Cited

- Alcorn, J.B.
1981 Huastec Non-crop Resource Management, *Human Ecology*, 9: 395-417.
1984 *Huastec Maya Ethnobotany*, Austin: University of Texas Press.
- Anonyme / Anonymous
1895a Museum and Garden, *Philadelphia Evening Telegraph*, October 26: 5.
1895b Some New Ideas, *Philadelphia Evening Telegraph*, December 5: 2.
- Anthropological Linguistics*
1966 Ethnoscience: A Symposium Presented at the 1966 Meeting of the Central States Anthropological Society, *Anthropological Linguistics*, 8(8): 1-112.
- Atran, S.
1986 *Fondements de l'histoire naturelle. Pour une anthropologie de la science*, Bruxelles: Éditions Complexe.
- Bahuchet, S.
1985 *Les Pygmées aka et la forêt centrafricaine*, Coll. «Ethnoscience», 1, Paris: Peeters, SELAF.
- Balée, W.
1994 *Footprints of the Forest: Ka'apor Ethnobotany—The Historical Ecology of Plant Utilization by an Amazonian People*, New York: Columbia University Press.
- Bárceñas, A. et al. (eds.)
1982 *Memorias del Simposio de Etnobotánica*, Mexico: Instituto Nacional de Antropología e Historia (INAH).
- Barrau, J.
1984 Ethnoscience in Ethnologie, *Encyclopaedia Universalis, Corpus* 7: 482-484.
1985 À propos du concept d'ethnoscience, *Les savoirs naturalistes populaires, Actes du Séminaire de Sommières, 12 et 13 décembre 1983*, France, Mission du patrimoine ethnologique, Coll. «Ethnologie de la France», Paris: Éditions des sciences de l'homme: 5-12.
- Barrera Marín, A., A. Barrera Vázquez et R.M. López Franco
1976 *Nomenclatura etnobotánica maya. Una interpretación taxonómica*, Colección científica 36, México: INAH.
- Barrows, D.P.
1900 *The Ethno-Botany of the Coahuilla Indians of Southern California*, Chicago: University of Chicago Press.
- Bartlett, H.H.
1926 Sumatran Plants Collected in Asahan and Karoland, with Notes on Their Vernacular Names, *Papers of the Michigan Academy of Science, Arts and Letters*, 6: 1-66.
- Beckwith, M.W.
1927 *Notes on Jamaican Ethnobotany*, Poughkeepsie, NY: Publications of the Folk-Lore Foundation, Vassar College.
- Bell, W.H., and E.F. Castetter
1937 *The Utilization of Mesquite and Screwbean by the Aborigines in the American Southwest*, Bulletin 314, Ethnobiological Studies in the American Southwest 5, Biological Series 5(2), Albuquerque: University of New Mexico.
1941 *The Utilization of Yucca, Sotol, and Beargrass by the Aborigines in the American Southwest*, Bulletin 372, Ethnobiological Studies in the American Southwest 7, Biological Series 5(5), Albuquerque: University of New Mexico.
- Berlin, B.
1992 *Ethnobiological Classification: Principles of Categorization of Plants and Animals in Traditional Societies*, Princeton: Princeton University Press.
- Berlin, B., D.E. Breedlove and P.H. Raven
1974 *Principles of Tzeltal Plant Classification: An Introduction to the Botanical Ethnography of a Mayan-Speaking People of Highland Chiapas*, New York and London: Academic Press.
- Berlin, B., and J.P. O'Neill
1981 The Pervasiveness of Onomatopoeia in Aguaruna and Huambisa Bird Names, *Journal of Ethnobiology*, 1(2): 238-261.
- Black, M.B.
1967 An Ethnoscience Investigation of Ojibwa Ontology and World View, PhD, Stanford University.
- Bouquiaux, L. et J. Thomas (dirs.)
1971 *Enquête et description des langues à tradition orale. V Questionnaires thématiques*, Paris: SELAF.
- Bright, J.O., and W. Bright
1965 Semantic Structures in Northwestern California and the Sapir-Whorf Hypothesis, *American Anthropologist*, 67(5), Part 2: 249-258.
- Brown, C.H.
