

BOOK REVIEW

Domestication of Plants in the Old World, 2nd edition. Daniel Zohary and Maria Hopf. Oxford: Clarendon Press, 1993. £35.00 (ca. US \$63.00) (hardcover). Pp. x; 278. ISBN 0-19-854795-1.

This second edition substantially updates Zohary and Hopf's excellent review of domesticated plants in the Old World. Readers familiar with the earlier edition will be pleased to find archaeological and archaeobotanical citations substantially updated. As with the previous edition, the text covers plants domesticated and cultivated in the Near East, parts of Central Asia, the northern portion of the Indian subcontinent, and Europe. The book is nearly comprehensive for the early Near East and Europe: outside these regions the authors have included fewer sites. As with the first edition, Africa, East and Southeast Asia are not covered.

This book is most useful as a reference tool, and there are few sources in print that provide as much information for so reasonable a price. Entries for each species include a brief review of habitat, dispersal mechanisms, propagation, uses, wild ancestry, genetic affinities, and available archaeological evidence for early domestication. Intensive research focus on a few plants has generated far more information on several of the cereals and pulses than on what have always been viewed as lesser crops—flax, rye, and tubers, for example. The authors provide a useful review of the sources of evidence for plant cultivation in a first chapter. A brief concluding essay summarizes the domestication of crops in the Near East and their spread to European sites with subsequent horticultural and other plant cultivation.

This is an excellent book, suitable for libraries, reference shelves, and anyone who teaches or writes about plant domestication. The second edition includes much recently recovered archaeological material, such as the charred plant remains from Netiv Hagdud and Ohalo II (Jordan Valley and Galilee). Coverage of other parts of the Near East are slightly less current: the possibility that much of the Tell Mureybet "wild einkorn wheat" may be wild rye and the early recovery of safflower at Selenkahiye are not included (both in Syria). While it would be almost impossible to keep a book like this fully current, it marks the first reference for anyone studying domesticated plants in the Near East and Europe.

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Lok Swasthya Parampara Samvardhan Samithy Monograph Series. No. 1. Local Health Traditions: An Introduction. A. V. Balasubramanian and Vaidya M. Radhika. Illustrated by Natesh. **No. 2. Ayurvedic Principles of Food and Nutrition. Part I.** Vaidya M. Radhika and A. V. Balasubramanian. Illustrated by Natesh. **No. 3. Mother and Child Care in Traditional Medicine. Part I.** Vaidya M. Radhika and A. V. Balasubramanian. Illustrated by Natesh. **No. 4. Mother and Child Care in Traditional Medicine. Part II.** Vaidya M. Radhika, and A. V. Balasubramanian (editors). Illustrated by Natesh. **No. 5. Marma Chikitsa in Traditional Medicine.** Vaidya V. Dharmalingam, Vaidya M. Radhika, and A. V. Balasubramanian. Illustrated by Natesh. **No. 6. Ayurvedic Principles of Food and Nutrition. Part II.** V. M. Nanal, R. M. Nanal, M. Radhika, and A. V. Balasubramanian (editors). **No. 7. Nidaana Diagnosis in Traditional Medicine.** Vaidya R. Aruna, A. V. Balasubramanian, and V. Sujatha. Illustrated by V. Sathyabama. **No. 8. Bheshaja Kalpana Pharmacology in Traditional Medicine.** Vaidya V. O. Saji and A. V. Balasubramanian. Illustrated by V. Sathyabama. **No. 9. Vrکشayurveda. An Introduction to Indian Plant Science.** K. Vijayalakshmi and K. M. Shyam Sundar. Illustrated by Uma Krishnaswamy. **No. 10. Plant Propagation Techniques in Vrکشayurveda.** K. Vijayalakshmi and K. M. Shyam Sundar. Illustrated by Uma Krishnaswamy. **No. 11. Nomenclature and Taxonomy in Vrکشayurveda.** P. Ram Manohar. Illustrated by Uma Krishnaswamy. Madras, India: Lok Swasthya Parampara Samvardhan Samithi (c/o Centre for Indian Knowledge Systems, No. 2, 25th East Street, Thiruvannamiyur, Madras 600 041, Tamil Nadu, India), 1989-1994. \$108.00 U.S. (paperback); (also available individually). No. 1. 1989. Pp. iii, 95. No. 2. 1990. Pp. iii, 121. No. 3. 1990. Pp. iv, 81. No. 4. 1990. Pp. iii, 78. No. 5. 1991. Pp. ii, 75. No. 6. 1991. Pp. vi, 69. No. 7. 1991. Pp. i, 84. No. 8. 1991. Pp. iii, 64. No. 9. 1993. Pp. iii, 101. No. 10. 1993. Pp. iii, 70. No. 11. 1994. Pp. iii, 100. (no ISBN numbers)

This series introduces the reader to the local health and plant traditions of India as practiced at the community level. This traditional knowledge, much of it orally transmitted from generation to generation, is disappearing. The Lok Swasthya Parampara Samvardhan Samithi is an Indian network of individuals and organizations "committed to the cause of revitalization of the indigenous systems of health care and widespread folk health traditions." It is nice to see in this monograph series native scholars working to capture their own traditions, instead of the still typical, but less appropriate and less cost-effective, research expeditions from America or Europe.

