

# EXCURSION OF THE INDIAN BOTANICAL SOCIETY TO PAVAGARH HILL NEAR BARODA, ON JANUARY 7TH, 1955

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## Introduction

PAVAGARH HILL is botanically a place of great interest in the neighbourhood of Baroda. It is about the only spot of real forest left within reasonable distance of the town; the hill is crowned with several very popular places of pilgrimage, and in consequence there are plenty of facilities for pilgrims and visitors. The journey by bus takes about one and a half hours from the city along well-built and rather well-preserved roads, and in general the outing of the Botanical Society proved a very useful as well as a very enjoyable experience.

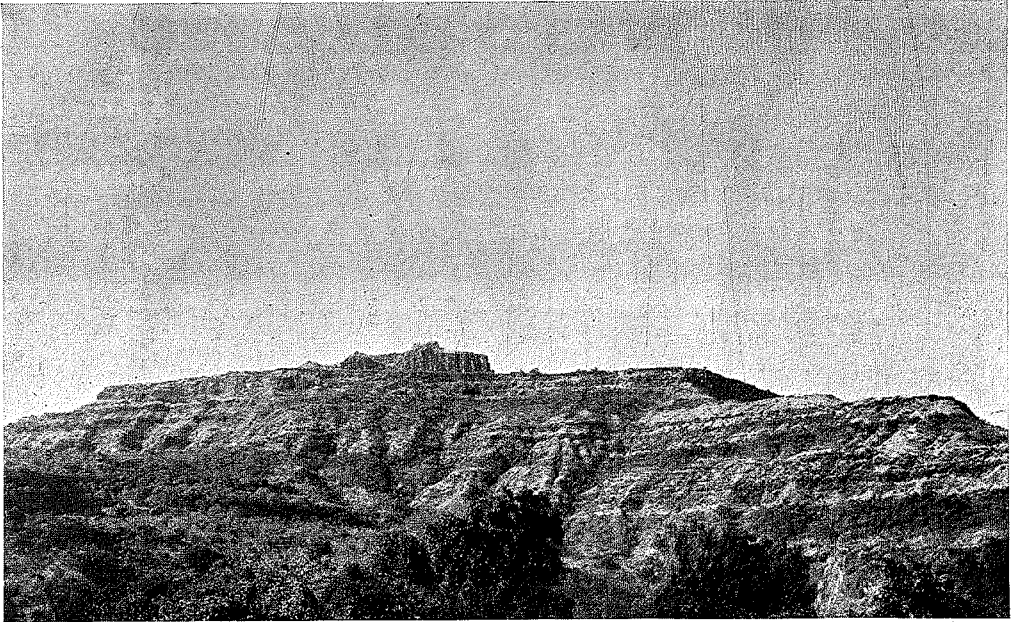
The outing had in the first instance been fixed for January 9th, but the latter date was found to be rather late for most of our members, who were expected to be back at their various posts by the 8th or 9th of January. In the end we did manage to have the date shifted to January 7th. Even so, the number of members that came to the outing was too small to warrant the expenditure of hiring a whole bus for ourselves. The Geological Section of the Indian Science Congress came to our rescue by joining our bus and making it possible to go by special conveyance.

The party set out from Baroda University grounds at 8 a.m.; during the outward journey the organisers of the geological outing distributed a very well prepared note on the geological formations to be seen on the hill. Breakfast was served within the fort walls at the foot of the hill near the bus station. We started our upward journey at about 10 a.m.

## Description of the Hill

The view of the hill from the bus station is imposing; the hill rises 2,400 ft. above the surrounding plains, and 2,811 ft. above sea level. The geographical position of the hill is about 25 miles N.E. of Baroda town; approach to the hill can only be had from the N.E. corner, the other sides being much too steep to climb.

The geological appearance of the hill is very much like that of many other hills in the western parts of India; the various layers or strata of the Deccan Trap are clearly visible, giving the hill a distinctly terraced appearance. Up to about 1,700 ft. altitude the hill is covered with a fairly dense Dry Deciduous Forest, of the following composition:—



General View of Pavagarh Hill from the NE.

[Photo: Santapau

H. Santapau

(a) *Upper layer of forest.*—In general trees are only 30 to 45 ft. high, though in places they may go as high as 60 ft.; the higher types of trees are found in some depressions towards the upper limit of the forest. The following trees are given roughly in order of their respective abundance:

*Tectona grandis* Linn.  
*Terminalia crenulata* Roth.  
*Morinda tinctoria* var. *tomentosa* Hook. f.  
*Wrightia tinctoria* R. Br.  
*Mitragyna parvifolia* Korth.  
*Anogeissus latifolia* Wall.  
*Dalbergia latifolia* Roxb.  
*Cassia fistula* Linn.  
*Garuga pinnata* Roxb.  
*Lannea coromandelica* Merr.  
*Sterculia urens* Roxb.  
*Annona squamosa* Linn.  
*Bridelia squamosa* Gehrm.  
*Bridelia retusa* Spreng.  
*Mallotus philippensis* Muell.-Arg.  
*Alangium salvifolium* Wang.

(b) *Shrubs, erect or climbing*

*Holarrhena antidysenterica* Wall.  
*Barleria prionitis* Linn.  
*Combretum ovalifolium* Roxb.  
*Ventilago calyculata* Tul.  
*Carissa congesta* Wt.  
*Cryptolepis buchanani* R. & S., etc.

(c) *Unergrowth herbs or herbaceous climbers*

*Neuracanthus sphaerostachyus* Dalz. in almost pure stands in the lower half of the forest.  
*Baliospermum montanum* Muell.-Arg., dominant in the upper half of the forest.  
*Barleria prattensis* Santapau  
*Peristrophe bicalyculata* Nees.  
*Hemigraphis latebrosa* Nees.  
*Cocculus hirsutus* Diels.  
*Abrus precatorius* Linn.  
*Bryonopsis laciniosa* (Linn.) Naud.  
*Dicliptera micranthes* Nees.  
*Haplanthus verticillatus* Nees.  
*Eranthemum roseum* R. Br.

On the higher parts of the hill above the forest limit, the following plants were noted as common and abundant:

*Carvia callosa* Bremek.  
*Ficus arnottiana* Miq.  
*Lepidagathis trinervis* Wall.  
*Euphorbia neriifolia* Linn.  
*Zizyphus nummularia* Wt. & Arn.

The flora on the old walls of the fort deserves special mention; the present writer went to Pavagarh Hill at the end of December with a party of university students, and at the time the walls were covered with numerous herbaceous plants; on the 7th January most of the walls had been cleared of vegetation. Among the more common plants seen at the end of December, the following must be listed:

*Kickxia incana* (Wall.) Pennell.  
*Lindenbergia indica* (Linn.) O. Kuntze.  
*Leucas biflora* R. Br.  
*Canscora diffusa* R. Br.  
*Nepeta hindustana* Haines.  
*Woodfordia fruticosa* (Linn.) Kurz., etc.

Where the fort walls or rocky slopes are protected from the full intensity of the noon sun and especially where there were signs of moisture, we noticed plenty of *Didymocarpus* spec. and remains of some Podostemaceæ.

On the slopes of the hill there are two large talaos or ponds that go under the names of *Mend* and *Telia talao* respectively. The first is situated at about 1,300 ft. above sea level and supplies water to the dharamsala and several hotels; the second talao lies just above the limit of the forest, and serves to water some of the cattle that graze upon the hill. There is still a third talao, just below the summit of the hill, but for want of time it could not be explored. On the banks of the two lower talaos we noticed a number of typical and common plants, among which the following may be mentioned:

*Gnaphalium indicum* Linn.  
*Polygonum plebeium* R. Br.  
*Glinus lotoides* Linn.  
*Hygrophila polysperma* Anders., etc.

