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THE

STRAITS BRANCH

OF THE

ROYAL ASIATIC SOCIETY.

COUNCIL FOR 1910.

HON. DR. D. J. GALLOWAY, *President.*

MR. C. J. SAUNDERS, *Vice-President for Singapore.*

HON. A. R. ADAMS, ,, *Penang.*

MR. W. D. BARNES, ,, *Federated Malay States.*

MR. H. N. RIDLEY, *Honorary Secretary.*

DR. HANITSCH, *Honorary Treasurer.*

MR. W. MAKEPEACE, *Honorary Librarian.*

MR. V. A. FLOWER,
MR. A. KNIGHT,
REV W. DRURY,
MR A. T. BRYANT,
} *Councillors.*

PROCEEDINGS

of the

Annual General Meeting.

The Annual General meeting was held on Feb. 7, 1910.

Present :—

DR. GALLOWAY (President)

MR.	W. MAKEPEACE.	MR.	A. KNIGHT.
MRS.	SANDERSON.	,,	V. A. FLOWER.
REV.	W. DRURY.	,,	D. T. BOYD.
MR.	BEAN.	,,	SPAKLER.
MR.	R. LITTLE.	,,	A. D. MACHADO.

DR. HANITSCH.

The Annual Report of the Council was laid upon the table, Dr. Galloway proposed its adoption which was seconded by Mr. Knight and carried.

The Treasurer's account was submitted and Dr. Galloway proposed and Mr. Makepeace seconded its acceptance, which was carried.

The officers for the ensuing year were then elected as follows.

President	DR. GALLOWAY.
Vice President for Singapore ...	MR. C. J. SAUNDERS.
,, *Penang* ...	,, A. R. ADAMS.
,, *Federated Malay States*	W. D. BARNES.
Hon. Secretary	H. N. RIDLEY.
Hon. Treasurer	DR. HANITSCH.
Hon. Librarian	W. MAKEPEACE.
Councillors	MR. V. A. FLOWER. MR. A. KNIGHT. REV. W. DRURY. MR. A. T. BRYANT.

The following new members were then elected.

MR. T. C. MILLER.
,, CLIFFORD S. BRISON.
,, P. S. FALSHAW.
,, H. C. PAXON.
,, H. BERKELEY.
,, MONEY.

Mrs. Sanderson proposed that the Council be asked to arrange a series of lectures and demonstrations on various subjects of interest by members of the Society, which was agreed to.

Mr. W. Makepeace proposed a vote of thanks to the President for presiding at that and previous meetings.

List of Members for 1910.

* Life Members. † Honorary Members.

Patron: H. E. SIR JOHN ANDERSON, G.C.M.G.

ABBOTT, DR. W. L.	Singapore.
ACTON, R. D.	Penang.
ADAM, FRANK	Singapore.
ADAMS, HON. A. R.	Penang.
ADAMS, T. S.	Perak.
ALDWORTH, J. R. O.	Kuala Lumpor.
ALLEN, ROWLAND	Singapore.
ANDERSON, E.	Singapore.
ANTHONISZ, HON. J. O.	Singapore.
ARTHUR, J. S. W.	Singapore.
ASMUS, AD.	Singapore.
AVETOOM, DR. T. C.	Penang.
AYRE, C. F. C.	Singapore.
BANKS, C. W.	Singapore.
*BANKS, J. E.	Iowa, U. S. A.
BARKER, DR. A. J. G.	Sarawak.
*BARNES, W. D.	Pekan, Pahang.
BARTLETT, R. J.	Malacca.
BEAN, A. W.	Singapore.
BEATTY, D.	Singapore.
BENJAFIELD, F. J.	Singapore.
*BERKELEY. H.	Taipeng, Perak.
BICKNELL, W. A.	Penang.
BIDWELL, R. A. J.	Singapore.
BIRCH, HON. E. W., C.M.G.	Perak.
BISHOP, CAPT. C. F.	Europe.
BISHOP, J. E.	Klang, Selangor.

*Blagden, C. O., M.A.	Davos, Switzerland.
Bland, Hon. R. N.	Penang.
Bland, Mrs. R. N.	Penang.
Boyd, D. T.	Singapore.
Brison, Clifford S.,	Singapore.
Brockman, E. L., C.M.G	Seremban, N. Sembilan.
Brooks, C. J.	Bau, Sarawak.
Brown, A. V.	Penang.
Brown, D. A. M.	Penang.
Bryant, A. T.	Singapore.
Buckley, C. B.	Singapore.
Burgess, P. J.	England.
Burn-Murdoch, A. M.	Kuala Lumpor.
Caldecot, Ivone Kirkpatrick	Sarawak.
Campbell, J. W.	Kuala Lumpor.
Carruthers, J. B.	Trinidad.
Carver, C. I.	Singapore.
Cerruti, G. B.	Tapah, Perak.
Chancellor, A. R.	Singapore.
Chapman, W. T.	Taipeng, Perak.
Coghlan, H. L.	Singapore.
Collinge, H. B.	Taipeng, Perak.
†Collyer, W. R., I.S.O.	England.
*Conlay, W. L.	Trengganu.
Cook, Rev. J. A. B.	Singapore.
Cook, W. W.	Singapore.
Croucher, Dr. F. B.	Penang.
Cuscaden, G. P.	Seremban, N. Sembilan.
Dallas, Hon. F. H.	Sarawak.
Darbishire, Hon. C. W.	Singapore.
Dent, Sir Alfred, K.C.M.G.	England.
Dent, Dr. F.	Singapore.
*Deshon, Hon. H. F.	England.
Dew, A. T.	England.
Dew, E. Costa	Negri Sembilan.

DICKSON, E. A.	Negri Sembilan.
DOUGLAS, R. S.	Baram, Sarawak.
DRURY, REV. W.	Singapore.
DUNMAN, W.	Singapore.
EDMONDS, R. C.	Penang.
EGERTON, H. E. SIR W., K.C.M.G.	W. Africa.
ELCUM, J. B.	Singapore.
ELLERTON, H. B.	Kuala Lumpor.
ELLIS, HON. E. C.	Singapore.
ENGEL, L.	Singapore.
EVANS, HON. W.	Malacca.
EVERETT, H. H.	Santubong, Sarawak.
FALSHAW, P. S.	Singapore.
FARRER, R. J.	Singapore.
FERRIER, J. C.	Soerabaya, Java.
FISHER, W. D.	Singapore.
FLEMING, T. C.	Europe.
*FROST. MEADOWS	Kedah.
*FLOWER, CAPT. S. S., F.L.S.	Ghizeh, Egypt.
FLOWER, V. A.	Singapore.
FORT, HON. HUGH	Singapore.
FREEMAN, D.	Kuala Lumpor.
FREER, DR. G. D.	Kuala Lumpor.
GAHAGAN, A. Y.	Singapore.
GALLOWAY, HON. DR. D. J.	Singapore.
GARDNER, N. E. A.	Negri Sembilan.
GAY, LIEUT. C. H.	Singapore.
*GERINI. LIEUT-COL. G. E.	Italy.
GIBSON, W. S.	Penang.
*GIMLETTE, DR. J. D.	Kelantan.
GLENNIE, DR. J. A. R.	Singapore.
GOULDING, R. R.	Kuantan, Pahang.
GRANDJEAN, W. D.	Klang, Selangor.
GRAY, N. T.	Pahang.

GUERITZ, H. E. SIR. E. P.	Sandakan.
HAINES, REV. F. W.	Penang.
HALE, A.	Taipeng, Perak.
HALL, G. A.	Penang.
HANITSCH, DR. R.	Singapore.
HARRINGTON, A. G.	Singapore.
HARRISON, DR. H. M.	Selangor.
HART, A J. CAMPBELL	Singapore.
HAYNES, A. S.	Penang.
HAYS, DR T. HEYWARD	Bangkok.
HELLIER, M.	Singapore.
HEMMANT, G.	Negri Sembilan.
HENNINGS, W. G.	Singapore.
HENRY, J.	Singapore.
†HERVEY, D. F. A., C.M.G.	England.
HEWAN, E. D.	Singapore.
HEWITT, JOHN	Pretoria, Transvaal.
HILL, E. C.	England.
HINKS, CAPT. T. C.	England.
†HOSE, RT. REV. BISHOP, G. F., D.D.	London.
HOSE, E. S.	Kuala Lumpor.
HOSE, R. E.	Busau, Sarawak.
HOYNCK, VAN PAPENDRECHT, P. C.	Brussels.
HUBBACK, T. R.	Negri Sembilan.
HUGHES, J. W. W.	Negri Sembilan.
HUMPHREYS, J. L.	Dindings.
IZARD, REV. H. C.	Singapore.
JACKSON, COL. H. M., R.E.	Kuala Lumpor.
JAEGER, PAUL	Singapore.
JAMIESON, DR. T. HILL	Penang.
JANION, E. M.	Singapore.
JOHNSON, B. J. H.	Penang.
JONES, H. W.	N. Sembilan.

KEHDING, DR.	Germany.
KEITH, DR. R. D.	Singapore.
KEMP, W. L.	Singapore.
KINSEY, W. E.	Negri Sembilan.
KIRK, DR. J.	Penang.
KLOSS, C. B.	Taipeng, Perak.
KNIGHT, ARTHUR	Singapore.
KNOCKER, F. W.	Europe.
KRIEKENBEEK, J. W.	Perak.
LAIDLAW, G. M.	Perak.
LAW, SIR A. F. G.	Kuala Lumpor.
†LAWES, REV. W. G.	New Guinea.
LAWRENCE, A. E,	Sarawak.
LEMON, A. H.	Singapore.
LERMIT, A. W.	Singapore.
LEWIS, J. E. A.	Kuching, Sarawak.
LIM BOON KENG, DR.	Singapore.
LITTLE, R.	Singapore.
LLOYD, J. T.	Singapore.
LOW, H. A.	Singapore.
LUERING, REV. DR. H. L. E.	Frankfurt o/M.
LUPTON, HARRY	Malacca.
LYONS, REV. E. S.	Dagupan, Philippine I.
MCARTHUR, HON. C.	Singapore.
MACARTHUR, S. H.	Kuala Lumpor.
MCCAUSLAND, C. F.	Perak.
MACDOUGALL, DR. W.	Singapore.
MACFADYEN, E.,	Jugra, Selangor.
MACHADO, A. D.	Singapore.
MACKRAY, W. H.	Klang, Selangor.
MACLAREN, J. W. B.	Europe.
MAHOMED, BIN MAHBOB, HON. DATO	Johore.
MAIN, T. W.	Singapore.
MAKEPEACE, W.	Singapore.
*MARRINER, J. T.	Kelantan.

MARRIOTT, H.	Singapore.
MARSH, F. E.	Singapore.
MARSHALL, F. C.	Raub, Pahang.
MARSHALL, HAROLD B.	Brunei.
MASON, J. S.	Kelantan.
MAULDON, E. F.	Singapore.
MAXWELL, ERIC	Ipoh, Perak.
MAXWELL, W. G.	Kedah.
MAY, C. G.	Penang.
MILLARD, DR. A. S.	Taipeng, Perak.
MILLARD, H.	Singapore.
MONEY, A. W KYRLE.	Singapore.
MOORHOUSE, SYDNEY	Malacca.
MILLER, MRS. T. C. B.	Singapore.
MOUAT, J.	Kuantan, Pahang.
MOULTON, J. C.	Sarawak.
NAPIER, SIR W. J., D.C.L., K.B.	England.
NATHAN, J. E.	Penang.
NORMAN, HENRY	Selangor.
NUNN, B.	Penang.
PARR, C. W. C.	Klang, Selangor.
PAXON, H. C.	Singapore.
PEACOCK, W.	Singapore.
PEARS, FRANCIS	Muar.
PEIRCE, R.	Singapore.
†PERHAM, VEN. ARCHDEACON A.	England.
PLUMPTON, M. E.	Singapore.
PRA, C. DA	Negri Sembilan.
PRINGLE, R. D.	Singapore.
PYKETT, REV. G. F.	Penang.
RANKIN, H. F.	Amoy.
REID, ALEX	Singapore.
REID, DR. ALFRED	Kuantan, Pahang.
RENNIE, J. S. M.	Singapore.
RICHARDS, D. S.	Negri Sembilan.

RIDLEY, H. N., M.A., F.R.S.	Singapore.
RIGBY, J.	Perak.
ROBINSON, H. C.	Kuala Lumpor.
ROSTADOS, E.	Singapore.
ROWLAND, W. R.	Negri Sembilan.
ST. CLAIR, W. G.	Singapore.
SANDERSON, MRS. REGINALD	Singapore.
†SARAWAK, H. H. RAJAH OF, G.C.M.G	Sarawak.
†SATOW, SIR E. M., K.C.M.G.	England.
SAUNDERS, C. J.	Singapore.
SCHUDEL, G.	Singapore.
SCHWABE, E. M.	Kajang, Selangor.
SCOTT, R.	Malacca.
SCRIVENOR, J. B.	Batu Gajah, Perak.
SEAH LIANG SE[illegible]I.	Singapore.
SEAH SONG SEAH.	Singapore.
SHELFORD, R.	Oxford.
SHELFORD, W. H.	London.
SHELLABEAR, REV. W. G.	Malacca.
SIMS, W. A.	Singapore.
SINCLAIR, J. M.	Singapore.
SKINNER, CAPT. R. MCK.	Singapore.
†SMITH, SIR CECIL C., G.C.M.G.	England.
SONG ONG SIANG	Singapore.
SPAKLER, H.	Singapore.
STEEDMAN, R. S.	Intan, Upper Perak.
STEVENS, K. A.	Singapore.
STILL, A. W.	Singapore.
STONEY, B. O.	Brunei.
TAN CHENG LOCK	Malacca.
TAN JIAK KIM, HON.	Singapore.
TATLOCK, J. H.	Perak.
THUNDER, M.	Singapore.
TWISS, F. R.	Pahang.

VAN BENNINGEN VON HELSDINGEN, DR. R.
Tanjong Pandan, Billiton.

WALKER, LT.-COL. R. S. F., C.M.G.	Taipeng, Perak.
WARD, A. B.	Sarawak.
WATKINS, A. J. W.	Singapore.
WELD, F. J.	Kuala Lumpor.
WELHAM, H.	Penang.
WELLINGTON, DR. A. R.	Singapore.
WEST, REV. B. F., M.D.	Washington, U. S. A.
WHITEHEAD, C. B.	Singapore.
WILLIAMS, J. H.	Singapore.
WILLIAMS, S. G.	Singapore.
*WINKELMANN, H.	Singapore.
WINSTEDT, R. O.	Perak.
WOLFF, E. C. H,	Kuala Lumpor.
*WOOD, E. G.	Kuala Kangsar.
*YOUNG, H. S.	Bau, Sarawak.

Annual Report of the Council for the Year 1909.

The Council for the year consisted of the following:—

DR. D. J. GALLOWAY, *President.*
HON W. D BARNES, *Vice-President for Singapore.*
HON. R. N. BLAND, *Vice-President for Penang.*
MR H C. ROBINSON, *Vice-President for Federated Malay States.*
MR. H. N. RIDLEY, *Honorary Secretary.*
MR R. J BARTLETT. *Honorary Treasurer.*
MR. W. MAKEPEACE, *Honorary Librarian.*
REV. W. DRURY,
DR HANITSCH,
MR V. A FLOWER,
MR. A. KNIGHT, } *Councillors.*

Towards the end of the year Dr. Hanitsch acted as Treasurer in the absence of Mr. Bartlett.

The Council are pleased to be able to report a satisfactory progress in the affairs of the Society.

No less than forty-six new members joined the Society during the year, this being the largest number of new members added to the society in any year since the foundation.

The names of the new members are as follows:—

MRS. R. SANDERSON
MR. S. G. WILLIAMS
„ R. R. GOULDING
„ T. S. ADAMS
„ H. B. MARSHALL
„ A. B. WARD
„ C. W. BANKS
„ C. I. CARVER
HON. E. C. ELLIS
MR. R. LITTLE
„ ROWLAND ALLEN
„ A. W. BEAN
„ H. L. COGHLAN
„ W. G. HENNINGS
„ F. E. MARSH
„ J. C. MOULTON
„ G. P. CUSCADEN
DR. A. S. MILLARD
MR. J. R. HUBBACK
CAPT. A. MCK. SKINNER
MR. C. G. MAY
„ C. J. BROOKS
„ R. PEIRCE
MR. A. G. HARRINGTON
„ W. L. KEMP
„ H. A. LOW
HON. C. MCARTHUR
MR. E. F. MAULDON
„ M. E. PLUMPTON
„ J. S. M. RENNIE
„ W. A. SIMS
„ M. S. H. MCARTHUR
„ J. E. NATHAN
„ A. V. BROWN
„ J. C. FERRIER
„ A. Y. GAHAGAN
„ R. J. FARRER
DR. KEITH
MR. J. W. HUGHES
„ D. S. RICHARDS
LIEUT. C. H. GAY
MR. M. THUNDER
„ J. MOUAT
REV. W. DRURY
DR. GLENNIE
MR. W. PEACOCK

A circular detailing the scope and work of the Society was printed for distribution to persons resident in the peninsula and neighbourhood who have not become members of the Society. It was considered probable that many would be glad to join if they knew the advantages to be obtained from membership.

Three volumes of the Journal, viz: 51, 52 and 53, were published during the year and another will shortly be issued. The number of contributors has much increased and many valuable and interesting papers are being obtained by the Society.

An Index (Vol. 51) to the fifty volumes already published drawn up by Mr. Barnes has been printed and distributed to members.

As there were a very large number of copies of the previously published volumes in stock, it was decided to offer them to members at a reduced rate.

A new edition of the Map of the Malay Peninsula was completed and the sheets were sent home to Messrs. Stanford for printing and it is hoped it may be ready for distribution early this year.

The Library was arranged by the Librarian and a catalogue of its contents prepared for the press and rules for the use of the library were drawn up.

A considerable number of journals and pamphlets were received from other institutions in exchange and were incorporated with the Library.

The Treasurer's account is appended.

HONORARY TREASURER'S ACCOUNT FOR THE YEAR 1909.

	$	c.	$	c.
Balance brought forward from 1908:—				
Mercantile Bank, Fixed Deposit	2700	..		
Chartered Bank, Fixed Deposit	2300	...		
Mercantile Bank, Current Account	183	05		
Chartered Bank, Current Account	12	36		
Cash in Hand ...	5	...		
			5200	41
Receipts in 1909:—				
Subscriptions for 1903 ...	5	...		
,, ,, 1904 ...	10	...		
,, ,, 1905 ...	10	...		
,, ,, 1906 ...	15	...		
,, ,, 1907 ..	55	...		
,, ,, 1908 ...	165	...		
,, ,, 1909 ...	760	...		
,, ,, 1910 ...	45	...		
,, ,, 1911 ..	5	..		
Sale of Journals ..	289	28		
Sale of B. N. B. Gazette	20	...		
Bank Interest, Fixed Deposits	200	50	1579	78
			6780	19

	$	c.	$	c
Payments in 1909:—				
Methodist Publishing House, Journal 50 ...	268	20		
51 ...	181	18		
52 ...	335	22		
53 ...	200	—		
(leaving $151 10)				
Catalogue, Printing of ...	81	75		
C. Hentschel, illustrations...	18	07		
Preparing Catalogue, (second payment)...	100	—		
Bookbinding ...	32	50		
Carpenter ...	189	—		
Clerk's Salary, Jan.–Nov....	205	—		
Peon's Salary, Jan.-Nov. ...	22	—		
Petties (postages, &c.) ...	80	26	1713	18
Balance carried forward:—				
Mercantile Bank, Fixed Deposit	2700	—		
Chartered Bank, Fixed Deposit	2300	—		
Mercantile Bank, Current Account	19	15		
Chartered Bank, Current Account	47	86	5067	01
			6780	19

Audited and found correct,

A. KNIGHT.

R. HANITSCH,

Honorary Treasurer, Straits Branch, Royal Asiatic Society.

New or Rare Malayan Plants. Series V

By H. N. Ridley, F.R.S., F.L.S.

In going over the herbarium at the Botanic Gardens, Singapore, I find a good many plants not recorded in the Materials of the Flora of the Malay Peninsula, some overlooked, others collected since the publication of the earlier numbers. I have therefore put together notes and descriptions of these plants so that they may be on record. A few orchids too received from Sarawak from Mr. Hewitt and others are also described.

Since Sir George King described the *Dipterocarpeae* several new ones were described by Sir D. Brandis, and I have given notes on these, rather fuller than in other cases as these trees are of considerable importance to foresters, on account of the value of their timbers. Curiously among the Dipterocarps omitted from the Materials by Dr. King is the well-known Camphor tree, *Dryobalanops camphora* of which I hope to give a full account when I have got certain further information about it.

DILLENIACEAE.

Wormia.

The shrubs and trees of the genus *Wormia* are among the most striking of our local plants, the brilliant colouring of the large yellow, more rarely white flowers, being most conspicuous. The genus is closely allied to the equally showy one *Dillenia,* but is I think very distinct. King in the Materials for a flora of the Malay Peninsula distinguishes the two genera correctly by the absence of an aril in the *Dillenias* and the presence of an aril in the *Wormias.* Martelli in Malesia has mixed the two genera together under the name

Dillenia, and has by no means made this group of plants easier to understand. The real difficulties of separating the two genera lies only in the difficulty of working from badly preserved herbarium specimens. The plants undoubtedly do not, unless very carefully preserved, dry well, but in life there is little difficulty in distinguishing the two genera. The great characteristic lies in the fruit. In *Wormia* after the petals have fallen, the sepals close over the pistil and when the fruit is ripe the carpels expand, becoming of a beautiful rose pink or white. They split along the edge and display the small black seeds clad in a scarlet aril. These pink stars of carpels, two inches or more across in the common species *W. subsessilis* are nearly as attractive as flowers.

In *Dillenia* the sepals once closed over the pistil do not expand any more. They become fleshy and sweet or acid, the carpels enclosed inside do not open, and as they do not ever dehisce, the seeds do not possess a coloured aril, which would be useless in seed dispersal.

Wormia seed is dispersed by birds which attracted by the brightly coloured aril swallow the seeds. The carpels split in the very early morning, and though I have constantly looked for seed at say 8 or 9 o'clock, it is usually already gone, so early do the birds find it. The chief disperser of *W. subsessilis* in Singapore is the common bulbul *Pycnonotus analis* who is very keen on the scarlet arils.

Dillenia on the other hand is dispersed by Mammals, or the rolling away of the fruit or its floating away on the river, on the banks of which some species grow. The fruit is green or yellow pulpy and sweet. As it never opens arils are useless, so it possesses none. This character however is not always easy to make out in dried specimens as is evinced by Sir George King's having transferred *Dillenia meliosmoefolia* correctly referred by Hooker to *Dillenia* to the genus *Wormia.*

The *Wormias* have been separated into sections according to whether the stamens are all equally long or the inner row is longer than the outer one. This is a good distinction but there is a very good separating point in the petiole. In a certain set, all shrubby and inhabiting swamps, the petioles

are strongly winged for the whole length. This broad green wing encloses tightly the bud and protects it from injury from rain, till it is sufficiently strongly developed to separate the wings and appear. There are several species ranging from the Malay Peninsula to Australia, which have this curious arrangement. The others mostly trees have simple unwinged petioles.

Of the wing-stalked species we have two in the Peninsula, viz. *W. suffruticosa,* Griff. and *W. subsessilis,* Miq., to which group may be added, *W. Burbidgei* of Borneo, *W. alata* of Australia, and probably *W. Beccariana,* (Borneo), *W. auriculata,* (New Guinea) and some others.

Of our two species in the Flora of British India Vol. I, p. 35, and also in King's Materials Vol. I, p. 8, *W. suffruticosa* is made synonymous with *W. subsessilis,* Miq. Martelli follows this and adds localities from Borneo (Kuching Sarawak) and suggests that *W. Burbidgei* of Borneo is probably the same thing. The first two species however are quite distinct from each other, always keeping so far as I have seen their characteristics true and not mixing.

W. Burbidgei, Hooker is a rather puzzling plant. It is based on a plant brought by Burbidge from Borneo and figured in the Botanical Magazine t. 6531. It has smaller and paler flowers than most species. No one seems to have met with it again, and the figure in the Botanical Magazine suggests that it is a deteriorated plant of one of this group, affected by its cultivation in the houses at Kew Gardens.

Round Kuching however lie big swamps in which among other splendid flowers, grows a plant like a glorified *W. suffruticosa.* Like *W. subsessilis* it forms tall and dense thickets layering itself by its branches in the water, but it is taller and is especially conspicuous from the great size of its flowers considerably bigger than those of *W. suffruticosa,* its very large leaves more strongly dentate, and its white not pink fruit. This is probably the plant referred to by Martelli as *W. suffruticosa.* It might be classed as a variety of *W. suffruticosa* var. *borneensis.*

As there has been so much confusion in our two Peninsular species, I give complete description of them.

Wormia subsessilis, Miq. Fl. Ind. Bat. Suppl. I. 618. Ann. Mus. Lugd. Bat. I. 315, t. 9.

A very large shrub forming large thickets in damp open spots. Stem as much as 6 inches thick branching at the base. Branches decurved and rooting at the nodes, where they reach the ground. Shoots and leaves quite glabrous except for a few hairs along the midrib and bases of the nerves behind. Leaves ovate or oblong ovate obtuse, except for the midrib prolonged into a short mucro, margin distantly and very shortly serrate, nerves about 15 hairs straight and parallel, base broad, passing into the broadly winged petiole, which encloses entirely the bud, blade dark green above nerves lighter coriaceous 8-12 inches long 6-7 inches wide, petiole 1½ inch long. Raceme decurved, of 5-6 flowers. Bracts lanceolate claw-like pinkish ½ inch long. Flowers 5 inches across. Sepals ovate obtuse edges ciliate at the tip, 2 outer ones dull red not visibly nerved, nearly ¾ inch long, 3 inner a little smaller green with traces of red coloring. Petals 5 undulate hardly crenate bright yellow 2 inches long 1½ inch wide. Stamens white ¾ inch long, the outer row of staminodes shorter yellow. Styles 7, greenish a little longer than the stamens. Carpels 7, rose pink, sutures and centre white, 1 inch long when fully expanded ovate tipped by the withered style. Seed subpyriform ⅕ inch long black with a red aril.

Common in the swampy open country of the South of the Peninsula.

Singapore: Tanglin abundant; Pulau Tekong (Ridley 3966); Pulau Ubin. Johor: Pinerong Estate (Cantley); Kwala Sedili Besar (Feilding). Distrib. Banca.

var. *borneensis,* n. var. A very tall plant forming dense thickets and layering itself by its branches. Leaves very large 18 inches long and 12 inches across, margins strongly dentate, with thorn-like processes at the tips of the teeth,

young parts of the plant branches, buds, petiole and midrib and veins densely silky hairy, adult leaves glabrous. Peduncles over a foot long silky hairy, flowers about 6 to 12. Sepals in flower hairy on the edge. Flowers 4 inches across or more petals bright yellow. Fruit when expanded white.

Borneo, Sarawak: in swamps at Kuching abundant.

Wormia suffruticosa, Griff. Notul. IV. 706. Ic. IV. t. 6496.

A more stunted plant straggling up to ten feet tall but commonly 4 to 6 feet, and not forming the dense large thickets of *W. subsessilis.* The leaves resemble those of the latter but the bases are broader and run less into the winged petiole, and the margin is distinctly dentate. When young they are covered with close set white woolly hairs on the midrib and nerves on the back, and this hair persists on the petiole. The hair however disappears to a large extent on the adult leaves. It covers too the young parts of the stem. The flower spikes are stouter than in *W. subsessilis* and the peduncles and branches are also woolly. The flowers much resemble those of the latter species but the sepals often are slightly hairy on the edge, and the petals more obovate and larger, yellow. The stamens white.

The plant is called "Simpoh Gajah." It is rarer in the South of the Peninsula where *W. subsessilis* takes its place. In Singapore it occurs in jungle swamp at Stagmount along the railway, and Jurong. In Johore, I have seen it at Sedenah. In Malacca abundant at Bukit Bruang (Holmberg 712). In Negri Sembilan Cantley's collector sent it from Seremban, and Goodenough collected it (No. 10470) at Rawang.

I have no evidence that it occurs outside the Peninsula.

W. tomentella, Mart. Malesia, III. 159. A tree, about 40 feet tall and 2 to 3 feet through with light brown bark. Branches pubescent. Leaves elliptic obtuse at both ends, entire or shortly cuspidate 6-10 inches long, 5 inches wide, above glabrous, nerves 13 pairs, transverse nerves

conspicuous beneath, hairy especially on the nerves, petiole 1-2 inches long pubescent deeply channelled not winged. Racemes from the upper axils about 6 inches long pubescent, pedicels 1 inch long pubescent. Sepals oblong obtuse dull red glabrous 1 inch long. Petals spathulate broad, apex rounded 1½ inch long ¾ inch wide, light yellow. Stamens yellow, in two unequal series inner ones longer reddish, pores 2. Pistils ?, glabrous red, styles long, subulate. Capsule white.

Singapore: Garden Jungle, Selitar (Ridl. 6382), Bukit Timah (Ridley 6809); Johore: Tebrau Road; Borneo: Kuching (Haviland).

This is no doubt identical with the Borneo plant on which **Martelli** based his species. It is by no means a floriferous tree like *W. oblonga,* usually only producing a few flowers at irregular intervals through the year. It is omitted from the Materials.

W. parviflora, n. sp.

A small tree, branches pubescent. Leaves broadly lanceolate or ovate lanceolate membranous, base somewhat narrowed, apex acute, margin nearly entire or with a few obscure teeth glabrescent above except the midrib, beneath covered with rough hairs especially on the midrib and nerves, nerves about 18 pairs, reticulations prominent, 6-9 inches long, 2-4 inches wide, drying red, petiole slender not winged ½-1 inch yellow pubescent. Flowers few small on short ½ inch peduncles, pedicels slender 1 inch long. Bracts linear all densely yellow hairy. Sepals obovate rounded densely yellow hairy ½ inch long. Petals obovate thin little longer, margins crisped. Stamens unequal inner series longer than the outer one glabrous.

Malacca: Merlimau (Derry 1077), Ayer Panas (Curtis 3489).

I have not met with this plant myself and have no note of its colour. It is known as "Simpoh Bukit."

Wormia albiflos, n. sp.

Large shrub, very pubescent. Leaves elliptic oblong narrowed towards the base, which is rounded, apex cus-

'pidate acute, margins serrate, nerves 24 pairs alternate prominent beneath each ending in a marginal tooth, midrib thick, reticulation nerves prominent, pubescent on both surfaces, softly densely tomentose beneath, above more glabrous, with a thick crest of hair along the midrib, 7 to 10 inches long 3 to 4 wide, petiole 1-1½ inch long widely sheathing nearly to apex as in *W. suffruticosa,* but densely softly pubescent. Inflorescence from the upper axils panicled, peduncle 3 inches long with two spreading branches of the same length, all softly pubescent. Bracts ovate acute ¼ inch long pubescent. Buds globose very shortly pedicelled. Calyx lobes 5 obovate obtuse rounded pubescent on the back ½ inch long $\frac{1}{5}$ inch wide. Petals thin obovate rounded, glabrous white ½ inch long. Stamens numerous glabrous all about equal. Pistils silky hairy. Fruit unknown.

Johore: in wet woods at Tebing Tinggi (Ridley 11053).

A very pretty small-flowered white species. The fruit unknown.

DILLENIA.

