

length of the leaves, while in the new species it is about three times as long as the leaves.

All the specimens on the two available sheets of the type collection are rather mature, approaching fruiting condition and without corollas and stamens. In the field note, it is mentioned that the collection included a flowering specimen (*T. T. Yü* 19384), but no flowers are present in our material. As the characters on the material at hand are sufficient to indicate that a new species is represented, and since there is little prospect of receiving any further shipments of specimens from China in the near future, it appears desirable to name and describe the plant without further delay.

ARNOLD ARBORETUM,
HARVARD UNIVERSITY.

TARAXACUM IN ARCTIC CANADA (EAST OF 100° W.)

GUSTAF HAGLUND

(Introduction by ARTHEME DUTILLY, O. M. I.)

In the course of my first seven successive botanizing trips to the Canadian Arctic, I collected a number of specimens of *TARAXACUM*. In 1938 I was accompanied by Rev. Maximilian Duman, O.S.B., who also collected a few in the same region.

A synopsis of the localities, dates of collections, and collection numbers, follows:

- 1—Arctic Alaska
- 2—Arctic Bay, Baffin Isl., N. W. T., Lat. 73° 5' N., Long. 83° 40' W., Silurian-Lower Palaeozoic, 12-9-36.
- 3—Baker Lake, N. W. T., Lat. 64° 30' N., Long. 97° ?' W., Archaean, 11-8-36, 2-9-37, 31-7-38.
- 4—Bernard Harbor, Lat. 68° 46' N., Long. 114° 50' W., 20-8-34.
- 5—Cape Barrow, Arctic Sea, Alaska.
- 6—Cape Dorset, Baffin Island, N. W. T., Lat. 64° N., Long. 76° W., Archaean and (?) precambrian granite, gneiss, 25-8-36.
- 7—Chesterfield Inlet, Hudson Bay, N. W. T., Lat. 63° 20' N., Long. 90° 42' W., Archaean, 31-7-36, 21-8-37, 16-8-28.
- 8—Churchill, Man., Hudson Bay, N. W. T., Lat. 58° 46' N., Long. 94° 10' W., Lower Palaeozoic, 23-7-36, 8-8-38.

- 9—Fort Smith, Mackenzie River, N. W. T., Lat. 60° ?' N., Long. 111° 55' W., Alluvial, 26-6-40.
- 10—Great Whale River, Ungava, Quebec, Lat. 55° 26' N., Long. 78° 46' W., Archaean, granite, 14-9-39.
- 11—Ivuyivik, Ungava, Quebec, Lat. 62° 25' N., Long. 78° 5' W., Precambrian, granite, and gneiss, 23-7-38, 23-8-39.
- 12—King William Island, N. W. T.
- 13—Lake Harbour, Baffin Island, N. W. T., Lat. 62° 50' N., Long. 69° 55' W., Precambrian granite and gneiss, 27-8-36, 28-8-41.
- 14—Letty Harbour, Arctic Sea, N. W. T., Lat. 70° ?' N., Long. 124° ?' W., Pleistocene and ?, 19-7-40.
- 15—Port Burwell (Labrador), N. W. T., Lat. 60° 25' N., Long. 64° 52' W., Precambrian, volcanics and intrusives, 1-9-41.
- 16—Repulse Bay, North Hudson Bay, N. W. T., Lat. 66° 33' N., Long. 86° 40' W., Archaean, 10-9-37, 20-8-38, 11-9-38.
- 17—Signuia (Cape Haven), Baffin Island, N. W. T.
- 18—Sugluk Bay, Ungava, Quebec, Lat. 62° 15' N., Long. 75° 28' W., Archaean, 13-9-38.
- 19—Wakeham Bay, Ungava, Quebec, Lat. 61° 36' N., Long. 72° ?' W., Precambrian, granite and gneiss, 19-8-39.
- 20—Wolstenholme, Ungava, Quebec, Lat. 62° 25' N., Long. 77° 14' W., Precambrian, volcanics and intrusives, 24-8-36.

This list includes data for specimens by other collectors cited by Haglund.

Most of the localities just listed are shown on the map of the Northwest Territories published by the Canadian Department of the Interior (scale 60 miles to 1 inch), Ottawa, 1929.

