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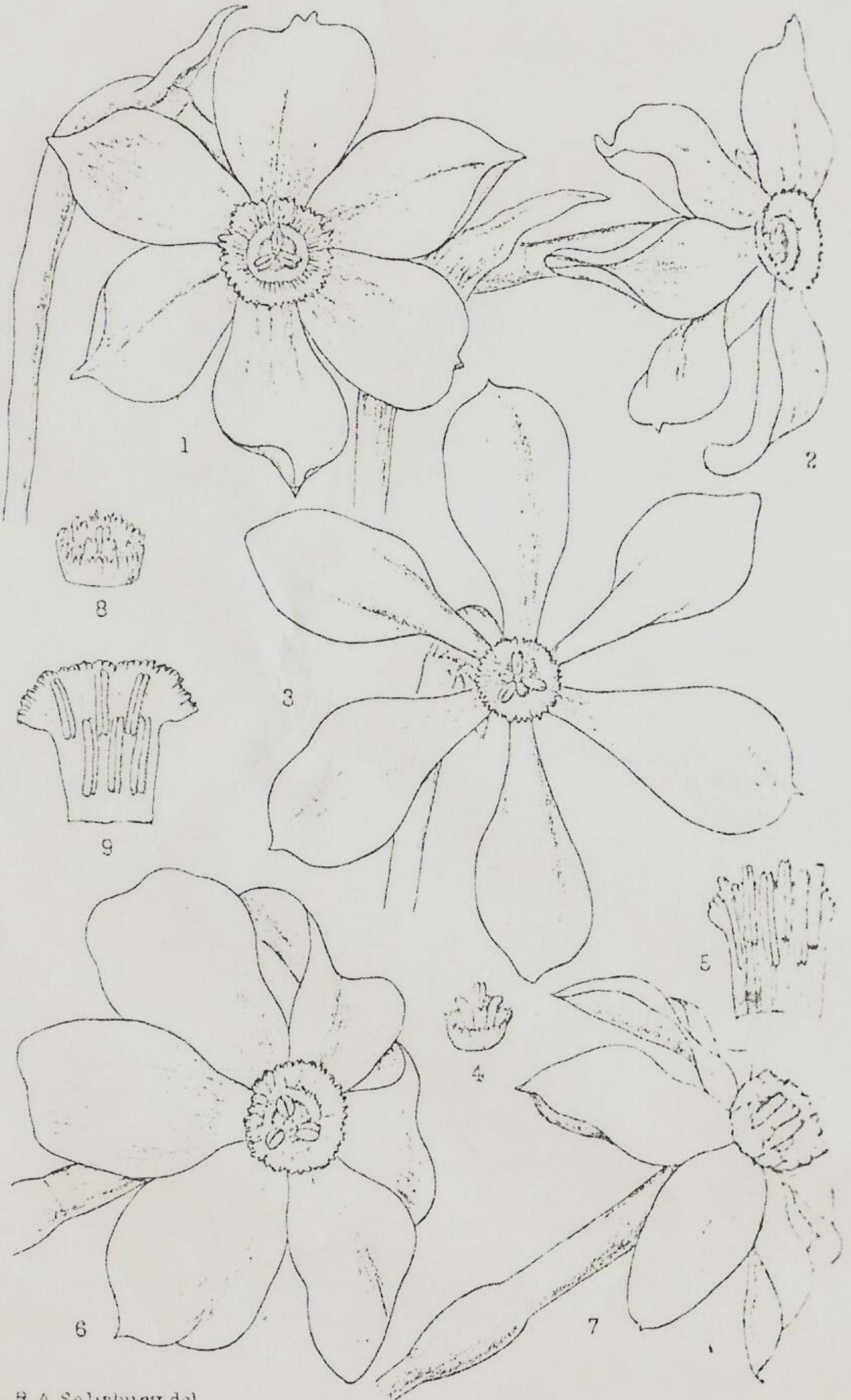
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WITH PLATES AND TEXT ILLUSTRATIONS

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LONDON  
WEST, NEWMAN & CO., 54, HATTON GARDEN.

1915.



R. A. Salisbury del.  
P. Highley lith.

Enhanced drawing.



Fig. 1

Fig. 2

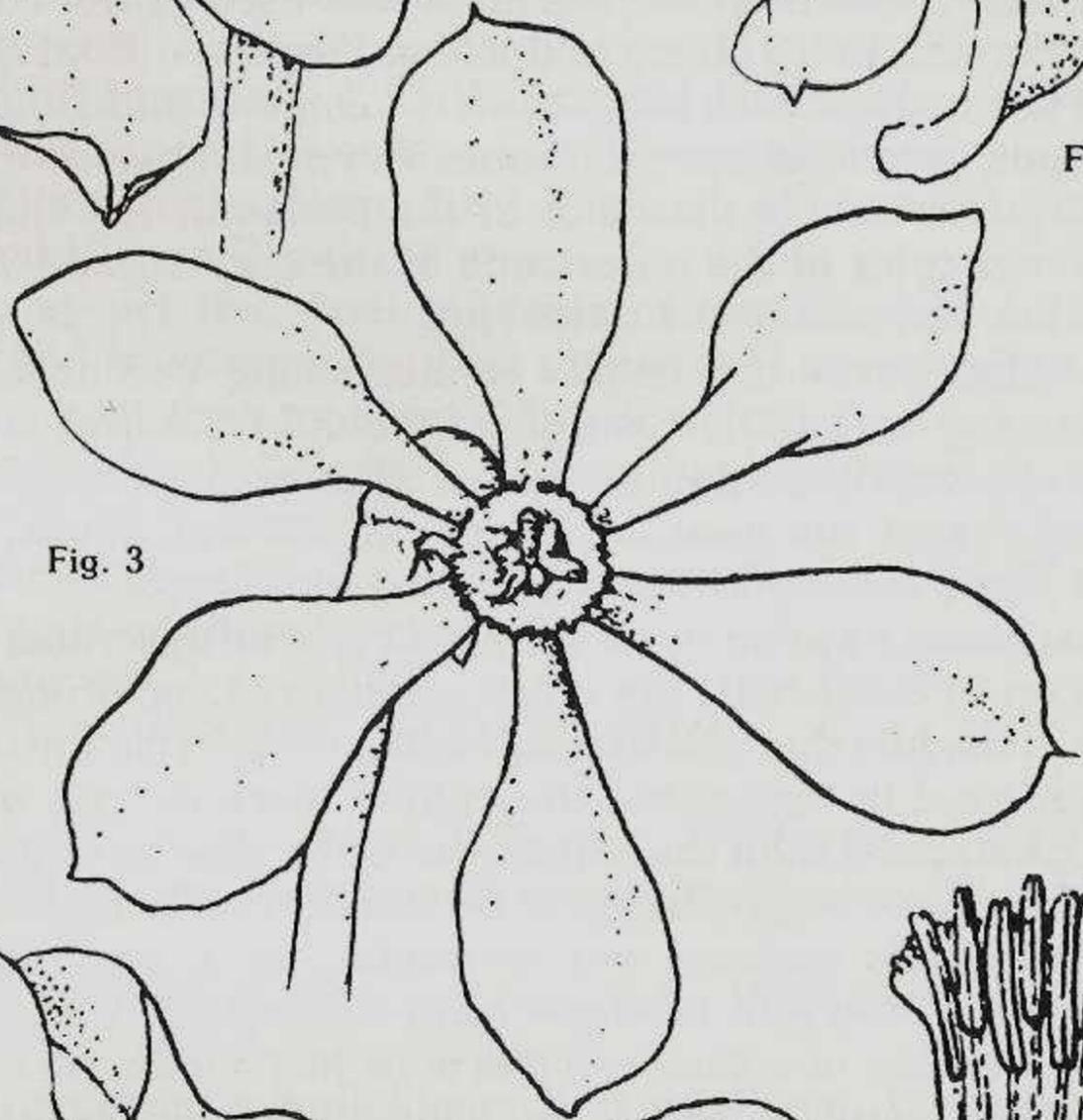


Fig. 3

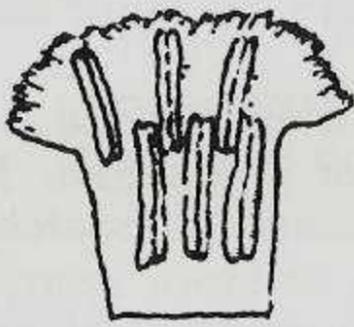


Fig. 9



Fig. 5

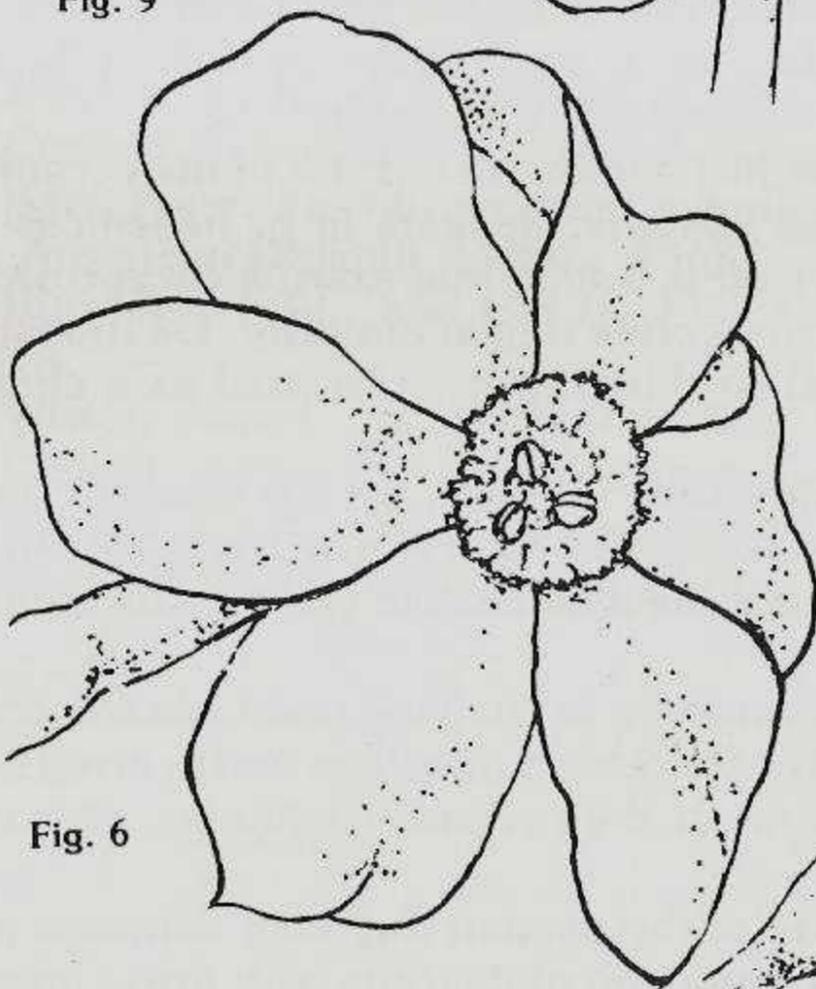


Fig. 6

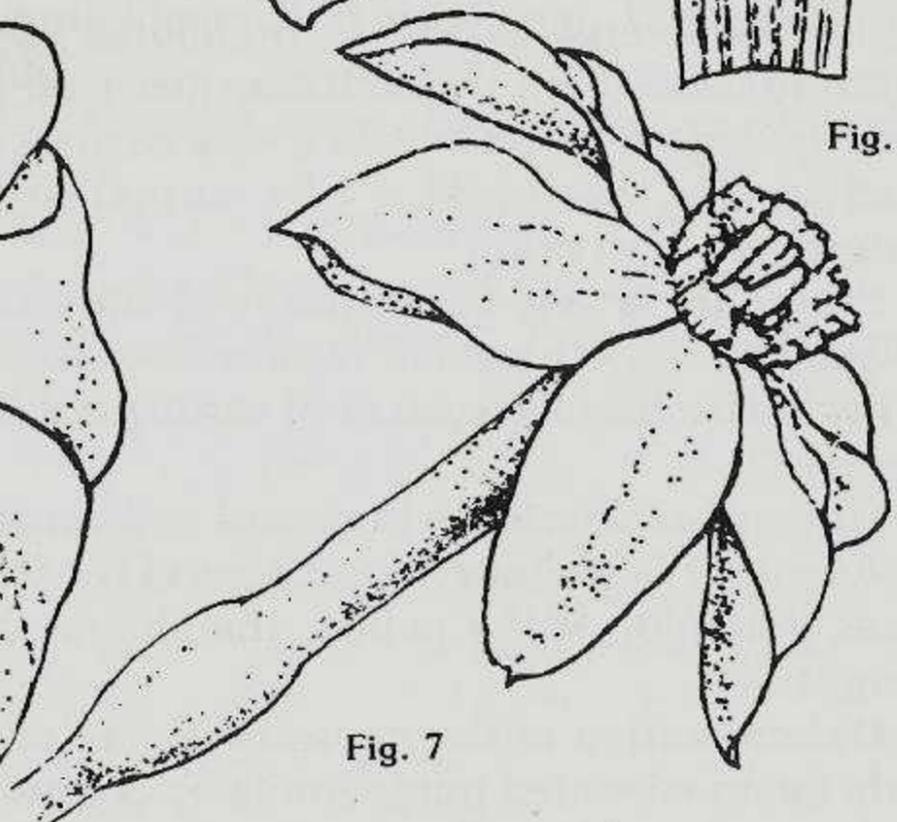


Fig. 7

# NARCISSUS POETICUS AND ITS ALLIES.

By H. W. PUGSLEY, B.A.

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THE cultivation of Daffodils, which has lately become one of the most fashionable of horticultural pursuits in this country, was followed with zest more than three hundred years ago, when Gerard described and figured a large number of forms in his *Herbal*. The infinite variety of the *Narcissus* lends it indeed the pre-eminent place among the flowers of spring which in summer belongs to the Rose; and the extreme beauty of some recent garden-hybrids, such as the trumpet variety "Madame de Graaf," to say nothing of still later creations like "Peter Barr," bears eloquent testimony to the success of modern cultivators, while a glance at the *poeticus* form "Cassandra" at once explains how the classical legend of the son of Cephissus arose among the Bœotian Greeks.

But while present-day gardeners have striven with energy to improve the *Narcissus*, very little botanical work on the genus has appeared since the publication of Mr. J. G. Baker's *Amaryllideæ* in 1888; and the inadequate and unequal treatment of these plants in such an important modern work as Rouy's *Flore de France* is at once seen on comparing his account of *Narcissus poeticus* with that of the species of a genus like *Viola*.

The botanical investigation of *Narcissi* presents two principal difficulties. In the first place, a number of garden forms exist or have existed concerning whose origin there is some uncertainty. While they may be truly wild plants, it is quite possible that they are ancient hybrids, for it is certain that *Narcissi* have been cultivated in some part of Europe during many centuries. A second difficulty, which applies especially to the Poet's forms, arises from the obliteration of the floral characters in dried specimens. In these all traces of colouring generally vanish after a few years, and it is often impossible to determine the curving of the perianth-segments and risky even to define the shape of the corona; moreover, many *exsiccata* are mere scraps—flowers without bulb, foliage, or fruit. Fortunately, in some cases, published figures are in existence which are accurate and reliable, but many plates, and notably those in recent works, leave much to be desired.

On the other hand, the examination of *Narcissi* is facilitated

by the comparative ease generally attending their cultivation (although the difference of behaviour of apparently closely allied forms under similar conditions is sometimes surprising), and wild plants do not readily become abnormal. My knowledge of living Daffodils, such as it is, is largely derived from growing during the past twenty years the greatest possible variety in the borders and grass-plot of a small suburban garden on the London Clay; and my interest in the forms of *N. poeticus* has been stimulated by the occasional introduction of wild bulbs collected during holidays in the Swiss and Italian Alps. These wild bulbs, however, have usually failed to maintain themselves in my heavy soil, with the exception of some gathered in the Saas Valley, in Switzerland, at an altitude of about 6000 ft., in July, 1909, when the flowering was past and the foliage withering. These first bloomed in 1911, and unexpectedly proved to be the Pheasant's Eye Narcissus (*N. recurvus*), matching exactly the common form of English gardens. The bulbs were taken from a hilly, alpine meadow—not far, it is true, from some summer chalets, but several miles distant from the nearest gardens. It is difficult to understand how they could have been introduced in this situation, and as no flowers were visible at the time of collecting, the extent of the habitat could not readily be seen. In 1913, I drew the attention of M. Beauverd, of the Boissier Herbarium near Geneva, to this occurrence of *N. recurvus*, and learned from him that it also grew in another locality in the Valais, at about the same altitude, where he had previously supposed it to be an introduction, but now, after enquiries, thinks it may be indigenous. But M. Beauverd has also suggested that the plant may have sprung from seeds of flowers left to fade in the bouquets placed by the peasants in the oratories in the neighbourhood of his locality. This solution seemed to me impossible, owing to the slow development of the fruit and seed of Narcissi, until I found in 1914, by leaving bunches of wild specimens from Glion and Savoy in water for some weeks, that not only fruits but even a few seeds were actually produced. M. Beauverd's suggestion may thus be a sound one if *N. recurvus* is a fertile plant. In the garden I get no seed from it, and the Rev. G. H. Engleheart informs me that it is usually a sparing and irregular seeder, both naturally and when cross-fertilised—which may be taken as evidence of hybrid origin. But the plant may develop differently in the Alps, whether wild there or not. Its strongly marked features do not point to hybridity and can hardly be considered intermediate between those of any of the older known *poeticus* forms; judging from the recurving leaves and arcuately reflexed perianth, it would appear to be one of the parents of such garden-hybrids as *N. Leedsii* "M. M. de Graaf." As a natural species, however, its remarkable uniformity, as seen in cultivation, is in strong contrast with the variability of some other wild forms.

