

Robert C. Watrous

THE ROYAL HORTICULTURAL
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KEYS TO THE IDENTIFICATION
OF NATIVE AND NATURALIZED
TAXA OF THE GENUS
NARCISSUS L.

A. Fernandes

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KEYS TO THE IDENTIFICATION OF NATIVE AND NATURALIZED TAXA OF THE GENUS NARCISSUS L.

*A. Fernandes**

Botanical Institute, University of Coimbra, Portugal

INTRODUCTION

MR Patrick M. Syngé, editor of the Daffodil and Tulip Year Book, had the kindness to ask me, on behalf of the Year Book Committee, to draw up keys for the identification of the spontaneous and naturalized taxa of the genus *Narcissus* for publication in the review which he produces so proficiently. Although well aware of the difficulty of the task, I accepted his request, but I have to admit that the present keys, in spite of every effort to make them a reasonable working instrument, do not completely satisfy me, and I am sure that they will not satisfy in all respects the numerous admirers of these lovely plants. Allow me, however, to point out the difficulties with which I have had to struggle as these may, to some extent, absolve me for the hardihood which led me to undertake such a work. Among them I will cite:

I. Difficulties in dealing with the hybrids.

The species of *Narcissus* cross with great facility and many spontaneous hybrids occur. Furthermore, numerous hybrids have been produced artificially and some of these have escaped from cultivation, becoming spontaneous in many places. Hybrids of both types have been included in the keys. When these result from the crossing of closely related species of the same section, the problem is usually not difficult to solve, for they are easily placed next to their parents. On the other

*I wish to express my heartiest thanks to Doctor A. W. Exell for his kindness in making up the English version of the Introduction and for revising my English text of the keys.

hand, if they result from the crossing of more distantly related species, the problem is complicated in view of the fact that they are intermediate between the parents and make the keys somewhat imprecise.

When the hybrids belong to different sections two cases may arise: *a.* the dominance of one parent may be such that the hybrid may be included in the section to which the former belongs; *b.* the hybrid may present characters so intermediate between the sections of the parents that it cannot be included in either of them. In the first case it was decided to treat the hybrid as though it were a species of the section of the parent which it more closely resembled, although this decision had the result of making the keys less precise than would be desirable. In the second case I opted for the creation of hybrid groups, a solution which gave difficulties with the keys to the sections, since these groups presented characters intermediate between the respective sections. Other cases were resolved by including the hybrid in two places in the keys, next to each of the parents.

2. *Great variability in the phenotype of the individuals of the same species.*

Many of the characters employed in the keys, such as the length, width and colour of the leaves, number of flowers, length of the pedicels, length of the flower, length of the perianth tube, colour of the perianth segments, show a certain variability among individuals of the same population, which makes the choice of characters on which to base the keys difficult. Sometimes this variability is the result of polyploidy. In fact, in certain species of the sections *Bulbocodium*, *Pseudonarcissus*, *Hermione* and *Serotini* there are polyploid series generally going from the diploid to the hexaploid. In some cases the polyploids of different degrees of ploidy form separate populations, but there are also populations in which the individuals are mixed, with the quantitative characters forming continuous series, making it difficult to delimit the taxa. At first sight it seemed that knowledge of the caryology would help to solve the problems, as it might be hoped that the individuals would have greater dimensions as the degree of ploidy increased until the chromatic optimum was reached. Unfortunately, however, as happens in *N. bulbocodium*, there exist, among the hexaploid forms, some very robust individuals corresponding to var. *serotinus*, other less robust ones which may be identified with var. *conspicuus* and still other dwarf ones which have to be included in var. *bulbocodium*. The same thing occurs in the tetraploids amongst which plants have also been found, of greater or lesser vigour, which can be considered as corresponding to var. *serotinus* or var. *conspicuus* or var. *bulbocodium*. This phenomenon seems to

me explicable by admitting that in some diploids the genes of nanism (dwarfing) are absent but are present in others. The polyploids resulting from the former will be more vigorous than the parents but those resulting from the latter may be more reduced in dimensions. Moreover, the polyploids which overreach the chromatic optimum may also be less vigorous. In other cases, as in sections *Ganymedes*, *Apodanthae* and *Jonquilla*, where polyploidy does not exist or is infrequent, phenotypic variability also occurs.

3. *Difficulty in estimating certain characters in herbarium material.*

After drying, the leaves are flattened, making it very difficult to determine their shape in section and their width. It is then necessary to restore them by the usual methods. The same occurs with the scapes when it is necessary to decide whether they are cylindric, subcylindric or flattened and two-edged. A greater difficulty, however, exists with regard to the colours of the perianth, which are so altered by drying that it is very difficult to decide what was originally white, yellow, orange, green or red. All collectors should bear in mind that the colours are fundamental for the identification of these plants and that it is absolutely essential when collecting to take note of the colours of the different parts of the flowers.

4. *Lack of information respecting the fruits and seeds.*

The shape of the fruits and seed characters may also help the taxonomist. Unfortunately, however, specimens possessing these elements are extremely rare.

5. *Unsolved problems regarding the types of the species.*

Typification of the species in the genus *Narcissus* is a very difficult problem which has not yet been embarked upon. Very few of the specimens existing in the Linnean Herbarium can be considered as the types of the species described by Linnaeus himself. As for the species by other authors, it is also difficult to find out where the types are, especially as many descriptions were made from cultivated plants. In face of these difficulties and of the poverty of herbarium specimens, it will often be necessary to designate judiciously chosen plates or figures as types. As is evident, the lack of types causes many difficulties in identification.

6. *Diversity of concepts as regards delimitation of the taxa.*

Some authors, among them Salisbury and Haworth, carried their studies to an extraordinary degree of minuteness, which has led to the

division of the Linnean genus into various genera (sixteen by Haworth) and the separation of numerous species. Baker, on the contrary, with his very wide conception, reduced the number of species in an excessive manner. The problem of the *splitters* and the *lumpers* is always with us and I am afraid that in some sections I have been a *splitter* and in others a *lumper*.

7. *Complexity of the synonymy.*

In face of the great number of taxa which have been described, it is sometimes extremely difficult to determine what is the correct name for a given species or variety. I have tried to do the best I can, but . . .

8. *Difficulties in establishing the geographical distribution and time of flowering.*

As various species of the genus have been cultivated for a long time and as these plants escape from cultivation and become naturalized in many countries with great facility, it is impossible, in many instances, to find out whether a certain taxon is spontaneous or naturalized in a given locality. Moreover, authors often do not mention the time of flowering.

In Portugal we have a saying 'a sin confessed is half pardoned'. I hope that the readers of the Daffodil and Tulip Year Book who use these keys will grant me the same indulgence as do the Portuguese people and will give me at least half a pardon, for being incapable of producing a work entirely worthy both of them and of their satisfaction.

To make these keys would be impossible without the existence of fine works on the genus in general or on certain sections of it, and I have widely profited from them. Among them, the following merit special reference:

Baker, J. G.

Review of the genus *Narcissus* in F. W. Burbidge, *The Narcissus: its history and culture*. London (1875).

Handbook of the *Amaryllideae*. London (1888).

Bowles, E. A.

A Handbook of *Narcissus*. London (1934).

Burbidge, F. W.

The Narcissus: its history and culture. London (1875).

Chittenden, F. J.

Dictionary of Gardening, 3, *Narcissus*: 1346-1356 (1951).

Coutinho, A. X. P.

Flora de Portugal, ed. 2. Lisboa (1939).

Maire, R.

Flore d'Afrique du Nord, **6**: 51-76 (1959).

Pugsley, H. W.

Narcissus poeticus and its allies. Journ. of Bot. **53**, Suppl. II: 1-44 (1915).

A Monograph of *Narcissus*, subgenus *Ajax*. Journ. Roy. Hort. Soc. **58**, 1: 17-93 (1933).

Notes on Poet's *Narcissi*. Journ. of Bot. **75**: 53-58 (1937).

Notes on *Narcissi*. Journ. of Bot. **77**: 333-337 (1939).

Rouy, G.

Flore de France, **13**: 26-55 (1912).

Sampaio, G.

Flora Portuguesa, ed. 2. Porto (1947).

I decided to include in the keys the somatic number of chromosomes. When this is unknown, I have put in its place a question mark. It will thus be seen that there are still several taxa which have not been the object of caryological study. I should be very grateful to the readers of the Daffodil and Tulip Year Book if they would send me bulbs of these taxa, addressed to Instituto Botânico Dr Júlio Henriques, Coimbra, Portugal, in order to fill these gaps, which could facilitate the clarification of some unresolved problems concerning evolution and phylogenetic relations in the genus.

