NOTE

ON

Vegetation on Forest Soils

BY

A. H. M. BARRINGTON, Esq.

Conservator of Forests, Hlaing Circle.

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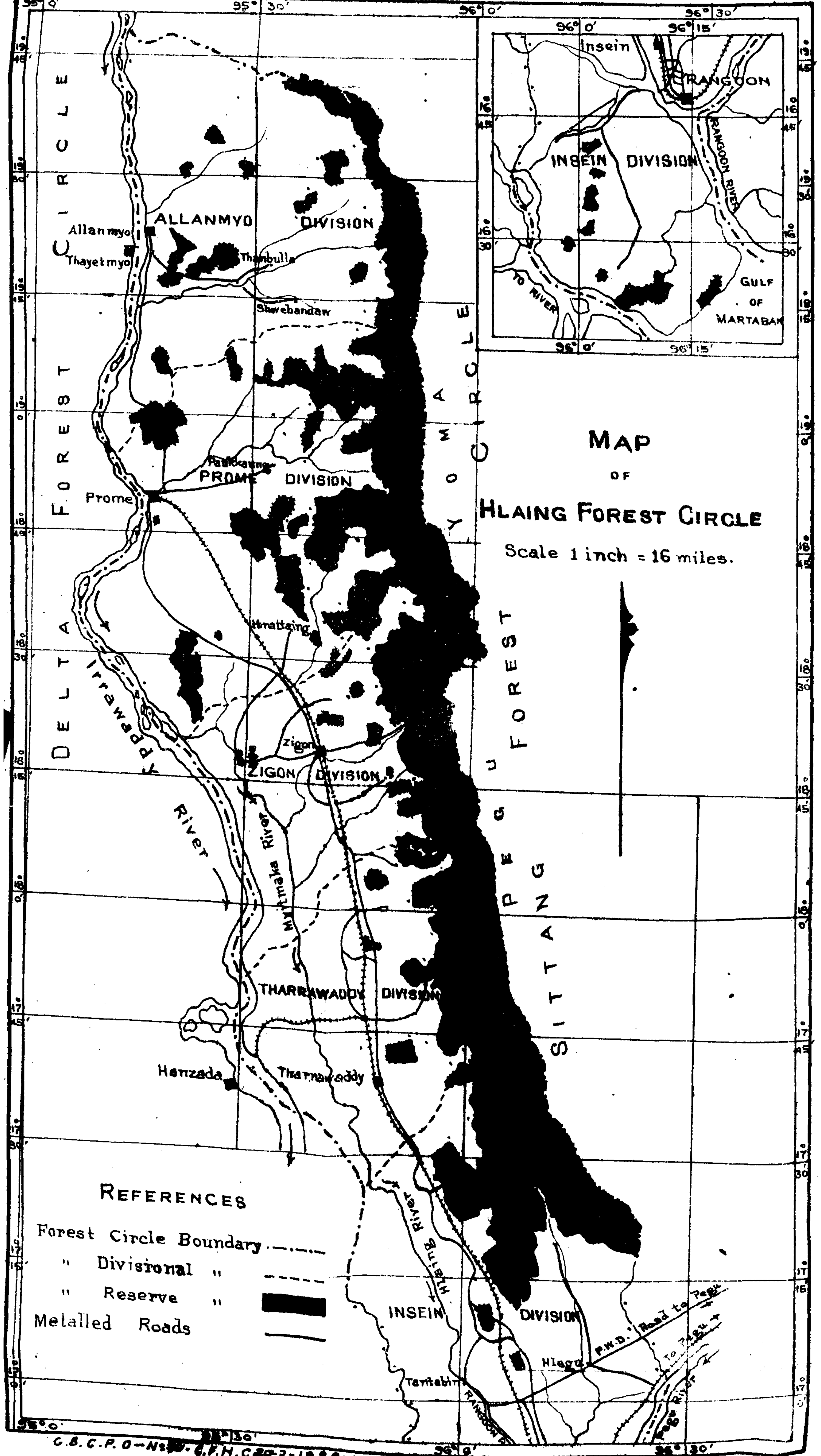


INTRODUCTION.

I selected twenty-five plots, most of them 66 feet square, between the 25th of November 1926 and the 15th of March 1928. Samples of the soil at various depths have been analysed by Mr. B. M. Desai, under the direction of Mr. J. Charlton, Agricultural Chemist at Mandalay, and a number of botanical specimens were identified through the good offices of the Forest Botanist (Mr. C. E. Parkinson in 1926-27 and Mr. C. W. D. Kermode in 1928). I am publishing results, not because they are very conclusive, but to show that the enquiry has possibilities and should be continued.

I take this opportunity of thanking those who have done the real work, particularly Mr. Charlton. The figures relating to soils could only have been obtained under his direction, and even then would have been unintelligible (to me at least) without his patient explanations.

Soil analysis has been used to classify the various plots into groups, and those groups are used for a botanical survey. Even these preliminary results have a practical bearing on the probable growth of teak on various types of soil.

The special cost of this enquiry has been almost exactly Rs. 4,000 or say £300. This includes field expenses on twenty-five sample plots and laboratory work up to the open season 1928-29.

Vegetation on Forest Soils

CHAPTER I.

The Soil.

A.—*General.*

Other things being equal, the activity of a given volume of soil is proportionate to the sum of the exposed surfaces of its particles. This area is exposed to the action of air and water and is also responsible for the movement of water, whether up or down. The exposed surface of all particles in a cubic foot of light loam is about an acre.

To obtain a relative figure whereby the texture of a soil may be roughly measured, Mr. Charlton assumes that all particles are spheres with diameters in proportion to the maximum size of each class (the minimum for clay is unknown, and consequently no other criterion is possible) and deduces a factor by which the percentage of each class of particle should be multiplied to give a texture index number, rising in proportion to the stiffness of the soil.

The surfaces of spheres which will fill any given space is in inverse ratio to their diameters. Imagine that equal cubes are filled (*a*) with a ball five inches across and (*b*) with balls an inch across. There will be five of the smaller balls in every direction or $5\times5\times5=125$. The surfaces will be proportionate to the squares of the diameters so that the surface of the large ball : the surfaces of the small ones : : $5^2 : 125\times1^2 = 25 : 125 = 1 : 5$ or the inverse ratio of the diameters.

Adopting the British standard classification of particles, the calculation is as follows :—

Class of Particle.	Maximum Diameter.	Assumed. Relative Diameter (× 500).	Relative Surface Area. Whole Number.	Corresponding Fraction.
	mm.			
Clay	0·002	1	1,500	0·7920
Fine silt ...	0·01	5	300	0·1584
Silt	0·04	20	75	0·0396
Fine sand ...	0·2	100	15	0·0079
Coarse sand ...	1·0	500	3	0·0016
Fine gravel ...	3·0	1,500	1	0·0005

Larger particles have so small a relative surface area that they may be ignored.

The soil texture index is obtained by multiplying the figures in the last column by the percentages of the various particles contained in a soil sample, *e.g.* :—

Class of Particle.	Per cent. in Sample.	Multiplier.	Relative Surface.
Clay	10	0·7920	7·92
Fine silt ...	5	0·1584	0·79
Silt	7	0·0396	0·28
Fine sand ...	20	0·0079	0·16
Coarse sand ...	25	0·0016	0·04
Fine gravel ...	33	0·0005	0·02
Texture Index Number of Sample ...			9·21

Samples are generally the average of four or five borings 0–3 and 3–12 inches and 1–2, 2–3, 3–4, etc. feet from the surface. A preliminary classification is made by plotting these values for each plot at the average depth of each sample, namely 1½ inches, 7½ inches, 1 foot 6 inches, 2 feet 6 inches and so on, but results sometimes require check by the actual percentages of very fine or very coarse particles.

Most soils are comparatively coarse on the surface, and the finer particles washed down from it tend to accumulate in a stiff layer. When this stiffening is very abrupt it may almost insulate the surface from the lower strata, and in such cases it limits the effective depth of the soil. Examples of this are No. 1 at 3½ feet and No. 4 at 1½ feet, see diagram.

Individual tree species seem to have a range of requirements which might be illustrated diagramatically :—

Species. (1)	Coarse Sand. (2)	Sand. (3)	Fine Sand. (4)	Sandy Loam. (5)	Loam. (6)	Clay Loam. (7)	Clay. (8)
A		- - -	———	+ + +	+ + +	———	- - -
B	- - -	———	———	———	+ + +	- - -	
C		·	- - -	———	———	———	- - -
D				- - -	———	———	———
E	———	- - -	- - -	- - -			

Dots indicate bare existence, a line dominance, and crosses potential dominance if artificially protected. Thus E would be dominant on coarse sand, B on sand, A and B would compete on fine sand, B and C on sandy loam, C and D on loam, A, C and D on clay loam, and D would be in undisputed possession of clays.

Unfortunately there are two disturbing factors of supreme importance, one is the variation of any particular soil at different depths, and the other the influence of lime in reducing the apparent stiffness of soils.

The significant horizon is an unsolved problem. For *indaing* (*Dipterocarpus tuberculatus* association) it seems probable that the superficial three inches determine regeneration and therefore indirectly the survival of the climax. This is an extreme case, but it seems likely that species are determined by the soil above the first abrupt stiffening, and the height growth by the depth of that stiffening from the surface. An illustration is provided by the four true *indaing* soils :—

Plot.	Effective Depth.	Height Growth.
		Feet.
4	1½ feet to stiff layer ...	50
19	2 feet to rock ...	65
1	4 feet to stiff layer ...	73
5	Over 6 feet to stiff layer	110

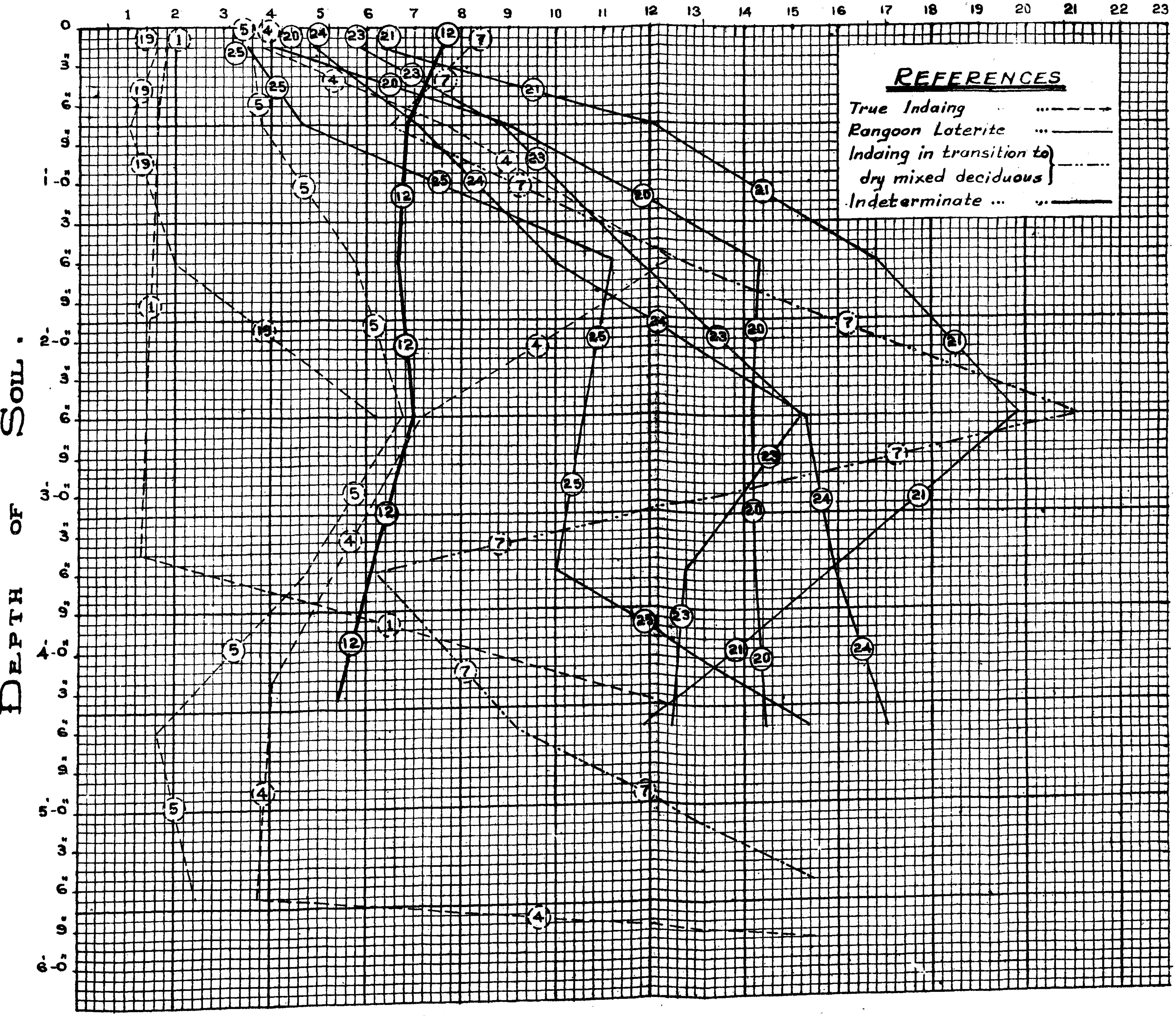
The special problem of calcareous soils will be discussed later.

B.—*Coarse Soils.*

Dry Dipterocarp Soils.—Except at stiff layers almost comparable with a pan, six samples contain less than ten per cent. of clay and very high proportions of sand.

Sample Plot.	Percentage at 3–12 inches.					Average Texture Index.	
	Coarse Sand and Gravel.	Fine Sand.	Clay.	CO_2.	Organic Nitrogen.	Number.	Depth.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
							Feet.
1	86·64	5·11	1·03	0·04	0·005	3·2	4
4	86·29	1·96	9·44	0·03	0·03	5·9	4
19	85·48	9·51	0·47	0·03	0·03	2·7	3
5	78·22	9·11	3·62	0·06(?)	0·02	5·4	4
7	64·78	13·65	5·88	0·06	0·03	11·6	4
12	3·32	44·98	2·73	0·006	0·05	6·9	4

Soil Texture Index.



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The first four bear *indaing* proper and reproduction of *in* (*Dipterocarpus tuberculatus*) is still effective. The fifth (No. 7) carries fine old *in*, but reproduction is failing, apparently as the result of a superficial deposit of silt, and dry deciduous forest is replacing *indaing*. The last (No. 12) is actually a failed patch on the top of a ridge in a teak plantation, but comparison with plots of 1928-29 suggests that it would naturally bear *ingyin* (*Pentacme suavis*).

Teak of 90 feet or so may replace 115 feet *in* on No. 7, otherwise teak is either absent or a mere understorey throughout the series.

Rangoon Laterite.—The second group of coarse soils is typical of lowlands under a rainfall of about a hundred inches. The percentage of sand is lower, soils stiffen fairly uniformly to the third, fourth or fifth foot, the percentage of clay exceeds ten per cent after the first foot, and the average texture index is roughly double that for true *indaing* soils :—

Sample Plot.	Percentage at 3—12 inches.					Average Texture Index.	
	Coarse Sand and Gravel.	Fine Sand.	Clay.	CO_2.	Organic Nitrogen.	Number.	Depth.
							Feet.
20	61·06	18·03	9·60	0·06	0·05	11·2	4
23	48·69	23·20	8·67	0·03	0·05	10·9	4
24	44·30	27·48	5·88	0·05	0·06	10·6	4
21	43·60	28·22	12·74	0·06	0·08	14·2	4
25	40·48	22·39	2·93	0·05	0·04	8·0	4
22	5·01	36·12	15·31	0·07	0·10	16·0	2

The first five are a homogeneous group with as definite an association as *indaing* itself. The last plot (No. 22) is of a different type and actually bears *pyinkdao* (*Xylia dolabriformis*) over *kyathaung* (*Bambusa polymorpha*) undergrowth ; it really belongs to the next subdivision rather than to coarse soils.