Just below the very summit of the hill there is a monumental flight of steps made of large stone blocks. In the joints between the blocks and on the steep ground near the steps the following plants were strikingly abundant and generally in full bloom:

*Justicia gendarussa* Linn. f.  
*Lepidagathis trinervis* Wall.  
*Justicia procumbens* Linn.  
*Justicia* spec., a small herb with very slender spikes.  
*Rungia pectinata* Nees.  
*Cymbopogon schenanthus* Spreng.  
*Tripogon* spec.

From the very top of the hill the view of the district must be magnificent just after the monsoon; at the time of our visit visibility was poor. We could see, however, the forest on the slopes and at the foot of the hill, and noticed that *Tectona* plants seemed to be planted in rather regular rows, obviously cultivated. Near the top we collected specimens of *Euphorbia prostrata* Ait., a plant not mentioned by Cooke in his Flora; *Acanthospermum hispidum* DC.,

a plant of American origin and of recent introduction into India, has already spread to the hill and is now found in dense patches near the *Mend* tank.

### The Vegetation of the Plains

Cultivation is intense along the plains from the city of Baroda to the foot of the hill, cotton and castor being rather common. Along the sides of the road the following plants were noticed as being common and in places very abundant:

- Ipomæa aquatica* Forsk. in talaos and moist ground.
- Asteracantha longifolia* Nees.
- Cæsulia axillaris* Roxb.
- Xanthium strumarium* Linn. in dense banks, generally dry, sometimes in flower and fruit, fresh.
- Leonotis nepetifolia* R. Br.
- Acacia arabica* Willd., small shrubs in very dry spots.
- Capparis decidua* Pax, in flower in dry spots.
- Heliotropium supinum* Linn. in dense abundance in moist ground, in ditches, etc.
- Echinops echinatus* Roxb.
- Cassia tora* Linn., dry plants, gregarious.
- Cassia occidentalis* Linn. in fruit, leafless.

### Notes on the Arrangement in the List of Plants

As the plants are not described in the List, it has been considered convenient to follow the same order as Cooke in his Flora of the Presidency of Bombay and Sind, for ready reference.

The nomenclature of the plants in the List has been adjusted to what the author considers the correct name according to the latest findings on the subject. When, however, a name is given that differs from that of Cooke in his Flora, the latter's name is also given for convenience.

The reference numbers given after many of the specimens refer to herbarium sheets preserved in the Blatter Herbarium; they were collected by the present author and pressed by his assistant, Mr. N. A. Irani, B.Sc.; the collection was made mostly during the outing with students on December 29th, 1954. Many other specimens collected on both occasions are preserved in the Herbarium of the Science Institute, M.S. University of Baroda, but such specimens have not been available to the writer in the preparation of this paper.

In the enumeration that follows, the bulk of the plants comes from Pavagarh Hill; some are from the plains along the road from the city to the hill; a few have been included from the town itself or from the fields in the neighbourhood of the town.

## Enumeration of the Plants of Pavagarh and Baroda

## ANNONACEÆ

1. *Annona squamosa* Linn.  
Common small trees, along the path on the forest slopes, many with fruits on.
2. *Polyalthia longifolia* Benth. et Hook.  
Planted as a road side tree, in leaf only; not seen on the hill itself.

## MENISPERMACEÆ

3. *Cocculus hirsutus* (Linn.) Diels.  
*Cocculus villosus* DC.  
A herbaceous climber, common on the lower parts of the hill, rare above; in flower rarely.
4. *Diploclisia glaucescens* (Blume) Diels.  
*Cocculus macrocarpus* Wt. et Arn.  
One plant was seen in dense forest about half way up the hill, in leaf only; rare. The leaves are typical.

## NYMPHÆACEÆ

5. *Nymphaea pubescens* Willd.  
Not seen on the hill; abundant in some talaos along the way from Baroda to Pavagarh Hill; flowers white.

## PAPAVERACEÆ

6. *Argemone mexicana* Linn.  
Rare; only saw two or three plants in flower on the hill near the dharamsala, but noticed plenty of seedlings on the hill itself near water, and along the main road in waste lands.

## CAPPARIDACEÆ

7. *Cadaba farinosa* Forsk.  
*Cadaba indica* Lamk.  
A straggling shrub with white or creamy white flowers, stamens 4; young fruits present. A rare shrub, only seen at the base of the hill.  
*Santapau*, 19852.
8. *Capparis decidua* (Forsk.) Pax.  
*Capparis aphylla* Roth.  
Common in bare ground on the plains along the main road, in isolated clumps; plenty of reddish or orange flowers. Not seen on the hill.

9. *Capparis galeata* Fres.

This plant is not mentioned in Cooke's Flora; seen only in some gardens in the city of Baroda; the leaves and young shoots are rather brittle and fleshy.

10. *Crataeva nurvala* Buch.-Ham.

*Crataeva religiosa* Hook. f. et Thoms., non-Forst.

A rare small tree, in the forest along the path.  
S. Rao, 16.

11. *Merua arenaria* (DC.) Hook. f. et Thoms.

*Merua ovalifolia* Camb.

A fairly large climber, on hedges at the base of the hill, with plenty of flowers and fruit; the fruits are very strikingly warted all over.

Santapau, 19891-19893.

FLACOURTIACEÆ

12. *Flacourtia latifolia* Cooke.

Common, small trees, with plenty of spines on the lower part of the stem, and with reddish soft ones on the branches; in leaf only. Common on the sides of the path on the hill in the lower half.

CARYOPHYLLACEÆ

13. *Polycarpon indicum* (Retz.) Merrill.

*Polycarpon laflingia* Benth. et Hook. f.

A prostrate slender herb, common on the banks of the upper talao. Cooke in his *Flora of the Presidency of Bombay* (I: 66) mentions that the plant is a rare one; I find that the plant is in fact common all over Bombay State, but is easily confused with, e.g., *Polygonum plebeium*, etc.

PORTULACACEÆ

14. *Portulaca oleracea* Linn.

Fairly common near the higher talao, on moist banks. In flower and fruit and leaf.

ELATINACEÆ

15. *Bergia odorata* Edgw.

Common and abundant in grass fields in the University grounds and elsewhere; not seen on Pavagarh.

MALVACEÆ

16. *Abelmoschus manihot* (Linn.) Medik.

*Hibiscus tetraphyllus* Roxb.

Flowers present in some few cases, generally in fruit and leafless, by the sides of the path in the forest on the lower

half of the hill. Roxburgh's name is a misnomer for Bombay, for the plant seldom has four, generally has five, epicalyx bracts.

17. *Abutilon indicum* Sweet.

At the base of the hill, subshrubby, up to 5 ft. tall, in flower and fruit.

*Santapau*, 19853.

18. *Abutilon* spec. (*muticum* Sweet?)

Small plant with yellow flowers, and clear awns on the fruit. Only seen near the bus station at the foot of the hill.

19. *Hibiscus vitifolius* Linn.

A very typical plant; the structure of the calyx in fruit is unique in the genus for Bombay plants. Common, though not abundant, along the path on the lower parts of the hill, up to 8 ft. tall, generally in fruit, a few plants in flower.

20. *Hibiscus sabdariffa* Linn.