KEY TO THE SECTIONS

Perianth tube long and narrow, cylindrical, subcylindrical or trigonal, sometimes funnel-shaped at the top (see, however, the hybrids with perianth tube narrowly obconic); stamens unequal, with the versatile anthers at two levels (see below *Bulbocodium* × *Ganymedes*); corona rudimentary or cup or saucer-shaped, usually not very large:

Flowers autumnal, not contemporary with the leaves:

Perianth segments pure white; corona orange or yellow, very short (rarely 2 mm. high), 3- or 6-lobed down to the base, sometimes subentire 3. SEROTINI Parl.

Perianth segments and corona both green; segments narrow and acute 6. JONQUILLA DC. p.p.

Flowers contemporary with the leaves:

Leaves flat above, slightly or ± deeply channelled to the base of the inner face, bluntly keeled, 3-20 mm. broad or, if subcylindrical,

then the perianth segments white or whitish, lanceolate and acute; scape \pm compressed, 2-edged, sometimes subterete:

Corona rudimentary, constituted by a very short, white sometimes 6-lobed rim; perianth tube funnel-shaped at the top

1. AURELIA (J. Gay) Baker

Corona \pm developed (if very short, then yellowish green or yellow); perianth tube not funnel-shaped at the top:

Spathe usually (2)-4-20-flowered; corona uniform in texture and colour (without a red or scarious margin) 2. HERMIONE

Spathe 1-3-(4)-flowered; corona discoid or cupular, yellow, with the margin edged with red or becoming scarious

5. NARCISSUS

Leaves terete or subterete, sometimes filiform, not or \pm deeply channelled on the inner face, finely striate or prominently 2-4-keeled on the outer face; scape usually terete:

Perianth bicoloured, with yellow segments and an orange very short (2 mm. high) entire corona . . . 4. HERMIONE \times SEROTINI

Perianth concolorous or nearly so, golden yellow, yellow, lemon yellow, pale sulphur or white:

Perianth segments spreading or slightly reflexed; flowers not drooping; anthers and pollen golden yellow:

Leaves green (see however *N. rupicola* var. *marvieri* in the next section), narrowly-linear to nearly round, sometimes channelled down the inner face, slightly striate on the outer side; spathe (1) 2-6-flowered, with the flowers golden yellow, lemon yellow or pale sulphur, very fragrant and longly pedicellate; seeds angular, without strophiole 6. JONQUILLA DC.

Leaves glaucous or glaucescent (green in *N. rupicola* var. *marvieri*), channelled down the inner face and 2-4-keeled on the outer side; spathe 1-4-flowered, with the flowers golden yellow, cream coloured or white, not very fragrant specially in the day time; seeds spherical with strophiole 7. APODANTHAE A. Fernandes

Perianth segments sharply reflexed over the tube; flowers drooping; anthers and pollen pale yellow

8. GANYMEDES (Haw.) Schult f.

Perianth tube narrowly or broadly obconic, sometimes very short; stamens unequal, slightly unequal or equal; corona funnel-shaped, campanulate or tubular, half as long as or as long as or longer than the segments, usually large to very large:

KEY TO THE SECTIONS

Perianth tube narrowly obconic:

Corona obconic, sometimes campanulate or cup-shaped, conspicuously shorter than the segments:

Flowers (1-2) white or nearly so, drooping; filaments inserted low down in the tube. . . 12. HERMIONE \times PSEUDONARCISSUS

Flowers yellow, not drooping; filaments longly adnate to the perianth tube:

Spathe (1)-2-4-flowered; leaves bright green, deeply channelled down the inner face, 6-8 mm. broad; scape subterete

13. \times QUELTIA p.p. (JONQUILLA \times PSEUDONARCISSUS)

Spathe 1-flowered; leaves glaucous, obtusely keeled, ca. 12.5 mm. broad; scape distinctly 2-edged

14. \times QUELTIA p.p. (NARCISSUS \times PSEUDONARCISSUS)

Corona tubular or campanulate, sometimes obconic, subequalling or exceeding the segment:

Scape terete; stamens very unequal, \pm declinate, with the anthers dorsifixed; segments narrow; spathe 1-3-flowered

10. BULBOCODIUM \times GANYMEDES

Scape slightly compressed, bluntly 2-edged; stamens straight, equal or nearly so, with the anthers subbasifixed; segments broader; spathe 1-2-flowered

15. GANYMEDES \times PSEUDONARCISSUS

Perianth tube broadly obconic, sometimes very short:

Flowers zygomorphic; corona funnel-shaped; filaments long, declinate, \pm unequal; anthers dorsifixed; leaves semicylindrical; scape terete 9. BULBOCODIUM DC.

Flowers actinomorphic; corona campanulate or tubular, the same length as or longer than the tube, filaments straight, equal, uniseriate:

Scape subterete; anthers incurved (3 dorsifixed and 3 subbasifixed) not surrounding the style; stigma \pm at the same level as the top of the anthers

16. BULBOCODIUM \times PSEUDONARCISSUS

Scape compressed; anthers straight, subbasifixed, surrounding the style; stigma at a higher level than the top of the anthers

11. PSEUDONARCISSUS DC.

I. Sect. AURELIA (J. Gay) Baker

Spathe 3-12-flowered; pedicels 5-25 mm. long; perianth segments oblong, obtuse, pure white, erect-patent, ca. 12.5 mm. long; scape

compressed, 25-45 cm. long; leaves 2-6, broadly linear, ca. 45 cm. long and 13 mm. broad. *Fl. Sept.-Jan. Morocco.* . . *N. broussonetii* Lag.
Flower ca. 28 mm. in diam.; tube 18-20 mm. long; $2n=22$

f. *broussonetii*

Flower ca. 35 mm. in diam.; tube ca. 28 mm. long; $2n=44$. *With the type f. grandiflorus* (Batt. & Trab.) Maire

2. Sect. HERMIONE

Corona cup-shaped, 2-6 mm. high; segments ovate, obovate, oblong or ovate-oblong, rarely narrow and acute; spathe 4-20-flowered (see however *N. × rogendorfii* Batt.); leaves flat, (3-5) 6-20 mm. broad:

Corona yellow or orange:

Segments white:

Flowers usually 19-40 mm. in diam.:

Segments subequaling the tube:

Segments narrow and acute, not imbricate below, sometimes reflexed; corona yellow or orange, \pm deeply lobed; $2n=?$ *Fl. March, April. S. France, Italy, Balkan Peninsula and Corfu* *N. corcyrensis* (Herb.) Nym.

Segments obovate, spreading or a little reflexed; corona ca. $\frac{3}{4}$ the length of the segments, orange, crenate at the margin; $2n=?$ *Fl. May. S. France. N. × grenieri* K. Richter (*N. poeticus* \times *tazetta*)

Segments clearly shorter than the tube, ovate or obovate, imbricate below; corona lemon yellow or orange:

Plants tall, with the leaves erect to erect-patent:

Flowers 25-40(50) mm. in diam.; corona 4-5 mm. high, yellow or orange; scape compressed; $2n=20$. *Fl. December-April. Mediterranean region* *N. tazetta* L.

Flowers 25-32 mm. in diam.; corona ca. 4 mm. high, lemon yellow; scape subterete; $2n=?$ *Fl. April. S. France* *N. ochroleucus* Lois.

Plant dwarf, with the leaves patent down to the base; flowers 18-24 mm. in diam.; corona golden yellow, ca. $\frac{1}{2}$ the length of the segments; $2n=20(22)$. *Fl. February-April. S. France, Italy, Corsica, Sardinia, Sicily and Balkan Peninsula* *N. patulus* Lois.

Flowers usually 40-50 mm. in diam.; corona pale yellow, expanded at the mouth; plant vigorous; $2n=30$ (33). *Fl. March. Probably native in Cyprus and Syria, but introduced in Italy* *N. cypri* Sweet

Segments yellowish or yellow:

Scape almost cylindrical; leaves subterete, deeply channelled on the inner face, 6-8 mm. broad; perianth tube rather trigonal, 15-19 mm. long; segments oblong, spreading, \pm imbricate, yellow, ca. 18 mm. long; corona cup-shaped, 3-4 mm. high, with the margin slightly lobed; $2n=17$. Fl. March, April. Catalonia, Balearic Islands, S. France and Italy (introduced in several places) *N. × intermedius* Lois. (*N. jonquilla* × *tazetta*) ✓

Scape compressed, 2-edged; leaves flat, not so deeply channelled on the inner face:

Segments oblong, acute, not or slightly imbricate, sub-equalling the tube; flowers 23-50 mm. wide:

Flowers 40-50 mm. in diam.; segments yellowish, slightly imbricate; corona pale yellow; leaves green; $2n=22$. Fl. February, March. S. France, Italy, Sicily, Sardinia, Capri, Corsica, Elba *N. italicus* Ker-Gawl. ○

Flowers ca. 35 mm. in diam.; leaves glaucescent.