D. Scortechinii, King Mss. *Wormia Scortechinii,* King Materials l. c. p. 366.

There is I think no doubt but that this plant is a *Dillenia* as King at first suggested and not a *Wormia.* The fruit resembles that of *D. meliosmaefolia,* but is green and not yellow. The plant is by no means rare in the South of the Peninsula and is quite conspicuous in the woods from its possessing large stilt roots in which the whole tree appears to be supported. So striking is this that visitors on seeing the tree in the Garden Jungle have enquired if it was a mangrove tree. The whole tree is about 60 feet tall with a smooth reddish bark.

It occurs in the Garden Jungle of Singapore.

Dillenia meliosmaefolia, Hook. fil. *Wormia meliosmaefolia,* King.

I have carefully examined this plant which is in cultivation in the Botanic Gardens Singapore and cannot find any aril to the seeds, nor does the fruit ever dehisce as those of a *Wormia* do. It is obvious that Sir Joseph Hooker was right in referring this tree to the genus *Dillenia*. It is a fairly tall but not stout tree occurring in the hill forests. In cultivation in the Botanic Gardens in open ground it became more bushy and is flowering at a height of about 12 feet. The leaves are soft and bright green glabrous above and pubescent beneath. The flowers appeared in September. The sepals are in two whorls three outer ones and two inner ones somewhat gibbous and more silky. The petals 5, are narrow oblong obtuse narrowed at the base and lemon yellow 1½ inch long and half an inch wide. The outer two or three rows of the stamens are shorter than the inner rows and yellow with an apiculate connective, the innermost row is white longer and appressed to the carpels. These are ten in number white linear and recurved. Each cell contains 6 non-arillate seeds. The sepals in fruit, are swollen yellow pulpy and acid, the carpels sweet and juicy and the whole fruit is eaten by the Sakais and Jakuns. Indeed it is quite refreshing on a hot thirsty day, though the sepals are decidedly acid. The whole fruit is about an inch through. The tree is known as "Simpoh Bukit" "Simpoh hutan" and "Simpoh jantan."

It occurs in thick forests in Malacca: Ayer Keroh, Ayer Panas (Goodenough 1983), Selandon (Cantley); Negri Sembilan: on Gunong Angsi (Ridley), Selangor at Kwala Lumpur (Curtis 234), Bukit Hitam (Kelsall); The Dindings at Lumut, and Bukit Tungul (Ridley); Perak at Chenderiang (King's Coll. 5787), Tapah (Ridley).

TETRACERA.

T. sylvestris, n. sp.

A tall woody climber in forests ascending to about 60 feet, with grey bark. Leaves at the ends

of the branches oblong cuspidate with a rounded base, thinly coriaceous not scabrid, nerves eight pairs, dark green shining above, margin obscurely crenate at the tip, 3 to 6 inches long, 1½ to 3 inches wide, petiole ¼ inch long, hairy. Panicles short and few branched, bearing a few flowers, pubescent. Bracts very small lanceolate. Pedicels ¼ inch long pubescent. Buds globose. Sepals 4 obovate rounded, light green ¼ inch long, margins pubescent, and inner face thickly covered with appressed silky hairs. Petals small white spathulate ⅖ inch long, ⅕ inch wide. Stamens shorter, very numerous white, filaments flexuous. Carpels 4 pale green, styles rather stout tapering, stigma capitate. Follicles polished ½ inch long longer in proportion to their breadth than in *T. assa*.

Singapore: Garden Jungle (Ridley 6179), Changi; Malacca: Merlimau; Selangor: near the Batu Caves (Ridley 8249); Perak: Tapa (Wray 1266).

This plant has been it appears confused with the common *Tetracera assa* D. C., from which however it is very distinct. *T. assa* is a sarmentose shrub, often forming bushes in open country, or climbing in hedges but at no great height, the leaves are much smaller than in *sylvestris;* the flowers larger; the sepals glabrous within are often tinted with red at the top; the stamens more numerous, longer and conspicuously tipped with rose pink. Carpels usually 2.

T. sylvestris is a high climber in forests, with larger leaves, of a lighter green and not denticulate as in *T. assa*. The flowers are smaller and the sepals lined inside with silky hairs, the stamens shorter fewer and white slightly yellowish at the tip. The carpels are 4 in number. The young leaves are of a beautiful light reddish pink.

There are a number of species of *Tetracera* more or less described by Miquel and Blume from the Malay islands, Sumatra, Java, etc., but so incompletely in many cases that it is not possible to identify what is meant, and this may be one of them.

Tetracera fagifolia, Bl. Bijdr. 4.

This species has not been recorded in the Materials, as a native of our region. It occurs in the Garden Jungle and at Selitar in Singapore (No. 6381 and 6381a of my collections) and is too a native of Java. It is easily recognized by its lanceolate leathery leaves, stiff and polished about 3-5 inches long and 2 inches wide quite glabrous with 8 pairs of prominent ribs. The panicle of flowers is lax, about 6 inches long silky hairy. The sepals silky hairy on the edge and in the middle on the inner side. The flowers resemble those of *T. curyandra,* Vahl.

It does not seem to be very common or more probably seldom flowers as is so often the case with the *Tetraceras.*

MAGNOLIACEAE.

Talauma elegans, Miq. Ann. Mus. Lugd. Bat. IV. 70. *Aromadendron elegans,* Bl. Bijdr. 8.

This fine tree is not recorded for the Malay Peninsula in the Materials. It is a straight tall tree 60 to 80 feet tall, with coriaceous finely reticulated dark green leaves 3 or 4 inches long and 1 to 1½ inches wide elliptic and shortly acuminate, the petiole $\frac{1}{10}$ to ¼ inch long. The flowers of the usual magnolia type are a little over two inches long. the petals narrow linear acuminate, white and fragrant. The sepals lanceolate and glabrous. The stamens very slender and hardly half as long as the petals. The fruit is about 3 inches long obovoid narrowed to the base and smooth green with light pink seeds.

It grows in the Garden Jungle near the Fernery (No. 4429, and 5592 of my collection) and I have it also from Machap on the Selandor road, Malacca collected by Derry (No. 511). Curtis obtained it too on Government Hill, Penang (No. 3012). Derry gives the name "Kayu Arang" possibly by some error as this is usually applied to Ebony, and Curtis "Chempaka hutan."

ANONACEAE.

Polyalthia Curtisii, n. sp.

Tree 30 to 40 feet tall, branches dark-colored. Leaves elliptic lanceolate subacuminate blunt, base rounded thinly coriaceous glabrous, nerves hardly elevated 7 pairs, reticulations fine conspicuous 3-4 inches long, 1½ inch wide. petiole ⅛ inch long. Young leaves and shoots red pubescent. Cyme compound from the branches about 1 inch long golden pubescent with few branches. Bracts small ovate semiamplexicaul, golden hairy outside. Pedicel half an inch long. Sepals ovate hairy $\frac{1}{10}$ inch long. Outer petals linear oblong 1½ inch long, ¼ inch wide, hairy outside, inner ones much shorter spathulate obovate obtuse. Stamens numerous, small cells parallel, connective large rounded curved over.

Penang: Telok Bahang (Curtis 3644).

In some respects this resembles *P. sclerophylla,* King, but the flowers are borne on the branches in short panicles, not on clusters in the stem.

Polyalthia angustissima, n. sp.

Slender tree about 20 feet tall with dark bark, and fine twigs. Leaves lanceolate acuminate glabrous shining little over 3 inches long 1 inch across, nerves not very conspicuous beneath 6 pairs, (young leaves rose pink), petiole ⅛ inch long black pubescent. Flowers shortly pedicelled, pendulous beneath the branches, not on the stem, pedicel $\frac{1}{10}$ inch long, golden pubescent. Sepals 3 very small lanceolate acuminate $\frac{1}{01}$ inch long, golden hairy. Petals 6-7, bases gibbous above linear acuminate sparingly hairy with long appressed hairs, cherry pink at base gradually getting lighter to yellowish at the tip, 2½ inch long, hardly $\frac{1}{01}$ inch wide, sides involute, not keeled. Stamens quadrate, connective dilated incurved, in 3 rows white. Pistils 7-12 hairy, styles conic. Fruit carpels few, 2 or 3 globose as large as a red currant, minutely apiculate quite glabrous ⅜ inch long, bright red pedicels $\frac{1}{10}$ inch long, pericarp pulpy. Seed 1, rounded oblong smooth light brown.

Singapore: sandy woods Changi (Ridley 5917), Bukit Timah (8050), Garden Jungle (4813); Johore: Kwala Sembrong (Kelsall 4047). "Sisik Managon."

This tree is quite distinct from the plant—I believe was intended for *Unona stenopetala* by Hooker, the leaves of that being very much larger. It has a typical *Polyathia* fruit. Specimens in flower have been referred to a variety of *Unona stenopetala* at Kew.

It is always more or less in flower in the gardens but seldom fruits.

Polyalthia pumila, n. sp.

Dwarf shrub about a foot tall little or not branched. Stem black densely covered with rusty hairs. Leaves elliptic or oblanceolate coriaceous, base broad nearly sessile, above dark glabrous, beneath paler, minutely red dotted, and sprinkled with hairs, nerves above inconspicuous beneath prominent about 12 pairs, alternate, meeting in an undulate intramarginal nerve some way from the edge 8-10 inches long, 3 inches wide petiole swollen ¼ inch long densely red hairy. Flowers solitary axillary nearly sessile bright orange color. Calyx lobes 3 triangular lanceate obtuse, silky hairy outside less hairy within $\frac{1}{10}$ inch long. Petals 3 outer ones, linear lanceate subacute 1¼ inch long by $\frac{1}{10}$ inch wide dilated at the base but not excavate silky hairy especially at the base glabrescent upwards. Inner petals 3, 1½ inch long, narrower linear glabrescent. Stamens minute cuneate. filament very short, connective rounded recurved. Back of anther keeled. Carpels few stigmas short densely silky.

Dindings: Telok Sera Woods (March 7996); Johore: Gunong Janing (Kelsall.)

The most dwarf *Anonacea* I have ever seen, with a short stem large coriaceous leaves like those of *Agrostistachys* and rather large handsome orange flowers. Kelsall gives the Johore name of "Kananga Merah." I have not seen fruit of this but I take it to be a *Polyalthia*. It is remarkable not only for its small size but for the

inner petals being considerably longer than the outer ones.

Mitrephora crassipetala, n. sp.

A tree, branchlets pale. Leaves oblong or oblong lanceolate, acuminate acute glabrous drying grey, nerves elevated beneath 9 pairs looping within the margin, base rounded, 6 to 8 inches long 2½ to 2¾ inches wide, petiole ¼ inch long or a little more. Flowers on short half inch racemes, in clusters on the stem. Bracts $\frac{1}{20}$ inch long ovate persistent. Flowers white hardly opening, sessile on articulations on the raceme. Sepals 3 ovate obtuse, margins ciliate $\frac{1}{10}$ inch long. Outer petals ovate, with a broad base, white $\frac{8}{10}$ inch long apex very thick coriaceous. Inner ones spathulate, limb triangular thick fleshy connivent into a cone. Stamens numerous oblong with a triangular ovate connective crest. Pistils abortive. Female plant and fruit not seen.

Pahang: Tahan River (coll. plant collector Mat in Becher's expedition).

A very distinct plant in its curious little racemes borne on the stem, and its peculiarly thick fleshy flowers.

Miliusa amplexicaulis, n. sp.

Branches brown tomentose. Leaves nearly sessile elliptic ovate acuminate base broad unequally bilobed subamplexicaul 7 inches long 3½ inches wide, 12 pairs of nerves elevated beneath above glabrous, beneath sprinkled with hairs, midribs and nerves hairy, young leaves golden hairy beneath, and on upper midrib. Petiole $\frac{1}{10}$ inch. Flowers axillary in pairs on threes on short hairy peduncles, ¼ inch long pedicels about as long. Bracts smaller ovate with hairy margins. Sepals 3 ovate subacute with hairy edges. Outer petals similar, slightly longer. Inner petals ovate triangular fleshy broader than long, glabrous, with hairy edges $\frac{1}{10}$ inch long. Stamens about 3 whorls, bases hairy cells approximate, connective broad ovate, glabrous. Pistils several, style very short.

Lankawi: Kwah (Curtis 3205).

MENISPERMACEAE.

Tinomiscium petiolare, Miers.

This plant is common about Singapore in woods, and has been described by Miers, (Contrib. iii. 45. t. 94) and by Sir George King in the Materials for a flora of the Malay Peninsula I. p. 379. The female flowers however have never been described, and I am quite unable to understand what is meant by the descriptions of the male flowers in either account, as they do not coincide at all with the flowers as I see them. The descriptions however were made from dried and perhaps indifferent specimens. I therefore describe the plant afresh from life adding a description of the female flowers from a dried specimen. The plant is a woody climber usually about three inches thick with a milky latex. The leaves are coriaceous dark green ovate oblong obtuse or usually shortly accuminate. The male flowers are in simple racemes tufted from the stem far below the leaves. The flowers are pale green and $\frac{3}{10}$ inch across, the pedicel and a small ovate bract at the base are red hairy. The sepals are 3 or 4, very small ovate acute covered with short red hairs. (I suppose these are the "3 bracts" mentioned in the other descriptions). The petals are in two series. The six outer ones are linear oblong obtuse, the edges minutely white hairy. They are rather unequal in size and the four sepals are opposite to the four largest. These petals are spreading. The inner series are shorter oblong with incurved edges white and glabrous, 6 in number and connivent. The stamens 6, have thick fleshy filaments swollen at the base then narrowed, dilated again and ending in a thick incurved rather beak-like process. The anther cells are widely separated on the outer edges of the thickened upper portion of the filament. I cannot see any trace of a pistil at all.

The female flowers are borne on a long pendulous panicle 18 inches or more long, bearing long distant racemes 8 inches or more long, pubescent, with flowers

remote, singly or in twos or threes, on hairy pedicels $\frac{1}{10}$ inch long, the bracts small ovate and hairy. Sepals 2 lanceolate hairy very small. Outer petals linear oblong obtuse pubescent. Inner petals 6 shorter oblong incurved glabrous. Stamens 6 as in male. Drupe green with white spots elliptic flat.

Nephroica elegans, n. sp.

A slender twining plant growing among grasses, stem hairy, laticiferous. Leaves deltoid to lanceolate acute or elliptic lanceolate, base rounded, trinerved reticulations distinct sprinkled with hairs, midrib hairy on both sides, 2 inches or less long $\frac{1}{4}$-$\frac{1}{2}$ wide, petiole $\frac{1}{5}$ inch long hairy. Racemes axillary $\frac{1}{10}$ inch long hairy. Sepals very small ovate obtuse 5. Petals outer rotundate ovate acute 3. Inner petals ligulate oblong with two long linear points, 6. Stamens as long 6, with fairly stout filaments and globose anther cells transversely dehiscing.

Tringanu: Cherating river in grass on the shore, Aug. 25, 1889 (Ridley); Dindings: Lumut (Ridley).

The Dindings plant has larger and more elliptic leaves than those of the Cherating plant, some of the latter being very narrowed. The genus is referred to *Cocculus* by the authors of the Flora of British India, but it seems to me a very distinct one, as Miers has arranged it.

Stephania rotunda, Lour.

Slender climber stem glabrous. Leaves thin ovate petiole glabrous above beneath scurfy on the nerves, nerves 6 elevated above (when dry) $2\frac{3}{4}$ long, $2\frac{1}{4}$ inch wide reticlations conspicuous, petiole slender scurfy $1\frac{1}{2}$ inch long. Panicles not axillary slender 1-4 inches long, with few slender branches, and umbellate small flowers. Pedicels short. Flower $\frac{1}{10}$ inch across. Sepals linear oblong narrowed at base obtuse 3. Petals ovate rounded larger 2. Inner petals 3 lanceolate oblique. Stamens connate in a round disc, stalked, anthers below the disc.

Lankawi: Kwah (Curtis), also occurs at Bangtaphan, Siam (Dr. Keith).

This has not previously been recorded for the Peninsula, but I think I am correct in referring the Lankawi plant to Loureiro's species.

POLYGALACEAE.

Polygala cardiocarpa, Kurz. Journ. Roy. As. Soc. Beng. 1872, p. 291.

Slender herb branched above glabrous 6 or more inches tall. Leaves alternate thin ovate obtuse 1-2 inches long 1 inch wide narrowed into the petiole which is $\frac{1}{2}$ inch long. Spikes slender 2 inches long, base nude, flowers numerous very small yellow $\frac{1}{10}$ inch long. Sepals 4 ovate rounded, outer ones larger. Petals oblong ovate. Keel not crested, broad ovate with a prolonged tip. Stamens 8. Capsule, sepals deciduous heart-shaped retuse, wings strongly ribbed, seed elliptic black pustulate with a small black caruncle.

Limestone rocks. Selangor: Gua Batu (Ridley 8243); Lankawi: small islands (Curtis 3686), Pulau Sirih (Curtis 2581); Siam: Kasum (Curtis 3256).

I have little doubt that this little herb is the plant described by Kurz. under the above name, though his description is rather short. The original plant came from Tenasserim, and this is another instance of this Tenasserim limestone flora descending as far south as the Kwala Lumpur Caves. On the top of the limestone rocks of this spot I met with this little milkwort.

HYPERICINEAE.

Hypericum japonicum, Thunb. Fl. Jap. 295 t. 31. Hook. fil. Fl. Brit. Ind. I. 256.

A small prostrate or ascending herb from 5 to 10 inches tall, with slender branched stems. Leaves ovate sessile opposite glabrous about $\frac{1}{4}$ inch long blunt.

Flowers solitary axillary on slender peduncles ¼ inch long, yellow. Sepals oblong lanceolate. Petals as long as the sepals persistent. Stamens not numerous free nearly to the base. Capsule elliptic oblong or ovoid $\frac{1}{10}$ inch long dehiscing into three valves.

This little weed has been omitted from the Materials for a Flora of the Malay Peninsula by Sir George King, though it is by no means rare. It occurs in pepper fields and rice fields in Singapore and Penang, and probably elsewhere. It has obviously been introduced but has thoroughly established itself.

Singapore: Bukit Timah Road (Ridley 11273) also Chua Chu Kang, and Jurong; Penang: Penara Bukit (Ridley) and Pulau Betong (Curtis 1946).

Its distribution is from India to Japan, China, Java, Australia and New Zealand.

GUTTIFERAE.

Calophyllum ferrugineum, n. sp.

A large tree. Buds, young leaves on the midrib and edges, covered with a close ferruginous tomentum, Branches 4 angled. Leaves elliptic oblong coriaceous apex rounded truncate retuse, above shining, beneath dull, nerves very fine parallel, glabrous except the midrib beneath red tomentose, 3 inches long 1½ inch wide, petiole ½ inch long. Racemes axillary 2½ inch long, peduncle 1 inch thickly red tomentose. Flowers about 8 in a raceme distant on slender pedicels ½ inch or less long quite glabrous. Flowers ¼ inch across. Sepals 4, inner suborbicular, outer more ovate smaller. Petals 0. Stamens, anthers oblong. Pistil glabrous. Fruit obovoid an inch long narrowed to the top glabrous.

Singapore: Garden Jungle near Rogie (Ridley 10842, 4799).

This is allied to *C. molle* but differs in the completely glabrous flowers.

Calophyllum foetidum, n. sp.

Tall tree about 80 feet tall, and 8 inches through, bark flaky. Leaves elliptic narrowed to the petiole very shortly narrowed to the tip, coriaceous fine nerved, 1½-3½ inches long, 1-1¼ inch wide, petiole ½ inch long. Flowers small ¼ inch across foetid, in lax racemes axillary 3 inches long of about 8 flowers, pedicels slender ½ inch long. Bracts very small ovate caducous. Sepals 4 ovate lanceolate reflexed glabrous. Petals 4 obovate subspathulate apex rounded base narrowed $\frac{1}{10}$ inch long. Stamens very numerous shorter. Pistil conic glabrous style longer than the stamens, stigma discoid. Fruit small elliptic about ¼ inch long.

Singapore: Garden Jungle (Ridley 13305, 14119, 11958 and 6935); Malacca: Bukit Bruang (Derry).

This tree is remarkable for the small size of its flowers, which possess a very unpleasant odour. It is one of the comparatively few species in this region which possess petals and have lax racemes of distant flowers.

GARCINIA.

The *Garcinias* are often difficult to make out from dried specimens as they do not preserve well and further being unisexual one is apt only to get hold of plants of one sex. Three species of the small fruited ones commonly known as Kandis by the Malays, have thus been confused in the Materials. Indeed under *G. nigrolineata,* Plouch. King suggests that his description may cover two species. I have been able to study these plants from living specimens in the forests, and find that what he classes as *G. nigrolineata* covers three species, viz., the true *G. nigrolineata* of Pierre, a species apparently undescribed for which I propose the name *Garcinia globulosa,* and the *Garcinia parvifolia,* Miquel.

Garcinia nigrolineata, Pierre Fl. Cochin-Chinensis VI. p. xxix, t. 81, fig. 1 F.

Tree 30 to 40 feet tall, branchlets above subangled. Leaves coriaceous lanceolate acuminate, glabrous, narrow-

ed to the base, 3 to 6 inches long 1-2 inches wide, nerves fine ascending numerous petiole ½ inch long. Male flowers in umbels of 4 to 10, pedicels $\frac{1}{10}$ inch long, flowers $\frac{1}{10}$ inch long, on the tips of branches. Sepals orbicular fleshy concave 4. Petals longer lanceolate oblong subobtuse. Stamens about 20, forming a compact mass. Filaments very short, anther cells 4 broad with a thick connective, no pistil. Female flowers in umbels of four on the termination of branches, larger than the males, pedicels short thick $\frac{1}{10}$ inch long. Sepals orbicular concave rounded. Petals oblong lanceolate acute, longer. Ovary ovoid, stigma large papillose convex. Staminodes about 8, resembling the stamens. Fruit fleshy an inch through oblong, globose, crowned with the thick apiculus bearing the pustular stigma.

Singapore: Changi (Ridley 5005, 3611, 1967, 4644), Sungei Morai (4643), Tanjong Sukopek (3992); Johor: Gunong Pulai (Ridley); Pahang: near Pekan (Ridley); Malacca: Nyalas (Derry), Bukit Bruang (Ridley 4645); Penang Waterfall: Stone Quarry (Curtis 2412); Dindings: Pangkor (Ridley 7969); Lankawi: Kwah (Curtis); Carimon Islands (Ridley 7111).

"Kandis Jantan." This is a very distinct plant from the common Kandis, and is doubtless the plant referred to by King as the specimens with lanceolate acuminate leaves (p. 165). The typical leaves of this plant are narrow stiff and finely veined but it has also in some specimens which I cannot separate distinctly ovate leaves much broader. I find however narrow leaves as well on all or nearly all the broad leaved specimens. The Lankawi plant has the foliage of the narrow leaved form, but as the flowers, male, are very much larger it may be a distinct variety. This plant is undoubtedly Pierre's *G. nigrolineata* and I think also Anderson's plant in the Fl. Brit. Ind. though I have not seen the type. King's *nigrolineata* may be this partly but nearly all the specimens distributed under this name by him belong to a very distinct plant.

Garcinia globulosa, n. sp.

A fairly tall straight tree with rough bark scaling off. Leaves elliptic acuminate thinly coriaceous many-nerved, the nerves fairly conspicuous, 2 to 3 inches long, and 1½ inch wide, the petiole ¼ inch long. The male flowers in terminal or axillery umbels bright yellow 6 or 8 in an umbel, pedicels ⅛ inch long. Sepals 4 rounded gibbous small yellow. Petals 4 oblong rounded at the tip, ⅛ inch long lemon-yellow. Stamens about 20 in a cluster on a short cylindric column, anthers brown square flat at the top. Female flowers in terminal and axillary umbels of 4 or 5, larger pedicel thicker and angled. Sepals rounded orbicular $\frac{1}{10}$ inch long. Pistil ovoid. Stigma not stalked large rounded pustular. Fruit globose orange half an inch through, not umbonate. Stigma sunk in a depression and almost concealed. "Kandis" common in forests.

Singapore: Common Garden Jungle (Ridley 9195), Bukit Timah (9142, 4450), Selitar (266, 1968, 1966, 1825), Alma and Changi (Hullett 41); Malacca: Bukit Bruang (Goodenough 1270), Selandor (Cantley); Selangor: near Ulu Selangor (King's Coll. 8539); Perak: Batu Togoh (Wray 2531 and 3183).

This is the common little round fruited Kandis of the forests which is quite pleasant to eat. It often fruits heavily and one can get quite a basket of it from one tree. I once attempted to cook it to see if it would do for a pie, but found it not a success. It seemed to develop an astringency and toughness in the skin on cooking that spoilt it.

G. parvifolia, Miq. Fl. Ind. Bat. Suppl. 495.

A small tree much branched with rather rough bark, but not scaly as in the preceding. Leaves dark green thinly coriaceous dull elliptic acuminate narrowed at the base, apex cuspidate 4½ inches long 1½ inch wide, with a cusp half an inch long, the petiole half an inch. Male flowers in loose heads of 2 or 3 on pedicels ¼ inch long. Sepals 4 short ovate yellow. Petals 4 oblong tip round-

ed, widely spreading $\frac{1}{4}$ inch long cream colour. Stamens about 30 in a sessile head, filaments oblong short spreading. Anthers fawn coloured truncate quadrate. Female flowers in axillary and terminal cymes of 3 to 5 sessile, pedicels thick green $\frac{1}{10}$ inch long. Sepals 4, 2 outer ovate rounded green $\frac{1}{20}$ inch long inner smaller yellow. Petals yellow oblong rounded $\frac{1}{10}$ inch long. Stamens (abortive) 4, narrow linear clubbed at the tip. Pistil subglobose. Stigma orbicular, margins lacerate with short papillae, top covered with erect papillae pale white obscurely 6 lobed. Fruit elliptic in outline pulpy orange colored slightly inaequilateral, umbonate at the top and blunt, the stigma very small sunk in a depression and almost quite concealed, an inch and a half long and nearly an inch through. Cells 6 with 3 to 5 seeds developed.

Singapore: Garden Jungle (Ridley 3586a, 14122), Bukit Timah (4450 and 10744).

It flowers and fruits most of the year. The larger broader leaves, the larger male flowers and the shape of the fruit distinguish the plant readily.

KAYEA.

Kayea ferruginea, Pierre Fl. Coch. t. 99.

This is omitted from the Materials. It is a fairly large straggling tree found like most of the genus overhanging streams or rivers in forests. The leaves are leathery and stiff lanceolate caudate acuminate 3 to 6 or 9 inches long, 1-2 inches wide quite glabrous, petiole $\frac{1}{4}$-$\frac{1}{2}$ inch long. The fruit is large an inch through the sepals, ovate oblong rather longer leathery, scurfy outside polished within. I have not seen flowers of it, but have it in fruit from Johore, collected by Kelsall at Sungei Sembrong, and by myself on the river bank at Kota Tinggi (4187); Pahang at Ayer Hitam, near Pekan, and from the Dindings where R. Derry collected it. This latter has unusually long narrow oblong leaves, but I take it to be the same. It varies a good deal in the form of the leaf. Kelsall gives the name "Buah Sembawang" for it.

Kayea rosea, n. sp.

A medium sized tree. Leaves in distant pairs elliptic cuspidate apex acute base obtuse or shortly acuminate, coriaceous glabrous smooth above nerves 20-25 pairs raised beneath 8 inches long, 3 inches wide, cusp ½ inch long, petiole thick ¼-½ inch long. Flowers rosy white panicled, panicles 1 or 2 terminal, 3 inches long, branches short, rachis thick corky rugose light brown. Pedicels ⅕ inch long outer sepals orbicular thick ¼ inch long petals ovate ribbed, a little longer. Stamens numerous short, filaments short linear, anther cells curved. Fruit not seen.

Johore: By streams Gunong Panti (Dec. 1892) Ridley.

The only paniculate species yet recorded from the Peninsula.

K. rivulorum, n. sp.

Small straggling tree branches with long internodes. Leaves opposite in pairs with 4 small ovate stipule like leaves above them, in a cluster, main leaves lanceolate long cuspidate base hardly narrowed 5 to 6 inches long 1½ to 2 inches across, nerves about 14 pairs depressed above, elevated beneath leaf altogether glabrous and thinly coriaceous, petiole $\frac{1}{10}$ to ⅕ inch long; small leaves ovate acuminate ¼ inch long cordate sessile. Flowers 3 or solitary terminal almost sessile, surrounded at the base with small ovate acuminate bract-like leaves ½ inch long. Sepals ovate coriaceous ½ inch long. Petals narrow linear oblong longer. Stamens very numerous long slender, ovary conic acuminate, style shorter stigma apparently entire. Fruit conic acuminate 1½ inch long ½ inch through, with shorter persistent sepals.

Malacca: Sungei Hudang, Ayer Ular Bulu (Goodenough 1976); Selangor on the stream at the Camphor forest Rawang (Ridley 7349). It is known as K'luet.

From *K. caudata,* King this differs in the larger leaves and shorter petiole, the almost sessile flowers, the ovate bracts.

TERNSTROEMIACEAE.

Adinandra parvifolia, n. sp.

A big tree. Leaves ovate narrowed at the base coriaceous, apex obtuse or rounded glabrous, upper surface pustulate minutely, nerves 8 pairs indistinct above, nerves and reticulations conspicuous beneath, midrib prominent 1½ to 2 inches long ½ to 1 inch across petiole ¼ inch long. Flowers large ½ inch across, axillary on long peduncles ½ to nearly 1 inch long. Sepals orbicular pustular coriaceous edges ciliate. Stamens numerous silky. Pistil glabrous.

Perak: Larut Hills, the Cottage (Ridley 5236).

Really I think nearest *A. macrantha,* but the leaves are much smaller than any other species known to me, and ovate sometimes almost obovate.

DIPTEROCARPEAE.

A number of species have been added to this order since the publication of the Materials, among which are

Shorea barbata, Brandis Journ. Linn. Soc. XXXI. p. 81. This is one of the trees known here as "Resak," and produces a high class timber. It has rather small ovate lanceolate coriaceous leaves with a dense greyish yellow pubescence beneath and long lax panicles of grey buds. The flowers are small with 20-30 anthers bearded at the tip. The pistil is woolly also. This plant has only been collected in Malacca at Batang Malaka by Goodenough (No. 1789) and the fruit is as yet unknown. It is allied to *S. ciliata,* King.

S. gibbosa, Brandis lc. 99. Is a lofty tree with brown rough bark. The large branches are peculiar in dilating at the base into a kind of triangular boss of large size, as if they were putting out buttresses. The leaves are 4 inches long and two inches across, glabrous dark green and rather thin in texture ovate acuminate. The flowers are small and pink in few flowered secund racemes. The sepals are woolly, the petals glabrous inside and woolly

outside. Stamens ten. The fruit not described by Brandis is elongate nearly cylindric with a short point half an inch long ¼ inch through and covered with a fine silky wool; the wings are 5, the three outer ones 2½ inches long narrowed at the base and gradually dilated upwards to the rounded tip where they are ¼ inch wide, the 3 inner ones are shorter and narrower 2 inches long, all covered with thin wool.

I have only seen a single tree of this fine Dipterocarp. It grows in the grounds of Rogie, Tanglin on the side of the Garden road. It is distributed under the numbers 6079, 6686.

Sh. rigida, Brandis Icones, Plantarum Tab. 2402.