Cultivated in gardens; the calyx is accrescent and becomes deep red at maturity; the calyx and epicalyx segments are used for the preparation of a jam, which is said to be rather tasty. Large shrub or small tree, up to 12 ft. tall.

*Santapau*, 19897-19898.

21. *Sida spinosa* Linn.

An undershrub, up to 2 ft. tall; common in the edges of the forest in the lower half, abundant higher up. The spine-like processes near the petioles of the leaves are typical.

*Santapau*, 19882.

22. *Sida veronicæfolia* Lamk.

Erect or prostrate undershrub; very common on the sides of the path in the lower half of the hill; from 6 in. to 4 ft. in flower and fruit.

BOMBACACEÆ

23. *Salmalia malabarica* Sch. et Endl.

*Bombax malabaricum* DC.

Large trees, scattered in the deciduous forests in the lower part of the hill; generally leafless, a few trees leafless but in bud. Common in the forest.

STERCULIACEÆ

24. *Helicteres isora* Linn.

Common in the undergrowth of the forest in the lower parts of the hill; a few plants seen in fruit.



25. *Kleinhovia hospita* Linn.

In gardens, in the University grounds, plenty of flowers and fruits.

26. *Melochia corchorifolia* Linn.

Noticed two or three plants in leaf and fruit, 4-5 ft. tall, on the banks of the lower talao. Rare.

27. *Sterculia urens* Roxb.

Saw several trees, leafless, loaded with flowers and fruits, at about the height of the dharamsala; could not collect the material, the trees being about the biggest and tallest in the area. Not abundant.

TILIACEÆ

28. *Corchorus æstuans* Linn.

*Corchorus acutangulus* Lamk.

Branches more or less procumbent, stiff, with acutely angular capsular fruits. Rare, except along the outlet of the lower talao near the dharamsala.

29. *Corchorus olitorius* Linn.

In fruit with dry leaves, in the undergrowth near the lower talao; not seen elsewhere on the hill.

30. *Grewia tiliæfolia* Vahl.

Common in fruit and leaf; small trees. Some of these trees were affected by *Dendrophthoe falcata*.

S. Rao, 15.

31. *Triumfetta annua* Linn.

Not given by Cooke in his Flora. Collected a few plants in fruit at the edges of the undergrowth in the lower half of the slopes, not common. The fruits with their spines are over 12 mm. diam. Rare.

32. *Triumfetta bartramia* Linn.

*Triumfetta rhomboidea* Jacq.

Occasional in fruit in the higher parts of the hill. Fruits with spines are only 5-6 mm. diam.

LINACEÆ

33. *Linum mysorense* Heyne.

Dry plants with dehisced fruits, on earth banks on the higher parts of the hill, fairly common and abundant.

RUTACEÆ

34. *Aegle marmelos* Corr.

Saw a few small trees in leaf only on the lower half of the hill, along the sides of the path.

35. *Feronia limonia* (Linn.) Swingle.  
*Feronia elephantum* Corr.

Small to large trees, in leaf only; abundant near the talao behind the dharamsala about half way up the hill.

*Santapau*, 19885.

## SIMARUBACEÆ

36. *Ailanthus excelsa* Roxb.

Cultivated in gardens in city, and in farms along the road to Pavagarh, in leaf only; large trees.

## BURSERACEÆ

37. *Garuga pinnata* Roxb.

Leaves turning red before falling, and with plenty of insect galls; common all over the hill, leafless in the lower, leafy in the upper half of the hill.

## MELIACEÆ

38. *Azadirachta indica* Juss.

The *Nim* tree. Planted along the roadsides and at the foot of the hill; occasionally seen on the hill itself, probably planted.

39. *Melia azaderach* Linn.

The *Persian Lilac*. In flower in gardens in Baroda.

## CELASTRACEÆ

40. *Celastrus paniculata* Willd.

Saw one large plant, with long pendulous branches, in leaf only; at about 600 ft. altit. on the sides of the path in the forest. Rare.

41. *Gymnosporia spinosa* (Forsk.) Fiori.  
*Gymnosporia montana* Benth.

Noticed two small trees laden with flowers and fruits about half way up the slopes of the hill; flowers white; branches green or reddish.

*Santapau*, 19846-19848; *S. Rao*, 5.

## RHAMNACEÆ

42. *Zizyphus mauritiana* Lamk.  
*Zizyphus jujuba* Lamk., non Miller.

Occasional in the plains at the foot of the hill; somewhat more common in the forest near the base of the hill; noticed several trees in the forest on the slopes.

The nomenclature of this plant has been fully discussed by the present writer in the *J. Bombay nat. Hist. Soc.*, 51: 802, 1953. The name *Z. jujuba* Lamk. is invalid being a later homonym in the sense of the Rules.

43. *Zizyphus nummularia* Wt. et Arn.

Shrubs scarcely 6 ft. tall, in open waste lands or on bare ground on the highest parts of the hill near the top; noticed also this plant in the open waste lands in the plains on the way to Pavagarh Hill from Baroda.

44. *Zizyphus aenoplia* Mill.

Small tree or large shrub, with scandent or subscaudent branches. Rare in the forest.

*Santapau*, 19844.

45. *Zizyphus xylopyra* Willd.

A common large shrub or small tree, in leaf and fruit; this tree is rather remarkable because in other parts of Bombay State it is practically replaced by *Z. glaberrima* Sant. The structure and hairiness of the leaves of the present tree leave no doubt about its identity.

*Santapau*, 19845.

46. *Ventilago calyculata* Tul.

This large climber was noticed first in leaf only going over the tops of high trees in the dense forest near the dharamsala; later on it was collected in flower and fruit at the base of the hill near the stream.

*Santapau*, 19887.

SAPINDACEÆ

47. *Cardiospermum halicacabum* Linn.

A slender herb, climbing by means of tendrils. A few dry plants, one fresh plant in flower noted. Common in the forest in the lower parts of the hill.

48. *Sapindus trifoliatus* Linn.

One tree at the base of the hill laden with fruits; several trees noted in Baroda gardens in fruit.

ANACARDIACEÆ

49. *Lannea coromandelica* (Houtt.) Merrill, in *J. Arn. Arb.*, 19: 353, 1938.

*Dialium coromandelicum* Houtt., *Nat. Hist.*, II, 2: 39, t. 5, f. 2, 1774.

*Haberlia grandis* Dennst., *Schluss. Hort. Malab.*, 30, 1818.

*Odina woodier* Roxb., *Hort. Beng.*, 29, 1814, *nom. nud.*; *Fl. Ind.*, 2: 293, 1832.

*Lannea grandis* Engler, in *Eng. & Pr. Pflanzenfam. Nachtr.*, 1: 213, 1897.

Large trees, leafless or nearly so, common on the slopes; on the upper slopes the trees were seen in full bloom and leafless.

The nomenclature of this plant calls for a note of explanation. In our floras it goes under the name of *Odina woodier* or *O. wodier*; Engler changed the name to *Lannea grandis* basing his change on *Haberlia grandis* Dennst., which, however, is a *nomen nudum* in the sense of the Rules. The only correct name is that of Merrill, as given here.

50. *Mangifera indica* Linn.

Large trees on the plains and in the city of Baroda itself; the only tree in flower noticed in the district was in a garden near the University. It has been noticed that these trees in the district are remarkably free from parasites of the family Loranthaceæ.

PAPILIONACEÆ

51. *Abrus precatorius* Linn.

Common with fresh leaves and ripe dehisced fruits, in the higher parts of the forest just below the dharamsala.

52. *Butea monosperma* (Lam.) O. Kuntze.