Teak plantations on plots 23—25 are just over the average of third class growth (85 feet high at maturity), and young *pyinkado* plantations are doing well on soils similar and adjacent to plots 20 and 21. Natural *pyinkado* on No. 22 is 102 feet high.

C.—*Light to Medium Soils.*

Plots 7 and 22 are repeated under this head because they are not completely explained by their grouping under coarse soils. The full list is as follows :—

Sample Plot.	Percentage at 3—12 inches.					Average Texture Index.	
	Coarse Sand and Gravel.	Fine Sand.	Clay.	CO_2.	Organic Nitrogen.	Number.	Depth.
							Feet.
7	64·78	13·65	5·88	0·06	0·03	11·6	4
2	48·33	19·88	9·90	0·04	0·10	11·0	4
11	0·41	39·66	7·01	0·04	0·09	12·1	4
3	30·91	30·27	12·99	0·12	0·05	16·9	4
17	23·16	34·04	9·77	0·04	0·10	12·0	2
10	2·80	36·41	12·99	0·22	0·11	14·1	4
22	5·01	36·12	15·31	0·07	0·10	16·0	2
9	5·46	38·24	16·40	0·01	0·09	15·9	4
8	26·68	24·83	14·02	0·08	0·09	14·9	4
13	24·71	24·02	17·09	0·08	0·13	18·2	4
18	0·86	23·83	19·26	0·11	0·06	19·6	4

These are all potentially teak soils, though teak is absent from some of them and present only because planted on others. As the group covers the principal range of several important species, the number of plots is quite inadequate for classification and must be left as a unit.

No. 2 at first sight seems to resemble Rangoon laterite. It is actually a sandy alluvial soil on the bank of a Yoma stream, probably moist all the year round, and bears super-first quality teak. I apologize for the name, but the first second and third classes depend on tables imported from Nilambur, and consequently any teak "off the map" at the top of the scale is I.a. or super-first.

D.—*Heavy Calcareous Soils.*

Stiff soils contain colloidal clay which tends to coalesce into a puddled and soggy mess. The addition of lime (as may be seen experimentally with clay in suspension) flocculates the particles into complex aggregates, so that the soil tends to behave as far coarser than the aggregate of its ultimate particles. Unfortunately the violent treatment of soils involved in mechanical analysis disintegrates the complex floccules and reduces them to their component parts. Soils rich in lime may therefore appear extremely stiff on analysis, while they behave, and under natural conditions actually are, comparatively light.

The pH value of a soil is the negative logarithm of free hydrogen ions in gramme equivalents per litre. The value for water is 7 *i.e.* 10^{-7} or 0·0000001) and anything below this is acid while anything above it is alkaline, thus 5 is 10^{-5} or 0·00001 and 8 is 10^{-8} or 0·00000001.

All soils previously dealt with are subacid (p.H. 5·20 to 6·60 as against 7·00 for neutrality) on the 3—12 inch horizon and have a low percentage of lime (CO_2 under 0·1 in all cases). In this last group soils are about neutral or even alkaline on the 3—12 inch horizon and have a fairly high percentage of lime. An average of one per cent of lime, equivalent to 0·44 per cent of free CO_2, to a depth of four feet is taken as the definition of a calcareous soil. The only samples which comply with these conditions are 3 (comparatively light), 15, 6, 14 and 16. To these I have added 18. It is only slightly calcareous, but seems intermediate between these soils and the last group :—

Sample Plot.	Percentage at 3—12 inches.					Average Texture Index.	
	Coarse Sand and Gravel.	Fine Sand.	Clay.	CO_2.	Organic Nitrogen.	Number.	Depth.
							Feet.
3	30·91	30·27	12·99	0·12	0·05	16·9	4
18	0·86	23·83	19·26	0·11	0·06	19·6	4
15	0·94	6·99	16·97	0·43	0·10	26·9	4
6	5·13	22·76	22·03	2·47	0·05	24·4	4
14	1·11	11·05	17·22	0·16	0·10	22·6	4
16	2·33	14·10	38·59	0·66	0·19	38·0	4

No. 6 can produce nothing over 30 feet high, there is no teak on it, and any in the neighbourhood is very stunted; a third class teak plantation on No. 14 seems to be dying; plots 16 and 18 produce second, and plot 15 first class teak. No. 3 is a shallow alluvial deposit on limestone and probably subjected to flooding. It produces cutch and no teak.

With the exception of No. 6, this group tends to grow cutch (*Acacia Catechu*), *dwani* (*Eriolana Candollei*), *thitmagyi* (*Albizzia odoratissima*) and *sit* (*Albizzia procera*) with *myinwa* (*Dendrocalamus strictus*) undergrowth. Teak grows well in patches, but plantations are a gamble until we know more about the conditions which make for success.

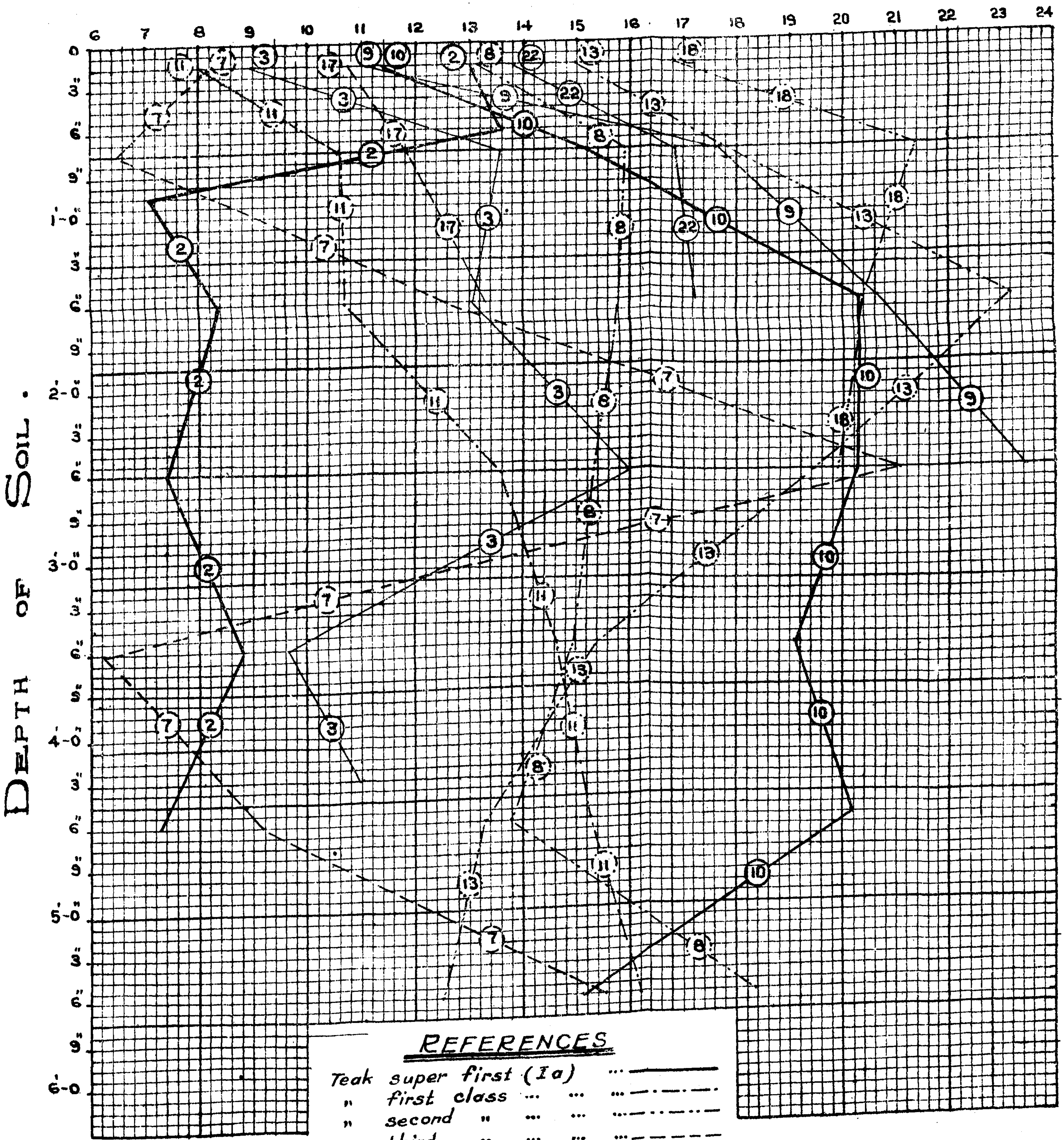
CHAPTER II.

VEGETATION.

A.—*Classification.*

Most of the rainfall is concentrated in five months of the year, and consequently the climax vegetation throughout the circle is forest. Any clearings, however ancient, tend to relapse into jungle as soon as human effort is relaxed.

Soil Texture Index.



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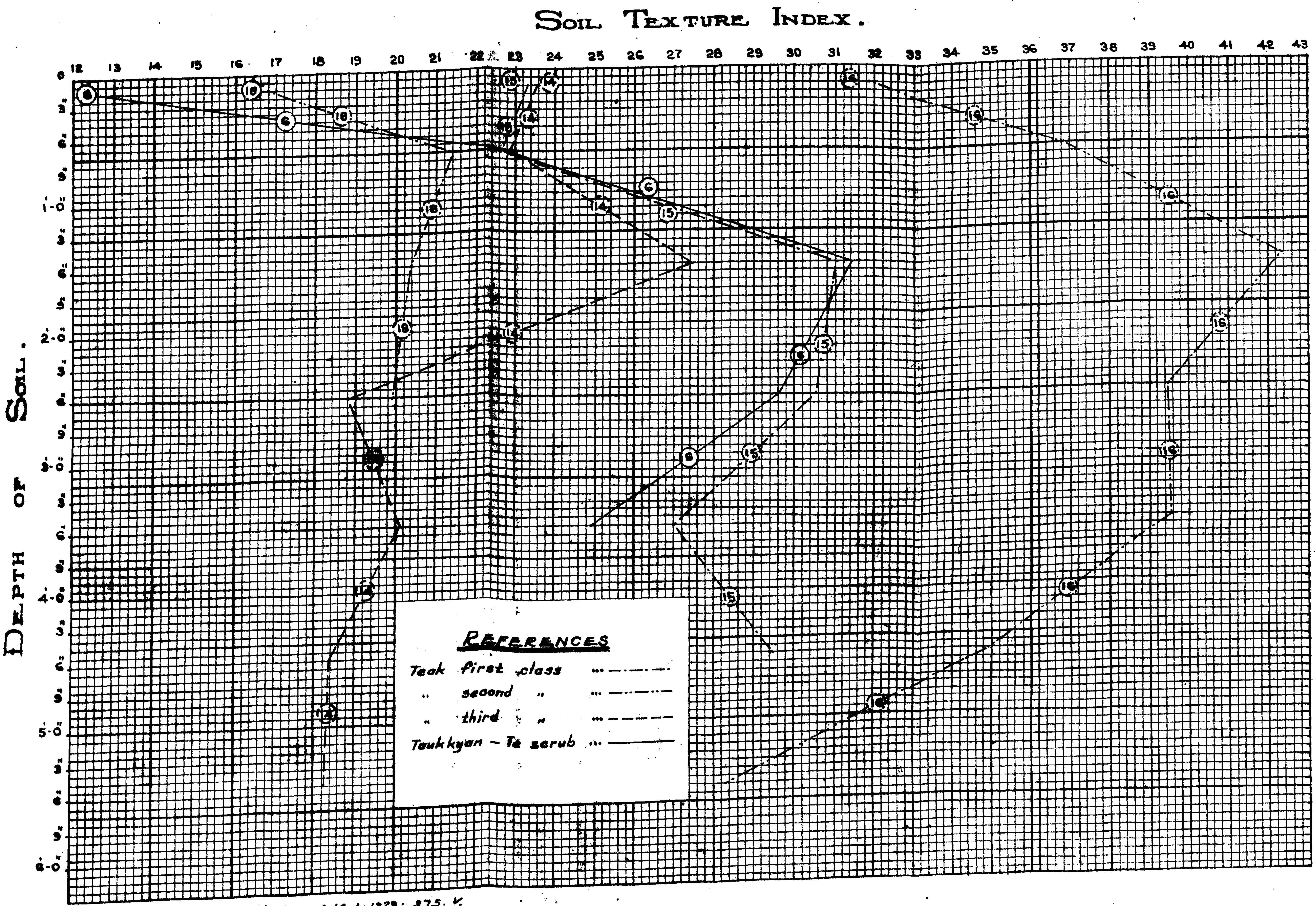

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The number of tree species and local variations among the dominants are so great that a detailed classification is impossible, but the associations may be broadly grouped under five heads :—

(*a*) Dry *Dipterocarp* forest,
(*b*) Dry mixed deciduous,
(*c*) Lower mixed,
(*d*) Moist mixed deciduous, and
(*e*) Evergreen *Dipterocarp*.

In every case there are at least three potential dominants, each with its own range of soils, and each can form a " pure " wood which is an association or consociation dominated by it. The distinction is perhaps over-subtle in the tropics, but a consociation is a " pure " society dominated by a species which is usually either subsidiary or one of several codominants. A " pure " climax indicates a range of soils better suited to the dominant species than to its rivals, and the area of those soils determines whether the type is a consociation or an association with a single dominant.

The rainfall of the year varies from 35 inches in northern Allanmyo to 110 inches near the sea in Insein, and this must tend to modify the soil requirements of any particular species. It is, however, premature to study the influence of rainfall on similar soils, and there is reason to suppose that it is not very marked. Coarse sands produce *in* throughout the circle, and the evergreen of Insein can be matched in valleys with little more than half the rainfall.

Dry *Dipterocarp* forest is a definite association usually dominated by *in* (*Dipterocarpus tuberculatus*) on coarse sand or gravel [samples 1, 4, 5, (7) and 19]. *Ingyin* (*Pentacme suavis*) and *thitya* (*Shorea obtusa*) are almost always present, and with a slight alteration in the soil either or both may dominate *in*. The *ingyin* consociation has been studied in samples 34, 35, 36, 38, and 39 and good growth evidently depends on fine sand, somewhat similar to sample 12 of this series, though the tree actually grows on soils as stiff as No. 6 and may be only excluded from intermediate soils by the dense growth of mixed forest. *Thitya* has slightly different requirements and has not yet been studied ; it probably does not tolerate soils as stiff as those characteristic of the worst *ingyin* scrub.

Dry mixed deciduous forest may be roughly defined as a mixed tree crop over *myinwa* (*Dendrocalamus strictus*) undergrowth. It is usually on stiff or calcareous soils, but may invade the coarse *indaing* sands if they are covered or mixed with a little alluvial silt. Scarcity of available moisture seems to be a common characteristic of all soils which produce this type, but it does not grow on soggy clays at one extreme or excessively porous sands (dry *Dipterocarp* forest) at the other. Dominants are very numerous, and the composition of the crop probably varies more than any other. Samples (7),* 14, 15, 16, 17, and 18 belong to this association.

Lower mixed forest is a special clay or alluvial type without bamboo undergrowth. At present Rangoon laterite forest (samples 20, 21, 23, 24, and 25) is included under this head, but it really belongs to a special class of sandy soil and should rank second in the table. Samples 8, 10 and 11 belong to the true lower mixed association.

Moist mixed deciduous forest is the home of the best teak and *pyinkado* (*Xylia dolabriformis*). It is characterised by an undergrowth of *kyathaung* (*Bambusa polymorpha*). Trees are well grown and somewhat scattered, and species are probably fewer than in dry mixed deciduous. Samples which illustrate this type are (2), (13) † and 22.

Evergreen *Dipterocarp* forest is a post climax in most of the circle, being confined to moist valleys and deep, porous soils. In the eastern half of Insein it is probably a true climax. As a matter of analysis, there is probably little difference betwen evergreen and *ingyin* soils, but the former have more available moisture and are usually deeper.

