NOTES ON *CAREX FLAVA* AND ITS ALLIES

IV—GEOGRAPHIC DISTRIBUTION*

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Detailed information about the world distribution of the *C. flava* aggregate is rather fragmentary. However, in spite of the group being represented in both hemispheres, as a whole it seems to have circumboreal tendencies and the members were described by M. Raymond in 1951 as amphi-atlantic species. Although they are found on both sides of the Atlantic Ocean their European distribution is usually more extensive than their American one (Fig. 1). The British representatives are clearly components of the Northern European flora, and are rare in the Mediterranean region, where *C. mairii* Coss. & Germ. and *C. durieui* Steud., two closely allied species, seem to replace them, and are locally abundant.

C. flava is a plant with oceanic tendencies, but although it is scattered locally throughout Eurasia it is absent in the Mediterranean region. It occurs in Central Europe, extending to Iceland and Lapland in the North, and is to be found occasionally in the mountainous regions of Scandinavia, the Alps, and the Auvergne in Central France. Its eastern limits are Russia, where it is fairly common in the North, and in the west Caucasus, while it has been doubtfully recorded from near Lake Baikal. In contrast, however, this species is pronouncedly continental in North America, and extends throughout Canada, as far as British Columbia and Vancouver Island.

C. lepidocarpa, unlike the last species, has not a boreal circumpolar distribution, but is a more abundant species in Central Europe. This sedge, which is very rare in southern Europe, is distributed from Central France, Switzerland and Germany northwards to the Arctic Circle, but only extends to Finland, north-west Russia and the Balkans in the east, and to Newfoundland, Quebec, and the Magdalen Islands in the Gulf of St. Lawrence in eastern Canada in the west.

Likewise the commonest British species, *C. demissa*, has a limited distribution outside northern Europe. This sedge extends from Scandinavia and Finland southwards to North Spain and Portugal, but is totally absent from Russia, unless the Russian species *C. flavella* Krecz. is conspecific with it. In North America, *C. demissa* is described as a relic Atlantic species, and is only recorded from the maritime regions of Quebec and New Brunswick and some of the islands in the Gulf of St. Lawrence, where the flora is Atlantic in character. This species seems to be the only member of the aggregate known from Greenland.

In contrast to *C. demissa*, *C. serotina*, a rather local plant in the British Isles, is the most abundant member of this group, with a rather scattered distribution. Thus, this species, which appears to be a relic with a much wider distribution in the past, occurs in lowland and open habitats throughout Europe, Siberia as far as Lake Baikal, Turkestan, Iran, and North Africa, Madeira and the Azores. Reports of its occurrence from Newfoundland and the Magdalen Islands are doubtful and still need confirmation, for these records are probably really *C. viridula* Michx. The characters separating these two species are still obscure, although it seems likely that they are worthy of specific rank.

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Lastly, the only other British representative is *C. scandinavica*. This species has a very limited and local distribution and is confined to northern Europe including north-west Russia, Norway, Sweden, Denmark, Finland and western Scotland.

There are two other non-British representatives which are so closely allied to these species that they cannot be ignored. These are first *C. dyrrachiensis* Nelmes, a plant discovered in Central Albania in 1935 by N. Y. Sandwith, and secondly *C. mairii* Coss. & Germ., which appears completely to replace *C. lepidocarpa* in southern Europe (Italy, South France and Spain) (Fig. 2).

This account would not be complete without a brief mention of other members of the group found outside Europe (Fig. 2). *C. viridula* Michx., with many characters similar to *C. serotina*, is probably the best known and studied ally of the European representatives. This species is locally abundant and widespread throughout the United States and Canada, reaching California, Mexico and Alaska on the west coast, and extending across the Pacific to Kamchatka, Japan and eastern Asia.

Finally, there are three species, about which as yet little is known, *C. philocrena* Krecz. from Turkestan and Kashmir with characters intermediate between *C. demissa* and *C. serotina*; *C. flavella* Krecz. from Russia, a plant which may prove to be a form of, or even identical with, *C. demissa*; and *C. cataractae* R. Br. from the southern hemisphere (S. America, S. Africa, Tasmania and New Zealand) a plant that in many characters resembles *C. flava*. These species cannot be disregarded for, although so far they have not been studied experimentally or cytologically, they appear on morphological grounds to be closely related to the European representatives, and undoubtedly must be included in this aggregate.

