

FOLK UTILIZATION OF SOME PTERIDOPHYTES OF DEOPRAYAG AREA IN GARHWAL HIMALAYA: INDIA¹

R. D. GAUR AND B. P. BHATT

Gaur, R. D. (*Ethnobotany and Systematic Laboratory, Botany Department, H.N.B. Garhwal University, Srinagar Garhwal, U.P., India*) and **B. P. Bhatt** (*Department of Forestry, H.N.B. Garhwal University, Srinagar Garhwal, U.P., India*). FOLK UTILIZATION OF SOME PTERIDOPHYTES OF DEOPRAYAG AREA IN GARHWAL HIMALAYA: INDIA. *Economic Botany* 48(2):146–151. 1994. Garhwal Himalaya represents one of the richest zones of vegetational wealth in India. Pteridophytic flora is also interesting in its diversity and distribution, however, little is worked out on the economic aspects of these plants. Therefore, present communication pertains to the folk utilization of ferns and fern-allies by the inhabitants of Deoprayag Tehsil in Garhwal Himalaya. The studies are based on frequent field trips to various remote localities and collecting the information from the local inhabitants. The perusal of literature indicated several little known plants of folk utilization, and a large number of these could prove an important source of wider economic utility after phytochemical analysis.

Key Words: Pteridophytes; edible ferns; medicinal ferns; fodder; manure; fire resistance; soil binders.

Angiosperms of the Deoprayag and surrounding area of Garhwal Himalaya (78°–79° longitude, 29°–30° latitude) of Uttar Pradesh attracted wide attention for taxonomic and economic botany points. Pteridophyte plants in contrast have received only limited attention (Gaur 1977; Gaur and Semwal 1983; Gaur, Semwal, and Tiwari 1984; Gaur and Tiwari 1988).

Studies on fern and fern-allies in this region have been carried out by several investigators (Beddome 1883; Clarke 1880; Hope 1899; Duthie 1906) and others. More recently Bir et al. (1983), Dhir and Sood (1981), Goel and Bhat-tacharyya (1981), and Rau (1961) have contributed toward the understanding of the fern flora of different quarters of Garhwal Himalaya. In general there is little information on the ethnobotanical and economic aspects of pteridophytic plants from India, including the presently investigated area (Anonymous 1948–1976; Anonymous 1986; Jain 1991) and only a few scattered economic reports are available (Bir et al. 1983; Dagar and Dagar 1987; Dixit 1974; Dixit, Dad, and Kar 1978; Islam 1983; Gaur and Semwal 1983; Kapur and Sarin 1977; Padala 1988; Puri

and Puri 1970; Sharma and Vyas 1985; Singh 1973). Because fern and fern-allies are relatively little known for their economic utilization, several workers have emphasized this aspect of the group (Aderkas 1984; Bir et al. 1983; Copeland 1942; Duke 1972; Harborne 1966; May 1978; Padala 1988; Panvisavas, Worthen, and Bohw 1968; Strain and Cooper 1973; Tryon and Tryon 1982).

MATERIALS AND METHODS

Frequent field surveys were made during July 1986 to June 1989, covering various remote localities in different seasons. All the specimens selected in the folk utilization were collected in the field with the assistance of informants. From the voucher plant specimens, the information on folk utilization were gathered either from older inhabitants, local medical practioners (Vedyas), women folk or others. Usually the information was verified by repeated queries from the local inhabitants of different professions, ages and villages. The collected specimens are followed with the usual methods of herbarium preparations proposed by Jain and Rao (1977). The specimens are identified from the voucher specimens of Botanical Survey of India, Northern Circle, Dehradun (BSD) and housed in the Herbarium Garhwal University (GUH).

¹ Received 3 February 1992; accepted 2 September 1993.

ENUMERATION

Pteridophytes of economic value are arranged in alphabetical sequence irrespective of their taxonomic position. Arrangement of data is: botanical name/ vernacular name/ Family name/ local utilization/ approximate elevation of its distribution/ place/ accession number of the Herbarium for the specimen; following many of the entries are references to the uses in various parts of India. Ferns and fern-allies or some of the uses marked by asterisks have not been previously reported in connection with the economic aspects.