*Butea frondosa* Koen.

An occasional tree seen on the plains along the road; rather common in the forest along the main road just before reaching the bus stand. Rare in the forest itself on the hill.

53. *Canavalia gladiata* (Jacq.) DC.

*Canavalia ensiformis* auct.

On hedges along the main road on the plains; saw a few flowers and fruits, but could not collect them for identification.

54. *Crotalaria retusa* Linn.

A shrub with large showy yellow flowers; in a garden in Baroda, in flower.

55. *Crotalaria triquetra* Dalz.

In flower and fruit among the grasses near the top of the hill, fairly common. Stems acutely trigonous.

56. *Crotalaria spec.*

One plant at the edge of the undergrowth, in flower and fruit; rare.

57. *Dalbergia lanceolaria* Linn. f.

A large tree in fruit and leaf, at the base of the hill only.

*Santapau*, 19893-19895.

58. *Dalbergia latifolia* Roxb.

Very common, middle- to large-sized trees, generally in leaf only, occasionally with old fruits on. Abundant along the deciduous forest of the hill lower slopes.

*Santapau*, 19896.

59. *Desmodium gangeticum* DC.

Erect herb in the undergrowth of the forest, not common; only seen in the upper half of the forest.

*Santapau*, 19883.

60. *Desmodium laxiflorum* DC.

In the upper parts, at edges of the undergrowth, commoner than the preceding species; generally in fruit, with the leaves turning brown.

61. *Dolichos* spec. (*biflorus* Linn.?)

A slender climber, in flower; flowers binate at the axils of most of the leaves; rare; only seen in the upper half of the forest.

62. *Erythrina* spec.

Saw several trees with but a few leaves on, no flowers as yet. In the absence of the flowers it is not possible to ascertain which species this is.

63. *Heylandia latebrosa* DC.

Abundant in lawn in University grounds, in flower and fruit; flowers yellow.

64. *Indigofera cordifolia* Heyne.

In flower and fruit at the foot of the hill, rare by now; when in fruit or leaf it is easily mixed with the preceding species; the flowers of the present species are red.

65. *Indigofera enneaphylla* Linn.

In waste ground near the main road, in flower and fruit; fairly common.

66. *Indigofera tinctoria* Linn.

Shrub, up to 5 ft. tall, with fruits and leaves; saw several plants on the hill at about the altit. of the dharamsala and above.

*Santapau*, 19864-19865.

67. *Moghania strobilifera* St. Hill.  
*Flemingia strobilifera* R. Br.

On the higher parts of the hill, not common; leaves and bracts, but without fruits or flowers.

68. *Mucuna prurita* Hook.  
*Mucuna pruriens* auct., non DC.  
 Fairly common, by the sides of the path in the forest slopes, generally dry with fruits.
69. *Tephrosia purpurea* Pers.  
 Abundant on road sides along the main road, in flower and fruit; in fairly dense patches.
70. *Teramnus labialis* Spreng.  
 Common in the undergrowth of forest near the sides of paths; flowers seldom seen, fruits common, often dehisced.

## CÆSALPINIACEÆ

71. *Bauhinia racemosa* Lamk.  
 Small trees, generally in leaf, occasionally in fruit also; not common. Along the path on the forest slopes.
72. *Cesalpinia crista* Linn.  
*Cesalpinia bonducella* Flem.  
 This plant was noticed along the plains in hedges; collected from the hill near the lower talao, in fruit.  
*Santapau*, 19884.
73. *Cassia absus* Linn.  
 In waste lands near Baroda, in flower occasionally, common dry plants.
74. *Cassia auriculata* Linn.  
 Common in flower along the main road, occasional on the hill itself.
75. *Cassia fistula* Linn.  
 Common, generally in fruit, on the hill in forest. The trees look rather poor, the fruits rather short for the species. A small to middle-sized tree; occasionally parasitised by *Dendrophthoe falcata*.
76. *Cassia occidentalis* Linn.  
 Abundant and fairly common, at times in dense patches; generally dry plants with unopened fruits. In waste lands. On the higher parts of the hill it is abundant in spots.
77. *Cassia tora* Linn.  
 About the most abundant and common individual plant from Baroda to the hill top; in dense masses, generally dry, in fruit.
78. *Tamarindus indica* Linn.  
 Large shady trees near villages; also large trees near the dharamsala on the hill, in leaf and fruit.

MIMOSACEÆ

79. *Acacia arabica* Willd.

Common along the road, often small shrubs 3-5 ft. tall in hedges. Very rare on the hill, except at the foot.

80. *Acacia leucophlœa* Willd.

Small trees; abundant on the lower slopes of the hill with plenty of fruits.

*Santapau*, 19836-19837.

80\*. *Acacia pennata* Willd.

We noticed this plant in fruit on a hedge at the very base of the hill, near the path. Abundant locally.

*Santapau*, 19890.

81. *Albizzia spec.*

Fairly large trees, with dark green leaves; seems to be *A. odoratissima*, but in the absence of flowers it is not possible to identify for certain. Occasional on the slopes.

82. *Dichrostachys cinerea* (Linn.) Wt. et Arn.

In the lower parts of the forest noticed several trees in flower and fruit; the flower spikes are red and yellow, the fruits much twisted, otherwise the tree looks remarkably like *Acacia arabica*.

83. *Pithecellobium dulce* (Roxb.) Benth.

Saw several trees clearly cultivated in some of the villages along the main road. The spelling of the generic name is that given in the List of Nomina Conservanda under No. 3441 of the *International Code of Botanical Nomenclature*, 1952.

COMBRETACEÆ

84. *Anogeissus latifolia* Wall.

Fairly common on the slopes of the hill, and in places abundant, in the forest below the dharamsala; fruits abundant.

*Santapau*, 19849-19850.

85. *Combretum ovalifolium* Roxb.

A very common climber in the forest on the lower half of the hill; in leaf only. Leaves becoming red and falling off.

86. *Quisqualis indica* Linn.

In flower and leaf, on hedges, in gardens in Baroda.

87. *Terminalia bellirica* Roxb.

Noticed but one tree on the sides of the main path up the hill, in forest; the tree was only in leaf.

88. *Terminalia crenulata* Roth.  
*Terminalia tomentosa* auct., non Wt. et Arn. nisi partim.

Fairly large and common trees in the forest; in leaf and plenty of fruits. This tree often is taken to be identical with *T. tomentosa* Wt. et Arn.; for a discussion on the subject see Santapau in *J. Bombay nat. Hist. Soc.*, 50: 305-06, 1951.

*Santapau*, 19851.

#### LYTHRACEÆ

89. *Ammannia multiflora* Roxb.  
 In flower and fruit near the upper talao. Rare.
90. *Lawsonia inermis* Linn.  
 In hedges on the plains; cultivated also as a hedge plant near the dharamsala on the hill, in a garden.
91. *Woodfordia fruticosa* (Linn.) Kurz.  
*Woodfordia floribunda* Salisb.  
 On the walls in the highest parts of the fort on the hill, abundant, some plants in flower.

#### MOLLUGINACEÆ

92. *Glinus lotoides* Linn.  
*Mollugo hirta* Thunb.  
 Prostrate, abundant near the upper talao, also abundant in drying spots along the main road.  
*S. Rao*, 12.
93. *Glinus oppositifolius* (Linn.) A. DC. in *Bull. Herb. Boiss.*, II, 1: 559, 1901.  
*Mollugo oppositifolia* Linn.  
 Abundant in moist ground near the lower talao, in flower and fruit; stems reddish.