At the suggestion of Prof. Eric Hultén of the Universitet, Lund, Sweden, on his visit to Washington a few years ago, the collections were sent to Dr. Gustaf Haglund, Lund, Sweden, who has prepared the following treatment.

KEY

- A. Outer phyllaries corniculate-appendaged beneath the apex.
 - B. Outer phyllaries broad, short to more or less broad-ovate. Appendages small. Flowers white or yellow. Achenes black to greenish black.
 - c. Flowers white. Achenes black. 1. *T. hyparcticum* Dahlst.
 - c. Flowers yellow. Achenes greenish black.
 - d. Leaves entire to sparingly lobed. 2. *T. phymatocarpum* J. Vahl.
 - d. Leaves densely lobed. Lobes deltoid, more or less dentate. 3. *T. alaskanum* Rydb.
 - B. Outer phyllaries mostly narrower and longer, more or less ovate-lanceolate to lanceolate, rarely with short, mostly with long to very long appendages beneath the apex. Flowers yellow. Achenes sordid or greenish straw-colored to more or less reddish to reddish brown.
 - c. Achenes sordid to greenish straw-colored.
 - d. Lobes of the leaves more or less long, more or less narrow. Petioles usually bright violet-red. 4. *T. lacerum* Greene.

- d. Lobes of the leaves broader, deltoid. Petioles pale... 5. *T. hyperboreum* Dahlst.
- c. Achenes more or less red to reddish brown (umbra-brown).
 - d. Achenes more or less red with a narrow, cylindrical beak... 6. *T. Malteanum* Dahlst.
 - d. Achenes reddish brown to umbra-brown with a more or less short, conical beak.
 - e. Terminal lobes of the leaves mostly more or less short (triangular).
 - f. Leaves long, narrow, lobes short, triangular, more or less remote with sharp points... 7. *T. pseudonorvegicum* Dahlst.
 - f. Leaves shorter, lobes broader, deltoid, more or less approximate, less acute... 8. *T. russeolum* Dahlst.
 - e. Terminal lobes of the leaves mostly very long and narrow... 9. *T. umbrinum* Dahlst.
- A. Outer phyllaries lacking appendages.
 - B. Achenes straw-yellow with a conic-cylindrical beak about 1 mm. long... 10. *T. lapponicum* Kihlm.
 - B. Achenes light brown with a hardly conspicuous or a very short, conical beak... 11. *T. dentifolium* G. Hagl.

1. *TARAXACUM HYPARCTICUM* Dahlst. Arkiv. f. Bot. 4⁸: 17. 1905.—“*T. phymatocarpum* Handel-Mazzetti” Mon. Gat. Tarax. 58. 1907, pro parte.—BAFFIN ISLAND: *Dutilly* 1385. Arctic Bay.

2. *T. PHYMATOCARPUM* J. Vahl in Hornem. Icones Fl. Dan. 12³⁹: 6. t. 2298. 1840; H. Dahlstedt Arkiv f. Bot. 4⁸: 22. 1905; Handel-Mazzetti Mon. Gat. Tarax. 58. 1907, pro parte.—NORTHWEST TERRITORY: *Dutilly* 393, Letty Harbour.

3. *T. ALASKANUM* Rydb. Bull. Torr. Bot. Club. 28: 512. 1901. *T. pumilum* Dahlst. Arkiv. f. Bot. 4⁸: 27. 1905.—ARCTIC ALASKA and eastern ARCTIC AMERICA.

4. *T. LACERUM* Greene, Pittonia 4: 230. 1901. *T. groenlandicum* Dahlst. Arkiv. f. Bot. 5⁹: 23. 1906. QUEBEC: *Dutilly* 4062. Ungava, Wakeham Bay.—MANITOBA: J. M. Macoun 79286, Hudson Bay, Churchill; *Duman* 1149, 1534, 1938, Churchill; *Dutilly* 143, Churchill.—NORTHWEST TERRITORIES: *Dutilly* 6601 i, Chesterfield Inlet; *Dutilly* 152, Fort Smith.

