



XXXI. Decas novarum plantarum succulentarum

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The first proposition of the tenth book of Euclid says, "If from the greater of two unequal magnitudes there be taken away more than its half, and from the remainder more than its half, and so on, there shall at length remain a magnitude, less than the least of the proposed magnitudes." This proposition, on a slight view of it, appears very specious. But by examining it more deeply, we shall perceive that it asserts the absurdity, that a magnitude is less than itself. In effect, let any indeterminate magnitude be the greater, and any indeterminate part of it be the less; then, if from the greater there be taken away more than its half, and from the remainder more than its half, and so on, there shall at length remain a magnitude less than any indeterminate part of the whole: but the remaining magnitude is an indeterminate part of the whole; therefore there shall at length remain a magnitude that is less than itself. Such is the true nature of the absurd lemma of the ancients, and of all similar propositions. And such is the nature of the sophism, by which Euclid has attempted to demonstrate the chief propositions of the twelfth book of his Elements. The properties of the circle, sphere, cone, and cylinder, were deduced by analogy from the like properties, demonstrated to belong to figures bounded by straight lines and plane surfaces. These properties, with regard to the round figures, are demonstrated algebraically by the binomial calculus; but they are not yet demonstrated by elementary geometry.

The excrescences that have accumulated on the sciences of geometry and algebra should be pruned;—sciences that have tended more to the advancement of society than all others. They should be freed from all empirical reasoning. They should be placed before young mathematical students in their real state, that their judgements may not be warped, and that aspiring genius may with the more effect exert itself in discovering the yet latent principles of these sciences.

Cork, Aug. 2, 1824.

J. WALSH.

XXXI. Decas novarum Plantarum Succulentarum; *Autore*
A. H. HAWORTH, *Soc. Linn. Lond.—Soc. Horticult. Lond.—*
necnon Soc. Cæsar. Nat. Curios. Moscoviensis Socio, &c. &c.

To the Editors of the Philosophical Magazine and Journal.

Gentlemen,

HEREWITH I have the satisfaction of forwarding to you, for your Magazine, a pretty complete description of ten new species of succulent plants, belonging or allied to the genus
Crassula

Crassula of Linnæus, which have recently been discovered in the wilds of Southern Africa, and sent to the Royal Gardens of Kew by one of His Majesty's most successful botanic collectors, Mr. Bowie, whose enterprising spirit has not only detected, but successfully forwarded to those rich gardens in a living state, more succulent plants than any individual now existing.

Another new succulent plant allied to *Aloë*, I have called *Bowiëa africana*; thus endeavouring to hand down the name of this meritorious discoverer, in one of the African plants which he alone has found, to the botanists and travellers of future days; a compliment he well deserves and has so arduously earned. Of this new genus, now blooming for the first time in Europe in our gracious Sovereign's delightful collections at Kew, I hope to be able to send you a complete description for your next Magazine, favoured, as I have ever been in my endeavours to advance the investigation of the succulent plants, by my kind friend W. T. Aiton, Esq., the able conductor of those celebrated gardens.

And I remain, gentlemen,
With respectful esteem,
Your most obedient servant,

Chelsea, Sept. 1824.

A. H. HAWORTH.

Classis et Ordo. PENTANDRIA PENTAGYNIA.

KALOSANTHES *Nob. in Revis. Pl. Succ. p. 6.*—*Dietrichia Tratt. Arch. d. Gewächsk. n. 449.*—*Crassula Linn. &c.*

Inflorescentia involucretim subcapitata. *Corolla* 5-fida, infundibuliformis, laciniis tubo triplo brevioribus. *Cætera* ut in *Larochea* genere, *Crassulæ*.

Plantæ Africanæ valde succulentæ, foliis opposite decussatis.

biconvexa. K. (convex-leaved) foliis angustioribus linearibus

1. supra subtusque distinctè connexis. *Florebat* Julio A.D. 1824, in Regio Horto Kewense. G. H. ½.