#### PUNICACEÆ

94. *Punica granatum* Linn.  
 Saw the tree cultivated in gardens in Baroda; in flower and fruit.

#### CARICACEÆ

95. *Carica papaya* Linn.  
 Cultivated in gardens in Baroda; also seen under cultivation in fruit, in a garden near the dharamsala on the hill.



CUCURBITACEÆ

96. *Bryonopsis laciniosa* (Linn.) Naud.

A common slender climber, generally dry, occasionally with fresh fruits, on shrubs, etc., along the forest in the lower half of the hill. The seeds are typical, hence the local name of *Shivlingi*.

97. *Coccinia indica* Wt. et Arn.

Seen on hedges in flower and fruit, but rare.

98. *Luffa acutangula* var. *amara* Clarke.

Occasional, dry plants with fruits; climbing over shrubs near the main path in the forest slopes.

99. *Melothria heterophylla* Cogn.

A few plants in leaf and fruit noticed on the upper parts of the hill. Flowers gone.

UMBELLIFERÆ

100. *Trachispermum stictocarpum* (Clarke) Wolff?

*Carum stictocarpum* Clarke.

A slender Umbellifer growing on old walls and heaps of rubbish; flowers white or very pale lilac. Common on the upper parts of the hill.

ALANGIACEÆ

101. *Alangium salvifolium* (Linn. f.) Wang.

*Alangium lamarckii* Thw.

Common on the plains and on the hill, usually small trees; near the dharamsala there are a few large trees, in leaf only.

RUBIACEÆ

102. *Mitragyna parvifolia* Korth.

A very common large tree on the lower slopes of the forest; leaves present; fruits of the previous season also present.

103. *Morinda tinctoria* var. *tomentosa* Hook. f.

Very common and fairly abundant along the forest slopes; middle- to large-sized trees, in leaf only, except for one tree in fruit.

COMPOSITÆ

104. *Acanthospermum hispidum* DC.

This plant is not given in Cooke's Flora. For a full description see Santapau in *J. Bombay nat. Hist. Soc.*, 45: 445-46, 1945.

- Occasional on the plains or on the hill; there are some large patches near the talao behind the dharamsala on the hill, in flower and fruit.
105. *Ageratum conyzoides* Linn.  
Fairly abundant on the banks of the lower talao; flowers uniformly white.
106. *Blumea malcolmii* Hook. f.  
Occasional in the upper parts; about the most hairy of the Blumeas of Bombay.  
S. Rao, 11.
107. *Blumea membranacea* DC.  
A dense growth of these plants in a torrent near the dharamsala, 2-4 ft. tall.  
Santapau, 19863.
108. *Blumea* spec. (*lacera* or *glomerata* ?)  
Abundant near the top of the hill in flower.
109. *Casulia axillaris* Roxb.  
In ditches along the main road, in dense masses, with fresh flowers; on the hill only seen on the banks of the upper talao.
110. *Centratherum phyllolenum* Benth.  
Collected several dry or nearly dry plants near the lower talao.
111. *Cyathocline purpurea* (Don) O. Kuntze.  
*Cyathocline lyrata* Cass.  
Common and abundant in moist sheltered spots near the top of the hill, otherwise rare.
112. *Echinops echinatus* Roxb.  
In one spot along the main road noticed a large clump of these plants, otherwise it is rather rare in the district; did not notice it on the hill.
113. *Eclipta alba* (Linn.) Hassk.  
Abundant small plants near the sides of the upper talao, very small plants, prostrate on moist ground, in flower.
114. *Gnaphalium indicum* Linn.  
Small erect or suberect plants, in flower, on moist soil on the banks of both talaos, abundant locally.
115. *Pulicaria wightiana* Benth. ex Clarke.  
On the upper parts of the hill, rare.  
S. Rao, 9.

116. *Senecio dalzellii* Clarke.  
Leaves narrow, flowers yellow; on the upper slopes, not abundant.
117. *Sphaeranthus indicus* Linn.  
In fruit and leaf, on the banks of the upper talao, abundant locally.
118. *Tricholepis glaberrima* DC.  
Occasional in flower or fruit, in the upper parts of the hill; plants 4-6 ft. tall.
119. *Tridax procumbens* Linn.  
Occasional at the base of the hill and up to about half way up; in flower.
120. *Vernonia cinerea* Less.  
Small herbs, with pale purple flowers; at the foot of the hill only.
121. *Vicoa indica* (Willd.) DC.  
*Vicoa auriculata* Cass.  
Rare; a few plants seen in flower near the bus stand at the foot of the hill.
122. *Volutarella racemosa* (Roxb.) Santapau  
*Volutarella divaricata* Benth.  
Rare; only seen at the foot of the hill.  
S. Rao, 10.
123. *Xanthium strumarium* Linn.  
Along the main road this plant is very abundant in dense clumps; mostly dry, occasionally fresh. On the hill itself it is rare, except for a few plants near the dharamsala.

PLUMBAGINACEÆ

124. *Plumbago zeylanica* Linn.  
Flowers and fruits; common from about 600 ft. upwards in the undergrowth or by sides of path. Flowers white.

EBENACEÆ

125. *Diospyros melanoxyton* Roxb.  
Saw an occasional tree in leaf, in the lower parts of the hill; bark with very striking and regular markings.

SAPOTACEÆ

126. *Achras sapota* Linn.  
Cultivated in gardens, plenty of fruits.

127. *Manilkara hexandra* (Roxb.) Dub.  
*Mimusops hexandra* Roxb.

There is a large tree near the path just above the upper talao, the tree laden with orchids; noticed several other trees in the dense forest near the dharamsala, in fruit.

## OLEACEÆ

128. *Nyctanthes arbor-tristis* Linn.

Planted in gardens in city, plenty of fruits. As to the family of this plant, see Airy Shaw in *Kew Bull.*, 1952: 271-72, and Stant, *ibid.*, 273-76; both authors hold that *Nyctanthes* ought to be included in the family Verbenaceæ.

## APOCYNACEÆ

129. *Carissa congesta* Wight.  
*Carissa carandas* auct., non Linn.

The generic name *Carissa* Linn., Mant., 1: 7, 1767; is *nom. cons.* against *Carandas* Adans. and *Arduina* Mill.

In leaf only. Abundant at about the middle of the hill, some plants going high over forest trees.

*Santapau*, 19875-19876.

130. *Holarrhena antidysenterica* Wall.

Shrubs to small trees, in fruit; common in the lower part of the hill in deciduous forest.

131. *Nerium indicum* Mill.  
*Nerium odorum* Ait.

Cultivated at the foot of the final flight of stairs near the very top of the hill; in flower and fruit.

132. *Wrightia tinctoria* R. Br.

Common along the plains, occasionally in fruit. One of the commonest trees in the lower part of the forest on the hill slopes.

## ASCLEPIADACEÆ

133. *Calotropis gigantea* R. Br.

Common in flower along the main road, also seen at the foot of the hill, rare on the hill itself. Large plants with purple or lilac flowers.

134. *Cryptolepis buchanani* R. et Schult.

Abundant and very common above 600 ft. altit. Occasionally in fruit, mostly in leaf only. In the undergrowth of forest and in low scrub forest. Climber.

135. *Cryptostegia grandiflora* R. Br.

Large climber, cultivated in gardens, with showy flowers.

136. *Pergularia dæmia* (Forsk.) Blatt. et McC.  
*Dæmia extensa* R. Br.

Abundant on hedge at the foot of the hill in flower and fruit; occasionally seen along the path on the slopes, and only in leaf.