5. *T. HYPERBOREUM* Dahlst. in Ostenfeld, Vid. Selsk. Skr. Math. Nat. 8: 26. 1909.—KING WILLIAM LAND: *Frits Johansen* 98714, Bernard Harbour.

6. *T. Malteanum* Dahlst. n. sp. *Folia* sat obscure viridia ± linearia-lineari-lanceolata, lobis brevibus ± deltoideis-triangularibus basi sat latis acutis apice brevi haud raro paullum recurvato dorso integro vel in foliis interioribus parce denticulato, lobo terminali triangulari-hastato-sagittato brevi vel in foliis interioribus paullum elongato acuto lobulis basalibus brevibus acutis, petiolis et nervis medianis pallidis. *Scapi* folia superantes ± colorati glabri vel apice ipso leviter araneosi. *Involucrum* mediocre ± atro-viride basi ovata. *Squamae* exteriores ± ovato-

lanceolatae sub apice breviter cornutae-corniculatae laxae adpressae vix marginatae, interiores sub apice $\pm$ cornutae. *Calathium* 25–35 mm. diametro. *Ligulae* obscure luteae, marginales extus stria fusco-violacea ornatae. *Antherae* polline carentes. *Stylus* et *stigmata* atro-viridia. *Achenium* $\pm$ rubiginosum, 4 mm. longum c. 1 mm. latum apice breviter spinulosum ceterum $\pm$ tuberculatum in pyramiden 1–1.2 mm. longam fere cylindricam sat abrupte abiens. *Rostrum* 10 mm. longum. *Pappus* albus 6–8 mm. longus.—Northern Quebec, North-West Territories and Baffin Island. QUEBEC: *Dutilly* 899, Wolstenholme; *Dutilly* 1938, 6057, 6058, Wakeham Bay; *Dutilly* 6100b, 6101a, Ivuyivik. NORTH-WEST TERRITORIES: *Dutilly* 6800, Repulse Bay; *J. R. Cox*. *J. J. O'Neill* 98712, South Coast of Coronation Gulf, Cape Barrow. BAFFIN ISLAND: *M. O. Malte* 120293, Lake Harbour. (TYPE in State Museum of Natural History, Stockholm).

The species simulates in habit certain modifications of *T. pseudonorvegicum* Dahlst., but is clearly distinct by its dark-green leaves having triangular to deltoid, short lobes, broad at the base, with slightly downward-turned points and usually short terminal lobe. The achenes are rust-red to rust-brown with a cylindrical, comparatively long and narrow beak recalling those of the group *Erythrosperma* Dahlst. The specimen from Point Barrow belongs to an entire-leaved modification, in what concerns the phyllaries and the achenes completely agreeing with those from Lake Harbour.

7. *T. pseudonorvegicum* Dahlst. n. sp. *Folia* gramineo-viridia elongata anguste linearia-lineari-lanceolata sat distantia, lobis brevibus triangularibus basi latis integris apicibus patentibus acutis-longioribus dorso parce dentato apicibus magis protractis $\pm$ retroversis acutis, lobo terminali angusto $\pm$ elongato lobulis basalibus perbrevibus $\pm$ patentibus acutis, petiolis et nervis medianis $\pm$ pallidis. *Involucrum* parvum-mediocre $\pm$ atro-viride et $\pm$ pruinatum basi ovata. *Squamae* exteriores $\pm$ late ovato-lanceolatae-ovales breviter acuminatae sub apice cornubus brevibus-mediocribus praeditae $\pm$ adpressae et conspicue albido-marginatae, interiores lineari-lanceolatae sub apice breviter cornutae-corniculatae. *Calathium* parvum 30–35 mm. diametro. *Ligulae* amoene luteae angustae $\pm$ canaliculatae, marginales extus stria angusta vel fere evanescenti cano-violacea notatae. *Antherae* polline carentes. *Stylus* et *stigmata* obscure fusco-virescentia, sicca $\pm$ atra. *Achenium* fulvo-brunneum 4 mm. longum c. 1.2 mm. latum apice $\pm$ longe et late spinulosum ceterum $\pm$ tuberculatum vel basi laeve in pyramiden vix 1 mm. longam vel brevior conico-cylindricam abrupte abiens.