The consideration of the status of *N. recurvus* involves a survey of the other forms of Poet's Narcissi, and as the literature of the subject is extensive, it is proposed to give an outline of the views

of the chief British and Continental authors who have paid attention to them.

At the outset it may be well to recall that *N. poeticus* is commonly represented in English gardens of the present day by two distinct plants. One of these, sold as *N. ornatus*, flowers naturally in April and is obtained much earlier by forcing. It has erect and narrow leaves, broadly obovate perianth-segments, imbricated above, and an almost flat or discoid corona. The other form, the Pheasant's Eye (*N. recurvus*), never flowers before May, and is distinguished by its recurved and much larger leaves, a symmetrically recurved perianth, with oval segments laterally inflexed, and a distinctly though shortly cup-shaped corona. These two plants have the facies of two distinct species.

In British botany four forms of single-flowered Poet's Narcissi were described and figured as early as 1597 in Gerard's *Herbal*, p. 108, viz.:—

1. *N. medio purpureus*. "Purple circled Daffodill." Stated to bear in the middle of the flower a small yellow coronet with a purple circle, and clearly figured as a large-flowered plant with ovate-oblong, imbricate and recurved perianth-segments.

2. *N. medio purpureus præcox*. "Timely purple ringed Daffodill." Stated to be a somewhat lesser plant, and figured with smaller stellate flowers.

3. *N. medio purpureus præcocior*. Distinguished by broad, flat leaves bending over at the tip, and figured with small stellate flowers; still earlier flowering.

4. *N. medio purpureus præcocissimus*. The smallest plant and first to flower; figured with stellate flowers.

According to Gerard, No. 1 flowers in April and the other three in February (Old Style Calendar).

Of these four plants one only appears as a species in Johnson's *Gerard*, p. 123 (1633), where it is described under Gerard's name of *N. medio purpureus*, with a fresh figure copied from Dodonæus's *Pemptades*. Gerard's four figures are discarded, and his remaining forms are only briefly alluded to.

Meanwhile, a second elaborate account of the Poet's Narcissi had been printed in Parkinson's *Paradisus*, pp. 74-76 (1629), where, besides double-flowering plants and *N. medio luteus vulgaris* (Primrose Peerless), the author describes five forms. These are:—

1. *N. mediocroceus serotinus*. A form with narrow leaves and stellate flowers, with small round saffron-edged cup.

2. *N. medio purpureus præcox* (p. 75, f. 3). Said to be very sweet scented, with a flat yellow cup, bordered with red or purple; and shown in the figure with waved, obovate, slightly imbricate perianth-segments.

3. *N. medio purpureus serotinus*. Described as having a larger bulb, broad leaves, large flowers with imbricate segments, and the edge of the corona sometimes paler red.

4. *N. medio purpureus maximus* (p. 75, f. 2). Stated to be still larger in all its parts, and figured with broadly oval,

imbricate perianth-segments, and a cupped corona with seemingly a fimbriate margin.

5. *N. medio purpureus stellaris* (p. 75, f. 4). Said to have narrower and greener leaves, and a less scented flower with a yellow, purple-edged corona. The figure shows narrow and distant perianth-segments.

Parkinson adds that the first of these flowers in May, the second early in March, and the remaining three in April, about a month later (Old Style). The bulbs of 2, 4, and 5 are supposed to have been brought from Constantinople, and 3 from Germany, France, and Italy. Gerard is not quoted by Parkinson.

These Narcissi are reduced to four species by Ray (Hist. ii. p. 1133 (1688)), who does not appear, however, to have been well acquainted with them. His first species is *N. medio purpureus* of J. Bauhin and Gerard, and for this he cites Parkinson's *N. medio purpureus serotinus* and C. Bauhin's *N. albus circulo purpureo* as synonyms. The description is taken from J. Bauhin's *Historia*, and the plant is said to grow in Narbonne and Italy. Parkinson's *N. medio purpureus præcox* and perhaps *N. m. p. maximus* are included under it.

Ray's remaining species are:—

2. *N. medio croceus serotinus* Park., with small leaves and stellate flowers.

3. *N. medio purpureus magno flore latiore* (*N. latifolius* vii. Clus.; *N. medio purpureus maximus* Park.?), a late flowering form said to grow in Styria, and probably taken from Clusius's *History*.

4. *N. niveus odoratus circulo rubello* C. Bauhin (*N. latifolius* vi. Clus.; *N. medio purpureus stellaris* Park.), a plant with narrow leaves, stellate flowers, and small corona, evidently copied from Clusius, and said to be abundant above Gaming, in Lower Austria.

It will be noticed that two of these species said by Parkinson to come from Constantinople are referred by Ray to Austrian habitats.

After the time of Ray the characters of these plants were lost sight of in Britain: one single-flowered form only is mentioned in Miller's *Gardener's Dictionary*, ed. 1 (1731), Gerard and Parkinson not even being quoted. In the eighth edition (1768), after Linnæus's description of *N. poeticus* in *Species Plantarum*, this form reappears under that name with *N. albus circulo purpureo* Bauhin as a synonym, and the only addition is *N. albus* Miller, a little-known plant possibly related to *N. triandrus*.

In 1793 a redivision of *N. poeticus* into three species was proposed by Curtis (*Botanical Magazine*, No. 193) one of which was figured as *N. angustifolius*. Curtis writes that under the name of *N. poeticus* three different species, to us appearing perfectly distinct, and regarded as such by the old botanists, have been confounded by the moderns, viz.:—

1. *Narcissus medio purpureus præcox*, Park. Par. (*N. albus circulo purpureo*, C. Bauhin).

2. *Narcissus medio purpureus serotinus*, Park. Par. (*N. albus magno odore flore circulo pallido*, C. Bauh.).

3. *Narcissus medio luteus vulgaris*, Park. Par. (*N. pallidus circulo luteo*, C. Bauh.).

"The two former of these have the greatest affinity . . . having a very short nectary edged with orange . . . since the name *poeticus* is equally suitable to both . . . we have thought best to get rid of it altogether, and to substitute for 1, *angustifolius*; for 2, *majalis*; for 3, *biflorus*."

"The *angustifolius* here figured is a native of the South of Europe and said by Magnol and Clusius to grow spontaneously in the meadows about Narbonne and Montpellier. It flowers in our gardens early in April, about a month before the *biflorus*, and full six weeks sooner than the *majalis*."

No diagnosis of *N. angustifolius* is furnished, but there is a full synonymy cited from pre-Linnean authors. The plate is a fairly good one, depicting a plant with narrow leaves, and a flower with narrowly obovate, spreading perianth-segments, and seemingly a small, cupped corona margined with deep red and with all the stamens exerted.

Of *N. majalis* Curtis gives no account; the name is based solely on the references to Parkinson and Bauhin. *N. biflorus* is the well-known plant—not a true Poet's Narcissus—which Curtis subsequently described and figured.

Soon after Curtis's publication, *N. angustifolius* and *N. majalis* were described under fresh names by Richard A. Salisbury (*Prodromus Stirp. Hort. Chapel Allerton*, p. 225 (1796)), as follows:—

"*N. RADIFLORUS*. Germine pyriformi; corollæ laciniis incurvulo-horizontalibus, obovatis, interioribus vix imbricatis; coronâ acetabuliformi, scarioso-crenulatâ; antheris omnibus extra tubum.

"*N. angustifolius* Curt. Bot. Mag. 193, cum ic.; *N. poeticus* Linn. Herb. et Sp. Pl. ed. 2, p. 414.

"*N. PATELLARIS*. Germine ovali; corollæ laciniis recurvulo-horizontalibus, obovatis, interioribus imbricatis; coronâ cotyliformi, scarioso-crenulatâ; antheris tribus intra tubum.

"*N. majalis* Curt. Bot. Mag. sub 193; *N. latifolius* vii. Clusius, Hist. Pl. lib. 2, p. 157.

"Germen in hoc prægrande."

Some years later (Trans. Hort. Soc. i. 365 (1812)) Salisbury subdivided *N. radiiflorus* into two species, but furnished no further diagnoses. The original name, with *N. angustifolius* Curt. and *N. medio purpureus stellaris* Park. as synonyms, is retained for a plant said to grow in Swiss subalpine meadows, and to flower in English gardens early in April. No reasons are offered for thus identifying a Swiss subalpine plant with the earliest flowering garden form known in Britain. The second species is named *N. poeticus* MSS. (*N. medio pupureus præcox* Park.), and is stated to be the true Narcissus of the poets and to flower immediately after *N. radiiflorus*. Salisbury mentions that he had wild roots of this plant sent by Broussonet from Montpellier, in S. Franco. The MS. of this paper is preserved in Herb. Mus. Brit., together

with an unpublished continuation which deals further with *N. patellaris*. Of this, *N. poeticus* Smith in E. B. 275, *N. majalis* Curt., *N. poeticus* L. Sp. Pl. auctoritate ejus speciminis, and *N. medio purpureus serotinus* Park. are cited by Salisbury as synonyms, and the plant is said to grow wild in the alps of Styria and Kartschia, flowering long after the others, never till June in its natural habitats. There are thus three species of Poet's Narcissi in Salisbury's later arrangement, and it will be observed that the Linnean specimen is now identified with *N. patellaris* instead of *N. radiiflorus*, as in the *Prodromus*.

The British Museum Herbarium contains, in addition to his manuscripts, a fine set of original drawings of various Narcissi executed by Salisbury at various periods and labelled in his handwriting. These include (1) *tripodalis* (= *poeticus* MS.), showing flowers with obovate outer segments and narrower, oblong, inner ones, all contiguous, and a flat corona with only three stamens exerted; (2) *radiiflorus* (not legibly labelled), having flowers with narrowly obovate, distant segments, and very small, cupular corona, with unequal stamens, all exerted, and the longer exceeding the corona; (3) *patellaris*, with oval, imbricated perianth-segments, large, cupular, fimbriate corona, and unequal stamens; and (4) *curvilobus* MS. (= *recurvus* Haworth), the common Pheasant's Eye of present-day gardens.

*N. poeticus* had meanwhile appeared as a naturalized British plant in *English Botany*, No. 275 (1795), where Smith cites *N. majalis* Curt. in synonymy and adds that the Linnean Herbarium confirms that his plant is the true species of Linnaeus. The brief description mentions that the leaves are more than half an inch broad and the nectary bordered with orange or rather crimson; and the plate was drawn from a specimen collected on May 26th, 1795, near Gravesend, which is preserved in Herb. Mus. Brit. and undoubtedly represents the *N. patellaris* of Salisbury. The corona of the flower, as drawn, is markedly cupular, with a crimson and peculiarly fringed margin, beneath which is a broad white zone extending almost half-way to the base of the cup. In May, 1914, I had the satisfaction of finding this plant still flourishing in an old garden in North Kent.

We now come to the work of Adrian Hardy Haworth, whose knowledge of cultivated Narcissi has rarely been equalled till quite recent years and whose descriptions are among the most complete and accurate that we possess. His first publication on *Narcissus* was a classified list printed in *Trans. Linn. Soc.* i. 244 (1800), in which *N. poeticus* and *N. angustifolius* are included as distinct species, the figure of *English Botany* being cited for the former and Curtis's plate for the latter. Haworth next described (*Syn. Pl. Succ. Appendix*, p. 331 (1812)) as a new species, under the name of *N. recurvus*, the Drooping-leaved Narcissus, the plant now known as the Pheasant's Eye, which seems to have previously been unnoticed. His diagnosis runs:—"N. foliis semuncialibus glaucis superne debiliter recurvo-dependentibus; petalis imbricatis lateribus inflexis; nectario patellari perplicato margine crenulato

coccineo; stigmatē longitudine staminum interiorum." This new plant is distinguished from *N. radiiflorus* Salisb., not only by its flowers but by its more glaucous, less keeled and much broader leaves. *N. poeticus*, then but recently separated by Salisbury in Hort. Trans. i. p. 365, is said to differ abundantly in foliage, corolla and earlier flowering, and in its far more flattened and different nectary. *N. patellaris* Salisb. is stated to be a smaller and rather earlier flowering plant than *N. recurvus* and is described, "N. foliis 4-linearibus glaucis subincurvantibus, petalis imbricatis lateribus deflexis; nectario patellari luteo minutissime plicatulo, margine subscarioso circulo albo gracili externe coccineo crenulato; stigmatē longitudine staminum interiorum." It will be observed that in breadth of foliage and colouring of corona this plant does not agree with that of *English Botany*. Haworth remarks that he can find no account of *N. recurvus* in authors and offers no suggestions respecting its origin.

The four species thus recognized by Haworth in 1812 were described together in his *Suppl. Pl. Succ. et Narciss. Revisio*, pp. 148-151 (1819), as follows:—

1. *N. POETICUS*. Foliis erectis angustis; corollæ laciniæ imbricantes tortæ; 3 exteriores oblique recurvantes late obovatae mucrone valido, 3 interiores, fere horizontales angustiores mucrone minori; corona matura horizontaliter expansa lutea rugosa margine scarioso crenulato subrecurvato carmosino croceove; antheræ 3 longiores tubum stylumque paululum superantes, 3 intra tubum humiliores.

*N. poeticus* Salisb. in Hort. Trans. i. p. 365, at absque ullo caractere; *N. Poetarum*; *N. poeticus* L. Sp. Pl. ed. 2, p. 414, cum sequentibus indefinitè; *N. medio purpureus præcox* Park. Par.

Hab. in Græciâ et in pratis prope Languedoc sec. Salisb. *l. c.* Floret in Aprilis.

2. *N. RADIIFLORUS*. Corollæ laciniis horizontalibus spathulato-obovatis non imbricatis; coronâ acetabuliformi ore scarioso crenulatissimo intense coccineo; antheris inferioribus tubo semi-inclusis.

*N. radiiflorus* Salisb. Prod. p. 225, et Hort. Trans. i. p. 365; *N. angustifolius* Curt. 193; *N. medio purpureus stellaris* Park. Par.

Hab. in pratis humidis subalpinis Helveticis sec. Salisb. *l. c.* Floret in Aprilis.

This is stated to have leaves scarcely narrower than in the preceding species, but a more slender scape.

3. *N. MAJALIS*, with the diagnosis already applied to *N. patellaris* under the original description of *N. recurvus* (*Synop. l. c.*).

*N. majalis* Curt. 193, at end; *N. patellaris* Salisb. Prod. p. 225; *N. poeticus* Eng. Bot. 275; *N. medio purpureus maximus* Park. Par. Floret Maio.

Variat *a.* Antheris tribus solum extra tubum exertis.

*β. exertus* (middle-flowering). Antheris omnibus constanter extra tubum exertis.

*N. medio purpureus serotinus* Park. Par.

This variety *exertus*, which Haworth saw but once in a nursery at Brompton in 1809, is further described as having

narrow leaves, subreflexed and nearly spathulate perianth-segments, and a spreading, yellow corona "circulo carmosino serrulatum erosulo."

γ. *plenus*. *N. albus multiplex* Park. Par.

4. *N. RECURVUS*, with a repetition of the original diagnosis; stated to flower in May with *N. majalis* and to have been cultivated before 1809.

Haworth's later views respecting these plants are embodied in his *Monograph of Narcissineæ*, pp. 14-15 (1831), where the number of *poeticus*-species is raised to twelve. In this work he departs from his own and Salisbury's earlier views by identifying the specimen in the Linnean Herbarium with the *N. majalis* of his *Revisio*, to which he transfers the name *N. poeticus*, renaming as *ornatus* the *N. poeticus* of his *Revisio* and of Salisbury. He also separates for the first time *majalis* and *patellaris*, and introduces several new forms.

With these modifications Haworth's species stand thus:—

\* *Præcociores*.

1. *POETARUM* (saffron-cupped). Folia glauca inferne carinata 7 lineas lata apice flaccide recurva. Corollæ laciniis amplissimis cuneato-obovatis planis valde imbricatis; corona subpatellari (mox subdiscoidea), primo omnino crocea ore plicatissime crispo saturatiore mox a basi seorsum intense lutea denique albicante periente.

*N. maximus medio purpureus* Merian. Florileg. t. 144, fig. infer. Fl. April. 1831, in hort. Londini.

2. *ORNATUS* (flat-crowned saffron-rim). With a diagnosis abridged from that of *N. poeticus* in the *Revisio*.

*N. poeticus* Salisb. in Hort. Trans. i. p. 365, sine ullo characterere. *N. medio purpureus præcox* Park. Par. *N. tripodalis* Salisb. MS. ex laciniis 3 sæpe semireflexis.

Floret initio Aprilis cum sequente.

3. *ANGUSTIFOLIUS* (narrow-leaved saffron-rim). With the diagnosis of *N. radiiflorus* from the *Revisio*.

*N. angustifolius* Bot. Mag. 193. *N. radiiflorus* Salisb. Prod. p. 225, et Hort. Trans. i. p. 365, excl. synonym. Parkinsoni. *Narciss. Revis.* p. 149.

Habitat Helvetiæ pratis humidis alpinis. Floret in Aprilis.

\*\* *Medio tempore florescentes*.

4. *SPATHULATUS* (lesser saffron-rim). Corollæ minoris laciniis obtusis seu spathulatis, corona lutea, margine plicato crispo croceo.

In hort. medio seu fine Aprilis. An varietas minor certe præcocior *N. patellaris* infra?

5. *ALBUS* (slightly saffron-rimmed). Corollæ mediocris laciniis exterioribus obovatis, interioribus subovatis valde imbricatis, corona patula lutea, margine plicato-crispo subcroceo, mox marcescente albido.

*N. albus* Mill. Dic. ed. 8, No. 5. Schult. Syst. v. 7, p. 985.

In hort. med. Aprilis 1831.

6. *DIANTHOS* (Hort.).