N. bertolonii Parl.

Flowers concolorous or nearly so, with the segments and corona both bright yellow; $2n=22(20)$. Fl. November-February. Italy var. *bertolonii* ○

Flowers discolorous:

Segments bright yellow and corona orange; $2n=?$
Fl. December-March. Algeria

var. *algericus* (Roem.) Maire & Weiller ○

Segments paler; corona bright yellow:

Segments sulphur coloured; $2n=?$ Fl. December-March. Algeria var. *primulinus* Maire

Segments yellowish white; $2n=?$ Fl. December-March Algeria, Morocco var. *discolor* Batt. ○

Segments ovate, conspicuously imbricated below, shorter than the tube; flowers 25-38 mm. in diam.;

Corona yellow, slightly darker than the segments; leaves green; $2n=22$. Fl. February, March. S. France, Italy and naturalized in the Balkan Peninsula *N. aureus* Lois. ○

Corona deep orange-yellow and segments yellow; leaves glaucous; $2n=?$ Fl. December-March. S. France, Sardinia and Italy *N. cupularis* (Salisb.) Bertol. ex Schult f. ○

Corona and segments both white:

Flowers 12-20 mm. in diam.:

Corona entire or subentire, less than $\frac{1}{3}$ the length of the segments:

- Segments ovate-oblong, \pm obtuse, ca. $\frac{1}{2}$ the length of the tube; bulb very large (5-7 cm. in diam.); $2n=22$. *Fl. December-February. Algeria, Morocco* *N. pachybolbus* Dur.
- Segments ovate-lanceolate, acute, less than $\frac{1}{2}$ the length of the tube; bulb not so large; $2n=22$. *Fl. December-March. Canary Islands* *N. canariensis* Burb.
- Corona \pm lobed, ca. $\frac{1}{2}$ the length of the segments (shorter in the var. *micranthus*), that are ovate and imbricate
N. \times dubius Gouan (*N. requienii* \times *papyraceus*)
- Flowers ca. 20 mm. in diam.; leaves up to 6 mm. broad; $2n=50$. *Fl. February-May. Catalonia, Aragon and S. France*
 var. *dubius*
- Flowers ca. 15 mm. in diam.; leaves 9-12 mm. broad; $2n=?$
Fl. February-April. S. France (Toulon)
 var. *micranthus* (Jord. & Fourr.) Aschers. & Graebn.
- Flowers 20-40 mm. in diam.:
- Flowers 20-25 mm. in diam.;
- Segments acute, usually shorter than the tube; scape and leaves green; $2n=22$. *Fl. January-April. Portugal, Spain, S. France and Italy* *N. panizzianus* Parl.
- Segments obtuse, subequalling the tube; scape and leaves glaucous; $2n=22$. *Fl. February-April. Italy* *N. barlae* Parl.
- Flowers 25-40 mm. in diam.:
- Scape slightly compressed, green like the leaves; corona entire; flowers 25-35 mm. in diam.; $2n=22$. *Fl. December-February. Mediterranean region, but introduced in many places*
N. polyanthos Lois.
- Scape compressed, glaucescent like the leaves; corona usually \pm crenulate; flowers 33-40 mm. in diam.; $2n=22$. *Fl. January-April. Portugal, Spain, S. France, Italy, Dalmatia, Morocco and Algeria. Cultivated in many places*
N. papyraceus Ker-Gawl.
- Corona cup- or saucer-shaped, 1.5-2 mm. high; segments linear-lanceolate; spathe 2-7(10)-flowered; leaves flattish, up to 9 mm. broad, or subterete:
- Corona cup-shaped, ca. 2 mm. high, usually entire; segments ca. 6 mm. broad; scape robust; spathe 6-10-flowered; $2n=?$ *Fl. November. Algeria* *N. \times rogendorfii* Batt. (*N. elegans* \times *tazetta*)
- Corona conic or cylindrical, 1.5-2 mm. high, entire, crenate or 6-lobed; segments 12-18 \times 3-5 mm., somewhat reflexed; scape slender; spathe 2-7-flowered *N. elegans* (Haw.) Spach

KEY TO THE SECTIONS

Segments narrow and acute:

Segments pure white var. *elegans*

Corona yellowish green or olive coloured, conic; $2n=20$.

Fl. September–November. W. Mediterranean region

f. *elegans*

Corona orange, cylindrical; $2n=?$ Fl. October, November.

Cyrenaica f. *auranticoronatus* Maire

Segments not pure white:

Segments cream coloured; corona orange-olive-coloured;

$2n=?$ Fl. October. Algeria var. *flavescens* Maire

Segments greenish white; $2n=20$. Fl. October, November.

Morocco and Algeria var. *fallax* Font-Quer

Segments broader and \pm obtuse; $2n=20$. Fl. October, November.

Morocco and Algeria var. *intermedius* J. Gay

3. Sect. SEROTINI Parl.

Flowers up to 40 mm. in diam., fragrant; perianth tube greenish white, subcylindrical, 12–20 mm. long; segments pure white, broadly elliptic-oblong, 10–20 \times 2–8 mm., spreading; corona yellow or orange, 1–1.5 mm. high, 3–6-lobed, rarely subentire; spathe 1–2(3)-flowered; scape slender; leaves slender, subterete, produced only after the flowers have gone. Fl. September, October *N. serotinus* L.

Corona \pm developed:

Segments \pm obtuse and apiculate; $2n=10$ and 30. Mediterranean region var. *serotinus*

Segments deeply emarginate, not apiculate; $2n=?$ Algeria

var. *emarginatus* Chabert

Corona constituted by a rudiment; $2n=?$ —Where?

var. *deficiens* (Herb.) Baker

4. HERMIONE \times SEROTINI

Leaves filiform, channelled down the inner face, contemporary with the flowers; spathe 2–8-flowered; flowers inodorous; segments obovate, 15–18 \times 8–12 mm. yellow, rather reflexed; corona cup-shaped, orange, 2 mm. high and 7 mm. wide at the mouth, entire; $2n=?$ Fl. November. Algeria

N. \times chevassutii Gorenflot, Guinochet & Quézel (*N. bertolonii* \times *serotinus*)

5. Sect. NARCISSUS

Spathe 2- rarely (1)3(4)-flowered; pollen sterile:

Spathe 2-4-flowered; corona short, deep yellow, somewhat reddish at the margin. $2n=?$ *Fl. May. S. France (Hérault, Gard)*

N. × loretii Rouy (*N. poeticus* × *tazetta*)

Spathe 2- rarely 3-flowered; corona 3.5-5 mm. high, yellow, with the margin concolorous at the anthesis, becoming later whitish-scarious; $2n=17$. *Fl. April, May. Probably native in S. France and introduced and naturalized in Portugal, England, Switzerland, Italy, Tyrol and Balkan Peninsula*

N. × medioluteus Mill. (= *N. biflorus* Curt.) (*N. poeticus* × *tazetta*)

Spathe always 1-flowered; pollen usually fertile:

Stamens clearly unequal; segments imbricate below

N. poeticus L.

Corona flat and discoid; capsule broadly ellipsoid, obscurely trigonous; $2n=14$ and 21 . *Fl. March-May. Spain, Pyrenees, S. France and Italy* var. *poeticus*

Corona ± cup-shaped:

Flowers small (35-50 mm. in diam.):

Corona 2 mm. high and 8-9 mm. broad; segments strongly mucronate or cuspidate; plant dwarf; $2n=?$ *Fl. May. Italy.*
var. *verbanensis* Herb.

Corona ca. 3 mm. high and 12-14 mm. broad; segments more obtuse, mucronate; plant tall; $2n=?$ *Fl. May, June. N. Greece* var. *hellenicus* (Pugsley) A. Fernandes

Flowers larger (50-70 mm. in diam.):

Corona greenish yellow ringed with crimson; capsule subrotund-trilobate; $2n=21$. *Fl. June. Switzerland*
var. *recurvus* (Haw.) A. Fernandes

Corona with a white zone below the red margin; capsule trigonal-obovoid; $2n=?$ *Fl. May. Native of S. France?*
var. *majalis* (Curt.) A. Fernandes

Stamens subequal; segments usually narrowed and not imbricate below *N. radiiflorus* Salisb.

