Short Notes

DISCOVERY OF *SENECIO CAMBRENSIS* ROSSER IN EDINBURGH

In plants a major mechanism of speciation is polyploidy (Stebbins 1971, Grant 1981). Though the phenomena of allopolyploidy and autopolyploidy are well understood, the factors leading to the origin and establishment of wild polyploid species remain largely a matter of conjecture since the species investigated have usually been established for millenia. Nevertheless, four naturally produced allopolyploids have been detected at the initial stages of their evolution – *Spartina anglica* Hubbard (Marchant 1967, 1968), *Tragopogon mirus* Ownbey, *T. miscellus* Ownbey (Ownbey 1950, Ownbey & McCollum 1954) and *Senecio cambrensis* Rosser (Rosser 1955, Weir & Ingram 1980). Until recently, *S. cambrensis* was known only from a restricted area around its site of origin in N. Wales. We can now report that the species has recently become established in Edinburgh, Scotland, where it is found as part of the flora of wasteground and demolition sites in the Leith area of the city.

Senecio cambrensis was first reported from the Ffrith area of N. Wales about 50 years ago (Rosser 1955). It is an allohexaploid species (2n=60) formed after hybridization between *S. vulgaris* L. (2n=40) and *S. squalidus* L. (2n=20) following the rapid colonization of Britain by *S. squalidus* in the past 200 years (Crisp 1972, Stace 1977). The spread of *S. squalidus* in Britain is still in progress today. Fifty years ago the advancing 'front' of *S. squalidus* was approximately from the Mersey to the Wash (Crisp 1972) and it may be significant that *S. cambrensis* was first recorded at this time. Now, fifty years on, the 'front' spans the industrial central belt of Scotland, where the species is prevalent on motorways, railways, wasteground and demolition sites.

In Wales the colony of *S. cambrensis* is now quite large. We have recorded 35 sites, each of which falls within a range of 11 km from the original site at Ffrith. Four sites contain more than 100 individuals. Beyond 11 km the species has been recorded only at Colwyn Bay, Denbs., v.c. 50, 40 km north-west of Ffrith (Stace 1977). Given the species' efficient dispersal mechanism and high self-fertility, the limited spread of the colony in Wales argues that Welsh *S. cambrensis* may be very closely adapted to local conditions.

The new Edinburgh colony consists of scattered plants growing on demolition and redevelopment sites alongside *S. squalidus* and *S. vulgaris* (var. *vulgaris* and var. *hibernicus* Syme). Following the initial discovery of *S. cambrensis* at Edinburgh in September, 1982, six sites were recorded in an area of approximately 4 km^2 and more than 100 individuals were counted. The colony cannot be regarded as entirely new, since a herbarium check at the Royal Botanic Garden, Edinburgh (E) revealed a specimen from the same area of Leith dated 1974. (This had been mistakenly labelled *S. vulgaris*×*S. squalidus*.)

Morphologically, Edinburgh plants match the description given by Rosser (1955) in most points. They produce larger seeds than either parent and pollen with four pores rather than three, but for other characters they are intermediate or similar. Fertility (measured as percentage good seed) is reasonably high, 34–70%, and chromosome preparations of meiotic and mitotic material from three sites show 2n=60 and a high degree of meiotic regularity.

From the available evidence it is not possible to be certain whether the establishment of *S. cambrensis* in Edinburgh has followed an independent origin of the species in the Edinburgh area or is a consequence of long distance dispersal from N. Wales (by natural means or human interference). However, the first step in the natural synthesis of *S. cambrensis* – hybridization between the parental species – is known to occur in Edinburgh (Ingram, Weir & Abbot 1980, Marshall & Abbott 1980) and through such hybridization there is clearly the potential for the *de novo* formation of the allopolyploid.

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LONDON CATALOGUE PUBLICATION DATES AND AUTHORS

The dating of certain editions of the *London catalogue of British plants* has long been known to be a matter of difficulty. This is because separately-dated reprints of at least one of them exist, two survive in folio as well as normal octavo form, and in one further case there is both a bogus and a genuine edition bearing different dates.

Simpson (1960), the most authoritative source on the subject, claims to have identified two versions of the first edition and no fewer than four of the second, almost all of which he ascribes to different years. Certain of his conclusions, however, seem open to question.

