

EQUISETUM RAMOSISSIMUM AS A BRITISH PLANT

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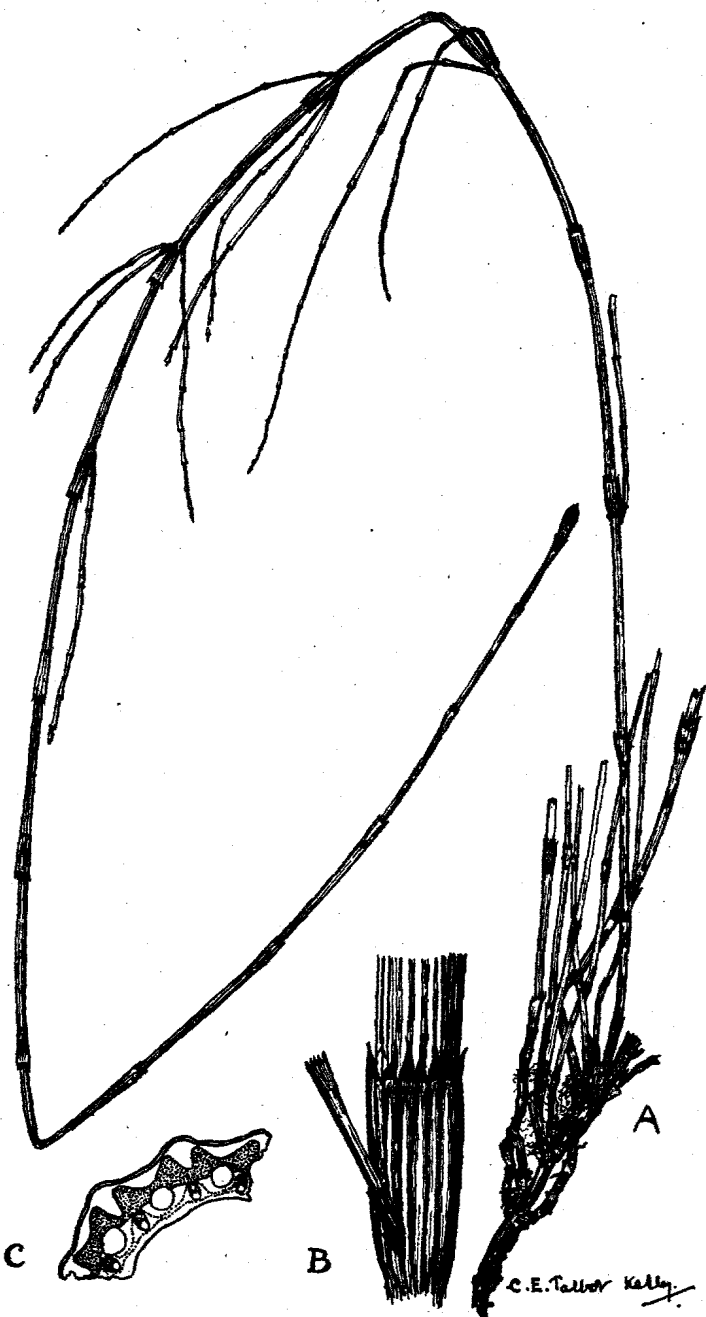
Specimens of an *Equisetum* were recently sent for identification by Mr H. K. Airy Shaw. The plant showed the apiculate strobili characteristic of the section *Hippochaete*, which is represented in Britain by *E. hiemale* L., *E. Moorei* Newm., *E. trachyodon* A. Br., and *E. variegatum* Schleich. The structure of the teeth of Mr Shaw's plant came nearest to those of *E. Moorei*, but in that plant the teeth are deciduous and the section of the stem is different. Comparison with continental material shows that it is a form of the variable *E. ramosissimum*. The names *E. elongatum* and *E. ramosum*, which are synonyms of *E. ramosissimum*, have appeared in British books through confusion with *E. trachyodon*. When that plant was first discovered, W. J. Hooker (1842, 451) placed it under *E. elongatum* Willd., and Bentham (1858, 620) used the name *E. ramosum* DC. for it. The differences were pointed out and *E. ramosissimum* was figured (as *E. ramosum*) by Deakin (1857, 30-31).

The following description has been made from the British specimens:

EQUISETUM RAMOSISSIMUM Desf., 1800, *Flora Atlantica*, 2, 398. Rhizome black, subterranean, with nodes about half an inch apart, ascending, scabrous, rooting at nodes. Barren and fertile stems alike, 1 ft. 9 ins. to 2 ft. 6 ins. high, somewhat rough, with scattered tubercles, and about twelve rounded angles, dull green when dry. Central cavity more than half the diameter of the stem, with a ring of smaller cavities between the vascular bundles, surrounded by a continuous band of green parenchymatous tissue. Endodermis double, with one ring outside the vascular bundles, another within. Internodes usually between $1\frac{1}{2}$ and $2\frac{1}{2}$ inches long; sheaths about $\frac{1}{4}$ inch, green, becoming brown with a black ring at base. Teeth $\frac{1}{8}$ - $\frac{1}{2}$ inch long, with black centres, narrow white margins, and a more or less persistent hair-like apex. Lateral branches numerous in lower half of the main stems, often elongate, with a central cavity, and a black and papyraceous basal sheath, the lowest internode of the branches less than one-third of the length of the corresponding sheath of the main stem. Strobilus apiculate, usually on the apex of the main stem only, with a long naked stem beneath it, $\frac{1}{4}$ to nearly $\frac{1}{2}$ an inch long, with black sporophylls and sulphur-yellow sporangia. Spores globose, smooth, 45μ in diameter, sulphur-yellow, with 4 elaters, about 120μ long, smooth, slightly expanded towards the apex.