Corona cupular, 2-2.5 mm. high and 8-10 mm. broad:

Corona bright yellow, edged (sometimes broadly) with deep red; capsule linear-ellipsoid or pyriform; $2n=14$. *Fl. April. Switzerland, Austria and Jugoslavia* var. *radiiflorus*

Corona yellow, with a very narrow white zone within the scarlet-red margin; capsule ellipsoid, trigonous; $2n=?$ *Fl.*

KEY TO THE SECTIONS

May, June. Savoy, Jura, Austrian Tyrol, Balkan Peninsula and Transylvania var. *stellaris* (Haw.) A. Fernandes

Corona flat or nearly so:

Corona sub-discoid, wholly red; capsule narrowly ellipsoid, nearly terete; $2n=21$. Fl. April. Native in South-eastern Europe or a horticultural product?

var. *poetarum* Burb. & Baker

Corona flat and subdiscoid, chrome yellow with a scarlet edge; capsule ellipsoid or obovate-ellipsoid, \pm trigonous, $2n=?$. Fl. May. Switzerland

var. *exertus* (Haw.) A. Fernandes, comb. nov.*

6. Sect. JONQUILLA DC.

Flowers autumnal, not contemporary with the leaves; segments green, lanceolate, acute, reflexed, $10-13 \times$ ca. 2 mm.; corona also green, ca. 1 mm. high, 6-lobed; spathe 2-5-flowered; leaves subterete, deep green; $2n=28$. Fl. October, November. Gibraltar and Morocco

N. viridiflorus Schousb.

Flowers vernal, contemporary with the leaves:

Leaves bright green, subterete, deeply channelled down the inner face, 6-8 mm. broad; perianth tube rather trigonal, 15-19 mm. long; segments ovate, imbricate below, yellow, ca. 18 mm. long; corona cup-shaped, orange-yellow, 3-4 mm. high; $2n=17$. Fl. March, April. Catalonia, Balearic Islands, S. France and Italy (certainly introduced in several places)

N. \times intermedius Lois. (*N. jonquilla* \times *tazetta*)

Leaves narrower, sometimes filiform, not so deeply channelled on the inner face; perianth tube cylindrical:

Perianth tube straight, 20-30 mm. long:

Leaves narrowly linear; spathe 1-3 flowered; segments ovate or ovate-oblong, ca. 25×15 mm., yellowish or yellow; corona cup-shaped, ca. 5 mm. high, deeper yellow than the segments, plicate and crenulate at the mouth; $2n=14$. Fl. April, May. Near Bordeaux?, Italy (probably an escape from the gardens) *N. \times tenuior* Curt. (*N. jonquilla* \times *poeticus*)

Leaves nearly terete to semicylindrical, channelled down the inner face; segments ovate or obovate, bright yellow; corona cup- or saucer-shaped, usually concolorous with the segments,

**N. majalis* Curtis var. *exertus* Haw., *Narciss. Rev.*: 150 (1819).

2-4 mm. high; $2n=14$. Fl. January-April. Iberian Peninsula. Introduced in S. France, Italy, Dalmatia and Algeria

N. jonquilla L.

Segments ovate or obovate, \pm spreading:

Flowers 25-30 mm. in diam.; scape 20-40 cm. high:

Leaves 3-4 mm. broad; corona $1\frac{1}{2}$ to $\frac{1}{4}$ the length of the segments; $2n=14$. Portugal and Spain

var. *jonquilla*

Leaves 1-2 mm. broad; corona ca. $\frac{1}{3}$ the length of the segments; $2n=14$. S. Portugal

var. *henriquesii* Samp.

Flowers ca. 12.5 mm. in diam.; scape shorter; $2n=?$ Spain

var. *minor* (Haw.) Baker

Segments lanceolate, \pm reflexed; corona 6-lobed; $2n=?$ —

Where? var. *stellaris* Baker

Perianth tube straight or curved, 10-20(22) mm. long:

Longer pedicel usually as long as the spathe at anthesis and longer than the flower (see, however, below *N. x pujolii*); plants generally vigorous:

Perianth tube 15-20(22) mm. long; corona ca. $\frac{1}{2}$ the length of the 9-11 mm. long segments; leaves erect-recurved. Fl. February, March *N. fernandesii* G. Pedro

Leaves short, 1-1.5 mm. broad at the base, slightly channelled on the inner face; scape ca. 10 cm. high and 1.5 mm. in diam. at the base; perianth tube 15-18 mm. long; $2n=14$. Portugal (Ribatejo) var. *fernandesii*

Leaves up to 70 cm. long and 1.5-4.5 mm. broad at the base, more deeply channelled on the inner side; scape 16-20 cm. high and 3-4.5 mm. in diam. at the base; perianth tube 15-22 mm. long; $2n=28$. Portugal (Ribatejo)

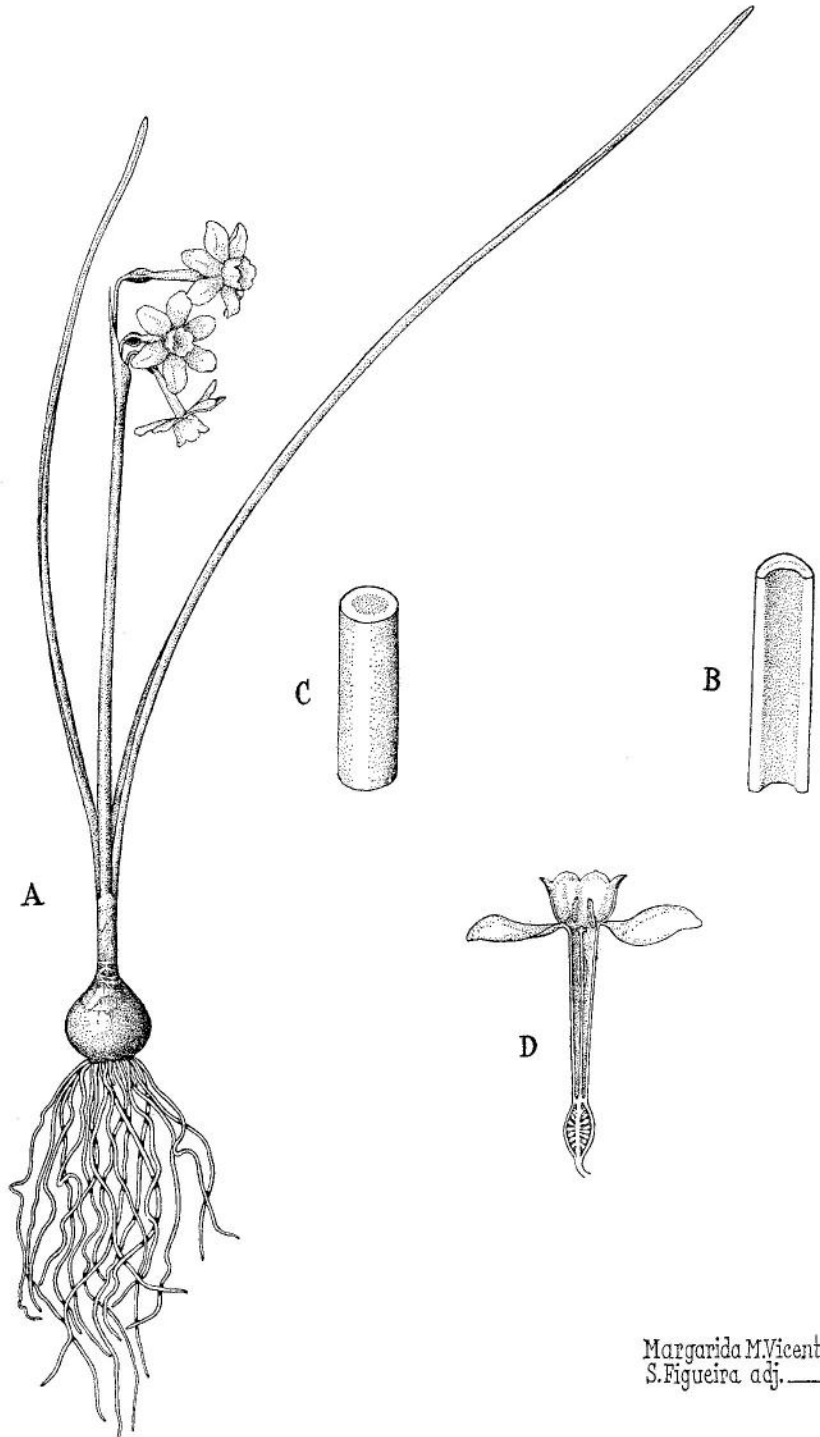
var. *major* A. Fernandes

Perianth tube 10-15 mm. long; corona 5-6 mm. high, longer than $\frac{1}{2}$ of the 8-10 mm. long segments; leaves erect:

Leaves semicylindrical, 2-2.5 mm. broad, green; corona \pm deeply 6-lobed; $2n=14$. Fl. February, March. Portugal (Algarve) *N. willkommii* (Samp.) A. Fernandes

Leaves cylindrical up to 2 mm. broad, deep green; corona entire or nearly so; $2n=21$. Fl. February, March. Portugal (Algarve) *N. gaditanus* \times *willkommii* A. Fernandes