7. *TRIFLORUS* (Hort.).

8. *BIFLORUS* Curt. Bot. Mag. 197.

\*\*\* *Seriores florendi.*

9. *RECURVUS*. Diagnosed as before, with the addition "corollæ laciniis late ovatis retusis cum mucrone, coronæ margine sublato croceo interne parum albido sed minus quam in sequente."

Narciss. Revis. p. 151. Floret Maio, post medium.

β. *gracilior*. Foliis scapoque fere duplo angustioribus glaucescentibus minus planis, paucis solum recurvis sed erectis inde scapi sæpius altitudine; coronæ croceo margine sæpe tenuiore.

10. *POETICUS* Linn. (middle-sized May). With the diagnosis of *N. patellaris* in the Synop. Appendix (*N. majalis* of the *Revisio*).

*N. poeticus* L. Sp. Pl. et ejus herbarii; *N. majalis* Curt. Bot. Mag. 193 (end); Narciss. Revis. p. 150.

β. flor. plen. albo.

γ. omnibus antheris exsertis. *N. poeticus* Red. Lil. t. 160.

11. *PATELLARIS* (large, broad May). Foliis 8 lineas latis, glaucis, carinatis. Corollæ amplissimæ laciniis orbiculato-obovatis, imbricatissimis, niveis, oris deflexis, 3 exterioribus subsemireflexis, 3 interioribus horizontalibus, coronâ patellari luteâ superne albâ ore denticulato-crispo croceo.

*N. poeticus* E. B. 275. *N. medio purpureus maximus* Park. Par.

β. fl. pleno albo cum croceo.

12. *STELLARIS* (long-petalled saffron-rim). Folia lorata viridia sive aliquantum glaucescentia. Scapus gracilis. Corollæ elongatæ stellares, laciniis obovato-cuneatis mucronatis tortis oris undatis reflexis distinctis, coronâ perluteâ patellari, margine plicato crenulato croceo mox intus albido; antheris omnibus subexsertis.

*N. medio purpureus serotinus* Park. Par.

Hort. post medium Maii.

After the publication of his Monograph Haworth contributed the account of *N. recurvus* in Sweet's *British Flower Garden*, No. 188 (1833), where the plant is beautifully figured. He suggests here that it is indigenous in Southern Europe, and adds the interesting remark that it is the common Narcissus of London flower-markets in May, while the rather smaller but equally beautiful *N. ornatus* is the market flower in April.

The same volume contains another good plate (No. 132) under the name of *N. stellaris* Haw. The accompanying description is not written by Haworth, but probably by Sweet; and the plant is shown with flat and spreading perianth-segments, a small corona with a very narrow white zone narrowly edged with bright scarlet, and seemingly shortly ellipsoid, trigonous fruits.

*N. poeticus* L. is next dealt with in Dean Herbert's *Amaryllidaceæ*, p. 317 (1837), where ten forms are admitted as varieties, viz.:—

\* *Early flowering, April.*

(1) *grandiflorus* Sabine MS. (*Poetarum* Haworth), (2) *angustifolius* Bot. Mag. 193, (3) *ornatus* (flat-crowned saffron-rim) Haw., (4) *spathulatus* Haw., (5?) *albus* Haw.

\*\* *Late flowering, May.*

(6) *majalis* Eng. Bot. 275, (7) *recurvus*, (8) *patellaris*, (9) *stellaris* Haw., (10) *verbanensis* (tab. 37-2)—a dwarf form with very narrow leaves and reflexed perianth-segments tinged with yellow at the base, growing in a pasture by Lake Maggiore, near Baveno.

Of these varieties Herbert states that he does not know *ornatus*, *spathulatus*, or *albus*, and as the first of these was a common market flower in his day (*vide* Haworth's statement above), it may be assumed that, like Curtis, he confused it with *angustifolius*. From this it is fairly clear that his knowledge of Poet's Narcissi lacked the critical accuracy shown by Haworth. The figure of var. *verbanensis*, which is somewhat crude, portrays a slender plant with oblong or elliptic, acute and slightly reflexed perianth-segments, and a small, cupped corona with 3 stamens only exerted. An apparently authentic specimen preserved in Herb. Kew shows narrow and rigidly deflexed perianth-segments—a feature that may be suspected of resulting from the flower being already faded when pressed, and not a real character of the living plant. The dwarf Narcissi of the hills above Baveno certainly do not show such flowers, and their perianth-segments are generally broad and imbricated. Besides the variety *verbanensis*, *majalis*, *recurvus* and *patellaris* are figured by Herbert, but their features are ambiguous and it is not easy to see what differences are intended to be indicated.

After Herbert's time, interest in Daffodils languished in Britain, and no further systematic work on them appeared till Burbidge & Baker's *The Narcissus* was published in 1875. In this book all the forms are placed under one species, *N. poeticus* L., of which the type is said to flower late in April. Five varieties are added, viz. *radiiflorus* (*N. angustifolius* Curt.), *stellaris* (*N. stellaris* Haw.), *recurvus* (*N. recurvus* Haw.), *poetarum* (*N. poetarum* Haw.), figured as *aurantiacus*, and *verbanensis* Herbert; and it is noted that *N. spathulatus* Haw. scarcely differs from var. *radiiflorus*, and that *N. ornatus* Haw. is similar to var. *poetarum*.

Soon after the publication of *The Narcissus* the late Mr. Peter Barr began to revive interest in the cultivation of Daffodils, and for several years endeavoured to re-collect and identify the plants described by Haworth and other older botanists, some of which had been almost forgotten. The result of this work appeared in 1884 in a fresh classified list printed in the *Florist and Pomologist*, and practically reproduced the same year in *Ye Narcissus or Daffodyl Flowre*, in which F. W. Burbidge collaborated. This list has formed the basis of modern horticultural catalogues, and in it (p. 101) Barr remarks that *N. poeticus* divides naturally into early and late flowering varieties, and proceeds to follow Haworth, but with some important alterations. His arrangement of Poet's Narcissi stands thus:—

\* *Early flowering.*

*angustifolius* (*radiiflorus*), perianth narrow, cup margined orange-red; *ornatus* (flat-crowned saffron-rim), perianth broad and well

formed, cup margined with scarlet; *grandiflorus*, perianth very large, cup suffused with crimson; *poetarum* (saffron-cupped), perianth broad, cup suffused with orange-scarlet; *spathulatus* (lesser saffron-rim), cup small, edged with saffron (said to be out of cultivation); *tripodalis*, cup full size and margined with saffron.

\*\* *May flowering.*

*poeticus* of Linnæus (middle size), flower one inch in diameter, sturdy and finely formed; *recurvus* (drooping-leaved), perianth reflexed, with a slight doubling inwards longitudinally; *majalis* (Herb. Amaryll. pl. 40, fig. 2), perianth well formed and generally flat, cup edged with saffron, leaves erect; *stellaris*, with bladder-like spathe, cup margined with saffron; *patellaris* (large, broad-petalled)—*N. purpureus maximus* Park. tab. 75, fig. 2—perianth flat, finely formed, with large cup edged with saffron, leaves erect; *verbanus* (*verbanensis*), perianth slightly tinged with cream, cup edged with saffron; in gardens taller and larger-flowered than Herbert's figure.

On comparing this arrangement with that in Haworth's Monograph, it will be first observed that *ornatus* and *tripodalis* appear as distinct plants, whereas *tripodalis* is simply quoted by Haworth as a synonym for the other. Barr's *ornatus*, however, is not the plant of Haworth, but the common early-flowering form of the present day sold under that name, which Barr appears to have transferred to it, leaving Haworth's original *ornatus* as *tripodalis*. It is remarkable how completely this new plant has displaced Haworth's species, which in 1833 was the common English market Narcissus during the month of April. The change is no doubt due to the more beautiful flower of the newer plant, and perhaps also to a more vigorous habit. I understand from Mr. P. R. Barr and Rev. G. H. Engleheart that this modern *ornatus* was introduced into Britain, probably about 1870, through H. Vilmorin, of Paris, who obtained it first in the South of France.

Of saffron-cupped plants Barr gives two forms, viz.: *poetarum*, described by Haworth, and *grandiflorus*, following a name substituted by Herbert for *poetarum*, but now taken to represent a separate form not previously distinguished. Among the late flowering forms the most noteworthy points are that Barr distinguishes *stellaris* by its bladder-like spathe, a curious feature not mentioned by any of the older writers and not shown in Sweet's very accurate figure; and introduces *poeticus* of Linnæus as a plant distinct from *N. majalis* and characterized chiefly by its extremely small flowers.

Barr's arrangement of these plants was soon followed by an entirely different classification in Mr. Baker's *Amaryllideæ*, p. 11 (1888), where one species, *N. poeticus* L., is admitted, with a subspecies, *N. radiiflorus* Salisb. (*N. angustifolius* Curt.). The specific type is said to flower in May, and *N. patellaris* Haw. (E. B. 275), *N. spathulatus* Haw., *N. stellaris* Haw., *N. recurvus* Haw., *N. poetarum* Haw. and *N. tripodalis* Salisb. (*N. ornatus*

Haw.) are reduced to the rank of forms. The subspecies *radiiflorus* is distinguished by its narrower leaves, slender peduncles, and perianth-segments cuneately narrowed in the lower half; and of this *N. verbanensis* is considered a dwarf form. No allusion is made to differences in the form of the corona.

By this date the great modern revival of Daffodil growing in Britain had fairly begun, as is evident from the list of one hundred best Narcissi which Burbidge was able to recommend for cultivation in Journ. Roy. Hort. Soc. xi. p. 92 (1889), the Poet's forms included being *N. poeticus*, *N. ornatus*, *N. poetarum*, *N. grandiflorus*, *N. recurvus*, *N. patellaris*, *N. majalis*, *N. "Marvel"* and *N. stellaris*. It may be noticed that *N. angustifolius* and *N. tripodalis* do not figure in this list, but both of them were exhibited at the Daffodil Conference of April, 1890 (Journ. Roy. Hort. Soc. xii, p. 365). The form with inflated spathe which Barr referred to *stellaris* is presumably that intended by *N. "Marvel,"* under which name it has been subsequently sold.

In 1903 the Rev. E. S. Bourne issued his *Book of the Daffodil*, in which (p. 25) a list of *poeticus*-forms is given, closely following Barr's but recognizing a connection between *angustifolius* and *verbanensis*. This list attributes a probable Italian origin to the modern *ornatus*.

The horticultural feature of quite recent years among the Narcissi is the second disappearance from English gardens of many of the older forms which Barr re-collected, this time owing to the advent of a multitude of modern hybrids, some undoubtedly of superior beauty. Among the Poet's forms *N. recurvus* and Barr's *ornatus* have held their own and are perhaps grown in greater myriads than ever, but it has again become difficult to find *patellaris*, *majalis*, *stellaris*, *angustifolius*, and *ornatus* of Haworth, which seem well on the way to extinction in Great Britain. This renders it additionally desirable to put on record the history and characters of these plants, which so long adorned the gardens of our ancestors and are the parents of our modern hybrids.

Turning from British to Continental writers, we find *Narcissus poeticus mediocroceus purpureus* described as an early flowering plant of Southern France by Lobel in Stirp. Adv. Nov. p. 50 (1570), and three forms were recognized as early as 1583 in Dodonæus's Stirp. Hist. Pemptades, p. 223, under the name of *N. medio purpureus*, a figure of the plant being furnished.

In the Hist. Rar. Pl. of Clusius (v. ii, p. 156 (1601)) three of these plants are separately described. The first is but briefly diagnosed without a distinguishing name and is said to grow in meadows in Narbonne. The second, *N. latifolius* vi, referred to as abundant above Gaming, in Lower Austria, is stated to have narrow leaves, sweetly-scented, stellate flowers, with a small, red-edged corona (*parvum calicem*), unequal stamens and trigonous fruits. Of the third, *N. latifolius* vii, Clusius remarks: "*Latius reliquis folia . . . flos magnus, odoratus, sex albis foliis medium calicem pallidum cingentibus cujus fimbria ex pallido purpureo*

flori succedit satis crassum triangulare caput . . . radix superiore crassior." This is a late flowering plant, presumed to have been brought from Styria, and noticed by Clusius in gardens at Frankfort.

The three species of Clusius were maintained in the *Pinax* of Caspar Bauhin (p. 48 (1623)) under the names of *N. albus circulo purpureo*, *N. niveus odoratus circulo rubello*, and *N. albus magno odore flore circulo pallido* respectively. For the first of these *N. mediopurpureus præcox* Gerard is quoted as a synonym, and for the third *N. mediopurpureus* Ger. Icon. Bauhin (*l. c.* p. 49) further admits two other species, viz. *N. alb. circulo croceo vel luteo* (*N. medio-purpureus præcox* Ger. Icon.), which differs from the first-named chiefly in the colour of the corona-ring; and, lastly, *N. albus circulo croceo minor*.

In Johann Bauhin's *Hist. Plant.* ii, p. 600, published as a posthumous work in 1651 but written before his brother's *Pinax*, three species of Poet's *Narcissi* appear. The first, *N. medio purpureus*, is figured and described at some length, the salient features being "folia latitudine semunciali . . . florem medium obtinet corona fimbriata orâ rubenti, infra quam circulus exalbidus, aliusque huic subjectus luteus; sena in fistuloso canali stamina, tria modice elata, reliqua tantillum apice proferentia." The plant intended, which the figure shows to be similar to that described by Gerard under the same name, is said to flower in gardens at Bâle during May, and to grow also in gardens in Belgium, Germany and England. It is also referred to as a native plant at Narbonne. J. Bauhin's second species is *N. medio-purpureus magno flore folio latiore* (Clusius *Hist.* vii), which seems to be taken from Clusius without personal knowledge of the plant; and his third is *N. mediopurpureus minor*, which is the *N. latifolius* vi. of Clusius. This is clearly figured with stellate flowers and narrow perianth-segments. The early-flowering flat-crowned plant is not mentioned in the *Historia*, and was probably confused with *N. medio-purpureus*, as was afterwards done by Ray.

After Bauhin's time interest in these plants seems to have abated, although their differing forms were still recognized by Haller and Magnolius; and it is fairly certain that during the eighteenth century most types of *Narcissi* became unfashionable, both in botany and horticulture. The varying forms of Poet's *Narcissi* known to the older botanists were accordingly represented in Linnæus's *Spec. Plant.* ed. 1, p. 289 (1753) by one species, *Narcissus poeticus*, and this alone continued to be recognized on the Continent till long after the days of Salisbury and Haworth.

*N. poeticus* was described by Linnæus thus:—"N. spatha uniflora, nectarii limbo rotato brevissimo scarioso crenulato, Hort. Ups. 74. N. foliis ensiformibus floris nectario rotato brevissimo, Hort. Cliff. 134. Roy. Lugdb. 35. Sauv. Mons. 17. N. albus circulo purpureo Bauh. Pin. 48. N. medio purpureus Dod. Pempt. 223.

"β. *N. medio purpureus multiplex* Bauh. Pin. 54.

"Habitat in G. Narbonensi, Italiâ."

It will be seen, alike from the rotate corona, the reference to Bauhin, and the habitats cited, that Linnæus had primarily in view an early-flowering, flat-crowned form.

The sheet of *N. poeticus* in the Linnean Herbarium is a garden specimen showing two flowers and one leaf in fair preservation. As a type it is not very adequate, but it can still be seen that the leaf is 8 mm. broad, and the flowers of moderate size, with a thick spathe, deep green perianth-tube, oblong, mucronate segments not much narrowed below, and the corona apparently cup-shaped with the stamens hidden owing to lateral compression when drying. Though its precise characters may be indeterminable, the specimen certainly recalls the *N. patellaris* of Salisbury and the plant figured in *English Botany*.

One of the finest existing plates of *N. poeticus* was produced in 1807 in Redouté's *Liliaceæ*, iii, No. 160. The accompanying text refers to the plant as a native of meadows of the temperate part of Europe, flowering in May, and two varieties are mentioned, a. *latifolius*, having leaves 15–18 mm. broad, and b. *angustifolius* (*N. angustifolius* Curtis), with leaves only 6–8 mm. broad. The latter variety is that depicted in the plate, where the flower is shown with spreading, obovate perianth-segments, imbricate above and narrowed in the lower half much as in Barr's *ornatus*, and with a nearly flat, yellow corona, narrowly edged with red without any white zone, and showing six exerted and subequal stamens. Redouté's description suggests no floral distinctions between his two varieties.

In 1843 Koch (*Synopsis Fl. Germ.* ed. 2, p. 811) separated from *N. poeticus* as a distinct species the slender, narrow-leaved form with stellate flowers and cupular corona which occurs in various mountain and subalpine districts of Central Europe and had already been distinguished by præ-Linnean authors. This he described as *N. radiiflorus* Salisb. *Prod.* 225, and differentiated the two plants thus:—

"*N. poeticus* L. . . ovario sub anthesi compresso-ancipiti, coronâ in patellam planiusculam expansâ . . . staminibus tribus stylum paulum superantibus, tribus brevioribus faucibus inclusis, perigonii laciniis ovatis. In pratis etc. reg. calid.

"*N. radiiflorus* Salisb. . . ovario sub anthesi tereti, coronâ cupulari erectâ . . . staminibus omnibus cum antherâ tubo longioribus. In montosis et subalpinis. Bulbus magis oblongus quam in præcedente, planta minor, folia et caulis angustiora, ovarium gracilius oblongum . . . laciniæ perigonii angustiores, magis dissitæ, albæ quidem . . . nec nivæ, corona brevis, a basi erecta, non explanata. . . ."

This account of *N. radiiflorus* recalls Clusius's description of *N. latifolius* vi from Lower Austria, except in the form of the fruit.