This is a lofty tree, with rough dark bark on the branches which are covered with lenticels and when young with a kind of scarf also. The shoots are enclosed in bright pink bracts which make the young plants showy. The leaves are large rather stiff 6 inches long or more, quite smooth above, beneath the nerves are much raised, and it is dotted all over with little woolly warts from which on the midrib spring single rather stiff hairs. The flowers are white in clusters on short branches of a loose panicle about 6 inches long, are themselves ¼ inch long, with a silky calyx and oblong petals very silky outside and glabrous within. It has 50 stamens with nearly circular anthers. The fruit is ovoid hardly half an inch long the wings are bright red quite glabrous, linear 4 inches long and half an inch wide, (the inner ones 2 inches long and only half as wide), hardly dilated at all for their whole length, finely marked with longitudinal ribs and transverse bars. This fine tree grows in the Garden Jungle (No. 6393) and I met with it too at Perhentian Tinggi (No. 10053). It fruits abundantly and comes up readily.

ANISOPTERA.

Only one species of *Anisoptera* is recorded in the Materials. There are however three kinds known here *A. Curtisii,*

King, easily distinguished by its narrow leaves bright yellow beneath.

A. costata, Korth. Verh. Nat. Gesch. Bot. 67. t. 6. A gigantic tree with large buttresses and rather pale colored bark. Leaves oblong coriaceous with a broad base blunt, glabrous above with close yellowish brown tomentum beneath, nerves numerous close set about 25 pairs, and reticulations distinct beneath, 4-6 inches long and 3 inches wide, petiole 1½ very rough. Panicles axillary and terminal 6 inches long covered with scurfy wool in tufts. Flowers ¼ inch long yellow. Sepals lanceolate acuminate densely pubescent. Petals glabrous lanceolate acuminate mucronate. Fruit globular 1 inch through, tomentose, wings two very large 7 inches long 1½ inch wide slightly narrowed at the base and dilated a little upwards rounded at the tip, with three strong nerves running the whole length and numerous transverse bars the other three wings about 3 inches long very narrow with only 2 main nerves. The whole fruit is light brown. Some magnificent trees of this fine plant grow in the Garden Jungle (Distrib. No. 6684) and in Dalvey ground. The leaves in sunlight have a striking coppery yellow appearance specially conspicuous when wind blows. I have it also from Batu Tiga in Malacca collected by Holmberg under the name of Mersawar Ular. It was originally described from South East Borneo. I believe it is the chief source of the timber commonly known as Mersawar which is in quality like a rather inferior Meranti.

A. glabra, Kurz. Flor. Fl. Brit. Burmah i. 112.

A fine straight tree running to 100 feet high, with dark brown bark. Leaves lanceolate acuminate base rounded quite glabrous about 3-6 inches long and 1½ inch wide. The flowers are small and pubescent. The fruit globular, about ¼ inch through with linear wings narrowed slightly at the base 3½ inches long and ⅓ inch wide with three strong ribs and transverse bars. It occurs in the Garden Jungle (No. 6886 fruit).

Malacca: Selandor (Holmberg 841), and Merlimau (N. Cantley), Machap (R. Derry 1166), and is known as Mersawa Merah. It is also a native of Burmah.

Cotylelobium flavum, Pierre Fl. For-Cochinch. fasc. 16 t. 258a.

This is one of the Plants known here as Rassak. It seems to be rare here as I have only seen it from Sungei Morai in Singapore (4630 and 3619a of my collections) and it is not recorded in King's Materials. It has stiff lanceolate leaves quite smooth and polished above and covered with a soft short grey tomentum of minute stellate hairs, the nerves are almost invisible without a lens. The flowers are very numerous in short panicles all covered thickly with stellate woolly hairs about $\frac{1}{5}$ inch long. The fruit which I have not seen is described as tomentose globular the two large wings free to the base 2 inches long, blunt, the other three linear lanceolate acute and only $\frac{3}{4}$ inch long. It is also a native of Sarawak.

Hopea globosa, Brandis l.c. 61. This is based on a plant collected by Wray, at Thaiping, Perak. The only type specimen I have seen is a poor one but I have collected fruiting specimens of a tree rather small for this genus at Chua Chu Kang, in Singapore (No. 6585) and have also received it from Rantau Panjang, in Selangor under the name of Chengal Paya. The leaves are ovate acuminate 4 inches long, rather coriaceous with the nerves prominent on the back. The fruit in Wray's specimen seems young—it is pubescent and does not show the true wing veins. In the others, adult, there are 7 distinct nerves and the wings are glabrous. The large wings are broad and elliptic half an inch wide, the small ones quite small and rounded. Flowers of this tree are much wanted.

Vatica ovalifolia, n. sp.

Tree. Leaves ovate acuminate thinly coriaceous base rounded, apex acuminate obtuse glabrous, nerves 6 pairs prominent, reticulations fine and conspicuous, 7 inches

long 4 inches wide, petiole ½ inch long. Panicles lax on the ends of branches about 6 inches long, branches 2-3 inches long, silvery scurfy pubescent. Flowers ½ inch long. Sepals ovate acuminate pubescent $\frac{1}{10}$ inch long. Petals lanceolate obtuse narrowed to the base, backs pubescent, inner surface glabrous, half an inch long ⅕ inch across. Stamens very short fifteen. Anthers oblong, cells very unequal, connective very short prolonged, filament shorter than the anther dilated at the base. Ovary minutely pubescent, style stiff conic ribbed, stigma capitate papillose. Fruit not seen.

Province Wellesley: Nibong Tebal (C. Curtis 3458).

Vatica Lankaviensis, n. sp.

Leaves elliptic or elliptic lanceolate obtuse base cuneate, coriaceous glabrous nerves 8 pairs prominent on both surfaces closely reticulate on the back, pale in color when dry, lighter on the back 3-5 inches long 1½-2 inches wide, petiole ½ inch long. Panicles axillary and terminal lax spreading 4-6 inches long, branchlets angled covered with stellate tomentum, pedicels $\frac{1}{10}$ inch long. Sepals fleshy ovate triangular quite blunt, densely tomentose, $\frac{1}{12}$ inch long. Petals spirally twisted thick drying black oblong obtuse half the back covered with stellate tomentum inside glabrous ⅖ inch long. Stamens 15 very short, outer whorl much shorter than inner ones. Anthers nearly sessile oblong, cells subequal, connective prolonged into a short reddish blunt point longer than the filament, ovary hairy style short thick glabrous, stigma capitate.

Lankawi: Kwah (Curtis 3410).

Vatica Kelsalli, n. sp.

Tree. Leaves coriaceous glabrous lanceolate obtuse nerves about 5 pairs conspicuous beneath, finely and closely reticulate beneath, above dull or slightly shining beneath pale 5 inches long 1-2 wide, petiole half an inch. Panicles axillary and terminal 2-3 inches long, branches numerous short scurfy tomentose. Flowers numerous small white ⅙ inch long or shorter thick peduncles. Sepals lanceolate obtuse scurfy. Petals little longer ob-

tuse, scurfy. Stamens 10 very short, anthers elliptic, prolongation of connective very short rounded. Pistil glabrous, style short stout, stigma flattened obovate.

Johore: Kwala Sembrong (Kelsall 4064).

TILIACEAE.

Elaeocarpus rigida, n. sp.

Tree, bark of branches dark colored. Leaves coriaceous elliptic ovate cuspidate margins obscurely crenulate apex obtuse base shortly cuneate quite glabrous, but pustulate nerves 5 pairs elevate on the lower surface, reticulations conspicuous 4 inches long 2 inches wide petiole rather stout 1½ inch long. Racemes axillary from below the leafy portion 2-2½ inches long. Flowers white, on peduncles ⅕ inch long tomentose. Sepals 5 triangular lanceolate pubescent $\frac{1}{10}$ inch long. Petals 5 as long, cuneate laciniate pubescent not glandular. Stamens 15 margins shorter than the petals, filaments very short, anthers linear, with a small tuft of white hairs on the tip. Torus a shallow lobed grey tomentose cup, ovary ovoid grey tomentose. Style longer glabrous.

Singapore: Bukit Timah (Ridley 4949, 3641).

The stiff glabrous leaves are peculiar in this plant. The petals are much laciniate the primary lobes divided into 2 or more filaments. The torus is curiously undulately lobed.

STERCULIACEAE.

Sterculia elongata, n. sp.

Shrub about 10 feet tall, with brown bark. Leaves simple alternate oblong linear acuminate obtuse base slightly narrowed or not, margins entire parallel straight or undulate, glabrous subcoriaceous 6 to 12 inches long 2 inches wide, nerves distinct on the lower surface 18 to 26 parallel meeting in loops ⅕ inch from the margin, petiole ½ to 1½ inch long, thickened at the apex. Raceme 6 inches long from the upper leaf axil lax about 14

flowered, rachis shortly hairy. Pedicels ½ inch long. Flower pubescent tube campanulate ⅕ inch long, lobes linear hairy jointed by the tips $\frac{3}{10}$ inch long. Androecium shorter than the tube glabrous, sessile, anthers eight. Female flowers unknown. Carpels 5 when spread open elliptic ovate cuspidate 2 inches long 1 inch wide red pubescent externally. Seeds 4 in each carpel, subglobose.

Singapore: Bukit Timah, Bukit Mandai, Chan Chu Kang (Ridley); Malacca: Bukit Kandong (N. Cantley's coll.).

The long narrow leaves with curiously undulate margins in some specimens, and very numerous nerves with the large flowers distinguish the plant from any known to me.

Sterculia Lancaviensis, n. sp.

Small tree, deciduous producing its flowers in the dry season when the leaves are fallen, bark grey corky wrinkled. Leaves grey when dry obovate apex rounded glabrous with 5 pairs of ascending nerves 3½ inches long 1½ inch wide, petiole ¼-½ inch long. Flowers in short lax panicles much branched and about 1-1½ inches long on the ends of the nude branches stellate pubescent. Male perianth campanulate ⅛ inch long, lobes lanceolate linear obtuse hairy along the edges. Stamens six in a globose capitulum on a filament as long as the tube. Females perianth campanulate with ovate lobes, ⅕ inch long, lobes very short scabrid pubescent inside glabrous with 12 strong raised veins, stamens 5 sessile in a small globose tuft.

Lankawi islands: Kwah (Ridley), Terutau (Curtis 3414).

Apparently nearest to *S. bicolor* but with different leaves, and not pubescent beneath, as I can see no pistil. I imagine it has been eaten off by something.

Sterculia pubescens, Masters Fl. Brit. Ind. i. 357.

A large tree. Leaves ovate to elliptic rounded at the tip or abruptly cuspidate base rounded, coriaceous glabrous above drying pale 4 inches long 2½ inches wide,

beneath densely rufous tomentose with hairs stellately arranged, nerves about 8 pairs, 4 inches long, 2½ inches wide, petiole densely rufous hairy about an inch long. Panicles 6 inches or more long rufous-tomentose, with numerous short branches half an inch or less long. Flowers very small densely tomentose, $\frac{1}{10}$ inch long. Calyx campanulate cleft half way into 5 short ovate acute lobes hairy on both surfaces. Male androecium small the length of the tube, filaments slender nearly as long as the tube, anthers 8 in a globose mass. Females not known. Carpels 4 ovate shortly beaked, when expanded outside densely tomentose, inside densely hairy, 2 inches long and 1¼ inch broad. Seeds 4 black.

Penang: Waterfall (Curtis 2762); Lankawi: Terutau island (Curtis) fruits.

I take this to be the very imperfectly known and described *pubescens,* Mast., based on a specimen collected by Maingay in "Malacca" but probably in Penang. The fruiting specimens from Terutau seem to me to be identical as far as I can see with the Penang one which is in flower.

Sterculia hispidissima, n. sp.

Shoots covered thickly with rough red hairs. Leaves crowded at the ends of the branches elliptic or oblong entire with a broad truncate base, shortly cordate, blade dilated a little in the middle, and slightly narrowed to the cuspidate tip, texture rather thin, above covered with scattered rough pale hairs, and on the nerves and reticulations small stellate tufts of hairs, distant, beneath more thickly covered with stellate hairs and long rough hairs; midrib densely tomentose with stellate hairs, and numerous pale rough hairs interpersed, 4 to 6 inches long, 2-3 inches wide, nerves 7-10 pairs petioles half an inch long red hairy. Panicles numerous crowded at the ends of the branches 6-8 inches long densely rough hairy, branches short 1 inch or less with few short slender branches hairy. Flowers ⅓ inch long tube campanulate as long as the linear ciliate lobes. Androecium one third

as long as the tube, anthers 8. Female flowers and fruits not seen.

Selangor: Ulu Gombak (Burn-Murdoch No. 153).

I have a sheet of this curious *Sterculia* in Cantley's collections made about 1885, with a Singapore ticket on it but no locality, and recently Burn-Murdoch sent it from Selangor. It is remarkable for its great hairiness being covered with two kinds of hairs, one long slender pale, the other velvety hairs in small tufts..

BURSERACEAE.

Trigonochlamys grandifolia, n. sp.

A tree, leaves over a foot long, the petiole 4 inches long or less, densely covered with red tomentum, leaflets opposite three pairs and a terminal one, elliptic obtuse or cuspidate, base rounded or shortly cuneate, margins denticulate, stiffly coriaceous, above glabrous beneath covered with red tomentum, nerves 12 pairs strongly elevate beneath with elevated transverse nervules petiolules $\frac{1}{4}$ inch, densely red tomentose as is the rachis, leaflets 6 inches longer less 2 inches wide. Panicle shorter than the leaves. Male about 6 inches long, female shorter, all densely red tomentose, with few short branches. Flowers crowded, sessile half an inch long. Male flowers on longer panicles than the females. Calyx campanulate half an inch long with deltoid acute lobes 3, $\frac{2}{5}$ inch across, very coriaceous and densely red hairy. Petals 3, as long thinner lanceolate obtuse, back centre hairy, margins glabrous. Stamens 3 glabrous filaments free to the base, anthers lanceolate connivent. Disc annular setose. Female flowers rather larger and fewer. Calyx and corolla as in the male. Stamens shorter than the style, ovary conic densely tomentose, style stout. Fruit unknown.

Singapore: Bukit Timah (Ridley 10735) male without locality (Cantley) female.

One species only of this genus has been as yet described, *Tr. Griffithii,* a tolerably common tree. This

new species is very distinct in its large hairy leaves, and big flowers with only three stamens. In habit it has quite the appearance of a *Canarium* such as *C. rufum*, but has the large flowers of *Trigonochlamys*.

MELIACEAE.

Aglaia salicifolia, n. sp.

A shrub or small tree, glabrous except the inflorescence. Leaves 6 inches long, with 5 leaflets, rachis glabrous, leaflets nearly sessile narrowly lanceolate acuminate at each end equally coriaceous glabrous nerves invisible above, 12 pairs, ascending slightly elevate beneath 4 inches long ½-¾ inch wide. Panicle 6 inches long or less with slender branches, and short branchlets. Rachis scaly, branches and pedicels scurfy. Flowers $\frac{1}{20}$ inch long globose yellow on pedicels longer than themselves. Sepals 5 very short ovate scurfy. Petals 5 oblong much longer glabrous. Staminal tube oblong free glabrous. Anthers moderately large. Style none. Stigma capitate large. Fruit elliptic nearly ½ inch long glabrous on the thickened panicle.

Pahang: Tahan River (Ridley 2660). "Poko Tado Ikan."

I considered this at first as probably what Miquel intended by his *A. Diepenhorstii*, but on comparing it with the description I conclude that it is distinct in the size and shape of the leaves, very characteristic on this plant, and other minor points.

Aglaia rufa, Miq. Ann. Mus. Lugd. Bat. IV. 49.

Stems densely covered with thick red stellate hairs. Leaves a foot or more long, (probably very large) petiole stout 6 to 9 inches long densely red hairy, leaflets 4 pairs sessile oblong cuspidate subherbaceous, covered with scattered stellate hairs on both sides and crowded on the midrib 4-6 inches long 3 inches wide. Panicles shorter than the leaves much branched densely hairy 6-12 inches long in the axils forming a dense mass. Flowers minute

shortly pedicelled. Sepals 5 ovate acute, with one or two tufts of stellate hairs longer than the flowers. Petals 5 smaller orbicular glabrous. Staminal tube free semi-globose, 5 anthers, glabrous.

Malacca (N. Cantley). "Tambu Gulong" timber used for beams, and the fruit is edible sweet."

I have seen no other specimens of this curious species, remarkable for the dense covering of red hairs stellately arranged all over it, no leaves on the two sheets are complete, so I cannot give the exact size.

Walsura villosa, (Wall. Cat. 1264) Dec. Prodr. p. 636.

Leaves under 6 inches long, leaflets five elliptic acuminate, 3-5 inches long 1½ inch wide, thinly coriaceous pale glabrous shining above glaucous beneath when dry, nerves 6 pairs slender, petiolule ⅖ inch long, rachis triquetrous. Panicles 14 inches long minutely pubescent lax, branches 1½ inch long with the branchlets crowded at the top. Flowers shortly pedicelled ¼ inch long. Calyx lobes 5 ovate acute pubescent. Petals longer about twice as long oblong pubescent. Stamens 10 nearly free to the base, filaments broad linear hairy. Anthers on the tips rounded pubescent. Ovary silky hairy.

Perak: at Kamuning (Ridley 3022).

This plant which is not recorded in the Materials for a flora of the Malay Peninsula, is a native also of Tenasserim.

OCHNACEAE.

Gomphia corymbosa, n. sp.

A shrub 6 to 8 feet tall or a small tree about 20 feet tall. Leaves oblong coriaceous to lanceolate subacute 4-4½ inches long 1-1½ inches wide dark shining green, petiole ⅕ inch long. Umbels on the ends of short branches many and dense flowered, one inch to nearly 2 inches across. Bracts oblong ovate coriaceous convolute round the base of the pedicel $\frac{1}{10}$ inch long obtuse. Pedicel ¼ inch long slender. Flowers ¼ inch across pure white. Sepals oblong obtuse apex broad deflexed. Petals linear obtuse much narrower. Stamens 6-9, fila-

ments short. Anthers longer oblong. Ovaries 5. Styles short. Carpels obovate reniform. *Gomphia Hookeri*, var. *corymbosa*, King Mat. Fl. Mal. Pen. Vol. I. 475.

Singapore: Top of Bukit Timah (Ridley 10738); Perak: Goping (King's Coll. 4673).

Gomphia Hookeri is a shrub frequenting sandy places near the sea, with deep crimson flowers in small umbels. This plant is as regards the Singapore plant at least, (the type) a tree frequenting forests, with larger umbels of smaller pure white flowers.

Euthemis minor, Jack Mal. Misc.

This was described by Jack from specimens found in Singapore with the common *E. leucocarpa* Jack, but though I have met with it in Pulau Batam and King records it from Bangka, it appeared to have become extinct in Singapore, I was therefore very pleased when on visiting the banks of the river at Chua Chu Kang to find a quantity of this pretty plant growing with *E. leucocarpa* in the sandy woods above the river. King's description of it is very poor. He merely mentions that its leaves are obscurely veined, a difference which is hardly noticeable in the living plant, and that the leaves are nearly entire, and the berries red. These he gives as distinguishing points, but the berries of *E. leucocarpa* are as often red as white, varying from white to rose and rose to deep red. Jack's description is fuller and gives the points of this plant well. It is smaller and more prostrate than *E. leucocarpa* with dark brown bark. The leaves are more distant and much smaller 3 to 4 inches long 1¼ wide or even smaller narrowly lanceolate dark green above and paler beneath, the petiole is winged to the base as in *leucocarpa* but much less distinctly so. The surface of the leaves is quite smooth and though the thickened edge is serrate the minute thorns which arm the teeth are very inconspicuous and often not developed at all. The panicle is very distinct. It is much longer than the leaves, nearly 6 inches long and quite lax, hardly branched, the flowers being mostly in pairs, with green

lanceolate persistent bracts ¼ inch long. The flowers, open one in each pair at a time, after which the pedicel elongates somewhat so that the young fruit of one pair is well developed before, the second flower is open. The sepals are ovate ciliate, $\frac{1}{10}$ inch long, green, becoming pink as the fruit ripens and fallen before the fruit is ripe. The whole flower is smaller than that of *E. leucocarpa*. The petals are linear oblong white, and the stamens much resemble those of that species. The ovary is brighter green and conic but angled, while that of *leucocarpa* is nearly white and quite smooth and rounded. The fruit is quite different. It is strongly five angled, and this is most conspicuous before it is ripe and when still green, but when fully ripe the angles are still visible and the top of the fruit nearly flat and very dark red, not at all resembling the globose round topped fruit of *E. leucocarpa*. The plant grew in some abundance in one spot in a sandy wood, where *E. leucocarpa* (some plants of which attained a height of over six feet) was plentiful, and *Dipteris Horsfieldii* formed a large thicket. It was probably more abundant in Singapore at one time as it is not probable that Jack reached this part of the island which must in his time have been quite inaccessible. There is no evidence of its occurrence in Penang as mentioned by Hooker in the Flora of British India.

SAPINDACEAE.

Capura pulchella, n. sp.

Shrub little branched about 6 feet tall. Leaves with 4 or 5 leaflets, elliptic lanceolate coriaceous dark green, nerves inconspicuous 8 pairs, 6 inches long or more 3 inches across, petiolule $\frac{1}{10}$ inch long; petiole 3 inches long. Stipules ovate obtuse 2 inches long 1½ inch wide, all glabrous. Racemes slender 6 inches long, with distant flowers about 20, glabrous. Bracts minute lanceolate acuminate 1 mm. Peduncles very short thick each bearing 1 or 2 flowers. Pedicels $\frac{1}{10}$ inch long. Sepals 4

ovate rounded glabrous reflexed cream color with minute red spots as long as the pedicels. Petals oblong obtuse larger margins ciliate creamy straw color, 4. Stamens 8, filaments short white ciliate cylindric. Anthers longer elliptic flattened yellow, pollen yellow. Disc annular cushioned, rose pink surrounding the stamens and pistil. Pistil small, ovary free, conic stigmas 2 pink. Cells 2, ovales 2. Fruit drupaceous 1-2 seeded, at first red thin black.

Borneo: Kudat (Ridley).

This pretty shrub, I found some years ago near the sea in Kudat, and have had in cultivation in the Botanic Gardens since. It is quite attractive with its sprays of yellow flowers and red fruit, and its curious stipules. The petals are rather peculiar in shape. They are minutely clawed at the base with a short cylindrical claw. The lamina projects inwards just above forming a small sac at the base.

C. Hullettii, n. sp.

Branches slender dark when dry. Leaves simple, lanceolate acuminate with a long point rounded at the tip, slightly narrowed at the base quite glabrous, nerves 6 pairs conspicuous beneath, 5 inches long 2 inches wide, petiole 1 inch long swollen and geniculate for about half its length. Stipules ovate rotundate to orbicular cordate at the base and shortly petioled, coriaceous half an inch long. Panicles very lax 3-4 inches long with few branches 2 inches long or less. Flowers on pubescent peduncles $\frac{1}{4}$ inch long. Sepals 4 small $\frac{1}{20}$ inch long ovate acute pubescent. Petals 4 $\frac{3}{10}$ inch long linear oblong stellate pubescent. Stamens 8, filaments very short glabrous. Anthers oblong apiculate. Disc small annular glabrous. Ovary conic pubescent, style cylindric glabrous with a conic stigma with several minute lobes, much longer than the stamens.

Malacca: Mt. Ophir (Hullett 781).

The genus *Capura* was based upon a Philippines plant, *C. pinnata,* Blanco (*C. nigrescens,* Villar) to

which both these species seem allied. The genus *Otophora,* Bl. has been added to *Capura* but there seem to be sufficient characters to keep them separate.

AMPELIDEAE.

Vitis (Ampelacissus) floccosa, n. sp.

A slender-stemmed vine of the habit of *V. gracilis,* stems covered with loose red felted tomentum. Leaves entire ovate cordate acute, 2 to 4 inches long and as wide, margins entire except for glands at the ends of the nerves, above glabrous (black when dry) beneath covered with dense red tomentum thickly felted, beneath punctate, nerves about 5 pairs, reticulations beneath conspicuous, petiole 1 inch long densely covered with red tomentum. Stipules small caducous. Tendrils slender unbranched glabrescent. Inflorescence very slender about 8 inches long, peduncle 2½ inch long, branches distant ½-1 inch long, slender usually simple, with few 12-14 very small distant flowers. Rachis tomentose, flowers sessile $\frac{1}{20}$ inch long. Calyx saucer-shaped short obscurely toothed glabrous. Corolla oblong obtuse glabrous much longer, tetramerous. Stamens rather large 4. Ovary hemispheric. Berry oblong rounded glabrous ½ inch long when dry, seeds 3 boat-shaped $\frac{3}{10}$ inch long, back convex, with a faint channel down the centre, front acutely angled, all minutely pustular.

Johore: Gunong Pulai (Ridley 3714).

This plant is allied to *V. gracilis* differing in its dense felted tomentum.

ANACARDIACEAE.

Swintonia Robinsonii, n. sp.

Tree, branches dark colored. Leaves stiffly coriaceous lanceolate subobtuse narrowed slightly at tip and base, nerves about 15 pairs not very conspicuous 6 inches long 2-2¼ inch wide, petiole 1½ inch long, dark colored. Panicles short in flower about 3 inches dilating later to

about 6 inches. Peduncles and pedicels angled, grooved pubescent when young. Bracts small caducous, ovate edges pubescent. Pedicels shorter than the flowers. Sepals rounded ovate pubescent especially on the margins much shorter than the petals. Petals oblong lanceolate obtuse glabrous outside, pubescent on the inner face, ⅛ inch long. Stamens 5 filaments slender glabrous shorter than the petals. Anthers ovate. Ovary subglobose glabrous. Fruit small, as big as a pea, petals ¼ inch long.

Pahang: Gunong Tahan (Robinson 5391).

In working over the study set of the Gunong Tahan plants in the British Museum, I only saw fruiting specimens of this tree but in specimens of other sets I was fortunate enough to find flowers, so I herewith describe it, as it seems to be distinct from any other species. The fruit appears to be nearly full size and is very small for the genus. The leaves are not pale colored underneath, as in most species, and the petals are pubescent within. This species is most closely allied to *S. puberula,* Pears. of Bujong Malacca, in Perak, differing in its larger leaves with fewer veins, and its petals glabrous outside, and less pubescent angled pedicels.

Campnosperma oxyrrhachis, Engl. Anacard. 319. Of this plant only the leaves have apparently ever been described, and I have seen no type, but the plant to be described below has been identified many years ago at Kew as *C. oxyrrhachis* and the leaves resemble the description given, so I propose to describe the inflorescence, and habit.

A small straight tree not rare in open country, among thickets but seldom flowering, little branched. Leaves oblanceolate winged completely to the base, margins undulate apex cuspidate gradually narrowed to the base, epetiolate 15 inches to 3½ feet long 4½-7 inches wide, above glabrous shining when dry, nerves over 30 pairs fine and not very conspicuous above, elevated beneath reticulations conspicuous numerous beneath, back

of leaf closely scurfy, midrib semiterete elevated. Panicle large terminal much branched, branches often over 18 inches long slender lax spreading, hairy with short rough hairs. Flowers small green in short cymes. Bracts small linear hairy. Calyx lobes rounded ovate pubescent 5. Petals valvate oblong obtuse glabrous 5. Stamens 5 shorter than the petals, glabrous, anther elliptic. Pistil conic ovoid hairy.

Malacca: Low ground near Ophir (Hullett); Pahang: Tahan River (Ridley 2569), Kwala Lipis (Machado).

The original description was from a plant obtained in Sumatra at Tarentang by Miquel who described it as *Buchanania oxyrrhachis,* Fl. Ind. Bat. Suppl. I. 524. It will be noticed in the description I have given above that the midrib can hardly be called "acutangled," even at the tip, below it is distinctly rounded and often grooved. I believe I have seen it very commonly all over the low country of the Peninsula, but it very rarely is met with in flower and I have never seen fruit.

Semecarpus glomerulatus, n. sp.

Bark grey. Leaves obovate apex rounded base narrowed to the petiole, margin undulate, coriaceous glabrous above, beneath nerves and reticulations covered with short red hairs, nerves about 10 pairs, meeting in arches at the margin reticulations numerous and prominent visible on both surfaces but most elevated beneath 4-8 inches long 2½-5 wide petiole pubescent ¼-½ inch long thick. Panicle 8-12 inches long with numerous spreading branches 4 to 6 inches long, rachis closely valvety pubescent. Flowers in distant glomeruli very numerous $\frac{1}{10}$ inch across. Pedicels very short pubescent. Calyx shallow with 5 very short lobes, pubescent. Petals 5 glabrous ovate lanceolate subobtuse valvate. Stamens 5 filaments slender about as long as the petals glabrous. Disc broad flat fleshy hairy in the centre.

Lankawi: Pulau Nior Stali (Curtis 3681).

SABIACEAE.

Meliosma elegans, n. sp.

A small tree 20 to 30 feet tall branches black when dry. Leaves unequally pinnate 6-8 inches long leaflets opposite 3-5 pairs, lanceolate acuminate base cuneate 2 inches long 1 inch wide glabrous except for a few fugacious reddish hairs on the petiolule and midrib, petiolule ¼ inch long. Panicle lax a foot long, with distant long slender branches 6 inches long or less branchlets 1-2 inches. Flowers subsessile small pink fragrant. Rachis everywhere covered with scattered red hairs. Calyx lobes narrow lanceolate obtuse 4 or occasionally 5 margins ciliate. Petals glabrous 5 outer ones orbicular, inner ones narrow oblong hooded. Stamens 3 glabrous, hooded with a bilobed rounded cup surrounding the anther. Pistil conic pubescent narrowing to a slender style. Fruit small pisiform with a low keel running on one side ¼ inch through.

Selangor: above the Gap, Gunong Semangkok 3-4000 feet alt. (Curtis 3754).

I cannot match this elegant plant with any described species.

Meliosma monophylla, n. sp.

Leaves simple elliptic acuminate with a rather long blunt point, narrowed to the base, thin in texture glabrous shinning, the nerves slender 7 pairs usually visible above meeting in arches near the margin, length 6 to 8 inches, width 3 to 3½ inches; petiole slender thickened at the base 1½ to 2 inches long. Panicles axillary or terminal 2 to 3 inches long with a slender peduncle about an inch long glabrous, branches few except in the terminal one, and short. Flowers $\frac{1}{10}$ inch long shortly pedicelled. Sepals 5 suborbicular, unequal, margins ciliate. Petals 5, three orbicular glabrous, 2 smaller irregular. Stamens 2 fertile. Anthers decurved with a rather wide connective 3 irregular sterile, lobed, adnate at the base to the petals. Ovary conic glabrous.

Perak: Hermitage Hill (Ridley) a single specimen collected in 1892.

Very distinct from any species known to me is its thin textured simple leaves and general glabrous habit, the flowers too are fewer and larger than usual.

MELASTOMACEAE.

Anerincleistus pauciflorus, n. sp.

Much branched shrub about 6 feet tall, stems terete. Leaves elliptic ovate acuminate winged on the petiole glabrous above and beneath except a few hairs on the midrib, 7 inches long 3 inches wide, 5 nerved, with straight parallel transverse conspicuous nerves, petiole 1 inch long, winged in the upper part covered with rough pale hairs as are the young parts. Flowers 2 or 3 in a small raceme terminal on a very short peduncle. Bract hairy ovate acuminate obtuse $\frac{1}{4}$ inch long. Calyx lobes fleshy linear, hairy $\frac{1}{10}$ inch long. Petals ovate acute bright rose pink margins minutely ciliate. Stamens 8 equal and similar filament flat linear narrowed at tip glabrous pink. Anthers longer hardly sagittate base of cells rounded, acuminate upwards opening by terminal pores, glabrous with a pair of short processes or warts rising from the base of an oblong thickened connective. Style thick cylindric. Capsule $\frac{1}{4}$ inch long thickly roughly hairy splitting above into 8 linear lobes.