Longer pedicels 0.9-3 cm. long at anthesis, usually included in the spathe and shorter than the flower; plants slender:



Margarida M. Vicente del.
S. Figueira, adj. _____

Text Fig. 1 *Narcissus willkommii*, an old species recently determined
by Professor A. Fernandes

Perianth tube straight, 14-18(20) mm. long; leaves 2-4 mm. broad:

Leaves 3-4 mm. broad:

Segments sulphur coloured; corona golden yellow, less than $\frac{1}{2}$ the length of the segments; $2n=?$ *Fl. March. S. France (Gard)*

N. × magnenii Rouy (*N. requienii* × *tazetta*)

Segments lemon coloured; corona concolorous, more than $\frac{1}{2}$ the length of the segments; $2n=?$ *Fl. March. Spain (Catalonia)*

N. × pujolii Font Quer (*N. × dubius* × *requienii*)

Leaves up to 2 mm. broad; segments yellow or pale sulphur; corona the same shade or rather darker than the segments, usually more than $\frac{1}{2}$ the length of these

N. requienii Roem.

Segments yellow; corona the same shade or rather darker than the segments; $2n=14$ (sometimes with B-chromosomes). *Fl. April, May. NE. and E. Spain and S. France*

var. *requienii*

Segments and corona pale sulphur coloured; $2n=?$ *Spain (Valencia)*

var. *pallens* (Freyn ex Willk.) A. Fernandes, comb. nov.*

Perianth tube curved, 8-16 mm. long; leaves filiform, round or semicylindrical:

Flowers ca. 20 mm. in diam.; tube 12-16 mm. long; segments broadly ovate, 6-7 mm. long; corona ca. 5 mm. high, truncate; $2n=14$. *Fl. January-April. S. Portugal and S. Spain* *N. gaditanus* Boiss. & Reut.

Flowers ca. 10 mm. in diam.; tube 8-11 mm. long; segments lanceolate-acuminate, 4-5 mm. long; corona 2.5-3 mm. high; $2n=14$. *Fl. February. S. Portugal and S. Spain* *N. minutiflorus* Willk.

7. Sect. APODANTHAE A. Fernandes

Spathe membranous, shortly tubular, 1-4-flowered; pedicels \pm long (6-30 mm.); flowers yellow or cream:

Leaves with the outer face sharply 2-keeled; flowers yellow:

Leaves erect, smooth at the margin; scape subcompressed; segments obovate or elliptic, 7-11 mm. long; corona entire, crenate

**N. pallens* Freyn ex Willk., Suppl. Prodr. Fl. Hisp.: 39 (1893).

KEY TO THE SECTIONS

or lobed, 5-7 mm. high, exceeding $\frac{1}{2}$ the length of the segments;
 $2n=14$. Fl. February, March. W. Portugal

N. calcicola Mendonça

Leaves \pm prostrate and contorted, or \pm erect, with the margin furnished with minute teeth; scape cylindrical, 6-ridged; segments ovate, corona usually almost as long as the segments;
 $2n=14$. Fl. February-April. Portugal (middle Mondego basin)

N. scaberulus Henriq.

Leaves slightly 2-keeled, with the margin furnished with minute teeth; flowers cream coloured, 20-24 mm. long*; segments somewhat twisted and reflexed, 7-9 \times 4-5 mm.; corona 5-6 mm. high and 7-8 mm. in diam. at the mouth; $2n=14$. Fl. February-April. Portugal (Ervedal da Beira and Oliveira do Conde)

N. \times carringtonii Rozeira (*N. scaberulus* \times *triandrus* var. *cernuus*)

Spathe scarious-hyaline, longly tubular, usually 1-flowered; flower suberect, sessile or shortly pedicellate:

Flower yellow, sometimes with the corona of a deeper shade; corona cup-shaped, usually 6-lobed *N. rupicola* Duf.

Plant glaucous; leaves prominently keeled; perianth tube 15-20 mm. long:

Pedicel none or up to 3(5) mm. long; capsule ellipsoid; on granitic rocks; $2n=14$. Fl. March-June. Iberian Peninsula

subsp. *rupicola*

Pedicel 3-12 mm. long; capsule globose; on calcareous rocks; $2n=?$ Fl. April-June. Spain (Mágina Mounts and Moreda in Granada Prov.) subsp. *pedunculatus* (Cuatr.) Láinz

Plant green; leaves not so prominently keeled; perianth tube 23-27 mm. long; $2n=?$ Fl. March, April. Morocco

subsp. *marvieri* (Jahand. & Maire) Maire & Weiller

Flower white; corona sinuate at the margin; pedicel up to 1 mm. long; leaves with the keels not very prominent; $2n=14$. Fl. March, April. Morocco *N. watieri* Maire

8. Sect. GANYMEDES (Haw.) Schult. f.

Flowers concolorous:

Flowers golden yellow; spathe usually 1-3-flowered; corona cup-shaped up to 1 cm. high; leaves usually erect, light green, the outer face 7-9-striated; $2n=14$. Fl. February-April. Iberian Peninsula

N. concolor (Haw.) Link

*In all cases, the length of the flower is taken excluding the ovary.

Flowers sulphur yellow, whitish or white; spathe 1-6(8)-flowered; corona cup- or vase-shaped, usually more than 1 cm. high (up to 18 mm.); leaves dark-green, channelled down the face, 4-keeled or 7-9-striated along the outer face *N. triandrus* L.
Flower pure white or almost so; $2n=14$. *Fl. March-May. Pyrenees*
var. *triandrus*

Flower sulphur yellow or whitish; $2n=14$. *Fl. March-May.*
Iberian Peninsula and Glenans Islands

var. *cernuus* (Salisb.) Baker (Fig 36)

Flowers slightly discolorous, with the segments yellow and the corona light yellow; $2n=?$ *Guadarrama Mountains?*

N. × pulchellus Salisb. (*N. concolor × triandrus* var. *cernuus*?)

9. Sect. BULBOCODIUM DC.

Flower (especially the corona) golden yellow or yellowish; pedicel at anthesis usually more than 9 mm. long, rarely shorter (5-9 mm.):

Leaves erect, ascending or prostrate, 1.5-4 mm. broad; scape usually long; perianth tube green, with $6 \pm$ broad, greenish yellow stripes; segments narrowly lanceolate, ascending or \pm spreading, broadly keeled with green; corona obconic, generally not contracted at the throat; $2n=14, 21, 28, 35, 42, 49$ and 56 (sometimes with B-chromosomes). *Fl. November-July. Iberian Peninsula, S.W. and W. France, Morocco and Algeria* *N. bulbocodium* L.

Flower golden yellow subsp. *bulbocodium*

Plants dwarf; pedicel usually up to 20(25) mm. long; perianth usually up to 30(35) mm. long:

Leaves ca. 1.5 mm. (sometimes more), the outer face slightly striate; scape hollow upwards, smooth; stamens usually not exerted; external tunics of the bulb often dark; $2n=14, 21, 28$ and 42 . *Fl. January-June. Iberian Peninsula, S.W. and W. France and Morocco* var. *bulbocodium*

Leaves usually broader, the outer side deeply striate; scape slightly ridged; stamens sometimes exerted; external tunics of the bulb often whitish; $2n=14$. *Fl. February-July. Mountains of the Iberian Peninsula and Morocco*

var. *nivalis* (Graells) Baker

Plants robust; pedicel usually longer than 20 mm.; perianth longer:

Leaves erect, usually \pm the same length as the scape, up to 2.5 mm. broad; flower usually 30-35 mm. long, with the

KEY TO THE SECTIONS

corona ca. 20 mm. in diam. at the throat; $2n=28$ and 42 .
Fl. February-May. Iberian Peninsula and W. France

var. *conspicuus* (Haw.) Baker

Leaves usually erect-recurved, longer than the scape, up to
 4 mm. broad; flower 35-40(50) mm. long, with the corona
 ca. 30 mm. in diam. at the throat; $2n=28, 35, 42, 49,$ and 56
Fl. March-May. W. Portugal

var. *serotinus* (Haw). A. Fernandes, comb. nov.*

Flower not golden yellow:

Flower pale lemon yellow, 35-50 mm. long; corona 25 mm. in
 diam. at the throat, obscurely crenulate; $2n=14$ and 42
 (sometimes with B-chromosomes). *Fl. March. Mountains of*
Asturias and Viscaya var. *citrinus* Baker

Flower primrose yellow or pale yellow, not so large:

Flower primrose yellow; stamens usually exerted; flower in
 spring; plant dwarf; $2n=?$ *Fl. March, April. Mountains of*
Castille var. *graellsii* (Webb) Baker

