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BOOK REVIEWS

H. PANKOW: *Algenflora der Ostsee. I. Benthos (Blau- Grün- und Rotalgen)*. Jena: VEB Gustav Fischer 1971. 419 S., 416 Abb., 100 Fotos auf 52 Tafeln, L 8 S. Ln. flex. 53,–M.

Mehr als 40 Jahre sind vergangen seit eine zusammenfassende floristische und taxonomische Darstellung des benthischen Algenbestandes (ausschliesslich Kieselalgen) der Ostsee gegeben wurde. Die "Algenflora der gesamten Ostsee" von Lakowitz war seit dem Jahre 1929 das wichtigste Hilfsmittel zur Bestimmung der benthischen Algen der Ostsee. Unsere Kenntnis der Algen dieses Gebietes hat aber seitdem stark zugenommen, während sich auch die Ansichten der Taxonomie und Nomenklatur geändert haben. Das Buch Pankow's ist aber viel mehr als eine Neuausgabe des Werkes von Lakowitz. Jede Artbeschreibung ist umgearbeitet und angepaßt an die heutige Kenntnis. Auf diese Weise ist ein Buch entstanden, das einen ganz eigenen Charakter trägt.

Die Algenflora behandelt die benthischen Cyanophyta, Chrysophyta (Chrysophyceae und Xanthophyceae), Chlorophyta, Phaeophyta und Rhodophyta. Die planktonischen Algen der Ostsee (einschliesslich der benthischen Kieselalgen) werden in einem zweiten Teil beschrieben. Das Verbreitungsgebiet umfaßt das Gebiet vom Kattegat bis zum Bottnischen und Finnischen Meerbusen. Es ist ein Brackwassergebiet, in dem der in nördlicher Richtung abnehmende Salzgehalt ein wichtiger Faktor ist.

Dem eigentlichen floristischen Teil vorausgehend finden sich "Bemerkungen zur Pflanzengeographie der Ostsee", zusammengestellt von Frau B. Martens. Eine Karte des Ostseegebietes wäre hier am Platze. Die Ostsee wird nämlich in 10 Abschnitte eingeteilt, welche ohne Karte schwer zu finden sind. Ausserdem werden im Text sehr viele schwer zu lokalisierende Fundortdaten gegeben.

Die Bestimmungsschlüssel sind kurz und deutlich. Es ist bedauerlich, daß hinter den Namen der Gattungen in den Schlüsseln nicht erwähnt is, auf welchen Seiten die Beschreibungen zu finden sind. So muß man nach jeder Gattungsbestimmung im Inhalt nachschlagen.

Jede Art is von einer kurz gefaßten Beschreibung der morphologischen Merkmale, der Periodizität, der Verbreitung und einigen Bemerkungen zur Ökologie begleitet. Die meisten von den mehr als 400 Zeichnungen sind sehr gut gewählte Kopien aus anderen Arbeiten. Am Schluß des Buches finden sich fotografische Abbildungen mit deren Hilfe die Bestimmung noch einmal überprüft werden kann. Diese Abbildungen sind sehr mässig und ausserdem nicht mit einem Maßstab versehen. Das Buch schließt mit über 700 Literaturhinweisen und einem ausführlichen Verzeichnis.

Pankow hat versucht, diese Flora so kritisch wie möglich abzufassen, und das ist ein bedeutender Verdienst. In einer großen Zahl von Bemerkungen werden die taxonomischen und nomenklatorischen Probleme angeschnitten, die sich bei vielen Arten und Gattungen ergeben. Bei den Gattungen *Rhizoclonium*, *Chaetomorpha*, *Cladophora*, *Enteromorpha*, *Ceramium*, *Chara*, u.a. liegen noch viele ungelöste taxonomische Probleme. Bei vielen Algen ist es leider nicht möglich, die Arten nach möglichst eindeutigen und leicht erkennbaren Merkmalen zu trennen, sodaß das Bestimmen eine unbefriedigende Arbeit werden kann, ein Problem das inhärent scheint mit der breiten Fassung einer Flora.