S. Lincolnshire (v.-c. 53): near Boston, in long grass by river. Seen along a limited stretch only, 24th July 1947, *H. K. Airy Shaw*.

Among British species this comes nearest to *E. Moorei* Newm., which Kümmerle (1931, 147) considered a hybrid between *E. hiemale* and *E.*



A.—Habit ($\pm\frac{1}{2}$). B.—Sheath and base of branch ($\pm\frac{1}{2}$). C.—Diagrammatic section of stem.

ramosissimum. *E. Moorei* has been found at Shere in Surrey¹ and in Ireland.

E. Moorei is almost unbranched, with twisted, often deciduous teeth and, as might be expected in a hybrid, it apparently does not produce fertile spores. The transverse section of the stem of *E. Moorei* is also different from that of *E. ramosissimum*, as the band of parenchyma is not continuous and the angles of the stem appear truncate instead of rounded. Sterile plants of *E. ramosissimum* may be distinguished from the common British species by the scabrous rhizome. This is pubescent in *E. arvense* and glabrous in *E. palustre* and *E. limosum*.

E. ramosissimum was originally described, by Desfontaines, from Tunisia, but is common on both sides of the Mediterranean. In France it is very rare north of the Loire, but there are isolated localities near Erquy, on the north coast of Brittany (Lloyd 1898, 426), and at Clérey on the left bank of the Seine in the Aube department (Briard 1881, 268). It is not reported from Belgium (Goffart 1941) nor Luxemburg, but has recently been found in Holland from three places in the Rhine valley (Jansen and Wachter 1929). It is not rare in southern Bavaria, but becomes rarer northwards with rather isolated localities by the Rhine near Duisburg, by the Wupper near Leichlingen (Süssenguth 1935, 81), on the bank of the Elbe at Teufelsbrück near Hamburg (Knuth 1887)², and there is an old record from Neustrelitz (Milde 1867, 457). In Poland the plant has been reported from Plock, N.W. of Warsaw (Raciborski and Szafer 1919), and from Johannisdorf, near Mewe, on the R. Weichsel (Süssenguth 1935, 81). In the U.S.S.R. the northern limit is reached in the Volga-Kama and Volga-Don areas (Iljin 1934, 109). Lecoq's (1858, 313) record from Lithuania has not been confirmed. From Scandinavia *E. ramosissimum* is not recorded (Hylander 1941), but *E. Moorei* has been found there (Kümmerle 1931, 154). The record from the Färoe Islands, Trevelyan 1836, cited by Milde (1867, 457), Süssenguth (1935), and other authors, is regarded as doubtful by Ostenfeld (1901): the specimen cannot now be found at Kew. Outside Europe the area of the species extends to the far east and to the Cape of Good Hope.

The habitat, where recorded, has been alluvial or sandy, often near the banks of rivers, such as the Rhine and Loire. This agrees with the type of habitat in Britain, which it seems reasonable to regard as another outlying locality. Reid (1915, 38) has recorded *E. ramosissimum* Desf. from pliocene deposits at Teglin on the Dutch-Prussian border.

I am indebted to M. Jean Callé, Paris, and Mme. Czeczott, Warsaw, for confirming my account of the distribution of the species, and to Mr F. Ballard, Kew, for searching for Trevelyan's specimen.

I am indebted to Mr J. E. Lousley for a reference to Syme, *English Botany*, 12, 172, who states that the species is "said by Schkuhr to grow

¹Druce (1930) referred the Shere plant to *E. occidentale* (Hy) Coste, which has been quite rightly reduced to *E. Moorei* by Schaffner (1931, 97) and other authors.

²This locality is disputed by Süssenguth (1935).

in Wales." The reference is to Christian Schkuhr (1809, *Kryptogamische Gewächse*, 1, 178), and his statement reads "Die Pflanze erhielt ich unter diesem Namen von Schleicher aus Wallis, und aus der italienischen Schweiz." It may be translated "I have received the plant under this name from Schleicher, from the Valais and from Italian Switzerland." J. C. Schleicher of Bex, Canton de Vaud (d. 1827), was the author of a *Catalogus Plantarum in Helvetia cis- et transalpina sponte nascentium* (1800) and several later editions. *Equisetum ramosum* Schleich. appears in the third (1815, 32), and fourth (1821, 38) editions, but not in the first (1800). I have not seen the second edition. The record is repeated by Druce (1920, *B.E.C. 1919 Rep.*, 797). It seems clear that Syme did not realise that Wallis was the German name of the Canton de Valais and that he mistranslated it as Wales. Schkuhr's Herbarium is, or was, at Halle University according to *La Phytographie* (p. 447).



Map showing northern limit of *Equisetum ramosissimum* in Europe.

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