Adiantum capillus-veneris L./ Hansraj/ Adiantaceae/ decoction of leaves drunk afresh for the relief of cough, cold and bronchial diseases/ 1550 m/ Jakholi/ 2802 (Anonymous 1948, 1986; Dixit 1974; Jain 1991; Sharma and Vyas 1985).

A. caudatum L./ Gunker/ Adiantaceae/ extract of whole plant internally used as demulcent, expectorant and tonic/ 1250 m/ Satoli/ 2705 (Anonymous 1948, 1986; Jain 1991; Sharma and Vyas 1985).

A. incisum Forsk./ Jangli tulsi/ Adiantaceae/ decoction of leaves and fronds drunk for treatment of diabetes and cough; *paste of fronds applied for skin diseases, eczema, and rashes/ 950 m/ Kothiyara/ 26 (Anonymous 1948, 1986; Jain 1991).

A. philippens L./ Hanspadi/ Adiantaceae/ extract of rhizome and fronds taken with cold water for the relief of dysentery; also considered to be a blood purifier/ 1780 m/ Bhasar/ 2607 (Anonymous 1986; Dixit 1974; Sharma and Vyas 1985).

A. venustum G. Don/ Kirmuli/ Adiantaceae/ infusion of fronds used as tonic, expectorant, and diuretic/ 1450 m/ Bachwar/ 2612 (Anonymous 1948, 1986; Jain 1991; Kapur and Sarin 1977).

**Aleuriopteris albomarginata* Clarke/ Tulsi/ Sinopteridaceae/ locally the brown smooth rachis supposed to be antiseptic and commonly inserted where ears and nose are pierced, and later, replaced by ornaments; fresh or dried rhizomes are internally used as tonic/ 850 m/ Chandi/ 2750.

Ampelopteris prolifera (Retz.) Copel./ no local

name given/ Thelypteridaceae/ *soil binding capacity, resistant to fire; fronds eaten as a vegetable; manuring (with cowdung)/ 700 m/ Kirtinagar/ 2615 (Anonymous 1986).

**Arthromeris wallichiana* (Spr.) Ching/ Banoo/ Polypodiaceae/ bitter taste, boiled rhizome after grinding, with added rice water is drunk to check dysentery/ 2250 m/ Liswala/ 2710.

**Asplenium planicaule* Wall./ Khamera/ Aspleniaceae/ dried rhizomes crushed into powder, mixed with pipe tobacco for fragrance/ 2500 m/ Liswala/ 2746.

**Athyrium schimperi* Moug. ex Fee/ no local name given/ Athyriaceae/ young fronds eaten as green vegetable; also regarded as a good fodder for sheep and goats/ 1650 m/ Pirola/ 2747.

Botrychium lanuginosum Wall. ex Hook. et Grev./ Indupranag/ Botrychiaceae/ young fronds eaten as green vegetable; boiled young shoots believed to check dysentery; a paste of rhizome used as ointment in the treatment of cuts and bruises/ 2850 m/ Rai Ka Danda/ 2801. (Gurung 1979).

B. ternatum (Thunb.) Sw./ no local name given/ Botrychiaceae/ decoction of leaves and roots drunk as vulnerary and infusion orally given for treatment of dysentery/ 2750 m/ Rai Ka Danda/ 2804 (Anonymous 1948, 1986; Jain 1991).

**Coniogramme caudata* (Wall. ex Ettingsch) Ching/ Woono/ Hemionitidaceae/ rhizome crushed into powder, mixed with water, and internally administered to relieve headache/ 2950 m/ Chhakuna/ 2770.

Diplazium esculentum (Retz.) Sw./ Luglugi/ Athyriaceae/ young fronds a vegetable; fire resistant, and used as green manure*/ 1750 m/ Dogadda/ 2765 (Anonymous 1952, 1986; Dagar and Dagar 1987; Dixit 1974; Jain 1991).