Die Flora umfasst ein wichtiges und relativ gut erforschtes Brackwassergebiet. Es kam Pankow darauf an, neben den marinen Algen die wichtigsten Süßwasserarten zu erwähnen, die an bestimmten Küstenabschnitten im brackigen Wasser der Ostsee angetroffen werden. Über die Ökologie der euryhalinen Arten des Brackwasser-Milieus (Blau- und Grünalgen) ist noch wenig bekannt. Meistens werden die "Salzwasserarten" von den "Süßwasserarten" getrennt behandelt, ohne daß Daten bekannt sind über die ökologische Amplitude dieser "Arten". Im Plan dieser Flora müssen diese Probleme leider ungelöst bleiben. Was dies angeht sind

wir noch nicht viel weiter als zur Zeit Lakowitz'. Zum Beispiel: es ist in diesem Zusammenhang undeutlich wie zwei Arten wie *Ulothrix tenerrima* und *U. subflaccida* getrennt werden müssen mit Hilfe von Pankows Schlüssel.

Jedoch entspricht das Buch von Pankow, trotz dieser Kritik, ganz seinem Ziel, nämlich eine gute Algenflora des Ostseegebietes zu sein. Was die äußerliche Form betrifft: es ist ein in Leinen gebundenes Buch in handlichem Format. Es umfaßt praktische Bestimmungsschlüssel und eine sehr grosse Menge Information über die benthischen Algen für Algologen, Meeresbiologen, Limnologen und Studenten.

P. H. NIENHUIS

Evolution in the Aegean.

Proceedings of a symposium held at the Department of Plant Taxonomy, Lund, Sweden, on January 22–24, 1971, ed. by A. Strid. Publ. as Opera Botanica no. 30 by the Botanical Society of Lund, Dec. 1971. 83 pp., 23 figs. and maps. Price Sw. kr. 35.–.

The old-fashioned monograph, dealing exclusively with a given topic as studied by a single specialist, is gradually getting replaced by, or at least getting company from, the polygraphic treatment where various specialists look at the subject from their, often methodologically quite divergent, angles. The present booklet is a point in case.

Fewer than a score of specialists got together to discuss the problem of biogeography and evolution and their geohistorical background in the Aegean. Island arcs joining continents – the Antilles, the Malay Archipelago – have long attracted the attention of biologists with a special interest in evolution connected with geography. The lay-out of the Aegean is on a smaller scale, but the results of modern studies by geologists, zoologists, and botanists – in spite of the series 'Opera Botanica' of which it forms a part the book contains much zoological and geological information – presented here by eight sepcialists from Scandinavia, Germany, Switzerland and the Netherlands, are no less interesting.

The geological-paleogeographical setting is provided by contributions from the geologists J. E. Meulenkamp, E. Olausson, and G. J. Boekschoten, Zoogeographical contributions, mainly dealing with reptiles, are by H. Pieper and U. F. Gruber. Important zoogeographical data are furnished by the Pleistocene mammals, reviewed by P. Y. Sondaar. They testify to the typical island nature of the Aegean in that period.

Botanical topics are discussed by H. Runemark and W. Greuter; the former's attention is focused on the central (Cyclades), the latter's on the southern (Crete and neighbouring islands) Aegean.

A particularly interesting element in the Aegean flora is a group of plants inhabiting and (only at present?) confined to the coastal limestone cliffs. The high degree of endemism, the irregular distribution in the area, and the taxonomically isolated position of the species point to their great antiquity, perhaps as remnants of a flora of the coastal cliffs of the Pleistocene 'Sea of Crete'. As a whole the flora of the central Aegean is comparatively poor, and many species that are common in adjacent areas are absent, rare, or of local and irregular occurrence. Narrow stretches of sea are apparently effective barriers for the migration of many species – phytogeographically an important result, to be kept in mind by opponents of the land-bridge theory. This is not only a question of diaspore distribution, but equally, and perhaps primarily, of the difficulty for a new species of establishing itself by waif arrivals in an existing plant community.

Almost one half of the native flora of Crete, about 700 species, are relics, in accordance with the very long isolation of the island, viz. since the Tortonian, much longer than that of the islands to the West and East of it. It seems likely that these relic endemics have hardly undergone any progressive evolution since they originated, and arguments are adduced to show that species groups to which such endemics belong had split into distinct species (or subspecies) before the geographical isolation of Crete, and other Aegean islands, came into existence.

Differences between the evolutionary mechanisms of plants and animals are stressed; they sometimes lead to seemingly different chorological conclusions from the zoological and botanical viewpoints, respectively. (For a more extensive account of the same topic, see W. Greuter: The relict element of the flora of Crete and its evolutionary significance, in: D. H. Valentine (ed.), Taxonomy, phytogeography and evolution. London/New York 1972).