Flower pale yellow; stamens not exerted; flower in winter;
 plant robust; $2n=?$ *Fl. November-January. Morocco*

subsp. *praecox* Gatt. & Weiller

Segments 6-nerved var. *praecox*

Segments 3-nerved var. *paucinervis* Maire

Leaves prostrate, very narrow (ca. 1 mm.); perianth tube greenish
 yellow; segments ascending, broader, the keel only suffused with
 green; corona very large and usually contracted at the throat;
 $2n=26$ and 39 . *Fl. March, April. W. and S. Portugal (and Morocco)*

N. obesus Salisb.

Flower (especially the corona) sulphur or pale sulphur coloured or
 whitish yellow or greenish white or pure white; pedicel absent or
 very short (up to 5(9) mm.):

Flower sulphur or pale sulphur coloured or whitish yellow; anthers
 usually exerted:

Segments oblong or oblong-lanceolate, obtuse, 3-4.5 mm. broad
 at the base; pedicel absent; scape 5-8 cm. long, shorter than the
 leaves; $2n=?$ *Fl. December-March. Spain (Sierra de Cazorla and*
Ciudad Real)

N. hedraeanthus (Webb & Heldr.) Colmeiro

Segments linear-lanceolate, acute, 1-2.5 (3) mm. broad at the base;
 pedicel up to 6 (9) mm. long; scape longer (15-20 cm.)

**Corbularia serotina* Haw., Mon. 1, n.º 9 (1831).

THE DAFFODIL AND TULIP YEAR BOOK

Flower pale sulphur yellow or whitish yellow or white with a slightly greenish yellow shade. *Fl. March*

N. romieuxii Br.-Bl. & Maire

Flower pale sulphur yellow coloured subsp. *romieuxii*

Spathe whitish scarious, subhyaline; pedicel 2-3 (5) mm. long; segments almost as long as the corona; anthers light yellow; $2n=28$ (sometimes with B-chromosomes).

Morocco var. *romieuxii*

Spathe violet-brown; pedicel usually longer; segments longer than the corona; anthers golden yellow; $2n=28$ (sometimes with B-chromosomes). *Morocco*

var. *rifanus* (Emb. & Maire) A. Fernandes

Flower whitish yellow or white with a slight greenish yellow shade; anthers golden yellow

subsp. *albidus* (Emb. & Maire) A. Fernandes

Flower whitish yellow; segments ca. 2.5 mm. wide at the base, longer than the corona; $2n=?$ *Morocco*

var. *albidus*

Flower white with a slight greenish yellow shade; segments ca. 1.5 mm. wide at the base, as long as or shorter than the corona; $2n=28$ (sometimes with B-chromosomes).

Morocco

var. *zaianicus* (Maire, Weiller & Wilczek) A. Fernandes

Flower pure white or greenish white; anthers included or nearly so.

Fl. December, January *N. cantabricus* DC.

Leaves usually more than one to each bulb:

Leaves flexuous, 0.5-1.5 mm. broad; stamens subequal.

subsp. *cantabricus*

Leaves prostrate; $2n=?$ *Spain* var. *cantabricus*

Leaves erect or erect-recurved:

Corona not spreading at the margin; pedicel 5-8 mm. long:

Leaves 3-8 to each bulb; perianth white, 35-60 mm. long; $2n=28$. *Morocco*

var. *foliosus* (Maire) A. Fernandes

Leaves usually 2 to each bulb; perianth greenish white, ca. 33 mm. long; $2n=?$ *Morocco*

var. *kesticus* (Maire & Wilczek) A. Fernandes

Corona much spreading above simulating the corolla of a *Petunia*; pedicel up to 5 mm. long; $2n=?$ *Algeria?*

var. *petunioides* A. Fernandes

KEY TO THE SECTIONS

- Leaves rigid, 3-5 to each bulb, 1-2.5 mm. broad; perianth ca. 50 mm. long; stamens very unequal; $2n=?$ Morocco
 subsp. *tananicus* (Maire) A. Fernandes, comb. nov.*
 Leaves usually only one to each bulb, less than 1 mm. broad; $2n=14$.
 SE. Spain, Morocco and Algeria
 subsp. *monophyllus* (Dur.) A. Fernandes

10. BULBOCODIUM × GANYMEDES

- Perianth golden yellow; segments usually slightly reflexed; $2n=14$.
 Fl. February, March. Portugal (Buçaió and Bragança)
N. bulbocodium × *concolor* Rozeira
 Perianth sulphur yellow; segments usually spreading, spirally twisted;
 $2n=14$. Fl. March, April. Portugal (Minho, Beira Alta and Beira Baixa)
N. bulbocodium × *triandrus* var. *cernuus* A. Fernandes

11. Sect. PSEUDONARCISSUS DC.

- Perianth tube usually longer than 9 mm.; filaments inserted above the base of the perianth tube (only 1-2 mm. above in *N. bicolor*):
 Spathe 6-10 cm. long (sometimes 2-flowered); pedicel 4-9 cm. long; perianth 35-45 mm. long; perianth tube 10-15 mm. long, rather broad; plant tall, with erect leaves 40-60 cm. long and 10-15 mm. broad (*fide* Pugsley) or 18-14 cm. long and 10-12 mm. broad (*fide* Turrill); $2n=14$. Fl. March. Spain (Sierra de Cazorla, prov. Jaen)
N. longispathus Pugsley

Spathe and pedicel shorter:

Flower large [(35) 40-70 mm. long]; plants usually tall;

Flower deep yellow, concolorous or nearly so:

Pedicel (10) 15-35 mm. long, erect but curved above:

Plant tall; flower 45-65 mm. long; segments ovate-elliptic, lanceolate-elliptic, oblong or oblong-lanceolate, slightly imbricate below, twisted, shorter or as long as the corona; leaves erect, 40-45 cm. long glaucous, ± spirally twisted, 10-12 mm. broad. Fl. March, April . . . *N. hispanicus* Gouan

Pedicel 25-35 mm. long; perianth tube ca. 18 mm. long; oblong-lanceolate, as long as the corona; corona abruptly dilated and widely spreading at the lobed and deeply crenate-dentate margin; $2n=14$, 21 and

**Narcissus bulbocodium* L. subsp. *tananicus* Maire in Bull. Soc. Hist. Nat. Afr. Nord, 23: 216 (1932).

42 (sometimes with B-chromosomes). *Iberian Peninsula and S. France* var. *hispanicus*

Pedicle 15-25 mm. long:

Segments as long as the corona:

Pedicle 15-25 mm. long; perianth 50-65 mm. long, with the outer segments oblong and the inner ones oblong-lanceolate; $2n=14$. *S.W. France (Agen and Bayonne)?*

var. *propinquus* (Herb.) Pugsley

Pedicle ca. 15 mm. long; perianth 45-55 mm. long, with the segments ovate-elliptic; $2n=?$ *Spain (Asturias)? A cultivated plant naturalized in England?*

var. *spurius* (Haw.) Pugsley

Segments lanceolate-elliptic, shorter than the corona; perianth 50-65 mm. long, golden yellow; $2n=?$ *S. France (Dept. of Var)*

var. *concolor* (Jord.) Pugsley

Plant dwarf; flower 30-38 mm. long; segments oblong-lanceolate, slightly imbricate below, not twisted, sub-equalling the corona; leaves 12-30 cm. long and 5-6 mm. broad, green; $2n = 14$. *Fl. April. S. Spain (Granada Prov.)*

N. nevadensis Pugsley

Pedicle 5-15 mm. long, suberect:

Plant tall and robust, with leaves erect, green, 30-35 cm. (or more?) long and up to 14 mm. broad; pedicle ca. 10 mm. long; flower suberect or ascending, 40-50 mm. long; segments ovate-lanceolate or lanceolate, imbricate below, ascending, \pm twisted, nearly equalling the corona; $2n=?$

Fl. March. Spain *N. confusus* Pugsley

Plants not so robust, with the leaves erect or suberect, glaucous, 8-30 cm. long and 6-10 mm. broad:

Leaves erect, 20-30 cm. long and 8-10 mm. broad, equaling the scape; pedicle 10-15 mm. long; flower 35-45 mm. long; perianth tube 12-15 mm. long; $2n=14$.

Fl. March. Origin uncertain *N. obvallaris* Salisb.