Rostrum 7–8 mm. longum. *Pappus* albus 5–7 mm. longus.—Baffin Island and North-West Territories. BAFFIN ISLAND: *D. White* et *Ch. Schuchert* 110, Signuia, near Cape Haven; *J. Dervey Soper* 121112, Cape Dorset; *N. Polunin* 2190, Cape Dorset. NORTH-WEST TERRITORIES: *M. O. Malte* 120448, Chesterfield Inlet, Hudson Bay, (TYPE in the State Museum of Natural History, Stockholm); *Dutilly* 4454, 6623, 6715, Chesterfield Inlet; *Dutilly* 6298h, Baker Lake.

The species is apparently related to *T. umbrinum* Dahlst., but is well distinguished from that species by its shorter, more patent lobes of the leaves, longer and stronger developed appendages of the phyllaries, as it seems smaller heads and larger yellowish-brown achenes which have longer spines at the top and which abruptly pass into the beak and have a longer stipe of pappus. The lobes of the leaves often gives it a similarity with *T. norvegicum* Dahlst., from which it, however, clearly differs in shorter lobes of the leaves, broader at the base, pale petioles and median nerves, smaller heads, more narrow ligulae and achenes that are more pale-coloured and have a longer stipe of pappus.

8. *T. russeolum* Dahlst. n. sp. *Folia* laete viridia anguste lanceolata-oblongo-lanceolata paucilobata, lobis brevibus triangularibus-deltoidibus basis $\pm$ latis apicibus brevibus patentibus vel saepe paullum recurvatis acutis, lobo terminali sat elongato triangulari-ovato-hastato marginibus convexis integris breviter acuto, interiora magis integra crebre lobulato-dentata apice integra breviter acuta, petiolis pallidis vel basi leviter coloratis et nervis medianis pallidis vel vulgo leviter coloratis. *Scapi* folia aequantes vel $\pm$ superantes $\pm$ colorati sub involucrio $\pm$ araneosi. *Involucrum* sat obscure olivaceo-viride basi $\pm$ ovata. *Squamae* exteriores $\pm$ ovatae-ovato-lanceolatae laxae adpressae-leviter patentibus supra saepe $\pm$ violascentes acuminatae ecorniculatae vel singulae-interdum fere omnes $\pm$ corniculatae-cornutae, interiores sub apice breviter corniculatae vel callosae. *Calathium* 30–35 mm. latum. *Ligulae* luteae, marginales extus stria rubro-purpurea notatae. *Antherae* polline carentes. *Stylus* et *stigmata* sat fusco-virescentia, sicca sat obscura. *Achenium* laete rubiginosum apice breviter spinulosum ceterum $\pm$ tuberculatum c. 4 mm. longum 1 mm. latum vel paullo latius apice in pyramiden 0.8 mm. longam late conicam sensim abiens. *Rostrum* c. 8 mm. longum. *Pappus* albus c. 7 mm. longus.—BAFFIN ISLAND: *M. O. Malte* 119207, Lake Harbour (TYPE in State Museum of Natural History, Stockholm; *Dutilly* 1040a (*T. russeolum* ?), Lake Harbour.

Distinguished from other here described types of the group

Ceratophora Dahlst. by the following characteristics. The leaves are broader, especially towards the apex. They have fewer, short and broad lobes with short somewhat downward turned sharp points. The petioles as well as the median nerves are often slightly colored. The phyllaries are more light-colored with more or less broad, acuminate outer phyllaries which have or have not more or less strongly developed appendages below the apex. The appendages of the inner phyllaries are very short. The achenes are more or less rust-red with very short and broad, conical beaks. The outer phyllaries are subject to a considerable variation concerning appendages. In some specimens these are completely lacking or can just be traced on the outer phyllaries while in others they are lacking on part of the phyllaries but more or less well developed on others. In several specimens they are found in some heads but are lacking in others. The inner phyllaries always possess appendages, even if they sometimes are very small.