The distribution maps and information given in the brief geographical survey of this group are based on data obtained from Nelmes (1949), Senay (1950a, b, 1951) and M. Raymond (1951); from specimens collected in the field, which are now preserved at University College, Leicester; and from others seen at the following herbaria :– Kew, Oxford, Cambridge and Paris.

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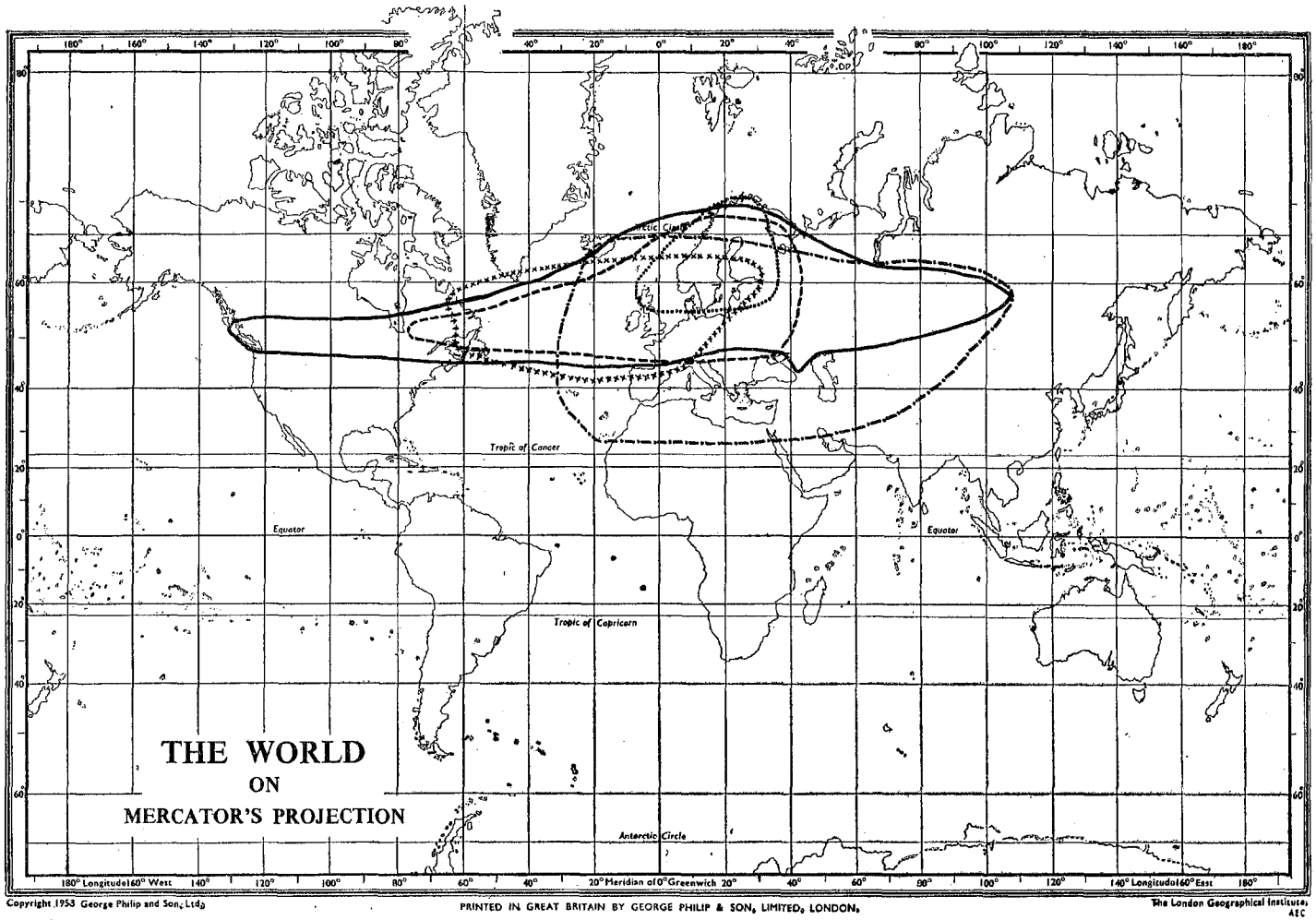

Fig. 1. Map showing distribution of the British representatives of the *C. flava* agg.