Selangor: Klang Gates almost out of flower, Aug. 1908.

A much bigger plant than *A. macranthus,* King, with hairy calyx tube and with the capsule valves splitting into 8 linear lobes. From *A. hirsutus,* Korthals, it differs in the very short inflorescence the large bract and the dehiscence, and larger more glabrous leaves.

Ochthocharis ovalifolia, n. sp.

A shrublet branched with pale bark young parts covered with dark red curly hairs. Leaves opposite ovate acute or acuminate base rounded, margin crenulate with

short thorn-like processes, nerves 5 from the base, transverse bars conspicuous beneath above glabrous except on the midrib at the base, beneath pale, the nerves and reticulations covered with curly red wool, 1½-2½ inches long 1¼ inch wide, petiole red woolly ½ inch long or less. Panicle short terminal, with few short branches and few flowers, red woolly at the nodes. Bracts oblong $\frac{1}{10}$ inch long, glandular hairy. Calyx ⅛ inch long, campanulate with short lanceolate triangular lobes, edged with gland tipped hairs. Corolla. Petals 5 lanceolate acuminate ending in a short hair-like mucro. Stamens 8 all similar filaments moderately stout, anthers as long linear oblong obtuse, with a solitary glandular boss at the base on the back. Ovary glabrous, style stout nearly as long as the petals, stigma capitate. Fruit capsular, subglobose, sepals ciliate, top hardly elevate nearly flat, dehiscence apparently irregular, ⅕ inch long. Seeds numerous fawn colour cuneate truncate at the top, raphe thickened conspicuous.

Johore: in dense swampy woods at Sedenah Aug. 1908 (Ridley).

The normal number of stamens in this genus are 10 but I could only find 8 in the flower I examined. The plant was almost out of flower, at the time, and the flower might not be normal. The small usually ovate leaves closely toothed, small panicle, and rufous hairs on the young parts distinguish it from other species.

BEGONIACEAE.

Begonia paupercula, King.

I have not seen the type of this species nor is there any record further than Perak as to where the original plant was obtained, but there is a small species of *Begonia* abundant at the Kwala Lumpur caves, which I think may be intended by this description. The plant however described from dried specimens only differs somewhat from King's description and thus I describe the Kwala Lumpur

plant from the living plants brought from the caves, where it grows abundantly. A small succulent herb with a creeping not swollen rhizome, four to 6 inches tall; the stem pinkish, completely glabrous except for a few glandular hairs on the edges of young leaves, and some scattered processes, (trichomes) on the upper surface. Leaves ovate acuminate blunt cordate at the base unequally bilobed, nerves 5 to 7; 4 inches long 2¼ to 3 inches wide, polished light green, or in some plants darker with white spots, petiole 2 to 3 inches long pinkish. Peduncle 3 inches long, with a side branch and small leaf about halfway. Cyme terminal small, and few flowered. Bracts lanceolate white with red veins. Male flowers. Sepals 2 orbicular ovate obtuse, retuse or entire white with red nerves, ¼ inch long. Petals 2 smaller, spathulate white retuse. Staminal column globose. Anthers subglobose not apiculate. Female flower ½ inch across. Sepals and petals 6 or 7 very unequal, 4 obovate white lined with red, the others narrower subspathulate white. Styles 2 separate from near the base yellow. Fruit with three unequal wings, two short one long oblong subtriangular blunt half an inch long.

On Limestone rocks Caves near Kwala Lumpur.

It will be noticed that King's *B. paupercula* differs in description in the absence of petals in the male, and apiculate stamens, and the larger number of perianth lobes in the female.

Begonia clivalis, n. sp.

Small succulent herb, with a short rhizome 4 to 8 inches tall. Stems red pubescent hairy, once or twice branched above. Leaves orbicular ovate to ovate cordate, lobes nearly equal, tip rounded thin textured, margin undulate with few short teeth, above and beneath covered with stellate hairs, main nerves 7, spreading from the leaf base 1-3 inches long, ¾ to 3 inches wide. Petiole $\frac{1}{10}$ -2 inches long, densely stellate hairy. Inflorescences 3, lax few flowered 2-4 inches long pubescent. Bracts lanceolate $\frac{1}{10}$ inch long. Male flowers on slender pedicels

½ inch long. Sepals 2 ovate rounded, ⅛ inch long. Petals 2 narrower and shorter obtuse linear oblong. Stamens in a globose head rather few. Anthers subglobose not apiculate. Female flowers sepals 2 oblong red. Petals nearly as large 2, white. Styles 3 separate nearly to base. Stigmas curved capitate. Fruit capsule red three winged, ¼ inch across, 2 wings short triangular, one longer triangular obtuse.

Selangor: Klang Gates on sandy banks, Aug. 1908 (No. 13523); Pahang track (Ridley 8591).

A pretty dwarf begonia with bright red stems and nerves of leaf, allied to *B. Forbesii*, King. The Pahang track plant is rather stouter and less hairy, but I think is the same.

RUBIACEAE.

Xanthophytum rupestre, n. sp.

A little shrub about 6-8 inches tall branched stems slender light brown densely covered with long silky appressed, and somewhat felted hairs pale brown. Leaves obovate to ovate acuminate acute at both ends, subcoriaceous glabrous dull green above densely white felted beneath, nerves ten pairs prominent beneath, reticulations beneath conspicuous, 1-2 inches long ¾-1 inch wide petiole very short ⅛ inch long. Stipules as long as the petiole ovate acuminate. Inflorescences axillary, panicled of two branches, scorpioids. Flowers 10 in a panicle, all woolly. Pedicels very short peduncle none. Calyx lobes 5, triangular acute deep green. Corolla ¼ inch long white woolly hairy, tube narrow at base then abruptly dilated, lobes 5 short ovate mucronate, tube hairy both within and without. Stamens 5 included, adnate to the tube, with very short filaments. Anthers oblong yellow, with a short mucro at the tip. Style included, rather stout. Stigma oblong large, stigmatic surface yellow, capitate transversely grooved. All glabrous, disc annular black. Fruit ⅙ inch long cylindric-turbinate felted

2 celled, with numerous angular seeds on an axile placenta. Seeds reticulate dotted brown angular.

Loc. Selangor at Klang Gates, a quartzite dyke alt. 600 feet, flowering August 15, 1908 (Ridley No. 13414).

The genus *Xanthophytum* is based on a plant discovered in Java by Reinwardt and is allied, if indeed it can be considered distinct to *Lerchea* also a Javanese plant. There are two or three species of the genus recorded, one or two from Java, one from Borneo and one from the Society islands. I have seen none of these species, but this plant is evidently (from description) allied to *X. fruticulosum*, Miq. of Java. Its most important difference lies in the position of the stamens, which are not adnate to the base of the corolla, but in the mouth of the corolla. In this it most resembles *Lerchea*. But the whole habit of the plant is different from that genus and more resembles that of *Xanthophytum*.

The locality in which I found this curious little plant is of some interest. It consists of a large dyke of quartzite attaining a height of over 1000 feet above sea level. This altitude the short time at my disposal did not permit me to ascend, and the plant was actually gathered on a lower part of the ridge at about 600 feet above sea level. The ridge is of no great width at this point, and is precipitous on both sides. The soil is somewhat peaty and scanty, the rocks projecting bare in many parts. In the crevices of the rock the plant was growing. The whole ridge is very dry, and was exceptionally so at my visit as rain had not fallen for more than a week. Many of the trees and shrubs were out of flower, but the *Xanthophytum* was in good bloom. The lower part of the upper ridge was covered with bracken, *Pteris aquilina*. Above where the soil was more scanty was abundance of the grass *Eriachne Chinensis* very characteristic of dry spots. I saw no other grass there. *Boeckia frutescens* in flower, as a low shrub, was abundant. This is common at high altitudes in dry spots all over the Peninsula, usual-

ly at 3000 feet and upwards, and is stated to be a sea shore plant in Tringanu and near Sandakan. *Rhodoleia championi* was in fruit. This is also a mountain plant, which I have never seen at a lower altitude than 3000 feet. *Cibotium Barometz* and *Oleandra neriiformis* grew under the shade of this and other trees; the latter being also a characteristic fern of our higher hills at 3000 feet altitude. There were a number of other trees of stunted growth on the ridge, none of which were in flower or fruit, but they had all the facies of the trees and shrubs of such hills as Mt. Ophir, and Kedah Peak at 4000 feet elevation. The most conspicuous and abundant plant however was *Pogonanthera pulverulenta,* a common plant occurring as an epiphyte in the low country, in mangrove swamps, and on lofty trees in the forests and often establishing itself when fallen from a tree, on the ground in dry exposed spots and also met with on rocks and trees in the higher hills.

The flora of this ridge may therefore be considered truly xerophytic, and totally different from the flora of the Batu Caves limestone district at no great distance and from the forests of the Kwala Lumpur environs.

Chasalia pubescens, n. sps.

A bush about 5 feet tall much branched, stems soft glabrous when adult, lower internodes about 4 inches long. Leaves herbaceous lanceolate acuminate caudate narrowed to the base, primary nerves about 8 pairs looping within the margins, above glabrous beneath paler, sprinkled all over with pubescence, the keel, nerves, and petiole densely pubescent, 6-7 inches long, 2-2½ inch wide, petiole ¼-½ inch long. Stipules $\frac{1}{10}$ inch long ovate obtuse pubescent. Cyme compound dense, short 1 inch long, pubescent, pale rosy white. Flowers small sessile in small heads. Calyx short cup-shaped $\frac{1}{15}$ inch long with 5 short teeth; pubescent. Corolla $\frac{3}{10}$ inch long, pubescent except at the base tubular curved, lobes fleshy short, linear hooded obtuse, hairy outside glabrous within. Stamens 5 glabrous, anthers linear not cordate rather

large, filaments short. Style slender bifid nearly to the base, ovary glabrous cylindric oblong depressed at the top, a little taller than the calyx lobes.

Johore: in woods at Sedenah, hardly out in Aug. 1908. The flowers are white the buds tinted at the tip with lilac.

This species is very distinct from *C. curviflora* in its pubescence and congested flower heads.

ORCHIDEAE.

Microstylis nemoralis, n. sp.

Stem fleshy purple cylindric creeping ascending, 6 inches long. Leaves ovate acuminate, 4 to 9 red, base rounded, five nerved, 3 to 4 inches long, 2 inches wide. Raceme 5 inches tall, base nude, rachis angled, with a few 2 or 3 linear, narrow bracts ¼ inch long. Flowers ¼ inch across, fairly numerous, close together. Sepals elliptic broad rounded at the tip, strongly reticulate nerved when dry, lower ones broader than the upper ones. Petals linear obtuse narrow, all red. Lip orange-yellow, broad with broad rounded auricles, limb obovate rounded almost quadrate, apex broadest with two rounded angle-lobes, and 5 acute teeth between. Column small pale.

Johore: at Sedenah in wet mud between tree-roots, in a dense wet forest, August 1908.

A very distinct and pretty plant, with the elongate stem of *M. micrantha* but with much larger leaves and flowers. Among Scortechini's drawings is a pencil sketch of a *Microstylis* which I think is intended for this plant. It is labelled *M. plantaginea* by Sir Joseph Hooker, but is not what I take to be the plant he so named in the Flora of British India of which there is another drawing of Scortechini's so labelled.

Liparis Brookesii, n. sp.

Rhizome short, pseudobulbs ¾ inch long ¼ inch through at the base, subcylindric but base dilated, covered with loose pale ovate sheaths acute ribbed with 8 to 10

ribs. Leaf solitary lanceolate narrowed to the base 3½-4½ inches long 1 inch wide thin textured many nerved, acuminate. Scape lax flowered 1 foot long slender base nude for 4 inches except for 2 or 3 linear, acuminate bracts ¼ inch long. Flowers remote about 7. Bracts linear acuminate narrow ¼ inch long. Pedicel slender half an inch long. Sepals linear oblong ¼ by $\frac{1}{10}$ inch long obtuse. Petals very narrow linear. Lip orbicular entire margins minutely crenulate, half an inch long and wide, callus at the base oblong obtuse indented and excavate in the front so as to appear double. Whole flower pea green with a darker spot at base of lip. Column graceful ¼ inch long with rather long low wings.

Borneo: Sarawak on limestone rocks at Bidi (C. J. Brookes).

The nearest species to this plant is I think *Liparis tricallosa* Rchb. fil. of the Sulu Archipelago. It differs in its laxer spike coloring of the flowers and orbicular lip with the very different callus. The callus is rather difficult to describe. It has the appearance of being formed by two portions of nerves picked up into a short elevated part, with a depression in front where the veins had begun to bifurcate.

Dendrobium (§ Desmotrichum) crenicristatum, n. sp.

Branches fairly stout $\frac{1}{10}$ inch through, internodes an inch long yellowish green, pseudobulbs linear oblong flattened grooved yellowish green 3 inches long, ⅖ inch wide, leaf lanceolate, 8 inches long 1½ inch wide coriaceous. Bracts lanceolate acute papery ¼ inch long. Pedicel slender. Sepals reddish ¼ inch long lanceolate acuminate acute mentum horizontal cylindric acuminate yellow half an inch long. Petals narrow lanceolate acuminate acute. Lip base narrow linear, lateral lobes decurrent free, points short triangular lanceolate; midlobe, claw very short, limb dilated oblong ovate subacute, margins undulate and crenulate, with short rounded lobules; keels 2 running from the tip base to the apex nearly as tall as the side lobes, straight to the

midlobe where they are strongly undulate; base of lip pink, limb apricot colored. Column rather tall, with broad pale wings flanking the stigma, anther quadrate large.

Borneo: Sarawak, Quop (Hewitt).

Most nearly allied to *D. roseo-punctum* Ridl. rather conspicuous for the long mentum, and the broad stelidia.

Dendrobium Lankaviense, n. sp.

A slender plant with a tuft of slender stems, thickening slightly upwards, and often branched, above 8 inches long and as thick as a crowquill, red when young, and grey when old, lower internodes an inch long. Leaves narrow lanceolate acuminate acute, 1½ inches long, ¼ inch wide. Flower solitary from the nude stem, on a pedicel of half an inch long covered porrect. Sepals ovate lanceolate obtuse ½ inch long, ⅕ inch wide; mentum curved slender acuminate blunt little more than half an inch long. Petals elliptic obtuse a little broader than the sepals ¼ inch across, all rosy mauve. Lip entire obovate oblong, spathulate retuse claw narrow nearly ½ inch long, base of lip and claw white with a patch of pink dots in the centre, limb bright mauve. Column mauve, wings near the stigma thickened undulate. Stelidia small ovate obtuse. Anther rounded skull-shaped rounded in front, mauve.

Lankawi islands, sent by Mr. Fox, and flowered in the Botanic Gardens Singapore in October, 1908.

This pretty little plant is allied to *D. Eoum* Ridl. and *D. hymenanthum* Hook. fil. From the latter it differs in its narrower petals and sepals shorter and more slender stems and in the colour of its flowers.

Bulbophyllum (§ Sestochilus) Hewittii, n. sp.

Rhizome rather slender $\frac{1}{10}$ inch through, pseudobulbs narrow cylindric 2 inches apart 2 inches long. Leaf lanceolate acute narrowed a little at the base 5-6 inches long 1½-2 inches wide, thinly coriaceous. Peduncles slender 5 inches long, with 1 or two sheaths below, one flowered. Bract ¼ inch long oblong cuspidate. Flower

large. Upper sepal lanceolate caudate 1½ inches long ¼ inch wide, lower ones similar 2 inches long, rather wider than upper one, mentum about half an inch long rounded. Petals lanceolate long caudate an inch long. Lip large fleshy half an inch long. Ovate acuminate cuspidate base deeply cordate with rounded lobes. Column broad thick squared, stelidia large triangular. Anther ovate hardly beaked crested with a papillose ridge.

Sarawak: Mt. Poe (J. Hewitt).

Allied to *B. galbinum,* Ridl. but one flowered and with a very different lip and more caudate petals. The color is not given but the lip has some purple in the centre and as the color of the dry flower is pale it is probably yellow.

Bulbophyllum (§ Cirrhopetalum) ruficaudatum, n. sp.

Rhizome slender with many roots, pseudobulbs very small subcylindric ⅛ inch long half an inch apart. Leaf fleshy elliptic, obtuse 1½ inches long ½ inch wide narrowed at the base into a short thick petiole $\frac{1}{10}$ inch long. Scape very slender, filiform 5 inches long with a few scattered sheaths. Flowers 6 in a half whorl, red. Bracts lanceolate acuminate $\frac{1}{30}$ inch long, red, pedicles very slender twice as long. Upper sepal ovate cuspidate caudate with a filiform point margins ciliate, lower sepals very narrow linear free nearly to the base red over half an inch long. Petals lanceolate acuminate brown ciliate nearly as long as the upper sepals. Lip yellow fleshy papillose lanceolate acute, base emarginate, and sides elevated leaving a groove at the basal part. Column short with small setaceous stelidia.

Sarawak: Kuching (Hewitt).

Allied to *B. psittacoides,* Ridl., but with different pseudobulbs, and setaceous stelidia.

Eria (§ *Bractescentes*) *aurantiaca,* n. sp.

Pseudobulbs cylindrical thick green 1-2 inches long an inch or more through, when dry and flattened ovoid. Leaves 2 or 3 coriaceous linear oblong deep green 2-5 inches long ½ inch wide, obtuse. Raceme erect 3-5 inches

long, many flowered. Bracts linear oblong persistent lower ones ½ inch long orange. Flowers about 12, orange color, pedicels slender half an inch long. Sepals narrowly lanceolate acuminate ½ inch long, lower ones broader at the base with a short broad mentum as long as the ovary. Petals linear acuminate shorter and narrower than the upper sepal. Lip narrower shorter, side lobes rounded oblong obtuse, disc narrow with three strongly elevated undulate keels, the centre one lowest till near the base of the midlobe when it becomes thicker and taller, midlobe longer than sidelobes fleshy ovate oblong obtuse, entirely covered with sinuate keels and warty protuberances. Column short. Clinandrum with wide thin margins. Anthers large elliptic thin obtuse, divided into two thinwalled cells with a ridge in the middle.

Sarawak: Kuching (Haviland) and Moulton (1909).

A very distinct plant of the Bractescens series in its completely orange colour and its curious lip.

Coelogyne (§ *Chelonostele*) *phaiostele*, n. sp.

Pseudobulbs crowded, flattened curved narrowed upwards, elongate many ridged, yellow or greenish yellow, 2 inches long, ¾ inch wide at the base, ¼ inch at the top, hardly half an inch through. Leaves 2 lanceolate 8 inches long 1 inch wide gradually narrowed into the petiole apex acute, slightly coriaceous dark green, when young the edges keel, and 2 veins red, petiole yellow terete 4 inches long. Leaves when young enclosed in 4 lanceolate flesh colored sheaths at the base. Scape from between the leaves 12 inches long subterete, raceme 2 inches or more, joints flexuous. Bracts lanceolate pinkish subacute half an inch long, flattened distichous. Flower small pedicel about ½ inch slender. Sepals ovate lanceolate obtuse ¼ inch long white, with a pale green medium vein outside and speckled with ocreous scales. Petals narrow linear as long. Lip little longer than sepals, pandurate, side lobes linear falcate short, midlobe rotundate bilobed, base narrowed, all yellowish white,

two low ridges running from the upper angles of the lip to the centre of the midlobe. Column deep mahogany brown, foot green forming with the base of the lip a sac, the mouth partly covered with the sideflaps. Stelidia rather long linear curved, crest (margin of clinandrium) rather tall rounded crenulate, with 2 longer processes at the sides. Anther cap broad triangular flat yellow, beak short upcurved. Rostellum tooth-like. Stigma large orbicular.

A living plant in flower of this was brought me in June 1909 by Mr. Lewis who obtained it from Mt. Poe in Sarawak, Borneo. What appears to be identical was obtained by Mr. Hewitt on Santubong Mountain, and by Dr. Haviland in the same place. In Mr. Hewitt's plants the raceme has fully developed to a length of over a foot long and closely flexuous. He describes the sepals as light red brown. Column similar but deeper. Petals and lip pale yellow. I am not sure that the saccate portion at the base of the lip does not rather belong to the lip than to the column foot it is difficult to see where the column-base ends and the lip begins.

This plant would doubtless have been referred by Pfitzer to his genus *Chelonostele* but it seems almost impossible to break up the genus *Caelogyne* in the way he has done with any satisfaction. His genera run into each other with so many connecting links.

Saccolabium fimbriatum, n. sp.

Stem moderately stout over three inches long. Leaves linear lorate retuse with subacute points and a short mucro between 6 inches long, half an inch wide coriaceous-fleshy pale green. Raceme slender 5 inches long, base nude flowers few about 6 distant small. Pedicels slender $\frac{1}{4}$ inch long. Bracts very short ovate obtuse. Sepals elliptic obtuse $\frac{1}{10}$ inch long, apices rounded, yellow with a brown central line. Petals elliptic subacute similarly colored. Lip trilobed side lobes broad rounded oval, margins crisped yellow with a brown centre, midlobe linear narrow channelled, apex

decurved with short yellow processes pink, upper callus decurved tooth-like, spur curved cylindric as long as the lip, half portioned. Column broad stout with a broad shallow clinandrium and broad blunt stelidia. Anther ovate beaked, distinctly 2 celled. Pollinia semi-globose on a long curved club-shaped pedicel, disc very small, rounded. Rostellar lobes short rounded. Capsule oblong linear triquetrous $\frac{3}{4}$ inch long $\frac{1}{5}$ inch wide.

Sarawak at Quop (Hewitt Oct. 1908 No. 104).

Nearest to *S. rostellatum,* Ridl. in habit but very peculiar in the lip fringed with short yellow processes both on the side and midlobes. The pedicel of the pollinia is longer than usual and rib-shaped.

Saccolabium adenoncoides, n. sp.

Stem curved 4 inches long. The leaves about nine very fleshy linear acute grooved above shining dark green $1\frac{1}{2}$ inches long $\frac{1}{16}$ inch through (when dry). Sheaths transversely rugose. Flowers small solitary dull yellow green, axillary with a few ovate bracts on the short peduncle, which is $\frac{1}{10}$ inch long rather thick and angled. Sepals lanceolate narrow subacute. Petals narrower. Lip entire saccate cup-shaped with a short acute beak, and a ridge running down from it outside. Capsule elliptic $\frac{1}{4}$ inch long.

Borneo: Kuching, and Quop (Hewitt).

This has just the appearance of *Adenoucos virens,* Bl. at first, but the lip instead of being flat is saccate, much the form of *Saccolabium minimiflorum,* Hook. fil. with which the plant appears to be allied. It really seems a connecting link between the two genera *Saccolabium* and *Adenoncos.*

Sarcochilus anceps, n. sp.

Stems pendulous over a foot long flattened ancipitous. Leaves coriaceous $2\frac{1}{2}$ inches long, $\frac{3}{4}$ inch wide oblong obtuse keeled, sheaths flattened sharp edged at the back an inch long. Racemes shorter than the leaves, extruded from the base of the leaf, peduncle 1 inch long, solitary or in pairs. Flowers three or four on a slightly

thickened rachis. Bracts very small appressed ovate. Pedicels half an inch. Sepals ovate obtuse ½ inch long ⅕ inch wide, upper one narrower oblong obtuse. Petals shorter oblong ovate ⅓ inch long. All reddish flesh color (salmon color). Lip shorter and smaller ⅕ inch long base slightly saccate, side lobes as long as the whole lip falcate acuminate, midlobe rounded with a retuse boss at its base, base of side lobes and apex of lip scarlet, passing into yellowish red towards base of lip, with two red spots at the base inside, tip of side lobes white. Column white short with a foot nearly as long. Anther small orbicular ovate with a minute beak. Clinandrium shallow, rostellum very short. Pollinia 4 lobed, upper lobe elliptic, lower smaller, pedicel small cuneate, disc minute ovoid.

Johore: Tebrau River fl. H. B. S. Feb. 1909.

A very distinct and pretty plant very unlike any other *Sarcochilus* in the flattened stem, and salmon colored flower with bright red lip. It flowered in the Botanic Gardens, Singapore.

Dendrocolla multicolor, n. sp.

Stem short 1 inch long. Leaves about 5 terete subacute 4 inches long, $\frac{1}{10}$ inch through dark green. Scapes slender purple 2-4 inches long including raceme, which is thickened and 1 inch long. Bracts crowded short fleshy ovate blunt boat-shaped green. Pedicel slender purple nearly half an inch long. Sepals orange colour oblong spathulate narrowed at the base ⅓ inch long. Petals obovate oblong, apex rounded orange with pink spots. Lip orbicular spathulate with a linear claw, and orbicular obovate limb rounded entire orange with red spots flat, calli violet large, two fleshy linear, obtuse, and two central smaller claw violet with two orange bands. Column tall orange oblong deeply channelled in front. Anther whitish deeply lobed on the top, broad very shortly beaked. Pollinia ovoid pedicel broad and short square, disc small linear. Capsule linear sausage-shaped 1 inch long, ⅛ inch through.

Borneo: Sarawak, Kuching (Hewitt Oct. 08).

This species is most nearly allied to *D. fulgens,* Ridl.

Dendrocolla pulchella, n. sp.

Stem very short hardly half an inch long. Leaves 4 fleshy oblong obtuse purple about half an inch long, a quarter of an inch wide. Scape slender 1½ inch long purple. Spike ¼ inch long terete with ovate acuminate acute recurved bracts dark purple. Flower ⅕ inch across pedicel short. Sepals ovate subacute broad deep purple. Petals oblong obtuse connivent with the upper sepal deep purple. Lip bright yellow sac rather long obtuse, side-lobes broad rounded, between them at the apex a dense mass of clubbed white hairs, running up on the disc on a broad flat keel. Anther cup round retuse in front white, pollinia semi-elliptic on an ovate disc. Column rather long for the genus widening downwards. Capsule linear an inch long.

Borneo: Sarawak, Kuching (Hewitt) fl. Sept. 08.

A very small species allied to *D. trichoglottis* but with smaller deep colored flowers.

Habenaria Hewittii, n. sp.

Stem 2 feet tall leafy. Leaves oblanceolate acuminate glabrous narrowed to the base, many nerved, margin minutely undulate 12 inches long 2½ inches wide, upper sheating leaves lanceolate, acuminate subulate over an inch long. Raceme lax about 14 flowered. Bracts lanceolate cuspidate half an inch long, $\frac{1}{10}$ inch wide. Ovary and pedicel 1 inch long. Upper sepal galeate ¼ inch long. Lower sepals ovate falcate deflexed. Petals linear narrow. Lip trifid to near the base with three linear lobes obtuse subequal longer than the sepals, spur slender clubbed towards the apex half the length of the ovary. Column processes long.

Borneo: Sarawak (Hewitt 1908). There is no special locality given with the single specimen.

This plant seems to be most nearly allied to *H. salaccensis,* Lindl. of Java, and is the biggest *Habenaria* I have seen from Borneo.

SCITAMINEAE.

Globba (*Ceratanthera*) *debilis*, n. sp.

Stem slender, whole plant 2 feet tall. Basal sheaths spotted with violet. Leaves narrow lanceolate acuminate cuspidate glabrous, nearly ½ inch wide about 8 in number, ligule short fringed with hairs. Panicle very slender and weak with 7 or 8 short, 1 flowered branches, ¼ inch long. Bracts very small lanceolate acuminate. Calyx tube short turbinate 3 lobed, lobes mucronate; $\frac{1}{10}$ inch long. Corolla tube twice as long, lobes ovate rounded obtuse, upper one hooded, bright orange, as long as the tube. Staminodes narrow linear oblong paler. Lip short obovate apex rounded shortly bilobed, or retuse yellow with a brown central spot. Filament ¾ inch long, anther cells elliptic, with a single subulate spur at the base as long as the ovary.

Borneo: Sambas River, Keelong (Brookes).

Near *G. panicoides* Miq. in some points and in general appearance, but the short round lip and the long slender spurs from the very base of the anther make it very distinct from any species known to me.

Gastrochilus violaceus, n. sp.

Leaves 2 or 3 together, rather fleshy smooth dull dark green above, central line pale beneath pale, nerves inconspicuous 3 to 5 inches long 1½ inches wide, ovate obtuse, petiole 1 inch long. Spike short of many flowers, from the leaf axil, 1 inch long subsessile. Bracts lanceolate acuminate. Bracteole lanceolate acuminate with a long point ¾ inch long glabrous thin. Calyx tubular with 2 long acute teeth ⅜ inch long white. Corolla tube cylindric slender creamy white ⅜ inch long, lobes narrow lanceolate acute white ¼ inch long. Staminodes erect little more than half as long linear subacute broader than the petals. Lip spathulate claw with sides raised linear, limb obovate oblong emarginate little more than half an inch long and $\frac{3}{10}$ inch wide, violet with a central-primrose yellow bar, edged with minute glandular

hairs as are the staminodes. Stamen white half as long as the dorsal sepal, filament broad pubescent. Anther short oblong, crest very short truncate obscurely 3 toothed shorter than the style.

Cultivated in the Botanic Gardens, Singapore from plants supplied by T. D. Pereira, Fl. Oct. 1908. It is believed to be from Padang, Sumatra. Something of the habit of a *Kaempferia* with flowers of *Gastrochilus*. The violet coloring of the lip is unusual in that genus.

Gastrochilus hirtus, n. sp.

Stem short covered with hairy sheaths. Leaves 2 obovate oblanceolate subobtuse mucronulate, much narrowed to the base 6-7 inches long 2 inches wide, about 6 pairs of nerves conspicuous glabrous petiole and sheath 3 inches long hairy densely. Spike central, subcylindric thick 2 inches long. Bracts lanceolate cuspidate with long acuminate points thickly hairy. Floral bracts lanceolate cuspidate 1 inch long densely hairy. Calyx ½ inch long ribbed hairy. Corolla white, tube slender cylindric over an inch long hairy, lobes lanceolate obtuse ¼ inch long hairy. Staminodes narrower acute. Lip hardly longer oblong obovate entire apex truncate, shortly toothed. Stamen crest ovate rather small, entire.

Borneo: Sarawak, Tiang Layu (J. Hewitt).

"Flowers pale white, lip with some red centrally." Nearest perhaps to *G. Curtisii,* Bak., but the flowers are much smaller.

Gastrochilus bractescens, n. sp.

Stem woody creeping with long wiry roots. Leaves numerous lanceolate long petioled, obtuse acuminate at the base, blade 5 inches long 1 inch across, petiole 3 inches long, base 2 inches sheathing with a narrow sheath margin. Inflorescences axillary on erect peduncles 1 inch long, at first obcuneate 1 inch long of 4 branches each half an inch long subtended by convolute lanceate obtuse bracts. Bracts at length spreading an inch long ⅓ inch wide, enclosing the spikes. Flowers numerous in the spikes small white. Bract to spike oblong obtuse

ribbed. Floral bracts small. Calyx tubular rather thick 3 lobed lobes short obtuse, split shortly on one side as long as the corolla tube $\frac{1}{5}$ inch long. Corolla tube thick, lobes linear oblong obtuse longer than the tube. Staminodes narrower linear oblong. Lip short obovate more fleshy entire. Anther linear oblong with a quadrate crest 3 toothed shortly at the tip.