Koch's two species are illustrated in Reichenbach's *Icones*, v. 9, pl. 364 (1847). The figure of *N. poeticus* (No. 808) is indifferent, appearing to represent a dwarf plant with a dirty whitish perianth and small cupped corona, which is perhaps not the

author's intention. The other figure, *N. radiiflorus* (No. 809), is more satisfactory, and fairly depicts a form of the plant described by Koch with narrow perianth-segments.

The next important European Flora to appear, Grenier & Godron's *Flore de France*, admits (v. iii, p. 256 (1855)) one species only, *N. poeticus* L., defining the corona as "très courte, étalée en coupe." Parlatore's *Fl. Italiana*, v. iii, p. 116 (1858), adopts Koch's two species, but amends the diagnosis of *N. poeticus* L. thus: "... perigonii laciniis subreflexis, interioribus ovato-oblongis . . . exterioribus latioribus late elliptico-obovatis . . . staminibus superioribus coronâ plus quam duplo brevioribus." Willkomm & Lange (*Fl. Hispanica*, v. i, p. 156 (1861)) describe *N. poeticus* L. as inhabiting the mountain region of Central and Eastern Spain, but do not refer to *N. radiiflorus*.

In 1866 Schur in *Plant. Transsilv.*, p. 657, described as a new species *N. seriorfloreus*, a late-flowering Transylvanian plant closely related to *N. radiiflorus*, having dirty-white, obtuse, mucronulate perianth-segments and a very small, subdiscoid corona. Three years later, in *Österr. Bot. Zeitsch.*, xix, p. 205, the same author described another similar Austrian plant as *N. stelliflorus*. This is characterized by stellate flowers with obtuse, mucronate segments, a slightly cupped corona about 8 mm. broad and 2 mm. deep, and a compressed and obovate ovary. Schur expresses doubt as to its distinctness from his *N. seriorfloreus*.

In Boissier's *Flora Orientalis*, v, p. 150 (1881), *N. radiiflorus* Salisb: Prodr. is included as a native of the mountains of Northern Greece and of Mt. Oeta, the description agreeing with that of Koch and Parlatore, with Reichenbach's figure (No. 809) cited in illustration. Halacsy (*Conspectus Fl. Græc.* iii, p. 202 (1904)) gives *N. poeticus* L. as a Greek plant in addition to *N. radiiflorus*. Like Boissier, he generally follows the descriptions of Koch and Parlatore, and he cites Redouté's figure for *N. poeticus*, quoting as its habitats Chaliki, in Thessaly; Neuropolis in Mt. Pindus; and Bœotia.

The most recent arrangements of these plants are those in Ascherson & Graebner's *Synopsis Flora Mitteleuropa* (1906) and Rouy's *Flore de France* (1912).

Ascherson & Graebner (*l. c.*, v. iii, p. 396) recognize one species only, *N. poeticus* L., with a subspecies, *N. angustifolius* Curtis (*N. radiiflorus* Salisb. Prodr.; Koch, *Synop.* ed. 2, p. 811). The plant regarded as the specific type seems to be the *N. poeticus* of Koch and Parlatore, but *N. majalis* Curt. is the only synonym quoted. The perianth-segments are described as obovate and imbricate. The account of the subspecies *angustifolius* (*l. c.*, p. 397) coincides sufficiently with that of Koch and Parlatore, but, as in the specific type, the form of the corona is undefined, and it is left to be inferred that this organ is flat in the type and not so in the subspecies.

At the end of the diagnosis of the type the authors remark: "Ziemlich veränderlich in Gärten: von den zahlreichen Formen sind bemerkenswerth;—"

"B. *spathulatus* (*N. spathulatus* Haw.) [flowers smaller, earlier than in the type]; C. *poetarum* (*N. poetarum* Haw.) [flowers larger with reddish corona]; D. *tripedalis* (*sic*) (*N. ornatus* Haw.) [with narrower, reflexed perianth-segments]; E. *patellaris* (*N. patellaris* Salisb.) [robust, with imbricated perianth-segments; a frequent garden plant; late-flowering]; F. *stellaris* (*N. stellaris* Haw.) [late-flowering, to which, according to Baker, belongs *N. recurvus* Haw., with drooping leaves]."

This list of forms has evidently been taken bodily from Mr. Baker's *Amaryllidaceæ*, with results not entirely fortunate. It may well be doubted whether *N. spathulatus* flowers earlier than the authors' type, which does not seem to be the plant regarded in this light by Mr. Baker; and the statement that *N. patellaris*, now nearly extinct in British gardens, is a frequent garden plant seems open to question, although it may still be correct for Germany, where it was observed by Clusius. But it appears possible that the collaborators have confused it with *N. recurvus*, which they have identified with *N. stellaris* through a curious misreading of Mr. Baker's text.

Under the subspecies *angustifolius* Ascherson & Graebner give three further forms, viz.:—B. *verbanensis*, the plant described by Herbert; C. *fallax* (*N. radiiflorus*, f. *fallax* Beck), with broader, imbricated perianth-segments, found in Herzegovina and Küstenland; and D. *stelliflorus* (*N. stelliflorus* Schur), stated to have smaller flowers and shorter, obovate ovary.

Rouy's *Flore de France*, v. xiii, p. 53 (1912), follows the arrangement of Ascherson & Graebner, modified by the reduction of *N. angustifolius* Curt., for which the name *N. radiiflorus* Salisb. Prodr. is used, from a subspecies to a "race." *N. majalis* Curt. is cited as a synonym of the type, but of Salisbury's *N. patellaris* and all of Haworth's names no mention is made, and no varieties are included except what seems to be the colour-form *sulphureus* previously noticed by Grenier & Godron. *N. biflorus* Curtis follows *N. radiiflorus* as a subspecies of *N. poeticus*. In view of the abundance and variety of Poet's Narcissi known to grow in France either as wild or naturalized plants, and the repeated allusions to the occurrence of different forms there by pre-Linnean and other early authors, this cursory treatment is most unsatisfactory.

The botanical history of the Poet's Narcissi has now been generally traced. It has been seen that several forms were distinguished by early authors, chiefly in the first half of the seventeenth century, both in Britain and on the Continent. They were known to the British writers as inhabitants of the garden, but Clusius and the two Bauhins treated them also as wild plants and afford some information respecting their origin. The work of these early botanists, however, seems to have been permanently overlooked by later Continental writers, who, since the time of Linnæus, have recognized not more than two species, both widely distributed natives of Southern Europe, and have almost entirely neglected the other forms, which have been regarded solely as

plants of the garden. In Britain, neglect of these *Narcissi* has not been so continuous, for a recrudescence of interest in them took place early in the nineteenth century, when they were dealt with first by Salisbury and afterwards more elaborately by Haworth, while again in recent years they have commanded attention, though mainly from a horticultural standpoint. Haworth's work is especially valuable from his detailed knowledge of a wide range of the living plants, but it must be observed that, although familiar with Parkinson, he does not attempt to identify his species with those of Gerard, Clusius and Bauhin, and apparently knew nothing of the wild forms in their native habitats.

It is evident from the recognition of several distinct forms of these *Narcissi* by these early writers that, when living, they are plants of different facies. As has been shown, Clusius, who mentions three, himself saw and distinguished two wild forms, one in Narbonne and the other in Austria, and of the third, which he noticed in gardens at Frankfort, he endeavoured to ascertain the origin. Caspar Bauhin seems to have satisfactorily identified these three plants of Clusius, besides distinguishing two additional forms; and Magnolius (*Bot. Monsp.* p. 181 (1676)) mentions two of Bauhin's forms, one flowering early and the other late, as natives of Montpellier in the South of France.

It is not a little remarkable that in contrast to this more critical treatment by præ-Linnean authors, modern botanists have admitted one or two species only in this group. This is apparently explained to a large extent by the reliance of many recent writers on herbarium material, in which, as pointed out at the opening of this paper, the floral characters are largely obliterated or even rendered misleading, while the fruit, if not absent, is invariably indeterminable. And no serious effort seems to have been made since the time of Haworth to define accurately the garden forms and correlate them with those of known wild origin.

Since discovering *Narcissus recurvus* in the Alps I have endeavoured to obtain, for the purpose of describing them from life, fresh examples of the greatest possible number of forms of Poet's *Narcissi*, both wild and cultivated, and I think I have succeeded in securing all the older British garden plants, excepting *spathulatus*, *albus*, *dianthos*, *triflorus*, *recurvus* var. *gracilior* and *stellaris* of Haworth, *verbanensis* Herbert and Barr's "Marvel." Mr. P. R. Barr and the Rev. G. H. Engleheart have kindly assisted me in obtaining some of my desiderata. Of the forms not now readily obtainable in England, *N. radiiflorus* and *N. majalis* are still grown for sale at Lissadell, in Ireland, and *N. tripodalis* Salisb. by Messrs. W. B. Hartland, of Cork. In the case of *verbanensis*, I have been obliged to rely on my recollection of the plant as I saw it in abundance on the hills round Lake Maggiore in 1908, to supplement my herbarium specimens.

Before attempting to estimate the relationship between the wild and cultivated forms in this group, it is desirable to draw attention to the excessive variability sometimes seen with the former as contrasted with the comparative uniformity of many of

the garden forms; and it has been suggested with reason that this uniformity does not occur among wild Narcissi and is due to descent by bulb division from selections of the wild plants. Within certain limits this is no doubt right, for collectors would naturally choose the most shapely flowers—commonly those with broad perianths—when these show appreciable differences. But the variations in the wild Narcissi of any given habitat will probably be found, when analysed, to be less essential than is sometimes supposed. In the neighbourhood of Chateau d'Oex, in Switzerland, the Narcissus grows in myriads, and on first visiting the slopes whitened with its flowers, one's impression is that no two are precisely alike. Similar conditions prevail at Les Avants, as is well shown even in some of the local picture postcards. But, on examining these plants, it will be seen that the differences are mainly those of the perianth, the form and curvature of which are remarkably divergent, giving quite different aspects to different flowers. There are also considerable gradations in the length of the style, and the development of the fruits is by no means uniform. In all these states, however, the foliage, corona and stamens remain well-nigh unaltered, the variations of the corona being confined to the breadth and depth of colour of the reddish margin. Indeed, all these plants evidently belong to one species; and the conditions being such in two well-known stations for the Swiss Narcissus, it may be doubted whether the variations in the forms prevalent in other countries are not always mainly confined to the perianth, and whether gradations of the corona from the discoid to the cupular form or of the relative positions of the long and short stamens are ever met with unless through hybridity of distinct forms growing in juxtaposition. Moreover, truly wild Poet's Narcissi do not always vary greatly in their native habitats, as may be seen on Mount Mottarone, above Lake Maggiore, where the dwarf form *verbanensis* grows in abundance and is relatively uniform. It can thus be inferred that while forms selected from wild habitats may show comparatively uniform perianths which differ considerably from the average of the wild condition of the same species, and while such difference is perpetuated by root-division, it is highly improbable that divergencies in the same degree would ever be found in the foliage, corona or stamens.

This leads to a consideration of what organs must be regarded as the most important for affording specific characters among these Narcissi: and the examination of extensive and varied material has resulted in the following conclusions. The bulb in different forms shows a certain degree of variation in shape, ranging from ovoid-elongate to subrotund, and there are also differences in the colouring and texture of the scales. It is commonly larger in cultivated than in wild plants, as might be expected, but only in a few cases do its features seem clearly characteristic. In the foliage the differences are small, but some of them are seemingly constant. Narrow leaves are generally channelled and keeled, and broad ones distinctly flatter. In one or two forms the leaf tips are reflexed and drooping. The scape

and pedicel within the spathe are much slenderer in some forms than in others, and vary also in compression and fineness of striation; the spathe shows gradations of length and thickness, and in one form it is inflated. The perianth differs very considerably in different forms, both in shape and texture; in some of these its shape and curvature are most inconstant, while in others, notably in *N. recurvus*, its uniformity is equally remarkable. In weak and starved plants the segments are generally narrower, less regular and more twisted than in more luxuriant individuals. The coronas of the various forms are unequal in size, and in shape range from flat and discoid, or even slightly convex, to distinctly cupular or cup-shaped; in rugosity and degree of plication of the margin there is also much variation, as well as in colouring, a peculiar white zone appearing in some forms within the red or crimson edge. The characters of the corona seem to be practically permanent in each form. The stamens, which are never equal in the generic section *Eu-Narcissus*, seem, in all of the plants that I have examined, except quite recent hybrids, to exhibit regularly one of two forms, which are termed in this paper "unequal" and "subequal." In the first of these, the anthers of the three shorter stamens are included in the perianth-tube and their tips only slightly exceed the anther-bases of the longer exerted stamens; in the second, all of the anthers are more or less exerted, and those of the three shorter stamens do not greatly fall short of the others. No good distinguishing features have been observed in the stigmas or in the style, which seems to vary in length in most forms and especially in such wild plants as I have examined. The fruit, which is not readily produced in the garden, and was ignored by Haworth in his descriptions, may be developed in almost every cultivated form by keeping fertilized flowers in water after the fading of the perianth. The shape of the capsules thus obtained appears to be constant in each form, allowing for the unequal development of the seeds that at times occurs, but it varies very greatly in the different forms. Thus, in *N. radiiflorus* the fruits are terete and narrowly oblong or pyriform, while in other plants they are trigonous or trilobate, and in one form nearly globose. My experience with wild plants is not sufficient to confirm that a characteristic form of fruit equally distinguishes every wild form, but such would appear to be probable. I have not succeeded in detecting any appreciable differences in the seeds.

It results from these conclusions that among Poet's *Narcissi* the bulb, foliage, scape, perianth, corona, stamens and fruit may all exhibit characters useful for the determination of species. Modern authors have very generally laid the greatest stress on the shape of the perianth-segments, which is usually visible in herbaria, but as this is undoubtedly very variable in certain wild forms, it seems doubtful whether it is of equal importance with the shape of the corona, the arrangement of the stamens and the form of the fruit—characters which, though obscured in dried specimens, appear to be constant or susceptible to little variation. In this connection it may be remembered that the form of the

corona is the basis of Mr. Baker's primary division of the genus. Major A. H. Wolley-Dod informs me that on the Italian Riviera the perianth of the wild *Narcissus Tazetta* also is remarkably variable.

The features of the corona in some of the species of the older botanists have been obscured by the curious terms that have been used in its description. The word "patellaris," which was first employed by Salisbury as a specific epithet for the broad-leaved, May-flowering form well known in his day has been especially misunderstood by recent writers, who have assumed that it indicates a flat or plate-like corona. That this is not so may be seen from Salisbury's original diagnosis, in which the corona is termed "cotyliform"—like a cup or liquid-measure; and this is further confirmed by Salisbury's own drawings of *N. patellaris*, where this organ is clearly depicted as cupular in form. The term "patellaris" was likewise accepted in the same sense by Haworth, who applied it to the forms with cup-like coronas, such as *recurvus*, *patellaris* and *stellaris*, while for the flat crowns the term "subdiscoidea" or "complanatim expansa" is commonly used. A more abstruse point of this kind is the exact meaning of "acetabuliform," as applied to the corona of *N. radiiflorus* by Salisbury in contrast to the cotyliform corona of *N. patellaris*; and copied by Haworth. In these two plants the corona is almost equally cup-shaped, but in *N. radiiflorus* it is very much smaller than in the other and is so represented in Salisbury's drawings. An "acetabulum" was a small cup or measure of  $\frac{1}{8}$  pint, while a "κοτίλη" was a cup or measure of  $\frac{1}{2}$  pint, and it appears probable, though at first sight it looks far-fetched, that in using the terms "acetabuliform" and "cotyliform," Salisbury simply intended to convey that *N. radiiflorus* had a small, cupped corona only one quarter as large, in cubical content, as the cup of *N. patellaris*—which is indeed about the true proportion. The difference in the size of the corona in these two classes of plants is mentioned by Clusius, who speaks of the "parvum calicem" of the one and the "medium calicem" of the other.

It now remains to estimate the affinities of these polymorphic plants and to place them in a natural arrangement. The fact that they have sometimes been regarded as all belonging to a single species, while other authors have admitted several species among them, culminating in the twelve of Haworth's Monograph, is sufficient evidence that they must be treated as critical forms. Whether, when divided as by Salisbury and Haworth, the several species possess the average value of species among kindred monocotyledonous genera, I hesitate to say, but to unite them all as one, viewing the different forms as subspecies, races, varieties and garden-forms, seems scarcely possible in view of the standard of species adopted in the recent Monographs of the Crocuses and Irises, genera with which Narcissi may reasonably be compared. It is clear that the wild forms in their different habitats have not yet received due attention from botanists having a good critical knowledge of the whole group, and sufficient accurate information

has not yet been accumulated to enable many of them to be separated as species or united as varieties under others with any great degree of confidence. I therefore think it will serve the most useful purpose in this paper to maintain, as a tentative measure, such species already described as seem to be plants clearly separable from each other in apparently important characters, and to give specific rank also to any other forms that may seem equally distinct. This involves the recognition of several of the species of Haworth.

The most definite means of segregating this group of Narcissi, and the one most generally adopted in modern botany is that proposed by Koch (Syn. Fl. Germ. *l. c.*), in which two species are admitted. The first, *N. poeticus* L., is diagnosed as a plant with ovate perianth-segments, a flat corona, three stamens included in the perianth-tube and compressed fruits, while *N. radiiflorus* is specifically distinguished as a slenderer plant, with narrower leaves and perianth-segments, a cupular corona, all the stamens exceeding the perianth-tube and narrower, terete fruits. The two plants have usually been kept apart by subsequent authors, either as species or subspecies, but their distinguishing characters, which Koch accurately pointed out, have been largely lost sight of, and the features of the perianth, which show the most obvious differences in the herbarium, have been generally emphasized as of the chief importance.