1977 Folk Botanical Life-Forms: Their Universality and Growth, *American Anthropologist*, 79(2): 317-342.
1979 Folk Zoological Life-Forms: Their Universality and Growth, *American Anthropologist*, 81(4): 791-817.
1984 *Language and Living Things: Uniformities in Folk Classification and Naming*, New Brunswick, NJ: Rutgers University Press.
- Bulmer, R.N.H.
1976 Folk Biology in the New Guinea Highlands, *Social Science Information*, 13(5): 9-28.
- Camus, A.
1913 Espèces et variétés de riz spontanées ou cultivées en Indochine, *Bulletin du Laboratoire d'Agronomie Coloniale*, Supplément au *Journal d'Agriculture tropicale* du 31 août 1913, 146(1): 7-28.

- Castetter, E.F.
 1935 *Uncultivated Native Plants Used as Sources of Food*, Bulletin 266, Ethnobiological Studies in the American Southwest 1, Biological Series 4(1), Albuquerque: University of New Mexico.
 1944 The Domain of Ethnobiology, *The American Naturalist*, 78(774): 158-170.
- Castetter, E.F., and W.H. Bell
 1937 *The Aboriginal Utilization of the Tall Cacti in the American Southwest*, Bulletin 307, Ethnobiological Studies in the American Southwest 4, Biological Series 5(1), Albuquerque: University of New Mexico.
- Castetter, E.F., W.H. Bell and A.R. Grove
 1938 *The Early Utilization and the Distribution of Agave in the American Southwest*, Bulletin 335, Ethnobiological Studies in the American Southwest 6, Biological Series 5(4), Albuquerque: University of New Mexico.
- Castetter, E.F., and M.E. Opler
 1936 *The Ethnobiology of the Chiricahua and Mescalero Apache: A. The Use of Plants for Foods, Beverages and Narcotics*, Bulletin 297, Ethnobiological Studies in the American Southwest 3, Biological Series 4(5), Albuquerque: University of New Mexico.
- Castetter, E.F., and R.M. Underhill
 1935 *The Ethnobiology of the Papago Indians*, Bulletin 275, Ethnobiological Studies in the American Southwest 2, Biological Series 4(3), Albuquerque: University of New Mexico.
- Cavalcante, P.B. et P. Frikel
 1973 *A farmacopéia Tiryó; estudio étnobotânico*, Publicações avulsas 24, Belém, Pará, Brasil: Museu Paraense Emílio Goeldi.
- Chamberlain, A.F.
 1906 Terms for the Body, Its Parts, Organs, etc. in the Language of the Kootenay Indians of Southeastern British Columbia, *Boas Anniversary Volume, Anthropological Papers Written in Honor of Franz Boas*, New York: G.E. Stechert: 94-107.
- Chamberlin, R.V.
 1911 The Ethno-Botany of the Gosiute Indians of Utah, *Memoirs of the American Anthropological Association*, 2: 329-405.
- Chevalier, A.
 1921 Fonctionnement du Laboratoire d'Agronomie coloniale pendant la guerre et jusqu'au 31 décembre 1920, *Revue de Botanique appliquée et d'Agriculture coloniale*, 1(1): 3-11.
- Clément, D.
 1990 *L'éthnobotanique montagnaise de Mingan*, Collection Nordicana 53, Québec: Centre d'études nordiques, Université Laval.
 1995 *La zoologie des Montagnais*, Coll. «Ethnoscience», 10, Paris: Peeters-Selaf.
- Clément, D. (dir.)
 1987 *L'éthnoscience – Autres regards, autres mots*, n.s., Montréal: Recherches amérindiennes au Québec, 17(4).
- Conklin, H.C.
 1954a An Ethnoecological Approach to Shifting Agriculture, *Trans. N.Y. Academy of Sciences*, 17: 133-142.
 1954b The Relation of Hanunóo Culture to the Plant World, PhD, New Haven: Yale University.
 1972 *Folk Classification: A Topically Arranged Bibliography of Contemporary and Background References Through 1971*, New Haven: Department of Anthropology, Yale University (reprinted in 1980 with an index).
- Coville, F.V.
 1895 Directions for Collecting Specimens and Information Illustrating the Aboriginal Uses of Plants, *Bulletin of the United States National Museum*, 39, Part J: 1-8.
