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Some salient features of East Nepal vegetation ¹

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In view of the great lack of knowledge of the botany of the Nepal Himalayas, investigations on the flora of East Nepal were initiated by the author in 1948. In the years that followed, many well organised and properly equipped expeditions made extensive collections from different parts of the Nepal and some results have been published.

During the course of investigations undertaken to study the vegetation of East Nepal (Map) nine visits were made by the author since 1948, and different sectors of the area have been explored before and after the monsoons. A total of 583 species of Dicots were collected belonging to 342 genera representing 109 families. Some new taxa from this collection have been described (BANERJI 1951, 1952 A, and 1961; SANTAPAU & al. 1958). Material of Monocots and Pteridophytes ² have not been worked out so far, however the Gymnosperms and Bryophytes have received attention (BANERJI 1952 B, 1958).

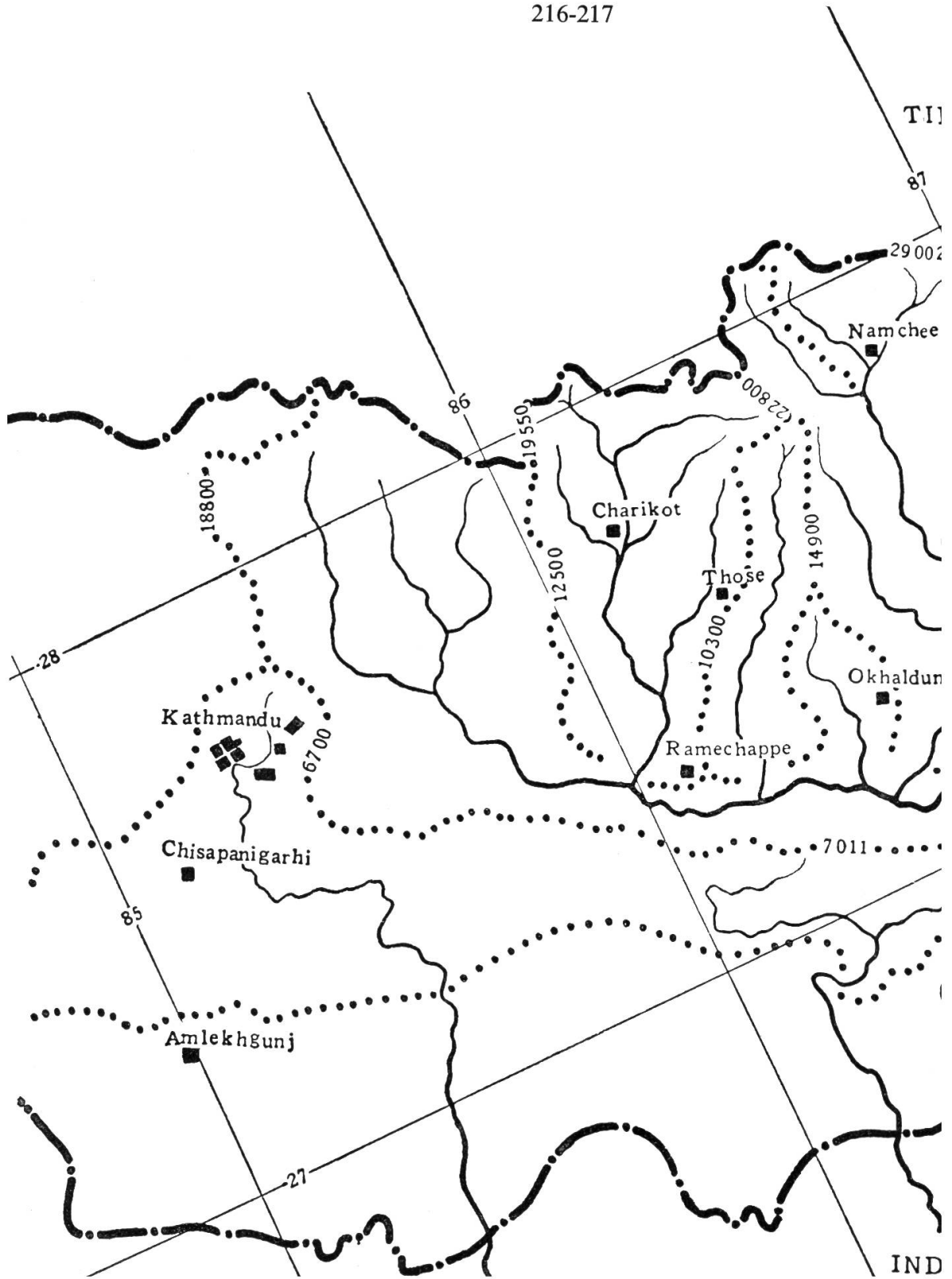
From the phytogeographical point of view this exploration has been able to locate a number of "missing links" between the plants of eastern and those of the western Himalayas. In this way the range of a number of species has been extended for beyond the previously known limits.