Obs. Affinibus minor, in omnibus atque gracilior, foliorum marginibus cartilagineo-asperiusculis. *Flores* emortuos post florescentiam duos insuper vivam plantam solum vidi terminales altèque tubatos (affinium more), tubo calyce duplo longiore. *Styli* in sicco (an semper?) usque ad apices quasi coadunati.

Prope *Crassulam* capitatam Lamarckii, in *Enc. Meth.* (quæ bona species) locanda, sed duplo plusve minor quam illa.

Obs. In the year 1821 I published the genus *Kalosanth*
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thes in the *Revis. Pl. Succ.*, not being then aware of some of the same plants having been given by Tratténick under the name of *Dietrichia* in 1812, nor that the name of *Dietrichia* itself had been given to other plants by Raeuschel in 1797. Wherefore the name of *Kalosanthus* may remain. The genus is sound, and I suspect will differ from *Larochea* in the formation of the stigmata, but without recent flowers I cannot say to what extent: from every other it is far apart.

CRASSULA Linn. &c.

Inflorescentia cymosa. *Corolla* 5-petaloidea expansa, s. campanulatum erecta, laciniis basi ipsæ, solum coalitis imbricantibus. *Germina* 5 cum stylis continuantibus subulata.

Suffrutices s. Herbæ succulentæ, e Capite Bonæ Spei præcipuè; foliis (paucis exceptis) oppositè decussatis, corollis albis, roseis, luteisve.—*Nob. in Revis. Pl. Succ. p. 9.*

biplanata. C. (flat-leaved) ramosa, foliis suberectis lævibus subulatis acutis, utrinque planis, subtus subcanaliculatis.

2. *Floret* Septemb. G. H. 7.

Plantæ juvenes, semipedales læves erectæ; at fere floriferas solum vidi fine Augusti A.D. 1824. *Rami* subpatentes teretes, aère aperto rufescentes. *Folia* semunciam longa, superiora erectiora, inferiora subpatentia, internodiorum longiora. *Flores* terminales in cymis capitatis paucifloris affinium more, incipientes inapertos solum vidi. *Bractææ* fere ut in *Cr. acutifolia Decand.* at majores. *Corolla* quoque affinium, petalis oblongo-ovatis filamentisque niveis. *Antheræ* crassæ obtuso-cordatæ, longiores quam latæ, (in lente) ruberrimæ.

Ordinaria *squamula* quadrata minutissima luteola. *Pollen* non vidi. Prope *Cr. acutifoliam* locanda.

bibracteata. C. (double-bracted) effuso-decumbens, radicans:

3. foliis subulatis expansis supra planis sulcatisve, bractæis pedunculi communis semper duabus.

Floret Aug.—Sept. G. H. 7.

Obs. Suffrutex dodrantalis glaber dumosus. *Folia* perfoliata acuta, viridia, extus convexa, sæpius supernè canaliculatum concava; expansa, sive incurva, seu incurvo-recurvula, vel in senectute recurva, internodiorum longiora, subuncialia. *Flores* minuti, primò terminales, mox laterales, pedunculo communi 4-5-unciali, et per lentem lineolis punctisve longitudinaliter confluentibus notato, supra medium bibracteato. *Bractææ*

teæ minutæ lato-subulatæ supra sulcatæ pedunculo adpressæ. Aliæ quoque adsunt bracteolæ minutissimæ per paria, ad dichotomiarum basin, ut in affinibus. *Calyx* parvus 5-partitus campanulatus, foliolis parabolicis viridibus, apicibus aëre aperto sæpe plus minus fuscis, purpureove-fuscescentibus. *Corolla* campanulata 5-partita nivea, laciniis erectis late ovatis obtusis, basi solum coalitis, unoque latere aliquantillum imbricantibus. *Stamina* 5, filamenta nivea, corollâ parum breviora, antheris polliniferis sulphureis; defloratis fuscis. *Styli* (cum germinibus) obpyriformes, extûs gibbuli, internè planiores. *Squamula* ordinaria, brevis, emarginatim sublunuliformis si optimè visa per lentem.