The task is formidable: not only is the local traditional knowledge disappearing at an alarming rate, there is so much of it to document. This series cannot be regarded as an attempt to document details—recipes, directions of use, botanical descriptions, etc.—rather it introduces the reader to the extent of the subject and sets the framework by which it can be studied and presented.

The extant health and plant science systems in India may be classified:

- i) Local traditional folk system (Lok Swasthya Paramparas);
- ii) Indian 'scientific' systems (e.g. Ayurveda, Unani, Siddha);
- iii) Western scientific systems.

The emphasis of the present works is on the local health and plant knowledge, although frequent reference is made also to the better known organized Indian systems, the Ayurveda, Unani, and Siddha. These latter systems are considered the "scientific" standard by which the local systems are compared, and little attempt is made to explain the local systems in modern Western terms. It is argued that the Indian sciences are as valid as the modern Western systems and are best understood by their own principles and terminology. The Indian sciences are subjective in observation and analysis, yielding principles and theories that are not susceptible, as are Western sciences, to upheaval wrought by constant refinement of our objective understanding of our external reality. For the Indian health practitioner, height is measured in terms of the patient's *anguli* (fingers), not by an arbitrary standard like meters. Likewise, time is measured in *maatras*, the time of one cycle of breath; so too is volume similarly normalized to the individual.

The series presentation is at times confusing to the reader. The works shift back and forth from i) detailed exposition of the Paramparas, to ii) setting of the framework of such an exposition based on the Indian sciences. It is never quite clear to whom the works are directed: they are not detailed enough for practical usage and experiment among specialists and practitioners and are too opaque for the Western reader with many terms left untranslated and undefined. For the Western reader, the works demand immersion in the Indian terminology.

Still, there is much to be found here that deserves closer examination. It is noted in *Ayurvedic Principles of Food and Nutrition, Part I* (No. 2) that *ghee*, the clarified butter staple of Indian cuisine, is high in fat and cholesterol and is difficult to digest, yet in Ayurveda *ghee* is recommended for those in late youth and old age—exactly the ages when it is contraindicated in the West. The Ayurvedic *acharyas* (adepts) say that *ghee* increases digestive power, increases intellect, memory, the libido, and otherwise helps enhance longevity and youthfulness. On the other hand, milk, though recognized as a healthy food, is incompatible with all sundry of foods like fish, sour foods, meat, horsegram (*Dolichos biflorus*), blackgram (*Phaseolus roxburghii*), radish, and others. It is claimed that continued intake of incompatible foods will lead to infertility, blindness, blisters, psychological imbalance, perception problems, abdominal distension, fevers, frequent colds, chronic nasal drip, and even unconsciousness and congenital disorders of offspring(!). While modern health sciences have much to say about the nutritional content of foods, they understand little of the synergistic effects of foods and nutrients on the body; perhaps "ethnonutritional" data as can be gleaned from these works will suggest approaches for research.

It is surprising that in a section on oral hygiene in *Ayurvedic Principles of Food and Nutrition, Part I* (No. 2) there is no mention of *neem* (*Azadirachta indica*) among appropriate materials for toothbrushes, powders, gargles and toothpicks. Everywhere in India villagers can be seen using *neem* sticks to clean their teeth, and Ayurvedic toothpastes containing *neem* are exported worldwide.

There is an interesting account of the Indian system of *marma* (or *varma*), an an-

cient system of acupuncture and acupressure similar to the Chinese and Japanese systems. In *Marma Chikitsa in Traditional Medicine* (No. 5), an adept of the system is interviewed at length on the use and efficacy of the system as it is practiced today.

Like Tibetan medicine, testing the pulse (just above the wrist) and urine are important diagnostic tools. The *naadi*, or channels of 'energy' through the body, are accessible to examination (*nidaana*) and manipulation in many ways including herbs and *marma*. In *Nidaana: Diagnosis in Traditional Medicine* (No. 7) there is a detailed classification of Ayurvedic and Lok Parampara etiology of disease and methods of diagnosis. Typically, medical problems are treated with home remedies, and if there is no relief after two days, patients consult folk practitioners for advice. If these part-time health workers are unable to help, they refer patients to fulltime Ayurvedic or Siddha professionals. Folk practitioners can include specialties as midwives, bonesetters, astrologers, and oracles, each with their own orally-transmitted traditions.