Borneo: Lundu (Foxworthy 42).

Zingiber flavidus, n. sp.

Stem slender 2 feet tall. Leaves remote ovate lanceolate acuminate glabrous thin narrowed at the base a very little 4 inches long $1\frac{1}{4}$ inches wide, hardly petioled, ligule very small truncate, sheath narrow. Inflorescences radical. Peduncle slender 6 inches tall $\frac{1}{5}$ inch through covered with elongate sheaths glabrous. Spike fusiform acuminate 3 inches long, all yellow. Bracts oblong rounded at the tip, 1 inch long half an inch wide, striate glabrous. Bracteole lanceolate linear obtuse $1\frac{1}{2}$ inches long by $\frac{1}{16}$ inch wide, hairy. Calyx spathaceous, hairy, apex rounded blunt. Corolla tube slender, 1 inch long lobes lanceolate acute, $\frac{1}{2}$ inch long. Lip lanceolate acute entire bright yellow. Anther elliptic broad fawn color, beak shorter.

Sarawak: Quop (Oct. 1907) (J. Hewitt).

Allied to *Z. gracilis* but with yellow bracts.

Alpinia (§ *Cenolophon*) *microlophon,* n. sp.

Leaves lanceolate caudate, base acuminate softly hispid on both surfaces, more densely on the midrib on both sides and the edges, 13 inches long $2\frac{3}{4}$ inches wide petiole $\frac{1}{4}$ to nearly 1 inch long, ligule lanceolate obtuse half an inch long, hairy (glabrescent in older leaves) sheath reticulate nearly glabrous. Panicle 4 inches long (or more, incomplete) densely roughly yellow hairy, branches short 2-3 flowered hairy, $\frac{1}{2}$ inch long. Bracts spathaceous hairy, with a three lobed limb, lobes short tooth-like. Calyx shorter, $\frac{1}{2}$ inch long goblet shaped, base narrowed gradually dilated upwards, very shortly 3 lobed with rounded lobes, all hairy. Corolla tube rather slender

¾ inch long, hairy lobes oblong obtuse ½ inch long ¼ inch wide hairy outside glabrous within. Lip ½ an inch long, base narrow, thin widely obovate rounded, margins undulate crisped, nearly ½ inch across. Staminodes $\frac{1}{10}$ inch long oblong truncate shortly 2 toothed. Stamen longer than the lip, filament thin flat. Anther thick and fleshy with two thick pustular ridges along the back, connective prolonged into a short thin oblong crest with three short teeth. Style a little longer, stigma cup-shaped.

Sarawak: Upper Sarawak River (Sept. 08, C. J. Brookes).

"White red streaks and blotches." A curious species in its very hairy panicle and petals, and broad lip. The thick ridges on the back of the stamen are also unusual.

Donax parviflora, n. sp.

Stems rather short. Leaves ovate acute often inæquilateral 3-6 inches long 2½ to 4 inches wide glabrous except for a fringe of long hairs along the midrib on the back on each side, nerves very close and conspicuous when dry. Inflorescence short, branches few 3 to 6 inches long pendulous, slender hairy, especially on the nodes. Bracts linear lanceolate acuminate ribbed ½-1 inch long, sparsely hairy. Flowers very small white. Ovary small silky hairy. Calyx lobes lanceolate $\frac{1}{10}$ inch long glabrous not ribbed. Corolla tube half as long, lobes lanceolate subacute 5 nerved ⅕ inch long. Staminal tube short, outer staminodes narrower linear oblong. Lip oblong truncate margin crisped, keel triangular large. Stamen linear with the anther on the edge, connective not prolonged. Cucullus broad hatchet-shaped lobed. Fruit globose, hairy with few scattered hairs, seeds 2, ⅕ inch long, inner face flat, outer one convex curiously warted, with five rows of 4 rounded bosses, with a depression round each.

Perak: at Ipoh (Ridley 11931); Pahang: Kwala Tembeling (Ridley 2402), Pulau Tawar (2401) and Pasir Loyang all on the Pahang river; Selangor: Woods at the base of the Batu Caves, flowering in August.

This the fifth species of this genus, is distinguished by the small size of the flowers, the extremely short corolla tube only parallelled in *D. virgata* of Ceylon and the two seeded fruit.

Schumann in *Actoplanes Ridleyi* describes the fruit of that species exactly like the fruit of *D. parviflora,* but the rest of his description applies to *Donax grandis* which has only one globose smooth seed.

In habit the plant resembles *D. grandis* but is very much smaller rarely attaining a height of six feet, and with smaller leaves, and shorter erect or suberect panicle, and the flowers are much smaller with a shorter tube.

Stachyphrynium parvum, Ridl. In describing the little *Stachyphrynium minus* in the Materials for a flora of the Malay Peninsula (monocotyledons) II. 59, I overlooked the fact that the specific name had already been used, for a Siamese species described by Schumann in the Pflanzenreich, I therefore substitute the name *Stachyphrynium parvum* for it.

I found the plant in immense abundance in Sedenah forests in Johore in August covering the ground thickly in large masses, but there were no signs of flowers or even of inflorescence.

PALMAE.

Pinanga arudinacea, n. sp.

Stems tufted, several together on a short rhizome elevated on stilt-roots four feet in height, $\frac{1}{8}$ inch thick, the internodes an inch long, rings narrow elevated. Leaves simple bilobed with widely divaricate lobes seven inches long, 2 inches wide, acuminate, or (lower leaves) three to four lobed, lobes $\frac{3}{4}$ inch across, linear acuminate; petiole 3 inches long, sheaths slightly swollen, purplish. Inflorescence from the axils of fallen leaves patent. Spathe linear oblong, boat-shaped mucronulate 2 inches long. Compound spike 3 inches long with three or four spreading branches, the middle one the longest. Rachis terete red. Flowers cream-white in distant pairs or soli-

tary spirally arranged $\frac{1}{8}$ inch long. Male flowers. Sepals short ovate, blunt. Petals ovate fleshy obtuse. Stamens 6. Anthers elliptic broad narrowed upwards white, filaments very short. A central tumour represents the abortive pistil. Female flowers. Fruit globose half an inch through scarlet crowned with a small circular stigma, pulp thick tasteless. Seed $\frac{1}{2}$ inch long, $\frac{1}{6}$ inch through fusiform, narrowed more to the base, light brown with numerous close longitudinal ribs.

The specimen from which this pretty palm was described was given to me some years ago by Bishop Hose who had had it in his garden for some years. He procured the plant at Lundu it is believed, in Sarawak, Borneo. It flowered on being planted in a shady place in September 1908, and set fruit in the following February. It is perhaps most remarkable for its globular fruit and narrow fusiform seed.

AROIDEAE.

Cryptocoryne minima, n. sp.

A very small plant with a rather stout root stock an inch long emitting copious roots, and stolons. Leaves ovate to ovate lanceolate subacute base broad rounded not cordate 1 to $1\frac{1}{2}$ inch long $\frac{3}{4}$ to 1 inch wide, dull green bullate above purple beneath, petiole 2-$2\frac{1}{4}$ inches long, sheathing at base. Spathe sessile very small tube dilate at base, then cylindric slightly narrowed white $\frac{1}{2}$ inch long, limb ovate oblong $\frac{1}{4}$ inch long dull yellow spotted with brown. Capsule obovoid purple half an inch long.

Perak: at Tapah, in a muddy patch by the tin mine, covering the mud with its prostrate leaves.

This very small species is remarkable for the minute, curiously spotted spathes which is very difficult to see. It was only by hunting over the patch plant by plant that it was possible to find them. The fruit is really larger than the spathe and borne on a slightly longer pedicel, that of the spathe being so short that it is almost sessile, I know no species as small as this little plant.

A Letter of Instructions from the East Indian Company to its Agent, circ. 1614.

With Notes by W. G. MAXWELL.

Among the Cottonian manuscripts in the British Museum is a letter of instructions from the East India Company to its principal agent in the East India.

The manuscript consists of nineteen pages and is registered as "Cottonian Manuscript, Otho E. VIII. ff. 231-240 (ink foliation)." There is no date to the letter, but Mr. W. Noel Sainsbury the editor of the "Calendar of State Papers, Colonial Series, East Indies, China and Japan 1513-1616" assigns to it, with a query, the date 1614. In this case the addressee would be John Jourdain, who was in that year the East India Company's principal agent in the East and who resided at Bantam, some sixty miles north of the present city of Batavia.

It will be noticed that in the manuscript there is a reference to the date 1620 as the date of Raja Api's death. This, if correct, would of course make the date suggested by Mr. Sainsbury impossible. I think however that there can be no doubt that 1620 is a slip of the pen for 1610. In one of the notes which I have appended to this article, I show that the account of Raja Api is identical with that given by Peter Williamson Floris, who gives the date as 1610. Floris was one of the merchants of the company's seventh voyage in 1611, and the writer of this letter [which gives such "descriptions and intelligences as he has been able to gather from the advises given by the company's factors"] almost certainly had Floris' letter before him.

This manuscript was partially destroyed by fire in 1731, some three lines being consumed at the head of each leaf. The recurring omissions in the transcript mark the places.

The thanks of the Society are due to Mr. G. F. Warner, Keeper of Manuscripts, for permission to take a copy of this letter which is now for the first time published.

I have prepared some brief notes of the places, people and things specified in the letter. These are given in alphabetical order in an appendix.

This manuscript appears to me to be interesting in two respects; firstly not so much on account of its contents as for its purport to contain all that was then known in England of this part of the world. Indeed when one sees that the letter was written in 1614, more than a century after the Portuguese had been in occupation of Goa and Malacca, it seems astounding that the Directors of the East India Company (which had been founded some fourteen years before the date of this letter) should have so little information to give their principal agent in the East. The reason that there is no reference to Goa, Malacca or any other Portuguese possession is, of course, that the British could not trade there.

The document is interesting in a second respect as showing how small a place in the early aims of the Honourable East India Company, India itself occupied. In later years the Company so much confined itself to India that one is apt to think of India and the Company as co-extensive.

But India at one time stood for nearly everything outside Europe, Africa, and Asia Minor. Thus Marco Polo wrote (A. D. 1298). "India the greater is that which extends from Maabar to Kesmacoran (i.e. from Coromandel to Mekran) and it contains thirteen great Kingdoms. India the Lesser extends from the province of Champa to Mutfili (i.e. from Cochin-China to the Kistna Delta). Abash (Abyssinia) is a very great province and you must know that it constitutes the Middle India."

To this day each country calls by the name of India that part of this vast area that it has acquired for itself: thus India to us means British India, to the French it means Pondicherry, to the Portuguese it means Goa, and to the Dutch it means the magnificent possession of Netherlands-India. The West Indies were so called because Columbus imagined that he had discovered a new route to the "Indias" by sailing West instead of

East; and the word "Indian," of which "Red Indian" is the best known form, has been applied (so it is said) by discoverers to almost every tribe from the Esquimaux to the Patagonians.

Of course one knows, but perhaps hardly realizes, that when the East India Company started operations it did not own a foot of land in India. It was really the task of making India British that withdrew the operations of the East India Company from the vast area of the East India, with which it first set out to trade, to the comparatively restricted area of British India.

[British Museum. Cotton. MS. Otho E. VIII, ff. 131-240 (ink foliation.)

N.B. The MS. was burned in the fire of 1731—possibly about three lines at the head of each leaf being consumed—hence the recurring omissions in this transcript.]

.....ecting thereof, advised you to goe (?) .....you may from place to place for the..... thereof: Wee have since Notwithstanding [f] allen (3) into the consideration of the great want wee shall contynuallie haue of your presence in the places where most of our shippes are to be laden and where you shall thinck it most convenient to settle the place for our principall Rendeuowes which wee still perswade our selues wilbee Jacatra whither all our shippes both from England and elswhere should touch and take from you their directions, to bee ymployed vnto such places as shall seeme best vnto you, by advise you shall receaue from our other ffactories adviseing them what returnes you desire, aswell for England as for other places and ffactories abroade to whose commaund with the advise of your Counsell both our Captaines and ffactors shalbee subiect vnto; both for staying,

remooveing or settling in such place and places as you and your Councell shall appoinct that by emulation one with annother they may by their industrie, discouer the Trade, giue you large information, redress such euill Custome as they finde gather goodes together to dispatch the shippes richly and speedilie to you againe to looke yt their charges beenot excessiue and that they send their accompts and Copies of their Bookes orderlie vnto you contynuallie, where wee wishe you to haue a speciall Care for the pervseing Comptrolling or allowing of the accompts and soo post them ouer vnto your generall bookes. And as often as you shall thinck itt expedient, that the Factor himself come to giue vpp his said Accompts ffrom which place of Jacatra or Banta both for your healthes sake as otherwise wee would not haue you goe vnles itt were for some extraordinarie and waightie occasion and so allowed by your Councell: ffor by the Contynuall coming of our shippes from England, of the Pinnaces from the Indies, and the giueing good orders for goodes to bee in a readines for the reladeing of our shippes in tyme for all places you shall..... .....from you that.....nd not finding the gouerment as it ought.....take order therein, either remooueing such.....psons, and putting others in their places, or ells to redresse their faults according as the matter requireth, of which his proceeding hee is afterwards to make an vpright report to you, whereby you may bee of all thinges well Informed, both in the poinct of Trade, the Charges gouerment, and all other matters, and by your good care, industrie with mildnes, keepe all in subiection. Likewise that you hereby may take Care ouer the victualls and provizions of our shippes that come out and goe for England, to take accompts of them howe the same is spent and what may bee spared to take a shoare for the provizion of other shippes and the Pinnaces that tarrie in the Countrie.

And for the better gouerment of all the ffactories we hould itt fitt you Choose four principall places where the cheife persons ought to bee resident vizt.

Surratt, Coromandell, Bantam, Patania, to which principall persons in those foure places you may giue Name of Agents, Directors Consulles or such like. The gouerment of him in Surratt should stretch ouer all the Countrie of the great Mogore as Surratt it self Cambaia, Barocha, Amadauar, Agra, Lahor and the places thereaboutes. Hee of Coromandell should haue commaund ouer those ffactores that shalbee planted in Narsinga.

Hee of Bantam should haue his commaund ouer Sumatra Jaua Succadana Macassar vnto the Mulluccos.

And the commaund of him at Patania to stretch ouer Siam, Camboja, Cochin-china, Japan, Bernee and the places thereaboutes, And if a ffactor bee also to bee planted at Mocha, there likewise to be a cheife head, which aforesaid Directors may haue the highest commaund as your Liutenantes.....tuall env (?)..... [a] nd.....send any shipp or Capitall.....places to consigne the same to the.....who shall give a receept thereof and dispose..... thereof amongst the Factories that are under hym, according as hee shall finde requesite for euerie perticuler place, and you to advise the said Director what goodes you desire for your returne and they to take order for the same where it is to bee had.

And if any of the ffactories stand in need of any thing, they shall Certifye the same to their respectiue Directors, and if hee cannott help them thereto, the said Director to advise the same vnto you, and you to giue Order vnto such other Directors vnder whose gouernment the said commodities are to bee had to provide the same.

So likewise if any faults bee committed, that ye goodes bee not as they ought, or otherwise bee not well Condytioned, to Certifye the same presentlie one to annother, to have such faults amended.

Moreouer wee thinck itt requesite for your more ease that euerie ffactorie shall give accompt vnto such Directors as are ouer them, and the Director to keepe generall bookes, whereby hee may see the estate of eche ffactorie, To which ende euerie Director is to haue a Bookekeeper ioyned with him as a Secretarie whereby the generall Bookekeeper ouer the Indies resident with you may bee eased of a greate trouble, and many errors and mistakeinges prevented, all places provided with principall heades, your aucthoritie kept in reputation and the whole estate to be euerie yeare sett and sent vs in Ballance and thereby the gaine & losse which euerie place yeildeth will presentlie bee found out, and so accordinglie remeadie provided for the same.

Neither doo wee thinck itt fitt, that the Directors should bee bound to keepe their residence in one place, but to bee in their power to visit their ffactories vnder them, from place to place to prevent all.....vise An.....shall come vnto you wee w.....spectes according to their estate, and ha.....places and voices amongst your Counsell.

Moreouer we hould it convenient that euerie Direct..... haue 4. or 5. of the best experienced to ymploy in the ffactories that are vnder his Commaund and each Factorie to haue 3. or 4. Newe Comers, one to learne the Languadge which in tyme wilbee verie available vnto our affaires, and by degrees in case of mortallitie, or otherwise may rise in succession according as they may seeme to deserve. And for further Light vnto the Trade of all those partes wee haue thought fitt to annex herevnto such discriptions and intelligences as wee haue receaued and gathered out of such advises as wee haue had from our ffactors whereof you may make such vse, as you find most convenient.

The Discription of Zeilan. Zeilan in it self is a rich Iland and hath the best Cinamon of all the Indies, it hath also some Rubies, Spinels, Cattes eyes the best and finest of all the worlde, onlie they are not found in any quantitie, and such as are found come for the most parte into the handes of the

Portingalles. Here also by the Iland of Manar hath been the famous fishing of Pearles which within theise 8 or 9 years is whollie decayed, so that for this presente there is nothing to bee done. The Dutch haue their men lying att Candie but do nothing, neither doth this Iland vent any forraine commodities, saue onlie some Course Lawnes, which in great abundance are brought to them from Negapatam by the Calenders and Chulias whoe for their returne bring from thence fine Matts and Cinamon Arecas, ffor the *Cinamon* cometh most parte..... ....

The Discription of..... of Coromandell

This Coast of Coromandell according to the Common Computation of the Chulias and Portingalles beginneth at Negapatam and stretcheth to Casincotta in Ozira ; In this Coast of Coromandell or Chulia mandell bee two principall Kinges, the one of Narzinga or att this presente of Velour, which beginneth at Negapatam and endeth at Cariek, or Montepoli: The King of this Countrie is called Wencapeti Raija, the other kingdome beginneth from Montepoli vnto Cassimcotta and is called teligana or Badaga whose King is called Cotobaxa, the one beeing a Gentile the other a Moore each of them haueing their sundrie Lawes, manners and goverment which breiflie to recite, wee will first begin with ye King of Velour.

The Discription of the kingdome of Norsinga alongst the Coast of Coromandell.

The King Wencapati Raïa beeing a Gentile deceased in October 1604. aboute the age of 86. yeares, hee was

Cosen to the great King Rama Raia, It is an auncient Custome in this kingdome, that the Kinges devide their Countrie in 3 principall Naicques in manner of a Loane to them and their heires, paying yearlie a certen Rent, and when the King hath any warres, they serve him with a certen Number of Elephantes horses and Souldiers att their owne Costs and Charges, and att this presente tyme this Kingdome is devided into 3 principall Naicques to witt to him of Tanianco; him of Tirepopelir and to the Naicque of Madurie of which country of theise 3 Naicques betweene Negapatam vntill St. Tome and deeper towards the.....ettle for himself.....and ffortes, and although the King... .. ..eth the souereigne goverment to himself and.....t without his Confirmation nothing is of any valliditie but must come yearlie to shewe their obedience, yet notwithstanding they are sufficiently Kinges, ech of them in his gouerment doing what hee will, which happened for the most parte by the Kinges age whoe hath not beene able to settle a good order in all thinges; through which meanes theise Naicques do much pill and poll their subiects, ffarming out their townes to the Bramanes, which whollie do consume the poore Commons, that it is too bee wondred howe they are able to mainteyne their famillies; This is the principall goverment of this country. And touching the trade here, the Portingalles haue had a mightie rich trade which might bee accompted the verie best in the Indies, but in regarde they are put from their Trade in Jaua, Amboine, Banda, Moluccos, Solor, Borneo, Siam and Petania, this also is much decayed, so that at this tyme they are hardlie able to mainteyne their famillies; Negapatam and St. Thome beeing so much decayed as is vnspeakeable. In this kingdome the Dutch haue two ffactories, (to witt) one in Tanagapatam belonging to the Naique of Tirepopelir;

whereas they are at great charges and little profitt, so that they haue been often minded to raise that Factorie; the other is att Paleacattee which belonged to the Queene Obaijama, here the Dutch haue great privillidges, so that they might here build a howse of brick att their pleasure, and that no Nation in Europe might come to trade there without Commission from Graue Mowrice, so that the Globe coming there and the James after them, were denyed the Trade; The Hollanders haueing built there a strong Castle with 4 Bullworkes and 16 peece of.....they haue..... ....Solor, Mœccasser, Jaua..... .. . . and other places for the venting of the.....Cloth, wherein consisteth the proffitt, here are made the best Callicos and best sortes of the whole Coast. In regarde of the long tyme that they haue beene brought vpp in itt by the Portingalles, so that they presentlie knowe what sortes will fitt when a man telleth them for what place hee will goe, ffor that there is no great difference betweene the Clothes fitting Jaua, Mulleij and Siam, as also betweene the sortment for men, women, and Children, which is to bee had at Mesulpatan ffor although they haue the best musters in the world yet they cannott make them as one would haue them; ffor which Cause this place concerneth the Dutch verie much although they are att great charges. The Commodities that are requested here are Pepper, Nutmegges, Mace, Cloues, but not many, Sandellwoodd, Brimstone, Camphir, all sortes of China Commodities except porcelane, which is worth nothing here because the Gentiles may not eate out of porcelane, but onlie out of Leaues, of trees beeing ioyned together, or out of Copper dishes, whereby purslane is only vented to the Mores, a parcell of lead and quicksiluer, vermillion, redd branched Corall is here vented, but no vent of English=Cloth, and although Ambergreece, Musk Ciuitt and other such like perfumes are

much vented here, yet to what profitt I knowe not, the Countrie as before yeildeth the best coloured paynted Clothes or Collicoes but not whites, for therein Bengala passeth all the Indies; Moreouer in this Kingdome is the myne of diamants called roqua noua, which is scituated betweene Uandrigiri and Wisnagara from whence they are carried to Uvsapor in the kingdome of Decan where Dabul lyeth, whereat those of Doa and other places come to buy them, so that for this presente the Staple is there, and for other Commodities itt yeildeth none worth mentioning.

To keepe a.....
.....would surpasse the Charges.....
.....lie might be ymployed 20 V (?) R^{s} which.. .....
.....loyments in regarde they bee of in the best sortes y^{t}can bee sent from any other place, will not onlie yeild good profitt, but also keepe the Trade in reputation and...may come to pass that wee may gett footing in the Moluccos, when as the Maleijes shall see themselues aswell furnished by the English as any other Nation therefore itt were good to settle a ffactorie here in such place as should bee found most fitting, which the deceased King promised Mr. Floris, and for performance gaue an *Old* of Gold sealed with Sandall; which Jaga Raija promised also vppon the Kinges death and seeing the Companie haue their Trade alreadie in Sumatra, Jaua Mæcasser, Borneo, Patanie, Siam and other places, they haue sufficient meanes to vent those Callicoes &c., the rest in encreasing or lessening may be seene vnto by the Generall and Counsell, and if the Companie will medle with the trade of Diamantes, here might a great stock bee ymployed, but what profitt would growe tnereby experience must try, yet by supposall the Portingalles bring them att the Second hand and carrying them into Portingall and from thence for England and other places, the Companie

might finde gaines therein by buying them att the first hande, but must haue true servantes and men of good knowledge beeing no doyt better cheape there then att Succadania.

The Description of Badagatt or Telingana.

This country in tymes past was belonging to y^e^ great King Rama Raija who gaue it gouerment to a certen Persion as also Cancam and Decam to two other Moores, who murthering the said King made himself King beeing called Cottobaxa, who sithence hath enlarged his dominions to that of the Grand Mogor, Nisamxa adelxa and the Kinges of Velur and Orixa and along the Sea Coast from Montepeli to Cassincotta.....

.....league with him.....
might be made in the same mann.....
Condytions which the Dutch haue, wh.....
coming at Mesulpatam is easily learned, and to see howe they would accomplish the said Contract and in this manner those difficulties might bee prevented and a quiet and sure Trade established, and although such an Ambassadge would not cost lesse then 3000. Rs· yet such a somme must not bee regarded, ffor in fewe years itt will come in three fould againe, And if this freindlie Course should take no effect att all, but that the Governours violence contynue and the King not looke into itt, then to breake vpp and saue the Factory and make sharpe warr vppon his Coast in such sort as itt might coome to the Kinges eares, and that they should bee afraid to put their heades out of the dores, which may bee done with small force and little charge, sending to the King and shewing him the reason of those proceedinges, and no doubt but the King and Moores wilbee glad to giue such priveledges as in reason can desire, This course the Portingalls att first tooke and thereby not only obteyned large previllidges but had a

Captaine of theires reached to Mesulptan, Petapoli and other places with great sommes for his maintnance from the King, but nowe that the Mores see that the power of the Portugalls declyne, they haue thrust away their Captaine, and surelie the houlding vpp the Shippes in the Red Sea wrought the Trade of Surratt and theise prowde Mores according to their owne Proverb must bee kept vnder, otherwise they will too much Insult and Dominere.

The Description of Bengala.

Bengale is devided into two principall partes vizt Portogrand and Porto piqueno beeing both att the head of the great Riuer Ganges about 30 leagues one from annother, whereof Porto piqueno is belonging to the Grand Mog r, farr surpassing them of Porto-grand in all manner of Riches, Manufactures and Trade, and in the Riuer lyeth the famous Cittie for Marchandizing called Satigam; In this Porte or Haven.....
.....galles.....
so...dos; Here are made the be.....periens (?) of all the the Indies (to witt) be.....pari, Santars Sahangs, taffesiles Megas (?) gingams and other sortes of Cloth, ffaire stitched couerletts pavillians vnmade vpp, Cushions, shopclothes fir Barbers and other Curiosities, abounding with sugers, Comfetts, wax, honye, and such like, This Countrie venteth all manner of Commodities as att Zurat and Mesulpatan, not that Bengala it self doth consume them, but they transport them vpp the Riuer in greate boates whereto they are commodiouslie fitted. Of this place there is cause to haue a better opinion then of any other in the Indies, the gouerment wherof cannott much differ from that of Zurratt and Mesulpatan, and by the meanes of the Ambassador

at Agra may bee purchased such privelledges and liberties as might bee expedient; Likewise the Ambassador will thereby bee more respected in the Court and beare his state with less charges. So that by anie meanes, it were to bee wished that a ffactorie were there settled, and if there bee anyhope in all the Indies for the venting of English Cloth, this place may be thought to bee the cheifest, because the Province lyeth so much Northerly haueing so good Convenience for their transporting not only to Indestan, but also into Tartary and Cattaya, whereby there is reason to thinck this place like to bee as proffittable as which they might Inhabit without feare of Enemies, Porto grande or the greate hauen of Bengala is so named not because there is greater Trade there then att Pequeno, ffor it can no way bee compared therewith, but because greater shippes can come thether then in the little hauen which is full of sholes. In this hauen lieth Sindine where they make great store of salt, which furnisheth all Bengala. In the tyme of Manuell de Malta and Domingo Carriallo weare in Portogrande and the fforte of Diange were vnder their power and all Bengala vnder Contribution then the Portugalls flourished.....
.....Arra..... ....poore kingdome yeilding nothing of it..... .....but(?) Rice, but since the King was assist.....the Portugalles hee tooke and distroied Pegu and from thence brought greate Treasure greate quantitie of Jewells, brasse ordnance, ffaire women, the white Elephant and the Kinges daughter of Pegu, together with a greate number of Pegu slaues, whereby Arracan is much encreased, and Pegu beeing destroyed, all that Trade is come to Arracan from whence they traded both by Sea and land for Arba, where much gould is and the myne of Rubies and Saphires, but now within theise fyve yeares the King of Arba hath taken

Drough zangu and lately Siriangh whereat Phillippo de Bretto had a fforte and falling at enmitie with him of Arracan aboute the white Elephant and hath stopped all Trade; so likewise the Grand Mogor hath sent an Ambassador to this King desireing the white Elephant, which Ambassador was euil entreated by the King of Arracan, which the great Mogore taketh in ill parte and warring vppon him taketh diuers places in Bengala, haueing sworne not to giue over vntill hee haue the white Elephant, and although the Castle of Arracan seeme Impregnable, yet it is to bee feared that hee will not bee able to keepe it against the Mogore, and hereby the Trade is whollie decayed and att this tyme nothing to bee done, The Dutch haue a ffactorie here, which they wish they were with Credit quite of.

The Description of Pegu with the following Coastes vntill Pera and Malacca.

Pegu hath beene a mightie Cittie and an Empire haueing vnder it 14 Kinges amongst whome are comprehended, Camboija, Siam, Laniugh auja and others, but as all Monarchies haue their riseing and falling, so also this mightie Cittie of Pegu by Tyranie ....
.....taken
was spitted vppon a sp .....Ugalles
slayne, This King of Awa..... ven
Charge to build Pegu vpp againe haueing promised Liberties and Privillidges to such as shall come thither with their Shippes or will dwell there, If the trade amend and come againe and come to anie ymportance, the Companie may haue a trade there both in Pegu and Awa whereas is a myne of Rubies, Saphires and Spinels, The Emerales are much

requested here, Moreouer here lye the Townes of Pre, Martaban, but here is nothing to bee had. Then followeth Tanesseei, which by the distruction of Pegu is become the Sea-towne of Siam, but in regarde this trade is here att ende, then followeth the Townes of Junckealam, Laniaugh, Keda, Pera, and Malacca, At all theise places nothing is to bee had, howbtt in Iunckalam and Pera is great store of Tinn held as good as English Tinne, but it is so bought vpp, that it will require great tyme and trouble to gett it, and to adventer in Moores shippes would not bee safe, and their owne Pinnasses too Chargable, so I leaue it as no way worthy.

The discription of the Iland of Sumatra.

This Iland of it self is a rich Iland, the riches whereof yt may bee thought the Inhabitants do not knowe, ytt yeildeth great quantitie of Pepper, brymstone, ffine Comphire, Beniamin, gould peter Oyle and as some say Balme and Ambergreece and Bezar stones called Pedra del Porco and other Commodities; Itt hath many fruits but victualsl especiallie rice it hath scarce ynough for their owne maintnance. In this Iland are many pettie Kinges as of Palinbam, Jambi, Andrigiri, lying on the East side and Manancabo lying in the Middest of the Iland att the southside, the North and westside, belongeth altogether to the King of Achin (To witt) Siacca, Ara, Gowri, pacci, Pedir Acchin, til, Ticao and Priaman, so that hee is not.....

.....

.....both from Zuratt, Dabull (?).....

Malabar, Negapatan, Commall ... .

and other places, so that the Country is filled att all tymes, and besides the Guserats and Calindre are much trayned

in the trade, that they knowe better then wee howe to make proffitt, ffor besides ye sortment they buy them better Cheape, and are at lesse charges, but they make great profitt in that they sell, ffor if they find not their price in Achin they presentlie hire a praye and go alongst the Coast not spareing any Brooke, much less any Riuer or Towne whereby the lesse sales will att first bee found; The King forbiddeth all strange Nations to trade at Priaman and Tecoa except they first come to Achin and gett order from him, for which hee did fforfeyt and Confiscate a Guseratt shippe, but ouer our shippes hee hath no power, yet in Achin little is to bee done, and the Coast of Suimatra a perillous Coast, so that it were expedient to put on this Coast no more with their great shipping, but with a small shipp yearly expresly for trade with them haueing also a Pinnace of 3. or 4. tonnes which may contynuallie goe and come betweene that and the Coast of Bantam, which shipps should bee furnished with such Surat, Coromandell and Bengala sortes of Cloth as are there most requested, the Shippe may fittest ly in Tecoo to buy vpp all the Pepper of the Circumiacent places and the Pinnasse to lye in the Riuer of Cattaganga and deale for the gould of Mununcabo which is brought thither beeing vnder the dominion of the King of Achin, and so might yearlie bee had about 1000. Bahars Pepper and 15. in 20. V (?) Rs. in gould and by this meanes the Guzerats and Calinders would quicklie bee driven from thence and the trade fall to the Companie, ffor they must of Necessitie seeke out places for the venting of the India Clothes or ells the trade of Surat, Coromandell and Bengala is worth nothing, And although at the first they should sell itt good Cheape yett itt would bee a good begining, and with Corespondencie for the sortes of Cloth mainteyned although not with..... ....scituated in the.....