D. polypodioides Blume/ Lingra/ Athyriaceae/ young circinate coiled fronds are used as green vegetable after roasting; fronds roasted into the ash, and the pieces are chewed to relieve dysentery; also used as an aphrodisiac/ 1500 m/ Dogadda/ 2766 (Gaur and Semwal 1983; Jain 1991).

Drynaria quercifolia L./ no local name given/ Polypodiaceae/ decoction of root and fronds

used as tonic to the bowels; aqueous extract of the rhizome applied to wounds and cuts/ 2100 m/ Jakholi/ 2780. (Anonymous 1952, 1986; Islam 1983; Jain 1991; Singh 1973).

Dryopteris cochleata (D. Don) C. Chr./ Barun/ Dryopteridaceae/ powder of dried rhizomes mixed with rice water, internally used as a remedy for diarrhoea/ 1150 m/ Liswalta/ 2181 (Anonymous 1952; Jain 1991).

D. odontoloma (Moore) C. Chr./ Khutera/ Dryopteridaceae/ whole plant used as vegetable, plants are dried after exposing to sunlight and stored for use in periods of scarcity; the vegetable is commonly supposed to be a good medicine for dysentery*/ 1450 m/ Jainti/ 2709 (Anonymous 1952, 1986).

**D. wallichiana* (Spreng) Hyl./ Banoo/ Dryopteridaceae/ young fronds used as vegetable; decoction of fresh fronds is drunk for dysentery and the plant is an ingredient of the local manure/ 980 m/ Panyatal/ 2713.

Equisetum arvense L./ Sarsyat/ Equisetaceae/ used in psychomedicine by the local people, a plant with 21 nodes is said to destroy the curse of Goddess (Kali)*; rhizome also internally used in gonorrheal diseases/ 1000 m/ Kamlek/ 2729 (Anonymous 1952, 1986).

E. diffusum D. Don/ Sarsyat/ Equisetaceae/ used as a refrigerant, powder of the rhizome with water or milk taken internally as diuretic/ 1050 m/ Kamlek/ 2810 (Jain 1991).

**Glaphyopteridopsis erubescens* (Wall. ex Hook.) Ching/ Barun/ Thelypteridaceae/ powder of dried rhizome mixed with rice water, internally administered for gonorrhea, especially for leucorrhea/ 1150 m/ Kamlek/ 2731.

**Huperzia subulifolia* (Wall. ex Hook. et Grev.) Trev./ no local name given/ Huperziaceae/ decoction of the fronds internally used in cough and uneasiness in the chest/ 2750 m/ Bhansar/ 2787.

**Lepisorus clathratus* (Clarke) Ching/ Sonthya/ Polypodiaceae/ extract of whole plant is a good tonic for infants to keep digestion in order; root powder and spores applied on deteriorated wounds/ 2200 m/ Chaunra/ 2769.

Lycopodium clavatum L./ Nagbeli/ Lycopodiaceae/ spores and whole plant internally taken

in treatment of spasmodic retention of urine in infants, gastritis, emollient, urinary or kidney disorders and externally applied for catarrhal cystitis/ 2750 m/ Gainthana/ 2795 (Anonymous 1962, 1986; Dixit 1974; Islam 1983).

Lygodium flexuosum (L.) Sw./ Saira/ Lygodiaceae/ rhizome and leaves externally applied in treatment of rheumatism, eczema, cuts/ 2900 m/ Badhani/ 2796 (Anonymous 1962, 1986; Islam 1983; Jain 1991; Puri and Puri 1970).

**Microsorium membranaceum* (D. Don) Ching/ Ban Gakdum/ Polypodiaceae/ equal proportion of rhizome of the plant and fresh tumeric (*Curcuma domestica* Vahl.) ground, dissolved with milk, the mixture is drunk thrice a day to relieve chest pain, cough, and cold of infant; rhizome boiled with water and the decoction is taken internally for diarrhoea and dysentery/ 2150 m/ Bachwar/ 2769.