- Durkheim, É. et M. Mauss
 1901-1902 De quelques formes primitives de classification, Contribution à l'étude des représentations collectives, *L'année sociologique*, 66: 1-72.
- Ellen, R.
 1993 *The Cultural Relations of Classification: An Analysis of Nuaulu Animal Categories from Central Seram*, Cambridge: Cambridge University Press.
- Faulks, P.J.
 1958 *An Introduction to Ethnobotany*, London: Moredale Publications.
- Ford, R.I. (ed.)
 1978 *The Nature and Status of Ethnobotany*, Anthropological Papers, Museum of Anthropology, No. 67, Ann Arbor: University of Michigan.
 1986 *An Ethnobiology Source Book: The Uses of Plants and Animals by American Indians*, New York and London: Garland Publishing.
- Fox, B.
 1952 The Pinatubo Negritos: Their Useful Plants and Material Culture, *The Philippine Journal of Science*, 81(3-4): 173-385.
- Fradkin, A.
 1990 *Cherokee Folk Zoology: The Animal World of a Native American People, 1700-1838*, New York and London: Garland Publishing.
- Frake, C.O.
 1962 The Ethnographic Study of Cognitive Systems, *Anthropology and Human Behavior Systems*, T. Gladwin and W.C. Sturtevant (eds.), Washington, DC: Anthropological Society of Washington: 72-85, 91-93.
- Friedberg, C.
 1974 Les processus classificatoires appliqués aux objets naturels et leur mise en évidence. Quelques principes méthodologiques, *Journal d'agriculture tropicale et de botanique appliquée*, 21 (10-11-12): 313-334.
 1981 L'éthnobotanique mexicaine, *Société d'ethnozooologie et d'éthnobotanique. Bulletin de liaison*, 10: 21-28.
 1990 *Le savoir botanique des Bunaq. Percevoir et classer dans le Haut Lamaknen (Timor, Indonésie)*, Mémoires du Muséum National d'Histoire Naturelle, série B, Botanique, t. 32, Paris: Éditions du Muséum.
- Gilmore, M.R.
 1919 Use of Plants by the Indians of the Missouri River Region, *Thirty-Third Annual Report of the Bureau of American Ethnology (1911-1912)*: 43-154.
 1932 *The Ethnobotanical Laboratory at the University of Michigan*, Ann Arbor: University of Michigan Press.

- Givens, D.B.
1997 Going to Seed, Careerwise, *Anthropology Newsletter*, 38(5): 17.
- Gómez-Pompa, A.
1982 La etnobotánica en México, *Biotica*, 7(2): 151-161.
- Goodenough, W.H.
1956 Componential Analysis and the Study of Meaning, *Language*, 32(1): 195-216.
- Grenand, P., C. Moretti et H. Jacquemin
1987 *Pharmacopées traditionnelles en Guyane. Créoles, Palikur, Wayāpi*, Coll. «Mémoires», 108, Paris: Éditions de l'ORSTOM.
- Griaule, M.
1930 La culture indigène du Cafèier dans les provinces du nord de l'Abyssinie, *Revue de Botanique appliquée et d'Agriculture tropicale*, 10(106): 380-384.
- Grossinger, R.
1968 A Comparison of Ethnobotany and Economic Botany, term paper in Botany 994, term 2, 1968, ms, Ann Arbor: Ethnobotanical Laboratory, University of Michigan.
- Harrington, J.P.
1947 Ethnobiology, *Acta Americana*, 5(3): 244-247.
- Harshberger, J.P.
1986 The Purposes of Ethno-Botany, *The American Antiquarian*, 17(2): 73-81.
- Hastorf, C.A., and V.S. Popper (eds.)
1988 *Current Paleoethnobotany: Analytical Methods and Cultural Interpretations of Archaeological Plant Remains*, Chicago and London: University of Chicago Press.
- Haudricourt, A.-G. et L. Hédin
1987 [1943] *L'Homme et les plantes cultivées*, Paris: a.m. métallé.
- Havard, V.
1895 Food Plants of the North American Indians, *Bulletin of the Torrey Botanical Club*, 22(3): 98-123.
1896 Drink Plants of the North American Indians, *Bulletin of the Torrey Botanical Club*, 23(2): 33-46.
- Haxaire, C.