Obs. Planta parum variat, ut ferè omnes succulentæ plantæ e spontaneis seminibus ex Africa ortis.

α. minor: sæpe rufescens: foliis supernè minus sulcatis planisve, subinde subtus rufo-punctatis.

β. major: virescens: foliis supernè sæpius sulcatis, sæpeque rufo-punctatis, ramulis paulo - longioribus quam var. *α.*

Obs. Præcedentia ffinis, at *Crassulæ acutifoliæ* proxima, sed multò major, robustior, et inde erectior; necnon nihilominus omnino decumbenter-radicans undique; rursumque assurgentibus ramulis. In *Crassula acutifolia* pedunculi communes gerunt semper bractearum duo paria remota, infra dichotomiam, et par alium, dichotomiam amplectens. Verbo tenus, hæc planta specifico nomine solùm, ab affinibus proximis certissimè distinguitur.

flicaulæ. C. (thready-stemmed) effuso-dichotoma: foliis patienti-recurvulis parvis; ramis radicanibus filiformibus.

4. *Florebat* in Regio Horto Kewense autumnò 1822.

G. H. h. s. ♂.

Obs. Fruticulus vix semipedalis ramosissimus debilis: sive Herba 2-3-ennis, aëre aperto rubescens. *Rami* et *ramuli* tenuissimi teretes, erecto-effusi decumbentes intertexti, et undique altè radicanes, elongatis simplicibus fibris. *Folia* adulta lanceolate-subulata 4-5-linearia, patienti-parum-recurvula lævia viridia, sive rufescentia, internodiorum sub longitudine; subtus convexa; juniora confertiora incurva subcanaliculata. *Flores* subcymosi terminales exigui pentapetaloidei albi, stellatim expansi, pedunculis longitudine foliolorum bracteaceorum. *Stamina* filamentis quinque, antheris pollinosi luteis. *Styli* totidem quinque.

Præcedentibus multoties minor, sed fortassè affini-
or Crassulæ acutifoliæ.

Cætera non examinavi.

revolvens. C. (recurving-leaved) foliis linearibus macris

5. acutis revolutis-reflexis arcuatisve subdistantibus: cau-
libus gracilibus longulis subramosis.

Floret autumnno, ni fallor, apud Kew. G. H. h.

Obs. Suffrutex gracilis fere pedalis tantillum ramu-
losus, ramulis erectis subfiliformibus et per lentem pu-
berulis, at per ætatem cum debili caule decumbentibus
plus minusve. *Folia* basi, quasi connato-tumidula,
utraq; plana, sive infernè aliquantillum tumidula, re-
mota, vel sine dubio inter remotos internodiorumque
longiora. *Flores* ni malè memini (necon apud Kew
audivi) parvi albi, in capitulis densiusculis terminali-
bus; sed non examinavi.

Fortasse ad Crassulam fruticosam Linnæi accedit
proximam, sed caulibus corvi calami longè tenuioribus,
nec "digiti crassitie," ut in Cr. fruticosa. In aliis
characteribus proculdubio longè recedit.

rotundifolia. C. (round Orpine-leaved) subherbacea s. per-
ennis: erecta: foliis petiolatis subrotundis firmis pau-
cidentatis, imis integerrimis.

Florebat in Regio Horto Kewense autumnno A.D. 1822.

Obs. Caules simplices teretes crassi virides fere ut
in Sedo Telephio Linn., at minores, humiliores. *Folia*
opposita expansa orbicularia crassa nitentia subglauca
viridiave, internodiorum longiora; ima magis rotun-
data integra vel quam cæteris integriora, planiora:
superiora, supra inflexo-concava ovato-rotunda tri-
plinervia sescuncialia in petiolos 3-lineares supra
sulcatis sensim desinentia; supernè sæpe obsoletè den-
tata, sive subrepando-dentata: ad lentem lucemque
tenuissime pallido marginulata. *Flores* parvi albi in
capitulis cymosis terminalibus.