Bheshaja Kalpana Pharmacology in Traditional Medicine (No. 8) is an introduction to the properties and methods of preparation of medicines. *Bheshaja Kalpana* describes the underlying principles and general approach rather than specific recipes. There are guidelines for the appropriate collection time of herbs and their various routes of administration. Among some interesting preparations described are *aasavaas* and *arishtams*: powders and decoctions in sugar or *jaggery* solution which are allowed to ferment. Unlike other Ayurvedic medicines, *aasavaas* and *arishtams* are said to have no expiry date, becoming more potent with time.

The last three volumes (Nos. 9–11) cover Indian botanical and soil science, the *Vrkshayurveda*, a once extensive literature dating back before the 8th century C.E. Much of what is known today is reconstructed from other sources, such as the *vedas* (religious works) and *nighantus* (medicinal plant lexicons). *Vrkshayurveda: An Introduction to Indian Plant Science* (No. 9) is largely devoted to soil science. Classification schemes exist for soils based on test results, color and taste, and for each soil types of crops that can be grown are specified. Several soil tests are described including the following: excavate a pit one cubic yard and back fill; if the soil cannot be filled back in the hole even with stamping, then the soil is "very adhesive" and "unctuous" and is considered high quality; if the hole is refilled exactly, that indicates sand with rich clay—a mediocre soil; if the pit cannot be filled, then the soil is poor quality loose sand. Different soils are recommended for different types of herbs—for example, purgative herbs should be grown on *prithvi* and *jala* (black and sweet) soils and emetic herbs should be grown on sparser *agni*, *aakaasha*, and *vaayu* soils. Methods of soil improvement are also described: *neem* leaves and oil cake and *perandai* (*Cissus quadrangulensis*) are both recommended to reduce salinity.

There is a rich folklore of seed storage and plant propagation, as one would expect for a nation so dependent on agriculture. A wealth of prescriptions and recommendations for collection, treatment, and sowing of seeds is hinted at. Example: sweet flag root (*Acorus calamus*) is used as a seed fungicide, which may bear some relation to its use in the West as a potpourri fixative. Sweet flag is also recommended in irrigation water to produce seedless melon, eggplant, and snake gourd (*Trichosanthes anguina* and others). If this effect can be verified it could have implications for modern agriculture.

Indian plant nomenclature is multinomial: this is, each plant has a unique set of descriptive names which taken together give a profile of the plant. The system is unwieldy and is not unlike the confused state of pre-Linnean nomenclature in Europe. One of the names usually serves as the basonym for the plant, but the system is compared to a crossword puzzle and the identity of plants is often difficult to discern. In *Nomenclature and Taxonomy in Vrکشayurveda* (No. 11) there is an intriguing reference to discovery in 1950 of an ancient Indian manuscript describing a plant classification system based on comparative morphology. A description of the work was published in the *Journal for the Royal Asiatic Society*, but the manuscript itself was never published. Efforts should be made to locate and publish that manuscript.

The Lok Swasthya Parampara Samvardhan Samithy series attempts to cover a vast body of knowledge, both local and "scientific." The result is uneven in style and pace and riddled with many annoyances to the reader. Examples: the absence of indices limits the usefulness of the works considerably; in the course of the 11 volumes there are many folkloric remedies mentioned, like "turmeric for earache," that cannot be accessed quickly by scanning an index. The appendices are generally useful, but errors crop up: in Appendix II of *Nomenclature and Taxonomy in Vrکشayurveda* holy basil or *tulasi* (or more commonly rendered as *tulsi*) is equated to *Vitex trifolia*, a very different plant, while its proper binomial, *Ocimum sanctum*, is incorrectly used for something called "Indian wild pepper"; also, *kaalajaji (kalonji)*, the black cumin (*Nigella sativa*), is equated to *Cuminum cyminum* which is what we know as regular cumin (*jeera*).

Scholarship is lacking by Western standards. Argument by analogy—common in religious literature—is carried over here from the classical texts; several examples appear in *Local Health Traditions: An Introduction* (No. 1). Definitions, when present, are sometimes circular; viz., in Appendix II of *Ayurvedic Principles of Food and Nutrition, Part II* (No. 6), *shukra janaka* is defined as "increasing the formation of *shukra*" but *shukra* is left undefined, and only in another volume does one find that it means "semen." Definitions for terms used to describe the actions of 243 foods on body *doshaas* (humors) are missing for a table that comprises the largest part of *Ayurvedic Principles of Food and Nutrition, Part II* (No. 6). Spellings of terms unfamiliar to Western readers are inconsistent: the word for an adept *aachaarya* is also given the spelling *acharya* (p. 30, No. 1); and the words *ayurvedic* and *aayurveda* appear on the same page (p. vi, No. 6).

Despite annoying detractions, this series will be a valuable addition to any library specializing in the traditional medicine of India. Ethnobotanists, ethnopharmacologists, anthropologists, agriculturalists, and herbalists will find much here to provoke new lines of thought and research.

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