1987 Les maux qui le cachent, étiologie et perception de troubles gynécologiques chez les femmes Gouro, *Étiologie et perception de la maladie*, A. Retel-Laurentin (ed.), Paris: L'Harmattan: 73-84.
1992 Le palmier à huile chez les Gouro de Côte-d'Ivoire, *Journal des africanistes*, 62(1): 55-77.
1993 «Jeunesse-de-Nuit». Création d'une fête et d'un masque de «conjoncture» chez les jeunes en pays gouro, *Aspects de la communication en Afrique*, J.-P. Caprile (dir.), Coll. «Sociolinguistique» 6, Paris-Louvain: Sela-Peeters: 103-123.
- Hays, T.E.
1982 Utilitarian/Adaptationist Explanations of Folk Biological Classification: Some Cautionary Notes, *Journal of Ethnobiology*, 2(1): 89-94.
- Heckel, E.
1987 Sur l'arbre africain qui donne le beurre de Galam ou de Karité, et sur son produit, *Revue des cultures coloniales*, 1(6): 193-198; 1(7): 229-233.
- 1900 Contributions à l'étude des plantes médicinales et toxiques employées par les indigènes de la Côte d'Ivoire (Afrique occidentale), *Revue des cultures coloniales*, 7(61): 548-553.
- Hédin, L.
1946 Intérêt agronomique de l'Ethnobotanique, *Cahier des ingénieurs agronomes*, 8: 22-26.
- Heinz, H.J.
1971 The Ethno-biology of the !ko Bushmen: The Anatomical and Physiological Knowledge, *South African Journal of Science*, 67(2): 43-50.
1976-77 The Ethno-biology of the !xo Bushmen, Knowledge on the Behaviour of Cloven-Hoofed Animals (Antelopes and Warthog), *Ethnomedizin*, 4(3-4): 241-266.
- Heinz, H.J., and B. Maguire
1974 *The Ethno-Biology of the !ko Bushmen: Their Ethno-Botanical Knowledge and Plant Lore*, Botswana Society, Occasional Paper No. 1.
- Helbaek, H.
1959 Domestication of Food Plants in the Old World, *Science*, 130(3372): 365-372.
- Henderson, J., and J.P. Harrington
1914 *Ethnozology of the Tewa Indians*, Bureau of American Ethnology, Bulletin 56, Washington: Government Printing Office.
- Hill, A.F.
1945 Ethnobotany in Latin America, *Plants and Plant Science in Latin America*, F. Verdoorn (ed.), Waltham, MA: Chronica Botanica: 176-181.
- Hocart, A.M.
1916 The Common Sense of Myth, *American Anthropologist*, 18(3): 307-318.
- Hunn, E.S.
1977 *Tzeltal Folk Zoology: The Classification of Discontinuities in Nature*, New York, San Francisco and London: Academic Press.
1982 The Utilitarian Factor in Folk Biological Classification, *American Anthropologist*, 84(4): 830-847.
1990 *Nch'i-Wána "The Big River": Mid-Columbia Indians and Their Land*, Seattle and London: University of Washington Press.
- Inglis, J.T. (ed.)
1993 *Traditional Ecological Knowledge: Concepts and Cases*, Ottawa: Canadian Museum of Nature and International Development Research Centre.
- Jain, S.K. (ed.)
1996 *Ethnobiology in Human Welfare, Proceedings of IV International Congress of Ethnobiology held at Lucknow, India*, November 17-21, 1994, New Delhi: Deep Publications.
- Jain, S.K., P. Minnis and N.C. Shah
1986 *A World Directory of Ethnobotanists*, Lucknow: Society of Ethnobotanists.
- Jenks, A.E.
1911 Bulu Knowledge of the Gorilla and Chimpanzee, *American Anthropologist*, 13(1): 56-64.
- Jones, V.H.
1941 The Nature and Status of Ethnobotany, *Chronica Botanica*, 6(10): 219-221.

- Kay, P.
1971 Taxonomy and Semantic Contrast, *Language*, 47(4): 866-887.
- Kuhnlein, H.V., and N.J. Turner
1991 *Traditional Plant Foods of Canadian Indigenous Peoples*, Philadelphia: Gordon and Breach Science Publishers.