Cætera non examinavi.

GLOBULEA. *Nob. in Synops. Succ.* 60. — *Aliorum*
Crassula. Corolla petala 5 inaperto-erecta, apice glo-
bulum sive glandulam cerinam ferentia. Cætera ut in
Crassula.

impressa. G. (impress-dotted lance-leaved) acaulis: foliis
7. lorato-lanceolatis viridibus impresso-punctatis, punctis
magnis sparsis numerosis. *Florebat* in Regio Horto
Kewense autumnno A.D. 1823.

Obs. Habitus Turgosiæ pertusæ Nob. in *Revis.*
Pl.

Pl. Succ. p. 14 et p. 291. *Folia* subquadriuncialia crassa cespitosè decussata, ima sæpe glandulosè subciliata, ciliis (per lentem) albis falcatis recurvulis. *Scapus* bracteatis foliosis subpaniculatus, ramulis densè capitulatis cymosis; floribus parvis pallidis.

Cætera non examinavi.

β *minor.* duplo, impressis punctis obsoletioribus.

Obs. Sectionem novam formavit, foliis lanceolatis, loratisve.

atropurpurea. G. (The dingy purple) foliis oblique cuneato-obovatis cultratis atropurpureis; scapo cauleve florifero longissimo paniculato.

Florebat in Regio Horto Kewense A. D. 1824, Augusto mense. G. H. 4. s. 2.

Obs. Caudex s. caulis 3-4-entalis. *Folia* fere ut in *Crassula cultrata* Linn., at aëre aperto plus minus atropurpurea. *Flores* dense glomerati in paniculæ distantium ramorum apicibus sesquipedalis aphyllæ. *Petala* valde erecta alba s. pallida, apicibus caudato-productis globuliferis, subpatentibus, demum recurvulis.

Est *Crassula obliqua*, β. *Nob. in Revis. Pl. Succ.* 204.

Pone *Globuleam* (*Crassulam* Linn.) cultratam locanda, cui proxima forte, cum alio modo florendi.

mesembryanthoides. G. (Hedge-hog ficoid-like) Suffrutex 9. dumosus erectus dodrantalis: ramis, ramulis, foliis subulatis, calycibusque hispidis.

Florebat apud Kew autumnus A.D. 1823. G. H. 2.

Obs. Variat.

α. foliis semiteretibus subulato-incurvis succulentis, sive subaqueose pulposis confertis, floribus terminalibus glomeratim capitatis sessilibus confertissimis.

β. parum altior foliis remotioribus, florum capitulis cymose congestis, minus fortasse confertis.

Obs. In ambabus varietatibus pili albi densi in ramis ramulisque sunt expansi vel horizontales; sed in foliis semper respicientes.

Obs. *Flores* in α. sessiles, formantes cymas densissimas dichotomas capitulatas hirsutas, quasi absque proprio pedunculo communi. *Corolla* inaperta, sed ante anthesin solum examinavi, 5-petala. *Petala* erecto-adpressa oblonga lutescenti-alba, marginibus (ad lentem) puberulis, apicibus angustate-productis, et peltâ minutâ rufescente, potius quam globulâ finientibus. *Filamenta* alba. *Antheræ* innuptæ obtuso-

obtusocordatæ luteæ, longiores quam latæ. *Styli* (incipientes) cum germine breves figurâ seminis vitis viniferæ, at longe minores. *Squamula* ordinaria truncatim quadrata latior quam lata luteola.

subincana. G. (hoary shrubby) foliis semiteretibus subulatis acutis patentibus incurvulis, ramulisque molliter incanescens.

Florebat in Regio Horto Kewense mense Augusto A.D. 1824. G. H. ½.

Obs. Variat.