B.—*Indicators.*

Many subsidiary species and " weeds " grow indifferently on several types of soil. The common blue *Barleria strigosa* occurs on eleven out of twenty-

* In transition from *indaing* to mixed forest.
† Plantations on the site of *kyathaung* forest.

five samples, and is absent consistently only in true *indaing*. Such species are useless as indicators of either the soil or potential tree growth, and only those with a more restricted habitat are likely to be of much assistance.

At this stage in the enquiry it is far too soon to dogmatize, but I give a provisional list of species which seem to occur only on one of the four main classes into which I have divided the first set of samples.

Species.	*Indaing* Sand.	Rangoon Laterite.	Medium Soils.	Calcareous Soils.
Eriolœna Candollei (*dwani*)	...	...	...	Yes
Grewia asper	Yes	...	...	...
Grewia Microcos (*myatya*)	...	Yes	...	...
Walsura villosa (*gyobo*)	...	Yes	...	...
Schmidelia sp.	...	Yes	...	...
Buchanania latifolia (*lunbo*)	Yes	...	...	...
Albizzia odoratissima (*thitmagyi*)	...	...	...	Yes
Crotolaria alata	Yes	...	...	...
Flemingia congesta	...	Yes	...	...
Flemingia strobilifera	...	Yes	...	...
Millettia pendula (*thinwin*)	...	...	...	Yes
Ixora cuneifolia	...	Yes	...	...
Vernonia teres	Yes	...	...	...
Argyreia Wallichii	...	...	Yes	...
Oxoxylum indicum (*kyaungsha*)	...	Yes	...	...
Dolichandrone stipulata (*mahlwa*)	...	Yes	...	...
Heterophragma sulfureum (*kyunbo*)	Yes	...	...	...
Cephalostigma paniculata	Yes	...	...	...
Stereospermum grandiflorum	...	...	Yes	...
Strobilanthes imbricatus (*white*)	...	...	Yes	...
Clerodendron serratum	Yes	...	...	...
Sphenodesma unguiculata	...	Yes	...	...
Anisomales candicans	Yes	...	...	...
Litsœa sebifera	...	Yes	...	...
Aporosa macrophylla	Yes	...	...	...
Aporosa villosa	...	Yes	...	...
Mallotus philippinensis	...	Yes	...	...
Phyllanthus pomiferus	Yes	...	...	...
Arum sp.	...	...	Yes	...
Asparagus acerosus	Yes	...	...	...
Calamus viminalis	...	Yes	...	...
Andropogon fastigatus	Yes	...	...	...
Aristida adscensionis	Yes	...	...	...
Bambusa polymorpha (*kyathaung*)	...	...	Yes	...
Cephalostachyum pergracile (*tinwa*)	...	...	Yes	...
Panicum montanum	...	Yes	...	...
Pollinia articulata	Yes	...	...	...
Thysanolœna agrostis	...	Yes	...	...
Musa sp.	...	...	Yes	...
Cycas siamensis	Yes	...	...	...

A number of the species here credited to *indaing* also grow in semi-*indaing* and even on sandy teak soils, and generally the classification is only a provisional guide and should not, at this stage, be taken very seriously.

In addition to these notes :—

Justicia decussata, with tall slender spikes in December-January, is commonly found on *pyinkado* soils (*e.g.* Thatôn and Arakan), and the orange flowered *Strobilanthes phyllostachyus* often occurs on good teak soils.

Andropogon Schœnanthus (*myetnan*) is the clay (cutch soil) grass of Allanmyo and northern Prome.

Andropogon fascicularis takes its place down to Rangoon and occurs sparsely in Allanmyo.

Andro pogon serratus (*myethnayah*) is almost ubiquitous in Allanmyo and Prome.

Eragrostis tenella, *Pollinia articulata* (*vonhmwe*), *Andropogon apricus* and *Andropogon fastigatus* occur in *indaing* or semi-*indaing* in Allanmyo and Prome.

Nearly all specimens were collected in November—January, which excludes those which can only be identified in the rains, and the number of samples is at present too few to divide into climatic zones. While the dominant and subsidiary tree species seem comparatively little influenced by the total rainfall, it is not unlikely that herbs and grasses change considerably, and therefore indicators and associations from *indaing* in Allanmyo and Prome may be almost useless in Insein. Our knowledge should be considerably increased after analysis of the plots selected in 1928-29.

CHAPTER III.

INDAING.

A.—*General.*

Indaing is a park-like association dominated by *in* (*Dipterocarpus tuberculatus*, Roxb.). The type is common below 2,500 feet in all parts of Burma, and occurs in the reserved forests of Hlaing Circle as follows :—

		Acres.
Allanmyo division	...	50,500
Prome division	...	74,300
Zigon division	...	4,700
Tharrawaddy division	...	3,000
Insein division	...	4,500
		Total 137,000 acres

or about ten per cent of the total area.

All sample plots are in Allanmyo or northern Prome. Soils further south often contain laterite, but seem otherwise similar. It is probable, however, that herbaceous vegetation is to some extent modified by the higher rainfall (up to 100, as compared with 35—50 inches on these plots), though the more obvious woody constituents of the association are virtually unchanged.

In grows on soils which would produce Scots pine (*Pinus sylvestris*) in western and central Europe, but though resinous it is extremely fire hardy.

The type is L 9 in Stamp's " Vegetation of Burma (1924)."

B.—*Soils.*

In seedlings produce a weak and wandering radical in May, before rain is at all continuous, and consequently seldom become established on any but very loose soils :—

Plot.	Per cent of Coarse Sand and Gravel 0—3".	Texture Index.	Effective Reproduction of *In*.
1	89·61	1·83	Fair.
4	87·83	3·86	"
5	74·75	3·63	Good (*Inbo*).
7	52·67	8·18	None.
19	78·56	1·67	Excellent.

Plot 7 is in transition to dry deciduous mixed forest with teak, and *in* can no longer regenerate itself. It seems probable that some sixty per cent of coarse sand and gravel is necessary for effective reproduction of *in*, but experimental verification of this hypothesis is incomplete.

Plot 1 is a level shelf of native coarse sand (87·63 per cent. including gravel) down to 3 feet 8 inches and then is stiffened out to a texture index of 12·48 (14·13 per cent clay). Dominant trees grow up to 73 feet in height.

Plot 4 stiffens to a similar soil in the 1—2 feet layer (texture index 12·5 and 15·21 per cent of clay) and consequently heights are limited to 50 feet. This is typical of irregular *indaing* knolls (" scrub *indaing* ").

Plot 5 is a deep loose soil near the bank of a sandy watercourse. The highest percentage of clay down to 6 feet is only 7·14 and the highest texture index 6·76. This corresponds with *in* and *inbo* (*Dipterocarpus obtusifolius* Teysm.) up to 110 feet high.

Plot 7 is a series of irregular layers and mixtures of river silt and coarse sand washed down from true *indaing* hills. Samples show a marked peak at 2—3 feet (texture index 21·09 and 22·62 per cent of clay), but it is quite possible that the stiff layer is not continuous. There is a fine *in* 114 feet high on the plot, but no effective reproduction. The new crop is likely to be *thitsein* (*Terminalia belerica*, Roxb.), *gyo* (*Schleichera trijuga*, Willd.) teak (*Tectona grandis*, Linn.), *thitya* (*Shorea obtusa*, Wall.), *nabe* (*Odina Wodier*, Roxb.), and *panga* (*Terminalia Chebula*, Retz.) with bamboo (*Dendrocalamus strictus*, Nees.) undergrowth. This new climax of dry deciduous mixed forest is likely to have a maximum height of 90 as against 115 feet for *in*.

Plot 19 is a flat gravel shelf with no marked stiffening, but there are on the average, only two feet of soil above conglomerate rock. The maximum height of *in* is about 65 feet, or intermediate between scrub on irregular hills (No. 4) and growth on a level shelf of " old " coarse sand (No. 1).

All these soils are slightly acid and poor both in nitrogen and essential salts

The only extensive forests of first-rate *indaing* are in Upper Burma on loose river sand. In Lower Burma the effective depth is nearly always limited by a stiff layer, laterite, an iron " pan ", or conglomerate. No. 5 in this series is exceptional as being a " new " soil (riverside alluvium) in which the stiff layer has not yet been formed, and No. 7 is an odd mixture of river silt and hill wash from true *indaing* soils.

There is a possibility that *indaing* soils south of Prome are secondary (hillwash and alluvium) while those of the north are true Tertiary fossil wood deposits. As, however, fossil wood has now been found *in situ* both in Insein division and near Rangoon, this distinction may be of as little importance to geologists as it is to the practical forester.

Loose sand is so easily eroded that *indaing* is sometimes left stranded on comparatively stiff soils. The older trees seem unaffected, but reproduction ceases, and the climax type is definitely changed.

The classic connection between *indaing* and laterite seems to be a myth. *In* grows on coarse soils which may incidentally contain laterite, but is by no means characteristic of laterite soils as a whole.

C.—*Vegetation.*

The vegetation on *indaing* plots in Allanmyo and Prome (Nos. 1, 4, 5, 7 and 19) consists of :—

(*a*) Common to all five plots :—
- *in* (*Dipterocarpus tuberculatus*, Roxb.).

(*b*) On four of the five plots :—
- *teak* (*Tectona grandis*, Linn. f.),
- *pyinkado* (*Xylia dolabriformis*, Benth.),
- *taukkyan* (*Terminalia tomentosa*, W. & A.), and
- *kabaung* (*Strychnos Nux-Blanda*, A. W. Hill).

(*c*) On three of the five plots) :—
- *thitya* (*Shorea obtusa*, Wall.),
- *lunbo* (*Buchanania latifolia*, Roxb.),
- *thitlinda* or *kyunbo* (*Heterophragma sulfureum*, Kurz.),
- *nabe* (*Odina Wodier*, Roxb.),
- *yingat* (*Gardenia obtusifolia*, Roxb.),
- *yinbya* (*Clerodendron serratum*, Spreng.),
- *yonhle* grass (*Aristida adscenscionis*, Linn.), and
- *indaing* grass (*Andropogon fastigatus*, Sw.),

A total of thirteen out some sixty species on the five plots.

Species which are characteristic though not universal are :—
- *ingyin* (*Pentacme suavis*, A.DC.), usually on rather finer soils, sometimes on clay,
- *thitsi* (*Melanorrhœa usitata*, Wall.), rare on the western side of the Pegu Yoma,
- *mondaing* (*Lophopetalum Wallichii*, Kurz.), also rare in this circle,
- *inchin* (*Aporosa macrophylla*, Muell. Arg.),
- *byu* (*Dillenia pulcherrima*, Kurz.),
- *hmanni* (*Gardenia erythroclada*, Kurz.),
- *mondaing* (*Cycas siamensis*, Miq.),

the herbaceous red Hibiscus (*H. Abelmoschus*, Linn.), starry blue *kyaukban* (*Cephalostigma paniculata*, A.DC.), *tawnan* ("wild sesamum," *Anisomeles candicans*, Benth.), spear grass (*Andropogon contortus*, Linn.), and the only flower in Burma which rivals the bluebells of an English wood, *saingnan* (*Strobilanthes auriculatus*, Nees.) ; this flowered in Prome during 1927.

Bamboos are usually absent.

Under certain conditions *inbo* (*Dipterocarpus obtusifolius*. Teysm., possibly equivalent to *D. tuberculatus* var. *grandiflorus*) replaces *in* without modifying the character of the association. Sample No. 5 is an immature crop of *inbo* derived from abandoned *taungya* cultivation, apparently on the site of normal *indaing*.

D.—*Situation of Plots.*

So far as possible, plots are demarcated permanently, and most of them should be available for future work.

No.	Division.	Nearest Rest House.	Geographical Position.	Size.	Rainfall.
1	Allanmyo	Kanchaung ...	95° 38′ E. 19° 36′ N. ...	66	35
4	Do.	Kyaukpadaung ...	95° 26′ E. 19° 17′ N. ...	66	40
5	Do.	Do. ...	Do. ...	33	40
7	Do.	Ngamegan ...	95° 15½′ E. 18° 59′ N. ...	66	45
19	Prome ...	Hlwazin ...	95° 29½′ E. 19° 1½′ N. ...	50	45

CHAPTER IV.

Rangoon Lateritic Type.

A.—*General.*

The association is peculiar to shelves and low hills from the sea near Kungyangôn, past Rangoon to near Tharrawaddy in this circle, and probably to Toungoo in the Sittang Valley.

The rainfall necessary to produce this type of soil seems to be at least 80 inches, and is as high as 100—110 on all plots selected.

The type occupies some two per cent of the reserved forests in this circle, or 30,000 acres. Its importance lies in its position, for it monopolises all areas of reserved forests readily accessible to extraction for Rangoon and the densely populated area round it.

Three of the sample plots were taken in Kyetpyugan teak plantations about twenty-five miles north of Rangoon, and the other two in what appears to be secondary growth on Twante Island. The dominants of the original forest are so persistent that neither cultivation nor sixty years suppression by teak have subdued them, see Appendix IV.

In the southern half of the circle, this rather complex association seems to take the place of semi-*indaing* and has many affinities with *indaing* proper.

B.—*Soils.*

The texture index, as shown in the diagram of coarse soils, is remarkably regular, and the five samples form a group at least as well defined as the better known *indaing* series.

Plot.	Depth.	Percentage of Coarse Sand and Gravel.	Percentage of Clay.	Percentage of Organic Nitrogen.	Percentage of CO_2.	pH.	Texture Index.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
20	0—3″ ...	73·82	3·80	0·054	0·034	6·05	4·09
21	Do. ...	51·61	6·20	0·091	0·064	5·40	6·30
23	Do. ...	52·90	5·01	0·080	0·070	6·05	5·91
24	Do. ...	45·98	3·48	0·069	0·052	6·20	4·91
25	Do. ...	42·18	2·52	0·056	0·048	6·10	3·52
20	3″—12″ ...	61·06	9·60	0·049	0·056	6·25	8·98
21	Do. ...	43·60	12·74	0·082	0·058	5·29	12·05
23	Do. ...	48·69	8·67	0·055	0·034	6·05	8·96
24	Do. ...	44·30	5·88	0·058	0·054	6·15	7·14
25	Do. ...	40·48	2·93	0·044	0·046	6·15	4·68
20	1′—2′ ...	52·11	15·70	0·047	0·040	6·90	14·32
21	Do. ...	44·22	19·27	0·051	0·040	5·00	16·84
23	Do. ...	43·76	12·08	0·047	0·050	6·05	11·75
24	Do. ...	42·12	9·57	0·057	0·028	6·10	9·95
25	Do. ...	36·82	10·75	0·026	0·048	6·10	11·18

Plot.	Depth.	Percentage of				pH.	Texture Index.
		Coarse Sand and Gravel.	Clay.	Organic Nitrogen.	C.O₂.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
20	2′—3′ ...	51·48	14·93	0·037	0·036	6·50	14·17
21	Do. ...	36·72	22·75	0·040	0·030	5·00	19·89
23	Do. ...	41·18	16·30	0·033	0·038	6·10	15·27
24	Do. ...	35·52	16·14	0·040	0·032	6·05	15·34
25	Do. ...	41·51	9·92	0·068	0·056	6·10	10·62
20	3′—4′ ...	52·07	15·60	0·037	0·024	6·60	14·26
21	Do. ...	47·72	18·40	0·040	0·100	5·75	15·90
23	Do. ...	41·17	12·71	0·034	0·066	6·10	12·81
24	Do. ...	31·67	16·66	0·035	0·046	6·10	15·96
25	Do. ...	46·17	9·24	0·033	0·072	6·10	10·07
20	4′—5′ ...	50·33	15·86	0·016	0·042	6·05	14·50
21	Do. ...	56·46	13·21	0·040	0·082	5·50	11·91
23	Do. ...	40·34	12·08	0·046	0·070	6·10	12·47
24	Do. ...	29·63	17·99	0·037	0·040	6·10	17·07
25	Do. ...	31·28	15·77	0·030	0·090	6·25	15·36

These samples are never quite as coarse as *indaing* soils on the surface, and they stiffen fairly uniformly to a lateritic gravel about 2½—5 feet below the surface. Presumably as the result of the heavy rainfall, they are as acid and almost as poor in nitrogen and essential salts as the coarse sands which grow *indaing*.

