

## SOME PRELIMINARY NOTES ON THE ALGAE COLLECTION WEBER-VAN BOSSE.

by

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(Rijksherbarium, Leiden).

This extensive collection, famous among algologists both of the Old and the New World, forms part of the collections of the National Herbarium (Rijksherbarium) Leiden since 1934. About fifty years ago it was started by Mrs. Dr. A. A. WEBER-VAN BOSSE (1852—hodie), an enthusiastic pupil of HUGO DE VRIES.

The colonies of *Nostoc*, living in the ditches round about the Dutch village of Doorn, evoked her admiration, which was the primary cause of an intense study in the freshwater as well as in the marine Algae. In the harbour of Den Helder North Sea Algae were collected; by collecting Algae on trips to the French Atlantic Coasts and several times to Norway (1883—1885) and further on a South African journey (1894—1895) the herbarium grew, as it did by the Malaysian specimens collected in Java, Celebes, etc. (1888—1889). During this Malaysian tour Mrs. WEBER worked in Tjibodas, where she described the new genus *Phytophysa*. In Sumatra (West Coast, Lake of Manindjau) she discovered in collaboration with her husband, MAX WEBER, a new case of symbiosis between Algae and Sponges.

However, the great enlargement came, when the successful cruise of the Siboga (1899—1900) had finished its task. The Siboga Expedition, taking a place of honour among the deep-sea expeditions, was prepared and led by M. WEBER. The chief object was to continue the work of the Challenger (1872—1876) and of the Gazelle Expedition (1874—1878), as to marine life of the Malay Archipelago, to investigate the deep sea-basins and to collect as much as possible. Mrs. WEBER seized the opportunity to collect Algae, wherever possible, picking them up along the coasts, on coral reefs and by means of the trawl. Algal vegetations, typical for the tropic seas, like those of calcareous Algae (*Halimeda*, *Lithothamnion*, etc.) adding to the formation of coral reefs, could be

studied and photographed. Enormous banks of *Lithothamnion* (South Saleyer, S.W. of Timor, between Celebes and Borneo) were discovered at considerable depths. *Florideae* preferring a depth, on which only scanty light penetrates, were drawn up by the trawl from depths up to 55 m.

The extensive collection of Algae from the Siboga Expedition, contains numerous new species and many new genera. It forms the material, on which four of the works on the Siboga Expedition have been based: E. S. BARTON, The genus *Halimeda* (1901) — A. WEBER-VAN BOSSE and M. FOSLIE, The Corallinaceae of the Siboga Expedition (1904) — A. & E. S. GEPP, The Codiaceae of the Siboga Expedition, etc. (1911) and A. WEBER-VAN BOSSE, Liste des Algues du Siboga (1911—1928). The area searched by the Siboga was the Eastern Malay Archipelago, viz. the coasts of East-Java, Lesser Sunda Islands, Moluccas, New Guinea, Talaud-, Sangir- and Sulu Islands, Celebes, S.E. Borneo and Saleyer. The „Liste du Siboga” gives an elaborate and broad survey of the marine algal flora of the Malay Archipelago. This pioneer work will always keep its value together with the collection, on which it is based. In the year 1910 the University of Utrecht honoured Mrs. WEBER by offering her an honorary Ph. D. degree.

In studying marine as well as freshwater Algae Mrs. WEBER got into contact with many well-known algologists; the results of this contact are to be found in her herbarium. So, for instance, the genus *Ectocarpus* has been revised by KUCKUCK, the genus *Turbinaria* by Mrs. GEPP-BARTON, part of the *Sargassum*'s by TH. REINBOLD, etc. A correspondence with algologists in several countries, among whom C. SAUVAGEAU, F. BØRGESEN, W. A. SETCHELL, N. E. SVEDELIUS, A. FORTI, YENDO, YAMADA, was kept up by Mrs. WEBER. In connection with her study concerning the genus *Caulerpa* (Monographie des Caulerpes, Ann. Jard. Bot. Buit. 15, 1898, 243—401) she went to Paris (ED. BORNET) and to Lund (J. G. AGARDH). The collections of the British Museum have also been visited by her.

The principle adhered to of giving on loan every specimen of her precious collection, if wanted by a serious algologist, enriched the herbarium by many important gifts in return to the kindness of its owner. A great number of *Cystoseira*'s from SAUVAGEAU, Algae from the French coasts from BORNET and THURET, Californian and other Algae from SETCHELL and GARDNER, Algae from BØRGESEN (Siam, Jamaica, etc.), Japanese Algae from OKAMURA and YENDO, Algae from the Key Islands presented by ARNOLDI, specimens from the herb. GRUNOW, original speci-

mens from G. KARSTEN of epiphyllous *Trentepohliae* from East-Java, etc. thus form part of the herbarium WEBER-VAN BOSSE.