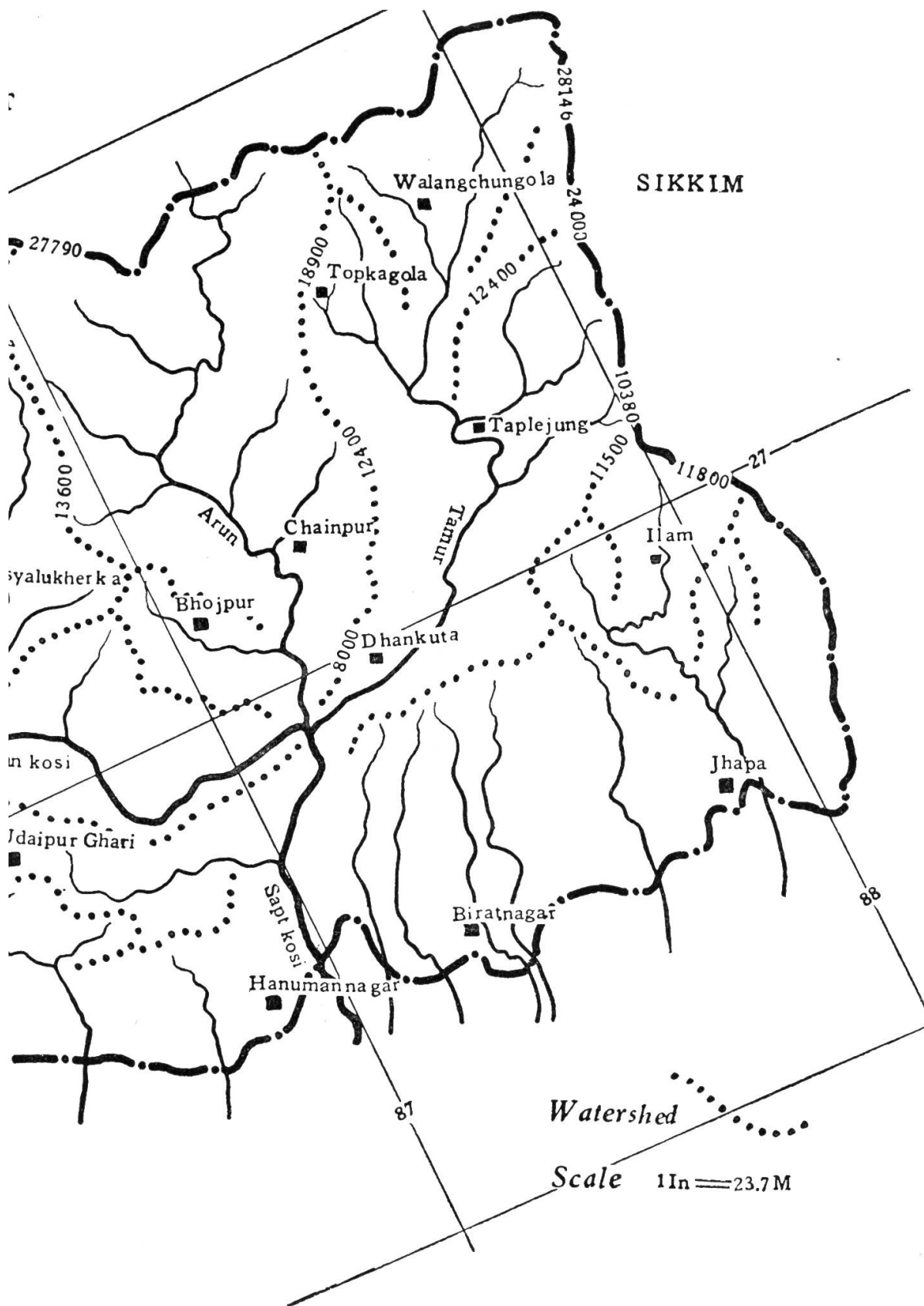
The results of the Swiss Scientific expeditions to Nepal of 1952 and 1954 are being worked up gradually. As such statistical figures and a comparison with the collection can not be given at this stage of the work, although the area of exploration of the Swiss Botanic Party also covers East Nepal.