Of the two plants described by Koch it will be seen that his *N. poeticus* agrees in its flat corona with the *N. medio-purpureus præcox* of Parkinson and Gerard, which is the *N. albus circulo purpureo* of Bauhin's *Pinax*, cited for *N. poeticus* by Linnæus, who likewise emphasises the flat or rotate corona. It is also identical with *N. poeticus* Salisb. in Hort. Trans. i. 365, which Haworth, who was Salisbury's contemporary, states is synonymous with *N. tripodalis* Salisb. MSS. (Mon. Narciss, *l. c.*). This identity is confirmed by figures 1 and 2 of the plate of this paper, which have been reproduced from Salisbury's own drawings of his *tripodalis*; and the plant itself, which the older British authors described from the garden and Salisbury received from Montpellier, may still be obtained in Ireland for comparison.

In the case of *N. radiiflorus* Koch's description and Salisbury's original brief diagnosis in his *Prodromus* offer no essential contradictions. Its floral characters are well seen in the plate of this paper, figures 3-5, the originals of which were drawn by Salisbury, and the exact form of the flower and of the narrow fruit may be further confirmed from fresh Irish-grown plants, as already mentioned. Koch cites several Austrian stations for *N. radiiflorus*, which, although familiar to English gardeners of the eighteenth century, was not certainly cultivated here at a much earlier date. It may possibly be the *N. medio-purpureus præcocissimus* of Gerard, but of plants with stellate flowers Parkinson seems to have known but one form, *N. medio-purpureus stellaris*, which is more probably *N. stellaris* Haworth—a plant for subsequent consideration.

It is to be regretted that when Koch drew up his account of *N. poeticus* and *N. radiiflorus*, he did not also deal with the late-flowering plant distinguished by Curtis as *N. majalis* and by Salisbury as *N. patellaris*. This may have resulted from his acquaintance with it as a garden-form only, and he perhaps did not consider it a possible native of Central Europe. But the treatment has proved unfortunate, for Koch's method appears to have been generally followed by succeeding authors in treating of the Poet's Narcissi of other European countries and the distinctness of *N. majalis* has been consequently overlooked. Curtis and Salisbury certainly thought it the most striking plant of the group, for their earliest work was to separate it from the two above-mentioned early-flowering forms which at first they failed to distinguish. It will be seen, too, by referring to the synonyms which they cite, that the præ-Linnean writers also were well acquainted with this plant, and the likeness of the *N. medio-purpureus* figured in the works of Gerard and J. Bauhin to the drawings of Salisbury's *N. patellaris* accompanying this paper (figs. 6 and 7) is at once apparent. The characteristic colouring of the cupped corona of this Narcissus is mentioned by Clusius (*N. latifolius vii*), described in some detail by J. Bauhin under *N. medio-purpureus* (*Historia, l. c.*), and is reflected in Caspar Bauhin's name *N. albus magno odore flore circulo pallido*. In Britain it seems to have formerly been one of the best known of garden Narcissi, for it is the *N. medio-purpureus* of Gerard, and its extensive cultivation is shown by its naturalisation in certain localities, which led to its introduction into *English Botany* as *N. poeticus*. Although the arrangement of the stamens in this plant coincides with that of the flat-crowned *N. poeticus*, the recurved perianth with very different corona (well seen in Salisbury's drawings), and the much more triquetrous fruit lend it the aspect of a distinct species.

The nomenclature of the three plants so far distinguished is not without difficulty, for it will have been noticed that while Linnæus's description of *N. poeticus* in *Species Plantarum* clearly points to a flat-crowned plant ("nectarii limbo rotato") and his name has been thus interpreted by Koch and other modern Continental botanists, the specimen in his herbarium resembles the *English Botany* form, as was observed by Sir James Smith, Salisbury and Haworth. By the rules of nomenclature the Linnean specimen becomes the specific type if the diagnosis or citations of *Spec. Plant.* can be understood to cover that particular form; and the Linnean name consequently remains with that type if the aggregate species is divided. In this case, therefore, Linnæus's specimen must be held the true *N. poeticus* if it is included in his account in *Spec. Plant.* The diagnosal definition of the corona as rotate, which is repeated in the citation from the *Hortus Cliffortianus*, shows clearly enough that a flat-crowned plant was primarily intended by Linnæus, and this view is supported by the habitats mentioned, which were early known to produce that form. The synonyms of the citation from *Hort.*

Cliff., too, as also those in Royen's Fl. Leydensis and Sauvages's Meth. Fl. Monspeliensis, likewise refer to an early-blooming flat-crowned form where they can be identified, with two possible exceptions, viz.:—*N. medio-purpureus* of J. Bauhin's *Historia*, the description and figure of which evidently represent a form or ally of *N. majalis*, and *N. albus circulo croceo vel luteo* of C. Bauhin's *Pinax*. In the *Historia*, however, it seems possible from the habitats mentioned that the early flat-crowned plant, which is not separately distinguished, was inadvertently included with *N. medio-purpureus*; and *N. albus circulo croceo vel luteo* appears to be a flat-crowned plant differing from *N. albus circulo purpureo* in the colour of the corona-margin and is perhaps the common Swiss Narcissus, although this identification has not been established. Of Linnæus's remaining citations, that from Dodonæus cannot be accurately interpreted, but the *N. albus circulo purpureo* of C. Bauhin's *Pinax* is conclusively shown by its synonyms to be the early-flowering, flat-crowned plant of Narbonne, and it is important to note that this was selected by Linnæus in preference to the *N. albus magno odore flore circulo pallido* of the same work, the late-flowering *N. majalis* or *patellaris*. In view of this evident intention of Linnæus, therefore, the somewhat ambiguous indirect citation from J. Bauhin can scarcely be held a sound basis for including this latter plant under *N. poeticus* Linn. in *Spec. Plant.*, and it seems preferable to follow the authors who restricted this name to the flat-crowned forms rather than to regard it as covering also those with cupped coronas and to apply it strictly, as Haworth did finally in his *Monograph*, to the plant represented in Linnæus's *Herbarium*.

The second species described by Koch as *N. radiiflorus* has been indifferently named in modern works *N. angustifolius* Curt. and *N. radiiflorus* Salisb. The earlier author, Curtis, figures the plant intended with sufficient clearness but furnishes no description, and not only do his citations from Parkinson and Bauhin refer to the flat-crowned *N. poeticus* L., but all of his numerous synonyms likewise apply to that plant, as does also the Narbonne locality which he quotes as a habitat. It is obvious, therefore, that Curtis did not distinguish the true *N. poeticus* from the slender plant with small, cupped corona and exserted stamens which he figured, as his text referred wholly to the former while his plate portrays the latter; and it may be assumed that his intention was merely to separate these early-flowering and in some degree similar plants from the late-flowering and superficially more distinct *N. majalis*. In consequence, Curtis's *N. angustifolius* can only be regarded as a "nomen confusum." The next name, *N. radiiflorus*, is accompanied by a brief but explicit diagnosis in Salisbury's *Prodromus* which clearly describes the plant figured by Curtis, although the citation *in toto* of that author's *N. angustifolius* as a synonym is not entirely accurate. At that date Salisbury, like Curtis, did not fully appreciate the difference between this plant and *N. poeticus*, but as he amended this in *Hort. Trans.* of 1812, and no fresh name was published in

the interval, the validity of the name *N. radiiflorus* can scarcely be questioned.

The name to be retained for the late-flowering plant restored to specific rank by Curtis and Salisbury involves a careful scrutiny of those authors' synonyms. Curtis's *N. majalis* is founded, without figure or description, on *N. medio-purpureus serotinus* Park. and *N. albus magno odore flore circulo pallido* C. Bauhin; Salisbury's *N. patellaris* first on *N. majalis* Curt. and *N. latifolius vii* Clusius, to which *N. m. p. serotinus* Park., *N. poeticus* Sm. in Eng. Bot. and the specimen of the Linnean Herbarium were afterwards added. But it is questionable whether all of these citations refer to precisely the same plant. It will be recalled that Parkinson distinguishes two somewhat similar late-flowering forms under the names of *serotinus* and *maximus*, whereof the latter only is figured; and that what may well be the same two plants are described by J. Bauhin (*Historia*, l. c.) as *N. medio-purpureus* (with a figure) and *N. medio-purpureus magno flore; folio latiore* (Clusius *Hist.* vii). This larger plant is also the *N. . . . flore circulo pallido* of C. Bauhin, and thus the lesser and greater forms were included both under *N. majalis* and *N. patellaris*. Curtis's name, being the earlier, must therefore be used if the forms are united under one species. From Salisbury's citation from Clusius in the *Prodromus*, it would appear that when originally describing his *N. patellaris* he had the larger plant in view, and from this form his drawings seem to have been taken, but the diagnosis of *N. patellaris* furnished by Haworth for comparison with *N. recurvus* (*Synop. Pl. Succ.* l. c.) matches closely that of J. Bauhin's smaller plant, *N. medio-purpureus*, and in his subsequent Monograph Haworth distinguished as separate species the two forms recognised by Parkinson and J. Bauhin, identifying the lesser with the *N. poeticus* of the Linnean Herbarium and transferring Salisbury's name *patellaris* to the larger plant. This determination of the Linnean specimen is probably accurate, and to the same form, according to exsiccata in Herb. Kew, must apparently be referred the late-flowering plant of Montpellier, which Magnolius recorded under the name of *N. albus magno odore flore circulo pallido* C. Bauhin. The larger plant, according to both Salisbury and Haworth, is the *N. poeticus* of *English Botany*, the plate of which, with Haworth's description, sufficiently fixes its characteristic features, and shows that except for its taller habit, larger leaves, and broader white zone to its more finely fringed corona, it differs little from the smaller form. The breadth of the foliage (16-17 mm.) mentioned by Haworth for *N. patellaris* (*Monograph*, l. c.) exceeds that of any Poet's Narcissus that I have seen, the original specimen in Herb. Mus. Brit. from which the *English Botany* plate was drawn showing leaves considerably narrower. The general similarity of these two plants has been confirmed in my opinion by a comparison of fresh Kentish specimens, which, though smaller and poorly grown, certainly belong to the form shown in *English Botany* with others, obtained from Lissadell as *N. tripodalis* and also

noticed in the gardens at Kew, which agree precisely with J. Bauhin's description and figure, and the early diagnosis of Haworth. Their fruits also are indistinguishable, and I therefore conclude that the two plants are conspecific. With this view *N. majalis* Curtis stands for the species, and as the plant primarily intended by Salisbury (*Prodromus*, l. c.) as *N. patellaris* is the larger form, this, being first segregated, becomes a variety *N. majalis* var. *patellaris*, leaving the smaller form to represent the specific type. It may be noticed that these two forms were referred by Barr to the same names *majalis* and *patellaris*.

In addition to the three species thus admitted a fourth must apparently be recognised in *N. recurvus* Haworth, which seems an essentially different plant from *N. majalis* owing to its characteristic foliage, peculiarly curved perianth of unusually constant form, absence of white zone in the corona and larger, more trilobate fruits. The origin of this plant in cultivation is somewhat mysterious. It appears to have been unknown to the præ-Linnean writers, for despite its foliage agreeing with that of Gerard's *N. medio purpureus præcocior*, its late flowering precludes its identification with that form; and while it may also recall Clusius's *N. latifolius vii*, it is much more probable that this was correctly identified by Caspar Bauhin with his *N. albus magno odore flore circulo pallido*. Then, although *N. recurvus* was not described till 1812 by Haworth, who had first observed it three years previously, by 1833, according to its describer, it had become a common English market flower, as it is at the present day. I have not been able to determine its frequency in Continental gardens, but neither Ascherson and Graebner nor Rouy seem familiar with it, and it may not be generally grown unless perhaps in quite recent years through importation from Holland. Its occurrence as an apparent native in the Swiss Valais has been mentioned at the beginning of this paper, and M. Beauverd has quite recently informed me of its discovery in a third station, where it grows in company with *Orchis sambucina*. Herbarium specimens are sometimes not readily separable from *N. majalis*.

A curious incident connected with *N. recurvus* is its association with its contemporary English name "The old Pheasant's Eye Narcissus." This name may be suspected of being a modern invention, for it cannot be found in the works of any writer on Narcissi before the present century and is not included in Britten and Holland's *Dictionary of Plant Names* (1886). It is shown in the recent *Oxford Dictionary* (1909), where the earliest references quoted are Routledge's *Every Boy's Annual*, May, 1872, and *The Westminster Gazette*, August, 1898! Haworth called *N. recurvus* the "drooping-leaved saffron-rim" and Barr inserted it in his List of 1884 as the "drooping-leaved" but it appears as the "Old Pheasant's Eye" in Barr's trade catalogue of 1900. Mr. J. G. Baker tells me that he has no knowledge of this as an old name for any Narcissus, and I am unable to trace any real evidence of its former use although it may have been a local appellation in certain southern counties. Its application to Narcissi is apparently

still in the process of extension, for market gardeners now employ it for the Poet's forms indiscriminately and I have this year heard these spoken of in the trade simply as "P. I.'s"! The "Pheasant's Eye" is, of course, a name commonly applied by authors to the red-flowered species of *Adonis*.

A figure of *N. recurvus*, under the MS. name of *N. curvilobus*, is included in the Salisbury collection of drawings in Herb. Mus. Brit., and it may be inferred from this that Salisbury regarded it as a species additional to the three distinguished in Hort. Trans. i. 365, of which his drawings have been reproduced for this paper. It will be observed that the same four species, under the same names as those now adopted, were also shown in Haworth's *Narciss. Revisio* in 1819. The further species established by Haworth in his Monograph remain to be considered.

The first of them, *N. poetarum*, is remarkable for its wholly red corona—a feature of which I find no independent mention in any Continental flora. The figure of Merian, cited by Haworth for this plant, resembles it in the form of the perianth, corona and stamens, but as the plate is uncoloured and accompanied by no description, the identity is uncertain. From the frequent recurring of the leaf-tips, *N. poetarum* may also be Gerard's *N. medio purpureus præcocior*, but on this point also the evidence is at least insufficient. Haworth's description was taken from a London garden plant, of whose origin he seems to have known nothing. I learn from the Rev. G. H. Engleheart that wild Poet's Narcissi of the Pyrenees occasionally show a similar colouration of the corona, but as the stamens of *N. poetarum* are subequal, it seems less closely related to the Pyrenean *N. poeticus* than to *N. radiiflorus*, which it further resembles in its narrow fruit. On the other hand, its distinctive perianth and flat corona are very different from what obtains in *N. radiiflorus*, and as it presents several points of distinction from each of the other known species, it cannot readily be reduced to a variety of any one of them. It also seems unlikely, from its peculiarly coloured corona, that it can be a hybrid form, and it therefore seems best to retain it as a separate species.

Haworth's next species, *N. spathulatus*, is less completely diagnosed than those preceding it, and the form of the corona is not stated. As no authentic specimen is known to exist and the plant is supposed to be lost to cultivation (*vide* Barr, *supra*), its position must be regarded as indefinable.

*N. albus*, founded on a plant of Miller's (Dict. ed. 8, No. 5), is another doubtful form, possibly allied to *N. triandrus*. It was not known to Herbert and is not enumerated in Barr's list of *poeticus*-varieties.

Of *N. dianthos* Haworth the affinities are not certain as the plant, like *N. spathulatus*, is now lost to cultivation. It appears from the diagnosis to have been a two-flowered form allied to *N. radiiflorus*, or perhaps a hybrid of that species, combining channelled leaves 16 mm. broad with a white, substellate, waved perianth and a small, cupular, orange-coloured, strongly pheate-

lobed corona. Haworth's description was taken from a garden plant. *N. dianthos* was reduced to a variety of *N. biflorus* Curtis by Herbert, who, however, admits that the plant was unknown to him; and it does not seem to have been subsequently described. A wild two-flowered Italian specimen in Herb. Mus. Brit., as well as similar exsiccata at Kew, more nearly resemble the typical French *N. poeticus*, but present broader and more imbricated perianth-segments. These are perhaps simply natural twin-flowered sports. A similar form was lately sold by Messrs. Barr, probably propagated by bulb-division from solitary individuals showing the same abnormality.

*N. triflorus* Haw. is another 2-3-flowered form of which I have seen no authentic specimen. It is described as having channelled leaves only 10-12 mm. broad, a white perianth with ovate, imbricated segments, and a yellow, cupular corona. It is evidently akin to *N. biflorus* Curt., of which Herbert makes it a variety, adding that it produces perfect ovules and is found in the South of France.

Curtis's *N. biflorus*, which is placed next after *N. triflorus*, was well known in Britain in the time of Parkinson. From its uniformly abortive anthers and lack of ovules it seems an unmistakable hybrid rather than a real species or subspecies of this group, as it has sometimes been treated. Its imperfect anthers are depicted in Curtis's plate, and are still visible in much older exsiccata, such as those of the Sloane Herbarium. Haworth and Herbert seem to have doubted its hybridity, the latter suggesting that its barrenness was due to long cultivation. But it may be questioned whether other Narcissi, still fertile, have not been grown equally as long, and the plant is much more probably, as Barr thought, an ancient cross of some form of *N. poeticus* and *N. Tazetta* L. which has become widely spread owing to its exceptional vigour. Other slightly differing forms, perhaps not always barren, have been observed in Southern France in spots where *N. poeticus* and *N. Tazetta* grow together, and of these *N. triflorus* Haw. may be one.

Haworth's last species, *N. stellaris*, is of particular interest, for not only is it more adequately diagnosed in the Monograph than some of those preceding it, but it is fully described and well figured in Sweet's *British Flower Garden*, published two years later. It is clearly most akin to *N. radiiflorus*, with which it has been commonly confused and of which it possesses the slender habit and star-like perianth; but it differs in the colouring of its shorter corona, and especially in its much broader, trigonous fruits. According to Sweet, Haworth thought it the *N. medio purpureus stellaris* of Parkinson, which it may well be, and it will be seen, on referring to the synonymy of *N. angustifolius* in the Monograph, that the *N. m. p. serotinus* Park. printed under *N. stellaris* is a clerical error for *N. m. p. stellaris*.