.....ing in Rice, so that therewith it fa.....p[ro]videth all the Countries thereaboutes as the.....luccos, Amboine, Banda and other places, so that many (?) Junckes come thether yearlie, which causeth a greate [tr]ade; the King is latelie turned Moore beeing an Heathen before; this Iland hath nothing of it self but Rice, but in regarde of the quantitie of the Juncks that come and goe, there is many tymes to bee gotten a parcell of Spices, Sandall woodde, Tortoyes shelles, Cetie, wax and such like Commodities which may bee bought to good profitt, And although the Dutch forbidd all the Junckes to transport any Cloues from the Moluccos vppon Confiscation thereof, yett they dare not do itt to the Junckes of this kingdome because of the ffactorie which they haue here, and because their fortes must bee provided with Rice from hence, this place venteth yearlie a good parcell of India Cloth of all sorts so that in anywise a ffactorie is here to bee settled.

Succadania.

This place lying in the Ile of Borneo doth vent some parcell of India Cloth, but wee cannott hould it to bee profittable by reason of the greate Charges which run vpon this ffactorie and the smallnes of the Capitall that can bee bestowed here together with the dearnes of the Diamonds and bezar stones there to bee bought, and if any quantitie should bee gathered, then must wee send gould thether which wee should conceaue might profittablie be sent and ymployed in the Moluccos and Amboyna beeing there worth 50 or 60. per Cent proffitt and in better request there, then Cloth or Rialls ffor when nothing ells will procure Cloaues, gould will do it: It is a question also wheather, this gould might not bee better imployed in Bantam then att Succadania: which your experience can soone resolue: Yet notwithstanding itt will not bee good to breake vpp our ffactorie suddenlie there in

hope of better doinges, booath in the vent of Cloathing, and to keepe the Inlandish trade in action; but to bee in this wee haue more skillful Jewellers and honest ffactors not to bee Cosoned, nor to coson vs, ells our Charges will ouertopp our gaines. The description of.....
.....
.....here falles a.....of good store of India Cloth are..... .....
.....It yeildeth, extraordinarie good Comphire tak.....this (?) name in an excellencie: Camphere of Borneo, bezar stones in quantitie aboue all the Easterne Ilands, some Diamondes; Here wee are wished to haue a ffactory planted, which by those of Patania may easilie bee brought to passe, whoe trade much for this place; This Camphere is a verie good Commoditie in Zuratt, Coromandell and Bengalia; Here are also good Tortoyes shelles which are an extraordinarie Commoditie for Zurat; this place may bee mainteyned with a ffactorie with a small charge by reason of our ffactorie att Patania.

The Discription of Patania.

This is an auncient Kingdome, but alwaies onder tribute of the King of Siam; att this tyme doth an oulv woman rule here, whoe was the Daughter of the last King, whoe did about 30 years since, yet though the woman ruleth, the gouerment is reasonable good, and the strangers haue no great cause to complaine of any great trouble, Yet wee may complaine for the great charges wee pay there, for att every shippes arivall wee must pay 2000 Rs. and 5 per[c]ent (?) for all goodes brought in, and as much for all carried out and waying money according to the quantitie of wares you way, and some other bribes besides; To bridle this people itt were not amiss to build a strong howse in Sangora which lyeth 24 Leagues northwarde of Patania, vnder the gouerment of Datoe Mogoll

vassall to the King of Siam: In this place maie well the Rendevouz bee made to bring all thinges together that you shall gather for the provideing of the ffactories of Siam, Cochinchina, Borneo and partlie our ffactorie in Japan, as you shall gather according to the advises thereof, And hither to bring all such wares as wee shall gather from the foresaid places to bee sent to Bantam or Jaccatra: this howse wilbee found to bee verie Necessarie, for the charges wilbee too highe in Patania besides inconveniences there; which charges you shall spare at Sangora: there you pay no Custome, onlie a small guift to Datoe Mogoll cann effect all here; The Dutch haue taken this course nowe for ye.....
....take (?) it.....
..... to be diverted from them, they will.....
..... lett (?) fall their great charges: So that thoese two places may well bee compared to Bantam and Jaccatra The traffique in Patania is reasonable, it yeildeth no speciall Matters of it selfe, but is all brought in from other places and because of the scituation of the place there is great shipping for diuers places, whereby much marchandize is brought hither, especiallie of China wares, by reason of the Nearnes of the Countries would bee brought if there were buyers. This place venteth good store of India Cloth, but must bee of the finest of Pellicatt both painted and woven: The fine Cloth of Bengalia is here likewise sould to profitt but coarse cloth is in no request att all.

The discription of Siam.

Siam many yeares agone itt seemeth hath been a famous Kingdome bearing rule ouer others, euer beeing in good creditt with the King of China which kingdome receaued their Lawes and religion from Siam; so confessed by their mutuall sending of presents euery 3 yeares each to other. The King

of Siam, Raja Api (or the faire King) died 1605 whome his brother called the White King did succeed, hee dyed also 1620 and his second sonne inheritts who nowe liveth and vppon whome many Kinges do make warres and do hope to put him out of his Throane. Hereby wee may see the dangerous estate wherevnto Siam is nowe brought, and the hazard which wee doe beare in those places, concerning trade there nowe, it is not great, but quietnes beeing obteyned through the victorie of the one side or other, there will doubtles bee good trade againe, and bee a good place for our Companie; ffor this Countrey venteth a good parcell of Cloth both of Bengalie and Coromandell, but of Cambaia cloth fat and faire the people nowe beeing vsed to weare itt. This place venteth other kinde of Cloth that Jaua or Malleya do and the people are verie Curious of their Cloth especiallie painted, whereof those of Sct. Thome and Palliacatt haue the best trade, which sortes are not only vsed in.....
.....garne.....
vallue Diamantes it hath non.....[c]onclude the revenues of this King is grea.....he liueth after the manner of the Persean Pomp.....and the Perseans do here dominere ouer the Gentile... . ...that it is pittie to see and do eate and Consume the poore peoples with taxes and violences, and if peradventure there ariveth a strange Shippe here especiallie att Musilpatam, It is in the Governers power to giue such safeconduct as it pleaseth him for forming the gouerment, Hee is to pay great Summe of money, hee bearing the gaine and losse, wherefore rather lett a shippe goe away againe, hee will abate as much as is possible, and giue you the fairest wordes hee can vntill hee haue you and all your goodes on shoare, then hee will begin to sing annother song, and will Invent a thowsand knaveries vntill you are wearied, and glad to content him, which Contentment doth not consist in giveing one or 200 pagados, but in dealing and contracting

for many Thowsandes according as they shall perceaue it Cargason to bee, and if in the meane tyme it chance in the meane tyme, that they bee put from their gouerment, the debte is absolutely lost, and if you bee so fortunate that they contynue in their gouerment, yett they will hould you vppon delaies vntill the Monson bee almost expired, so that you must bee glad to escape of any thing they shall offer you, which is not worth half the money, yea such as serveth not your turne. Here the Dutch haue two Factories one in Petapoli which is of small ymportance and if the Companie haue a Factorie in Paleacatte, then is Petapoli needles beeing but a daies Journey from Mesulpatan where they do vent great store of Marchandize of all sortes of China wares purselane, pepper, Nutmegges, Mace, Cloves, Sandall, Cigim, Aloes, Musk, Ambergreece and Ciuitt.....little, except for the Kinges... .....yeare sufficeth and those verie rich and... .....well sett forth; ffor other Colours they will not yield the price in England; The Dutch notwithstanding all their greate Trade haue beene forced to suffer all those knaveries and vexations, and the Governers owe them 8000. Pagados so that thep could beare it no longer, so that they went to the King whoe gaue them faire wordes for couering their debtes, but little was performed, yet they obteyned that hence forwarde they should not haue to do with the Governers but pay to the King yearlie 3000 Pagodes and so to bee free from all other charges as Custome for all goodes out and in, ffor that as farr as the gouerment of Mesilpatan stretcheth as well for that they shall bring or Carrie away in their owne shippes, as other shipps of the Moores, and are lycenced to unlade and lade their goodes without opening their packes by the Governers or keeping them all night in the Custom house, which is the greatest bridle that can bee put in theise Knaues mouthes ffor now seeing with violence they

cannott prevaile they come with flattering wordes and a great showe of service to haue their good willes, and this was a great vexation done to Flores in keeping his goodes vntill they had wearied him, and although hee had sufficient meanes to prevent the same att ye Court, yet hee did it not in regarde the charges would haue lyen wholie on the Seaventh voyage, Neither as hee with had hee any whome hee could send, himself not beeing to be spared, which forced him to giue them Content and gett from them as the first tyme in takeing a parcell of Cloth which were not worth halfe the money. And the second tyme hee tooke the Governers sonne from out of the Custome-house prisoner aboard not without danger. And so ye James also had beene served, If the Globe had not come to succour. Yett this place much continueth (?).....
.....but yet it yeild-eth,.....as at Mocha from whence it is transpo.....Egipt, Beniamin cometh by land, Lau throug[h].....augh, which passage by the presente warrs is stopt, the gould for the most parte cometh from Xamaj, but all here beeing in vproare, little is brought, here falleth good store of hearts and Buff skynnes, which are currant Commodities for Japan, so that it may well bee concluded that if peace might come here would bee good profitt gotten for our Compánie: Secondlie there might bee hope to gett footing in China, because of the amitie, it is betweene China and Siam, and an Ambassador might bee sent with the Ambassadors of Siam with letters of Commendations from his Maty. to the King of China or at least to the Mandorin of Canton; whereby at the least they might be spoken with all and here and giue answere to our reasons, but as long as the Warrs do contynue at Siam, there is but little hope of either.

The discription of Camboja.

This Cittie lyeth vppon a great riuer, which is said to take his begining where Siames riuer taketh his beginning. It hath thre yssues and falleth into this Kingdome; itt hath alwaies for the most parte beene vnder the subiection of Siam or Pegu, but nowe it seemes to cast that yoak of; Here those of Mallacca haue had a greate trade but nowe it is decayed, This Country venteth the most part India Cloth as Siam doth, and beeing nowe in League with Laniaugh, the trade is nowe att Camboja, for this furnisheth the whole Country, with Cloth, And here is also nowe the Staple of Beniamjni, And here is also Gome=lack: gottamandu or Comboja gum, Sapom: Cassamba great quantity of deere skinnes, so that there might be sent a great Junck for Japan Laden with Marchandize, and to haue good returnes for Coromandell, Zurratt and England, So that wee must haue factory herein so.

Finis for this discription.

Vntill I hope to haue the rest &c.

INDEX.

Note.—In this Index the following abbrevations are used; "Anderson" for Anderson's "English Intercourse with Siam" (Trubner's Oriental Series).

"Calendar of State Papers" for "Calendar of State Papers, Colonial Series, East Indies China and Japan." (The first two volumes are edited by W. Noel Sainsbury, the third by Miss Sainsbury).

"Crawfurd" for Crawfurd's Descriptive Dictionary of the Indian Islands and Adjacent Countries, 1856.

"Yule and Burnell" for Yule and Burnell's Hobson-Jobson. A glossary of Anglo-Indian Colloquial Words and Phrases and kindred Terms.

Amadauar—Amadavar. Ahmadabad. Founded by Ahmad Shah, Sultan of Gujerat (A.D. 1411-1423). It is the finest city in Gujerat, and is situated about fifty miles North of the head of the Gulf of Cambay (See Cambaia).

Amboine—Amboyna. (The native name is Ambun). It was first a Portuguese possession: the Dutch took it from the Portuguese in 1605. The British founded a trading station there soon afterwards, and thenceforward there arose, between the British and the Dutch, continuous disputes, bickerings, quarrels and fights, which culminated in the "massacre" of 1623, in which the British Settlement was killed by the Dutch.

For this massacre, which is celebrated in Dryden's Tragedy of Amboyna, Cromwell obtained compensation from the Dutch in 1854. The British held the island from 1796 to 1802. It became Dutch again in 1814.

Andragiri—Indragiri. (Sanscrit, "the Hill of Indra"). A Malay State of the East Coast of Sumatra, North of Jambi and South of Kampar. The Indragiri River, which is one of the largest in Sumatra enters the Straits of Malacca opposite the islands of Linga and Sinkep.

Ara—Perhaps Aru Bay between Diamond Point, on the North East of Sumatra and Deli.

Arba--Ava: the ancient capital of Burmah.

Arracan—Arakan. The Arakan Division of Lower Burmah extending from the Bengal boundary, along the coast, to the mouths of the Irawaddy.

Auja—I cannot identify this place.

Badaga: Badagatt.—A corruption of Balaghat (bala, above; ghat a mountain pass); the country above the passes; a term applied to an area which is now covered by the

Bellary, Anantapur, Kurnool and Cuddapah Districts of Madras.

Bantam—A glance at a map of the world shows that all the traffic of the Far East has either to pass the northern or the southern extremity of Sumatra, either round Acheen Head, that is to say, or through the Sunda Straits. The latter route is the nearer: the former is the safer, and is the only one followed by all steamships of the present day.

Bantam at the western end of Java, not far from the present city of Batavia, was therefore a central place for the principal factor of the East India Company. The China trade came down to him on the one monsoon, and the Indian trade on the other: each was handed transhipped and despatched, westward and eastward, on the succeeding monsoon.

Barocha—Broach—A port in the Gulf of Cambay between Cambay Town and Surat. *See Cambay.*

Bernee—Brunei, which has given its name to the whole island of Borneo. Borneo, itself, is mentioned by that name later in this account.

Bezar stones—Bezoar stones. See the articles in Crawfurd, and Yule and Burnell.

Breto de.—See Siriangh.

Calindre : Calendar.—I cannot discover the meaning of this word. Karinda (Hindistani Karandah) is a word meaning a clerk, agent or manager. But in this manuscript the word is used as if it were the name of a nationality or race.

Cambaia—Cambay (Khambhayat). The Gulf of Cambay is an inlet of sea lying between the peninsula of Kathiawar and the Indian Coast line. The Portuguese Settlement of Diu lies at its mouth in the Kathiwar Peninsula, and Surat is at its mouth of the Bombay side. The town of Cambay is at the head of the Gulf. It is mentioned by Marco Polo, under the name of Cambaet, as a place

of great trade. A tidal bore is causing the gulf to silt up, and trade has now left the place.

The Kings of Guzerat formerly had their residence at Cambay. The most famous of these Kings undoubtedly was Sultan Mahmud Bizarha, of whom there are lurid accounts in Purchas and Ludovic's de Varthema. He is thus immortalized by Butler :—

> The Prince of Cambay's daily food
> Is asp, and basilisk and toad,
> Which makes him have so strong a breath
> Each night he stinks a queen to death.
>
> *Hudibras* Part II. Canto I.

Cancam—Konkan (The Konkan). See Deccan.

Carica—I cannot locate this place.

Cassamba—Kusumbha (Sanskrit). Both saffron (*crocus sativus*) The bastard saffron, or safflower (*Carthamus tinctorius*) is known by this name. From its flowers a red dye is made.

Casincotta :—Cassimcotta. I cannot find this name in any Gazetteer. Apparently some compound of the name Kassim.

Cattaganga—I cannot locate this river.

Cattaya—Cathay, China. See the article "Cathay" in Yule and Burnell.

Chulia.—A name applied to Muhammadans from the Madras Presidency. The origin of the word is obscure, and its application vague. It is not certain whether it is applied to all Muhammadans of Madras, or whether it applied to the Malabaris, or whether it applied to any particular class of Muhammadans. In old accounts of the Colony the name was frequently used, generally in connection with the word "Kling." The term is no longer used, but a Chulia Street still exists in Penang.

Comboja Gum—Gamboge. See the article in Crawfurd.

Corromandell—The Coromandel coast was a term applied in old histories and official correspondence to the east coast

of the Madras Presidency. It was applied in no very definite sense, and now has fallen into disuse. In this account it extends from Negapatam to Orissa and includes the Kingdom of Narsinga, which extends from Negapatam to Montepoli, and the Kingdom of Taligana, which extends thence to Orissa. It will be noticed that the writer of this account gives an etymology of the name, deriving it from Chulia mandel. The true derivation is from Chora, the Tamil form of the ancient title of the Tamil Kings who reigned in Tanjore. There is a very interesting account of Coromandel, with a list of the various fanciful etymologies that have been attempted by different writers, in Yule and Burnell.

The Coromandel Coast corresponds in extent (more or less) with the Maabar of Marco Polo.

Cotobaxa : Cottobaxa.—Kutab Shah. Kutab Shahi was the name of a branch of the Bahmani dynasty, which established itself at Golconda. Kutab-al-Mulk, tarefdar of Telingana, founded the dynasty and assumed royal title in 1512. The dynasty lasted until 1687 when Golconda was taken by Aurangzib.

Dabul (Dabhol)—A famous port of the South Konkan between the fourteenth and seventeenth centuries. It lies in the modern district of Ratnagiri about two degrees north of Goa.

Barbosa (A.D.1516) writes of it:—

The Dabul has a very good harbour, where always congregate many Moorish ships from various parts and especially from Mekkah, Aden and Ormuz with horses and from Cambay, Diu and the Malabar country.

Decan—Deccan (or Dakhin) (The Deccan). The name is a corruption of the Sanskrit word *dakshina*, southern. It is a term generally applied to the high lands of India bounded on the North by the Narbada, on the East by the Eastern Ghats, on the South by the Kistna and on the West by the Western Ghats. The name Maharashtra, or the country where the Marathi language is

spoken, is applied to the same area. The term Konkan (of which the origin has not been satisfactorily explained) is applied to the narrow tract of land on the West Coast between the Deccan and the Sea. It includes Bombay, Ratnagiri and Goa.

Doa—perhaps a mistake for Goa or Diu.

Droughzangu—I cannot identify the place.

Gingam—See the article "Gingham" in Yule and Burnell. See also Taffesiles, infra.

Globe—The Ship "Globe" was fitted out by the East India Company in A.D. 1610 to take part in the Company's seventh voyage to the East Indies. She sailed from "the Downs" on the 5th February 1611, and after a prosperous voyage arrived at Ceylon in August of the same year. Thence she sailed to Pulikat, Pettipoli, Bantam, Patani (which she reached in June 1612) and Siam—For full details of the voyage of the Globe see the calendar of State Papers and Anderson *passim*.

Gouri—I cannot locate this place.

Grand Mogor—See Mogor.

Jacatra—The name by which the town of Jayakarta was known to Europeans. Jayakarta is Sanskrit and means "work of victory." The city of Batavia, founded by the Dutch in 1619, now stands upon its site.

Jambi—A Malay State on the East Coast of Sumatra between Indragiri and Palembang.

James—The Ship "James" was fitted out in December 1611 for a voyage to the East Indies. A full account of her is given in the Calendar of State Papers and in Anderson.

Junckealam: Junckalan—Junk-Ceylon (Ujong Salang) now better known as Tongka.

King of Siam—See Raja Api.

Laniugh: Laniaugh—The Kingdom of Laniaugh is mentioned by the Peter Floris (Thevenot Vol. I) several times. A place named hang-siangh is mentioned by Mandelses, and is identified by Anderson with huang-praban.

Madurie—The Madura District lying the east Coast of Madras south of the Native State of Pudukottai, and east of the Western Ghauts.

Manancabo—Menangkabau, an inland district of the southern part of Sumatra.

Manar—On the North West Coast of Ceylon. The island of Manar is the beginning of Adam's Bridge, which runs hence to the Indian Coast.

Martaban.—On the right bank of the Salween almost immediately opposite Moulmein. The capital of the Peguan Kingdom was at one time here. In the many wars between the Peguans, Burmese and Siamese, it was several times besieged and taken. Towards the end of the 16th century it was taken by Siam. Later it became independent again for a time, but afterwards was the seat of a governor appointed by the King, Burmese or Peguan, who happened to be in power at the time.

Mesulpatam : Mesulptam : Musilpatam.—Masulipatam. Now headquarters of the Kistna District, Madras. A port which developed a great trade, principally with the ports on the opposite side of the Indian Ocean, in the seventeenth century. The East India Company first traded there, in the "Globe" in A D. 1611. In 1628 the English were driven out by the Dutch. They returned in 1632 having obtained a farman from the Sultan of Golconda. The town is described in 1670 as being "famous along the coast of Corromandel" and as "resembling Babel in the variety of tongues and the "differences of garbs and costumes." Its manufactures of carpets, chintzes and coloured cloths have been crushed out of the market by European piece goods and its trade has been diverted elsewhere by railways.

Mogor—The Grand Mogor is the Portuguese form of the title of the Kings of Delhi of the house of Timur (*o grao Mogor*). The common English form is the "great Mogul." See articles "Mogul" and "Mogul, the Great" in Yule and Burnell.

Montepoli—I cannot locate this place.

Mulley—A variation of "Malay." It is not unlike Marco Polo's "Maliurh," and is interesting because of its resemblance to the word "moly" (sometimes "moley" or "meley") which survives in luncheon menus, and which simply means a kind of watery curry prepared by an Indian cook in what he considers to be the Malay fashion.

Naicque (*Naik*)—This word (which is derived from the Sanscrit *nayaka*, a leader,) is used in several ways in India, its most common application being in the Indian Army to a rank corresponding to that of Corporal.

Among the Telugus, it is the name of a caste, and the general name of the Kings of Vijayanagara A.D. 1325-1674 and of the Lors of Madura (A.D. 1559-1741). See the article "Naik" in Yule and Burnell.

Narzinga—This is the name applied by the Portuguese, and later by the Dutch and British, to the Great Southern Indian Kingdom of Vijayanagara, or Bisnagar. The name is not really that of the country (and for this reason it will not be found in any Gazetteer), but is that of Nara Sinha, a prince of Telugu origin (circa 1400-1508) who was reigning when the Portuguese first visited the place. The country bore this name among the Europeans for nearly two centuries after his death. Vijayanagara was the name of the capital that gave its name to the kingdom. It either means the City of Victory, or is a corruption of Vidya Nagara (the City of Learning). "The Pagan King of Narsinga, who has "1,500 elephants of war, 49,000 horse, as much foot as "he wishes and so much territory as can scarce be "traversed in six months" is mentioned in the famous letter written on the 6th June 1513 to the Pope, as the head of Christendom, by the King Emmanuel of Portugal to inform him of all the Portuguese successes under Albuquerque. (*Letters and papers of Henry VIII, edited by J. S. Brewer. No. 4173 Calendar of State Papers Vol. I. No. 1.*

Narsinga, Orixen, (Orissa) and Bengalen (Bengal) are mentioned in the report (written in 1660 by Foulke Grevil, Treasurer of the Navy, to Secretary Sir Robert Cecil) which led immediately to the establishment of the East India Company. (*Calendar of State papers Vol. I No. 266*).

Vijayanagara was overwhelmed in 1565 by a combination of Muhammadan Sultans of the Deccan in the battle of Talikota, in which the King, Rama Raja, himself was killed. The place is situated in the Bellary Distict and is entirely in ruins which extend over many square miles. The only part of it now occupied is a little village which bears the undistinguished name of Humpy.

Nisainxa Adelxa.—Nizam Shah Adil Shah. The Nizam is the hereditary style of the reigning prince of the Hyderabad Territories. The early Portuguese writers generally used the form Nizamulco, which represents Nixam-ul-mulk, or Nizamoxa, which represents Nizam Shah.

Adil Shahi was the name of a Muhammadan dyna sty which ruled at Bijapur from 1489 till 1672 or later. The Adil Shahis were almost continuously at war with Vijayanagar (Vide Narzinga), and they took part in the battle of Talikota in which Rama Raja, the King of Vijayanagara, was killed and his forces defeated.

The following extract from Garcia de *Orta's Colloquies* (printed in Goa in 1563) is worth quoting in this connection as it contains the variations Nizamulco and Idalcam (Adil Khan).

"This King of Dely conquered the Decam and the Cuncam; and retained the dominion a while; but he could not rule territory at so great a distance, and so placed in it a nephew crowned as King. This King was a great favourer of foreign people such as Turks, Rumis, Coraconis, and Arabs, and he divided his kingdom into captaincies, bestowing upon *Adelham* (whom

we call *Idalcam*) the coast from Anzediva to Cifardam .....and to *Nizamulco* the coast from Cifardam to Hegstana."

Ozira—Orissa. The ancient kingdom and modern district which lies between the Coromandel Coast and Bengal.

Pacci —Often written Pacem. A Malay State near the North East point of Sumatra.

Valentijn gives this account of it:—

"Close to the East point of Sumatra is the once especially famous city Pasi (or Paem) which in old times, next to Magapahit (sic) and Malakka was one of the three greatest cities of the East.....but now is only a poor open village with not more than 4 or 500 families, dwelling in poor bamboo cottages."

See also the article Pasei in Yule and Burnell.

Pagado —(Pagoda). A coin (both gold and silver) which was long current in South India. Accounts were kept in Madras in *pagodas*, *fanams* and *kas* down to A.D. 1818 in which year the rupee was made the standard coin.

8 *kas* (*cash*) = one fanam.

42 fanams = one pagoda.

A pagoda worth 3½ rupees. For an interesting account of the derivation of this word see Yule and Burnell.

Paleacatta —Pulicat. A town 25 miles North of Madras City. It is the site of the earliest Settlement of the Dutch in India. They built a fort here in 1609, and the place was later the chief Dutch Settlement on the Coromandel Coast. It was at one time a centre of trade with Penang. It has given its name to the cloth known by the Malays as *plêkat*.

Palimbam —Palembang. A district on the South East Coast of Sumatra. The Palembang river enters the sea in the Banka Straits.

Patania—Patani. On the East Coast of the Malay peninsula between Kelantan and Singora. The position of Patani on the map explains its selection, in conjunction with Surat (east coast of India) Coromandel (west coast of

India), and Bantam (in Java) as one of the four principal places where the chief agents of the East India Company should be resident. It has a good harbour, sheltered from the North East monsoon, which makes the East Coast of the Malay peninsula dangerous in the North East monsoon, and it was hoped that it would be a centre for trade with Siam, with China and Japan, and with Borneo.

These hopes came to little however, and various exactions imposed by the Queen of Patani and the Orang Kayas soon drove trade away.

For a most interesting account of Patani see the Calendar of the State Papers and Anderson *passim*.

Pedir—On the East Coast of Acheen between Acheen Head and Diamond Point.

Persian—Parsee. For an interesting account of this word see the article Parsee in Yule and Burnell.

Petapoli—Pettapoli, or Pettipoli, was a place on the Coromandel coast at which there was considerable trade in the seventeenth century. It is frequently referred to both in the Calendar of State Papers and in Anderson. I cannot locate it exactly.

Philippo de Breto—See Siriangh.

Praye—Prahu (Malay).

Pre—I cannot identify this place.

Priaman—On the West coast of Sumatra a few miles North of Padang.

Raja Api—This account would appear to be taken from the account given by Peter Williamson Floris, which runs as follows:—

"The King of Siam fortified himself by the destruction "of the Kingdom of Pegu, and has since conquered the "Kingdom of Cambaya, Laniaugh, Zayomay, Leegor, "Parava, Thenasarim and several others. This con-"queror, called by the Portuguese the Black King of Siam, "died in 1605, and left his kingdom to his brother, "whom they designated as the white King. He was a

" prince who only desired to reign in peace. He died
" in 1610 leaving several children. Thence arose
" great troubles for the state for the king, on his death
" bed, caused his eldest son, a youth a great promise,
" to be put to death, the murder being committed at
" the suggestion of one of the nobles, who, being very
" rich and powerful, aspired to the throne. The pre-
" sent king is the second son of the White King, and
" soon caused the traitorous noble to be put to death."
Thevenot Vol. I. P. 21.

Sahang—Perhaps a mistake for *sarong*.

Sapom—Sapan wood. See the articles Sappan and Brazil-wood in Yule and Burnell.

Satigam—I cannot locate this place.

Siacca—Siak. A Malay state on the North East Coast of Sumatra. The Siak river is the finest in the island and flows into the Straits of Malacca nearly opposite the island of Bengkalis.

Sindine—I cannot locate this place.

Siriangh—Syriam. A town on the left bank of the Pegu river about three miles from its mouth. Towards the end of the sixteenth century the King of Arakan took advantage of the quarrels between the Kings of Toung-Ngoo, Ava and Pegu and, with the assistance of Philippo de Brito y Nicote (to whom a reference is made in this manuscript) conquered Pegu. As a reward for their services he gave the Portuguese the town of Syriam which they fortified. He soon had reason to regret his liberality for the Portuguese were mere pirates and committed the most appalling cruelties upon the wretched natives. A few years later the King of Arrakan formed an alliance with the King of Toung-Ngoo, and tried to drive out the Portuguese: they attacked the town, but were repulsed. In 1613 (the year before the probable date of this manuscript) the King of Ava besieged and took Syriam, impaled de Brito alive and sent all the surviving Portuguese to Ava as slaves.

The Dutch established a factory at Syriam in 1631; The English were some years later. Both were expelled about the year 1670. The English factory was re-established in 1698 by the Government of Madras. In 1740 the Peguans drove out the Burmese, but left the British alone. In 1743 the Burmese re-took the town. They held it only three days, when the Peguans recaptured it, and, suspecting the British Agent of duplicity, burnt his factory and expelled him. The town went through many vicissitudes in the wars between the Peguans and the Burmese in the eighteenth centuries. See article Syriam in Yule and Burnell.

Solor—Sulu. The Sulu islands or archipelago, for there are 150 islands, extend between Borneo and the Mindano Islands, the Southern group of the Philippines.

St. Thomé—Now a southern suburb of Madras city.

Succadana—A place on the western Coast of Borneo. In the early part of the seventeenth century, the East India Company had great hopes of it. Its principal reports were wax and diamonds. One account indeed (Calendar of State Papers, Vol. I. No. 522) says that "the best diamonds in the world" were to be procured there. It was once the seat of a Javanese Settlement, and the name, given probably by the Javanese, means, in Sanskrit, "the parrot's gift."

Surat—This was a great port at the mouth of the Gulf of Cambay (See Cambaia). When the merchandise of the East was carried to Europe through the Red Sea and thence overland, it was one of the most important trading places in India. With the discovery of the passage round the Cape of Good Hope, its importance diminished: and now, with silting-up of the gulf, trade has deserted it.

The following account of it in the Storia do Mogor (Vol. I p. 61) is interesting from its mention of the trade of this part of our part of the world.

"It is the largest port in India and the best river. Thus, it is resorted to by a great number of ships from different parts of Europe, Persia, Arabia, Mecca, Bassora, the coasts of Malabar and Coromandal, Massulapatas (Masulapatam), Bengal, Siam, Acheen, Queddah, the Maldiver, Malacca, Batavia, Manilla, China and many other parts of the world."