Besides these minor acquisitions four large collections were added, viz. those of HAUCK, KÜTZING, SURINGAR and LENORMAND.

When the herbarium HAUCK was available Mrs. WEBER purchased this important collection. F. HAUCK (1845—1889), the eminent algologist, was an autodidact. After the edition of „Die Meeresalgen Deutschlands und Oesterreichs” (RABENHORST’s *Kryptogamenflora* II, 1885) a Ph. D. degree was granted him by the University of Zürich. HAUCK spent a good deal of his life in Trieste (being a telegrapher in that town), where he availed himself of the opportunity to collect and study Adriatic marine Algae (Trieste, Cherso, Spalato, Miramar, Rovigno). When studying Adriatic Diatoms he made the acquaintance of GRUNOW, while the study of the Baltic and the North Sea Algae brought him into contact with SONDER. Specimens from several regions completed the collection, e. g. Algae from ZANARDINI (Red Sea), CUMING (Philippines, 1836—1839), A. DIETRICH (Australia), COLLINS (N. America), AL. BRAUN (Europe), VALLANTE, etc. Most of the types of HAUCK’s species are extant in his collection.

After the death of W. F. R. SURINGAR, professor of Botany at Leiden, his widow sold his collection of Algae, to which had been added the precious herbarium of KÜTZING, to Mrs. WEBER. F. T. KÜTZING (1807—1893) started his career as a chemist’s assistant and became afterwards a teacher at a secondary school at the German town of Nordhausen. During 1832—1833 he visited the University of Halle. The University of Giessen granted him the Ph. D. degree and in 1843 he was nominated a Royal Professor. During a trip to Italy and Dalmatia (Naples, Spalato) KÜTZING collected a number of Algae, which collection was increased by Algae from the North Sea (Heligoland, Wangeroog). The results of these activities have been laid down in his classic works: *Phycologia generalis* (1843, with illustrations engraved by the author), *Die Kieselschaligen Bacillarien oder Diatomeen* (1844), *Phycologia germanica* (1845), *Species Algarum* (1849) and *Tabulae Phycologicae* (1845—1871), which works had a far-reaching influence both on his contemporaries and afterwards. When examining his herbarium one is struck by the great accuracy of this algologist. KÜTZING was well aware of the value of the „type”: in many of his numerous types a label is to be found on which KÜTZING has written „Originalspecimen” or „specimen authenticum”. Autographic letters from well-known botanists are to be found in his herbarium, for instance from MENEGHINI (written in

1837), from REICHENBACH, together with a letter from KÜTZING himself, from AL. BRAUN (written in 1840). In the collection KÜTZING original specimens from several collectors are to be found, among whom may be mentioned: LYNGBYE, MENEGHINI, MONTAGNE (owner of a large herbarium of cryptogams from all parts of the world), BORY DE SAINT-VINCENT, C. and J. G. AGARDH, HORNSCHUCH (Austria,  $\pm$  1836), BULNHEIM (Europe), KOCH (Asia Minor, Europe, 1836—1844), FRÖLICH (Heligoland), SONDER (Australia, coll. PREISS, 1838—1842; Peru, Ceylon), BINDER (Australia), F. VON MÜLLER (Australia, Tasmania), ZOLLINGER (Java, 1841—1843), HOOKER (N. America), SCHOMBURGK (Barbados,  $\pm$  1840), KEGEL (S. America,  $\pm$  1846), COULTER (California,  $\pm$  1832), SELLOW (Brasil,  $\pm$  1819), and also the botanical explorers A. VON HUMBOLDT (Brasil), ENDRESS, and TILESIIUS.

W. F. R. SURINGAR (1832—1898), who was a professor of Botany and Director in charge of the National Herbarium (Rijksherbarium), Leiden, was interested in Japanese Algae. In the part of his herbarium, that was preserved in the National Herbarium, marine Algae from Japan (sent by VON SIEBOLD, GRATAMA and TANAKA) are incorporated together with notes on its use and with water-colours, which are the originals of the illustrations in his works: *Algae japonicae*, Mus. Lugd. Bat. (1871), *Gloiopeltis* (1871—1872) and *Algues du Japon I* (1872), *II* (1874). It is to be regretted, that a number of types are missing. His *Characeae*, as well as those in the herbarium KÜTZING and in the National Herbarium, have been revised by AL. BRAUN. The genera *Cystophyllum* and *Sargassum* have been studied by GRUNOW. A number of *Algae* from the Netherlands are to be found in the SURINGAR herbarium, for a large part hailing from the collection of R. B. VAN DEN BOSCH; many of these specimens have been identified by KÜTZING, and reversely the herbarium KÜTZING contains specimens from VAN DEN BOSCH. Some of KÜTZING's species have been based on specimens sent by VAN DEN BOSCH. Algae from PELVET, AL. BRAUN, L. RABENHORST, KEGEL, ZOLLINGER, JUNGHUHN (Java), etc. completed the herbarium SURINGAR, together with several exsiccata collections.

