should be placed in context. Spearman's theory of a unified ability *g* was superseded by multiple-factor theories that Burt pioneered. Thurstone's important book *Multiple Factor Analysis*, published in the United States in 1947, underplayed Burt's influence and ignored his priority; this stimulated Burt to tell the story his way. The defense can read many of Burt's supposed falsifications as consistent with the printed record of 1909 and after, making Hearnshaw's reading seem tendentious and defusing the charge.

If it were not for the posthumous controversies, this biography would have little interest for American readers. Amid the clamor, it is good to have Hearnshaw's scrupulous, sometimes lively analysis. In places *Cyril Burt, Psychologist* grips like an old-time mystery. True to form, at the finale our detective explains all. Burt suffered from loneliness brought on by his reserve, from mixed Saxon-Celtic ancestry, from "an innate instability" in his psychosomatic makeup, from obsessional and repressive characteristics, and from unfortunate formative experiences. (Hearnshaw finds it significant that the student in classics is trained to write imitation Greek poems; that gave Burt "training in pretense.") Tenuous as some of this psychologizing is, it sheds light on Burt's disturbance in his later years. What is known of the personal side of Burt's childhood and youth does not account for isolation and rigidity throughout the best decades of this brilliant, sought-after, effective man.

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Plants and Humans

The Nature and Status of Ethnobotany. RICHARD I. FORD, MICHAEL F. BROWN, MARY HODGE, and WILLIAM L. MERRILL, Eds. University of Michigan Museum of Anthropology, Ann Arbor, 1978. viii, 428 pp., illus. Paper, $10. Anthropological Papers, Museum of Anthropology, University of Michigan, No. 67.

This volume is a festschrift presented to the ethnobotanist Volney H. Jones ten years after his retirement from the University of Michigan. It comprises papers by former students who have been influenced by his work and by his present colleagues at the Musuem of Anthropology at Michigan. The title of the collection replicates that of the paper published by Jones in *Chronica Botanica* in 1941 where he defined ethnobotany as the study of the interrelations of primitive man and plants, a definition that is still, because of its global nature, one of the more satisfying that has been proposed.

Editor Ford, widely known for his own work in the ethnobotany of native Americans of the southwestern United States, has organized the contributions into five major groups that reflect the diversity of ethnobotanical interests of Michigan-trained or Michigan-influenced anthropologists and archeologists. The volume opens with an insightful personal account of Jones's years at Michigan by James B. Griffin, one of Jones's longtime associates, and is accompanied by a supplementary biography by Karen Cowan Ford. Part 1 of the book (with papers by Ford, Joyce Marcus and Kent Flannery, and Wilma Wetterstrom) focuses on theoretical issues in ethnobotany. Part 2 (papers by William Merrill, Michael Brown, and Ellen Messer) deals with aspects of aboriginal epistemology and ethnobotany. Part 3 (papers by Peter Kunstadter, Robert Carneiro, and Gertrude Dole) describes several dimensions of native resource utilization. Part 4 provides descriptions of the relations of aboriginal peoples to plant domestication and plant dispersal and includes papers by Jean Black, Wesley Cowan, Richard Yarnell, and Nancy and David Asch. The last series of papers deals with prehistoric economics and paleoethnobotany and includes contributions by Paul Minnis, James Fitting, and Deborah Pearsall. The collection is closed by Ford's compilation of Jones's published works from his first paper in 1935 to those now in press.

The human use of plants has been a topic of general scientific interest since the time of Theophrastus, but the term *ethnobotany* did not come into common usage in America until John Harshberger, a botanist, introduced the expression to refer to the study of "plants used by primitive and aboriginal people" (*Bot. Gaz.* [*Chicago*] **21**, No. 3, 146 [1896]). The articles in this volume reflect this focus strongly, from both an ethnological and archeological perspective. No common theoretical theme, however, underlies this concern with plant utilization, and the editor openly recognizes that ethnobotany today lacks a unifying theory. The three opening theoretical pieces in part 1 suffer because of this fact.

Ford's admirable historical account of the development of ethnobotany in North America provides us with a good review of the work of the major figures in the field, but his synthesis of potential developments in ethnobotany is weak and more programmatic than substantive in recognizing important issues for future research.

Marcus and Flannery provide us with a glimpse of the ethnoscientific knowledge of the 16th-century Valley Zapotecs of Oaxaca as inferred from the writings of the Dominican Fray Juan de Córdova compared with current ethnobotanical research in the same region of Mexico. They examine several natural domains (landscape, plants and animals, agriculture) and provide reconstructions of aspects of folk classification therein. Their conclusions that the Precolumbian Zapotecs did not have the same distinctions between grass, herbs, and trees as do their present-day descendants, however, is probably wrong, in light of the recognition of these categories in many unrelated languages of the world, as evidenced both from historical and ethnological records (B. Berlin, D. E. Breedlove, P. H. Raven, *Am. Anthropol.* **75**, 214 [1973]).

The weakest theoretical contribution is that of Wetterstrom, who argues that archeologists should examine the cognitive systems of cultures of the past when making their reconstructions of culture history in general and agricultural development in particular. Her suggestion that archeologists consider modern ethnographic sources as models for interpreting early social systems is not new, and few of the specific questions she asks about the Hueco Bolson area of central New Mexico, western Texas, and northern Mexico can be clarified by examining the dietary practices of contemporary peoples.