———— *C. flava* L.
— — — — *C. lepidopcarpa* Tausch
. . . . . *C. scandinavica* E. W. Davies
xxxxxxxxxx *C. demissa* Hornem.
—.—.—.— *C. serotina* Mérat

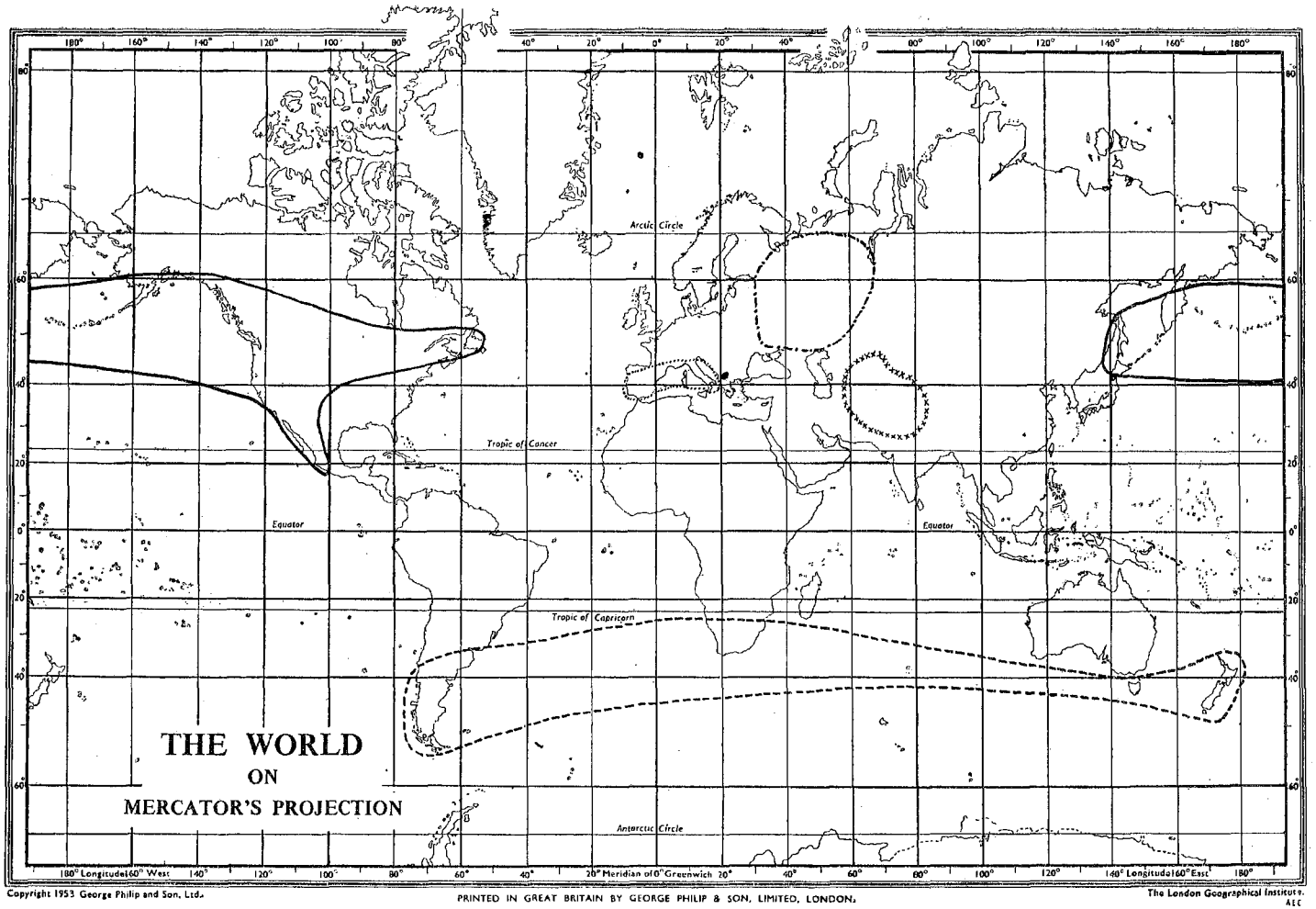

Fig. 2. Map showing distribution of the non-British representatives of the *C. flava* agg.

———— *C. viridula* Michx.
—·—·—·— *C. flavella* Krecz.
xxxxxxxxxx *C. philocrena* Krecz.
— — — — *C. cataractae* R. Br.
. . . . . *C. mairii* Coss. & Germ.
● *C. dyrrachiensis* Nelmes

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