Plots 23—25 bear teak plantations of 1871, 1870 and 1869 with dominant trees up to 86, 83 and 79 feet respectively, or rather over the average of the third class. Plots and 20 and 21 are covered by an immature tangle up to 42 feet high and (with the exception of a single tree) under 3 feet in girth. *Pyinkado* (*Xylia dolabriformis*, Benth.) has been planted on similar soils in the neighbourhood and is doing well.

C.—*Vegetation.*

Ignoring teak, which was introduced artificially, the species composing the association are as follows :—

(*a*) Common to all five plots :—

mahlwa (*Dolichandrone stipulata*, Benth.),
lettok (*Holarrhena antidysenterica*, Wall.),
myatya (*Grewia Microcos*, Linn.),
yemein (*Aporosa villosa*, Baill.), and
kyeingah (*Calamus viminalis*, Willd.),

(*b*) On four of the five plots :—

thabye (*Eugenia* spp.),
maungmakaw (*Combretum extensum*, Roxb.), a woody climber,
seintabaw (*Dioscorea sativa*, Linn.), a climber with annual shoots,
bizat (*Eupatorium odoratum*, Linn.) a scrambling exotic which overran Burma in the second decade of this century, and
magyibauk (*Randia longispina*, W. & A.).

(*c*) On three of the five plots :—

ondon (*Litsæa sebifera*, Pers.),
nagye (*Pterospermum semisaggitatum*, Ham.),
zibyu (*Phyllanthus Emblica*, Linn.),
gyobo (*Walsura villosa*, Wall.),
maniawga (*Carallia lucida*, Roxb.),
thanthat (*Schmidelia* sp.)
thitpok (*Dalbergia Kurzii*, Prain.),
kyaungsha (*Oroxylum indicum*, Vent.),
ka-aung (*Ficus hispida*, Linn, f.), the woody climbers
nwesat (*Congea tomentosa*, Roxb.),
nwesat (*Sphenodesme unguiculata*, Schauer), and

kywetnwe (*Calycopteris floribunda*, Lamk.), the herbaceous climbe[rs]
nwegyo (*Thunbergia laurifolia*, Lindl.),
kyidauk (*Lygodium flexuosum*, Sw.), a climbing fern,
shawbya (*Hibiscus macrophyllus*, Roxb.),
? (*Flemingia congesta*, Roxb.),
? (*Lepidagathis hyalina*, Nees.),
nibase (*Ixora cuneifolia*, Roxb.),
nagamaukni (*Leea crispa*, Linn.),
groundsel (*Laggera flava*, Benth.), and
kyathaung grass (*Oplismenus compositus*, Beauv.)

A total of thirty-one species out of nearly a hundred found on the five plots.

Species which are characteristic but not universal are :—

Kanyin (*Dipterocarpus alatus*, Roxb.) up to 125 feet high, usually in depressions, conspicuous because other trees seldom exceed a height of 90 feet,
banbwe (*Careya arborea*, Roxb.), which dominates a special consociation on swampy ground,
thitsein (*Terminalia belerica*, Roxb.),
myaukchaw (*Homalium tomentosum*, Benth.),
thetyingyi (*Croton oblongifolius*, Muell. Arg.), and
kywedanyin (*Millettia atropurpurea*, Benth.)

Bamboos are always absent, though several species grow fairly well when planted.

Islands of almost pure teak (*Tectona grandis*, Linn. f.) and almost pure *pyinkado* (*Xylia dolabriformis*, Benth.) occur in the association, but have no connection with it.

D.—*Situation of Plots.*

No	Division.	Nearest Rest House.	Geographical Position.	Size.	Rainfall.
				Ft. sq.	In.
20	Insein ...	Teinmilasan ...	16°31½′ N., 96°0½′ E. ...	66	110
21	Do. ...	Taungthalesan ...	16°37′ N., 96°4′ E. ...	66	110
23	Do. ...	Hmawbi ...	17°5′ N., 96°8′ E. ...	66	100
24	Do. ...	Do. ...	Do. ...	66	100
25	Do. ...	Do. ...	Do. ...	66	100

All plots have been demarcated and should be available for future work.

CHAPTER V.

LIGHT AND MEDIUM SOILS.

A general list was given in the first chapter and, as I said there, the range is too wide for classification until more plots have been analysed.

Plot 7 is fine old *in* (*Dipterocarpus tuberculatus*) being replaced by dry deciduous forest containing teak. A teak near the plot is 82 feet high and 5 feet 8 inches in girth as against 114 feet high and 10 feet 2 inches in girth for the old *in* round which the plot was made.

The soil has violent alternations, but the determining factor seems to be a surface (0—3 inch) layer too stiff for successful regeneration of *in*.

Plot 2 is a sand not unlike Rangoon laterite, but in spite of a stiff surface it is much more uniform. It grows "superfirst" teak (104 feet high in 37 years) because it is streamside alluvium and water is available at stream level at least until the end of December.

Plot 11 is also streamside alluvium, but has a much finer soil. A teak plantation on it is first class (111 feet in 60 years).

Plot 3 is a calcareous alluvial deposit over limestone, and probably suffers from waterlogging in the rains. The growth is predominantly cutch (*Acacia Catechu*), but none of it is mature. The best shoot is 44 feet high and 1 foot 11 inches girth.

Plot 17 is a shallow soil over rock with natural mature teak 88 feet high.

Plot 10 is an old alluvial soil with good local drainage. A teak plantation on it ran up to 110 feet high in 58 years, again " superfirst. "

Plot 22 is laterite, stiffer but otherwise similar to the Rangoon series. It bears *pyinkado* (*Xylia dolabriformis*) 102 feet high over *kyathaung* (*Bambusa polymorpha*) up to 70 feet.

Plot 9 is a heavy streamside alluvium on which cutch replaced a teak plantation, possibly as the result of flooding in the first year. The cutch was 93 feet high at 38 years of age.

Plot 8 is also rather heavy streamside alluvium with *yon* (*Anogeissus acuminata*) 128 feet and *taukkyan* (*Terminalia tomentosa*) up to 114 feet as against 110 feet for natural teak.

Plot 13 is the top of a spur in a teak plantation formed in *kyathaung* (*Bambusa polymorpha*) jungle. The teak is just over second class, which is satisfactory in view of its position.

Plot 18 is slightly calcareous, but really belongs to this group. *Taukkyan* (*Terminalia tomentosa*) on it is 110 feet high as against 106 feet for natural teak but the former is mature (7 feet girth) and the the latter is not (4 feet 4 inches) so the teak may be expected to outgrow, as it already outnumbers, the *taukkyan*.

The position of these plots is as follows :—

No.	Division.	Nearest Rest House.	Geographical Position.	Size.	Rainfall.
				Ft. sq.	In.
21	Allanmyo	Magyigon ...	19°18'N., 95°47'. E. ...	66	45
3	Do.	Shwebandaw ...	19°14'N., 95°37'. E. ...	33	40
8	Prome ...	Dalame ...	18°46'N., 95°35½' E. ...	66	50
9	Do.	Gyobinaing ...	18°37'N., 95°43' E. ...	66	50
10	Zigôn ...	Kangyi ...	18°21½'N., 95°46' E. ...	50	60
11	Tharrawaddy.	Kywemakaing ...	17°57'N., 95°55' E. ...	33	72
12	Zigôn ...	Kwinsan ...	18°28'N., 95°47' E. ...	10	60
13	Do.	Kywemaaing ...	18°41'N., 95°53' E. ...	25	60
17	Prome ...	Kyaukpyintha ...	18°51'N., 95°44' E. ...	50	55
22	Insein ...	Seintcsakan ...	17°31½'N., 96°3' E. ...	50	100

No. 7 has been included under *indaing*, and No. 18 in the heavy calcareous group.

CHAPTER VI.

HEAVY CALCAREOUS SOILS.

A.—*General.*

Of the five apparently heavy soils, No. 6 is set apart by its vegetation, and doubtless further samples will show that it belongs to a different class of soil. This leaves Nos. 18, 14, 15 and 16, a series in natural or planted teak forest in the foothills of Prome. Nos. 6, 15 and 16 are all yellow or brown, while the less calcareous soils 14 and 18 are blue.

B.—*Soils.*

Analysis for the first three feet is as follows .—

Sample Plot.	Depth.	Percentage of				Texture Index.	pH value.
		Clay.	Fine Silt.	CO_2.	Organic Nitrogen.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
18	0—3"	13·48	31·19	0·062	0·116	16·83	6·50
15	"	18·38	49·34	0·008	0·161	23·31	7·10
14	"	18·97	50·00	0·042	0·112	23·59	6·90
16	"	32·26	36·75	0·116	0·245	31·88	6·90
18	3"—12"	19·26	31·42	0·106	0·063	21·39	6·80
15	"	16·97	52·65	0·432	0·105	22·72	7·95
14	"	17·22	53·70	0·158	0·105	22·90	8·05
16	"	38·59	37·31	0·662	0·193	36·89	7·60

Sample Plot.	Depth.	Percentage of				Texture Index.	pH value.
		Clay.	Fine Silt.	CO_2.	Organic Nitrogen.		
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
18	1'—2'	19·06	25·31	0·144	0·068	20·38	7·20
15	"	27·59	54·59	0·842	0·086	31·06	8·05
14	"	23·64	50·93	0·414	0·091	27·46	8·05
16	"	45·30	39·20	4·566	0·103	42·37	8·20
18	2'—3'	18·24	26·71	0·054	0·070	19·91	6·35
15	"	27·74	49·70	1·574	0·077	30·54	8·30
14	"	11·90	53·83	0·518	0·063	18·83	7·95
16	"	40·82	43·13	6·872	0·077	39·48	8·20

It will be noticed that the CO_2 percentage in the surface layer is very much lower than that at 3—12 inches, and that in strongly calcareous soils the maximum is very much deeper (6·920 at 3—4 feet in No. 16). This is due to leaching (rather more complex than solution, as bases are treated selectively) by rainfall from the top downwards, with a tendency to concentrate 2—5 feet from the surface.

The acidity index (pH) naturally follows this figure, changing from subacid at 0—3 inches to very strongly alkaline further down.

The percentage of CO_2 (and therefore lime) gives also a tentative explanation of the failure of a teak plantation on No. 14 while that on 15 is first class and No. 16 bears natural second class teak. If these soils are ordinarily too stiff for teak and are only rendered fertile by flocculation, the lime content of No. 14 is so very much lower than that of 15 or 16 that it might be expected to remain comparatively colloidal and stiff.

No. 16 has a marked peak at 1—4 feet and the comparatively light soil below may tend to deprive it of moisture which penetrates beyond 4 feet.

C.—*Vegetation.*

A test of classification is the number of plants common to the group of soils. Samples 18, 14, 15 and 16 may be termed the cutch—Albizzia (—teak) society of dry deciduous mixed forest. *Myinwa* (*Dendrocalamus strictus*, Nees.) is always present as undergrowth unless it has been artificially eradicated (*e.g.* in the teak plantation on Plot 15).

The list is given below :—

(*a*) Common to all four plots :—
Cutch (*Acacia Catechu*, Willd.),
thitmagyi (*Albizzia odoratissima*, Benth.),
sit (*Albizzia procera*, Benth.), and blue flowered.
Barleria strigosa, Willd., as nearly as possible ubiquitous on all but very coarse soils.

(*b*) Common to three plots :—
taukkyan (*Terminalia tomentosa*, W. and A.),
binga (*Stephegyne diversifolia*, Hk. f.), the bamboo
myinwa (*Dendrocalamus strictus*, Nees.), and low growth
Grewia abutifolia, Mast.,
Leea macrophylla, Roxb., and the herbaceous climber
Phaseolus calcaratus, Roxb.

(*c*) On two of the four plots :—
teak (*Tectona grandis*, Linn.), also planted on the other two,
yon (*Anogeissus acuminata*, Wall.),
lein (*Terminalia pyrifolia*, Kurz.),
dwani (*Eriolæna Candollei*, Wall.),
thinwin (*Milletia* sp.)
pyinma (*Lagerstrœmia macrocarpa*, Kurz.),
Phyllanthus urinaria, Linn.,
Abrus pulchellus, Wall.,
Bridelia stipularis, Blume., with the giant climber
pauknwe (*Butea superba*, Roxb.), herbaceous tentacles of
Dioscorea sativa, Linn., and, among low growth,

nagamauk (*Leea acuminata*, Wall.),
ywetkat (*Desmodium laxiflorum*, DC.),
Lepidagathis dulcis, Nees., and the grass
Andropogon fascicularis, Roxb.

A total of twenty-five species out of seventy-three on all four plots.

D.—*Positions of Plots.*

No.	Division.	Nearest Rest House.	Geographical Position.	Size.	Rainfall.
				Ft. sq.	In.
6	Allanmyo	...	19° 11′ N., 95° 22½′ E. ...	33	40
14	Prome ...	Gyobinaing ...	18° 37′ N., 95° 42′ E. ...	33	55
15	" ...	Ngashinkwin ...	18° 42′ N., 95° 47′ E. ...	33	55
16	" ...	Yoksaing ...	18° 45½′ N., 95° 47′ E. ...	66	50
18	" ...	Taungbyaw ...	18° 58′ N., 95° 44′ E. ...	66	50

All plots have been demarcated and should be available for future work.

APPENDICES.

APPENDIX I.

MECHANICAL ANALYSIS.