Taffesiles—Tafsila—a stuff from Mecca. It is spelt in various ways. Van Twist in his account of India (A.D. 1648) gives a list of stuffs which includes gamiguins and toffochillen. Valentijn (A.D. 1624-1626 , in a similar list in Oud en Niew Oost-Indien, includes taffatshelas and ginggangs.

Tanagapatam—I cannot identify this place.

Tanesseei—Tenasserim, a town on a river of the same name in the Mergui District. Founded by the Siamese in A.D. 1373, it suffered much in the struggles between the Burmese and the Siamese. It was an important city in the seventeenth city, when there was an overland route to Siam, and much of the trade between India and Siam was carried between Masulipatam and Tenasserim. It is now an insignificant town.

Tanianco—I cannot locate this place.

Telingana—A term vaguely applied by the Muhammadans to the country of the Telugus in the North East portion of the Madras Presidency. See the articles Teliga and Teldogoo in Yule and Burnell.

Ticao : Tecoa : Tccoo.—Tiku. On the West Coast of Sumatra, above 18 miles North of Priaman.

Tirepopelir—Tirupapeliur or Cuddalore New Town. In the Cuddalore District of Madras near Vellore.

Velur : Velour—Vellore : in the North Arcot District of Madras.

Wisnagara—Vijayanagara. See Narzinga.

Xama :—The great, but imaginary, lake of Chiamay. See the article Chiamay in Yule and Burnell.

Notes on the Fertilisation of a Few Orchids in Sarawak.

By C. J. Brooks and John Hewitt.

In the tropical forests of Sarawak, orchids are relatively very abundant and a great number of species are there found. A fair proportion have large showy flowers or a conspicuous inflorescence but the majority are small flowered and are not conspicuous. As is well known the peculiar structure of the typical orchid flower is a special adaptation to effect cross fertilisation through the agency of insects but in reality many orchid flowers are rarely visited by insects. The well known orchid Phalaenopis grandiflora produces a spike of large and conspicuous white flowers but though Sarawak is so rich in insect life an insect visitor is never seen on the flowers: and the spike remains in bloom for months until eventually the flowers die without producing a single seed pod. If a single flower be self-fertilised by human agency the whole spike fades in a few days and a seed pod is formed.

In the swampy parts of Sarawak Bromheadia palustris is very common: it produces conspicuous white flowers at fairly regular intervals of three or four weeks but though these have been under continuous observation for a long time we have never seen a large insect on the flower. Still it may perhaps be visited occasionally as sometimes a seed pod is formed, Vanda hookeriana has fine large flowers, the petals spotted with a rich velvet lake and it is always to be found in flower. These flowers if they are not fertilised may remain in good condition for a week: at the end of that time, or in case they lose their pollinia or are fertilised on the day after the visit of the insect, the petals become much bleached the colour disappearing almost entirely. This orchid not infrequently bears seed pods and I am told by the Malay gardeners that

the large carpenter bees (Xylocopa latipes) sometimes visit the flowers: this is very probably correct for something certainly removes the pollinia occasionally, but nevertheless it cannot be a very common occurrence as I have watched a plant for hours without seeing any insect visitor. On the other hand in the vicinity of this orchid certain trees (a Iacaranda and a Vitex) which bear blue flowers are visited by countless swarms of carpenter bees. These bees every day pass by clumps of Arundina speciosa, Bromheadia palustus and Vanda hookeriana without paying the slightest attention to the orchid flowers. The orchids in question were all growing in cultivated areas and thus to some extent under unnatural conditions but the same facts are revealed when we seek the plant at home: for there too the vast majority of flowers never set a pod. Nevertheless this does not apply to the small flowered orchids: such flowers are generally fertilised and it is quite a usual experience to find a complete spike of seed pods. This is to be attributed probably to the ants which frequent most flowers large or small in numbers: in small flowers an ant is able to remove the pollinia but in large flowers this is not possible.

In Sarawak the best known orchid is the Dendrobium crumenatum popularly known as the 'pigeon orchid.' It produces conspicuous spikes of sweet smelling white flowers which endure for one day only and then fade away: the spikes appear at irregular intervals of about 50 days. This orchid produces only very few seed pods: nevertheless it is visited by swarms of bees which pass rapidly from flower to flower removing the pollinia from many or all of the flowers on the spike. The pollinia are to be found on the metathorax of the bee dorsally. These bees (Apisdorsata) appear early in the morning and by 7 a.m. they crowd round the clumps of pigeon orchid found on almost every tree: by 8.30 a.m. however only few bees are to be seen and at 10 a.m. an occasional straggler is the sole representative of the early morning swarms. By evening (5 p.m.) the flowers have entirely lost their fragrant odour but they are still open and now they receive the atten-

tions of a wasp (Vespa dorylloides) but as there remain only very few pollinia this wasp cannot be considered an important agent in effecting the fertilisation of Dendrobium crumenatum. In the morning smaller bees (Nomia elegans, a eratina and several Trigonas) accompany the Apis but they do not remove the pollinia and in fact one of them, (the eratina), does not trouble to enter the flower but pierces the base of the perianth tube and thus reaches the sweet liquid nectar.

In the case of the pigeon orchid the number of seed pods produced is surprisingly small. An experiment was undertaken to test the possibility for self-fertilisation.

1 'Self-fertilised' a number of flowers.
2 Crossed 2 flowers on the same spike.
3 Crossed 2 flowers from different lateral off shoots. arising from the same basal bulb.
4 Crossed 2 flowers on shoots from different bulbs in the same clump.
5 Crossed 2 flowers belonging to entirely different clumps.

The result was that only those belonging to class 5 set seeds shewing that for seed formation cross fertilisation in its limited sense is essential. This however is unusual amongst the orchids of Sarawak for most of them are capable of self-fertilisation. One of the most remarkable facts in the life-history of the pigeon orchid is the simultaneous flowering of all the plants in the same area. The flower spikes make their first appearance a week or so before the day of flowering, they all blossom on the same day, the next day they are faded and the series repeats itself at irregular intervals indefinitely: the point to note is that the intervals are of varying length of time and yet flowering is quite simultaneous throughout. This periodically corresponds with no known seasonal variation and until the flower spikes make their first appearance it is quite impossible to prophesy when the next pigeon orchid day will appear. Such are the main facts of the question but it is somewhat complicated by a more erratic flowering on the part of a few individuals. In the following

table we give the dates of the pigeon orchid days in Kuching (Sarawak) during 1907 and 1908. For these dates we are indebted to J. E. A. Lewis Esq., who had a large collection of living orchids under continuous observation.

Jan.	10. 07	general (i.e. all the plants were in blossom)
Feb.	4.	general
Feb.	26.	general
May	1.	general
June	12.	fairly general
July	28.	general
Aug.	23.	sparse (i.e. only few in bloom)
Sept.	25.	very sparse
Oct.	19.	fairly general
Nov.	6.	general
Dec.	5.	fairly general
Jan.	26. 08	general
Feb.	8.	sparse
Feb.	26.	very sparse
Feb.	29.	very sparse (only one or 2 spikes seen)
March	13.	only 2 plants seen in flower
April	14.	sparse
April	26.	general
May	25.	fairly general
June	14.	very sparse
Aug.	3.	general
Aug.	15.	very sparse
Sept.	9.	very sparse

It will be seen that whilst some pigeon orchid days were characterised by a blossoming of all the plants in the area, on other days only a few plants were in flower: and although on the days marked very sparse we have several times noticed just a single flower spike standing alone yet on going to other parts of Kuching there too was found a sparse flowering. At first it seemed possible that in our neighbourhood there existed several series of pigeon orchids each series having its own period and in short that the orchids which blossomed on one sparse day would come into flower on another sparse day but would

blossom on a full day. But such is not the case as we ascertained from several observations: for instance on Feb. 29. 08 one solitary flowering spike found in a large clump of pigeon orchids was marked and on May 25 when the clump produced its numerous spike this very same spike was in flower also. Mr. H. N. Ridley has stated that the pigeon orchid days of Singapore do not synchronise with those of Siam but if plants be brought from Siam to Singapore these introduced plants follow the Singapore dates behaving just like plants native to Singapore.

Now the general flowering of a number of individuals on one particular day cannot be accidental and it is evident that the flowering of Dendrobium crumenatum is not merely a habit induced by endless repetition from time immemorial but also that the species is in such exact relation to the climatic conditions of the environment that a certain series of external conditions produces precisely the same response in many or all of the orchids which are subjected to those conditions: and after all this phenomenon differs only in degree from the seasonal changes of plants in countries where seasons are well marked.

From observations on cultivated plants of all orders it appears that the bees of Sarawak affect particularly all blue flowers—the morning glory convolvulus for in instance is daily visited by swarms of bees, these mostly of small species however—and too they are attracted by fragrant flowers of any colour. Now none of the orchids are blue so that speaking generally the only orchid flowers that are visited by bees are such as have a fragrant odour. To this class belongs the aerides odoratum known in Sarawak as the 'Lingga orchid.' This orchid blooms once a year—in 1908 it flowered about the middle of January: the inflorescences are large and conspicuous and there is a fragrant odour. These flowers are visited by large numbers of the big black carpenter bee (Xylocopa latipes): they pass from flower to flower seeking the nectar and at the same time removing some pollinia. In the same neighbourhood there happened to be a big clump of sweet smelling pigeon

orchids but these were passed by unnoticed. In the case of this aerides nearly all the flowers produced seed pods which is as I have already stated an uncommon occurrence for a large flowered orchid. By experiment I found that any flower could be fertilised by its own pollinia so that the chances of fertilisation are very much better than those of an orchid which like Dendrobium crumenatum must be cross fertilised.

Another very common orchid indigenous to Sarawak is the Arundina speciosa popularly called the 'Bau orchid.' According to Dr. Forbes this species has become so modified in Java that self-fertilisation without the intervention of any insect always takes place and all the flowers set seed pods. Now this never occurs in Sarawak though the flowers can be artificially self-fertilised; ordinarily very few seed pods are formed on this orchid and fertilisation when it occurs at all is effected by insect visitors. Dr. Forbes statement has been recently confirmed by Mr. Smith of Buitenzorg who cites other instances of like phenomena viz: all the specimens of Tainia penangiana from Java and Ambon cultivated in the Buitenzorg gardens shew auto-fecundation but specimens sent over from Singapore and grown in Buitenzorg under exactly the same conditions are never self-fertilised:

Spathoglottis plicata from western Java is self-fertilised but a specimen from Ambon behaves differently: Phajus Blumei in Singapore is in some individuals self-fertilised and in others not so (H. N. Ridley) and Mr. Smith found the same thing in Java where the majority however are self-fertilised. It seems then that it is not very unusual to find orchids which in general floral structure are almost typical and which nevertheless are habitually self-fertilised without the help of insects all the flowers producing good seed pods; as regard those orchids which are dependent on insects the species which are capable of self-fertilisation set far more pods than those which must be cross fertilised. Further all the orchids have good method of vegetative reproduction though this will not effect a wide dispersal of the species except perhaps in such cases as Arundina speciosa whose lateral branches readily break off at

the axils and could be carried long distances by violent winds. It is evident then that orchids are not so much dependent on cross-fertilisation for their propagation and dispersal as might be supposed from a study of the floral structure alone.

To return to Arundina speciosa: this has been under observation for months and on one occasion only a bee visitor was seen in the flowers. On Dec. 16.07 in the morning a solitary bee (Apis dorsata) was observed to enter the flowers of a large clump of this orchid: it visited about a dozen flowers spending about half a minute in each flower. Eventually it was captured and on the thorax posteriorly an accumulated heap of pollinia had collected. It is probable therefore that Arundina speciosa is occasionally fertilised by the agency of bees but nevertheless this is such a rare visitor that we must look elsewhere for the insect which is more usually responsible for the fertilisation of Arundina speciosa. And this is found to be the large skipper butterfly Erionota thrax which on certain evenings at about 6 p. m. pass with rapid flight from flower to flower spending a brief moment at each: sometimes pollinia are removed but often this is not the case. Between the dates Aug. 20.07 and Sept. 28.07 eleven plants were under careful examination. During this time 224 flowers were produced but only 15 capsules resulted.

Fertilisation took place only between the dates Sept. 2 and Sept. 21 as follows:

Sept. 2	1 flower	Sept. 6	2 flowers
Sept. 13	3 flowers	Sept. 15	2 flowers
Sept. 17	3 flowers	Sept. 19	2 flowers
Sept. 21	2 flowers		

During this time the Skipper butterfly was observed in some numbers at dusk: the orchids which were fertilised were adjacent to a group of Banana plants on the leaves of which the caterpillars of Erionota feed. In this same period pollinia were removed in no less than 29 observed cases (there may perhaps have been more): sometimes these were noticed after heavy storms of rain and wind and in one case the pollinia had

dropped on to the labellum in another case the pollinia cap had become detached and had caught on the stigmatic surface. Nevertheless no relationship can be found between the rainfall and fertilisation, and though self-fertilisation through the agency of storms is not the usual mode yet it may occasionally happen as the stigma is receptive to pollinia of the same flower.

It should be mentioned that the butterfly Erionota thrax, which effects the fertilisation of Arundina speciosa in Sarawak is a common insect in Java.

A few structural abnormalities were observed in these flowers: in one case half the labellum was normal and the other half was petaloid: in no less than three cases there were supernumary pollinia on the column each having a distinct pollinia cap. But there were no variations in the direction of auto-fecundation.

In a few isolated cases we have observed bees engaged on the flowers of orchids which have no fragrance: for instance Renanthera maingayi and alba of large showy but scentless flowers commonly cultivated in Sarawak are rarely fertilised and we have never seen insect visitors at the flowers but the Rev. John Perham assures us that the carpenter bees occasionally visit the flowers of R. maingayi: and on one occasion, at 6 p. m., we saw a single specimen of the bee apis dorsata very busy at the flowers of a large Cymbidium and the bee was found to have pollinia on the metathorax and yet these flowers are of dull red colour and are scentless.

Story of the Burong Geruda and the Raja Merong Mahawangsa.

BY HON. R. N. BLAND FROM THE KEDAH ANNALS.

After the war of Sri Rama and Raja Handuman, the Island of Langka Puri was deserted except by the bird "Geruda." The Geruda was a descendant of Raja Dewa. He was exceedingly wise and powerful. All birds and beasts feared him.

One day the Eagle came and said to him "Has the news "reached you O Geruda that the Raja of Rum is going to "marry his son to the daughter of the Emperor of China? "These countries are very far apart, one at the rising, the "other at the setting of the Sun; the sultan is sending his son "with a mighty fleet. They are even now weighing anchor and "setting sail. The Cockatoo gave me the news. He saw the "messengers who went backwards and forwards. Then I the "Eagle flew upwards and saw that his report was true." Then said the Geruda to the Eagle "Such arrogance can not be allowed and I will consult the Nabi Suleiman about it." So the Geruda flew to the throne of the Nabi Suleiman and told him what he had heard about the marriage of the prince and princess, saying that such a match was not meet or fitting the countries being so far apart. Said the Nabi: "If it is the "will of Allah, no one can separate them." Then said the Geruda: "Give me this task and if I do not succeed let me "be banished from the sky, and the earth, and all abodes of "men." "Be it so," replied the Nabi, "do what is in your "power with this condition that you must tell me whatever "you do." Bowing before the throne, the bird Geruda promised and departed.

He flew far over the sea to the land of China. There he saw the princess playing in a garden with a companion and

female servants. He swooped down, and carried off the princess and two attendants in his talons to the Island of Langka Puri. He placed them in his house and went off to find food for them. And whatever the Princess wished for, that did the bird Geruda obtain for her.

Now the Sultan (Raja) of Rum assembled the princes who stood crowned before him, together with his wise men and his officers and his guards and all his vassals in the great hall of his court and declared to them his intention of sending his son to the land of China. He commanded an expedition to be got ready with a fleet and enquired who he could trust to take his place as leader.

Now his friend Raja Merong Mahawangsa who was a royal prince, and who had married a princess sprung from the Indra and Gergasi fairies and Genii was present. He was esteemed very wise and valiant among all the Rajas. To him said the Raja of Rum: "Oh brother! will you go to marry my son to the daughter of the Chinese Emperor?" Then the Raja Merong Mahawangsa bowed low and said that he would do whatever his lord commanded.

Thus the ships were made ready, many vessels and kechis to accompany the prince. Then on a favourable day they took leave and made for the open sea.

So with anchors weighed and sails set they followed the ship (bhatra) of the prince, one half of Raja Merong Mahawangsa fleet behind, one half in front to lead the way to the Celestial land.

For a long time their voyage lay past the countries tributary to the great Raja of Rum, and from many broad rivers and from headlands, kings came to bring provisions and gifts to them. In course of time they came to the land of the Hindoos. There many strange and wondrous sights met their eyes. And they doubled many headlands and sailed through many bays, the appearance of their fleet being like a flock of birds seeking their nest, their masts like a forest of pepâra trees, and

the whole sea resounded with the noise of their gongs and music.

Now when they had sailed as far as Kuala Chingkong, the name of whose Raja was Klanggi, the face of the sun became darkened, and it seemed as if a storm were about to descend on them.

The ships drew near together, and the Raja Merong Mahawangsa going up on deck with his weapons saw that it was not a storm but an immense bird coming down on them, whose wings made a noise like the rushing of a hurricane.

For two days the fight with the bird Geruda went on. The ships received it with volleys of arrows and cannon shots. Raja Merong Mahawangsa on the first day brought forth his bow "Aiyounan" and the wondrous flame-tipped arrows. These he sent hustling into the air, and straightway they speed with a noise like rolling thunder, as it were a mountain come down, to overwhelm the Geruda, but he swiftly flying evaded them. Neither cared he for the other missiles, they glanced off harmlessly and fell into the sea, neither could Raja Merong Mahawangsa hit him on account of his swiftness.

On the second day the bird Geruda attacked again. In vain did Raja Merong Mahawangsa draw against him the bow *Bran Pura*. The fire-tipped arrows flew upwards with a noise like thunder and causing darkness as astorm of wind and rain, but they were all lost, nothing could wound the Geruda, even with the assistance of the Genii and air sprites. With beak and talons he seized six ships, scattering their crews into the sea, or letting them fall on the land.

Then night came on, and the ships clustered together for mutual defence during the night. In the morning they repaired their shattered rigging and searched for some trace of their companions. But the sea gave up nothing, so after many days they sailed on. And when they had traced the mouth of the river, whose name is Marib, again they perceived a terrible darkness growing in the sky with a noise of wind and rain and fearful roaring. Then their hearts sank, but nevertheless they moored the ships and prepared to once more receive the Geru-

da with missiles and arrows. These, as before, were of no avail. When the Raja Merong Mahawangsa saw that the Geruda was coming down on them, he took his third bow, whose name was *Perasa Simpani Gambera*, and putting one of his flame tipped arrows to the string he said "O Perasa Simpani Gambera, go forth and destory the Geruda." Then the arrow flew through the clouds and straightway a troop of Jins and Shaitans appeared to assist against the Geruda. But the bird cared not for them nor was his heart daunted. Swooping down he carried off many ships in his beak and claws, either plunging their crews into the sea or dashing them down amongst the lofty forest trees, so that their bodies were scattered in fragments and utterly destroyed.

At this great was the anger of the Raja Merong Mahawangsa. With another arrow he shot at the Geruda, and the sky and sea were filled with a noise like rolling thunder. This time the arrow took the form of the bird Jentaigu, rushing to attack the bird Geruda. Now ensued a desperate struggle, the birds fighting with beak and talons. At last the Jentaigu was overcome by the flames breathed out by the Geruda, and, as an arrow, returned to the quiver of Raja Merong Mahawangsa. Thus night fell and the fleet was for a time left unmolested by the bird Geruda. And in the morning seeing that the Geruda did not come, they weighed anchor and sailed on. And after sailing for several days they arrived at *Pulau Selang*. In the meantime the Geruda had retired to a lofty mountain and was planning how to destroy the whole fleet, for he feared Raja Merong Mahawangsa, who was indeed the bravest and most skilful chief of his time.

Now when the fleet had reached the Island of Selang, they stood in need of wood and water and Raja Merong Mahawangsa was deputed by the Prince to land and fetch it, while the rest of the fleet sailed on. And sailing on they came to the Island of Langka Puri. There, during the night time, they were attacked by the Geruda who had no longer to fear Raja Merong Mahawangsa. The fleet was utterly destroyed. The Prince however, survived. He found himself floating on the

water, clinging to a loose plank alone in the wide sea, without food, at the mercy of wind and waves.

When Raja Merong Mahawangsa had taken in wood and water, he set sail to rejoin the Prince at day break. Presently he came to the spot where the Geruda had destroyed the fleet. There he found a few men still swimming about, these he picked up and learned from them what had happened. For many days he searched for the Prince, then not finding him he sailed on with his people till they reached the Islands named Seraya, Jambul and Lada. A little further on lay the mainland for with they steered. There the Raja landed and was welcomed by the Genii and other supernatural inhabitants of that land. They at length invited the Raja to become their ruler by reason of his valour and the nobleness of his language. There they built a palace and a fortress for him, and his people with their wives and families formed a kampong or village around. And in a short time the kingdom thus founded became prosperous and powerful. Many people came to settle amongst them and from all lands to trade with them.

In the meantime, the Prince was left swimming alone in the sea on his plank.

For several days he drifted, borne along by winds and currents. He had neither food nor drink, the sun beat on him, the waves buffeted him, his body became all covered over with mussels and limpets. At last he was washed ashore on the shore of Langka Puri. Lying in a cranny of the rocks, he was too exhausted to speak or move, he could only groan.

Now the Chinese Princess with her attendants had been carried off to this very Island of Langka Puri by the Geruda, and it happened that when the Prince of Rum was thrown upon the coast, the Geruda was away finding food, while the Princess and her nurse had come down to the shore to look for shells and crabs and coral; suddenly they heard a noise of groaning, and the Princess bade her nurse go and see what the noise was. She was terribly frightened when looking over some rocks she saw a strange thing like a man, but with a body all covered with sea weeds and limpet. She did not stay to

look twice, but ran straight back to the Princess to tell her what she had seen. She declared she could not tell whether it were a man or an evil spirit. Then the Princess smiled and bade her go back and not be afraid, but find out whether it were a man or not and bring back word. So the nurse went and took courage to approach and speak to the Prince, who slowly and with difficulty told her who he was and what had happened to him. When the nurse heard this she felt very sorry for him and returning told the Princess. Then the Princess was glad indeed and with the help of the two attendants she bore the poor Prince and hid him in a cave lest the Geruda should find him, and she told the nurse to give him a bath and scrape the shells off his body and to be careful not to give him rice at first, but only rice water until his stomach should be stronger. And towards evening they piled up stones before the cave and left him for fear the Geruda should find him on its return.

Now it was the Geruda's custom to leave the Island of Langka Puri every morning in search of food, returning only at nightfall; thus it was possible for the Princess's attendants to visit the Prince in his cave every day, to nurse him and bring him food. And after a short time the Prince recovered, and the nurse reported to her mistress that he was superior to the princes of all other countries in appearance and manners, but that he was sadly in want of clothes. So the Princess thought of a plan. When the Geruda returned at evening she addressed him, "Oh, my father, you have brought us here and are always taking pains to get us what we want, but there is something more I wish for. I have left all my clothes behind. There is in my father's palace in China a room set round with mirrors, and in it a chest hinged with ivory and set with emeralds. In this chest are all my clothes. Will you, oh father, go and get it for me?" The Geruda replied that he would gladly and immediately set out.

So the Geruda flew away till he came near the Emperor's palace when he caused a storm of wind and rain and darkness to come on which shook the whole building and roared horrib-

ly overhead. Then the Emperor and his great men who were feasting inside were terribly frightened. They began to tremble, and no man knew what to do or what was going to happen. However, the Geruda did not do them any harm, but simply pulled down part of the wall of the palace and put in his head and seized the box as the Princess had told him, and flew away with it back to Langka Puri. The Princess was not a little glad to get back her box; she pulled out all the things and looked at them and choosing some of the best she gave them to her nurse to take to the Prince, as soon as the Geruda should be out of the way.

At last the Prince was fit to meet the Princess, and dressed out in his fine clothes like a Raja the Princess thought she had never seen a young Prince like him.

So they embraced and kissed each other, and sat hand in hand, dreading the time when they would have to separate for fear of the Geruda. But there was no help for it—at evening they had to go, both weeping and lamenting their sad condition. Thus day after day, till at last the Geruda told the Princess that he was going to present himself before the Nabi Suleiman and that she must behave well in his absence. When after flying for many days, the Geruda arrived before the throne of the Nabi Suleiman bending low he told him how he had prevented the marriage of the son of the Sultan of Rum with the daughter of the Emperor of China, and whatever else had happened. Then said the Nabi: "But suppose the Prince of Rum should be alive, what then O Geruda?" The Geruda answered: "Should this be so and the Prince meet the Princess O Nabi, let the former vow take effect, let me depart from all the habitations of men and from beneath the sky, and from the face of the round world." At this the Nabi smiled and bade him who ruled over the Imps or Spirits and whose name was Herman Shah take 100 of his Imps and mentris and fly off to Langka Puri, to seize whomsoever they might find there, put them into a large box and bring them back at once. On their return, the Nabi ordered the box to be opened in his presence and that of the Geruda. Out came the Prince of Rum, the Princess of China and the two attendants!

Then said the Nabi Suleiman to the Geruda; "Listen O Geruda, and all ye Rajas, warriors and subjects. From this ye may learn that whatever Allah has decreed will surely come to pass. He provides for all mankind, and watches over their affairs and because, O Geruda you have not believed this and have tried to thwart the design of Allah with regard to the son of the Raja of Rum and the daughter of the Raja of China, I now banish you to the sea called Kolzum (Red Sea) to which mankind cannot approach."

The Geruda replied: "If this is the command of the Nabi Suleiman, I obey," and straightway he flew away in the direction of the Sea of Kolzum where he remains to this day.

Then the Nabi Suleiman commanded his mentris to prepare letters in the language of the Imps addressed to the Raja of Rum and the Emperor of China, to inform them of all that had happened to their children, and at the wish of the Prince of Rum he directed the Raja to recall Raja Merong Mahawangsa who had founded a Kingdom on the Island of Seraya. The letters having been written and addressed in the proper style, the Nabi commanded Hermanshah to proceed with his jins and mentris to the Court of the Emperor of China taking the Prince and Princess and their attendants with them.

Now the Emperor of China was in his Hall of Audience, consulting with his mentris and chief officers, hulubalangs, sidasidas etc., as to what reply should be sent back to the Raja of Rum by the messengers who had come to obtain news of the Prince and Princess. Suddenly the Mangkabumi (Chamberlain) saw Herman Shah, the Raja of the Jins appearing on the threshold. Going forward great was his surprise to learn his name and mission. Taking him by the hand he led him before the Emperor who rose from his seat as a sign of honour. Then Herman Shah presented the letters from the Nabi Suleiman and caused the box containing the Prince and Princess to be brought before His Majesty. The letter having been honoured with all proper ceremony, it was read out by the Mangkabumi. And when the letters had been read the box was opened and the Prince and Princess appeared before the Emperor. Then was

the Emperor glad, he kissed and embraced his daughter and was highly delighted with the appearance of the young Prince. So a feast was prepared and all the Jins and ambassadors and nobles were entertained, and the Emperor sent word throughout all his Empire and its tributaries to prepare to celebrate the marriage of the Prince and Princess as the Nabi Suleiman had commanded. And the ambassadors were directed to return to inform the Raja of Rum of the happy ending of his son's adventures.

My Trip to Bĕlum.

By E. W. Birch, C.M.G.

We started from Grit for Bĕlum on Monday, the 26th July. Hubert Berkeley, J. W. Simmons, the Datoh Sri Adika Raja, I.S.O., the hereditary Chief of Upper Perak, and I.

We had 21 elephants, one of which is probably the tallest in Perak. He is named Bogĕk and stands 9 ft. 4¼ ins. at the shoulder. His master, the Datoh Wan Man—the headman of the district for which we were bound—had come down to Grit to meet me and was our guide to Bĕlum.

We began our journey by walking eight miles to Bersiah, where we camped. The elephants took over seven hours to make the journey. They can go two miles an hour when the going is good, but deep mud, hills, river fords and fallen trees delay them. At ¼ past 12 we reached Kuala Rui and saw how it empties its muddy water, full of mining silt, into the beautiful Perak river.

We passed through bamboo country and crossed some fair-sized streams.

Bersiah is a village with 64 people of all ages, who live in miserable bamboo huts and have but little cultivation of a permanent nature. The evil of opium smoking is very evident amongst the Patani Malays here and elsewhere and destroys their usefulness as agriculturists. There is some padi land, and some more will be irrigated next year at Banderiang, on the Grit side of Bersiah.

The people suffer a great deal from goitre (*bengok*), and this was more noticeable the further we went up country. The Datoh Sri Adika Raja tells me that goitre is a peculiarity of the interior of all the surrounding Malayan countries as one nears the mountains: and that the Malays attribute it to the water the people drink. They believe that the water is infected by some unknown *akar* (root or creeper).

On the 27th, we broke camp at 7.30 a.m., and reached Kuala Temengor at 2.50. The scenery on the river here is beautiful. We went on up the Temengor river and camped at Dusun Memalik at 3.35.

The Temengor here is bigger and carries a larger volume of water than the Batang Padang river at Tapah. As we turned into Dusun Memalik, some of our men saw a tiger on the path but it did not visit our camp, having been frightened away probably by our elephants. One of the Chinese cooks was suffering so badly from fever that we sent him down on a raft to Kuala Kendrong, two miles from Grit. He is an opium smoker.

We wake up on the 28th to find it raining, and when we broke camp at 8.30 a.m., Berkeley and I walked on to Berusong, 1½ miles. We waited for the elephants at the turn off of the Temengor path. It is nine miles from there to the village of the Mengkong of Temengor. We followed up the Kelantan path on elephants, the rain having fortunately stopped. There are few more uncomfortable experiences than to travel slowly on elephants when it is raining. Malays say that in elephant travelling there are three things to avoid—darkness, rain and camping near cultivation.

We had to run the risk of the last of these evils more than once and had to pay trifling sums for what the elephants ate. It is extraordinary that they don't do more damage. They are bathed on arrival at a camp, turned loose with a chain on one leg which they drag about after them, their *gembalas* (mahout) visit them when near cultivation before dark and find them again at daybreak when they are again bathed and saddled. Their wooden bells (*kerotok*) and the cracking of bamboos tell their whereabouts, and are the only noises one hears in the stillness of the forest nights. In my walk of 1½ miles to Berusong I picked 34 leeches off my legs, but that was a trifle to what we experienced later.

Berusong is the field of old gold workings of ages ago, but people still hold land there. That gold is there no one doubts, but the water difficulty prevents systematic working. We

passed through some fine forest with good merbau trees. No one cuts them, for no one has need of timber up here. We kept the Perak river on our left, at a distance of about five miles all the way and camped at 5 p.m., on the Singor river at Kuala Bubong. The Singor is a fine river with a considerable volume of water and may be compared for size to the Plus.

Our camp was on the habitat of *semut api* (a large black ant), which bites painfully and is feared by Malays. A good deal of sweeping and some kerosene oil drove them away.

Just before we reached our camping ground, an accident, which might have been serious but was fortunately only laughable, occurred. Simmons and our Chaplain (Haji Hamat) were riding on Meh Mas (the golden girl), and she was being immediately followed by Bogek up a steepish bank.

Bogek is a queer-tempered elephant, and as Meh Mas was climbing too slowly to please him, he dug her in the rump with his tusks and over she rolled. Her small gembala and the two occupants of her saddle (*rengka*) were thrown out but luckily without bruises.