The *N. latifolius vi* of Clusius (Hist. Rar. Plant. l. c.) also seems from its "capitula triangula" to be identical with this plant rather than with *N. radiiflorus* Salisb., and if this be admitted,

*N. stellaris* is likewise the *N. niveus odoratus circulo rubello* C. Bauhin (*Pinax*, p. 48), and of Ray, and the *N. medio-purpureus minor* J. Bauhin (*Hist.* ii. 600).

*N. stelliflorus* Schur (*Österr. Bot. Zeitsch.* l. c.), a plant of Lower Austria like *N. latifolius vi* of Clusius, may similarly be identified with *N. stellaris*, which it closely resembles in description, while its author separates it from *N. radiiflorus* by its later flowering and obovate, angular fruits—points of distinction equally characterizing *N. stellaris*. The Transylvanian *N. seriorfloreus* Schur is another plant not easily separable from *N. stellaris*, which indeed seems to be the most widely spread form throughout Austria. It is perhaps doubtful, in view of the many points of similarity between *N. stellaris* and *N. radiiflorus*, whether the two plants should be specifically separated, but in the present imperfect state of our knowledge I hesitate to unite them on account of the great difference in the fruits.

It will have been noticed that in *Trans. Hort. Soc.* i. 365, Salisbury states that his *N. radiiflorus* is a native of moist, sub-alpine meadows in Switzerland; and at the same time he cites for this species Redouté's figure of *N. poeticus*. The reasons for thus identifying the Swiss Narcissus are not given by Salisbury, but the habitat was copied by Haworth, both in the *Revisio* and the *Monograph*, and the Swiss plant has been generally referred to *N. radiiflorus* in subsequent works. The common Narcissus of Les Avants and other localities in Western Switzerland, however, is not only remarkable for its variable perianth, but it differs widely from *N. radiiflorus* in its flat, discoid corona and its broader, obscurely trigonous fruits. The flat corona similarly distinguishes it from *N. stellaris*, and at the same time it is clearly separable from *N. poeticus* L., which it resembles in the corona, owing to its subequal stamens with all the anthers more or less exerted. Its characters accord very fairly with those of Haworth's *N. majalis*  $\beta$  *exertus* (*Narciss. Revisio*, l. c.), which was described from a nursery plant, seen only in 1809, that may have readily died out in cultivation, as actually happens with the Swiss plant. At the time of describing this variety, Haworth thought it a very notable form, but afterwards in his *Monograph* it became simply var.  $\gamma$  of *N. poeticus*, characterized only by its exerted stamens, and illustrated by Redouté's figure, which Salisbury had referred to *N. radiiflorus*. The figure, although it depicts perianth-segments cuneately narrowed below as in *N. radiiflorus*, shows, to my eyes, a flat and not a cupular corona, and the form of its fruit is that of this Swiss plant or of *N. stellaris*. I therefore think that Salisbury erroneously referred this plate to *N. radiiflorus*, and as the plant drawn agrees in all respects with certain states of the Swiss Narcissus, it results that this latter can be identified with Haworth's *N. majalis* var. *exertus* of the *Revisio* and *N. poeticus* var.  $\gamma$  of the *Monograph*. The differences represented in Haworth's description and in this plate between the variety *exertus* and *N. majalis* Curt. are, however, much too essential for the plants to be held conspecific; and Haworth has

self in the Revisio calls the variety a "forte propria species." Its subequal stamens resemble those of *N. radiiflorus* and *N. stellaris* rather than *N. majalis*, while its flat corona recalls *N. poeticus*, and taking its features as a whole, it seems almost as distinct as any of the forms hitherto dealt with as species. The only separate specific name that I can trace for this Swiss plant is *N. longipetalus* Schleicher in Steudel's *Nomenclator*—a "nomen nudum"; and Haworth's varietal name therefore becomes valid as *N. exertus* when it is raised to specific rank. It is probable that this plant is the *N. albus circulo croceo vel luteo* of the *Pinax*, which is said to differ from *N. albus circulo purpureo*, the flat-crowned *N. poeticus*, chiefly in the colour of the corona-margin.

In addition to these plants distinguished by Haworth, Herbert's variety *verbanensis*, which was unknown to his predecessor, merits notice as a form remarkable for its uniformly dwarf habit. Its unequal stamens resemble those of *N. poeticus* and *N. majalis*, and Parlatores appears to have included it with the former of these rather than with *N. radiiflorus*, as has been done by some more recent authors. But its different perianth-segments, more cuneate below and distinctly more acute, as well as its quite small cupular corona, render it difficult to place it as a variety under either *N. poeticus* or *N. majalis*, while it is still less like *N. recurvus*; and it thus seems necessary to treat it as a full species, *N. verbanensis*. It appears to be the prevalent Narcissus of the Italian Lakes district and is not improbably the *N. albus circulo croceo minor* of the *Pinax*. It is also possible that it is the *N. minimus medio purpureus* Park. Par. 87, No. 3, or the *N. medio croceus tenuifolius* Park. Par. 87, No. 2, which Haworth inserted in his genus *Helena* (Mon. p. 13) under the specific names of *purpureo-cincta* and *croceo-cincta* respectively. Of these two plants Haworth had no actual knowledge, but it is not easily explained why they were placed apart from the *poeticus* forms by Parkinson if they were really members of that group.

In the spring of 1914 I received from Savoy fresh flowers of a dwarf Narcissus with stamens as in *N. verbanensis* but with a more deeply cupped corona and narrower, more stellate perianth-segments similar to those of *N. stellaris*. This plant seems conspecific with Herbert's plant, though perhaps varietally distinct; and somewhat larger specimens in Herb. Kew, collected at Pontarlier in the French Jura and received from Gay under the name of *N. stellaris*, may also be identical, as likewise another plant there, from Aveyron, in Southern France, whence Herbert records *N. stellaris*. Unfortunately, the arrangement of the stamens in these exsiccata cannot be determined without dissecting the flowers, which is not practicable in a public collection; and it is therefore impossible to be certain whether these specimens are really referable to *N. verbanensis* or *N. stellaris*. But it is likely, seeing that *N. stellaris* is a more eastern form not otherwise known from France, that these plants are allied to the Narcissus of Savoy and *N. verbanensis*.

The next new forms published are those of Barr's List of 1884,

of which the most important is his "*poeticus* of Linnæus." This plant, of tall and robust habit but with extremely small flowers, appears to have derived its name from its identification with the specimen of the Linnean Herbarium, either by Barr or by Burbidge. But it has been shown that Linnæus's sheet of *N. poeticus* exhibits distinctly larger flowers, which the older authorities, Salisbury and Haworth, identified with *N. majalis* Curt., and from that species this pygmy-flowered form differs in several respects. I have, indeed, seen no examples with flowers only 1 in. broad, as stated by Barr, but the perianth of plants growing in Kew Gardens last spring barely exceeded  $1\frac{1}{2}$  in. and the diameter of finely grown flowers received from Mr. Engleheart was only  $\frac{1}{2}$  in. greater. Besides its remarkably small flowers as compared with its general habit, this plant is notable for its nearly cylindrical scape and its subglobose fruit, and in thickness of perianth it surpasses *N. recurvus*. Its stamens are unequal as in *N. poeticus*, while its relatively large corona recalls in colour that of *N. recurvus* though its form is broader and less clearly cupular. The combination of these peculiarities renders this Narcissus one of the most distinct of the group, deserving recognition as a species, and it is accordingly proposed to describe it as *N. hellenicus*. Its origin in cultivation is not certainly known and it cannot be traced in literature prior to 1884, but it has been reported to have been brought from Greece shortly before that year, and probably correctly so, for it seems identical with the Greek *exsiccata* represented both in Herb. Kew and Herb. Mus. Brit., "C. Haussknecht, Iter Græcum, 1885. *N. poeticus*. Agrapha, Neuropolis." A second example in Herb. Mus. Brit., "René du Parquet, Kalki, Sea of Marmora," may be a state of the same species, although of dwarfer habit and with a larger flower.

Another important plant introduced in Barr's List is his *ornatus*, which, as already shown, is not the species previously so named by Haworth. Barr's plant, now one of the best known of Narcissi, appears to be a wild form or old hybrid from Southern France which in characters is less closely allied to *N. poeticus* and *N. majalis* of that district than to the Swiss *N. exertus*. This is seen in its combination of flat corona and subequal stamens, as well as in its trigonous fruits, but the colouring and plication of its corona approximate in some degree to *N. majalis*. As a possibly wild plant it seems best placed in this paper as a variety of *N. exertus*, with which it most essentially agrees. As Haworth's name *N. ornatus* is reduced to a synonym of *N. poeticus*, the same epithet *ornatus* (Barr) may be held valid for a variety of the separate species *N. exertus*, with which it is proposed to associate Barr's plant. The general resemblance of this variety *ornatus* to Redouté's figure of *N. poeticus* may be easily seen.

Barr's further variety *grandiflorus*, which is still obtainable in Ireland, is a plant of unknown origin resembling *N. radiiflorus* but with larger flowers and a broader red margin to the corona.

I have not succeeded in obtaining fruit of this form, and it may be a hybrid which arose in cultivation in Holland.

The *stellaris* of Barr's List, remarkable for its inflated spatho, was perhaps a sport rather than a variety and was regarded as distinct from *N. stellaris* by Burbidge in 1889. It was on sale a few years ago as "*N. Marvel*," but I have failed to obtain a fresh example of it.

Another distinct plant cultivated in recent years is *N. grandiflorus præcox*, an early-flowering form which recalls Haworth's description of *N. recurvus* var. *gracilior*. Its broad leaves and laterally inflexed perianth-segments resemble those of *N. recurvus*, as do also to some extent the stamens and corona; on the other hand, by its more stellate perianth, ellipsoid fruit and early flowering, it approaches *N. radiiflorus*. It is a form probably of Dutch origin, and perhaps a hybrid of these two species although normally they do not flower together.

A further form observed some years ago in a Dutch nursery and now much cultivated in England under the name of "*Almira*" seems more or less intermediate between *N. exertus* and the variety *ornatus*. Mr. Engleheart thinks it has the appearance of a wild plant, and if so, it was probably obtained by selection from some local race of *N. exertus*, of the type of which it may be considered an extreme form with remarkably broad and truncate perianth-segments and a deep red instead of orange margin to the corona.

Among the plants received last spring from Mr. Engleheart an extremely handsome, late-flowering form of Pyrenean origin, apparently referable to the flat-crowned *N. poeticus*, is worthy of mention on account of the breadth of its foliage (12-14 mm.) and the development of a well-marked, white zone in the corona of some of its flowers. It is possible, judging from this white zone, that it is a natural cross with some form of *N. majalis*, but without more local knowledge this cannot be satisfactorily determined.

The last variety to be noticed is *N. poeticus*  $\beta$  *sulphureus* Rouy (Fl. France, l. c.), distinguished solely by its sulphur-yellow flowers—a character that seems to indicate an accidental sport or a hybrid with some yellow-flowered species of *Narcissus*. I have seen no specimens of this variety.

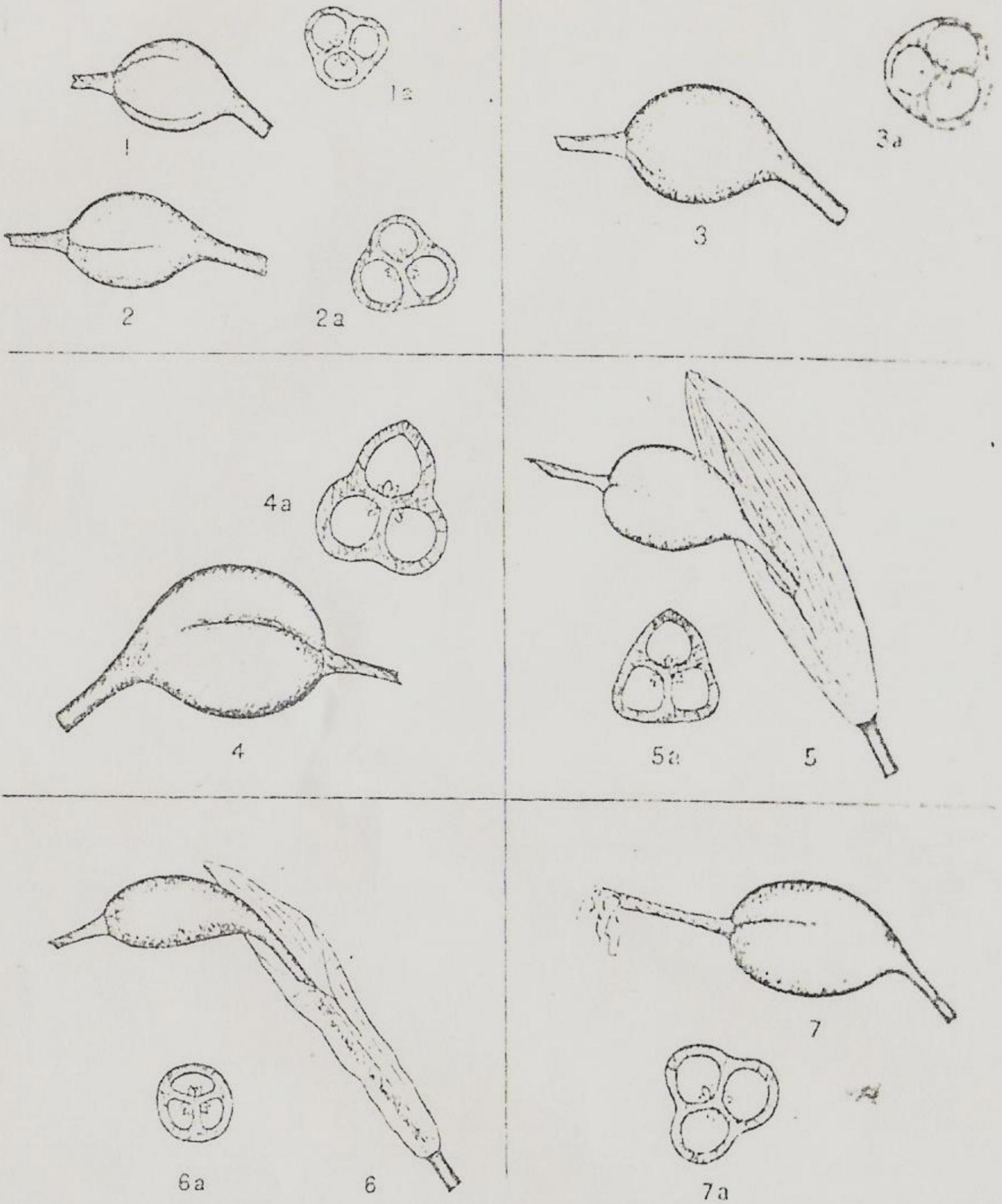
It will now be seen that of these varying forms of Poet's Narcissi, nine have been segregated for recognition as separate species. In grouping them the system of Haworth, based on the time of flowering, must be passed over as unscientific, for it plainly does not coincide with the plants' natural affinities and it is evident that the period when these plants bloom may depend largely on the latitude and altitude at which they grow. The two species recognised by Koch, *N. poeticus* and *N. radiiflorus*, seem to offer the basis of a better classification, for they are in some measure representative of two series of forms in which the other species may also be placed. But an arrangement of this kind is complicated by cross-affinities. *N. majalis* and *N. recurvus*,

which resemble *N. poeticus* somewhat in stamens and perianth, possess a cupular corona; *N. exertus* and *N. poetarum*, while agreeing with *N. radiiflorus* in their subequal stamens, have the flat corona of *N. poeticus*; and the differences in the fruits, moreover, are not correlated with those of any of the other organs. But there seems no more practical arrangement of these plants than the selection of Koch's two species, which are really widely different, as types of two series, *Eu-poetici* and *Radiiflori*, of which the unequal stamens, with imbricated perianth-segments, of *N. poeticus*, and the subequal stamens, with cuneate-based perianth-segments, of *N. radiiflorus* are regarded as the essential features. Each series is then readily subdivisible by its flat or cupular corona.

There is some evidence that this arrangement is not only practical but natural in the geographical distribution of these plants, for the first series, *Eu-poetici*, extends across Southern Europe from Spain through Southern France to Italy and Greece, while the second, *Radiiflori*, with the possible exception of *N. poetarum*, whose native country is unknown, favours more northern and eastern regions, ranging from Switzerland across Austria to Transylvania and the Balkans. In the Swiss Alps, where the habitats of the two series meet or overlap, we get the anomalous species *N. exertus* and *N. verbanensis* on the north and south sides of the main chain respectively, with *N. recurvus* in isolated spots in the Valais. *N. poeticus* L., in varying forms, appears widely spread from the Pyrenees to Southern Italy, while *N. majalis* seems to be local in the South of France, and the Greek *N. hellenicus* is a rare outlying species, showing marked peculiarities as might be expected. Among the *Radiiflori*, the late-flowering *N. stellaris* is probably generally distributed from the Tyrol to Transylvania, while the earlier *N. radiiflorus* seems to occur in the neighbourhood of the Adriatic, extending south-eastwards from Trieste to Serbia and Montenegro.

This paper, which has been completed with some difficulty owing to pressure of other work, will be concluded with descriptions of such plants as appear to be essentially distinct and probably wild. My thanks are due to the Rev. G. H. Engleheart and Mr. P. R. Barr for supplying fresh material of a number of different forms, and to M. Beauverd, of the Boissier Herbarium, near Geneva, for living specimens and detailed information respecting the Alpine Narcissi. I am also indebted for valuable suggestions to Dr. O. Stapf.