For a start, that single-sheet folio versions of both the first and second editions appeared in one and the same year, 1845, is hard to credit, for all the evidence points to a gap of at least three years between the original appearance of the *Catalogue* in – as all sources are agreed – 1844 and the bringing out of the much-enlarged second edition. The fact that Simpson puts 1845 in square brackets in both cases suggests that this dating was more or less guesswork and may be based on no more than a loose assertion somewhere in the literature. If a folio version of the first edition was indeed produced, this might well have been some time after the original octavo version was put out; but in that case one would expect the same sequence to have obtained for the second edition as well. On all counts an 1845 version of the second edition does seem very unlikely.

In which year, therefore, was the second edition published? As Simpson states, the main, octavo version of this bears the date 1848. However, he has overlooked that its reviewer ('K') in the *Phytologist*, **2**: 1051 (December 1847) complains that this date is wrong: "Notwithstanding its date, . . . the second edition of this Catalogue is already published." Had he known this, Simpson would presumably not have wished to propose 1848 also for the undated folio version known to him. It can therefore be taken that there are no known valid alternatives to 1847 as the date of the second edition, in all its known versions.

The list given by Simpson should thus be amended to read as follows:

Edition 1	1844	Edition 5	1857	Edition "8"	1883
2	1847	6	1867	8	1886
3	1850	7	1874	9	1895
4	1853		1877	10	1908
			1881	11	1925

As another, more recent bibliography (Freeman 1980) has attributed all of the pre-1900 editions to Watson and Dennes – though in other respects it follows Simpson closely – it seems worth adding that these two were (officially) the co-authors of Editions 2 and 3 only. Watson was given sole credit for Editions 1, 6 and 7 (including the bogus 'Edition 8' of 1883, a mere reissue of Edition 7), while his name was coupled with Syme's for Editions 4 and 5. Editions 8–10 were the work of F. J. Hanbury.

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RUBUS SPECIES ON CHALK

It is well-known that the microspecies of *R. fruticosus* L. agg. are in general calcifuge, occurring characteristically as an accompaniment of *Pteridium aquilinum* (L.) Kuhn. More, however, appear to be tolerant of calcareous soil than tends to be assumed.

The parish of Winchester, in central Hampshire (v.c. 11 and 12), is almost wholly on chalk. Yet, in addition to the ubiquitous *R. ulmifolius* Schott f., the following 20 species occur (though in several cases as only solitary clumps or bushes):

R. armipotens Barton ex A. Newton
R. cardiophyllus Muell. & Lefèv.
R. cissburiensis Barton & Riddelsd.
R. dasyphyllus (Rogers) E. S. Marsh.
R. echinatus Lindl.
R. elegantispinosus (Schum.) H. E. Weber (escape)
R. leightonii Lees ex Leighton
R. micans Gren. & Godr.
R. milesii A. Newton
R. moylei Barton & Riddelsd.
R. mucronatiformis Sudre
R. nemoralis P. J. Muell.
R. phaeocarpus W. C. R. Wats.
R. procerus P. J. Muell. (escape)
R. rudis Weihe & Nees
R. surrejanus Barton & Riddelsd.
R. tuberculatus Bab.
R. vestitus Weihe & Nees
and two undescribed species belonging to Sections *Triviales* and *Appendiculati* respectively.

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CITATION OF BELL SALTER

Thomas Bell Salter (1814–1858), a physician successively in Poole, Dorset, and Ryde, Isle of Wight, was a *Rubus* specialist and described in that genus several new taxa, the most substantial and lasting of these being *R. babingtonii*. Because he adopted the practice not uncommon in those days of using his second forename as part of his surname, contemporary botanists saw it as correct to cite the authority for these taxa as 'Bell Salt.', a usage which has persisted down to the present. Meikle (1980, pp. 15, 189) has recently endorsed this.

The *International code of botanical nomenclature* does not go into the niceties of what exactly constitutes a surname, but it is difficult to believe that the use of two separate names unconnected by a hyphen would be generally regarded as acceptable for citation purposes. Even if its owner was regularly known by the double surname to his contemporaries, later generations cannot be expected to be aware of this. Were such a usage to be accepted, moreover, many other seemingly similar cases (e.g. G. Claridge Druce) would become candidates for variant citation. Thus the only practicable rule would seem to be that, except where a hyphen is consistently used, the last name alone should be drawn on for taxonomic purposes.

There is the further consideration in this particular case that 'Bell Salter' was not the surname as inherited but a modification adopted by this one member of the family only. The physician's father and two brothers appear in the records simply as 'Salter'.