Leaves suberect, 8-12 cm. (or more?) long and ca. 6 mm. broad, much shorter than the scape; pedicle 5-15 mm. long; flower (35) 40-45 mm. long; perianth tube 16-22 mm. long; $2n=14$. *Fl. March, April. N.W. Portugal and Spain* *N. portensis* Pugsley

KEY TO THE SECTIONS

Flowers not deep yellow:

Flowers yellow, cream or straw coloured, concolorous or \pm bicoloured:

Pedicle short (up to 10 mm. long) and usually deflexed:

Flower yellow, concolorous or \pm bicoloured, drooping, sometimes nearly horizontal or ascending; corona straight, rarely expanded or distinctly lobed at the margin; capsule often rugose. *Fl. March-May*

N. pseudonarcissus L.

Plants tall:

Corona irregularly cut into numerous short, dentate and subimbricate lobules:

Corona scarcely expanded or spreading at the margin; leaves glaucous, 12-35 cm. long and 6-12 mm. broad; $2n=14$. *Spain, S. France and naturalized in all countries of Europe*

var. *pseudonarcissus*

Corona somewhat expanded or spreading at the margin:

Flower ca. 50 mm. long; segments ovate-elliptic; capsule 6-furrowed; $2n=?$ *Lorraine (Dept. Vosges)* . . . var. *platilobus* (Jord.) Pugsley

Flower 40-50 mm. long; segments broadly ovate to elliptic-lanceolate; capsule nearly terete; $2n=?$ *Naturalized in England*

var. *insignis* Pugsley

Corona 6-lobed:

Perianth tube 18-20 mm. long; flower 45-48 mm. long; $2n=?$ *N. Italy*

var. *pisanus* (Pugsley) A. Fernandes, comb. nov.*

Perianth tube 20-25 mm. long; flower 40-55 mm. long; $2n=?$ *France (Dept. Loire)*

var. *montinus* (Jord.) Pugsley

Plants dwarf:

Corona with a serrate-dentate margin:

Leaves ca. 5 mm. broad; flower ca. 40 mm. long; pedicel very short; $2n=?$ *France (Central Pyrenees and Maritime Alps)* . . . var. *minoriformis* Pugsley

Leaves 6-8 mm. broad; flower 35-40 mm. long; pedicel longer; $2n=?$ *England (naturalized?)*

var. *humilis* Pugsley

**N. pisanus* Pugsley in Journ. Roy. Hort. Soc. 58, 1: 59 (1933).

Corona with a lobate-crenate margin:

Flower 40-45 mm. long; segments oval, subob-
tuse, imbricate; capsule ca. 20 mm. long;
2n=? France (Dept. Isère and High-Alps)

var. *festinus* (Jord.) Pugsley

Flower ca. 40 mm. long; segments oblong or
lanceolate, apiculate, not imbricate; capsule ca.
15 mm. long; 2n=? France (Lyon)

var. *porrigens* (Jord.) Pugsley

Flowers cream or straw coloured, concolorous or \pm bi-
coloured; corona distinctly expanded and lobed at the
margin; capsule not rugose:

Leaves 5-10 mm. broad; pedicel 3-8 (10) mm. long;
flower 40-55 (60) mm. long, with the segments
broadly oval or oblong, \pm imbricate; capsule not
trigonous. *Fl. March, April* *N. pallidiflorus* Pugsley

Leaves 6-10 mm. broad; pedicel 5-10 mm. long;
segments broadly oval, \pm imbricate; margin of
the corona with the lobes obscurely crenate or
finely crenate-dentate var. *pallidiflorus*

Pedicel 5-8 mm. long; flower cream or straw
coloured, with slightly deeper corona; seg-
ments clearly imbricate; 2n=14 (sometimes with
B-chromosomes) *W. Pyrenees* (Bayonne)

forma *pallidiflorus*

Pedicel rather long up to 10 mm.; perianth paler;
segments less imbricate; 2n=? Spain (Asturias)

forma *asturicus* Pugsley

Leaves 5-8 (10) mm. broad; pedicel 3-5 mm. long;
segments oblong, slightly imbricate; margin of
the corona with the lobes irregularly dentate-
lacinate; 2n=14. *Central* (Dept. Haute-Garonne)
and *E. Pyrenees* var. *intermedius* Pugsley

Leaves 8-12 mm. broad; pedicel ca. 10 mm. long;
flower 50-60 mm. long, with the segments ovate-
lanceolate, imbricate; capsule slightly trigonous;
2n=? *Fl. March, April*. *E. and Central Pyrenees*

N. macrolobus (Jord.) Pugsley

Pedicel usually 10-35 mm. long:

Perianth tube 15-25 mm. long; flowers (45) 50-70 mm.
long; chalazal end of the seed appendiculate:

KEY TO THE SECTIONS

Perianth tube 15-20 mm. long; segments sulphur yellow; corona bright canary yellow; $2n=14$. *Fl. March*. *Origin unknown*

N. gayi (Hénon) Pugsley

Perianth tube 20-25 mm. long; segments pale yellow or cream; corona golden yellow. *Fl. March, April*

N. nobilis (Haw.) Schult. f.

Pedicle rather slender, usually 10-15 mm. long; flower (45) 50-65 mm. long; plant of moderate size; $2n=28$ and 42. *Portugal (Minho and Beira Alta), Spain (Galicia, Leon, Old Castille and Asturias) and Central Pyrenees* var. *nobilis*

Pedicle rather stout, 20-25 mm. long; flower 65-70 mm. long, sometimes with the corona much dilated above; plant large and tall; $2n=42$. *Spain (Leon Prov.)*

var. *leonensis* (Pugsley) A. Fernandes, comb. nov.*

Perianth tube 6-12 mm. long; flowers 40-50 mm. long; chalazal end of the seed not appendiculate:

Leaves 8-20 mm. broad; pedicle 10-25 mm. long; flower 40-50 mm. long; perianth tube slightly hexagonal, ca. 10 mm. long; segments whitish or cream coloured, cordate-ovate or broadly ovate-elongate or ovate-elliptic, much imbricate below; corona golden yellow, very slightly ventricose below and somewhat dilated above (25-30 mm. in diam.). *Fl. March-May* *N. bicolor* L.

Leaves 12-20 mm. broad; pedicle 15-25 mm. long; perianth tube greenish yellow; segments cordate-ovate or broadly ovate-elongate; $2n=22$ (horticultural forms). *Fl. April, May. Pyrenees? Montpellier?* var. *bicolor*

Leaves 8-13 mm. broad; pedicle 10-12 mm. long; perianth tube deeper yellow; segments ovate-elliptic; $2n=21$ (horticultural form) *Fl. March*.

Origin uncertain var. *lorifolius* (Herb.) Pugsley

Leaves 10-12 mm. broad; pedicle 15-35 mm. long; flower 45-50 mm. long; perianth tube obconic, 6-12 mm. long; segments pale or sulphur yellow, ovate-lanceolate, lanceolate, narrowly lanceolate or

**N. leonensis* Pugsley in Journ. Roy. Hort. Soc. 58, 1: 75 (1933).

subrhombic-ovate; corona deep golden yellow, cylindrical, rarely dilated above (15-20 mm. in diam.). *Fl. April* *N. abscissus* (Haw.) Schult. f.
Perianth tube 8-12 mm. long:

Segments rounded and imbricate below; corona slightly 6-lobed:

Segments ovate-lanceolate or lanceolate; capsule 20-25 mm. long; $2n=14$. *Fl. April*.

Pyrenees var. *abscissus*

Segments subrhombic-ovate; capsule 25-30 mm. long, narrower; $2n=?$ *Gèdres*

var. *serotinus* (Jord.) Pugsley

Segments narrow, not imbricate; corona narrow, with suberect and subtruncate margin; $2n=?$
High Pyrenees and High Garonne Dept.

var. *graciliflorus* Pugsley

Perianth tube 6-7 mm. long; $2n=?$ *Gèdres*

var. *tubulosus* (Jord.) Pugsley

Flower pale sulphur or white, concolorous or nearly so, almost horizontal or drooping or inverted, 35-60 mm. long:

Flower pale sulphur coloured, sometimes fading to nearly white, horizontal or drooping; perianth tube 12-20 (22) mm. long:

Flower 40-50 mm. long, drooping; segments oblong-lanceolate, scarcely imbricated below, subequalling the corona which is slightly dilated above and with a shallowly 6-lobed margin; capsule narrow, nearly terete; $2n=14$. *Fl. April. Pyrenees?* *N. moschatus* L.