Nephrolepis cordifolia (L.) Presl./ Barun/ Nephrolepidaceae/ tubers after thoroughly washed with boiling water are edible; decoction of fresh fronds taken internally for cough; soil erosion controlled by creeping runners/ 980 m/ Panyatal/ 2739 (Anonymous 1966, 1986; Islam 1983; Jain 1991).

**Oleandra undulata* (Willd.) Ching/ Jangli Haldi/ Oleandraceae/ powder of rhizome and spores mixed with milk taken internally as antidote against snake bites; rhizome is also used as a tonic/ 1950 m/ Kot Bangar/ 1689.

O. wallichi (Hook.) Presl./ Jangli Haldi/ Oleandraceae/ powdered rhizome mixed with rice water and taken internally as a general tonic/ 1800 m/ Siranyee/ 1779 (Anonymous 1966, 1986).

Ophioglossum vulgatum L./ Jhina/ Ophioglossaceae/ paste of rhizome externally applied on wounds, dropped in sore eyes as a detergent, and antiseptic; infusion taken internally for vulnerary or bleeding by nose or mouth; decoction drunk for heart troubles/ 1450 m/ Khaliyan/ 2750 (Anonymous 1966, 1986; Islam 1983).

Osmunda claytoniana L./ no local name given/ Osmundaceae/ paste of plant applied externally to wounds/ 1450 m/ Dogadda Gadera/ 1789 (Anonymous 1966, 1986).

**Polypodium microrhizoma* Clarke ex Baker/ Barun/ Polypodiaceae/ rhizome and fronds are dried, and powdered, small quantity of the powder administered with milk to relieve pain of joints, and rheumatic diseases; roasted rhizomes are chewed for cough relief/ 2100 m/ Danda/ 1740.

**P. subamoenum* Clarke/ Garurbhuj/ Polypodiaceae/ used in psychomedicine, for relief from the evil spirits and bad humour/ 2200 m/ Chirbatiya/ 1789.

P. vulgare L./ no local name given/ Polypodiaceae/ purgative rhizome and used as vulnerary/ 2150 m/ Budna/ 2759 (Garung 1979).

**Polystichum nepalense* (Spr.) C. Chr./ Kath Barun/ Dryopteridaceae/ dried rhizomes and spores are powdered, added to boiled water and taken internally for digestive relief and skin allergies; the fronds used as ingredients of manure/ 2200 m/ Dogadda Bich/ 2709.

Pteridium aquilinum (L.) Kuhn. v. Decken/ no local name given/ Pteridaceae/ powder of dried rhizome mixed with milk used to relieve diabetic disorders*; tender fronds used as vegetables and green fronds as fodder; good soil binder, and also used in preparation of manures*/ 2200 m/ Paunthi/ 2711 (Anonymous 1972, 1986; Islam 1983; Jain 1991).

Pteris vittata L./ Bish Barun/ Pteridaceae/ a poisonous fern, if grazed in large amount cattle produce foaming saliva and appear anxious; young fronds are used in manuring*/ 1150 m/ Chandi/ 2719 (Dagar and Dagar 1987; Jain 1991).

**Pteris quadriaurita* Retz./ Barun/ Pteridaceae/ rhizome said to be antiseptic: paste is applied for healing cuts and wounds; fronds used in manuring/ 1800 m/ Chhakuna/ 2763.

Tectaria macrodonta (Fee) C. Chr./ Chipro/ Tectariaceae/ leaves used as fodder*, preferred as feed by goats and sheep/ 750 m/ Kirtinagar/ 2807 (Jain 1991; Sharma and Vyas 1985).

**Woodwardia unigemmata* (Mak.) Nakai/ Woondala/ Blechnaceae/ decoction of rhizome and fronds internally administered in dysentery, dried rhizome used as purgative, fronds used in manuring/ 1750 m/ Dogadda/ 2811.