α. *decumbens*: Suffrutex: erecto-decumbens; dodrantalis; ramulis teretibus gracilibus irregularibus; more affinium sæpe radicanibus insuper terram; rursumque tunc assurgentibus; internodiis folio brevioribus. *Flores* terminales cymoso-capitati conferti albi affinium.

β. *erecta*: foliis confertioribus brevioribus minus incurvis.

Obs. Forte propria species. Cum α. crescit et floret.

Obs. Proximè affinis in habitu et characteribus *Crassulæ* molli, Aitoni, quæ hujus generis est, et major: cum duabus præcedentibus speciebus sectionem novam formavit.

Hujus generis futuras Sectiones, ut infra et aptas, sed diffidenter propono.

1. *CULTRATÆ*, foliis cuneato-obovatis cultratis, caule suffruticoso:

1. *cultrata* (Crassula) Linn.

2. *atropurpurea* supra.

2. *LINGUATÆ*, foliis loratis obtusis subtus convexis, sive angustè linguiformibus, quadrifariam exactè imbricatis cespitosis, caule nullo herbaceo, scapis florigeris, defoliatis.

3. *lingua*, Nob. in MS.

4. *lingula*, Nob. in MS.

5. *capitata*, Nob. in *Revis. Pl. Succ.* cum descript. —Salm. Cat. Hort. Dyck., nomen solum, sine descript.

Obs. *Flores* ut in sequente. Non est *Crassula capitata*, Lam. in *Encyclop.* quæ cel. Schultes reduxit in ejus *Syst. Veg.* 5. 708, ad varietatem *Crassulæ cymosæ* Linn., et quæ est bona species generis *Dietrichiæ* supra.

6. *obvallata*, Nob. (Crassula Linn.)

7. *canescens*, Nob. in *Synops. Succ.*

3. *LORATÆ*,

3. *LOBATÆ*, foliis loratis, apicem versus sensim angustioribus, subtus convexis, quadrifariam imbricatim cespitosis, caule herbaceo, scapis foliosis.
 8. *impressa*, supra.
 9. *hispida*, Nobis MS.
4. *ANGUSTATÆ*, foliis linearibus semiteretibus sulcatis teretibusve. Herbæ cespitosæ scapis defoliatis. Hæc sectio fortassè melius antè priorem?
 10. *sulcata*, Nob. in Revis. Pl. Succ.
 11. *nudicaulis*, Nob. *Crassula nudicaulis* Linn.
5. *SUBULATÆ*, Suffrutices dodrantaes ramosi, foliis subulatis, carnosiss, supra planiusculis; floribus dense cy-moso-capitatis terminalibus.
 12. *Mesembryanthoides*, supra.
 13. *mollis*. *Crassula mollis*, Aitoni aliorumque, sed hujus generis omnino.
 14. *subincana*, supra.

POSTSCRIPT.—Of the new species in the above list marked MS. you may expect a further account as soon as they produce their fructifications.

It may probably excite some surprise to see so many new Crassulæan plants here enumerated; and yet they are not all the unrecorded species the writer is well acquainted with. And more still, may be expected soon from abroad, especially from Southern Africa (Nature's great store-house for succulent plants), and where, perhaps, full half as many of the present tribe actually exist, as of *Mesembryanthema*; which last vast group may at length be found to rival or surpass in number, if not in elegance and beauty, the more extensively discovered Heaths: for Mr. Bowie assures me that he has seen in Africa a great number of native succulent plants of various kinds, which he has not been able to send to England in a living state.

XXXII. *Some Remarks on the supposed Influence of the Pollen in Cross-breeding, upon the Colour of the Seed-coats of Plants, and the Qualities of their Fruits.* By THOMAS ANDREW KNIGHT, Esq. F.R.S., &c. President.*

IT has been long ago ascertained by physiologists, that the seed-coats, or membranes which cover the cotyledons of the seeds of plants, with the receptacles which contain such

* From the Transactions of the Horticultural Society, vol. v. Part IV.
seed-