Flower 45-60 mm. long, nearly horizontal; segments imbricate, usually shorter than the corona:

Pedicle 10-18 mm. long; segments oval-lanceolate or oval, much spirally twisted; corona large and somewhat expanded at the top, with a subspreading shallowly 5-lobed margin; capsule trigonous; leaves 25-35 cm. long and 7-10 mm. broad; $2n=14$ and 28. *Fl. March, April. Spain (Asturias and Vizcaya)*

N. tortuosus Haw.

Pedicle 20-25 mm. long; segments elliptic-lanceolate or oblong; corona straight, somewhat apically dilated, with spreading 6-lobed margin; capsule

KEY TO THE SECTIONS

subterete; leaves 35-40 mm. long and 10-12 mm. broad; $2n=?$ *Fl. April. Pyrenees*

N. albescens Pugsley

Flower pure white, drooping, 35-45 mm. long; perianth tube 10-13 mm. long; segments narrowly oblong, rarely oval, shorter than the corona which is long and narrow, not dilated at the top; capsule distinctly trigonous; $2n=14$. *Fl. April. Pyrenees* *N. alpestris* Pugsley

Flower small, with the perianth 20-35 (45) mm. long; yellow or bicoloured; plants usually dwarf:

Perianth tube 11-18 mm. long:

Plants dwarf, with leaves 7-12 cm. long and 3-6 (8) mm. broad:

Leaves 4-6 (8) mm. broad; pedicel 10-15 mm. long; flower 30-35 mm. long, with yellow segments and a deeper corona; capsule narrowly obovoid or oval-oblong, 15-25 mm. long; $2n=14$ (sometimes with B-chromosomes).

Fl. March. Origin unknown *N. minor* L.

Leaves 3-5 (6) mm. broad; pedicel (2) 5-10 (12) mm. long; flower 30-40 (45) mm. long, golden yellow, nearly concolorous; capsule subglobose to broadly ellipsoid, 10-15 mm. long; $2n=?$ *Fl. March, April. S. France (Grasse)*

N. provincialis Pugsley

Plants taller, with leaves 12-20 cm. long and 5-14 mm. broad:

Perianth tube 16-18 mm. long; segments not imbricate; pedicel 10-15 mm. long; leaves 5-8 (10) mm. broad; $2n=14$ (sometimes with B-chromosomes). *Fl. March.*

Origin unknown *N. pumilus* Salisb.

Perianth tube 11-14 mm. long; segments imbricate below; pedicel 7-10 mm. long; leaves 8-14 mm. broad; $2n=14$ (sometimes with B-chromosomes). *Fl. March. Origin unknown* *N. nanus* Spach

Perianth tube ca. 9 mm. long; flower 30 mm. long, with segments scarcely imbricate; pedicel 15-20 mm. long; leaves 25 cm. long and 7-8 mm. broad; $2n=?$ *Fl.? High Pyrenees (Gèdres)* *N. parviflorus* (Jord.) Pugsley

Perianth tube 2-9 mm. long; filaments inserted close to base of perianth tube:

Flower very small (15-25 mm. long), inclined or drooping; perianth tube 5-9 mm. long; segments erect, spreading; corona inflated below, contracted about the middle, abruptly dilated and spreading

at the margin; $2n=14$ (sometimes with B-chromosomes). *Fl. March, April. Portugal, Spain*. *N. asturiensis* (Jord.) Pugsley
 Flowers 35-45 mm. long almost inverted; perianth tube 2-3 mm. long; segments reflexed over the ovary; corona cylindrical, narrow, very slightly dilated at the fimbriate margin; $2n=14$. *Fl. February, March. Portugal and Spain (Galicia)* *N. cyclamineus* DC.

12. HERMIONE \times PSEUDONARCISSUS

Leaves glaucous, ca. 32 cm. long and 6-8 mm. broad; scape ca. 32 cm. high, with two not very prominent edges; spathe 1-2-flowered; flower fragrant, pure white or nearly so; tube green, subcylindrical, ca. 20 mm. long; segments spreading, ca. 25 mm. long, rather imbricate; corona cup-shaped, $\frac{1}{2}$ the length of the segments; $2n=?$
Fl. April. Valleys of Pyrenees or a garden product?

N. \times poculiformis Salisb. (*N. dubius \times moschatus?*)

13. Sect. QUELTIA p.p. (JONQUILLA \times PSEUDONARCISSUS)

Corona distinctly exceeding $\frac{1}{2}$ the length of the segments:

Corona campanulate, 5-lobed, with the lobes entire, rounded and \pm undulate-fimbriate; $2n=?$ *Fl. March, April. Cultivated plant naturalized in several places*

N. \times lobatus Poir. (*N. hispanicus \times N. jonquilla*)

Corona cylindrical, truncate, entire or slightly crenulate; $2n=?$
Fl. March, April. Cultivated plant, naturalized in several places

N. \times infundibulum Poir. (*N. abscissus \times jonquilla*)

Corona $\pm \frac{1}{2}$ the length of the segments or shorter:

Corona $\pm \frac{1}{2}$ the length of the segments; flower large:

Flower 50-70 mm. in diam.; corona expanded at mouth, shallowly 6-lobed; $2n=14$ and 28. *Fl. March, April. Cultivated plant, naturalized in several countries*

N. \times odorus L. (*N. hispanicus \times jonquilla*)

Flower ca. 40 mm. in diam.:

Corona 6-lobed; $2n=?$ *Fl. March, April. Cultivated plant, perhaps naturalized in some places*

N. \times laetus Salisb. (*N. minor \times jonquilla*)

Corona 3-lobed; $2n=?$ *Fl. March, April. Cultivated plant, perhaps naturalized in some places*

N. \times trilobus L. (*N. bicolor* var. *lorifolius \times jonquilla*)

Corona ca. $\frac{1}{3}$ the length of the segments, narrowly campanulate;

KEY TO THE SECTIONS

flower small (10-25 mm. long); scape slender, 15-25 mm. high;
 $2n=?$ Fl.? High Pyrenees (Gèdres) and E. Pyrenees

N. × buxtonii K. Richter (*N. abscissus* × *requienii*)

14. Sect. × QUELTIA p.p. (NARCISSUS × PSEUDONARCISSUS)

Corona $\frac{1}{2}$ the length of the segments or shorter:

Segments oval or broadly elliptic, imbricate below; leaves broad:

Segments pale or sulphur yellow; corona bright yellow, deeper
 coloured above, ca. $\frac{1}{2}$ the length of the segments; $2n=14$. Fl.

April. Culture hybrid, naturalized in many countries

N. × incomparabilis Mill. (*N. hispanicus* × *poeticus*)

Segments pure white or nearly so:

Corona ca. $\frac{1}{2}$ the length of the segments, bright yellow; seg-
 ments nearly white; $2n=?$ Fl. April. S. France

N. × incomparabiliformis Rouy (*N. hispanicus* × *poeticus*)

Corona ca. $\frac{1}{3}$ or $\frac{1}{4}$ the length of the segments, bright or pale
 yellow; segments pure white; $2n=?$ April, Pyrenees

N. × boutignyanus Philippe (*N. moschatus* × *poeticus*)

Segments narrowly oblong, not imbricate below, whitish or yellow;
 leaves narrowly linear; $2n=?$ Fl. April? Jura Mountains

N. × juratensis Rouy (*N. hispanicus?* × *radiiflorus*)

Corona longer than $\frac{1}{2}$ the length of the segments:

Segments elliptic, yellowish or yellow; corona almost as long as the
 segments, distinctly lobed; $2n=?$ Fl. March. Pyrenees, S. France, N.

Italy and Austria . . . *N. × bernardii* DC. (*N. hispanicus* × *poeticus*)

Segments oval, white; corona ca. $\frac{2}{3}$ the length of the segments,
 entire or subentire; $2n=?$ Fl. March. Central Pyrenees

N. moschatus × *poeticus* (or *radiiflorus*) Rouy

15. GANYMEDES × PSEUDONARCISSUS

Leaves 4-6 mm. broad; flower 35-40 (45) mm. long, ascending or
 horizontal; segments spreading or slightly reflexed, as long as the

corona; corona cylindrical, ca. 15 mm. in diam. at the mouth;
 $2n=14$. Fl. March. Portugal (near Oporto)

N. × taitii Henriq. [*N. pseudonarcissus* (*N. portensis?*) × *triandrus* var.
cernuus]

Leaves 7-12 mm. broad; flower 40-45 mm. long, horizontal or droop-
 ing; segments spreading-reflexed, subequalling or exceeding the

corona; corona a little dilated from the base upwards, 15-20 mm.

in diam. at the mouth; $2n=21$. *Fl. March. Portugal (near Oporto) and Spain (Galicia)*

N. × johnstonii (Baker) Pugsley [*N. pseudonarcissus* (*N. portensis?*) × *triandrus* var. *cernuus*]

16. BULBOCODIUM × PSEUDONARCISSUS

Leaves linear, ± glaucescent, channelled (down the inner face), ca. 4 mm. broad; scape 1-flowered, horizontal, ca. 37·5 mm. long; tube funnel-shaped, ca. 16 mm. long and 4·5 mm. wide at the throat; segments linear, ascending, rather shorter than the corona; $2n=14$. *Fl. March. Portugal (near Oporto)*

N. × bakeri K. Richter [*N. bulbocodium* × *pseudonarcissus* (*portensis?*)]

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