DISCUSSION

Our survey has revealed that ferns and fern-allies are closely related to the lives of village people, especially as food, fodder, manure and medicines. Older inhabitants attest to their importance in maintaining the deteriorating environment.

Only a limited number of fern and fern-allies are used for food (Aderkas 1984; Copeland 1942; Komarov 1934; May 1978; Medsger 1939). Most of the species are used as pot vegetables often fried with animal fat or vegetable oil, rarely as flavoring agents or pickled. Investigations in this part of the Himalaya have disclosed some well known edibles such as *Diplazium polypodioides*, *Dryopteris odontoloma*, *Nephrolepis cordifolia*. Young fronds of *Ampelopteris prolifera*, *Diplazium esculentum*, *Drynaria quercifolia*, *Dryopteris wallichiana* and *Pteridium aquilinum* eaten here are not much used in other parts of India (Anonymous 1986). To make palatable preparations, the edible parts are boiled in water and squeezed to remove toughness and toxic substances, as in *Botrychium lanuginosum*, *Diplazium esculentum* and *Nephrolepis cordifolia*. Leaves of *Dryopteris odontoloma* and *D. wallichiana* are dried in the sun and stored for use as vegetable during periods of scarcity, although the flavor is said to deteriorate in storage (Aderkas 1984).

Information on ferns and fern-allies in the treatment of various ailments has been gathered from the traditional practitioners. There is uniformity in the remedial properties of different plants, however, the dosage pattern is variable subject to the experience and knowledge of medical practitioners and the patient. The local preparations are in crude form, such as fresh plant paste for external applications; extract or juice is applied without standard proportions of plant material to water. For internal consumption decoctions or infusions of various concentrations are used. In several preparations for internal consumption, starchy water of cooked rice is added with plant parts.

Some of the pteridophytes which are potential drug sources, have been investigated phytochemically, e.g., species of *Adiantum*, *Botrychium*, *Equisetum*, *Lycopodium*, *Ophioglossum*, *Osmunda*, *Pteridium* and other genera (Gurung 1979; Harborne 1966; Newberne 1976; Panvisavas, Worthen, and Bohw 1968; Strain and Cooper 1973).

Arthromeris wallichiana, *Coniogramme caudata*, *Dryopteris wallichiana*, *Glaphyopteridopsis erubescens*, *Huperzia subulifolia*, *Lepisorus clathratus*, *Polypodium subamoenum*, *Polystichum nepalense* and *Woodwardia unigemmata* are medicinally little known and could prove phytochemically active.

Preparation of green manure from fern and fern-allies is a common practice in this region, but has been little investigated. For this purpose, fresh plant parts are laid as bedding for livestock, this material is partially deteriorated by excretory products, frequently replaced, and ultimately stored in an open heap for final decomposition to manure. Local populace use several pteridophytes as palatable fodder for their livestock. *Arthromeris wallichiana*, *Athyrium schimperi*, *Diplazium polypodioides*, *Dryopteris wallichiana*, *Pteridium aquilinum* are much used for this purpose.

Ampelopteris prolifera, *Diplazium esculentum*, *Drynaria quercifolia* and *Woodwardia unigemmata* have the capacity to spread vigorously in denuded areas, acting as soil binders.

Asplenium planicaule, *Botrychium lanuginosum*, *B. ternatum*, *Coniogramme caudata*, *Diplazium polypodioides*, *Dryopteris wallichiana*, *D. odontoloma*, *Huperzia subulifolia*, *Nephrolepis cordifolia* and *Pteridium aquilinum* from wild habitats are extensively used by local people for various purposes, resulting in the depletion of their population, suggesting the application of in situ conservation methods.

ACKNOWLEDGMENT

B. P. Bhatt appreciates the award of research associateship provided by Council of Scientific and Industrial Research, New Delhi.