For all these reasons it is concluded that the authority for the *Rubus* taxa should be cited 'T. B. Salter' – the initials being necessary to distinguish him from the T. M. Salter listed by Meikle (1980). It is also recommended that, for the sake of consistency, the name is included in alphabetical lists and indexes under 'S' and not (as so often at present) under 'B'.

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DACTYLORHIZA INCARNATA (L.) SOÓ SUBSP. *OCHROLEUCA* (BOLL) P. F. HUNT & SUMMERHAYES

A new record for the rare and distinctive *Dactylorhiza incarnata* (L.) Soó subsp. *ochroleuca* (Boll) P. F. Hunt & Summerhayes from Thursley Common, Surrey, v.c. 17 (*Watsonia*, **14**: 198 (1982)) represents a considerable extension of its known distribution in Britain (East Anglia and possibly South Wales). The record is accompanied by the significant comment that these plants were previously thought to be "an albino form" (anthocyanin-lacking variant) of the purple-flowered subsp. *pulchella* (Druce) Soó. Our observations of these controversial yellow-flowered plants from Thursley Common, which are included in a detailed biometric survey of the subspecies of *D. incarnata* (Bateman & Denholm in prep.), support the earlier determination.

D. incarnata subsp. *ochroleuca* is not characterized solely by pale yellow unmarked flowers, as is occasionally suggested, but also by a tall broad stem, large leaves and bracts, large (*c.* 7×9 mm) deeply three-lobed labella with notched lateral lobes, and by an alkaline fen habitat (Pugsley 1939, Nannfeldt 1944, Heslop-Harrison 1956, Clapham 1962, Rajchel 1964, Nelson 1976). Although the Thursley Common plants have pale creamy yellow unmarked flowers, they lack the vegetative robustness of *D. incarnata* subsp. *ochroleuca* and have small (*c.* 6×6 mm), more-or-less entire labella; these are typical characters of subsp. *pulchella*, as noted by Pugsley (1939). Furthermore, they occur in an acid *Sphagnum* bog where they are associated with abundant purple-flowered *D. incarnata* subsp. *pulchella*. We are therefore certain that these plants are anthocyanin-lacking variants of *D. incarnata* subsp. *pulchella*.

Much of the confusion over the separation of *D. incarnata* subsp. *ochroleuca* and anthocyanin-lacking subsp. *pulchella* can be attributed to statements by Heslop-Harrison (1956) that *D. incarnata* subsp. *pulchella* lacks yellow anthoxanthin pigment, and that anthocyanin-lacking flowers of this subspecies are consequently always pure white. This is incorrect; we examined anthocyanin-lacking flowers in several populations of *D. incarnata* subsp. *pulchella* (they predominate at one New Forest locality) and they were all pale yellow. Several previous records of *D. incarnata* subsp. *ochroleuca* are probably based on flower colour alone and should therefore be carefully re-examined.

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ANOTHER NEW EAST ANGLIAN BRAMBLE

The bramble described below has a disjunct distribution in E. Norfolk, v.c. 27, E. Suffolk, v.c. 25, and N. Essex, v.c. 19. It occurs in many places near Norwich, from which city the name is taken, and again near Ipswich, especially along the Stour valley, and between Ipswich and Colchester. It has been recorded for the following 10 km squares: 52/92; 62/04, 05, 13, 14, 15, 23; 63/01, 11, 12, 13, 21, 22. We are grateful to Mr J. Ironside-Wood for information about its occurrence in N. Essex. A specimen from Rackheath, GR 63/26.14, E. Norfolk, v.c. 27, was sent to Professor H. E. Weber who replied that it did not match any Continental species known to him.

Rubus norvicensis A. L. Bull & E. S. Edees, **sp. nov.**

Turio arcuatus, angulatus superficiebus planis vel leviter excavatis, rufescens, nonnunquam pruinosus, glaber vel glabrescens, aciculis glandulisque stipitatis brevibus sparsim vel satis copiose instructus, aculeis 6–14 per 5 cm ad angulos dispositis, 5–7 mm longis, tenuibus, e basi compressa declinatis vel curvatis armatus. Folia pedata; foliola 3–5, saepe contigua, superne glabra, subtus molliter pilosa; foliolum terminale 8–13×5–9 cm, late ellipticum acuminatum, basi integrum, grosse serratum, convexum, petiolulo proprio triplo longius. Ramus florifer parum flexuosus, rufescens, pilosus, aciculis glandulisque stipitatis inaequalibus numerosis, aculeis tenuibus 3–6 mm longis declinatis vel curvatis munitus; inflorescentia non ad apicem foliosa, laxe pyramidata ramulis divaricatis 2-multifloris aucta. Flores c. 3 cm diametro; sepala dense pilosa, glandulosa, parum aciculata, reflexa vel patula; petala usque ad 14×8 mm, alba, obovato-elliptica, saepe emarginata; stamina alba stylos pallidos longe superantia; carpella et receptaculum glabrum; fructus perfecti, satis magni, sapidi.