Soil Sample.	Depth.	Percentage of Particles.							Soil Texture Index.
		Clay.	Fine Silt.	Silt.	Fine Sand.	Coarse Sand.	Fine Gravel.	Stones and Gravel.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
1	0—3″ ...	1·54	2·05	3·07	3·73	84·63	4·98	Nil	1·83
	3″—7″ ...	1·03	3·61	3·61	5·11	81·18	5·46	Nil	1·70
	7″—3′8″ ...	0·76	3 06	4·59	3·96	85·57	2·06	Nil	1·30
	3′8″—4′8″ ...	14·13	6·32	3·96	4·33	66·79	4·47	Nil	12·48
2	0—3″ ...	13·23	11·75	11·35	19·18	44·22	0·27	Nil	13·01
	3″—12″ ...	9·90	11·84	10·04	19·88	47·93	0·40	Nil	10·34
	1′—2′ ...	7·71	10·68	8·93	15·22	55·92	1·54	Nil	8·36
	2′—3′ ...	6·93	9·44	4·96	19·31	57·44	1·92	Nil	7·42
	3′—4′ ...	7·76	12·28	11·63	24·80	43·09	0·44	Nil	8·82
	4′—5′ ...	6·57	11·05	2·35	15·20	64·26	0·57	Nil	7·27
3	0—3′ ...	7·88	12·98	8·93	29·84	32·64	7·73	Nil	8·94
	3″—12″ ...	12·99	16·97	8·85	30·27	23·51	7·41	Nil	13·61
	1′—2′ ...	10·91	23·95	10·38	24·97	18·10	8·56	3·13	13·07
	2′—3′ ...	14·29	25·00	12·64	24·84	11·97	4·53	6·73	15·99
	3′—4′ ...	7·11	21·17	12·23	21·92	14·80	14·98	7·79	9·67
	4′—4′5½″ ...	9·06	19·54	12·00	23·53	20·13	5·66	10·08	10·97
4	0—3″ ...	4·15	2·36	2·53	3·13	31·91	38·00	17·92	3·86
	3″—12″ ...	9·44	0·63	1·68	1·96	21·06	47·37	17·86	7·72
	1′—2′ ...	15·21	1·22	2·03	3·23	51·54	24·03	2·74	12·50
	2′—3′ ...	7·31	7·52	1·02	5·57	50·30	25·52	2·76	7·16
	3′—5′5″ ...	3·59	6·95	0·89	3·82	34·73	40·23	9·79	4·09
	5′5″—5′9″ ...	3·78	3·94	1·22	4·14	16·82	49·71	20·39	3·76
	5′9″—6′ ...	18·13	5·04	4·89	11·73	38·45	17·02	4·74	15·51
5	0—3″ ...	2·90	6·33	2·90	13·12	66·43	8·32	Nil	3·63
	3″—12″ ...	3·62	3·62	5·43	9·11	63·03	15·19	Nil	3·83
	1′—2′ ...	5·37	7·16	4·86	13·29	57·62	11·70	Nil	5·78
	2′—3′ ...	7·14	4·42	5·53	11·71	56·86	11·93	2·41	6·76
	3′—4′ ...	3·77	9·68	1·36	9·87	56·96	14·85	3·51	4·75
	4′—5′ ...	1·21	3·49	1·21	2·18	31·06	48·75	12·10	1·65
	5′—6′ ...	1·86	4·42	1·86	5·39	43·01	34·16	9·30	2·38
6	0—3″ ...	7·66	34·45	21·87	24·17	6·71	Nil	5·14	12·68
	3″—12″ ...	22·03	28·22	16·92	22·76	4·92	0·21	4·94	22·77
	1′—2′ ...	32·44	33·98	18·80	14·82	2·96	Nil	Nil	31·46
	2′—3′ ...	29·77	33·45	16·29	13·59	2·75	0·11	4·04	29·63
	3′—4′ ...	23·90	32·52	17·26	19·46	6·58	0·28	Nil	24·92
7	0—3″ ...	6·59	15·07	9·32	16·35	47·04	4·74	0·89	8·18
	3″—12″ ...	5·88	8·69	7·00	13·65	43·26	18·56	2·96	6·50
	1′—2. ...	12·16	14·54	10·84	19·04	38·13	5·29	Nil	12·58
	2′—3′ ...	22·62	14·90	15·70	19·75	23·57	3·46	Nil	21·09
	3′—4′ ...	4·60	13·14	8·14	17·08	42·05	12·39	2·60	6·25
	4′—5′ ...	9·44	8·02	5·75	16·82	36·43	20·79	2·75	9·18
	5′—6′ ...	16·62	10·59	12·78	17·17	36·49	4·89	1·46	15·54
8	0—3″ ...	11·98	18·23	13 88	27·10	28·24	0·57	Nil	13·18
	3″—12″ ...	14·02	25·95	8·52	24·83	26·12	0·56	Nil	15·93
	1′—2′ ...	14·29	23·58	11·50	31·83	17·96	0·84	Nil	15·79
	2′—3′ ...	14·03	22·87	8·89	26·70	26·40	1·11	Nil	15·34
	3′—4′ ...	14·17	19·41	9·94	29·60	26·02	0·86	Nil	14·96
	4′—5′ ...	10·71	28·29	12·91	36·67	11·20	0·22	Nil	13·78
	5′—6′ ...	18·37	19·66	11·04	29·30	21·20	0·43	Nil	18·36
9	0—3″ ...	8·87	19·07	20·04	45·20	6·55	0·27	Nil	11·20
	3″—12″ ...	16·40	23·50	16·40	38·24	5·30	0·16	Nil	17·67
	1′—2′ ...	18·97	30·58	12·74	33·75	3·28	0·68	Nil	20·64
	2′—3′ ...	21·55	35·62	14·30	23·73	3·87	0·93	Nil	23·47
10	0—3″ ...	8·43	20·53	27·83	39·45	3·65	0·11	Nil	11·35
	3″—12″ ...	12·99	22·86	24·94	36·41	2·70	0·10	Nil	15·19
	1′—2′ ...	18·42	28·63	24·94	25·80	2·21	Nil	Nil	20·32
	2′—3′ ...	17·94	30·14	27·95	23·33	0·64	Nil	Nil	20·27
	3′—4′ ...	17·20	25·94	29·12	27·37	0·37	Nil	Nil	19·10
	4′—5′ ...	18·59	26·02	27·62	27·40	0·37	Nil	Nil	20·15
	5′—6′ ...	12·34	27·21	18·79	38·52	2·92	0·22	Nil	15·13
11	0—3″ ...	6·33	16·90	25·05	50·43	1·29	Nil	Nil	8·08
	3″—12″ ...	7·01	22·30	30·62	39·66	0·41	Nil	Nil	10·61
	1′—2′ ...	7·09	22·33	31·27	38·15	1·16	Nil	Nil	10·69
	2′—3′ ...	11·32	21·83	20·45	43·91	2·49	Nil	Nil	13·58
	3′—4′ ...	12·25	23·16	24·49	37·33	2·77	Nil	Nil	14·64
	4′—5′ ...	13·03	23·20	25·02	33·95	4·80	Nil	Nil	15·26
	5′—6′ ...	14·66	21·73	22·25	32·77	8·59	Nil	Nil	16·20

APPENDIX I—*contd.*

MECHANICAL ANALYSIS—*contd.*

Soil Sample.	Depth.	Percentage of Particles.							Soil Texture Index.
		Clay.	Fine Silt.	Silt.	Fine Sand.	Coarse Sand.	Fine Gravel.	Stones and Gravel.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
12	0—3″ ...	3·40	23·38	23·44	37·43	11·91	0·44	Nil	7·6372
	3″—12″ ...	2·73	20·28	28·69	44·93	3·05	0·27	Nil	6·8690
	1′—2′ ...	2·27	21·53	27·21	47·[illegible]4	1·29	0·16	Nil	6·6613
	2′—3′ ...	2·59	21·78	29·21	44·15	2·12	0·15	Nil	7·0081
	3′—4′ ...	2·57	16·58	27·60	47·82	5·43	Nil	Nil	6·1395
	4′—4′ 8″ ...	2·58	13·71	21·63	40·56	21·52	Nil	Nil	5·4250
13	0—3″ ...	13·48	22·32	13·65	26·53	21·87	2·15	Nil	14·9959
	3″—12″ ...	17·09	23·11	11·07	24·02	19·78	4·93	Nil	17·8563
	1′—2′ ...	21·74	35·84	1·97	24·55	10·84	5·05	Nil	23·[illegible]8
	2′—3′ ...	15·58	40·57	10·85	26·04	5·42	1·[illegible]9	Nil	19·4066
	3′—4′ ...	11·52	33·69	17·76	28·96	6·78	1·20	Nil	15·4005
	4′—5′ ...	9·94	28·45	17·42	28·97	14·02	0·70	Nil	13·3179
	5′—6′ ...	11·43	15·48	16·94	37·88	17·57			12·5016
14	0—3″ ...	18·97	50·00	13·34	14·40	2·36	0·93	Nil	23·5857
	3″—12″ ...	17·22	53·70	16·92	11·05	0·82	0·29	Nil	22·8[illegible]77
	1′—2′ ...	23·64	50·93	15·17	9·69	0·40	0·17	Nil	27·4610
	2′—3′ ...	11·9[illegible]	53·83	19·39	14·64	0·12	0·12	Nil	18·8299
	3′—4′ ...	14·00	51·[illegible]2	19·98	14·33	0·05	0·[illegible]1	Nil	20·1482
	4′—5′ ...	12·70	45·90	23·[illegible]9	18·05	0·06	Nil	Nil	18·3894
	5′—5′ 10″ ...	11·99	49·11	23·[illegible]9	15·25	0·06	Nil	Nil	18·3[illegible]50
15	0′—3′ ...	18·38	49·34	21·82	9·24	0·47	0·75	Nil	23·30[illegible]9
	3″—12″ ...	16·97	52·65	22·45	6·[illegible]9	0·22	0·72	Nil	22·7197
	1′—2′ ...	27·59	54·59	13·51	4·04	0·12	0·15	Nil	3[illegible]·0601
	2′—3′ ...	27·74	49·70	16·64	5·72	0·10	0·10	Nil	30·5420
	3′—4′ ...	23·94	45·43	20·23	10·[illegible]3	0·07	Nil	Nil	27·03[illegible]9
	4′—5′ ...	27·85	41·64	18·66	11·80	0·05	Nil	Nil	29·4810
16	0—3″ ...	32·26	36·75	9·90	17·90	1·13	2·06	Nil	31·8758
	3″ —12″ ...	38·59	37·[illegible]1	7·67	14·10	0·[illegible]0	1·63	Nil	36·8367
	1′—2′ ...	45·30	39·[illegible]0	5·[illegible]9	9·41	0·21	0·3[illegible]	Nil	42·3722
	2′—3′ ...	40·82	43·13	6·20	9·48	0·20	0·[illegible]7	Nil	39·4777
	3′—4′ ...	40·83	43·77	5·07	10·03	0·22	0·08	Nil	39·5467
	4′—5′ ...	34·32	46·04	9·74	9·72	0·18	Nil	Nil	34·9323
	5′—6′ ...	25·12	49·40	13·39	11·70	0·39	Nil	Nil	28·3382
17	0—3″ ...	9·41	16·14	9·24	45·76	17·28	2·17	Nil	10·7640
	3″—12″ ...	9·77	21·35	11·68	34·04	21·54	1·62	Nil	11·8844
	1′—2′ ...	11·24	23·45	10·85	32·71	19·20	2·55	Nil	13·3345
18	0—3″ ...	13·48	31·19	25·02	28·32	0·[illegible]7	1·02	Nil	16·8303
	3″—12″ ...	19·26	31·42	24·63	23·83	0·48	0·38	Nil	21·3923
	1′—2′ ...	19·06	25·31	26·68	27·70	0·49	0·76	Nil	20·3787
	2′—3′ ...	18·24	26·71	25·45	28·85	0·43	0·32	Nil	19·9109
19	0—3″ ...	1·14	3·02	1·30	15·98	64·83	11·34	2·39	1·6692
	3″—12″ ...	0·47	3·07	1·47	9·51	55·83	22·84	6·81	1·0945
	1′—2′ ...	1·16	5·32	1·99	11·90	43·00	20·80	15·83	2·0150
	2′—3′ ...	5·96	7·52	3·16	11·89	35·51	24·22	11·74	6·2010
20	0—3″ ...	3·80	4·63	2·72	15·03	73·82	Nil	Nil	4·0870
	3″—12″ ...	9·60	5·79	5·52	18·03	60 09	0·97	Nil	8·9775
	1′—2′ ...	15·70	9·16	5 50	17·53	50·91	1·20	Nil	14·3229
	2′—3′ ...	14·93	12·69	3·00	17·90	50·20	1·28	Nil	14·1747
	3′—4′ ...	15·60	9·07	6·42	16·84	50·67	1·40	Nil	14·2601
	4′—5′ ...	15·86	9·38	5·93	18·50	43·79	1·98	4·56	14·4982
21	0—3″ ...	6·20	4·50	9·51	28·18	51·30	0·31	Nil	6·3042
	3″—12″ ...	12·74	8·91	6·53	28·22	43·23	0·37	Nil	12·0515
	1′—2′ ...	19·27	7·43	3·31	25·77	43·83	0·39	Nil	16·8442
	2′—3′ ...	22·75	8·43	7·08	25·02	34·34	0·83	1·55	19·8860
	3′—4′ ...	18·40	4·80	9·06	20·02	27·96	6·11	13·65	15·8980
	4′—5′ ...	13·21	6·11	7·56	16·66	21·74	19·50	15·22	11·9071
22	0—3″ ...	12·40	18·01	20·65	40·40	6·70	1·84	Nil	13·8205
	3″—12″ ...	15·31	22·97	20·59	36·12	4·22	0·79	Nil	16·8636
	1′—2′ ...	14·96	27·96	17·64	35·28	3·22	0·94	Nil	17·2573
23	0—3″ ...	5·01	8·07	9·80	24·22	51·99	0·91	Nil	5·9085
	3″—12″ ...	8·67	8·93	10·51	23·20	47·90	0·79	Nil	8·9568
	1′—2′ ...	12·08	9·17	12·08	22·91	42·93	0·83	Nil	11·7476
	2′—3′ ...	16·30	10·88	10·35	21·29	40·11	1·07	Nil	15·2748
	3′—4′ ...	12·71	13·62	8·60	23·90	37·36	3·81	Nil	12·8138
	4′—5′ ...	12·08	14·22	10·60	22·76	29·10	11·24	Nil	12·4713

APPENDIX I—*concld.*

MECHANICAL ANALYSIS—*concld.*

Soil Sample.	Depth.	Percentage of Particles.							Soil Texture Index.
		Clay.	Fine Silt.	Silt.	Fine Sand.	Coarse Sand.	Fine Gravel.	Stones and Gravel.	
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
24	0—3" ...	3·48	8·27	13·70	28·[illegible]6	45·31	0·68	Nil	4·9063
	3"—12" ...	5·[illegible]8	11·01	11·33	27·48	43·[illegible]6	0·64	Nil	7·1360
	1'—2' ...	9·[illegible]7	10·95	8·71	28·65	41·67	0·45	Nil	9·9510
	2'—3' ...	16·14	11·77	10·95	25·62	34·86	0·66	Nil	15·3383
	3'—4' ...	16·[illegible]6	12·26	14·68	24·73	30·49	1·18	Nil	15·9617
	4'—5' ...	17·99	12·78	14·03	25·57	27·90	1·73	Nil	17·0744
25	0—3" ...	2·52	2·34	21·24	31·72	40·62	1·56	Nil	3·5238
	3"—12" ...	2·93	6·45	27·75	22·39	39·41	1·07	Nil	4·6812
	1'—2' ...	10·75	8·52	28·66	15·25	35·70	1·12	Nil	11·1759
	2'—3' ...	9·92	9·43	28·98	10·16	25·50	8·85	7·16	10·6234
	3'—4' ...	9·24	14·24	6·72	23·63	21·62	13·84	10·71	10·0680
	4'—5' ...	15·77	13·18	13·72	26·05	17·60	13·68	Nil	15·3617

APPENDIX II.

CHEMICAL ANALYSIS.