LITERATURE CITED

- Aderkas, P. V. 1984. Economic history of Ostrich fern. *Matteuccia struthiopteris*, the edible fiddlehead. *Economic Botany* 38:14-23.
- Anonymous. 1948-1976. The wealth of India. Vol. I-II. Council of Scientific and Industrial Research, Publications, New Delhi.
- . 1986. Useful plants of India. Council of Scientific and Industrial Research, Publication, New Delhi.
- Beddome, R. H. 1883. Hand-book to the ferns of British India, Ceylon and Malay Peninsula, Calcutta.
- Bir, S. S., C. K. Satija, S. M. Vasudava, and P. Goel. 1983. Pteridophytic flora of Garhwal Himalaya. Jugal Kishore & Company, Dehradun.
- Clarke, C. B. 1880. A review of the ferns of Northern India. *Transactions Linneaus Society of London* 1:425-611.
- Copeland, E. B. 1942. Edible ferns. *American Fern Journal* 32:121-126.
- Dagar, J. C., and H. S. Dagar. 1987. Some useful pteridophytes of Andaman and Nicobar Islands. *Journal of Economic and Taxonomic Botany* 9:317-323.
- Dhir, K. K., and A. Sood. 1981. Fern flora of Mussoorie Hills. *Bibliotheca Pteridologica Band 2*. J. Cramer, Vaduz.
- Dixit, R. D. 1974. Ferns a much neglected group of medicinal plants. *Journal of Indian Medicinal Research* 9:59-68.
- , A. Dad, and B. D. Kar. 1978. Studies on ethnobotany III. On some less known edible, economic and medicinal ferns of Darjeeling District, West Bengal. *Nagarjun* 21:1-4.
- Duke, J. A. 1972. Isthmian ethnobotanical dictionary. Scientific Publishers, Jodhpur, India.
- Duthie, J. F. 1906. Catalogue of the plants of Kumaon and of the adjacent portions of Garhwal and Tibet, based on the collection made by Strachey and Winterbottom during the years 1846-1849 London. Reprint, 1974.
- Gaur, R. D. 1977. Wild edible fruits of Garhwal Hills. *Himalaya* 1:65-70.
- , and J. K. Semwal. 1983. Some little known wild edibles of Garhwal Himalaya. *Man and Environment* 7:161-165.
- , J. K. Semwal, and J. K. Tiwari. 1984. A survey of high altitude medicinal plants of Garhwal Himalaya. *Bulletin of Medicinal and Ethnobotanical Research* 4:102-116.
- Goel, A. K., and U. C. Bhattacharyya. 1981. Contribution to the pteridophytic flora of Tehri District (Garhwal). *Indian Journal of Forestry* 4:30-37.
- Gurung, V. L. 1979. Medicinal ferns of Nepal. *Journal of Nepal Pharmaceutical Association* 7:49-95.
- Harborne, J. B. 1966. Comparative phytochemistry of flavinoides II, 3-deoxyanthocyanins and their systematic distribution in ferns and Gesnerales. *Phytochemistry* 5:589-600.
- Hope, C. W. 1899. The ferns of Northern-Western India. *Journal of Bombay Natural History Society* 12:315-327.
- Islam, M. 1983. Utilization of certain ferns and fern allies in the north-eastern region of India. *Journal of Economic and Taxonomic Botany* 4:861-867.
- Jain, S. K. 1991. Dictionary of Indian folk medicine and ethnobotany. Deep Publications, New Delhi.
- , and R. R. Rao. 1977. A handbook of field and herbarium methods. Today and Tomorrow Press, New Delhi.
- Kapur, S. K., and Y. K. Sarin. 1977. Useful ferns of Jammu and Kashmir. *Indian Drugs* 14:136-140.
- Komarov, V. L., ed. 1934. *Flora of U.S.S.R.*, Vol. I,