Stem arching, growing horizontally at about 1 m or climbing freely through and over other bushes, angled with flat or slightly furrowed sides, green, rufescent, sometimes slightly pruinose, glabrous or glabrescent, with numerous subsessile glands, a variable number of short stalked glands, and numerous short and very short acicles and short to medium pricklets; prickles 6–14 per 5 cm, on the angles, 4–7 mm, slender, declining or curved from a long compressed base, red with yellow point. Leaves pedate; leaflets 3–5, often contiguous, sometimes slightly imbricate, mid-green, glabrous or nearly so above, soft beneath with numerous short to medium simple hairs and sometimes a thin underlayer of stellate hairs; terminal leaflet 8–13×5–9 cm, broadly elliptical, with acuminate or acuminate-cuspidate apex 1–2 cm and entire or subentire base, rather coarsely serrate or dentate with the main teeth prominent, convex, the petiolule *c.* 1/3 as long as the lamina; petiolules of basal leaflets 2–4 mm; petiole as long as or longer than the basal leaflets, coloured like the stem, with sparse to numerous patent, short to medium, simple and tufted but chiefly simple hairs, numerous sessile and short and very short stalked glands and acicles, and *c.* 20 deflexed and curved prickles 4–5 mm. Flowering branch with leaves of 3 leaflets below and often one or more simple leaves above, not leafy to the apex; inflorescence pyramidal, sometimes nodding, with more or less patent or

divaricate peduncles diminishing from 14 to 2 cm, divided at or above the middle and bearing 2–many flowers; rachis slightly flexuose, green or rufous, with numerous (dense above) patent, short to medium simple and tufted hairs, numerous to dense stellate hairs, numerous sessile and subsessile glands and short to medium stalked glands and acicles (or pricklets), and many slender declining or curved prickles 3–6 mm; pedicels clothed and armed like the upper part of the rachis. Flowers 2·5–3 cm in diameter; sepals with dense stellate and numerous short to medium simple and tufted hairs, numerous short and very short stalked glands, and sparse to fairly numerous short to medium acicles short- or long-pointed, loosely reflexed to patent; petals 10–14×5–8 mm, faintly pink at first then white, elliptical or obovate-elliptical, rounded or slightly notched at apex, glabrous or with a few very short simple and tufted hairs on margin, not contiguous, slightly concave; stamens much exceeding styles, filaments white, anthers glabrous; styles pale green; young carpels glabrous; receptacle glabrous; fruit of moderate size and pleasant flavour.

HOLOTYPUS: Sloley, roadside between church and T-junction to north, GR 63/297.244, E. Norfolk, v.c. 27, 21/7/1982, A. L. Bull and E. S. Edees 21904A (**BM**)

In addition to the holotype the following exsiccata have been approved by both authors:

Woodland near Holbrook Park, GR 62/15.37, E. Suffolk, v.c. 25, 24/7/1973, E.S.E., **herb. E.S.E.**
Entrance to Dodnash Wood, GR 62/103.365, E. Suffolk, v.c. 25, 16/7/1981, A.L.B., **herb. A.L.B., herb. E.S.E.**
Ringland Hills, GR 63/13.12, E. Norfolk, v.c. 27, 3/8/1980, A.L.B., **herb. A.L.B., herb. E.S.E.**
Warren Wood, East Tuddenham, GR 63/094.114, E. Norfolk, v.c. 27, 14/8/1977, A.L.B., **herb. A.L.B.**
Mousehold Heath, Norwich, GR 63/24.10, E. Norfolk, v.c. 27, 16/7/1980, A.L.B., **herb. A.L.B.**
Layer de la Haye, GR 52/975.210, N. Essex, v.c. 19, 16/7/1981, A.L.B., **herb. A.L.B., herb. E.S.E.**
Berechurch Common, GR 52/99.20, N. Essex, v.c. 19, 23/7/1982, A.L.B., **herb. E.S.E.**
Wood near Itteringham, GR 63/154.317, E. Norfolk, v.c. 27, 21/7/1982, E.S.E., **herb. E.S.E.**
Abel Heath, Blickling, GR 63/175.273, E. Norfolk, v.c. 27, 21/7/1982, E.S.E., **herb. E.S.E.**
Old Hall Wood, Bentley, GR 62/125.400, E. Suffolk, v.c. 25, 21/7/1980, A.L.B., **herb. A.L.B.**
Woodgate, Aylsham, GR 63/181.262, E. Norfolk, v.c. 27, 21/7/1982, E.S.E., **herb. E.S.E.**
Near Tuttington, GR 63/217.277, E. Norfolk, v.c. 27, 21/7/1982, E.S.E, **herb. E.S.E.**
Swanton Hill, Swanton Abbot, GR 63/265.267, E. Norfolk, v.c. 27, 21/7/1982, E.S.E., **herb. E.S.E.**
Easton Lodge, GR 63/144.120, E. Norfolk, v.c. 27, 20/7/1977, E.S.E., **herb. E.S.E.**
The Springs, south of Rackheath church, GR 63/268.145, E. Norfolk, v.c. 27, 13/7/1979, A.L.B., **herb. A.L.B.**
Westwick, GR 63/275.272, E. Norfolk, v.c. 27, 20/7/1973, A.L.B., **herb. A.L.B.**
Plumstead Woods, near Holt, GR 63/121.353, E. Norfolk, v.c. 27, 24/7/1972, A.L.B., **herb. A.L.B.**

R. norvicensis is a glandular bramble perhaps best placed in the series *Apiculati* Focke. It can usually be recognized by the pendant panicles draped over hedgerows with very numerous starry white flowers. The petals are pale pink at first and slightly incurved at the edge, but they become white and star-like. The stamens are long. The stem is angular, nearly glabrous and sometimes pruinose with the faces often green and angles dull red. The leaflets are convex, remarkably so in shade, and are hairy but rarely felted beneath and glabrous above.

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THE DISTRIBUTION OF *CAREX TOMENTOSA* L. (*C. FILIFORMIS* AUCT.) IN BRITAIN

Nelmes (1952) argued that *C. filiformis* L. (1753) is the correct prior name for *C. tomentosa* L. (1767), but Continental botanists have in general not accepted his argument and reject the name *C. filiformis* as ambiguous. Chater (1980) therefore reverted to the name *C. tomentosa*, although there is no specimen so named in **LINN**.

This sedge is a plant of damp meadows and open woodland over much of the Continent, from France, southern Sweden, Poland and Baltic Russia in the north, to Spain, Italy, Greece and the Crimea in the south. It extends eastwards into western Siberia. Kükenthal (1909) placed it in a somewhat miscellaneous section, *Pachystylae* Kük., which also included *C. pallescens*. Chater (1980) restored it to section *Acrocystis* Dumort. (=*Montanae* (Fries) Christ). Like some other members of this section and of the related *Digitatae*, *C. tomentosa* reaches its north-western limit in England, and is there very local. Its main concentration is in E. Gloucs., just extending into W. Gloucs. and N. Wilts., with isolated colonies in Oxon and formerly in Surrey and Middlesex.

In Britain the habitats are surprisingly varied. The most characteristic appears to be damp meadow, especially on gravel where the subsoil is continuously irrigated. J. E. Lousley, who refound it in the original British site at Marston Meysey where Teesdale discovered it in 1799 (today the meadow is drained and ploughed), noted (*in litt.* 1937) that the sedge was thickest in the wetter hollows, and the same phenomenon may be observed in other Thames Valley sites. *C. tomentosa* has also been seen, however, in downland habitats described as conspicuously dry. Both vegetation types are very much under threat, the wet meadows for draining and conversion to arable, the downland for re-seeding. On the lush Gloucestershire lane-verges, where formerly this sedge was widespread, the spraying routines of the 1960s succeeded in destroying the established vegetation and replacing it with coarse plants such as *Heracleum* and *Bromus erectus*, with which the sedge cannot compete. In consequence it has become very much rarer than it was, and in the last five years could be found in only nine sites.

On the other hand *Carex tomentosa* has two characteristics that may cause it to be overlooked: in some years it is extremely shy-flowering, and few botanists will examine every isolated shoot of *Carex* for the red basal sheaths that might proclaim it this species; and, when it flowers, its season is only from mid-May to late July, when not only do the ripe utricles fall but the whole fruiting stem disintegrates. Furthermore, although the thin upright stems with their clustered spikes of downy utricles are very distinctive, they are of such a dull, misty shade of green that they are well camouflaged in the surrounding herbage.