As the work of early writers is of special interest in this genus a separate præ-Linnean synonymy will be given. Exsiccata will not be quoted owing to the general obliteration of floral characters and the doubt attaching to many sets that have been sent out. It may be suggested here that, in collecting these Narcissi, notes should be made of the form and colouring of the corona and the arrangement of the stamens. The shape of the fruit should also be added whenever possible. The following diagnoses have been drawn up from living plants, except where



FRUITS OF POET'S NARCISSI.

otherwise stated, and leading contrasting characters are italicised throughout. The form of the corona described is of that organ when fully expanded; at the opening of the flower it is, of course, plicate-cupular in every species. The positions of the stamens mentioned refer to their condition after the dehiscence of the anthers; before dehiscence the anthers are always longer and more exerted.

NARCISSUS L. Sp. Plant. 289 (1753).

Section EU-NARCISSUS Baker Amaryll. 2 (1888).

*Narcissus* Haworth Mon. Narciss. 14, as a genus (1831);  
Herbert Amaryll. 80, as a genus (1837).

Spathe usually 1-flowered. Perianth-tube about as long as the white segments; corona several times shorter than these segments, discoid or cupular in form, yellow (except in *N. poetarum*) with a subscarious margin edged with red. Stamens more or less unequal (unequal or subequal), three long and three short alternating; filaments adnate to the perianth-tube; three or all of the anthers more or less exerted.

CONSPECTUS OF SPECIES.

Series 1. POETICI. Stamens unequal; perianth-segments usually shortly narrowed and imbricate below.

\* Corona flat and discoid at maturity.

1. *N. poeticus*. Fruit broadly ellipsoid, obscurely trigonous.

\*\* Corona more or less cupular.

! Corona small; perianth-segments cuspidate.

2. *N. verbanensis*. Fruit ellipsoid; plant dwarf with small flowers.

!! Corona larger; perianth-segments more obtuse, mucronate.

3. *N. hellenicus*. Corona broadly cupular or saucer-shaped; fruit subglobose; plant robust with small flowers.

4. *N. recurvus*. Corona undulate-cupular; fruit large, subrotund-trilobate.

5. *N. majalis*. Corona cupular with flat base and white zone below red margin; fruit triangular-obovoid.

Series 2. RADIFLORI. Stamens subequal; perianth-segments usually cuneately-narrowed below.

\* Corona small, cupular.

6. *N. radiiflorus*. Corona distinctly cup-shaped; fruit linear-ellipsoid or pyriform, terete.

7. *N. stellaris*. Corona relatively broader; fruit ellipsoid, trigonous.

\*\* Corona flat or nearly so, when mature.

8. *N. poetarum*. Corona sub-discoid, wholly red; fruit narrowly ellipsoid, nearly terete.

9. *N. exertus*. Corona flat and discoid; fruit ellipsoid or obovate-ellipsoid, more or less trigonous.

## Series 1. POETICI.

## 1. NARCISSUS POETICUS Linn.

True Poet's Narcissus.

Timely purple-ringed Daffodill of Gerard.

Early purple-ringed Daffodill of Parkinson.

Flat-crowned saffron-rim of Haworth.

*Narcissus poeticus* L. Spec. Plant. 289 (1753) non ejusdem herb.; Salisbury in Trans. Hort. Soc. i. 365 (1812); Haworth Narciss. Revis. 148 (1819); Koch Synop. Fl. Germ., ed. 2, 811 (1843); Parlatores Fl. Ital. iii. 116 (1858); Ascherson & Grabner Synop. iii. 396, sensu lato (1906); Rouy Fl. Fr. xiii. 53, sensu lato (1912); *N. tripodalis* Salisb. MS.; *N. ornatus* Haworth Mon. Narciss. 14 (1831).

*N. poeticus mediocroceus purpureus* Lobel Stirp. Adv. Nov. 50 (1570); *N. medio purpureus praecox* Gerard Herb. 108 (1597); *N. latifolius alter* Clusius Hist. Rar. Pl. ii. 156 (1601); *N. albus circulo purpureo* C. Bauhin Pin. 48 (1623); *N. medio purpureus praecox* Park. Par. 76 et 75, f. 3 (1629).

Icon.—Nost. tab. fig. 1 and 2.

Bulb ovoid or ovoid-elongate, 25–30 mm. in diameter when cultivated, smaller wild, outer scales pale brown with fine, darker veins. Leaves erect, shorter than the scape, 6–9 mm. broad, green or glaucescent, distinctly keeled and channelled. Scape 30–40 cm. long, compressed and 2-edged, striate, moderately stout but sometimes attenuate above. Spathe more or less thickly membranous, sometimes rather long; pedicel rather slender. Flower scented, 5.5–7 cm. in diameter, with rather slender, light green tube and snow-white perianth tinged with yellow at the base; *perianth-segments imbricate below*, often twisted, the *outer oblong-obovate*, truncate and mucronate, little narrowed below and *reflexed*, the *inner* shorter and narrower, *oval-oblong*, subacute or mucronulate, horizontally spreading. *Corona flat and discoid* when developed, 13–15 mm. broad, yellow with a greenish centre and a moderately broad red or orange-red edge, within which a narrow whitish zone sometimes appears as the flower fades, much plicate-rugose in the outer half with plicate-crenulate-dentate margin. *Stamens unequal*; three anthers exserted, three included in the perianth-tube; style sometimes included, sometimes equalling or slightly exceeding the longer stamens. *Fruit* about 15 mm. long, *broadly ellipsoid*, *obscurely trigonous* with 3 faint furrows.

Pyrenean forms sometimes show longer and thicker spathe, narrower perianth-segments and a greater development of the red colouring in the corona.

The type of *N. poeticus*, which flowers naturally in March or early April, has been known since the time of Lobel and Clusius as the early-flowering Poet's Narcissus of the South of France, and was recorded by Magnolius as growing near Montpellier in company with the late-flowering *N. majalis*. It is also a native

of Italy, and of the Pyrenees, where it does not flower till May; and it is probably the species of this group stated by Willkomm and Lange to inhabit Central and Eastern Spain. It is further recorded by Ascherson and Gräbner for South Tyrol, although its occurrence as an indigenous plant east of the Alps would not be expected.

As a British garden plant, blooming in April, *N. poeticus* is known to have been continuously cultivated since the days of Gerard. It was a familiar plant in the seventeenth century, and as late as 1833 was commonly grown for the London flower market. It has become scarce in England during the last forty years apparently owing to its general supersession by *N. exertus* var. *ornatus*.

## 2. NARCISSUS VERBANENSIS, nov. comb.

*Narcissus verbanensis* nov. comb.; *N. poeticus* var. *verbanensis* Herbert Amaryll. 317 (1837); *N. poeticus* subsp. *radiiflorus* f. *verbanensis* Baker Amaryll. 12 (1888); *N. poeticus* subsp. *angustifolius* var. *verbanensis* Ascherson and Gräbner Synop. iii. 397 (1906).

*N. albus circulo croceo minor* C. Bauhin Pinax, 49 (1623)?

Icon.—Herbert, *l. c.*, tab. 37, fig. 2, as *N. poeticus* var. *verbanensis* (mala).

*Plant dwarf.* Bulb ovoid, very small, 12–15 mm. in diameter. *Leaves narrow* and erect, shorter than the scape, only 3–5 mm. broad, keeled and channelled. *Scape* 20–30 cm. long, finely striate, *very slender.* Spathe thinly membranous, of moderate length; pedicel very slender, usually short. *Flower* scented, *small*, 3.5–4.5 cm. in diameter, with moderate green tube and snow-white perianth tinged with yellow or greenish at the base; *perianth-segments imbricate or distinct*, varying in shape from *elliptical to oblong*, rather shortly narrowed below, more or less strongly mucronate or *cuspidate, spreading or recurved.* *Corona shortly cupular, small*, 8–9 mm. broad and 2 mm. deep, yellow edged with red, margin finely plicate-crenulate-dentate. *Stamens unequal*; three anthers exerted, three included in the perianth-tube; style rarely exceeding the longer stamens. *Fruit* about 12 mm. long, *ellipsoid*, doubtfully trigonous and furrowed.

Description from exsiccata collected at Baveno, the *locus classicus.*

*N. verbanensis* flowers in the latter half of May, and in its typical form is widely distributed in the Italian Lakes district. In Savoy and the Mont Cenis district, and possibly elsewhere in France, a different form occurs, perhaps varietally distinct, in which the spathe is longer, the perianth-segments much narrower, acute, oblanceolate and distant below, and the corona more deeply cupular.

It is apparently only in recent years that this graceful plant has been brought into British gardens, where most cultivators have found it a very short-lived tenant.

## 3. NARCISSUS HELLENICUS, nov. spec.

*Narcissus hellenicus*, nov. spec. *N.* "*poeticus* of Linnæus" ap. Barr in Fl. and Pomol., 101 (1884) et hort.

Bulbus ovoideus vel ovoideo-elongatus, in hortis 25-30 mm. in diametro, tunicis exterioribus fusco-tinctis præditus. *Folia* haud angusta, erecta, scapo fere æqualia, 10-12½ mm. lata, alto viridia, carinâ obscurâ complanata. *Scapus* 30-45 cm. longus, *subcylindricus*, vix anceps, grosse striatus, crassus, spathâ dense membranaceâ pedicelloque crassiusculo præditus. *Flores* parvi, odorati, 3.5-4.75 cm. in diametro, tubo lato cylindrico alte viridi et perianthio niveo basi vix luteo-tincto præditi; *perianthii segmentis* crassis, *imbricatissimis*, *orbiculari-obovatis*, interioribus rotundo-obtusis, exterioribus mucronatis paululum latioribus, omnibus *patentibus* et subirregulariter undatis vel margine paulum inflexo planis. *Corona subcupularis* vel marginibus o medio lato plano ascendentibus *pateræformis*, *relative magna*, circa 13 mm. lata, medio viridi marginibusque haud angustis coccineis infra quos circulus angustus albidus denique explicatus est pallide flava, irregulariter, et sparse in dimidio exteriori plicato-rugosa, margine plicato-crenulato prædita. *Stamina inæqualia*, antheris tribus paulo exsertis, tribus in perianthii tubo inclusis; stylus stamina longiora fere æquans. *Fructus* circa 16 mm. longus, *subglobosus*, haud triangularis, vix sulcatus.

Habitat, ut videtur, in regione Montis Pindi Græciæ borealis.

Bulb ovoid or ovoid-elongate, 25-30 mm. in diameter when cultivated, tinted with deep brown. *Leaves* broad and erect, nearly equalling the scape, 10-12½ mm. broad, dark green, flattened and obscurely keeled and channelled. *Scape* 30-45 cm. long, *subcylindrical* and scarcely 2-edged, ribbed, stout. *Spathe* thickly membranous; pedicel rather stout. *Flower* small, scented, 3.5-4.75 cm. in diameter, with broad, cylindrical, deep-green tube and snow-white perianth very slightly tinged with yellow at the base; *perianth-segments* thick, *much imbricated*, *orbicular-obovate*, the inner rounded-obtuse, the outer rather broader and mucronate, all *spreading* and either a little irregularly waved or nearly flat with slightly inflexed margins. *Corona* subcupular or *saucer-shaped* with margins ascending from a broad, flat centre, *relatively large*, about 13 mm. broad, pale yellow with a green centre and a moderate edge of crimson, below which a faint and narrow white zone finally develops, irregularly and rather distantly plicate-rugose in the outer half with plicate-crenulate margin. *Stamens unequal*, with three anthers slightly exserted and three included; style nearly equalling the longer stamens. *Fruit* about 16 mm. long, *subglobose*, *not trigonous* and scarcely furrowed.

This plant, remarkable for its combination of a robust habit with small but finely formed flowers, does not appear to have been known until recent years in horticulture, and it has not hitherto been botanically described. It is reasonably certain that it is indigenous in the region of Mt. Pindus, in Northern Greece.

and it may be the form recorded by Boissier and Halacsy for Mt. Ceta and for Bœotia, the home of the Narcissus of classical legend.

It flowers during May in English gardens and about a month later in the mountains of Greece.

#### 4. NARCISSUS RECURVUS Haworth.

Drooping-leaved saffron-rim of Haworth.

Old Pheasant's Eye Narcissus auct. recent. et hort.

*Narcissus recurvus* Haworth Syn. Pl. Succ. App. 331 (1812); Narciss. Revis. 151 (1819); Mon. Narciss. 15 (1831); Sweet Brit. Fl. Garden, No. 188 (1833); *N. curvilobus* Salisb. MS.

Icon.—Sweet, l. c. No. 188.

Bulb large, subrotund-ovoid, 30–35 mm. in diameter when cultivated but smaller when wild; outer scales pale brown with fine, darker veins. *Leaves large, recurved and drooping* in upper quarter, about as long as the scape, 10–13 mm. broad, glaucous, obscurely keeled and channelled in lower half and nearly flat above. Scape 30–45 cm. long, 2-edged but little compressed, strongly striate, rather stout. Spathe moderately long and thick; pedicel stout, almost equalling the uppermost part of the scape. Flower scented, 6–6.5 cm. in diameter, with rather broad, slightly flattened, deep green tube and snow-white perianth, of unusually constant form, slightly greenish at the very base; *perianth-segments* thick, shortly narrowed and *imbricate below*, the outer *oval, truncate or retuse*, mucronate, the inner *ovate-oblong, obtuse*, mucronate, all rigidly *arcuate-recurved with laterally inflexed margins*. *Corona undulate-cupular* with margins ascending from a rather narrow centre, *rather large*, 12–14 mm. broad and 3–3.5 mm. deep, green in the central half and chrome-yellow beyond, with a rather broad edge of deep red, within which a whitish zone may rarely appear after maturity, much plicate-rugose with irregularly plicate-crenulate-dentate margin. *Stamens very unequal*, with three anthers slightly exserted and three distinctly falling short of the perianth-tube; anthers shorter and relatively broader than in the other species of the section, with paler coloured pollen. Style included or very shortly exserted, sometimes equalling the shorter stamens, sometimes almost as long as the longer ones. *Fruit large*, nearly 20 mm. long, more or less irregularly *subrotund-trilobate*, with three deep furrows.

*β gracilior* Haworth Mon. Narciss. 15 (1831).

*Leaves much narrower than* in the type, glaucescent, less flat, a few only *recurved*, the others generally as tall as the slenderer scape; red margin of the corona often narrow.

The description of the variety *gracilior* has been adopted from Haworth.

*N. recurvus*, which has not hitherto been reported as a wild plant, has the appearance of indigenuity in a few localities (alt. 4–6000 ft.) in the Valais of Switzerland, where it flowers early in June. Its origin in cultivation is not certainly known, but it seems to have been a rare plant introduced about the beginning

of the nineteenth century into British Nurseries, in which it must have very rapidly increased, as might indeed be expected from its vigorous habit of growth. It flowers abundantly in our gardens about the middle of May, but does not respond to forcing or pot-culture. Its very purely coloured and fantastically symmetrical flowers are perhaps more beautiful than those of any other wild Poet's Narcissus.

#### 5. NARCISSUS MAJALIS Curtis.

Late purple-ringed Daffodill of Parkinson.

Middle-sized May-flowering Narcissus of Haworth.

*Narcissus majalis* Curtis Bot. Mag. sub. t. 193 (1793); Haworth Narciss. Revis. 150, excl. syn. (1819); *N. patellaris* Haworth Syn. Pl. Succ. App. 331 (1812) non Salisbury; *N. poeticus* Linn. Herb. et L. ap. Haworth Mon. Narciss. 15, excl. var.  $\gamma$  (1831).

*N. medio purpureus serotinus* Park. Par. 76 (1629); *N. medio purpureus* J. Bauhin Hist. Pl. ii. 600, cum icone (1651); Ray Hist. ii. 1133, ex parte (1688).

Bulb ovoid or ovoid-elongate, 25–30 mm. in diameter when cultivated, smaller wild, outer scales pale brown with darker veins. *Leaves erect*, shorter than the scape, 7–9 mm. broad, glaucescent, obscurely keeled and channelled. *Scape 25–40 cm. long*, 2-edged and much compressed, striate, rather stout. Spathe of moderate size and thickness; pedicel flattened, rather stout. Flower scented, 5.5–7 cm. in diameter, with rather broad, slightly flattened, deep green tube and snow-white perianth tinged with yellow at the base; *perianth-segments* rather thick, *imbricate below* with irregularly waved or recurved margins, the *outer obovate-oblong*, rounded-obtuse, mucronate and *slightly recurved*, the *inner oval or oblong*, rounded-obtuse or subacute, *spreading*. *Corona shortly cupular* with margins suberect from a broad, flat base, *rather large*, 12–14 mm. broad and about 3 mm. deep, chrome-yellow with a green base and above a *narrow, clear white zone within the rather narrow crimson edge*, finely and closely plicate-rugose beyond the flat base with finely plicate-crenulate-dentate margin. *Stamens unequal*, three anthers slightly exserted, three included in the perianth-tube; style equalling the longer stamens. *Fruit* about 15 mm. long, *triangular-obovoid*, scarcely furrowed.

$\beta$  PATELLARIS, nov. comb.

Purple-circled Daffodill of Gerard.

Great white purple-ringed Daffodill of Parkinson.

Large, broad, May-flowering Narcissus of Haworth.

*N. patellaris* Salisb. Prod. 225 (1796); Haworth Mon. Narciss. 15 (1831); *N. poeticus* Smith Eng. Bot. 275 (1795).

*N. medio purpureus* Gerard Herb. 108, cum icone (1597); *N. latifolius vii* Clusius Hist. Rar. Pl. ii. 157 (1601); *N. odorato magno odore flore circulo pallido* C. Bauhin Pin. 48 (1623); *N. medio purpureus maximus* Park. Par. 76 et 75, fig. 2 (1629); *N.*

*medio-purpureus magno flore ; folio latiore* J. Bauhin Hist. Pl. ii. 600 (1651); *N. medio purpureus magno flore latiore* Ray Hist. ii. 1133 (1688).