Archeologists will be interested in the articles by Cowan on the distribution of maygrass (*Phalaris caroliniana*), by Yarnell on the domestication of sunflower (*Helianthus annuus* var. *macrocarpus*), and by Asch and Asch on the development of the domesticated sumpweed (*Iva annua*). Each demonstrates the contributions that ethnobotanical investigation can make toward developing a fuller picture of the process by which plants were domesticated by human societies.

The most stimulating papers in the book, and those most likely to be of interest to the general scientific reader, are those found in parts 2 and 3. Merrill presents a firsthand account of Tarahumara (Rarámuri) drinking patterns and clarifies for the first time the ethnographic significance of inebriation (due to

drinking the fermented corn beverage *batári*) for this famous Mexican society. Brown provides a good description of the use, folk classification, and cultural importance of the hallucinogenic *Brugmansia* (*Datura*) as found among the Aguaruna Jívaro of the Upper Mayo River Valley of Peru, verifying again the strong relationship between cultural importance and minute perceptual discriminations within closely related botanical species. Messer outlines the major features of herbal medicine in Mitla, Oaxaca, Mexico, and shows that herbal remedies, though their traditional importance is changing significantly under the pressure of modern medicine, will continue to represent an important aspect of folk healing so long as there are illnesses recalcitrant to the pharmacopoeia of the modern physician.

The papers on plant resource utilization outline precisely what can be learned by closely examining the knowledge and practices of resource management of nonliterate peoples. Kunstadter's description of swidden agriculture among the Lua' of northwestern Thailand demonstrates convincingly that behavior of these people reflects a highly sophisticated biological and ecological understanding of their environment, one that is, sadly, in danger of extinction. The work of Kunstadter and his collaborators should go far in providing empirically justified suggestions for the permanent, sustained use of tropical forest resources in Southeast Asia and elsewhere by determining how and why aboriginal societies in the tropics have been able to form a viable relationship with their forest environment.

Carneiro's short paper on the classification and use of tropical forest trees among the Kuikuru of Brazil's Upper Xingú River basin describes some intriguing experiments in ethnobotany as well as proposes—in typical Carneiro style—a rough-hewn formula for estimating the number of tree species for some known area of tropical forest. Finally, Dole's detailed description of the preparation and consumption of manioc among the same Indian group will go far toward eliminating many popular misconceptions about the human use of this important plant in South America.

The book as a whole helps place in perspective some of the issues of ethnobotany today. Ethnobotany will continue to follow Jones's lead and provide us with clear accounts of the relations among nonliterate peoples' knowledge and use of plants. It remains to be seen if modern societies can put this information to use in developing a new and fuller understanding of their responsibilities for the maintenance of the world's diverse plant resources.

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Personal Glimpses

The Uranium People. LEONA MARSHALL LIBBY. Crane Russak, New York, and Scribner, New York, 1979. x, 342 pp. + plates. $15.95.

Leona Woods Marshall Libby has written a book entitled *The Uranium People*. After almost 40 years (since the start of her saga) it is not clear what particular void in recorded history she wants to fill. This reviewer will guess that she has succumbed to a temptation in common with many people who reach that uncertain age of about 60 years: the compulsion to reminisce. The book is best described as the memoirs of a young graduate who found herself in the company of brilliant scientists in a major applied science program that is still regarded by some as an example of the technical marvels that can be achieved with dedication and money.

The title of the book is not accurate. The author is writing about the plutonium project and the people with whom she herself was involved. It should be noted that the Manhattan Project had three independent programs in order to have a high probability of succeeding in its objective of making a nuclear explosive weapon. One program, under A. H. Compton, was the plutonium project, which the author joined in 1942 and, in her own way, chronicles. The other two, which are not included in this book, were the uranium projects aimed at separating the fissile isotope uranium-235 from the more abundant isotope uranium-238 by diffusion and by electromagnetic techniques. Perhaps a personalized account of these other two very interesting activities will yet be written.

Scenes from the early days at Los Alamos. (Top) The lodge; (bottom) the road. [Los Alamos Scientific Laboratory; reproduced in *The Uranium People*]

The book is written in an anecdotal style with many repetitions and a disregard for continuity either in subject matter or in chronology. The author states her objective of trying to tell "what was human and interesting about the people involved." One wonders what she found interesting about cleaning fingernails or picking teeth with the aid of plucked hair. The emphasis of the book being on people, her description of events is in terms of the people involved. The book should not be read as a history of the uranium or plutonium projects; many important activities were going on that are not covered in it.

The first chapter is devoted almost exclusively to Enrico Fermi. That he also figures prominently in the succeeding chapters comes as no surprise, since the author states at the outset that Fermi was perhaps the most influential person in her life. The character sketches of people with whom the author worked are scattered throughout the book almost at random. Certainly all the Nobel laureates she has known are mentioned whether or not they figured prominently in the project. The character sketches are intermingled with a gleeful account of the author's activities; the subtitle might be "Oh what fun we had!"

With the breezy, intimate style adopted by the author, it is not always evident when the descriptions of events are firsthand accounts and when they are derived from others. In some cases the eyewitnesses supplying the accounts are identified; in others it is not clear whose memory is being tapped. For two particular events, Libby is specific in insisting that her memory is the most reliable; the first is the activation of the original chain-reacting pile on 2 December 1942, and the second is the discovery of massive fission-product poisoning of the first Hanford production reactor. In describing the events at Los Alamos, at the