The recorded British stations are listed below. All have been visited by me since 1975 and the present size of each population is indicated by the letters A=1 to 20, B=21 to 100, C=101 to 1000, D=over 1000. Where the sedge has not been refound, the date of and authority for the last sighting are given. The authenticity of herbarium specimens cited is confirmed by me.

N. Wilts., v.c. 7: 41/0.9, near Somerford Keynes (D); Ewen, 1923, W. J. Greenwood, **BM** (Riddelsdell *et al.* 1948, but Greenwood's label puts this in W. Gloucs.); 41/1.9, Marston Meysey, 1936, J. E. Lousley, **RNG**, site since destroyed.

W. or E. Sussex, v.c. 13 or 14: Sussex, no locality stated, n.d. but believed to be *c.* 1840, F. A. M(alleson), **OXF** (formerly in herb. Tyacke). The specimen is indeed *C. tomentosa* but is not named on the sheet. Some error about its provenance may be suspected. *C. tomentosa* is not included in Malleson's own lists of Sussex plants (at Kew).

Surrey, v.c. 17: 51/0.6, Thorpe, 1906, E. F. Shepherd & C. E. Salmon, **BM**, site destroyed by gravel-digging; Chertsey, 1970, R. M. Burton (Mrs J. E. Smith *in litt.* 1982), meadow since re-seeded.

Middlesex, v.c. 21: 51/0.6, Shepperton, 1960, D. H. Kent (Kent 1975), site destroyed by gravel-digging in the late 1960s.

Oxon, v.c. 23: 41/6.7, Goring, 1971, Mrs D. S. Dudley Smith, record in B.R.C. (Monks Wood); 42/2.1, Westwell (B); "Upton Down", 1955, C. E. A. Andrews & F. M. Day, **BM**, is the same site as the preceding (C. E. A. Andrews *in litt.* 1982); 42/5.1, Otmoor (B).

E. Gloucs., v.c. 33: 32/9.0, Hailey Wood, n.d., W. J. Greenwood (Riddelsdell *et al.* 1948); S. W. of Duntisbourne Abbots, 1943, E. Nelmes, **K**; between Edgeworth and Duntisbourne Leer, 1943 (Nelmes 1945); Oakley Wood (C); Cirencester Park (B); 41/0.9, South Cerney, n.d., W. J. Greenwood (Riddelsdell *et al.* 1948); Cerney Wick, 1923, W. J. Greenwood, **BM** (Riddlesdell *et al.* 1948 but Greenwood's label puts this in W. Gloucs.); 41/1.9, Whelford (B); Kempsford parish, 1919, H. J. Riddelsdell (may be same as preceding); 42/0.0, between Cirencester and Barnsley, 1942, E. Nelmes, **K**; Ampney Park, 1922, W. J. Greenwood, **BM**, now reclaimed and developed; between Barnsley and Bibury, 1920, W. J. Greenwood, **BM**; Akeman Street, several places (Nelmes 1945), and seen on both sides of the road at one spot until *c.* 1971, when the two colonies

were submerged under ditch-dredgings; between Calmsden and Baunton, 1943, E. Nelmes, **K**; 42/0.1, Colesbourne (C); Withington Woods, 1917, W. J. Greenwood, **BM, CHM**; Withington water meadows, 1923, T. J. Foggitt, **BM**; wood near Chedworth, 1920, A. S. Montgomery, **GLR**; 42/0.2, Roel Hill (B); 42/1.0, Fairford, in 3 places–towards Hatherop, 1936, E. Nelmes, **K**; Far Hill, 1898, J. Taylor, **BM, CGE, K**; towards Whelford (C–within 100 m of colony in 41/1.9); 42/1.1, Northleach Downs, 1918, Mrs (C. I.) Sandwith, **BM**; Farmington, 1953, J. E. Lousley, **RNG**.

W. Glouc., v.c. 34: 32/9.0, Frampton Mansell (Cator 1924); Sapperton, 1918 (Riddelsdell *et al.* 1948, but the original citation (Talbot 1919) reads "Somerford, Keynes, Sapperton, E. Glos". The comma between Somerford and Keynes is clearly redundant, but it is still not certain how many sites were being reported or in which county they were situated. The identity of the recorder, possibly Miss M. Talbot, is also obscure).