*Santapau*, 19843.

LOGANIACEÆ

137. *Strychnos nux-vomica* Linn.

Very large trees in the garden of the University, in leaf only.

GENTIANACEÆ

138. *Canscora decurrens* Dalz.

Dry or nearly dry plants, common on old walls; flowers sometimes fresh.

*Santapau*, 19872.

139. *Canscora diffusa* R. Br.

On old walls, fairly common. In flower and fruit and generally leafless or nearly so. The plant was being cleared from the walls at the time of our visit.

BORAGINACEÆ

140. *Cordia dichotoma* Forst. f.  
*Cordia myxa* auct., non Linn.

Saw several trees in leaf only; some of them with plenty of insect galls on the leaves.

141. *Heliotropium supinum* Linn.

Flowers white, minute; prostrate herb, common near the two talaos, also abundant in drying pools along the main road from Baroda, in almost pure stands.

*Santapau*, 19886.

142. *Trichodesma indicum* R. Br.

The calyx base expands outwardly; in flower and fruit; gregarious but not common. On the sides of the road, and on old walls.

*Santapau*, 19877.

CONVOLVULACEÆ

143. *Convolvulus microphyllus* Sieb.

Prostrate herb, abundant in waste lands, in flower and fruit; common about Baroda.

144. *Cuscuta* spec.

Common in the University grounds in Baroda; also common on hedges along the main road. On various hosts, often on *Streblus asper*.

145. *Evolvulus alsinoides* Linn.

A few plants in flower on the upper parts of the hill; in open dry ground.

146. *Ipomæa aquatica* Forsk.

Abundant in ditches on the plains; covering most of the surface of some shallow pools, in leaf and flower.

147. *Ipomæa cairica* (Linn.) Sweet.

*Ipomæa palmata* Forsk.

Noticed this plant on hedges in town and along the main road, with plenty of flowers.

148. *Ipomæa maxima* (Linn. f.) Don.

*Ipomæa sepiaria* Koenig.

Flowers white, scarcely the largest in the genus; on hedges in town and along the main road.

149. *Ipomæa nil* Roth.

*Ipomæa hederacea* auct., non Jacq.

Dry plants with well preserved fruit and calyx; on the lower part of the hill, occasional. This plant is often confused with the American *I. hederacea* Jacq., which it much resembles, but our native plant is *I. nil* Roth; on the subject see Santapau in *J. Bombay nat. Hist. Soc.*, 47: 348, 1947.

150. *Merremia emarginata* Hall.

In moist ground near the University; from the vegetative parts this plant is often confused with *Centella asiatica*.

151. *Rivea hypocrateriformis* Choisy.

Noticed one plant, a large climber on some hedges on the plains; flowers long, white; a rare plant.

## SOLANACEÆ

152. *Datura innoxia* Mill.

*Datura metel* auct., non Linn.

On the question of the identity of this plant see *J. Bombay nat. Hist. Soc.*, 47: 659, 1948.

Cultivated as a medicinal plant in a garden near the dharamsala.

153. *Datura metel* Linn.

*Datura fastuosa* Linn., *D. alba* Nees, *D. fastuosa* var. *alba* Clarke.

Glabrous and shiny plant, in flower and fruit. Cultivated? Seen near the top of the hill.

154. *Lycopersicon esculentum* Mill.

The spelling of the generic name is *Lycopersicon*, not *Lycopersicum* as is generally written; on the subject see Druce in *Rep. Bot. Exch. Club Brit. Isl.*, 1913: 433, 1914.

Cultivated in gardens, in fruit and leaf; near the very top of the hill.

155. *Solanum incanum* Linn.?

A shrubby plant, up to 5 ft. tall, stem woody, up to  $\frac{3}{4}$  in. thick below; flowers and fruits larger than in the usual *S. indicum*.

Santapau, 19840.

156. *Solanum nigrum* Linn.

Noticed in one of the gardens near the dharamsala, cultivated? Plenty of fruits.

157. *Solanum xanthocarpum* Schrad. & Wendl.

Along the road sides, showy in flower and fruit, rare on the hill.

158. *Withania somnifera* Dunal.

Flowers pale yellow, stems thick, fleshy; in cultivated grounds, not common.

SCROPHULARIACEÆ

159. *Kickxia incana* (Wall.) Pennell.

*Linaria incana* Wall.

Large pendulous masses on the wall of the fort just below the dharamsala; flowers yellow. The general hairiness of the whole plant, including the corolla, suggests that the species is *incana*. Abundant locally. All these plants are regularly cleared from the walls towards the end of December. On the subject of the nomenclature of this plant, see Santapau in *J. Bombay nat. Hist. Soc.*, 49: 26-28, 1950.

Santapau, 19878-19879.

160. *Lindenbergia indica* (Linn.) O. Kuntze.

*Lindenbergia urticæfolia* Lehm.

Large pendulous masses on old walls just below the dharamsala, occasionally smaller plants, with erect stems. Plenty of specimens noted on 29-12-1954; all had been cleared by 7-1-1955.

GESNERACEÆ

161. *Didymocarpus* spec.

This plant is said to be very common on fort walls during the second half of the monsoon and at the beginning of October; we noticed a few small plants on the rocky walls of the steps leading to the higher fort.

## BIGNONIACEÆ

- 162.
- Pyrostegia venusta*
- (Ker-Gawl) Miers.

A very elegant large climber with plenty of long, slender flowers; cultivated in gardens.

- 163.
- Tecoma stans*
- H.B.K.

An elegant small tree with plenty of bright yellow flowers; cultivated in gardens.

## ACANTHACEÆ

- 164.
- Asteracantha longifolia*
- Nees.

In ditches by the road sides, common and abundant; also seen near the talaos on the hill, dry plants.

- 165.
- Barleria prattensis*
- Santapau

*Barleria montana* Cooke, partim, non Nees.

Collected the plant in fruit and leaf along the sides of the path on the lower slopes of the forest; the plant is said to be very common and abundant during the early part of October in flower.

For a discussion of this plant and its relations with the real *montana*, see Santapau in *Kew Bull.*, 1948: 487-88.

- 166.
- Barleria prionitis*
- Linn.

Common plants, rather small for the species, and generally with the summer or dry season form of leaves; occasionally in flower. Abundant in spots, common all along the edges of the undergrowth of the forest on the hill slopes.

- 167.
- Blepharis maderaspatensis*
- (Linn.) Roth.

*Blepharis boerhaviaefolia* Pers.

In flower and fruit near the path, about the middle of the slopes in the forest. Rare.

- 168.
- Carvia callosa*
- (Nees) Bremek.

*Strobilanthes callosus* Nees.

Only occasional in the lower half of the slopes; abundant in almost pure stands on the upper half, in leaf only.

- 169.
- Dicliptera micranthes*
- Nees.

In the lower parts of the hill, only a few plants were noticed; towards the highest points of the forest there were some large clumps. Plants about 2 ft. tall, much branched, in flower and fruit.

*Santapau*, 19854-19855.

- 170.
- Dipteracanthus prostratus*
- (Poir.) Nees.

*Ruellia prostrata* Poir.

The genus *Ruellia* in the strict sense is only represented in India by a new-comer from America, *Ruellia tuberosa*; the



other species of *Ruellia* of our floras go to the genus *Dipteracanthus*; on the subject see *Ind. For.*, 79: 321-23, 1953.

This species was noted growing on old walls in Baroda.

171. *Elytraria acaulis* (Linn. f.) Lindau.  
*Tubiflora acaulis* O. Kuntze.