The summing up is also by W. Greuter. It is striking how consistent as a whole the geological, zoological, and botanical conclusions are with regard to the history of the Aegean: a Tertiary land-mass forming a bridge between Greece and Anatolia, progressively fractured from the Late Tertiary onward and from the centre outward. Much remains to be done, especially in the field of paleobotany. The symposium origin of the book is emphasized by the inclusion of the lively discussions. The whole is most stimulating.

K. U. KRAMER

C. G. G. J. VAN STEENIS: *The mountain flora of Java.* 90 pp., 26 figs., 72 photos, 57 coloured plates with legends. E. J. Brill, Leiden, 1972. Cloth, D.fl. 140,–. ISBN 90 04 03559 1.

This book has a remarkable history. The drawings for its 57 coloured plates, made by Amir Hamzah and Moehamad Toha, draughtsmen of the Bogor herbarium, were ready in 1941, a provisional text was available in 1945. Several attempts were made to get it published, but only in 1970 this was successful, thanks to the co-operation of the Committee on Cultural Relations between Indonesia and the Netherlands. The offer to publish it was a present to Professor Van Steenis on the occasion of his 70th birthday, but he certainly had to do a lot of work on his birthday present: after 25 years the text had to be checked thoroughly or rather had to be re-written entirely. Originally the book was planned as a pocket-guide to the Javanese mountain flora, now the book has been published in a very luxurious design. This may be justified by the quality and the beauty of the coloured plates, which would largely be lost by reduction to pocket size.

The aim of the author was that the book should not only serve for the "diffusion of botanical information and knowledge, but also to stimulate love for and respect of wild Nature". This aim has certainly been reached, also in its present luxurious design. It is an inspiring, but also a scientific book: popularization in the best sense of the word. Nevertheless I personally would have preferred a less expensive style. The format of the book (c. 40 by 30 cm) makes it unsuitable for a normal book-case, the price brings it out of reach for many potential buyers.

Van Steenis left Java in 1950 and the field observations forming the basis of the book are for almost 100 percent pre-war. It is a bit depressing to realize the lack of new research on the subject, which is made apparent by the list of literature: all post-war references are either the outcome of pre-war fieldwork, or pertain to research done outside Java.

If this book could lead to a revival of research in the field on the Javanese mountain flora – and several times the author draws the attention to problems to be attacked – this would be a most welcome result of its publication.

Without any doubt Van Steenis is the botanist who has contributed most to the knowledge of the mountain plants of Java. Many of his observations and considerations have been published before, but this is the first time that they have been brought together into one well-balanced and very readable synthesis.

The subject (as usual: "the flora" means the vascular plants!) is viewed in this book from many different angles and I think that every aspect has been treated: the vegetation types and their succession, the composition of the flora and its history, the "biology" (pollination, dispersal, etc.), the ecological factors and their influence (climate, fire, altitude, etc.). The text is accompanied by a number of text-illustrations and by 72 black-and-white photographs, most of them of very good quality. The above mentioned coloured plates contain illustrations of c. 450 species (2 Podocarps, the rest Angiosperms), each plate is accompanied by a one-page legend giving a wealth of information on the species illustrated.

This monumental work deserves to come into many hands, especially in Java, certainly also in the rest of the Malesian area, and even in other tropical parts of the world. Many aspects treated in the book are of course of wider applicability and are valid also outside Java. The book is not only a present *to* Professor Van Steenis, but much more it is a valuable present *from* him to the botanical world.

C. KALKMAN

DIETER HESS: *Pflanzenphysiologie. Molekulare und biochemisch-physiologische Grundlagen von Stoffwechsel und Entwicklung*. 2. Aufl. 1972. 373 p. 248 figs. (Uni-Taschenbücher Band 15). Eugen Ulmer, Stuttgart. DM 19.80.

The merits of the first edition were commended by the present reviewer in Vol. 20(3) June, 1971 of this Journal. Within two years a second, enlarged edition has appeared with supplementary information on phytohormones (the mechanism of action, the hypothesis of secondary messengers and the regulation of transpiration) and with a discussion of the technique and the importance of somatic hybridization. As an introduction into the biochemistry and the physiology of plant development, in which subject the author is an expert, this textbook is heartily recommended.

L. ANKER