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PHENOLIC CHEMISTRY DISTINGUISHES *ASPLENIUM ADIANTUM-NIGRUM* L. FROM *A. CUNEIFOLIUM* VIV.

The *Asplenium adiantum-nigrum* complex in Europe consists of two diploid species, *A. cuneifolium* Viv. and *A. onopteris* L., and their allotetraploid derivative *A. adiantum-nigrum* L. *sensu stricto* (Shivas 1969). *A. adiantum-nigrum* and *A. onopteris* are both well-known members of the British flora but *A. cuneifolium* is generally believed to occur only on the mainland of Europe. During the last few years there have been claims for the occurrence of *A. cuneifolium* in Scotland (Roberts & Stirling 1974), Ireland (Scannell 1978) and England (Page & Bennell 1979). The Scottish plants were originally thought to be diploid (Roberts & Stirling 1974) but subsequent examination established them to be tetraploids (Sleep *et al.* 1978), presumably autotetraploids if the plants were indeed *A. cuneifolium*. Meanwhile, an alleged autotetraploid form of *A. cuneifolium* was discovered in Corsica (Deschatres *et al.* 1978). Several of the Scottish plants were elegantly revealed actually to be allotetraploid in origin and therefore they could not possibly be *A. cuneifolium* (Sleep 1980). A further hybridization experiment revealed the Scottish plants to be merely a variant of *A. adiantum-nigrum* (Sleep 1980). Thus it appears that *A. cuneifolium* probably does not occur in the British Isles (Jermy 1981). However, it took several years of experimental work to reveal that the Scottish plants alleged to be *A. cuneifolium* were actually *A. adiantum-nigrum*. Spore characters may prove to be useful in distinguishing between the two taxa (Bennert *et al.* 1982), but spore length was one of the characters which suggested that the Scottish material was not *A. adiantum-nigrum* (Roberts & Stirling 1974). I wish to report a rapid and unequivocal method of distinguishing between *A. adiantum-nigrum* and *A. cuneifolium* by examination of their polyphenolic chemistry.

A recent survey of ferns for the presence of C-glycosylxanthones has revealed the presence of mangiferin and isomangiferin in *A. adiantum-nigrum* and *A. onopteris*. The compounds were not detected in *A. cuneifolium*. Full details of the identification of the compounds and the geographic sources of the numerous samples of material are published elsewhere (Richardson & Lorenz-Liburnau 1982). Although rare in ferns, C-glycosylxanthones have previously been

reported in *A. montanum* Willd. and two related species (Smith & Harborne 1971). It is interesting that an earlier worker remarked on the morphological features common to both *A. montanum* and *A. adiantum-nigrum* (Wagner 1954).

Thus a simple chromatographic test taking only a few hours can yield similar results to cytological and genetical examination which requires a period of several years. It is also possible to examine older claims for the occurrence of *A. cuneifolium* if they have been documented by herbarium specimens. The removal of the small amount of material necessary for testing (as little as 20 mg, although more is desirable) does negligible damage to the specimens. Specimens of over 100 years in age have been found to give positive results for the presence of C-glycosylxanthones (Richardson & Lorenz-Liburnau 1982). The author is willing to examine chemically any plants which are suspected to resemble *A. cuneifolium*.

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THE SCOTTISH RECORDS OF *DACTYLORHIZA TRAUNSTEINERI* (SAUTER) SOÓ

In June 1967 a colony of marsh-orchids was found by A. G. K. in Knapdale, Kintyre, v.c. 101. The plants were unusually small and not easy to identify, but the few specimens collected were after some hesitation identified as *Dactylorhiza traunsteineri* (Sauter) Soó (Cunningham & Kenneth 1979). When coloured photographs of some of these orchids were sent to D. J. T. in 1982, this identification was queried as they showed several features which were not characteristic of *D. traunsteineri* in its other British localities.

In June 1982 fresh specimens were collected and these, together with the original pictures, were

sent to Mr R. H. Roberts for comment. He confirmed beyond reasonable doubt that both the specimens and the pictures examined were not *D. traunsteineri*, but referable to *D. majalis* (Reichenb.) P. F. Hunt & Summerhayes subsp. *occidentalis* (Pugsley) P. D. Sell. However, these plants were somewhat critical in that they did superficially show certain characters found in *D. traunsteineri*, namely the small stature (many plants being only 7–10 cm high), the rather few, narrowish leaves, and the small number of flowers in the spike. Furthermore, a few of the plants had a narrowish, near deltoid labellum reminiscent of those found in *D. traunsteineri*. After a more detailed examination, however, it was seen that most of the other characters did not match those described for British *D. traunsteineri*. The number of non-sheathing leaves and their proportion of the total number of leaves, the leaf-spotting, the compactness of the floral spike, the lack of anthocyanin in the bracts and upper stem, the presence of spots on the bracts, the labellum shape and pattern in the majority of flowers, and the shape of the spur were all typical of the characters found in *D. majalis* subsp. *occidentalis* and not in *D. traunsteineri*.

