BOTANICAL NOTES.

By E. R. NAPIER.

INTRODUCTION.

It has been suggested that an attempt should be made to publish a flora of Kenya in the pages of this journal. This can only be a tentative effort for the material at hand is inadequate, and I would emphasize that the flora cannot at present be complete. It is proposed to leave out the trees as the Forest Department are said to be publishing a revision and addition to Battiscombe's Catalogue of Trees and Woody Plants.

However incomplete this effort may be, it is necessary to follow a definite system. There are various authorities on the classification of plants, the best known being Bentham & Hooker (Genera Plantarum) 1862-1883, and Engler & Prantl (Die naturliche Planzenfamilien) 1887-1909.

The former made no attempt to classify in a phylogenetic manner, the latter did aspire to place the Natural Orders, as the writers conceived them to have originated or developed from prehistoric times.

Since that work was published, ideas as to which features are primitive and which modern have changed considerably, owing to the discoveries of more fossil plants. Mr. John Hutchinson, Assistant in the Kew Herbarium, and botanist in charge of the African section, published a book some years ago (1926) which claims to be, to use his own words, " arranged according to a new system based on their probable phylogeny."

It is proposed to follow this system here; unfortunately Part II of the book has not been published, which is to contain the Monocotyledons, so in dealing with them little or no attempt will be made to follow their evolution.

Mr. Hutchinson bases his system on the assumption that " plants with sepals and petals associated with other characters regarded also as primitive, are more ancient phylogenetically than plants without sepals or petals." This is the reverse of Engler & Prantl's ideas.

The Monocotyledons are placed after the Dicotyledons from which they were derived at an early stage, the point of origin being the Ranales and perhaps other groups. Recent prehistoric discoveries strongly support these theories.

As many people are more interested in Monocotyledons (chiefly bulbous herbs) than Dicotyledons, it is proposed to publish a description of three Dicotyledons and three Monocotyledons in each journal.

PLATE I.
Ranunculus pubescens, Thumb.

A description of every species will not be given, but a list of them will be included.

As trees are not being described, the first family represented in Africa under Mr. Hutchinson's system is Ranunculaceæ. This is also the first in most of the well known works. Its characteristics are the free carpels, not enclosed in an ovary, this is a primitive character.

DICOTYLEDONS.

RANUNCULACEÆ.

This family, or rather, the group of families known as Ranales, to which it belongs is generally considered to be the most primitive. Ranunculaceæ family is closely allied to Alismaceæ, but the latter belongs to the Monocotyledons. It consists of hermaphrodite herbs with numerous free carpels or achenes. " A family represented all over the world to the limits of vegetation, on high mountains and towards the poles."

Ranunculus. A large cosmopolitan genus, first described by Linnæus, commonest in the N. Temperate zone. Two well known British representatives being the buttercup and celandine.

PLATE I.

Ranunculus pubescens, Thumb (pinnatus Poir).

The plant springs from a tufted root stock and grows to one or two feet high when not in damp ground, and almost any height up to five feet when in wet ground or in water. The shape and indumentum (hairy covering) of the leaves varies almost as much as the height, but it is usually softly hairy on the under surface of the leaves, and slightly or not at all hairy on the top, occasionally the whole plant is very hairy.

STEMS.—The stems are branched, ribbed and covered with short hairs growing upward.

LEAVES.—The radical leaves, on a stalk from 2″ to 5 ″ long, are 3-partite or variously sub-divided. The smaller leaves on the stems are sessile, 3 fid or deeply incised. or occasionally entire.

FLOWERS.—The flowers, poor imitations of the meadow buttercup, but sometimes not unlike those of the water buttercup of Britain, are nearly as variable as the leaves. The calyx is recurved and yellow, sometimes the petals are almost round, at other times elliptical or oblong, but they are always bright yellow and have small honey glands at the base to attract insects of various kinds who effect pollination.

The two-celled stamens are numerous, and clustered at the base of the pyramid of achenes, so characteristic of the genus. Each achene or carpel is tipped by a small stigma.

DISTRIBUTION.—Common in or near water between the altitudes of 4,500 to 9,000 feet.

Other species in Kenya are:—

R. oreophytus, common at about 10,000 feet, growing close to the ground and resembling in flower a large celandine.

R. Volkensii, an insignificant herb growing in damp ground at high altitudes; it has a small yellow flower and heart-shaped entire leaves.