- Archegoniatae and embryophyta. Translated edition 1968, Israel Program for Scientific Translations, Jerusalem.
- May, L. W.** 1978. The economic uses and associated folklore of ferns and fern-allies. *Botanical Review* 44:491-528.
- Medsgers, O. P.** 1939. Edible wild plants. MacMillan, New York.
- Newberne, P. M.** 1976. Biological effects of plant toxins and aflatoxins. *Journal of Natural Cancer Institute* 56:551-555.
- Padala, S.** 1988. Ethnobotanical euphony in some pteridophytes. Pages 67-69 in P. Kaushik, ed., *Indigenous medicinal plants. Today and Tomorrow Press, New Delhi.*
- Panvisavas, R., L. R. Worthen, and B. A. Bohw.** 1968. The distribution of free amino acids and alkaloids in selected species of ferns. *Lloydia* 31:63-69.
- Puri, H. S., and G. S. Puri.** 1970. Indian pteridophytes used in folk remedies. *American Fern Journal* 60:137-144.
- Rau, M. A.** 1961. Flowering plants and ferns of North Garhwal, Uttar Pradesh, India. *Bulletin of the Botanical Survey of India* 3:215-251.
- Sharma, B. D., and M. S. Vyas.** 1985. Ethnobotanical studies on the ferns and fern-allies of Rajasthan. *Bulletin of the Botanical Survey of India* 27:90-91.
- Singh, V. P.** 1973. Some medicinal ferns of Sikkim Himalayas. *Journal of Research in Indian Medicine* 8:31-76.
- Strain, J., and D. G. Cooper.** 1973. Biochemical systematics in the filicopsida. *Botanical Journal of Linnaeus Society* 67 Supplement 1:111-134.
- Tryon, R. M., and A. F. Tryon.** 1982. Ferns and allied plants. Springer Verlag, New York.

BOOK REVIEW

The Gourd Book. Charles B. Heiser, Jr. University of Oklahoma Press, Norman, OK 73070. 1993. viii + 248 pp. \$16.95. (paperback edition of 1979 book). ISBN 0-8061-2572-1.

When we learned of the recently published paperback version of Heiser's *The Gourd Book*, we greatly appreciated receiving the book for review. Given the age of the original hard-cover volume, we expected an updated and expanded version of the original. However, aside from a 3-page "Preface to the Paperback Edition" the paperback is merely a reprint of the 1979 publication. This is disappointing for, as Heiser points out in the Preface, much has been learned in the past 15 years. Nomenclature has changed, old theories have been revised, and new ethnobotanical and medicinal studies have been performed.

Our initial disappointment aside, *The Gourd Book* remains the most recent comprehensive volume on the bottle gourd, *Lagenaria siceraria* (Cucurbitaceae). In very readable and entertaining text, Heiser discusses an interesting assortment of myths, uses, and dispersal theories associated with this gourd species. The many photographs and drawings, a few of which are in color, themselves tell fascinating stories.

Although written to a lay audience, many gourd enthusiasts might be disappointed by the lack of detailed information in Heiser's book on gourd culture and craft. But given that a wealth of information on these topics is available through publications of the American Gourd

Society, *The Gourd Book* strives instead to give its readers a historical, ethnobotanical, and scientific perspective on one of our oldest cultivated plants.

Although most of the text is devoted to the bottle gourd, there are chapters written about the other two groups of commonly recognized gourds—species of *Cucurbita* and the tree gourd, *Crescentia cujete* (Bignoniaceae). Also included are chapters on various other members of the Cucurbitaceae (e.g., *Benincasa*, *Cucumis*, *Luffa*, *Momordica*, *Trichosanthes*). Although most are not gourd-like in the sense of having a tough rind, Heiser follows L. H. Bailey's lead in his *Garden of Gourds*, 1937, of discussing cucurbits of ornamental interest.

Anyone teaching a course having a general interest in plants, ethnobotany, or origins of domestication should have this publication in their library. For many of us, the original 1979 edition was no longer available. Now we have the opportunity to obtain once again the "classic" book on gourds.

DEENA S. DECKER-WALTERS
THE CUCURBIT NETWORK
P.O. BOX 560494
MIAMI, FL 33256
AND
TERRANCE C. WALTERS
FAIRCHILD TROPICAL GARDEN
11935 OLD CUTLER ROAD
MIAMI, FL 33156