These characters are compared in Table 1. However, it should be stressed that only a limited number of plants were examined, as studies were not carried out in the field, although the plants were collected by A. G. K. as reasonably representative individuals of the colony as a whole.

A colony of *D. majalis* subsp. *occidentalis* is known to occur in a coastal marsh nearby in Kintyre, v.c. 101 (*Watsonia*, **10**: 185 (1974)). These plants are taller than the Knapdale dactylorchids and more typical of subsp. *occidentalis*. Their leaf-spotting and flower colour is also less intense than those of the plants described from Knapdale. It is probable that the altitudes and habitats concerned account for these differences and there is no doubt that the plants from these two colonies are conspecific. Plants recorded as *D. traunsteineri* from other sites in v.c. 101 (Cunningham & Kenneth 1979) have not been re-examined in the field, but almost certainly refer to the same taxon.

The Knapdale colony occurs at the margins of open, mossy flushes at an altitude of about 180 m. A detailed study of the associated vegetation was not undertaken, but the following species were noted in the general area:

TABLE 1. COMPARISON OF THE KNAPDALE DACTYLORCHIDS WITH *D. MAJALIS* AND *D. TRAUNSTEINERI*

Character	Knapdale Dactylorchids (a)	*D. majalis* (b)	*D. traunsteineri* (c)
Total no. leaves	4–6	6–7	3–5
No. non-sheathing leaves	2	2	0–1 (–2)
Maximum width longest leaf	9–12 mm	17–22 mm	9–12 mm
Leaf-spotting	Uniform and heavy; large blotches or rings on upper surface	As column (a)	Light or absent, often only on upper half
Spotting on bracts	Solid spots and rings on upper surface	Spots sometimes present	Absent
Upper stem colour	Green	Usually green	Usually with anthocyanin
Colour of bracts	Predominantly green (only margins and tips markedly suffused)	Usually predominantly green	Predominantly suffused magenta-brown or purplish
Floral spike	Not very lax, sometimes somewhat secund	As column (a)	Lax, frequently secund
Angle of the lateral sepals	Some held erect, many not	As column (a)	Nearly always very erect
Spur	Medium length, rather thick, conical, at least slightly curved	Medium to longish, rather thick, conical, curved	Longish, thick and usually not markedly conical or curved

(a) Data from collected specimens.
(b) Heslop-Harrison (1953), Roberts (1961) and field observations by D. J. T. in Co. Clare and W. Galway, Eire, and R. H. Roberts in Wales.
(c) Heslop-Harrison (1953), Lacey & Roberts (1958), Roberts & Gilbert (1963), Tennant (1979).

Selaginella selaginoides	*Calluna vulgaris*
Thalictrum alpinum	*Erica tetralix*
Potentilla erecta	*Eriophorum latifolium*
Saxifraga aizoides	*Schoenus nigricans*
Drosera rotundifolia	*Molinia caerulea*

Dactylorhiza incarnata and *D. maculata* were growing nearby, but *D. fuchsii* was not found. Whereas *Schoenus nigricans* and *Eriophorum latifolium* are certainly well known associates of *D. traunsteineri* in the British Isles and indicate a base-rich habitat, the photographs taken in the field all clearly show a closer association with the more acid-loving plants listed above, and therefore suggest that the pH value is below 6·5. *D. traunsteineri* favours a soil pH of around 7·0 or above in British habitats so far described (Heslop-Harrison 1953).

The re-assessment of these plants effectively removes *D. traunsteineri* as a Scottish plant, although it is still thought that *Orchis francis-drucei* Wilmott, found by A. J. Wilmott in W. Ross, v.c. 105, in 1935 (Wilmott 1936), is probably a curious form of *D. traunsteineri*.

It is therefore now even more desirable to rediscover the site of *O. francis-drucei* in order to be able to determine its correct identity.

There are undoubtedly many suitable habitats for *D. traunsteineri* in Scotland and it is fully expected that it will not be long before it is discovered there.

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