- Lasnet, D^r
1900 Notes sur la pharmacopée des Sakalaves du nord-ouest de Madagascar, *Revue des cultures coloniales*, 6(49): 171-175; 6(50): 209-213; 6(51): 233-238.
- Laurent, E.
1995 *Les mushi dans la culture japonaise. Approche ethnozoologique à partir d'une étude de terrain*, PhD, Paris: École des Hautes Études en Sciences Sociales.
- Lounsbury, F.G.
1956 A Semantic Analysis of the Pawnee Kinship Usage, *Language*, 32(1): 158-194.
- Lévi-Strauss, C.
1962 *La Pensée sauvage*, Paris: Plon.
- Majnep, I.S., and R.N.H. Bulmer
1977 *Birds of My Kalam Country (Mnmon yad Kalam yakt)*, Auckland: Auckland University Press and Wellington: Oxford University Press.
- 1983 *Some Food Plants in Our Kalam Forests, Papua New Guinea*, Department of Anthropology Working Papers 63, Auckland: University of Auckland.
- 1990 *Kalam Hunting Traditions*, Department of Anthropology Working Papers 85, 86, 87, 88, 89 and 90, Auckland: University of Auckland.
- Maldonado-Koerdell, M.
1940 Estudios Etnobiológicos. I. Definición, relaciones y métodos de la Etnobiología, *Revista Mexicana de Estudios Antropológicos*, 4(3): 195-202.
- Malkin, B.
1956a Seri Ethnozoology: A Preliminary Report, *Davidson Journal of Anthropology*, 2(1): 73-83.
1956b Sumu Ethnozoology: Herpetological Knowledge, *Davidson Journal of Anthropology*, 2(2): 165-180.
1958 Cora Ethnozoology, Herpetological Knowledge: A Bio-Ecological and Cross Cultural Approach, *Anthropological Quarterly*, 31(3): 73-90.
1962 *Seri Ethnozoology*, Occasional Papers of the Idaho State College Museum No. 7.
- Martin, G.J.
1995 *Ethnobotany: A Methods Manual*, London: Chapman and Hall.
1996 Editorial, Keeping in Touch: Journals, Networks, Newsletters, Organizations and Professional Societies, *People and Plants Handbook: Sources for Applying Ethnobotany to Conservation and Community Development*, Issue 1, G. J. Martin and A.L. Hoare (eds.), Paris: UNESCO.
- Martin, M.A.
1975 L'ethnobotanique, science per se? À propos d'un livre de B. Berlin, D.E. Breedlove, P.H. Raven "The Principles of Tzeltal Plant Classification," *Journal d'agriculture tropicale et de botanique appliquée*, 22(7-8-9): 237-276.
- Martínez Alfaro, M.A.
1991 La ethnobotánica en Latinoamérica, *Memorias del III Simposio Colombiano Ethnobotánica, Palima, Darien*: 1-8.
- Martínez-Crovetto, R.
1971 Introducción a la Etnobotánica Aborigen del Nordeste Argentino, *Verhandlungen des 38 Internationalen Amerikanistenkongresses 1968*, 3: 91-97.
- Mason, O.T.
1889 The Ray Collection from Hupa Reservation, *Annual Report of the Board of Regents of the Smithsonian Institution 1886*, Part 1: 205-239.
1899 Aboriginal American Zoötechny, *American Anthropologist*, 1: 45-81.
- Matsui, T.
1975a Minzokubunrui no kôzô [Structure des classifications populaires], *Kikan Jinruigaku*, 6(1): 3-78.
1975b Minzokubunrui no kinô [Fonction des classifications populaires], *Kikan Jinruigaku*, 6(2): 84-133.
- Meilleur, B.
1985 Gens de montagne, plantes et saisons. Savoirs écologiques de tradition à Termignon (Savoie), *Le monde alpin et rhodanien*, 1: 1-79.
1996 Selling Hawaiian Crop Cultivars, *Valuing Local Knowledge: Indigenous People and Intellectual Property Rights*, S. Brush and D. Stabinsky (eds.), Washington, DC: Island Press: 244-256.
- Mooney, J.