The generic name *Elytraria* is *nom. cons.* against *Tubiflora*.

Abundant locally about half way up through the forest in the lower half of the hill, near the path; abundant also in the lawns of the University of Baroda.

Santapau, 19857.

172. *Eranthemum roseum* (Vahl) R. Br.  
*Dædalacanthus roseus* T. Anders.

Occasional in the undergrowth of the forest, in some spots rather abundant, in leaf and flower.

Santapau, 19856.

173. *Haplanthus verticillatus* Nees.

Large herbs, in masses in the undergrowth of the forest on the lower slopes; higher up this plant becomes even more abundant, with plenty of flowers and when growing in the denser parts of the forest near the dharamsala even with large fresh leaves.

The specific name of this plant is generally given as *verticillaris* in our floras; the name is based on Roxburgh's *Justicia verticillata*, and therefore the only correct name is *verticillatus*.

174. *Hemigraphis latebrosa* Nees. var. *heyneana* Bremek.

Rare in the lower parts of the forest; from the dharamsala upwards this becomes rather common and abundant in the undergrowth or near the road, with plenty of flowers. Occasionally in dense patches.

175. *Hygrophila polysperma* T. Anders.

Forming dense mats on the banks of the upper talao, in flower and fruit.

176. *Justicia gendarussa* Linn. f.

Shrubby, usually cultivated in gardens; noticed the plant on the uppermost flight of steps on the very top of the hill, in flower.

S. Rao, 8.

177. *Justicia procumbens* Linn.

On earth banks or on the final slopes of the hill, abundant in flower and fruit.

178. *Justicia prostrata* Gamble.

A species of the genus, which I am seeing for the first time, with very long and slender spikes of flowers. Abundant on the uppermost flight of steps, occasional elsewhere.

179. *Lepidagathis cuspidata* Nees.

Abundant and common from the dharamsala upwards, in large patches, and with large leaves. Gregarious.

*Santapau*, 19880.

180. *Lepidagathis trinervis* Wall.

Abundant on bare rocky ground on the highest parts of the hill; flowers come out in large spherical balls near the ground, bracts spiny.

181. *Neuracanthus sphaerostachyus* Dalz.

Rare in the lower parts of the forest; after 600 ft. altit. this plant becomes about the commonest and most abundant herb in the undergrowth of the forest; noticed many plants in flower. Usually the inflorescence forms a nearly spherical ball, but noticed also many plants with elongated spikes. On the structure of the inflorescence, and the type of fruits, see Bole and Santapau in *J. Bombay nat. Hist. Soc.*, 50: 428-30, 1952. The plant is said rarely to produce fruits and viable seeds; this is not correct according to our findings, and further the very great abundance of the plant on Pavagarh Hill cannot be explained except on the assumption that the plant produces large numbers of viable seeds.

182. *Peristrophe bicalyculata* Nees.

Very common on the forest slopes, mostly leafless, with plenty of flowers and fruits; occasionally it is abundant in gregarious masses. In undergrowth.

183. *Rungia pectinata* Nees.

*Rungia parviflora* var. *pectinata* Clarke.

On the lower slopes of the hill this plant was noticed generally in a leafless condition and nearly dry; from about the middle of the hill to the very top this becomes very common and shows plenty of leaves and flowers. On old walls, on the last flight of steps, etc.

## VERBENACEÆ

184. *Clerodendrum phlomidis* Linn. f.

Linne seems to have shown some hesitation about the correct spelling of the generic name of this plant; Moldenke has shown that the only correct spelling is *Clerodendrum*, not *Clerodendron*, as is often given in our Floras.

Large shrubs at the foot of the hill in plenty of flowers and fruits, occasionally seen on the forest slopes.

*Santapau*, 19841-19842.

185. *Lantana camara* Linn. var. *aculeata* Mold.  
*Lantana camara* auct., non Linn.

The real *L. camara* of Linne is a spineless shrub; our plant is the *L. aculeata* Linn. or the var. *aculeata* of Moldenke. Occasional along the main road, occasional also on the hill slopes; flowers reddish or orange only.

186. *Tectona grandis* Linn. f.

Rare in the lower parts of the forest; from 600 ft. altit. upwards [this is the dominant tree in the forest; up to 30-40 ft. tall, with leaves and remains of inflorescence. In the dense forest near the dharamsala this tree reaches 60 ft. tall. From the top of the hill it is clear that such trees have been planted on the hill, for they appear clearly to be arranged in straight lines or rows. The trees look crooked and rather damaged, so that they are of little use for timber.

187. *Vitex negundo* Linn.

This plant was noticed along the road on the plains; on the hill it was seen only near the dharamsala.

LABIATÆ

188. *Anisomeles heyneana* R. Br.

A rank and unsightly plant, with whitish flowers; occasional at edge of forest, or near the path.

189. *Anisomeles indica* (Linn.) O. Kuntze.

Rare on the hill; more common on the plains, in plenty of flowers, which are bright red in colour.

*Santapau*, 19873-19874.

190. *Leonotis nepetifolia* R. Br.

Several large clumps were noticed along the main road, plants up to 10 ft. tall, flowers of a strong orange colour, in large balls in the axils. Not seen on the hill.

191. *Leucas aspera* Spr.

On earth mounds along the path near the top of the hill, in flower and leaf.

192. *Leucas biflora* R. Br.

Large pendulous masses on old walls of the fort in the upper part just below the dharamsala; in flower and fruit.

*Santapau*, 19870-19871.

193. *Nepeta hindustana* (Roth) Haines.  
*Nepeta ruderalis* Buch.-Ham.

Flowers minute, white; on rocks and walls from about half way up to the top of the hill. Abundant also on earth banks on the higher parts.

194. *Ocimum americanum* Linn.  
*Ocimum canum* Sims.

Small herbs, strongly and sweetly scented, in flower and fruit, at the foot of the hill and near the dharamsala.

195. *Ocimum basilicum* Linn.

Cultivated in garden near the top of the hill, in flower; very strongly and sweetly scented.

196. *Ocimum sanctum* Linn.

The common *Tulsi* plant; cultivated in temple garden, near the top of the hill.

#### NYCTAGINACEÆ

197. *Bougainvillea spectabilis* Willd.

Very showy, cultivated in garden; bracts of various colours.

#### AMARANTACEÆ

198. *Achyranthes aspera* var. *porphyristachya* Hook. f.

The real *A. aspera* of Linne is a much smaller plant, with small, rounded leaves, and short terminal spikes. This variety has much longer spikes, the leaves are ovate, acute or acuminate, and the fruits are considerably larger than in the typical variety. We noticed this plant on the upper parts, in fruit.

199. *Aerva sanguinolenta* (Linn.) Blume.  
*Aerva scandens* Wall.

In our Floras the generic name is generally spelled *Aerua*; on the subject see T. A. Sprague in *Kew Bull.*, 1928: 342.

Occasional at edges of forest, in flower. More common on the higher parts of the hill.

*Santapau*, 19858-19859.

200. *Alternanthera sessilis* (Linn.) R. Br.

Occasional in fruit; in pure stands near the upper talao.

*Santapau*, 19869.

201. *Amarantus spinosus* Linn.

The spelling of the generic name has been entered in the List of *Nomina Conservanda Proposita* in the *International Code of Botanical Nomenclature*, under number 2229. Linne himself seems to have hesitated between *Amarantus* and *Amaranthus*.

In flower and fruit near the bus station at the foot of the hill; a rank herb.

202. *Celosia argentea* Linn.