9. *T. umbrinum* Dahlst. n. sp. *Folia* gramineo-viridia linearia-lineari-lanceolata parce lobata, lobis brevibus-brevissimis triangularibus basi latis parce denticulatis apicibus patentibus vel longioribus recurvis acutis, lobo terminali $\pm$ elongate triangulari obtuso-acutiusculo, petiolis angustis et nervis medianis pallidis. *Scapi* plures folia $\pm$ superantes vel aequantes $\pm$ colorati $\pm$ glabri. *Involucrum* mediocre latum crassiusculum $\pm$ atro-viride basi ovato-truncata. *Squamae* exteriores latiusculae ovatae-ovato-lanceolatae subadpressae parum vel vix marginatae plurimae sub apice breviter acuminato corniculis obtusis plerumque sat parvis praeditae, interiores corniculatae vel callosae. *Calathium* c. 40 (-45) mm. diametro. *Ligulae* subobscure luteae, marginales extus stria rubro-violacea ornatae. *Antherae* polline carentes. *Stylus* et *stigmata* fusco-virescentia, sicca sat obscura. *Achenium* umbrinum apice breviter spinulosum ceterum $\pm$ tuberculatum vel laeve angustum c. 3.5 mm. longum 0.75 mm. latum in pyramiden vix 1 mm. longam conico-cylindricam sensim abiens. *Rostrum* 6-7 mm. longum. *Pappus* albus 6-7 mm. longus. Northern Labrador, Northern Quebec and Baffin Island.

LABRADOR: *M. O. Malte* (TYPE in State Museum of Natural History, Stockholm), Hudson Strait, Port Burwell; *Dutilly* 1657b, Hudson Strait, Port Burwell.

QUEBEC: *Dutilly* 6984 f, h, j, k, Sugluk West; *M. Duman* 2494, Sugluk West; *Dutilly* 810a, 900 (T. cfr. *umbrinum*), Wolstenholme; *Dutilly* 6100a, 6101b, Ivuyivik. BAFFIN ISLAND: *Dutilly* 1355, Arctic Bay.

This species with its weakly developed appendages on the phyllaries belongs to the less differentiated types in the group *Ceratophora* Dahlst. The appendages that usually are considerable are best developed on the outer phyllaries. Often, especially on the inner phyllaries, they are only indicated by a small swelling under their points. In its pure white, silky pappus-bristles it completely agrees with other species of the group. The achenes are characteristic, have umbra-brown colour with weakly developed spines at the apex but are otherwise tuberculate to more or less glabrous and are gradually merging into the hardly one mm. long beaks. The stipe of pappus is unusually short. This species comes closest to *T. norvegicum* Dahlst. of the European species.

10. *T. LAPPONICUM* Kihlm. Meddel. Soc. Faun. Fl. Fenn. **11**: 108. 1884. *T. croceum* Dahlst. in Anderss. and Hesselman Bih. K. Svenska Vet.-Akad. Handl. **26**, Avd. 3. 1900; Handel-Mazzetti Mon. Gat. Tarax. 73. 1907, pro parte.—LABRADOR: *Dutilly* 1657a, Port Burwell. QUEBEC: *Dutilly* 6047m, Wakeham Bay; *A. P. Low* 63228, Great Whale River.

11. *T. dentifolium* G. Hagl. n. sp. *Planta* parva-mediocris sat robusta. *Folia* lobis lateralibus deltoideis approximatis brevibus latis retroversis dorso saepius $\pm$ dentato. *Achenium* c. 4 mm. longum laete brunneum superne squamulosum-spinulosum ceterum pro maxima parte laeve sat sine pyramide vel pyramide brevissima late conica. Ceterum *T. lapponico* Kihlm. simile.—QUEBEC: *Dutilly* 6074f, h, Wakeham Bay; *Duman* 2652, (TYPE in Herbarium Catholic University of America, Washington, D. C.), Wakeham Bay.

This species is closely related to *T. lapponicum* Kihlm. but differs by its light brown achenes rather lacking beaks or with very short, broad conical ones. The lobes of the leaves are approximate, broad and short with downwards turned, acute points. They are often more or less dentate in their upper margins.

Contribution from the UNIVERSITY OF LUND and the ARCTIC INSTITUTE OF THE CATHOLIC UNIVERSITY OF AMERICA.



Haglund, Gustaf and Dutilly, Artheme. 1943. "TARAXACUM IN ARCTIC CANADA (EAST OF 100° W.)." *Rhodora* 45, 337–343.

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