1891 The Sacred Formulas of the Cherokees, *Seventh Annual Report of the Bureau of American Ethnology (1885-86)*: 301-397.
- Murdock, G.P., et al.
1950 *Outline of Cultural Materials*, 3d ed., New Haven: Human Relations Area Files.
- Murray, S.O.
1982 The Dissolution of "Classical Ethnoscience," *Journal of the History of Behavioral Sciences*, 18: 163-175.
- Nakashima, D.J.
1991 The Ecological Knowledge of Belcher Island Inuit: A Traditional Basis for Contemporary Wildlife Co-management, PhD, Montreal: McGill University.
- Norton, H.H.
1985 Women and Resources of the Northwest Coast: Documentation from the 18th and Early 19th Centuries, PhD, Seattle: University of Washington.
- Palmer, E.
1871 Food Products of the North American Indians, *Report of the Commissioner of Agriculture for the Year 1870*: 404-428.
1878 Plants Used by the Indians of the United States, *The American Naturalist*, 12(9), 593-606; 12(10): 646-655.
- Paso y Troncoso, F. del
1883-1884 Estudios sobre la Historia de la Medicina en Mexico, *Anales del Museo Nacional de México*, 3(5): 137-192; 3(6): 193-235.
- Pearsall, D.M.
1989 *Paleoethnobotany: A Handbook of Procedures*, San Diego: Academic Press.

- Pike, K.L.
1954 *Language in Relation to a Unified Theory of the Structure of Human Behavior, Part I, Preliminary Edition*, Glendale, CA: Summer Institute of Linguistics.
- Popenoë, P.
1926 Le Dattier au Maroc, *Revue de Botanique appliquée et d'Agriculture coloniale*, 6(55): 129-136.
- Portères, R.
1961 Lethnobotanique: Place – Objet – Méthode – Philosophie, *Journal d'Agriculture tropicale et de Botanique appliquée*, 8(4-5): 102-109.
1977 Ethnobotanique, *Encyclopaedia Universalis Organum*, 17: 326-330.
- Portères, R., J.F. Leroy, J. Barrau, H. Gillet et R. Pujol
1969-1970 *Cours de ethno-botanique et ethno-zoologie 1969-1970*, Paris: Muséum National d'Histoire Naturelle, Laboratoire d'ethno-botanique et d'ethno-zoologie, 2 vols., Miméo.
- Posey, D.A.
1981 Wasps, Warriors and Fearless Men: Ethnoentomology of the Kayapó of Central Brazil, *Journal of Ethnobiology*, 1(1): 165-174.
1984 Hierarchy and Utility in a Folk Biological Taxonomic System: Patterns in Classification of Arthropods by the Kayapo Indians of Brazil, *Journal of Ethnobiology*, 4(2): 123-139.
1988 Kayapo Indians Natural Resource Management, *People of the Tropical Rainforest*, J.S. Denslow and C. Padock (eds.), Berkeley: University of California Press: 89-90.
- Posey, D.A., and W.L. Overal (eds.)
1990 *Ethnobiology: Implications and Applications, Proceedings of the First International Congress of Ethnobiology (Belém, 1988)*, 2 vols., Belém, Brazil: Museu Paraense Emílio Goeldi.
- Powers, S.
1875 Aboriginal Botany, *Proceedings of the California Academy of Sciences, 1873-1874*, 5: 373-379.
- Pujol, R. (dir.)
1975 *L'homme et l'animal. Premier Colloque d'Ethnozoologie*, Paris: Institut international d'ethnoscience.
- Robbins, W.W., J.P. Harrington and B. Freire-Marreco
1916 *Ethno-botany of the Tewa Indians*, Bureau of American Ethnology Bulletin 55, Washington: Government Printing Office.
- Rochebrune, A.T. de
1879 Recherche d'Ethnographie botanique sur la flore des Sépultures péruviennes d'Ancon, *Actes de la Société Linnéenne de Bordeaux*, 33 (4^e série, t. 3): 343-358.
1882-1883 De l'emploi des mollusques chez les peuples anciens et modernes, *Revue d'ethnographie*, 1: 465-482; 2: 311-320.
- Rolland, E.