Clematopsis. The genus was first described by Mr. Bojer from Madagascar, but the Kew authorities were very doubtful as to whether there was sufficient distinction between it and Clematis or Anemone. Mr. Hutchinson in 1920 wrote an article on the Genus (Kew Bull., 1920, page 12) upholding a theory that it is a primitive genus, a step between Anemone and Clematis. It is a variable genus, sometimes almost like Anemone and sometimes like Clematis, many botanists therefore include the species in either of the two foregoing genera.

PLATE II.

Clematopsis oliveri, Hutch.

This was described as a new species in 1920. It had been collected first from Uganda by Speke and Grant in 1861, but was thought to be a Clematis. It is an erect woody herb, from one foot to two and a half feet in height, growing in grass land between the altitudes of 4,000—7,000 feet.

STEMS.—The stems spring from a rhizome, and are branched or single, strongly ribbed, covered with short hairs, and bearing a single flower at the apex.

LEAVES.—The leaves are without stalks or with very short stalks on the lower ones, borne in pairs up the stem, either trifoliate or pinnate, thinly covered with short hairs.

FLOWERS.—The flowers have four to six velvety sepals either white, cream or delicately shaded with pink or purple. The stamens with yellow anthers are numerous and clustered around the more numerous feathery styles, which are attached to the separate carpels in the centre of the mass. When the fruit is ripe these feather mops are white and very decorative being 8″ or 9″ in circumference; eventually they are dispersed by wind.

DISTRIBUTION.—This species has been recorded from Mt. Elgon, Kapenguria, Trans Nzoia and Nyanza basin.

PLATE II.
Clematopsis oliveri, Hutch.

PLATE III.
Delphinium macrocentron, Oliv.

There is another species, *C. kirkii*, very similar but, if anything, bigger and more beautiful; the leaves have a much thicker indumentum. So far, specimens have only been received from Uganda, but it has been seen in the S. Kavirondo district.

Delphinium. A N. Temperate genus, but eighteen species are to be found in N. and E. Africa. The genus provides some of the most beautiful garden plants, some also are poisonous or used in medicine.

Plate III.

Delphinium macrocentron Oliv. An erect herb varying in height from 2 feet to 4 feet. Very straight and stiff, branched or unbranched. Its strikingly brilliant blue-green flowers cannot fail to catch the eye, although they often grow in long grass or in rocky, bush-covered hillsides or escarpments, 6,000 to 9,000 feet.

Stems.—Erect, and somewhat hairy, bearing from two to eight flower heads, in lax terminal racemes. There are usually a few subsessile leaves up the stem, linear and two or three fid.

Leaves.—The leaves proper spring from the tuberous root on stalks up to one foot in length, palmately shaped, and deeply and variously split up having usually five main divisions.

Flower.—The flower is somewhat like a " Monk's Hood " flower; the spur is longer than the petals, and very nearly upright it continues down forming a hood for the stigmas and stamens in the centre of the flower, but the stamens spring out from either side of it on unruly yellow filaments with black anthers. The colour of the flower varies from deepest peacock blue to green, and even pure white, but most colours are shaded in parts with green.

Distribution.—*D. macrocentron* is almost universal between the altitudes of 6,000 — 9,000 feet.

There is some confusion over the other species. *D. Welbyi* is said to have come from Kenya and has been shown under that name at the Royal Agricultural Show. *D. candidum* is a beautiful white sweet scented species from Kilimanjaro and foothills of Elgon. There is a similar but bright blue one from Isiolo and Abyssinia, so far only returned as Delphinium sp. There may be others from the outskirts of the Colony.

ALISMACEÆ.

According to Mr. Hutchinson, this was probably the first Monocotyledonous family to evolve itself from Ranunculaceæ. It is very similar in several respects to that family.

Alisma. This genus was first described by Linnaeus. It is large and widespread consisting chiefly of water or marshplants with perennial rhizomes.

PLATE IV.

Alisma plantago-aquatica.

A species widely distributed all over the world. (Water plantain).

It is found growing in water, in marshes, on the edge of streams or ditches, at an altitude of from 3,000—8,000 feet.

STEM.—The stem erect and much branched growing up to about 3'6".

LEAVES.—The leaves are all radical, and vary somewhat according to the situation of the plant. When growing in water they appear to be inflated, and float, but when not actually in the water they are not so thick in texture, they vary in shape too, but are usually lanceolate, and from about 4" to 8 " in length, on a leaf stalk about 6" in length. The nerves are numerous and almost at right angles to the broad mid rib.