BURKILL (1910) has drawn up a list of the Eastern and Western himalayan elements, of species of irregular distribution, and of endemic elements in the vegetation of Central Nepal. Besides the species mentioned by him under these different headings, in the present author's collections there are a number of new records for

¹ Based on a part of a dissertation accepted for Ph. D. degree by the Punjab University, Chandigarh.

² A short note dealing with the Ophioglossales in Nepal is in press.





East Nepal that have been worked out on the basis of the material housed in the Calcutta herbarium. They are the following :

Caltha scaposa Hk.f. & Th., *Berberis bhutanensis* Ahrendt, *Corydalis leptocarpa* Hk.f. & Th., *Thalaspia cochlearioides* Hk.f. & Th., *Cardamine trifoliolata* Hk.f. & Th., *Stellaria bulbosa* Wulf., *S. sikkimensis* Hk.f., *Camellia caudata* Wall., *Impatiens arguta* Hk.f., *I. falcifer* Hk.f., *I. laevigata* Wall., *I. radiata* Hk.f., *Ilex fragilis* Hk.f., *Acer campbellii* Hk.f. & Th. ex Hiern both vars. *campbellii* and *serratifolia* Banerji, *A. papilio* King, *A. sikkimensis* Miq., *A. stachyophyllum* Heirns., *Indigofera dosua* Buch.-Ham. var. *tomentosa* Baker, *Chrysosplenium griffithii* Hk.f. & Th., *Ribes griffithii* Hk.f. & Th., *Saxifraga nutans* Hk.f. & Th., *S. purpurascens* Hk.f. & Th., *Cortia hookeri* C. B. Clarke, *Heracleum sublineare* C. B. Clarke, *Oenanthe thomsonii* C. B. Clarke, *Pimpinella acronemaefolia* C. B. Clarke, *P. clarkeana* Watt. ex Banerji, *P. sikkimensis* C. B. Clarke, *Pleurospermum apiolens* C. B. Clarke, *Lactuca macrantha* C. B. Clarke, *Saussurea tridactyla* Sch. Bip., *Campanumoea inflata* C. B. Clarke, *Lobelia affinis* Wall. ex DC., *Agapetes incurvata* (Griff.) Sleumer var. *hookerii* (Cl.) Airy Shaw; *A. serpens* (Wight) Sleumer, *Vaccinium dunalianum* Wight, *V. nummularia* Hk.f., *Gaultheria pyrolaefolia* Hk.f., *Rhododendron cinnabarium* Hk.f., *R. dalhousiae*, Hk.f., *R. triflorum* Hk.f., *Androsace croftii* Watt. var. *scaposa* Sant. & Banerji, *A. chamaejasme* var. *uniflora* Hk.f., *Primula aequalis* Craib, *P. boothii* Craib, *Symplocos caudata* Wall. ex DC., *Ligustrum confusum* Decne., *Alstonia neriifolia* D. Don, *Ehretia wallichiana* Hk.f. & Th., *Porana stenoloba* Kurz, *Mandragora caulescens* C. B. Clarke, *Tarphochlamys affinis* (Griff.) Brem., *Clerodendrum japonicum* (Thunbg.) Sweet, *Ajuga macrosperma* Wall. var. *thomsonii* Hk.f., *Peperomia pellucida* (L.) H. B. & K., *Cinnamomum impressinervium* Meissn., *C. parthenoxylon* Meissn., *Neolitsea zeylanica* (Ness) Merr., *Ostodes paniculata* Bl., *Pilea smilacifolia* Wedd., *P. ternifolia* Wedd., *Salix daltoniana* Anderss., *S. sikkimensis* Anderss., *Agrostophyllum callosum* Reichb.f., *Cirrhopetalum parvulum* Lindl., *Coelogyne flavida* Hk.f. ex Lindl., *C. hookeriana* Lindl., *Dendrobium rotundatum* Benth., *D. anceps* Swartz., *D. pierardi* Roxb., *Eria bractescens* Lindl., *Habenaria urceolata* C. B. Clarke, *Microstylis khasiana* Hk.f., *Oberonia myriantha*, Lindl., *Sarcochilus luniferus* Reichb.f., *Stauroopsis undulatus* Benth., *Trichosme suavis* Lindl., *Zeuxine goodyeroides* Lindl.