1967a [1877-1915] *Faune populaire de la France. Noms vulgaires, dictons, proverbes, légendes, contes et superstitions*, 13 vols., Paris: Éditions G.-P. Maisonneuve et Larose.
1967b [1896-1914] *Flore populaire ou Histoire Naturelle des plantes dans leur rapport avec la linguistique et le folklore*, 11 vols., Paris: Éditions G.-P. Maisonneuve et Larose.
- Ross, B.R.
1861 An Account of the Animals Useful in an Economic Point of View to the Various Chipewyan Tribes, *Canadian Naturalist and Geologist*, 6: 433-445.
1862a An Account of the Botanical and Mineral Products, Useful to the Chipewyan Tribes of Indians, Inhabiting the McKenzie River District, *Canadian Naturalist and Geologist*, 7: 133-137.
1862b List of Mammals, Birds, and Eggs, Observed in the McKenzie's River District, with Notices, *Canadian Naturalist and Geologist*, 7: 137-155.
- Rousseau, J.
1935 Notes sur l'ethnobotanique de Caughnawaga, *Annales de l'ACFAS*, 1: 148.
1937 La botanique canadienne à l'époque de Jacques Cartier, *Annales de l'ACFAS*, 3: 151-236.
1946a Notes sur l'ethnobotanique d'Anticosti, *Archives de Folklore*, 1: 60-71.
1946b Notes sur l'ethnozoologie mistassini, *Annales de l'ACFAS*, 12: 95.
1947 Ethnobotanique abénakise, *Archives de folklore*, 2: 145-182.
1948 Ethnobotanique et ethnozoologie gaspésiennes, *Archives de folklore*, 3: 51-64.
1961 Le champ de l'ethnobotanique, *Journal d'Agriculture tropicale et de Botanique appliquée*, 8(4-5): 93-101.
- Rousseau, J. et M. Raymond
1945 *Études ethnobotaniques québécoises*, Contributions de l'Institut botanique de l'Université de Montréal 55, Montréal: Université de Montréal.
- Roys, R.L.
1976 [1931] *The Ethno-Botany of the Maya*, Philadelphia: Institute for the Study of Human Issues Reprints on Latin America and the Caribbean.
- Schultes, R.E.
1941 La Etnobotánica: Su Alcance y Sus Objetos, *Caldasia*, 3: 7-12.
- Schultes, R.E., and R.F. Raffauf
1990 *The Healing Forest: Medicinal and Toxic Plants of the Northwest Amazonia*, Portland, OR: Dioscorides Press.
- Sébire, A.
1899 *Les plantes utiles du Sénégal. Plantes indigènes – plantes exotiques*, Paris: J.-B. Baillière et Fils.
- Setchell, W.A.
1924 Ethnobotany of the Samoans, Part II, *American Samoa*, Vol. 20, Washington: Carnegie Institution of Washington: 189-224.
- Shengji, P., et al. (eds.)
1996 *The Challenges of Ethnobiology in the 21st Century. Proceedings of the Second International Congress of Ethnobiology*, n.p.: Yunnan Science and Technology Press.
- Smith, H.H.
1923 Ethnobotany of the Menomini Indians, *Bulletin of the Public Museum of the City of Milwaukee*, 4(1): 1-174.
1928 Ethnobotany of the Meskwaki Indians, *Bulletin of the Public Museum of the City of Milwaukee*, 4(2): 175-326.
- Stearns, R.E.C.
1889 Ethno-Conchology: A Study of Primitive Money, *Annual Report of the Board of Regents of the Smithsonian Institution 1887*, Part 2: 297-334.

- Steedman, E.V. (ed.)
1930 Ethnobotany of the Thompson Indians of British Columbia Based on Field Notes by James A. Teit, *Forty-fifth Annual Report of the Bureau of American Ethnology* (1927-28): 441-522.
- Stevenson, M.C.
1915 Ethnobotany of the Zuñi Indians, *Thirtieth Annual Report of the Bureau of American Ethnology to the Secretary of the Smithsonian Institution, 1908-1909*: 32-102.
- Sturtevant, W.C.
1964 Studies in Ethnoscience, *American Anthropologist*, 66(3): 99-131.
- Swanton, J.R.
1913 A Haida Food Plant, *American Anthropologist*, 15(3): 543-544.
- Tapia, F.