FLOWERS.—The flowers are in compound whorls, not more than two or three flower on a whorl at one time; the three sepals are green with transparent margins, the three petals are white with undulating margins, and are bent right back when fully open leaving the six stamens and the numerous stigmas well exposed in the centre. The recurved stigmas are attached to compressed achenes, tightly packed together to form a disc, to this the calyx clings long after the petals have fallen.

The flowers do not open until about ten o'clock.

It is to be found all over the colony in suitable situations but can scarcely be called common.

In the Fl. of Trop. Africa., another species is cited as occurring in East Africa, *A. parnissifolium.*

The only other genus so far recorded is Limnophyton, *L. obtusifolium* occurring at Arabuko in the Coastal region.

ARACEÆ (Aroideæ B. & H.)

A large Tropical and Temperate family providing ornamental flowers and starch. " It consists of herbs, large and small, with aerial stems, tubers, or rhizomes, climbing shrubs, climbing epiphytes, marsh plants, and one water plant (Pistia), etc." (Willis). There are about thirty-three genera in Africa and a hundred and fifty species.

PLATE IV.
Alisma plantago-aquatica, Linn.

PLATE V.
Arisæma ruwenzoricum, N.E. Br.

Plate V.

Arisæma ruwenzoricum, N.E.Br.

This species, as its name indicates, was first found on Mount Ruwenzori by Scott-Elliot at an altitude from 7,000—8,000 feet.

It is an erect herb varying in height from one foot to three feet, it usually grows in shade and near a stream.

Stem.—The peduncle averages about six inches in length (it varies greatly) and is glabrous.

Leaves.—Very variable, either comparatively small, from 4″ to 9″ in length, consisting of five pedately arranged leaflets from 1″ to 2¾″ broad, or six or seven distinctly radiating leaflets 8″ — 9″ long and about 2″ broad.

Flower.—The spathe tube is about 4″ long and the rest of the spathe green in colour and striped with white, about 6″ in length, tapers almost to a thread and sometimes curves over the mouth of the tube. The spadix is unisexual, about 4½″ long and slightly exserted.

There are no other species of this genus recorded from Kenya or Uganda but there are two others in Abyssinia.

Several other genera have been recorded, they are:—

Culcasea scandens, Beauv. from Kericho forest 7,000 feet and S. Kavirondo.

Callopsis Volkensii Engl., from Kongoni Forest, Gazi and Chopu Hills, 800 — 1,000 feet. Spathe white, spadix yellow, in dense shade growing like violets.

Gonatopus Boivinni Hook. f., from Mowesa, a succulent plant. Spathe white with longitudinal markings of mauve-grey.

Pistia stratiotes Linn. Floating water plant that is said to sleep at night, to be found in most lakes and sheltered pools of rivers. Looks like a small cabbage.

Amorphophallus Schweinfurthii, N.E.Br. Elgon 7,000 feet. This is said to be quite common in some parts of the Colony.

A. laxiflorus, N.E.Br., is recorded from Ukamba and Kitui.

A. maximus, N.E.Br., from near Mombasa; this and the above are quoted from Fl. of Trop. Africa. No specimen has been received in the Herbarium so far.

Zamioculcas Loddigeii Schott. Rabai Hills (Fl. Trop. Afr.).

TYPHACÆ.

This well-known family is small and consists of reed-like marsh or acquatic herbs with linear two ranked leaves.

Typha. Described by Linnaeus and Tournefort, this genus is the only one in the family. " Some species are used medicinally and yield potash and also materials for plaiting, stuffing, and for the manufacture of paper and felt. The root stock and pollen are edible." (Thonner, The Flowering Plants of Africa).

There are about twelve species in temperate and tropical countries.

PLATE VI.

Typha latifolia (Great Reedmace, Cat's Tail, and often but erroneously called Bull-rush), Benth. and HK.

It is found on the margins of ponds, lakes, and watery ditches nearly all over the world. It is not so common in Kenya or as useful as " Ithangi," as it is unsuitable for thatching.

STEM.—The reed-like stems 3—6 feet high, spring from a creeping or scarcely creeping rootstock.

LEAVES.—The leaves are long and narrow, about half an inch wide, but broader and sheathing at the base, they spring alternately from the stem for the whole of its length.

FLOWERS.—Flowers in a continuous spike about a foot long, the upper portion tightly packed with yellowish stigmas (female flowers), the minute ovaries are enveloped in tufts of soft brownish hairs which eventually help to distribute them.

Other species recorded from Kenya:—

T. australis from Mombasa.

PLATE VI.
Typha latifolia, Linn.