*Icones.*—Eng. Bot. 275, as *N. poeticus*; Nost. tab. fig. 6-9.

*Leaves* nearly as long as the scape, 9-13 mm. broad, glaucous, keeled and channelled almost throughout. *Scape* 40-50 cm. long, finely striate, slender and attenuate upwards. *Spathe* rather larger and thicker than in the type; pedicel slender. *Perianth-segments* sometimes broader than in the type, with more regularly reflexed margins. *Corona* a little more deeply cupular than in the type, with a rather broad white zone below the moderately broad, light red edge, finely but irregularly plicate-rugose above the flat base with finely plicate-denticulate-fimbriate margin. *Style* equalling or barely exceeding the shorter stamens. Otherwise as in the type.

Of *N. majalis* in a wild state very little is positively known, but, judging from herbarium material, it appears to be the late-flowering Poet's Narcissus regarded as a native of Montpellier, in S. France, since the time of Magnolius. It also occurs, of doubtful nativity, at Champigné, Dép. Maine-et-Loire (Boreau, 1852, in Herb. Kew), and perhaps in other French localities. A western European origin is attributed to it by Parkinson.

The variety *patellaris*—a larger plant with flowers often of similar size—was thought by Clusius to have come from Styria, and Salisbury, possibly from independent information, also states that it grows wild in the Alps of Styria and Kartschia. On the other hand, Parkinson refers to it as obtained from Constantinople. As no wild specimen has been traced in herbaria, its origin remains uncertain, but it would appear probable on general grounds that, like the specific type, it came from Western Europe. A not unlikely habitat is the Pyrenees.

As garden plants both type and variety have been very long in cultivation in Britain and on the Continent. Johann Bauhin noticed the type in gardens at Bâle, and refers to it as growing also in Belgium, Germany and England. The var. *patellaris* was observed by Clusius at Frankfort, and is the *N. medio purpureus* of Gerard, apparently the best known Poet's Narcissus of the English gardens of his day. Gerard's name, however, may have included the specific type as well as the variety, for Parkinson shows that both of them were grown with us at a little later date. Further evidence of the former frequency of the var. *patellaris* is afforded by its escape and naturalization in Kent and other localities towards the close of the eighteenth century, which led to its inclusion as a British plant in *English Botany* and other subsequent floras. It is only during the last twenty years that the species has become scarce in English gardens, and the var. *patellaris* is no longer easily obtainable.

*N. majalis* flowers in our gardens in May, a little before the var. *patellaris*, which is almost the last member of the group to come into bloom.

## Series 2. RADIIFLORI.

## 6. NARCISSUS RADIIFLORUS Salisbury.

Narrow-leaved saffron-rim of Haworth.

*Narcissus radiiflorus* Salisb. Prod. 225 (1796), et Trans. Hort. Soc. i. 365, excl. syn. (1812); Haworth Narciss. Revis. 149 (1819); Koch Synopsis, ed. 2, 811 (1843); Parlatores Fl. Ital. iii. 118 (1858); *N. angustifolius* Haworth Mon. Narciss. 14 (1831); *N. poeticus* subsp. *radiiflorus* Baker Amaryll. 12 (1888); *N. poeticus* subsp. *angustifolius* Ascherson & Gräbner Synopsis, iii. 397, sensu lato (1906); *N. poeticus* race *N. radiiflorus* Rouy Fl. Fr. xiii. 54, sensu lato (1912).

*N. medio purpureus precocissimus* Gerard Herb. 108, cum icone (1597)?

*Icones.*—Curtis Bot. Mag. 193, as *N. angustifolius* (nomen confusum); Nost. tab. fig. 3-5.

Bulb ovoid, rather small, about 25 mm. in diameter (cult.), outer scales whitish-brown, with well-marked, darker veins. Leaves erect, nearly equalling the scape, 5-8 mm. broad, green or glaucescent, keeled and slightly channelled. Scape 30-40 cm. long, compressed and 2-edged, striate, slender. Spathe thinly membranous; pedicel slender, sometimes elongate. Flowers strongly scented, 6-7 cm. in diameter, with slender, light green tube and *stellate, greenish-white perianth* tinged with yellow at the base; *perianth-segments cuneately narrowed below, not imbricate, the outer oblanceolate, cuspidate or mucronate, the inner more elliptical, acute or subacute, all spreading or slightly waved.* *Corona cupular, suberect from a narrow base, small, 8-10 mm. broad and 2-2½ mm. deep, bright yellow edged, sometimes broadly, with deep red, plicate-rugose with unevenly but closely plicate-crenulate-dentate margin. Stamens subequal; anthers all exerted from the perianth-tube, the upper nearly reaching the edge of the corona (exceeding it before dehiscence).* Style variable, sometimes slightly exceeding the longer, sometimes only equalling the shorter stamens. *Fruit* about 18 mm. long, *linear-ellipsoid* or narrowly pyriform, *terete*, not trigonous or furrowed.

*N. radiiflorus* seems to have been first clearly distinguished as a wild plant by Koch, who records it for the neighbourhood of Trieste and other Austrian localities, as well as the Swiss Valais. Its occurrence in the latter province, however, may be doubted, for Jaccard (Cat. Fl. Valaisanne, 1895) notes it only for the extreme west of the Valais, where *N. exertus* has apparently been mistaken for it. It seems to inhabit also Serbia and Montenegro, and probably Bosnia, but the more northern Austrian habitats where it has been recorded should probably be referred to *N. stellaris*, with which it has been very generally confused.

As a garden plant, *N. radiiflorus* may possibly be the *N. medio purpureus precocissimus* of Gerard, but was unknown to Parkinson and Ray. It was evidently noticed in cultivation by Curtis, and was familiar to Salisbury and Haworth, since whose time it has been regularly grown in English gardens till in quite recent years

it has given place, like *N. poeticus*, to *N. exertus* var. *ornatus* and other newer forms.

Both in its native habitats and in British gardens it flowers in April, and its stellate, greenish-white flowers are so distinct from those of the other cultivated Poet's Narcissi that it certainly should not be entirely banished from our gardens. It is said to be one of the species from which early flowers are obtainable by forcing.

#### 7. NARCISSUS STELLARIS Haworth.

Starry purple-ringed Daffodill of Parkinson.  
Long-petalled saffron-rim of Haworth.

*Narcissus stellaris* Haworth Mon. Narciss. 15 (1831); Sweet Brit. Fl. Garden, No. 132 (1833); *N. seriorflorens* Schur Pl. Transs. 657 (1866)?; *N. stelliflorus* Schur in Oesterr. Bot. Zeitsch. xix. 205 (1869); *N. radiiflorus* auct. mult. non Salisb. Prod.

*N. latifolius* vi Clusius Hist. Rar. Pl. ii. 156 (1601); *N. niveus odoratus circulo rubello* C. Bauhin Pin. 48 (1623), et Ray Hist. ii. 1133 (1688); *N. medio purpureus stellaris* Park. Par. 76 et 75, f. 4. (1629); *N. medio-purpureus minor* J. Bauhin Hist. Pl. ii. 600, cum icone (1651).

Icon.—Sweet, *l. c.*, No. 132.

Bulb ovoid, rather small. Leaves erect, shorter than the scape, 6–8 mm. broad, green or glaucous, keeled and channelled. Scape 30–40 cm. long, 2-edged and slightly compressed, striate, rather slender and attenuate above. Spathe thinly membranous, rather short; pedicel slender. Flower scented, 5.5–6.5 cm. in diameter, or perhaps sometimes larger, with light green tube and stellate, greenish-white perianth; perianth-segments cuneately narrowed below, distant throughout and not imbricate, the outer cuneate-obovate, the inner oblanceolate, all acute or sharply mucronate, spreading, sometimes undulate or twisted. Corona shortly cupular, rather small, about 10 mm. broad and 2 mm. deep, yellow, with a very narrow white zone within the narrow scarlet-red edge, margin finely plicate-crenulate. Stamens subequal, with all the anthers more or less exerted. Style not exceeding stamens. Fruit about 15 mm. long, shortly ellipsoid or obovoid, trigonous and furrowed.

Description adopted chiefly from Haworth and Sweet.

This species, first distinguished by Clusius, is widely distributed in the mountainous regions of Austria from the Tyrol to Transylvania, in which province what appears to be a form of it has been described under the name of *N. seriorflorens* Schur. It may also occur in the Balkan Peninsula.

Although known to Parkinson and Haworth, it does not seem to have been extensively grown at any period in English gardens, possibly because it does not readily flourish under cultivation. It is a late-flowering plant, never blooming before May, and often during June in its natural stations.

## 8. NARCISSUS POETARUM Haworth.

Saffron-cupped Narcissus of Haworth.

*Narcissus poetarum* Haworth Mon. Narciss. 14 (1831); *N. poeticus* var. *grandiflorus* Sabine MS. ap. Herbert Amaryll. 317 (1837); *N. poeticus* var. *poetarum* Burbidge & Baker Narciss. 85 (1875).

Bulb ovoid, rather small, about 25 mm. in diameter, outer scales greyish-brown with strongly marked dark veins. Leaves erect or sometimes with drooping tips, nearly equalling the scape, 8-11 mm. broad, rather glaucous, channelled and slightly keeled. Scape 30-50 cm. long, little compressed, obscurely striate, slender. Spathe rather thickly membranous, narrow and very long (equaling or exceeding 7 cm.); pedicel slender, elongate. Flower strongly scented, about 7 cm. in diameter, with relatively short, scarcely flattened, green tube and snow-white perianth; perianth-segments not imbricate, much narrowed and scarcely contiguous below, elliptic-obovate, subacute and sometimes mucronate, all spreading and more or less irregularly undulate. Corona subdiscoid, about 13 mm. broad, deep yellow suffused throughout with bright red, but soon becoming paler, strongly and irregularly plicate-rugose with plicate-crenulate-dentate margin. Stamens subequal, with all the anthers more or less exerted; style exerted, a little exceeding the longer stamens. Fruit 15-18 mm. long, narrowly ellipsoid, scarcely trigonous or furrowed.

This distinct and beautiful Narcissus, which flowers in English gardens during April, is not known as a wild plant and was first brought to notice by Haworth in 1831. As an early-flowering member of the series *Radiiflori* it may be suspected to have originated in South-eastern Europe.

## 9. NARCISSUS EXERTUS, nov. comb.

Middle flowering Narcissus of Haworth.

*Narcissus exertus* nov. comb.; *N. majalis*  $\beta$  *exertus* Haworth Narciss. Revis. 150 (1819); *N. poeticus* var.  $\gamma$  Haworth Mon. Narciss. 15 (1831); *N. longipetalus* Schleicher in Steudel Nomenclator (nomen nudum); *N. radiiflorus* auct. nonnull. non Salisb. Prod.

*N. albus circulo croceo vel luteo* C. Bauhin Pin. 49 (1623)?; *N. medio croceus serotinus* Park. Par. 74 (1629)?; *N. uniflorus foliis ensiformibus scypho brevissimo* Haller Hist. n. 1279 (1768).

Icon.—Redouté *Liliaceæ*, iii. 160, as *N. poeticus*.

Bulb ovoid, small, 20-25 mm. in diameter (wild), outer scales pale brown. Leaves erect, rather shorter than the scape, 6-9 mm. broad, green or glaucous, folded below but becoming flattened above, obscurely keeled. Scape 30-40 cm. long, compressed and 2-edged, striate, very slender. Spathe thinly membranous; pedicel very slender, of variable length. Flower scented, 5-6.5 cm. in diameter, with slender, pale green tube and snow-white perianth of variable form, tinged with yellow at the base; perianth-segments

*cuneate-based* or less commonly shortly narrowed and *imbricate below*, often twisted and usually not contiguous, *lanceolate, elliptic, oval or obovate*, more or less acute or the outer sometimes obtuse and mucronate, *spreading, recurved or irregularly undulate*. *Corona flat and discoid*, or rarely slightly convex; 12-13 mm. broad, chrome-yellow or slightly green about the centre, edged, at times rather broadly, with orange-red or orange (with no white zone), faintly plicate-rugose with irregularly and often obscurely plicate-crenulate-dentate margin. *Stamens subequal*; anthers all exerted, the three lower just emerging from the perianth-tube. Style of variable length, sometimes equalling the shorter stamens, sometimes exceeding the longer ones. *Fruit* about 15 mm. long, *ellipsoid, somewhat trigonous* and furrowed.

$\beta$  ORNATUS, nov. var.

*N. poeticus* var. *ornatus* Barr in Fl. et Pomol. 101 (1884) of hort., non *N. ornatus* Haworth.

Bulbus ovoideus, 25-30 mm. in diametro. Folia erecta, scapo paululum breviora, 8-10 mm. lata, glaucescentia, inferno plicata sed apicem versus complanata, obscure carinata. Scapus 30-45 cm. longus, anceps, tenue striatus, gracilis, spathâ modico membranaceâ pedicelloque gracillimo præditus. Flores odorati, 5.5-6.5 cm. in diametro, *perianthii* tubo gracili pallido et *segmentis* niveis (basi luteo-tinctis) sæpissime *obovatis*, rotundato-obtusis vel exterioribus quæ paulo latiora sunt truncato-mucronatis, omnibus *infra angustatis* basin versus vix imbricatis, *patentibus* fere planisque vel interioribus undulatis, *rarius* omnibus *recurvatis*. *Corona subdiscoidea* 10-13 mm. lata, lutea orâ angustâ coccineâ intra quam *circulus perangustus albus* explicatur circumscripta, margine tenuiter plicato-crenulato-serrato obscure plicato-rugosa. *Stamina subæqualia*, antheris omnibus plus minusve exertis. Stylus vix exertus, staminibus haud longior. *Fructus* circa 18 mm. longus, *obovato-ellipsoideus, obtuse trigonus, sulcatus*.

Planta originis incertæ, probabiliter e Galliâ Narbonensi ablata, et fortasse inter *N. exertum* et *N. majalem* hybrida.

Bulb larger than in the type, 25-30 mm. in diameter. Leaves also slightly larger, glaucescent. Scape 30-45 cm. long, finely striate, slender, but less so than in the type; spathe moderately thick. Flower 5.5-6.5 cm. in diameter; *outer perianth-segments* more or less *broadly obovate*, retuse-mucronate, *inner ones* rather narrower, *elliptic-obovate*, rounded-obtuse, *all usually cuneate-based* and scarcely imbricate below, *spreading* and nearly flat or the inner waved, *more rarely all recurved*. *Corona sub-discoid* and nearly flat, 10-13 mm. broad, chrome-yellow with a narrow, scarlet-red edge and, at maturity, a *very narrow white ring* within it; obscurely plicate-rugose with finely plicate-crenulate-serrate margin. Style just exerted from the perianth-tube, not exceeding the stamens. *Fruit* larger than in the type, about 18 mm. long, *obovate-ellipsoid, bluntly trigonous, furrowed*. Otherwise as in the type.

*N. exertus*, a May-flowering species perhaps confined to Switzerland, appears to have been distinguished by Caspar Bauhin and by

Haller but has been commonly identified during the past century with *N. radiiflorus*.

Parkinson seems to have been acquainted with it as a rare garden plant and Haworth described it from a London nursery, but there is no evidence of its having been at any time commonly cultivated in Britain.

The variety *ornatus*, introduced into cultivation from the South of France through the Paris firm of Vilmorin about the year 1870, is now one of the most abundant of garden Narcissi in Western Europe. Its precise origin is not known, but it may be suspected from the colouring and fine plication of its corona, as well as the form of its fruit, to be a hybrid of *N. exertus* with *N. majalis*. Such a parentage, however, is rendered doubtful by its flowering in April instead of May, and the facility with which it may be forced into bloom still earlier. It has hitherto been regarded solely as a garden plant, but as it is believed to have been originally collected and probably a wild form, it cannot well be excluded from an arrangement of the forms of *Eu-Narcissus*.

#### EXPLANATION OF FLORAL PLATE.

(Reproduced from original drawings by R. A. Salisbury now preserved in Herb. Mus. Brit.)

- Figs. 1 and 2.—Flowers of *Narcissus poeticus* L. (labelled *tripodalis*).  
 Fig. 3.—Flower of *N. radiiflorus* Salisbury.  
 Fig. 4.—Corona of *N. radiiflorus*, with six exerted anthers before dehiscence.  
 Fig. 5.—Opened corona and perianth-tube of *N. radiiflorus*, showing subequal stamens.  
 Fig. 6.—Mature flower of *N. patellaris* Salisbury, showing anthers after dehiscence.  
 Fig. 7.—Younger flower of *N. patellaris*, showing anthers before dehiscence.  
 Fig. 8.—Corona of *N. patellaris*, with three exerted anthers.  
 Fig. 9.—Opened corona and perianth-tube of *N. patellaris*, showing unequal stamens.

#### EXPLANATION OF PLATE SHOWING FRUITS.

(All developed in water.)

- Figs. 1 and 1a.—Fruit of cultivated *Narcissus poeticus*, with transverse section.  
 Figs. 2 and 2a.— " " Pyrenean " " " " " "  
 Figs. 3 and 3a.— " " *N. hellenicus*, with transverse section. " " "  
 Figs. 4 and 4a.— " " *N. recurvus*, " " " "  
 Figs. 5 and 5a.— " " *N. majalis* var. *patellaris*, with transverse section, and showing thickly membranous spathe.  
 Figs. 6 and 6a.— " " *N. radiiflorus*, with transverse section, and showing thinly membranous spathe.  
 Figs. 7 and 7a.— " " *N. exertus* var. *ornatus*, with transverse section.