1978 *Etnobotánica de los Amuzgos. Parte 1. Los árboles*, Cuadernos de la Casa Chata 14, México: CIS INAH.
1980 *Etnobotánica de los Amuzgos. Parte 2. Los bejucos, zacates, yerbas e otras plantas*, Cuadernos de la Casa Chata 28, México: CIS INAH.
- Thomas, J.M.C. et L. Bernot (dir.)
1972 *Langues et techniques. Nature et société*, 2 vols., s.l.: Éditions Klincksieck.
- Toledo, V.M.
1982 La etnobotánica hoy: reversion del conocimiento, lucha indígena y proyecto nacional, *Biotica*, 7(2): 141-150.
1992 What Is Ethnoecology? Origins, Scope and Implications of a Rising Discipline, *Etnoecológica*, 1(1): 5-21.
- Turner, N.J.
1973 The Ethnobotany of the Bella Coola Indians of British Columbia, *Syesis*, 6: 193-220.
1988 "The Importance of a Rose": Evaluating the Cultural Significance of Plants in Thompson and Lillooet Interior Salish, *American Anthropologist*, 90(2): 272-290.
1995 Ethnobotany Today in Northwestern North America, *Ethnobotany: Evolution of a Discipline*, R.E. Schultes and S.V. Reis (eds.), London: Chapman and Hall: 264-283.
- Turner, N.J., and M.A.M. Bell
1971 The Ethnobotany of the Coast Salish Indians of Vancouver Island, *Economic Botany*, 25(1): 63-104; 25(3): 335-339.
- Turner, N.J., J. Thomas, B.F. Carlson and R.T. Ogilvie
1983 *Ethnobotany of the Nitinaht Indians of Vancouver Island*, Occasional Papers of the British Columbia Provincial Museum No. 24, Victoria: British Columbia Provincial Museum and Parks Canada.
- Turner, N.J., L.C. Thompson, M.T. Thompson and A.Z. York
1990 *Thompson Ethnobotany: Knowledge and Usage of Plants by the Thompson Indians of British Columbia*, Memoir No. 3, Victoria: Royal British Columbia Museum.
- Tyler, S.A. (ed.)
1969 *Cognitive Anthropology*, New York: Holt, Rinehart and Winston.
- Van Zeist, W., and W.A. Casparie (eds.)
1984 *Plants and Ancient Man: Studies in Palaeoethnobotany*, Rotterdam: A.A. Balkema.
- Vestal, P.A., and R.E. Schultes
1939 *The Economic Botany of the Kiowa Indians as It Relates to the History of the Tribe*, Cambridge, MA: Botanical Museum.
- Walker, A.
1930 Plantes oléifères du Gabon, *Revue de Botanique appliquée et d'Agriculture tropicale*, 10(104): 209-215; 10(105): 309-317.
1931 Champignons comestibles de la Basse-Ngounié (Gabon), *Revue de Botanique appliquée et d'Agriculture tropicale*, 11(116): 240-247; 11(121): 784.
- Watson, J.G.
1928 Malayan Plant Names, *Malayan Forest Records*, 5: 1-277.
- Waugh, F.W.
1917 Some Notes on Ethno-Botany, *The Ottawa Naturalist*, 31: 27-29.
- Whiting, A.F.
1938 Some Remarks on the Principles and on the Status of Ethnobotany, Paper read at the Michigan Academy of Science, Arts, and Letters, March 19, 1938, Cline Library, A.F. Whiting Collection, Manuscript 25, Flagstaff: Northern Arizona University: B2: 341-346.
1939 *Ethnobotany of the Hopi*, Bulletin 15, Flagstaff: Museum of Northern Arizona.
- Wolfe, J., C. Bechard, P. Cizek and D. Cole
1992 *Indigenous and Western Knowledge and Resources Management System*, Guelph: University of Guelph, University School of Rural Planning and Development.
- Wyman, L.C., and F.L. Bailey
1964 *Navaho Indian Ethnoentomology*, University of New Mexico Publications in Anthropology No. 12.
- Yepes Agredo, S.
1953 *Introducción a la Etnobotánica Colombiana*, Bogota: Publicaciones de la Sociedad Colombiana de Etnología.