Sample No.	Depth.	p.H.	Organic Nitrogen.	Moisture lost at 100° C.	Loss on ignition less 5.	P_2O_5.	K_2O.	CO_2.
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
1	0 – 3"	6·4	0·03	0·42	1·28	0·0049	0·0127	0·03
	3" – 7"	6·45	0·005	0·31	0·89	0·0020	0·0094	0·04
	7" – 3'8"	6·60	0·01	0·05	0·18	0·0027	0·0048	0·29
	3' 8" – 4' 8"	5·5	0·02	1·50	2·30	0·0005	0·0234	0·02
2	0 – 3"	6·15	0·12	3·60	6·10	0·0047	0·0574	0·074
	3" – 9"	6·05	0·10	3·79	4·81	0·0004	0·0523	0·04
	9" – 12"	6·05	0·04	2·90	2·90	0·0044	0·0308	0·001
	1' – 2'	6·05	0·05	2·79	3·31	0·0045	0·0170	*Nil.*
	2 – 3'	6·15	0·03	2·61	2·75	0·0004	0·0085	0·034
	3' – 4'	6·15	0·04	2·84	2·96	0·0020	0·0096	0·003
	4' – 5'	6·15	0·03	2·30	2·20	0·00[illegible]8	0·0085	0·058
3	0 – 3"	7·3	0·10	3·70	4·50	0·0[illegible]22	0·0143	0·522
	3" – 12"	6·9	0·05	4·30	4·40	0·0039	0·0122	0·12
	1' – 2'	7·3	0·04	5·30	4·71	0·0[illegible]07	0·0109	0·33
	2' – 3'	7·5	0·01	5·60	5·60	0·0003	0·0103	1·316
	3' – 4'	7·7	0·01	4·01	5·59	0·0003	0·0129	2·318
	4' – 4' 5½"	7·7	...	3·60	...	...	...	3·556
4	0 – 3"	6·15	0·03	0·90	1·70	0·0006	0·0103	0·138
	3" – 12"	5·[illegible]	0·03	2·09	2·22	0·0009	0·0099	0·03
	1' – 2'	5·5	0·02	2·10	2·16	0·0006	0·0079	0·03
	2' – 3'	5·7	0·01	2·03	1·72	0·0009	0·0037	0·01
	3' – 5'5"	6·05	0·01	1·80	1·50	0·0007	0·0005	0·02
	5' 5" – 5' 9"	6·15	0·01	1·20	1·70	0·0016	0·0011	0·03
	5' 9" – 6'	6·15	0·00	2·60	2·60	0·0007	0·0003	0·01
5	0 – 3"	6·6	0·05	1·0[illegible]	2·61	0·0005	0·0117	0·04
	3" – 12"	6·35	0·02	0·90	1·60	0·0009	0·0[illegible]01	0·06(?)
	1' – 2'	6·4	0.03	1·10	1·70	0·0012	0·0119	0·01
	2' – 3'	6·15	0·01	1·29	1·81	0·0007	0·0068	0·006
	3' – 4'	6·15	0·005	1·20	1·70	0·0026	0·0061	0·034
	4' – 5'	6·15	0·01	0·70	1·00	0·0012	0·0023	0·026
	5' – 6"	6·15	0·002	0·70	1·20	0·0006	0·0062	0·026
6	0 – 3"	7·2	0·10	3·90	8·00	0·0016	0·0168	0·80
	3" – 12"	7·4	0·05	5·30	8·18	Nil	0·0098	2·47
	1'—2'	7·5	0·04	6·00	7·16	Nil	0·0109	2·32
	2' – 3'	7·55	0·03	5·70	7·60	Nil	0·0064	2·97
	3' – 4'	7·7	0·01	5·20	8·10	Nil	0·0106	2·11
7	0 – 3"	6·6	0·11	2·80	6·26	0·0118	0·0215	0·106
	3" – 12"	6·15	0·03	1·50	2·78	0·0003	0·0154	0·064
	1' – 2'	6·15	0·03	3·10	3·70	0·0002	0·0191	0·042
	2' – 3'	6·15	0·02	4·05	4·55	0·0004	0·0154	0·132
	3' – 4'	6·15	0·01	2·10	1·6[illegible]	Nil	0·0123	0·04
	4' – 5'	6·2	0·01	2·20	2·00	Nil	0·0106	0·014
	5' – 6'	6·4	0·002	2·[illegible]0	2·55	Nil	0·0096	0·056
8	0 – 3"	6·45	0·16	3·20	6·75	0·0027	0·0229	0·032
	3" – 12"	6·1	0·09	3·60	5·50	0·0040	0·0278	0·078
	1' – 2'	6·1	0·07	3·40	4·63	0·0006	0·0239	0·072
	2' – 3'	6·15	0·06	2·50	4·10	Nil	0·0191	0·050
	3' – 4'	6·15	0·06	2·[illegible]0	4·00	Nil	0·0168	0·026
	4' – 5'	6·15	0·06	4·03	4·32	Nil	0·0212	0·044
	5' – 6'	6·15	0·05	3·80	3·85	0·0005	0·0134	0·030
9	0 – 3"	6·15	0·11	2·70	4·33	0·0019	0·0212	0·056
	3" – 12"	6·15	0·09	3·80	4·46	0·0029	0·0166	0·008
	1' – 2'	6·25	0·07	4·40	4·80	0·0003	0·0138	0·042
	2' – 3'	6·7	0·06	4·80	4·80	0·0011	0·0127	0·016
10	0 – 3"	6·2	0·17	2·60	5·42	0·0004	0·0184	0·040
	3" – 12"	7·4	0·11	3·0[illegible]	4·71	0·0012	0·0160	0·216
	1' – 2'	6·6	0·08	3·50	4·20	Nil	0·0165	0·034
	2' – 3'	6·5	0·08	3·60	4·30	Nil	0·0083	0·016
	3 – 4'	6·5	0·06	3·70	4·38	0·0016	0·0136	0·024
	4' – 5'	6·7	0·07	3·20	4·40	0·0014	0·0093	0·036
	5' – 6'	6·7	0·06	3·01	3·74	0·0013	0·0117	0·030

APPENDIX II—*contd.*

Chemical Analysis—*contd.*

Sample No. (1)	Depth. (2)	p.H. (3)	Organic Nitrogen. (4)	Moisture lost at 100° C. (5)	Loss on ignition less 5. (6)	P_2O_5. (7)	K_2O. (8)	CO_2. (9)
11	0—3″	6·1	0·17	2·90	5·26	0·0150	0·0144	0·016
	3″—12″	6·1	0·09	3·29	4·11	0·0045	0·0099	0·036
	1′—2′	6·05	0·06	3·40	3·95	0·0029	0·0090	0·024
	2′—3′	6·0	0·06	3·30	3·80	Nil	0·0223	0·042
	3′—4′	6·05	0·06	3·10	4·05	0·0004	0·0172	0·032
	4′—5′	6·1	0·04	3·60	4·05	0·0009	0·0249	0·012
	5′—6′	6·1	0·03	4·03	3·95	0·0006	0·0164	Nil.
12	0—3″	6·60	0·075	3·86	5·76	...	...	0·074
	3″—12″	6·60	0·047	4·44	5·33	...	...	0·006
	1′—2′	6·70	0·042	4·33	5·32	...	...	0·024
	2′—3′	6·70	0·035	4·12	5·40	...	...	0·046
	3′—4′	7·10	0·033	4·41	4·56	...	...	0·018
	4′—4′ 9″	7·30	0·012	4·05	3·81	...	...	...
13	0—3″	6·35	0·147	3·37	8·65	...	...	0·044
	3″—12″	5·95	0·133	3·76	8·06	...	...	0·082
	1′—2′	5·95	0·082	4·15	7·91	...	...	0·082
	2′—3′	6·50	0·063	4·76	7·13	...	...	0·018
	3′—4′	6·20	0·063	4·01	6·90	...	...	0·072
	4′—5′	6·15	0·047	3·91	6·34	...	...	0·064
	5′—6′	6·15	0·037	3·54	5·73	...	...	0·032
14	0—3″	6·90	0·112	4·57	6·95	...	...	0·042
	3″—12″	8·05	0·105	4·58	6·72	...	...	0·158
	1′—2′	8·05	0·091	4·16	6·23	...	...	0·444
	2′—3′	7·95	0·063	3·84	5·56	...	...	0·518
	3′—4′	8·05	0·075	3·54	5·68	...	...	0·748
	4′—5′	7·95	0·068	3·12	5·77	...	...	1·108
	5′—5′ 10″	7·95	0·072	3·25	6·41	...	...	0·618
15	0—3″	7·10	0·161	4·38	6·97	...	...	0·008
	3″—12″	7·95	0·105	4·27	6·47	...	...	0·432
	1′—2′	8·05	0·086	3·81	6·12	—	...	0·842
	2′—3′	8·30	0·077	2·89	6·05	...	...	1·574
	3′—4′	8·80	0·065	2·64	4·99	...	...	0·804
	4′—5′	8·90	0·049	2·28	5·02	...	...	1·052
16	0—3″	6·90	0·245	5·42	10·34	...	...	0·116
	3″—12″	7·60	0·193	5·34	9·56	...	...	0·662
	1′—2′	8·20	0·103	4·81	9·42	...	...	4·566
	2′—3′	8·20	0·077	4·11	8·21	...	...	6·872
	3′—4′	8·30	0·065	3·80	9·71	...	...	6·920
	4′—5′	7·70	0·084	3·89	7·39	...	...	5·662
	5′—6′	7·60	0·056	4·01	8·10	...	...	4·462
17	0—3″	6·25	0·114	2·55	5·77	...	...	0·238
	3″—12″	6·35	0·102	3·34	5·46	...	...	0·042
	1′—2′	6·50	0·082	3·55	5·65	...	...	0·086
18	0—3″	6·50	0·116	3·36	6·31	..	...	0·062
	3″—12″	6·80	0·063	3·74	5·60	...	...	0·106
	1′—2′	7·20	0·068	3·44	5·24	...	...	0·144
	2′—3′	6·35	0·070	3·62	5·05	...	...	0·054
19	0—3″	6·50	0·044	0·53	1·56	...	...	0·036
	3″—12″	6·50	0·030	0·46	1·08	...	...	0·026
	1′—2′	6·60	0·030	3·65	1·41	...	...	0·054
	2′—3′	6·60	0·028	1·39	2·18	...	...	0·058
20	0—3″	6·85	0·054	0·57	2·50	...	...	0·034
	3″—12″	6·25	0·049	0·71	2·71	...	...	0·056
	1′—2′	6·90	0·047	0·80	3·04	...	...	0·040
	2′—3′	6·50	0·037	0·88	3·27	...	...	0·036
	3′—4′	6·60	0·037	0·82	3·05	...	...	0·024
	4′—5′	6·05	0·016	0·83	3·07	...	...	0·042
21	0—3″	5·40	0·091	0·88	3·56	...	...	0·064
	3″—12″	[illegible]	0·082	0·96	3·76	...	...	0·058
	1′—2′	[illegible]	0·051	1·01	3·42	...	...	0·040

APPENDIX II—*concld.*

Chemical Analysis—*concld.*

Sample No. (1)	Depth. (2)	p.H. (3)	Organic Nitrogen. (4)	Moisture lost at 100° C. (5)	Loss on ignition less 5. (6)	P_2O_5. (7)	K_2O. (8)	CO_2. (9)
21—*concld.*	2′—3′	5·00	0·040	1·05	3·59	...	...	0·030
	3′—4′	5·75	0·040	1·25	4·08	...	...	0·100
	4′—5′	5·50	0·040	1·47	5·27	...	...	0·082
22	0—3″	6·20	0·126	2·58	5·85	...	...	0·056
	3″—12″	5·75	0·100	2·66	5·24	...	...	0·070
	1′—2′	5·95	0·084	2·58	5·24	...	...	0·048
23	0—3″	6·05	0·080	1·24	2·82	...	...	0·070
	3″—12″	6·05	0·055	1·33	2·60	...	...	0·034
	1′—2′	6·05	0·047	1·69	2·58	...	...	0·050
	2′—3′	6·10	0·033	2·07	2·92	...	...	0·038
	3′—4′	6·10	0·034	2·54	3·10	...	...	0·066
	4′—5′	6·10	0·046	2·54	3·88	...	...	0·070
24	0—3″	6·20	0·069	1·10	2·55	...	...	0·052
	3″—12″	6·15	0·058	1·29	2·34	...	...	0·054
	1′—2′	6·10	0·057	1·64	2·44	...	...	0·028
	2′—3′	6·05	0·040	2·05	2·91	...	...	0·032
	3′—4′	6·10	0·035	2·18	2·79	...	...	0·046
	4′—5′	6·10	0·037	2·38	3·12	...	...	0·040
25	0—3″	6·10	0·056	0·84	2·04	...	...	0·048
	3″—12″	6·15	0·044	0·91	2·03	...	...	0·046
	1′—2′	6·10	0·026	1·19	2·29	...	...	0·048
	2′—3′	6·10	0·068	1·83	3·23	...	...	0·056
	3′—4′	6·10	0·033	2·58	3·85	...	...	0·072
	4′—5′	6·25	0·030	2·82	4·08	...	...	0·090

Figures for P_2O_5 and K_2O are not yet available for plots 12 to 25 inclusive.

APPENDIX III.

DISTRIBUTION OF DOMINANTS.

P=Planted.
O dominant or codominant in overwood.
o occurs in overwood.
U dominant or codominant in second storey.
u occurs in second storey.
L dominant or codominant in low growth.
l occurs in low growth.

Soil.					Sandy					Soils.					
Rainfall, inches a year					40	40	50	40	45	110	100	100	110	100	60
Maximum height, in feet					73	49	63	110	114	42	86	83	42	79	...
Corresponding age					...	...	...	...	...	...	57	58	...	59	...
Nilambur Class (Teak)					...	...	...	...	...	...	III	III	...	III	...
General Type					Indaing.					Rangoon Laterite.					Semi-Indaing.
Soil Sample Number.					1	4	19	5	7	20	23	24	21	25	12
Verbenaceæ	Tectona	grandis	Linn. f.	Teak	l	...	u	o	l	...	P	P	...	P	...
Leguminosæ	Xylia	dolabriformis	Benth.	*Pyinkado*	l	u	u	l	...	...	...	...	...	...	...
Dipterocarpaceæ	Dipterocarpus	tulberculatus	Roxb.	*In*	Ol	Oul	Oul	u	Ol	...	...	...	...	...	...
"	"	obtusifolius	Teysm.	*Inbo*	...	...	...	Oul	...	...	...	...	...	...	...
Leguminosæ	Acacia	Catechu	Willd.	Cutch	...	...	...	...	...	...	...	...	...	...	...
Combretaceæ	Terminalia	tomentosa	W. & A.	*Taukkyan*	...	ul	ul	oU	...	...	...	...	...	...	...
"	Anogeissus	acuminata	Wall.	*Yon*	...	...	...	...	...	...	...	l	...	...	...
Anacardiaceæ	Odina	Wodier	Roxb.	*Nabe*	ul	...	l	...	u	...	...	...	o	...	...
"	Mangifera	indica	Linn.	Mango	...	...	...	...	...	...	...	...	o	...	...
Bignoniaceæ	Dolichandrone	stipulata	Benth.	*Mahlwa*	...	...	...	...	...	ol	l	ul	ol	l	...
"	Heterophragma	adenophyllum	Seem.	*Petthan*	...	...	...	...	u	...	...	...	o	...	...
Ebenaceæ	Diospyros	burmanica	Kurz.	*Te*	...	oUl	l	...	...	...	...	...	...	...	...
Malvaceæ	Bombax	insigne	Wall.	*Didu*	...	...	...	u	...	o	...	...	...	...	...
Rubiaceæ	Hymenodictyon	excelsum	Wall.	*Kuthan*	...	...	...	...	...	...	...	l	o	...	...
Apocynaceæ	Holarrhena	antidysenterica	Wall.	*Lettok*	...	...	...	...	...	o	ul	u	o	ul	...
Tiliaceæ	Grewia	Microcos	Linn.	*Myatya*	...	...	...	...	...	ol	ul	ul	o	l	...
Samydaceæ	Homalium	tomentosum	Benth.	*Myaukchaw*	...	...	...	...	...	o	...	...	...	...	...
Myrtaceæ	Careya	arborea	Roxb.	*Banbwe*	...	...	...	...	...	ol	...	...	...	l	...
Lauraceæ	Litsœa	sebifera	Pers.	*Ondon*	...	...	...	...	...	o	ul	...	...	u	...
Meliaceæ	Walsura	villosa	Wall.	*Gyobo*	...	...	...	...	...	...	l	...	ol	l	...
Loganiaceæ	Strychnos	Nux-blanda	A. W. Hill.	*Kabaung*	l	ul	ul	...	l	...	...	...	ol	...	...
Euphorbiaceæ	Aporosa	villosa	Baill.	*Yemein*	...	...	...	...	...	l	ul	l	o	ul	...

