

Thus it would appear that we are dealing with the organisms termed '*Schizo-saccharomyces ovis*' by Quin, and, in disputing the use of this term, we wish to direct attention to a publication by Woodcock and Lapage<sup>4</sup>, in which they describe observations on an oval and crescentic organism found in great numbers in the rumen contents of sheep and goats. They were able to demonstrate a single flagellum arising from the centre of the body in the crescent-shaped forms, but were unable to demonstrate a flagellum in the oval motile forms. After examination of authenticated strains of *Schizo-saccharomyces*, they stated that, in their opinion, these organisms were not related to that yeast. On the grounds that similar organisms had been described by Certes<sup>5</sup>, they preferred to name them *Selenomastix ruminantium* (Certes). This protist is now referred to as *Selenomonas ruminantium* in the standard text-books on protozoology<sup>6,7</sup>.

We have made numerous attempts to culture the ovoid and crescentic organisms using various media, incubated at temperatures ranging from 20° C. to 45° C., aerobically, anaerobically and in vessels containing additional carbon dioxide, but so far without success. At least four different types of yeasts have been recovered by one of us (C. A. McG.), but none of these appears to belong to the genus *Schizo-saccharomyces*. In view of the statement of Klein and Müller<sup>8</sup> that nectar yeasts play an important part in ruminant digestion, a detailed examination of the yeasts isolated is being pursued. It must be admitted, however, that yeasts appear to be present only in small numbers.

In conclusion, we suggest that the yeast-like organisms observed in the rumen contents are not *Schizo-saccharomycetes* but are the protists described by Certes<sup>5</sup> and by Woodcock and Lapage<sup>4</sup> and now named *Selenomonas ruminantium* (Certes).

C. A. MCGAUGHEY  
K. C. SELLERS

Institute of Animal Pathology,  
Cambridge.  
Feb. 20.

<sup>1</sup> Quin, J. I., *Onderstepoort J. Vet. Sci.*, **13**, 91 (1943).

<sup>2</sup> Baker, F., and Harriss, S. T., *Nut. Abst. and Rev.*, **17**, 3 (1947).

<sup>3</sup> Elsdon, S. R., *J. Exp. Biol.*, **22**, 51 (1945-46).

<sup>4</sup> Woodcock, H. M., and Lapage, G., *Quart. J. Micr. Sci.*, **59**, 431 (1913).

<sup>5</sup> Certes, *Bull. Soc. Zool. France*, **14**, 70 (1889), quoted by Woodcock and Lapage (ref. 4).

<sup>6</sup> Wenyon, C. M., "Protozoology" (Baillière, Tindall and Cox, London, 1926).

<sup>7</sup> Neveu-Lemaire, M., "Traité de Protozoologie" (Vigot Frères, Paris, 1943).

<sup>8</sup> Klein, W., and Müller, R., *Z. Tierzucht. Zuchtungsbiol.*, **48**, 277 (1941), quoted by Goetze, G., *Deutsch. Imkerführer*, **9**, 125 (1941).

### Chromosome Number of *Cardamine pratensis*

I NOTICE with interest Dr. Howard's records of chromosome counts of  $2n = 56$  for several plants of *Cardamine pratensis* growing in damp places<sup>1</sup>. I have been working on British plants of this species for the last two years, with the help and guidance of Dr. K. B. Blackburn, and I have collected a very considerable amount of information on its chromosome number. The normal plant which grows in damp meadows has constantly the chromosome number  $2n = 56$ , judged from the evidence of seventy plants collected from eighteen vice-counties. Plants with semi-double flowers, first described by Dr. Wilfred Robinson<sup>2</sup> in 1925, have been found in fifteen localities in wet places, chiefly in the north of England. They

have the same chromosome number  $2n = 56$ . Plants with  $2n = 30$  chromosomes seem to be characteristically from the south of England. Those examined include five normal plants and seven completely sterile double-flowered plants. No other chromosome numbers than these have so far been encountered.

The ecological difference found by Lövkvist holds good in most of the cases recorded; for example, Prof. R. D'O. Good, who kindly provided material from Dorset, noted particularly that the large plant, now found to have the low chromosome number, occurred in quantity on the damp roadside banks characteristic of Marshwood Vale, whereas the smaller darker-leaved one ( $2n = 56$ ) grew in wet meadows.

As I am now trying to map the distribution of the different forms of *Cardamine pratensis*, I should be very grateful for living plants particularly from Scotland, the south and east coasts of England and Ireland.

F. HUSSEIN

Department of Botany,  
King's College,  
Newcastle-upon-Tyne 1.  
Feb. 25.

<sup>1</sup> *Nature*, **161**, 277 (1948).

<sup>2</sup> *Mem. and Proc. Manchester Lit. and Phil. Soc.*, **69** (Feb. 1925).

### Distribution Patterns in European Basidiomycetes with Reference to Some British Species

NINETEENTH-CENTURY mycologists, impressed by the wide distribution of agarics and polypores, were inclined to regard them as truly cosmopolitan. Subsequent experience has modified this view by indicating that, at least as regards Basidiomycetes, the flora of tropical regions does not usually consist of the same species as that of the north temperate zone. It is also often doubtful whether a specific epithet has been applied to the same species in North America as in Europe. Even within a rather small area such as Europe, gradually accumulating distributional data have shown that not all the higher fungi occur in all parts of the Continent. Thus, in the comparatively rich British Basidiomycete flora, it is possible to distinguish components characteristic of different Continental regions. For the present it may be sufficient to recognize a northern European, southern European and Oceanic type of distribution; but when the European fungus flora has been adequately studied from this point of view, it will probably be possible not only to define these with greater precision but also to recognize other, smaller, mycological provinces.

A typical example of the northern European group is *Exidia repanda* Fr. The European distribution of this species, as quoted by Neuhoft<sup>1</sup>, is shown in Fig. 1. Here the individual crosses in the Scandinavian peninsula do not represent separate collections but cover the reported range of the species. This very distinct and easily recognizable fungus was collected for the first time in Britain on birch trees at Shieldaig, Wester Ross, in June 1947. It seems unlikely that such a conspicuous species can have escaped observation in England; if it does occur there at all it must be rare or sporadic. Fungi of the northern European