There are some species that were previously known only from Kumaon in the west and Sikkim, Bhutan or Khasia in the east. The following species are of that category and their occurrence in East Nepal is now being recorded :

Stellaria bulbosa Wulf., *Saxifraga saginoides* Hk.f. & Th., *Edgaria darjeelingensis* C. B. Clarke, *Androsace geraniifolia* Watt., and *Trachelospermum axillare* Hk.f. & Th.

Besides these, there are some species also worth a mention, such as :

Carpinus viminea Lindl. This species has however been reported by BURKILL from Chessapani pass and Fakel in Nepal, the present collection is from further east.

Saxifraga corymbosa Hk.f. & Th., was described from material collected from Sikkim and later reported from Wallangchoong in Eastern Nepal; is now being reported from a locality further west.

The type locality of *Cynanthus hookerii* C. B. Clarke, is Wallangchoong and later more material was collected from Chumbi, Sikkim and Tibet. The author has been able to collect specimens of this species further west, from Lamjura (86°30', 27°35').

To the Western elements mentioned by BURKILL (*loc. cit.*) the species that have their eastward extension as recorded; based on the collections made by the author from the district are :

Braya alpina Sternb. & Hoppe, *Stellaria webbiana* Edgew. & Hk.f., *Cynanthus microphyllus* Edgew., *Marsdenia tenacissima* Wt. & Arn., *Didisandra lanuginosa* C. B. Clarke, *Strobilanthes atropurpureus* Nees, *Lusia trichorhiza* Blume.

The endemic elements in the district so far as they came under the present observations consist of *Thalictrum rotundifolium* DC., *Cardamine violacea* Wall. ex. Hk.f. & Th., *Hypericum hookerianum* Wt. & Arn. var. *linearis* Banerji, and *Androsace croftii* Watt var. *scaposa* Sant. & Banerji.

There are four species in the present collection that have an irregular distribution. These four species are in addition to those already mentioned by BURKILL (*loc. cit.*)

Eryngium foetidum Linn. This is an introduced species. It has previously been reported from Burma, Manipur, Assam and Jalpiguri. It makes its reappearance in East Nepal.

Pimpinella clarkeana Watt ex Banerji. WATT's specimens were collected from Manipur in Assam and it was rediscovered in East Nepal (BANERJI 1951).

Peperomia pellucida (L.) H. B. & K. This is a native of South America and having run wild, it has become a weed in Bombay and Madras. It also appears in East Nepal but is a rare species.

Cinnamomum parthenoxylon Meisen. This is a species of Burma, Malaya and China. It has been recorded from Assam by DAS (1937). It appears in East Nepal. It has not been so far recorded from Bhutan or Sikkim.

It is hoped that further explorations of the area will bring to light much interesting information concerning the vegetation and phytogeography of East Nepal.

The author owes his sincerest thanks and deep gratitude to Rev. Fr. H. SANTAPAU for his kindness, encouragement and sagacious guidance and to his friend SHRI TAPASH GHOSH for the financial assistance, without either of which it would not have been at all possible to continue these studies on the East Nepal flora.

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