Soil.		Light and Medium.									Calcareous				
Rainfall, inches a year		45	72	40	55	60	100	50	50	60	50	55	55	55	40
Maximum height, in feet		104	111	44	88	110	102	93	128	38	110	77	66	100	29
Corresponding age		37	58	...	...	42	...	39	...	7	...	18	37	...	...
Nilambur Class (Teak)		I.a.	I	...	...	I.a.	...	...	II	II	...	I	III	...	...
General Type		Light and Medium.									Calcareous.				
Soil Sample Number.		2	11	3	17	10	22	9	8	13	18	15	14	16	6
Tectona grandis	Teak	P	P	...	Ol	I'u	...	...	ou	P	Ol	P	P	Ol	...
Xylia dolabriformis	*Pyinkado*	...	l	...	u	ul	Ol	...	u	...	o	...	...	...	...
Dipterocarpus tulberculatus	*In*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
" obtusifolius	*Inbo*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Acacia Catechu	Cutch	...	...	Ou	...	...	...	O	...	...	L	l	Ul	ul	...
Terminalia tomentosa	*Taukkyan*	...	...	...	ul	l	...	...	O	...	ol	l	ul	...	Ol
Anogeissus acuminata	*Yon*	...	...	...	...	l	...	ul	o	ul	l	...	...	l	...
Odina Wodier	*Nabe*	...	...	...	ul	...	...	...	...	...	u	...	...	...	...
Mangifera indica	Mango	...	...	...	...	...	...	...	u	...	...	...	...	...	...
Dolichandrone stipulata	*Mahlwa*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Heterophragma adenophyllum	*Petthan*	...	l	...	l	...	...	...	...	...	...	...	...	l	...
Diospyros burmanica	*Te*	...	...	...	...	...	...	...	...	...	...	...	...	...	Ol
Bombax insigne	*Didu*	...	...	...	u	...	...	...	...	...	...	...	...	o	...
Hymenodictyon excelsum	*Kuthan*	...	...	...	...	...	...	u	...	...	...	...	...	o	...
Holarrhena antidysenterica	*Lettok*	...	l	...	...	l	...	...	l	ul	...	...	...	...	...
Grewia Microcos	*Myatya*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Homalium tomentosum	*Myaukchaw*	...	...	...	...	u	...	...	...	...	...	...	...	...	...
Careya arborea	*Banbwe*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Litsœa sebifera	*Ondon*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Walsura villosa	*Gyobo*	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Strychnos Nux-blanda	*Kabaung*	...	...	...	...	l	...	...	...	...	...	...	...	...	...
Aporosa villosa	*Yemein*	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX IV.

GENERAL LIST OF SPECIES.

Overwood	...	O	dominant or codominant.	o	occurs.
Understorey	...	U	" "	u	"
Climbers	...	C	" "	c	"
Low growth	...	L	" "	l	"

Soil.					Indaing.					Rangoon Laterite.					Semi In-daing	Light and Medium.									Calcareous.				
				No.	1	4	19	5	7	20	23	24	21	25	12	2	11	3	17	10	22	9	8	13	18	15	14	16	6
Dilleniaceæ ...	Dillenia ...	pentagyna ...	Kurz ...	*Zinbyun*	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	l	...	...	...	...	l	...	...	...	...
	Do. ...	pulcherrima ...	Kurz. ...	*Byu* ...	...	...	ul	u	...	...	...	...	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...
Anonaceæ ...	Miliusa ...	Roxburghiana ...	Hk. f. & T.	*Thabutthein*	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	velutina ...	Hk. f. & T.	*Thabutgyi*	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	l	...	u	...	...	l	...	...	...	l
Bixaceæ ...	Flacourtia ...	cataphracta ...	Roxb. ...	*Naywe* ...	...	...	...	u	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dipterocarpaceæ	Dipterocarpus ...	obtusifolius ...	Teysm. ...	*Inbo* ...	...	...	...	Oul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	tuberculatus ...	Roxb. ...	*In* ...	Ol	Oul	Oul	u	Ol	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Pentacme ...	suavis ...	A.DC. ...	*Ingyin* ...	...	...	ul	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Shorea ...	obtusa ...	Wall. ...	*Thitya* ...	u	u	...	...	ul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Malvaceæ ...	Bombax ...	insigne ...	Wall. ...	*Didu* ...	...	...	...	u	...	o	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	o	...
	Hibiscus ...	macrophyllus ...	Roxb. ...	...	...	...	...	...	...	...	...	l	l	l	...	l	...	...	l	...	l	...	...	...	...	...	...	l	...
	Sida ...	rhombifolia ...	Linn. ...	*Welchimane*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
	Urena ...	lobata ...	Linn. ...	*Katsihnin*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	l	...	...	...	...	...	...	...	...
Sterculiaceæ ...	Eriolæna ...	candollei ...	Wall. ...	*Dwani* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	l	...
	Helicteres ...	spicata ...	Colebr. ...	*Segagyi* ...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	l	...	...	...	...	...	...	...	...
	Pterospermum ...	semisagittatum ...	Ham. ...	*Nagye* ...	...	...	...	...	...	l	l	...	...	l	...	...	...	...	...	l	l	...	...	...	...	...	...	...	...
	Sterculia ...	sp. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...
Tiliaceæ ...	Elæocarpus ...	hygrophilus ...	Kurz. ...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Grewia ...	abutilifolia ...	Mast. ...	...	...	...	...	...	...	...	l	l	...	...	...	...	...	...	l	l	...	...	l	...	l	l	...	l	l
	Do. ...	asper ...	Roxb. ...	...	...	...	l	l	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	disperma ...	Rottler ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...
	Do. ...	hirsuta ...	Vahl. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	...	...	...	...
	Do. ...	Microcos ...	Linn. ...	*Myatya* ...	...	...	...	...	...	ol	ul	ul	o	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Corchorus ...	acutangulus ...	Lk. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...
	Triumfetta ...	rhomboidea ...	Jack. ...	...	...	...	...	...	...	l	...	...	...	l	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...
Malpighiaceæ ...	Aspidopterys ...	sp. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...
Rutaceæ ...	Micromelum ...	hirsutum ...	Oliver ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Murraya ...	Kœnigii ...	Spreng ...	...	...	...	l	...	...	...	l	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Zanthoxylum ...	Budrunga ...	Wall ...	*Mayanin*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...
Simarubaceæ ...	Harrisonia ...	Bennettii ...	Hk. f. ...	*Tabu* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	...	...	...	...	...
Burseraceæ ...	Protium ...	serratum ...	Engler ...	*Thadi* ...	...	...	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	...	...	...	...
Meliaceæ ...	Walsura ...	villosa ...	Wall ...	*Gyobo* ...	...	...	...	...	...	...	l	...	ol	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Ramnaceæ ...	Zizyphus ...	Jujuba ...	Lam ...	*Zi* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	œnoplia ...	Mill ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...
	Do. ...	rugosa ...	Roxb. ...	*Myaukzi*	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l
Ampelidaceæ ...	Leea ...	acuminata ...	Wall ...	*Nagamauk*	...	...	l	...	l	...	...	...	...	l	...	...	l	...	l	...	...	...	...	...	l	l	l	l	...
	Do. ...	crispa ...	Linn ...	*Do.* ...	...	...	...	...	...	...	l	l	...	l	...	...	l	...	...	l	l	l	l	...	...	...	...	...	...
	Do. ...	macrophylla ...	Roxb. ...	*Petgyi* ...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	l	...	...	l	...	l	...	l	l	...
Sapindaceæ ...	Schleichera ...	trijuga ...	Willd ...	*Gyo* ...	...	...	...	...	ul	...	...	...	...	...	...	...	l	...	...	l	...	...	l	...	...	...	...	...	...
	Schmidelia ...	sp. ...	...	...	...	...	...	...	...	...	l	l	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anacardiaceæ ...	Buchanania ...	latifolia ...	Roxb. ...	*Lunbo* ...	u	ul	ul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Mangifera ...	indica ...	Linn. ...	Mango ...	...	...	...	...	...	...	...	...	o	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...
	Melanorrhœa ...	usitata ...	Wall. ...	*Thitsi* ...	u	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Odina ...	Wodier ...	Roxb. ...	*Nabe* ...	ul	...	l	...	u	...	...	...	o	...	...	...	...	...	ul	...	...	...	...	...	u	...	...	...	...
Leguminosæ ...	Abrus ...	precatorius ...	Linn. ...	*Ywetgale*	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	...	...	...	...	...	...
	Acacia ...	Catechu ...	Willd. ...	Cutch ...	...	...	...	...	...	...	...	...	...	...	...	...	...	Ou	...	...	...	O	...	...	L	l	Ul	ul	...
	Do. ...	pennata ...	Willd. ...	*Suyit* ...	...	...	...	...	...	...	c	c	...	...	...	c	...	...	c	c	...	c	c	...	...	...	...	...	...
	Albizzia ...	odoratissima ...	Benth ...	*Thitmagyi*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	l	ul	l	...
	Do. ...	procera ...	Benth. ...	*Sit* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	l	ul	l	...
	Do. ...	stipulata ...	Boiv. ...	*Bonmeza*	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	lucida ...	Benth ...	*Thanthat*	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
	Alysicarpus ...	Wallichii ...	W. & A.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
	Atylosia ...	nivea ...	Benth. ...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l
	Bauhinia ...	sp. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	ul	...	...	...	...	...	...	...	l	...	...	...
	Butea ...	superba ...	Roxb. ...	*Pauk* ...	...	...	...	...	cl	...	...	...	...	...	...	...	c	...	...	c	...	...	c	...	c	...	...	...	...
	Cassia ...	Fistula ...	Linn. ...	*Ngu* ...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Clitoria ...	Mariana ...	Linn. ...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Crotolaria ...	alata ...	Ham. ...	...	...	...	l	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	albida ...	Heyne ...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	...	...	...	...
	Do. ...	filiformis ...	Wall. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...
	Do. ...	linifolia ...	Linn. ...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	medicaginea ...	Lk. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...
	Dalbergia ...	cultrata ...	Grah. ...	*Yindaik* ...	...	...	...	u	...	...	...	...	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...
	Do. ...	Kurzii ...	Prain. ...	*Thitpok* ...	...	...	...	...	...	...	...	...	l	l	...	...	l	...	...	u	l	...	...	...	...	...	...	...	...
	Do. ...	ovata ...	Grah. ...	*Madama*	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	...	...	u	...	l	...	...	...	...
	Do. ...	stipulacea ...	Roxb. ...	*Daungta-laung.*	...	...	...	...	...	...	...	...	...	c	...	...	c	...	...	...	c	...	...	...	...	...	...	c	...
	Desmodium ...	laxiflorum ...	DC. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	...	...	l	...
	Do. ...	pulchellum ...	DC. ...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	triflorum ...	DC. ...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	triquetrum ...	DC. ...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX IV—contd.

GENERAL LIST OF SPECIES—contd.

Overwood	...	O	dominant or codominant.	o	occurs.
Understorey	...	U	" "	u	"
Climbers	...	C	" "	c	"
Low growth	...	L	" "	l	"

Soil.					Indaing.				
				No.	1	4	19	5	7
Leguminosæ ...	Dolichos	falcatus	Klein	...	...	...	...	c	...
	Do.	lanceolatus	Grah.	...	...	...	c	...	...
	Flemingia	Chappar	Ham.	...	...	...	...	...	...
	Do.	conjesta	Roxb.	...	...	...	...	...	...
	Do.	paniculata	Wall.	...	...	...	...	...	...
	Do.	strobilifera	R BR.	...	...	...	...	...	...
	Glycine	hispida	Maxim	...	...	...	...	...	...
	Indigofera	Brunoniana	Grah.	...	...	...	l	...	...
	Mecopus	nudilans	Benn.	...	...	...	...	...	...
	Millettia	auriculata	Baker	*Wun-u*	...	...	...	...	...
	Do.	Brandisiana	Kurz	*Thitpagan*	...	...	...	ul	u
	Do.	extensa	...	*Damange*	...	...	...	...	...
	Do.	pendula	Benth	*Thinwin*	...	...	...	...	...
	Mucuna	pruriens	Wight	...	...	...	...	...	...
	Phaseolus	calcaratus	Roxb.	...	...	...	...	...	...
	Pterocarpus	macrocarpus	Kurz.	*Padauk*	...	...	...	...	...
	Teramnus	labialis	Spr.	...	...	...	...	...	...
	Uraria	hamosa	Wall.	...	...	...	...	...	...
	Xylia	dolabriformis	Benth.	*Pyinkado*	l	u	u	l	...
Rhizophoraceæ ...	Carallia	lucida	Roxb.	*Maniawga*	...	...	...	...	...
Combretaceæ ...	Anogeissus	acuminata	Wall.	*Yon*	...	...	...	...	...
	Calycopteris	floribunda	Lamk.	*Kywet nwe*	...	...	...	...	...
	Combretum	acuminatum	...	*Nabu*	...	...	...	...	...
	Do.	extensum	Roxb.	*Maungmakaw*	...	...	...	...	...
	Terminalia	belerica	Roxb.	*Thitsein*	...	...	...	...	u
	Do.	Chebula	Retz.	*Panga*	...	u	...	...	u
	Do.	pyrifolia	Kurz.	*Lein*	...	...	...	...	...
	Do.	tomentosa	W. & A.	*Taukkyan*	...	ul	ul	oU	...
Myrtaceæ ...	Careya	arborea	Roxb.	*Banbwe*	...	...	...	...	...
	Eugenia	sp.	...	*Thabye*	...	...	...	...	...
Lythraceæ ...	Ammannia	baccifera	L.	...	...	...	...	...	...
	Lagerstrœmia	Flos Reginæ	Retz.	*Pyinma*	...	...	...	...	...
	Do.	macrocarpa	Kurz.	*Konpyinma*	...	...	l	u	...
	Do.	tomentosa	Presl.	*Leza*	...	...	...	...	...
	Do.	villosa	Wall.	*Zaungbale*	...	...	...	...	...
Samydaceæ ...	Homalium	tomentosum	Benth.	*Myaukchaw*	...	...	...	...	...
Cucurbitaceæ ...	Momondica	diaica	Roxb.	...	...	...	...	...	...
Rubiaceæ ...	Adina	cordifolia	Hk. f.	*Hnaw*	...	...	...	...	...
	Gardenia	campanulata	Roxb.	*Sethanbya*	...	...	...	...	...
	Do.	erythroclada	Kurz	*Hmanni*	...	...	...	...	...
	Do.	obtusifolia	Roxb.	*Yingat*	l	ul	...	...	...
	Hymenodictyon	excelsum	Wall.	*Kuthan*	...	...	...	...	...
	Ixora	cuneifolia	Roxb.	...	...	...	...	...	...
	Randia	dumetorum	Lk	*Magyibauk*	...	...	l	...	...
	Do.	longispina	W. & A.	Do.	...	...	...	...	...
	Stephegyne	diversifolia	Hk. f.	*Binga*	...	...	...	...	...
Compositæ ...	Ageratum	conyzioides	Linn	*Kadu*	...	...	...	...	...
	Blumea	membranacea	DC.	...	...	...	...	...	...
	Do.	virens	DC.	...	...	...	...	...	...
	Elephantopus	scaber	Linn.	...	...	...	...	...	...
	Eupatorium	odoratum	Linn.	*Bizat*	...	...	...	...	...
	Goniocaulon	glaucum	Cass.	...	...	...	...	...	...
	Laggera	flava	Benth.	...	...	l	...	...	...
	Scleria	elata	Thwaites	...	...	...	...	...	...
	Spilanthes	acmella	Linn.	*Tawbizat*	...	...	...	...	...
	Vernonia	cinerea	Less.	...	...	...	...	...	...
	Do.	teres	Wall.	...	...	...	l	l	...
Myrsinaceæ ...	Ardisia	Wallichii	A. DC.	*Kyetmaok*	...	...	...	...	...
Ebenaceæ ...	Diospyros	burmanica	Kurz.	*Te*	...	oUl	l	...	...
	Do.	eheretioides	Wall.	*Aukchinsa*	...	...	...	...	...
Apocynaceæ ...	Holarrhena	antidysenterica	Wall.	*Lettok*	...	...	...	...	...
Asclepidaceæ ...	Atherolepis	Wallichii	Hf.	...	...	...	...	...	...
	Streptocaulon	tomentosum	Wf.	...	...	...	...	...	...
Loganiaceæ ...	Strychnos	Nux-blanda	A W. Hill	*Kabaung*	l	ul	ul	...	l
Convolvulaceæ ...	Argyreia	Wallichii	Choisy	...	...	...	...	...	...
	Ipomea	purpurea	Roth.	...	...	...	...	...	...
	Lettsomia	setosa	Roxb.	...	...	...	c	...	...
Bignoniaceæ ...	Oxoxylum	indicum	Vent.	*Kyaungsha*	...	...	...	...	...
	Dolichandrone	stipulata	Benth.	*Mahlwa*	...	...	...	...	...
	Do.	serrulata	Seem.	*Thakut*	...	...	...	...	...