The latest acquisition of the herbarium WEBER-VAN BOSSE was a part of the herbarium LENORMAND. S. R. LENORMAND (1796—1871), a lawyer in Normandy, lived at Vire and at Caen. Together with his friend L. A. DE BRÉBISSON (1798—1872) he made a large collection of Algae from all parts of the world (Adriatic, Canaries, S. Africa, Australia, Tasmania, Celebes, Antilles, New York, etc.). A large part of his Algae come from the coasts of Normandy, to which are added those edited

by CHAUVIN. On specimens from LENORMAND and DE BRÉBISSON species of KÜTZING have been based.

Apart from the above mentioned large collections the herbarium WEBER-VAN BOSSE contains specimens from several regions: Malay Archipelago (BECCARI, TEYSMANN, MARTENS), Ceylon (HARVEY, FERGUSON), Friendly Islands (HARVEY), New Zealand (A. D. HOOKER, BERGGREN), America (HOWE, LE JOLIS, VICKERS, NAUDIN), Europe (GRIFFITH, BATTERS, FLAHAULT, GOBI, GRUNOW, FOSLIE, LAKOWITZ), etc.

As has been stated above the whole of the collection has been presented to the National Herbarium, Leiden, which before the fusion already possessed Algae from the herb. PERSOON (WALLROTH, BONNE-MAISON, LAMOUREUX), the herb. VAN ROYEN, BLUME (Java), ZIPPÉLIUS (Timor), KORTHALS (Mal. Arch.), HERING (Surinam), AL. BRAUN (Germany), BAENTZ (Europe) and from several Dutch collectors (VAN DEN BOSCH (some identified by L. RABENHORST), OUDEMANS, ABELEVEN, VAN DE SANDE LACOSTE, etc.).

In addition, the combined herbaria possess a number of exsiccata collections, of which the following may be enumerated:

Algae Müllerianae curante J. G. AGARDH distributae.

Algues des eaux douces de France.

ARESCHOUG, J. E. — Algae scandinavicae exsiccatae (Upsaliae, 1861—1897).

BØRGENSEN, F. — Algae marinae faeroenses.

BRAUN, RABENHORST, SITZENB. — Characeen von Europa.

BREUTEL, C. F. — Flora germanica exsiccata.

CHAUVIN, J. — Algues de la Normandie (Caen, 1827).

COLLINS, HOLDEN and SETCHELL — Phycotheca Boreali-Americana.

CROUANS, H. M. et P. L. — Algues marines du Finistère (Brest, 1852).

DESMAZIÈRES, J. B. H. J. — Plantes cryptogames de France.

FARLOW, W. G., ANDERSON, C. L. et EATON, D. C. — Algae Americanae borealis exsiccatae (Boston, 1877).

Flora Austro-hungarica exsiccata.

FUNCK, H. C. — Cryptogamische Gewächse, etc. (1806—1822).

HAUCK, F. et RICHTER, P. — Phykothea Universalis (Triest et Leipzig, 1886—1889).

HOHENACKER, R. F. — Algae marinae siccatae, etc.

HOWE, M. A. — North American Algae, collected at San Juan, Porto Rico and Coll. in Great Rogged Island, Bahamas (Herb. of the New York Botanical Garden).

Hydrophytes marines du Morbihan.

- JÜRGENS, G. H. B. — *Algae aquaticae* (1816—1822).  
*Kryptogamae exsiccatae* ed. a Museo Palatino Vindobonensi.
- KÜTZING, F. T. — *Algarum aquae dulcis germanicarum Decades* (1833—1836).
- LE JOLIS, A. — *Algues marines de Cherbourg*.
- MIGULA, SYDOW et WAHLSTEDT — *Characeae suecicae et danicae*.
- RABENHORST, L. — *Die Algen Sachsens* (1848—1860); *Die Algen Europas* (1861—1779); *Die Bacillarien Sachsens* (1850—1852).
- SETCHELL, W. A. — *Plants of Tutuila Island, Samoa* (1920).
- SETCHELL, W. A. and PARKS, H. E. — *Plants of Tahiti, Society Islands* (1922).
- WITTBROCK, V. B. et NORDSTEDT, O. — *Algae aquae dulcis exsiccatae praecipue scandinavicae, etc.* (1877—1884).
- WYATT, M. — *Algae Danmonienses* (Torquay).

#### Literature.

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