Rather scarce in the lower parts of the hill, abundant in the highest parts; inflorescence spikes still fresh in flower or fruit.

203. *Gomphrena globosa* Linn.

Cultivated in a temple garden near the top of the hill.

204. *Nothosarva brachiata* Wt.

Fairly numerous specimens on moist soil near the lower talao; in flower and fruit.

*Santapau*, 19881.

205. *Pupalia lappacea* (Linn.) Juss.

Common but scarcely abundant in leaf, occasionally in fruit; at the sides of the path in the undergrowth.

*Santapau*, 19838-19839.

POLYGONACEÆ

206. *Polygonum plebeium* R. Br.

Prostrate herb, addressed to the ground, with reddish stems; abundant near the sides of the upper talao.

*S. Rao*, 7.

LORANTHACEÆ

207. *Dendrophthoe falcata* Etting.

*Loranthus longiflorus* Dest.

Very rare for this type of forest; this plant was noticed on the following hosts: *Alangium salvifolium*, *Grewia tiliæfolia*, *Cassia fistula*, *Acacia leucophlæa*. In flowers and young fruits.

EUPHORBIACEÆ

208. *Acalypha ciliata* Forsk.

Rare, in moist soil near the walls of the upper fort, just below the dharamsala; in leaf and fruit.

209. *Baliospermum montanum* (Willd.) Muell.-Arg.

*Baliospermum axillare* Blume.

Absent in the lower part of the hill; at about the middle it appears and soon becomes about the most common herb in the undergrowth; the leaves are very variable in shape and size on one and the same plant; near the dharamsala it is about the only abundant herb in the undergrowth of the forest. 2-5 ft. tall; in flower and fruit.

*Santapau*, 19860-19862.

210. *Bridelia retusa* Spreng.

Occasional in fruit, with large terminal panicles; large trees.

*Santapau*, 19834-19835.

211. *Bridelia squamosa* Gehrman.

*Bridelia retusa* auct. pro parte.

Large trees with fruits in axillary clusters; common on the lower slopes of the hill. From examination of many

specimens in the field I do not feel confident that this is a valid species; it appears that flowers or fruits at first are always in axillary clusters, but that when the leaves fall off, the fruits seem to be in terminal panicles.

212. *Emblica officinalis* Gaertn.  
*Phyllanthus emblica* Linn.  
A few trees with plenty of fruits have been noticed in the forest at the foot of the hill. Rare.
213. *Euphorbia hirta* Linn.  
*Euphorbia pilulifera* auct., non Linn.  
Abundant in open ground in the bus station at the foot of the hill, in flower and fruit; stems reddish.
214. *Euphorbia parviflora* Linn.  
*Euphorbia hypericifolia* var. *parviflora* Prain.  
Occasional on the hill slopes, in flower and fruit.
215. *Euphorbia microphylla* Lamk.  
Abundant in the grounds of the University in lawns, in flower and fruit.
216. *Euphorbia nerifolia* Linn.  
Along the road sides in hedges, common; possibly planted as a hedge plant. Saw a few plants on the hill, some of them with plenty of leaves.
217. *Euphorbia prostrata* Ait.  
Not mentioned in Cooke's Flora. The fruit is typical, hairy on the angles, glabrous in the rest of the capsule. Noticed a dense patch near one of the temples at the top of the hill.
218. *Euphorbia thymifolia* Linn.  
Fairly abundant in the bus station at the foot of the hill, very similar to *E. microphylla*, but hairy.  
S. Rao, 6.
219. *Euphorbia tirucalli* Linn.  
Very rare; plants about 4 ft. tall, seen in hedges and along the plains; a plant was noticed near the dharamsala in a garden hedge, much larger.
220. *Jatropha curcas* Linn.  
In leaf only; some shrubs growing wild in waste lands near the dharamsala.
221. *Mallotus philippensis* Muell.-Arg.  
The correct spelling of the specific name is *philippensis*, not *philippinensis* as is usually given in our Floras. A few large trees were noticed in the dense forest near the dharamsala, with plenty of fruit.  
*Santapau*, 19888-19889.

222. *Ricinus communis* Linn.

Cultivated in many fields along the plains, and in a garden near the dharamsala on the hill; wild or escaped from cultivation all along the plains and hills. Flowers, fruits and leaves; up to 12 ft. tall.

## ULMACEÆ

223. *Trema orientalis* (Linn.) Blume.

Occasional small trees in the lower part of the hill, in the forest; in flower and fruit.

## URTICACEÆ

224. *Girardinia zeylanica* Decne.

Dry plants in fruit; abundant and rather common from the dharamsala upwards, not seen below.

## MORACEÆ

225. *Ficus arnottiana* Miq.

Fairly common from the dharamsala upwards, to the top of the hill; noticed several trees on the uppermost walls with receptacles, the leaves falling off.

226. *Ficus benghalensis* Linn.

This is about the largest tree seen on the plains and on the hill near the dharamsala. Receptacles present, red.

227. *Ficus carica* Linn.

The cultivated fig tree; planted in garden in Baroda; not seen wild in the district. Rare.

228. *Ficus glomerata* Roxb.

On the upper parts of the hill, with masses of figs on the trunk and main branches.

229. *Ficus hispida* Linn. f.

Several clumps noticed along the main road, also near the main path on the hill.

230. *Streblus asper* Lour.

Small to large sized trees, with rough leaves. Abundant near the lower talao; also seen elsewhere, but smaller trees than those near the dharamsala.

## AGAVEACEÆ

231. *Agave spec. (americana?)*

Occasional along the plains, in hedges or waste land; noticed several plants in bud or flower.

## COMMELINACEÆ

- 232.
- Commelina obliqua*
- Buch.-Ham.

In fruit, common on the higher parts in moist places.

## PALMÆ

- 233.
- Borassus flabellifer*
- Linn.

Tall trees, very conspicuous on the plains; scattered through the district. At one spot along the main road there is a large dense row of these trees. Leaves only.

- 234.
- Oreodoxa regia*
- H.B.K.

Planted in some gardens in the city; not seen wild.

- 235.
- Phoenix sylvestris*
- Linn.

A few small trees noticed in waste lands near the road on the plains.

## GRAMINEÆ

- 236.
- Aristida adscencionis*
- Linn.

On dry bare ground in the upper parts of the hill, occasional.

S. Rao, 3.

- 237.
- Cymbopogon schænanthus*
- (Linn.) Spreng.

A number of small clumps of this grass were seen scattered all over the hill, particularly on the higher parts, in open ground.

Santapau, 19866-19867.

- 238.
- Eragrostis tenella*
- var.
- plumosa*
- Stapf.

Occasional on the upper parts of the hill.

S. Rao, 4.

- 239.
- Melanocenchrus*
- spec. (
- jacquemontii*
- Jaub. & Spach ?)

Dry plants in small tufts on old walls near the dharamsala and higher up on the hill, abundant locally.

- 240.
- Sorghum halepense*
- Pers.

Occasional on higher parts.

S. Rao, 1.

- 241.
- Spodiopogon rhizophorus*
- (Steud.) Pilger.

*Spodiopogon albidus* Benth.

Occasional on the higher parts of the hill.

S. Rao, 2.



242. *Tripogon* spec.

Abundant in fairly large tufts, on the uppermost flight of steps, dry, on old walls or on dry sloping ground; a very typical grass.

CYPERACEÆ

243. *Cyperus difformis* Linn.

Only seen near the *Telia Talao*, where it was rather abundant just out of water; small plants, gregarious.

*Santapau*, 19868.