		Rangoon Laterite.					Semi-Indaing.	Light and Medium.									Calcareous.				
		20	23	24	21	25	12	2	11	3	17	10	22	9	8	13	18	15	14	16	6
Dolichos	falcatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Do.	lanceolatus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Flemingia	Chappar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l
Do.	conjesta	...	l	l	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Do.	paniculata	...	...	l	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
Do.	strobilifera	l	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Glycine	hispida	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...
Indigofera	Brunoniana	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mecopus	nudilans	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Millettia	auriculata	...	...	...	c	...	...	...	...	...	...	c	...	...	...	...	...	...	...	...	...
Do.	Brandisiana	...	...	...	...	...	...	...	...	...	u	...	...	...	ul	...	...	...	...	u	...
Do.	extensa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	l	...
Do.	pendula	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	ul	...
Mucuna	pruriens	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Phaseolus	calcaratus	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	c	c	c	...
Pterocarpus	macrocarpus	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...
Teramnus	labialis	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	c	...	...
Uraria	hamosa	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Xylia	dolabriformis	...	...	...	...	...	...	...	l	...	u	ul	O	...	u	...	o	...	...	...	...
Carallia	lucida	...	l	l	...	ul	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
Anogeissus	acuminata	...	...	l	...	...	...	...	...	...	...	l	...	ul	o	ul	l	...	...	l	...
Calycopteris	floribunda	...	...	...	...	...	...	...	c	...	...	c	...	c	c	...	...	...	...	...	...
Combretum	acuminatum	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	...
Do.	extensum	c	c	...	c	c	...	...	c	...	...	...	...	...	...	...	...	...	...	...	...
Terminalia	belerica	...	l	ul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Do.	Chebula	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...
Do.	pyrifolia	...	...	...	...	...	...	...	...	...	l	...	l	...	...	...	...	l	...	l	...
Do.	tomentosa	...	...	...	...	...	...	...	...	...	ul	l	...	...	O	...	ol	l	ul	...	Ol
Careya	arborea	ol	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Eugenia	sp.	l	l	...	l	ul	...	...	...	...	...	ul	...	...	...	...	...	...	...	...	...
Ammannia	baccifera	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
Lagerstrœmia	Flos Reginæ	...	...	...	...	...	...	...	ul	...	...	...	...	...	...	...	...	...	...	...	...
Do.	macrocarpa	...	...	...	...	...	...	...	...	...	ul	...	...	...	...	...	u	...	...	ul	u
Do.	tomentosa	...	...	...	...	l	...	l	l	...	...	u	...	...	...	...	...	...	...	...	...
Do.	villosa	...	...	...	...	...	...	...	...	ul	...	...	...	...	...	...	u	...	...	...	...
Homalium	tomentosum	o	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	...
Momondica	diaica	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...
Adina	cordifolia	...	...	...	...	...	...	...	...	...	...	...	...	...	u	ul	...	...	...	...	...
Gardenia	campanulata	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...
Do.	erythroclada	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	...
Do.	obtusifolia	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Hymenodictyon	excelsum	...	...	...	o	...	...	...	...	...	...	...	...	u	...	...	...	...	...	o	...
Ixora	cuneifolia	...	L	l	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Randia	dumetorum	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Do.	longispina	...	l	...	l	l	...	...	...	...	l	l	...	...	...	...	...	l	...	...	...
Stephegyne	diversifolia	...	...	l	...	ul	...	...	...	...	u	u	...	u	ul	ul	l	Ul	ul	...	...
Ageratum	conyzioides	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
Blumea	membranacea	...	...	...	...	l	...	...	...	...	l	...	...	...	...	...	l	...	...	...	...
Do.	virens	...	...	...	l	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...
Elephantopus	scaber	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Eupatorium	odoratum	l	l	l	...	l	l	...	...	...	l	...	l	...	...	c	...	...	...	...	l
Goniocaulon	glaucum	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Laggera	flava	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scleria	elata	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
Spilanthes	acmella	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...
Vernonia	cinerea	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Do.	teres	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...
Ardisia	Wallichii	...	l	...	...	l	...	...	l	...	...	l	...	...	...	...	...	...	...	...	Ol
Diospyros	burmanica	...	...	...	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...
Do.	eheretioides	l	...	...	l	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...
Holarrhena	antidysenterica	o	ul	u	o	ul	...	...	l	...	...	l	...	...	...	ul	...	...	...	...	...
Atherolepis	Wallichii	...	...	...	...	c	...	...	...	...	...	...	c	...	...	...	c	...	...	...	...
Streptocaulon	tomentosum	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...
Strychnos	Nux-blanda	...	...	...	ol	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
Argyreia	Wallichii	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	c
Ipomea	purpurea	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Lettsomia	setosa	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Oxoxylum	indicum	l	...	l	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dolichandrone	stipulata	ol	l	ul	ol	l	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...
Do.	serrulata	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

APPENDIX IV—*contd.*

GENERAL LIST OF SPECIES—*contd.*

Overwood ... O dominant or codominant. o occurs.
Understorey ... U " " u "
Climbers ... C " " c "
Low growth ... L " " l "

Soil.					Indaing.					Rangoon Laterite.					Semi-Indaing.	Light and Medium.									Calcareous.				
				No.	1	4	19	5	7	20	23	24	21	25	12	2	11	3	17	10	22	9	8	13	18	15	14	16	6
Bignoniaceae ...	Heterophragma	adenophyllum ...	Seem. ...	*Pelhan* ...	...	...	...	...	u	...	...	...	o	...	...	...	l	...	l	...	...	...	...	...	...	...	...	l	...
	Do. ...	sulfureum ...	Kurz. ...	*Kyunbo* ...	...	u	u	ul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Stereospermum	grandiflorum ...	Cubitt & Smith.	*Thande* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	u	u	...	...	...	...	...	...
Acanthaceæ ...	Barleria ...	strigosa ...	Willd. ...	...	...	...	...	...	l	...	...	...	l	...	...	...	...	...	l	l	...	l	l	...	l	l	l	l	l
	Hemigraphis ...	glaucescens ...	Clarke. ...	...	...	...	...	...	...	...	L	...	...	l	...	...	l	...	...	l	...	l	...	...	...	...	...	...	...
	Justicia ...	decussata ...	Roxb. ...	...	...	...	...	...	...	...	...	L	...	...	...	l	l	l	...	...	...	l	...	...	...	...	...	...	...
	Do. ...	diffusa ...	Willd. ...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...
	Lepidagathis ...	dulcis ...	Nees. ...	*Tawleza* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	l	...	...	...	...	l	l	...
	Do. ...	hyalina ...	Nees. ...	...	...	...	...	...	...	l	...	...	...	l	...	...	...	...	l	l	l	l	...	...	...	...	...	...	...
	Phaylopsis ...	parviflora ...	Willd. ...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Rungia ...	parvifolia ...	Nees. ...	...	...	...	...	...	...	l	...	...	...	l	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...
	Strobilanthes ...	auriculatus ...	Nees. ...	*Saingnan*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	l	...	...	...	...
	Do. ...	imbricatus ...	Nees. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...
	Do. ...	phyllostachyus ...	Kurz. ...	...	...	...	...	...	...	...	l	...	...	l	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...
	Do. ...	rosens ...	Nees. ...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Thunbergia ...	laurifolia ...	Lindl. ...	*Nwegyo* ...	...	...	...	...	...	c	...	c	...	c	...	...	c	...	...	...	...	...	...	...	...	...	...	...	...
Campanulaceæ ...	Cephalostigma ...	paniculata ...	A DC ...	...	...	l	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Verbenaceæ ...	Callicarpa ...	arborea ...	Roxb. ...	*Kyunnalin*	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...
	Clerodendron ...	serratum ...	Spreng. ...	...	...	...	l	l	l	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l
	Congea ...	tomentosa ...	...	...	...	...	...	...	...	...	c	c	...	...	...	...	...	...	...	c	...	c	...	...	...	...	...	...	...
	Sphenodesma ...	involucratum ...	Roxb. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	c	...	...	...	...	c	...	...	...	...
	Do. ...	unguiculata ...	...	...	...	...	...	...	...	c	c	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Tectona ...	grandis ...	Linn. ...	...	l	...	u	o	l	...	P	P	...	P	...	P	P	...	Ol	Pu	...	...	ou	P	Ol	P	P	Ol	...
	Vitex ...	sp ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	ul	...	u	...	l	...	...	...	...
Labiatæ ...	Anisomeles ...	candicans ...	Benth ...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Leucas ...	mollisima ...	Wall ...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...
	Gomphostemna	sp ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	l	...	...	...	...	...	...	...	...	...	...
Amarantaceæ ...	Aerua ...	scandens ...	Wall ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...
Gentianaceæ ...	Canscora ...	decussata ...	R. & S. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
Lauraceæ ...	Litsœa ...	sebifera ...	Pers ...	...	...	...	...	...	...	o	ul	...	...	u	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Euphorbiaceæ ...	Antidesma ...	sp. ...	...	*Kinbalin*	...	...	...	...	...	l	l	...	...	...	...	...	l	...	...	l	...	...	...	...	...	u	...	...	...
	Aporosa ...	macrophylla ...	Muell. Arg.	*Inchin* ...	...	ul	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	villosa ...	Baill ...	*Yemein* ...	...	...	...	...	...	l	ul	l	...	ul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Breynia ...	patens ...	Benth ...	...	...	...	...	...	...	...	ul	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Bridelia ...	retusa ...	Spreng ...	*Seikchi* ...	...	...	...	...	u	...	l	...	...	...	...	...	...	...	...	l	l	...	...	...	...	...	...	...	...
	Do. ...	stipularis ...	Bl. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	l	...
	Fluggea ...	microcarpa ...	Blume ...	*Yechinya*	...	...	...	...	...	...	...	...	...	...	...	...	...	l	l	...	...	...	...	...	...	l	...	...	...
	Glochidion ...	coccineum ...	Muell. Arg.	*Tamasok*	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...	...
	Mallotus ...	philippinensis ...	Muell. Arg.	*Tawdidan*	...	...	...	...	...	...	...	ul	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Phyllanthus ...	albizzioides ...	H.f. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...
	Do. ...	Emblica ...	Linn ...	*Zibyu* ...	...	...	...	...	...	l	...	l	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	l	...
	Do. ...	pomiferus ...	Hk.f. ...	*Zibyu* ...	l	u	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	urinaria ...	Linn ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	l	...	l	...	...
Moraceæ ...	Artocarpus ...	Lakoocha ...	Roxb ...	...	...	...	...	...	...	...	...	u	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
	Ficus ...	pomifera ...	Wall ...	...	...	...	...	...	...	...	l	l	...	l	...	...	l	...	...	l	...	...	...	...	...	...	...	...	...
Cupuliferæ ...	Quercus ...	semiserrata ...	Roxb ...	*Gyok* ...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
Araceæ ...	Arum ...	sp ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	l	...	l	...	...	...	...	...	...	...
Dioscoraceæ ...	Dioscorea ...	sativa ...	Linn ...	...	...	...	...	...	...	c	c	...	c	c	...	...	...	...	c	...	c	...	c	...	c	...	...	c	...
Scitaminaceæ ...	Globba ...	sessiliflora ...	Seems ...	...	...	...	...	...	...	...	...	...	l	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...
	Hitchenia ...	sp ...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Phyrnium ...	sp ...	...	*Taungkazun*	...	...	...	...	...	...	...	L	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Scleria ...	elata ...	Thwaites	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Zingiber ...	Casuminar ...	Roxb. ...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	barbatum ...	Wall ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...
Liliaceæ ...	Asparagus ...	acerosus ...	Roxb. ...	...	...	...	c	c	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Peliosanthes ...	violacea ...	Wall ...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	l	...	...	...	...
	Smilax ...	sp ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	c	...	...	...	...	...	...	...	...	...	...	...	...
Palmæ ...	Calamus ...	viminalis ...	Willd. ...	*Kyeinkah*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Gramineæ ...	Andropogon ...	caricosus ...	Linn. ...	*Padawni*	...	...	...	...	...	l	l	l	l	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	contortus ...	Linn. ...	Spear grass	l	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	fascicularis ...	Roxb. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	l	...	...	...	...	...	...	l	l	...
	Do. ...	fastigatus ...	Sw. ...	*Indaing* ...	l	l	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	serratus ...	Thunab. ...	*Myethnayah*	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	l
	Aristida ...	adscensionis ...	Linn. ...	*Yonhle* ...	l	l	l	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Arthraxon ...	ciliaris ...	Beauv. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	l	...	...	...	...	...	...	...	l	...	...
	Bambusa ...	polymorpha ...	Munro ...	*Kyathaung*	...	...	...	...	...	...	...	...	...	...	...	(?)	...	...	...	...	U	...	...	(?)	...	...	...	...	...
	Do. ...	tulda ...	Roxb. ...	*Thaik* ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Ul	...	...
	Centotheca ...	lappacea ...	Desv. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Cephalostachyum	pergracile ...	Munro. ...	*Tinwa* ...	...	...	...	...	...	l	...	...	...	...	...	...	...	...	...	...	u	...	...	...	...	...	...	...	...

APPENDIX IV—*concld.*

GENERAL LIST OF SPECIES—*concld.*

Overwood ... O dominant or codominant. o occurs.
Understorey ... U " " u "
Climbers ... C " " c "
Low growth ... L " " l "

Soil.					Indaing.					Rangoon Laterite.					Semi Indaing.	Light and Medium.									Calcareous.				
				No.	1	4	19	5	7	20	23	24	21	25	12	2	11	3	17	10	22	9	8	13	18	15	14	16	6
Gramineæ ...	Dendrocalamus	strictus ...	Nees. ...	*Myinwa* ...	...	...	...	u	U	...	...	...	...	...	...	...	...	...	UL	...	...	...	...	...	U	u	...	ul	...
	Imperata	arundinacea ...	Cyrill ...	*Thetke* ...	...	...	...	..	...	...	...	...	...	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Ischæmum ...	timoriensis ...	Kth. ...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...
	Oplismenus ...	compositus ...	Beauv. ...	*Kyathaung*	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	1	1	1	...	...	...	...	...	...	...
	Panicum ...	flavidum ...	Retz. ...	*Myetkayan*	...	...	...	...	...	...	...	...		...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	montanum ...	Roxb. ...	...	...	...	...	...	...	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	nodosum ...	Hk. f. ...	..	...	...	...	...	...	...	...	...	...	L	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Pollinia ...	articulata ...	Trin ...	*Youkmwe*	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
	Do. ...	eucnemis ...	Nees ...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...
	Polytoca ...	barbata ...	Stapf. ...	*Myetthauk*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
	Do ...	Wallichii ...	Bth. ...	*Pyaungsa*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
	Rotboellia ...	striata ...	Nees ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1
	Thysanolæna ...	agrostis ...	Nees ...	*Tamasaing*	...	...	...	...	...	...	...	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cyperaceæ ...	Cyperus ...	elegans ...	Linn ...	...	...	...	...	...	...	1	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Orchidaceæ ...	Zeuxine ...	affinis ...	Benth ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...
Musaceæ ...	Musa ...	sp. ...	...	*Plantain*	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	1	...	1	...		...	...	...	...	...
Lycopodiaceæ ...	Selaginella ...	flaccida ...	Spr. ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...	...	1	...	...	...	...
Schizæaceæ ...	Andiantum ...	truncatum ...	Burm. ...	...	...	...	...	...	...	.	...	...	...	...	...	...	...	...	1	...	...	...	...	...	...	...	...	...	...
	Lygodium .	flexuosum ...	Sw. ...	*Kyidauk* ...	...	...	...	...	...	c	c	...	...	c	...	...	...	...	c	c	...	...	...	...	c	...	...	...	...
Cycadaceæ ...	Cycas ...	siamensis ...	Miq. ...	*Mondaing*	...	1	..	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...

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