On the 29th, we broke camp at 8 a.m., and travelled on elephants up the Singor river through pleasing scenery as far as Pineris, which we reached at 10 a.m. Just before we got there, we saw a most magnificent *ara* tree (*ficus*) on the opposite bank. I have rarely seen a better specimen.

All the people have left Pineris and moved to Banding on the Perak river. It seems a great pity that a place so beautifully situated and so well planted up should have been deserted. There is padi land below it, but not sufficient water for regular irrigation, and it has never been tilled. The settlement was formed in 1904 to check the raids of Legeh men who came in to look for *kayu gaharu*,* and in that direction it was successful. Berkeley gave the settlers poultry and seedlings, appointed an Assistant Penghulu, and built a halting bungalow and school. But the first year locusts ate most of their crop of hill

* This scented agila-wood is found in the heart of one or two trees generally in the tengkaras (Malay) or depu (Patani).

padi *(huma)*; and for the next two or three years the ear of the corn was empty. This so disheartened them that, when the transfer of the upper country began to be talked about, they asked leave to move over the border to Banding. The school is about to be moved there now. From Pineris to the Kelantan border the distance is 30 miles, and there is a good path most of the way. We left Pineris and the Singor river at 10.35. The path was rather overgrown, and I applied the golok (cutting knife) vigorously to overhanging branches, when, to my sorrow, I cut into the nest of *penyengat* (wasp), and quicker than anything else but lightning I received ten stings distributed over my right ear, my right-hand and both ankles. The pain was intense for a few minutes and was followed by a feeling of numbness. Soon we came upon some truly magnificent trees of wild cotton (*kekabu hutan*). They were from 16 to 20 feet in circumference, straight for 150 feet and plentifully topped with leaves very like those of the ordinary cotton tree. The cotton which these trees yield is said to be peculiarly soft. We got into camp at Sungei Banun at 2.30.

From 3 to 4 p.m., Berkeley and I sat in the *sira banun* (sulphur spring) and waited for big game but it was a hopeless wait from the first, for the bells of our elephants must have driven all game away. We saw the marks, very fresh, of an immense elephant, and it was not long before we were to hear of him.

We netted a beautiful *kelak*, the best of our river fish, for dinner.

At 1 a.m., on the 30th, I awoke with a racking headache and stayed awake till coffee was ready at 4.20 a.m. I had unmistakable signs of fever on me, so took quinine and determined to walk it off. At 7.30 Simmons and I left camp, and guided by Datoh Wan Man, walked six miles to Kuala Kriong on the Perak river. We got there at 10.30 in bright sunshine, waded across the river and selected a small stone *tanjong* or bank for a camp.

We encountered leeches innumerable on our walk, and had to stop every few yards to pick them off. The remaining

Chinese cook walked behind me and was very busy and useful all the way.

At noon Berkeley came in, saying that three of our female elephants had followed a wild tusker—undoubtedly the one whose marks we had seen at the *sira*—and that he had left Saiyid Wahab and three gembalas behind to try to catch them. A little later the Saiyid came in looking very white. The tusker had chased him. He had fired in the air and then managed, just in time, to crawl under some fallen logs.

Alang Sagor, the chief gembala of Datoh Wahab (the Penghulu of Sungei Raia in Kinta), in his frantic haste to get away had fallen on to a log and fractured his right-arm, half way between the wrist and the elbow. He and the other two gembalas had come in with Saiyid Wahab.

Berkeley very skilfully set Alang Sagor's arm in bamboo splints, but, at his request, took off the splint; for Datoh Wan Man had some *jadam* (asafœtida) in his bundle, and that applied with boiling water forms a sort of a plaster. That done, Berkeley rebound the arm in splints, and when two days later we left Alang Sagor, and another gembala, Ismail, who was suffering from fever, at Tapong, he told me that his arm felt quite easy.

It rained incessantly all that afternoon and until after we went to bed, but I personally slept for nine hours and woke up at 5 a.m., with my fever gone.

The three missing elephants belonged, one to Datoh Wahab, one to Raja Harun, and one to the young Datoh Muda of Kinta, Berkeley sent away four *gembalas* from Kriong to catch them.

On the 31st July, Simmons and I, with Datoh Wan Man, the leech-removing cook, and half a dozen men, crossed the river on elephants and began our walk to Tapong at 7.20 a.m. We immediately came upon the tracks of the wild tusker. Datoh Wan Man told us that the elephant had left the females and crossed the Perak river in the night to where our remaining 18 elephants were turned loose. One of our *gembalas*, going at dawn to catch his elephant, saw the tusker and in

running away fell down and hurt his back but not seriously. Wan Man was sure that the tusker was still across the river, but enjoined upon us the advisability of strict silence. We followed his gigantic tracks for half a mile up the Tapong path and then sure enough found that he had turned back to cross the river. So we walked on with quicker steps and unconstrained tongues, meeting with uncountable leeches, which kept us both, and indeed all the party, continuously occupied.

We walked through two *sira* and reached Perenggan at 10 a.m.* We found that Wan Husein was encamped there, but he had gone to visit some Sakai, so Simmons and I, with our party, pushed on, on small bamboo rafts, one mile up-river to Tapong.

The kampongs are all deserted at Tapong and the people have moved down to Perenggan, where there are now 39 of them.

But we found a delightful white-sand bank on which the sun was blazing. We had taken the precaution to bring all our washed and wet clothes in two bundles and we spread them out and completely dried everything by the time (1.30 p.m.) Berkeley came in with the elephants. As soon as the tents were pitched the cast-nets were at work and we got quite a good catch.

The bank on which we camped was covered with *bayam pasir* (sand spinach) in full blossom. The flower is like an everlasting, ranging from pink to magenta in colour.

Wan Husein paid us a visit and chatted, and the Tapong people came up to sell fowls and fruit, and were commissioned to make five rafts for us to be ready for our return journey down river.

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* This old boundary of a hundred years ago is always described in the Malay Saw—"*Batu belah kekabu hutan Padang Limau Nipis.*" We saw the split rock (a poor specimen) left by a Sultan's sword, but the wild cotton tree had disappeared. It shed white blossoms on the Perak side and red on the Patani side. The other boundary referred to, Padang Limau Nipis, is not now part of Perak.

On the 1st August, we left the best camp we had so far found at ¼ to 8. We crossed the river at once on elephants, entered some *belukar* (secondary growth) and lost our way. We took nearly an hour to find it.

The midges were terribly annoying, a species called *rengit*. It would be quite improper to put on paper the only language in which they were fitly described. We forded the Perak river six times, and near one of the crossings Berkeley told us the story of the death of Mengkong Gos. He lived about 80 years ago, and was a well-known Patani Chief. He gave offence to the Raja of Reman because of his friendly attitude to Perak people. The Raja sent for him and at the little lalang patch at Bruah he met the Raja's messenger. They both got off their elephants to shake hands and, while the Reman man gripped the old Mengkong's hand, a Chinese Mualaf (convert to Islamism), stabbed the Mengkong from behind. The kris bent double, and the old chief, seeing that his life must be taken, said: "No kris can kill me unless I *jampi* it" (imbue it with magical power). He then took the kris in his hands and straightened it out. When he had done so, he handed it back to the Mualaf who stabbed him. So the legend goes: it is a good story, but the Mengkong seems to have sought his fate. He was the great-grandfather of the present Mengkong of Temengor.

We reached camp at Tronoh at 3 p.m. when Husein pitched his tent on the river bank, but we all set up ours on a stony island and there made the acquaintance of yet another insect. It is called *tungau* (sand-tick), and is most diminutive. Bright red in colour, it looks exactly like a grain of Cayenne pepper. It invades your person and proceeds without delay to bury itself under the skin. It is difficult to see, and more difficult to pick out. It is said to feed for about four days and then work itself out and drop off. Meanwhile, as most of our party can vouch from experience, it is itchy. It does not deserve to be spoken of in nicer language.

Berkeley and the Datoh Sri Adika Raja went out fishing and their success compensated us for small evils.

On the 2nd August, we left our camp at 7.45 a.m., and at once got into the open out Jeram Kekua (a fine rapid). Here there is a wide rocky bay with very slippery going for elephants. Kulop Bintang fell and split both his tusks. Our little enemies, the *rengit*, were most persistent. At 8.45 we skirted Lobok Panjang (the long pool). The Perak river runs quite straight and deep here for some three-quarters of a mile between high banks.

We seemed to be steadily climbing. At 11.15 we crossed a fine clear stream of some size, the Sungei Tahan, and later crossed the main river five times. Near one crossing, Manik, we came on the spot where one of Mr. Caulfeild's camp followers was taken in 1884 by a tiger out of an elephant's *kop* (howdah) in the middle of the camp. It is a tiger country, and many are the tales told of how man-eaters have killed people in the past.

We went on further than we had intended, passed Jakat without knowing it, and camped at 3.20 p.m., in a place that was not inviting. A species of cobra and an *ular matahari* (a beautiful but poisonous whipcord snake) were killed within a foot of each other where my tent was being pitched, and when the ground for Simmons' tent was being prepared, a few minutes later, a small *uiar matahari* was killed. It is very rarely that one sees snakes in big jungle, so this incident is quite remarkable.

While we were all bathing in the river, we heard elephants trumpeting, and the gembalas were sent off to see what had happened. Bogek was tethered, but Kulop Chandan, a big tusker of the Sultan's, passed within the length of his chain and received two pokes in the neighbourhood of his tail. Berkeley examined the marks but decided that they were not serious.

On the 3rd August, Simmons and I left camp at 7.15 a.m., and rode on Meh Mas as far as the Rest-house, which Wan Husein has established at Tunggul Burok (the rotten stump). There we got off at 9.20, and led by Datoh Wan Man and followed by the Chinese cook and Simmons' Malay boy (a Saiong man), we commenced to walk into Bĕlum. We crossed at least

seven respectable streams, so it is not to be wondered at that the Perak river carries down from its ulu a fine body of water and that heavy rains easily create floods. The first part of our walk was along an excellent path and in open bamboo country,* and we strode on in good spirits. Mine were presently damped, for I did not see an overhanging tree above the path, and a very solid one at that. I walked straight into it with my head and was almost stunned. Then we began to climb a hill and, at the worst point, I heard an exclamation from behind and saw Simmons clap his left-hand to his left ear apparently. I said "hornets" to the old Datoh and we did an excellent sprint up the hill followed by Simmons, the cook who had been stung in the hand, and the boy who was apparently in as much pain as if he too had been stung. We ran up into some lalang, and as I saw a patch of jungle on the right where there was shade, I urged the Datoh to run into it and we all followed. We hoped that the hornets would go on up the path and that we should escape. We were breathless and wanted a rest. When Simmons came in, I saw he was bleeding freely behind the ear. I was just going to suggest whisky as a remedy applied locally (I had a flask), when he said: "There is one of them on you." We all immediately bolted into the lalang and down the path. Some 200 yards further on we entered jungle and Simmons saw one sitting on my leather belt. He crushed it with a walking stick. We picked it up off the ground and beheaded it on a log. Then only did I see that it was not an ordinary hornet (*tebuwan*), but a *panahliang*.† This fearsome hornet, the worst of all stinging insects in Malaya, is fortunately

*W. G. Maxwell, in his delightful book "In Malay Forests," makes too much, if I may say so, of the gloom or impenetrable darkness of the forest. In *belukar*, where elephants chiefly feed and in swampy places which the rhinoceros haunts, I grant that his description is correct. But in old forest one can not only see for some little distance, but can make one's way.

† From panah—an arrow, and liang—a hole in the ground. This species of hornet makes its nest in a hole in the ground. If you tread on or disturb its nest, it darts at you like an arrow out of the hole.

uncommon. Its yellow band is lighter than the orange of the hornet. Its wing is more gauzy and browner than the *tebuwan's* wing. Its bite is said to produce fever, and quinine is always asked for if a white man is near by. It is reputed that six will kill a man, from ten to twenty a buffalo, while quite a few will make an elephant do what we did—*i.e.*, run. It is said that for a radius of four feet round their nest all vegetation is killed. I am a lucky person to have had two settle on me and yet not have been stung. Simmons' neck continued to bleed, but, soon after he was stung, we overtook Wan Husein on an elephant. He produced a bottle of Siamese medicine, menthol and peppermint, with a odour of snuff, which gave great relief. Wan Husein's gembala was stung under the left eye and the poor man's face was terribly swollen. Later, when our elephants came in, we heard that five or six men had been stung. Berkeley escaped by making his elephant walk at a funeral pace, a rate of progression to which the *panahliang* is quite unaccustomed.

We got a good view of Ateng, a fine hill about five miles off. We then went down to the river bank and goat-walked for about a mile. It was not till 1.10 p.m., after four hours' hard walking, that we reached Lembu—the first village in Bĕlum. The water of young cocoanuts was greedily drunk. There are only 13 people in the village. One hundred yards further on is Kubong Rengit (the pond of the sandfly) with eight inhabitants. A quarter of a mile along the padi-fields we came to an ideal camping ground on a high bank over the Perak river, with short grass shaded by *angsana* (*pterocarpus*) trees. We all camped there on Tuesday and decided to stay till Friday morning, so as to rest our elephants and see the people of the eight villages. The elephants had travelled on an average for seven hours a day, which is as much as can be expected of them. At 5 p.m., I took my gun out and got a right and left at jungle fowl, bagging both. There is a clearing at Tandok close to our camp, one house with two people.

On the 4th August, at 5.30., I was up for coffee and went out with my gun. I had two shots at jungle fowl but only

bagged one. I walked on to Lapang Hanyir (open land with a sour smell), which is the Datoh Wan Man's chief residence. His wife is a leper. There are 23 people in the village. The padi-fields are terraced, and years ago there must have lived a clever native engineer who irrigated all these fields, bringing water from the Maka river through a deep cutting. Later in the day the people of Belimbing (on both banks of the river), of Kĕbeng and of Grêh came in and from their lips I took a census, which showed 27 males, 29 females and 69 children, or 125 in all, in those villages. We had a long talk with the Imam, whom I confirmed in his office, and told the people to build a mosque and school at Maka, as it seems the most central place. We procured two goats and a buffalo for a feast for the village people and for our camp followers. All the debt slaves (16), except two, were brought before me, and I told them that their owners had been paid and that they were emancipated. Wan Husein had told all the villagers that they had been transferred to Perak from the protection of Siam, and I explained to them the lines of our administration. They said they would try to recall the people who had left their orchards and rice fields: they complained of the great difficulty in obtaining blachan and salt, but of rice they grew more than enough. They brought us in a quantity of fowls and very good rice. These people are at least 70 miles from Grit. There is no possibility of regularly supplying their wants, except by sending up an elephant once a month. If a Chinese shopkeeper can be induced to settle here he could do it, but as opium smoking is not practised in Bĕlum, he should not be allowed to take opium up country. The whole population is about 206.

There is no prospect of planting in this district. The cost of transport would be in itself prohibitive.

Bĕlum stands at an elevation of over 1,500 feet above the sea, and has a healthy climate. But it is sad to see so many people, especially the young, afflicted with goitre. There are few mosquitoes and but little fever. It is quite a nice place when you get there. The journey is the rub.

On Thursday, the 4th August, Wan Husein went back to Betong. He showed me Hedgeland's map, with the new boundary marked on it, at Bangkok. He has been very friendly.

We left Bĕlum on our return journey at 8 a.m., on Friday, the 6th August, and reached the rafts (*rakit rembau*) at 3 p.m., on the 7th at a place called Lobok Jerai (the pool of the *ara* tree). They were very comfortable and we slept on them. Sixteen bamboos are tied together with rattan: they form the main deck, 48 feet long by 5½ feet wide. Under them are lashed five pairs of bamboos to raise the deck and also to act as a fender to it. In the centre of the deck is built the *rumah* or house, 11 by 5½ feet. It is raised 15 inches off the main deck by three bamboos crosswise, resting on three length-wise, and on the top is a flat flooring of split bamboo. Sticks are tied on to the sides of the house and a tent hung over them forms the roof. Five men pole them, one of whom in the bow is chosen for his intimate knowledge of the rapids which have to be negotiated.

Before dinner the cast-net was taken out and 35 fish were caught, a large and two small *kelak*, some *rong*, *tengalan* and *krai*.

On the 8th August, I got off in the leading raft at 7.30., saw a deer which one of the men frightened away by shouting, and had a long shot at and missed a jungle fowl. It was a cloudy, cool morning with a fresh breeze, and the scenery, together with the excitement of the rapids, was quite entrancing. We went over sixteen rapids before we got to Tapong 10.45 and Perenggan 11.10. Only one of them was really exhilarating—Jeran Bruah. You go down it in two big jumps. It is half way between and close to two rivers. The upper is Sungei Klian Mas (the river of the gold mine), and is so called because a number of Chinese were mining there years ago. There is doubtless gold still left. The other, Sungei Tiang, is quite a respectable stream. Five or six miles up it there are abandoned orchards of durians and cocoanuts, which are said to belong to the Mengkong of Temengor.

At Perenggan, one of our runaway elephants, the one belonging to Raja Harun, was feeding. It had been caught at the Rest-house at Pineris, and the other two had been heard of at Dusun Memalik. They were all evidently on their way back home, but Rana was outpaced by the others, because she had hobbles on her hind feet.

It is a well-known fact that the *ungka* (*Hylobates concolor*) and *siamang* (*Hylobates syndactylus*) inhabit different banks of the Perak river: the former the true right bank and the latter the true left bank. After a great battle they came to this sensible arrangement on the two huge rocks about two miles above Kuala Kendrong. It is evident that the treaty did not extend to the higher reaches of the river, for in my journey I heard the cry or song of the wah-wah (*ungka*) on both banks. I was able to collect the seed beans of the beautiful creeping bauhinia, which covers so many jungle trees with its scarlet and orange blossoms. The Malays call it *dedaup*. Both banks have a fine lily growing by the water's edge. The Malays give it the somewhat generic name of *pechah periyok*. It has many beautiful split white flowers on a long stalk. I collected a few bulbs.*

We left Perenggan at 12.20 and met the Assistant Penghulu of Temengor coming up on a small raft to escort us. I took him on my raft. After passing over eight more rapids, we tied up at 3.15 p.m., to a sand bank opposite Sungei Ta-ar.

On the 9th August—the seventh anniversary of the Coronation of King Edward VII—we were off at 7.45 a.m. The Datoh Sri Adika Raja had gone on in his raft an hour before us, and by so doing saved us an hour's delay, for when we arrived at Jeram Goring at 8.30, he had not yet finished cutting away the overhanging branches on the left bank of the river which make this rapid difficult to negotiate. It was a fine rush through the water. Berkeley's raft stuck for two or three minutes in the approach to it. I had two high shots at *pergam* (the imperial pigeon), shot two grey hawks, saw a

* Doubtless *Crinum defixum*, H. N. R.

beautiful *serigala* (jackal) like a red fox, heard the cry of the Argus pheasant (*kuwang raya*) several times, and was interested to watch about a dozen little birds (*merbah*) dipping down repeatedly from low branches to take their bath in the river. They were not after food but were just half diving into the water. At 11 a.m., we reached the Seniang rapid, and as ours was the leading raft, we stopped and took 20 minutes to cut away overhanging branches. Then, we plunged through. It was quite exciting. We reached Kuala Kedah at 12.20 and landed at Haji Mudin's kampong at Banding ten minutes later. This is the new settlement to which the people from Pineris have migrated. It can be watered as far as Palut for irrigation purposes from the Kedah it is said, but it should be thoroughly examined by a Public Works Officer before these poor people are induced to make a second settlement. With the help of Haji Mudin and the Assistant Penghulu, I made a census and found that there were 51 people of both sexes and all ages. I walked through the clearings and met a number of Sakai of the Kunchiau tribe (about 20 men, women and children), all with short curly hair. One fine young fellow stood 5 feet 10 inches, but the others were short though not diminutive. Three of the women had tiny babes at the breast. They tried to run away when they saw me, but we induced them to come back and chat. In the old days the Rajas used to take their children to be slaves, and sometimes, of course, the parents, if they resisted, were killed. We left Banding at 1.35 p.m., negotiated the Palut rapid which is rather nice, passed Bukit Tali Kail (hill of the fishing line)—the boundary laid down in the Siamese Treaty of 1899 and marked with a stone—and went on to Jeram Chenoh. We reached it at 3.15 and dashed through it. It is a fine jump down one ledge, but the water did not wet the rumah rakit. At 3.40 we passed the mouth of the Singor. This fine river, which I have previously mentioned, empties itself into the Perak at a rocky delta. The chief part of the stream comes surging through rocks not more than 20 feet apart. After having passed over 25 rapids, we stopped for the night opposite Kuala Rengkam. It was 4.45, and the men

had had a long day. Our last rapid (Jeram Maya) was exhilarating, the waves being larger than we had so far encountered.

We saw some small rafts, those used to pole up-stream, at Banding. They are called *lantin*, and differ materially from the *rakit*. In the latter the bottom or thick end of the bamboos are in the bow. In the former the tops or thin end are in front. The number of bamboos used in a lantin is always an odd number. It varies from five to eleven. In the middle is a small raised bench with a handrail on each side. A *lantin* is about the same length, but not quite so long as a *rakit*. The centre bamboo is the longest and the others are each in turn shorter than one another. When green, the bamboos are lashed together, and both ends are raised by being rested on logs or on higher ground: the centre is then heavily weighted with stones, with the result that a good sheer is given to the raft.

The Datoh and I were off at 6.15 a.m., on the 10th August, and the early morning air was delightful. The men saw a *bachang* tree (a species of mango) and landed to pick some 30 fruit. I had a long shot at a jungle fowl. The Datoh stopped to get rotan lang to tie our rafts together at Kuala Temengor. At 7.30 we went alongside the right bank and I looked in at Sira Eseh and saw a sambur. It looked up at me and I had a shot of from 35 to 40 yards at its head. Off it went, and though we followed its tracks for about 200 yards, we could find no trace of blood. Eheu. The Datoh caught two fish from his raft while he waited. When I got back to mine, the rest of the flotilla had arrived.

I do not know whether the legend of the *burong tebong mentuwa* (the bird which cut down the house of its mother-in-law) has ever been printed in English. The hornbill, like the poor, is always with you when in the jungle. This bird is a hornbill, but the upper ridge of the bill is solid. Its cry is tock-tock-tock and then the maddest of the mad laughs. Once upon a time a girl married a man, a thriftless lout: her mother, a widow, opposed the marriage. A few days later the girl, when cooking, asked for salt. The husband said there was

none. She told him to go to her mother and ask for some: the angry old lady refused to give it. He, in a rage drew his parang and hacked at one of the posts of the house tock-tock-tock and, as the house fell with a crash, he burst into loud laughter. For this crime he was turned into a bird. We often heard its cry on this trip: you do everywhere.

At 9.30 we reached Jeram Halangan, our tenth rapid. The Datoh shot through on his raft: the Assistant Penghulu said that the Datoh's raft had nearly turned over and that he was not going to dare to take me. Berkeley came up and agreed with him, that we should all get out of our rafts and lighten them as much as possible. So out we got. It was a great pity as the rapid proved quite negotiable and we went through far more exciting experiences later on. Kuala Temengor is just below this rapid and we all stopped. The Datoh's raft and mine were taken to pieces under his direction: the main deck was widened to 22 bamboos or 7 feet 6 inches. Under it 22 more bamboos were lashed: the rumah rakit was similarly widened. With Berkeley, I visited the five families (20 persons in all) who live here: they wanted rice and we left some. They gave us Indian corn and some long beans.

At Kuala Temengor we saw Meh Suli—one of the two missing cow elephants—the property of the To' Muda of Kinta.

We left at 12.45, the Datoh and I travelling in one raft and Berkeley and Simmons following in another similarly recontructed, while the cook and a party came in the third; we immediately entered the Jeram Panjang. It is beautiful and thrilling. On each side there is a continuous wall of rocks, mostly black with a few light-topped ones; in places the passage opens out into a semi-circle, but, speaking generally, it is not 50 feet wide.

As we entered, there was a fine outstanding boulder—Berhala To' Sih Ulu—on the left, and the Assistant Penghulu, Pah Mat Nor, threw an offering on to it, uttering these words:

"Nenek minta' tabek kita na lalu: tolong hantar Tuan Besar dengan Datoh Sampei Bersiah jangan apa chachat chela."

"Oh! Ancient one, I ask for your pardon, we wish to pass. Pray, send the Tuan Besar and the Datoh as far as Bersiah and let no mishap befall them."

Passers-by are supposed to offer something of whatever they have: no form of offering is laid down. As one of the men on the raft said: "Tin ore or anything will do."

Three men sat in the extreme bow of the raft with paddles which they dipped over its nose to guide it: two men stood behind them with poles to shove us off the rocks, as we were washed too close to them.

The Jeram Panjang Ulu (the long up-river rapid) is a succession of rapids within rocky walls: you emerge from one into still water and in a few moments enter another and so on. The first stretch takes 20 minutes to get through travelling very rapidly, and in three cases—Punai, Trang and Goa—rushing through waves, eddies and whirlpools. Punai wet us, at Trang we apparently sank and were swept across the rapid on to the rocks on our left. Saiyid Ali, the fiddler, leapt into the water. The three men with paddles were swept off their seat and swam towards us. The raft swung round to the rocks on the left, notwithstanding the herculean efforts of the two men with poles. The three paddlers helped by the Datoh sprang to the bow of the raft and pushed off from the rock. Saiyid Wahab held out his hand to me and said: "You had better get off on to the rock." But I sat still, for it never occurred to me that the raft would not right itself and I was intensely interested. It all was over in a minute and we went on in the rushing water only to reach Goa. The word means a cave and there is said to be one deep-down. All we saw was a whirlpool and the rush of water sucked the raft to the left, but it was deftly turned off the rocks by the polers and we went on into smooth water after, as I have said, 20 minutes seething with excitement. In a few minutes we entered another rapid.

Many years ago Messrs. Bozzolo and Lauder, while passing through this rapid, came on Goa when it was sucking (*mengisap*), as it does at a certain stage of the water. As the bow of the raft went under, they jumped on to the rocks but lost everything.

We were borne on in deep water where the poles could not find bottom and, where the rush of water was too great for the steersmen, on to a small rock—we hit it—jumped back and then the starboard steersman pushed us off it with his paddle. A little later, at 1.25, we heard Berkeley calling and saw him on a sandbank a quarter of a mile back. We poled into the bank and sent half a dozen men to see what had happened. Several of his lower tier of bamboos had been smashed: so we stayed where we were for the night. I found I had lost a pair of English shooting-boots.

On the 11th August, we started off at 7 a.m. Very fortunately it had rained heavily in the night: the river had risen from 18 inches to 2 feet and our journey was made much easier for us. At 8, just as we were about to shoot the jeram ringat, we saw the last of the missing cow elephants (Rana Kamuja) within a few feet of the right bank; we poled into the bank below the rapid and sent in two men to catch her. At 9.15 they came back to say she had bolted.

The Ringat river is pouring mining silt into the Perak, a fouling that must be speedily prevented.

At 10 a.m., we reached the head of Jeram Brusa. We stopped for ten minutes, while experts examined the state of the water. It was decided that we could go through the smaller channel. We started, and for over a quarter of an hour it was a great fight against a nasty, twisting, zigzag rush of water, full all the way of eddies and whirlpools. There is one rock in mid-stream which is very threatening, but the increased quantity of water helped us to avoid it. A little later the raft was sucked a foot under, but soon rose and, rounding the last bend, we rode into smooth water. But no sooner were we out of Brusa than we were into Breksa, not so long, not so fierce, but with one difficult cluster of rocks round which the water was sucking and plunging into the main passage. We went quite close to them, so close that as the water drove us off the tail of the raft touched them. The raft was half across the stream, but the paddlers dexterously straightened her.

At 11.20 we got down do Pulau Temin, a large island, and at 12.10 passed Bersiah. Soon afterwards we obtained a glorious view of Gunong Kendrong, 4,000 feet, and Gunong Krunei 3,200 feet—two magnificent peaks. At 12.45 we passed Kampong Kota on the left and passed the mouth of the Rui river full of silt on our right. At 1.15, Berkuning, which used to be the residence of Mengkong Pah Haliah. At 1.40 we reached the Batu Mawa, where the monkeys made their treaty of peace. We arrived at Kuala Kendrong soon after 2 p.m., having been actually travelling for 6 hours 25 minutes from Kuala Temengor. This is said to be the fastest time in which the journey has ever been made.

On the 12th August, after breakfasting with Berkeley at Grit on venison, turtles' eggs and wild honey, I motored into Taiping, 87 miles.

Below is a list of some of the elephants we had with us. Their names are somewhat quaint—

Chapang	...	The solitary stag (according to Berkeley)
Bintang Timor	...	Star in the East
Kulop Chandan	...	The gentleman of Chandan (the residence of the Sultan of Perak)
Meh Mas	...	The golden girl
Rana Milik	...	The chosen jewel
Lanchang Patani	...	The boat of Patani
Sauk	...	A landing net
Segak Manis	...	Handsome (Perak Malay)
Janga	...	Do. (Patani do.)
Manja	...	Little pet
Chenderawaseh	...	Bird of Paradise
Meh Suli	...	The girl of the sweet scent

My Visit to Klian Intan.

By E. W. Birch, C.M.G.

The tin mines of Intan and Endak were opened originally by a Perak Malay, "Pawang Sêring," son of the Chief of the Northern District, "Toh Halang." The durian trees at Dusun Kalik were planted by him. After his death, the mines were a constant source of discord between his cousin, Toh Lamboh (who had then become Sri Adika Raja), and the Patani Chiefs, and a petty border warfare was the result. Sometimes one party got possession of the mines, and sometimes the other. The same sort of thing went on in the time of Toh Trosou, the next Sri Adika Raja. Then came the war with Kedah (1817-8) and the mines passed into Patani hands. Since then the Patani Malays have practically owned the country down to Bukit Naksa, and Berhala Bujok at the head of Jeram Panjang (long rapids). The Perak Chiefs and ryots have had to acquiesce tacitly in this arrangement, but they have always, when possible, asserted their right to the ancient boundary, though they have not always been able to enforce it. Many years have passed since the Intan and Endak mines paid a royalty to Perak, and since their produce was taken on elephants to Lubok Goloh and sent down to the Perak river. But the claims of Perak are not forgotten by the men of the Ulu, and this boundary question was one of the first points on which the assistance of the first British Resident was asked.

The first allusion to these mines, which I have found in any European author, occurs in Anderson's "Considerations" (p. 168), where he mentions a letter written by the Raja of Perak to the Raja of Kedah, in 1814, containing the following passage: "The Patani people have attacked our country and taken possession of our tin mines." After this occurrence,

considerable exertions seem to have been made by the Government of Penang to facilitate intercourse with Patani, and to encourage the export of tin with the view to benefiting the trade of their settlement. Among the objects of Mr. Crawford's mission to Siam in 1822 was an effort "to open free intercourse with the tin mines of Patani, whence large supplies were offered to Colonel Bannerman (Governor of Penang), and where there is no doubt almost any quantity may be derived through the Murbow, Muda and Prye rivers." (Anderson's "Considerations," p. 97).

The monthly produce of the mines seems to have been, prior to 1824, about 50 bharas (a bhara = 400 lbs.) from Kroh and 200 from Intan.

At the period of my visit the mines at Intan numbered about 40 persons, all being under the control of Panglima Chawang, who tells me that if the terms were easier he would have no difficulty in getting 1,000 men to work there.

There can be little doubt that, under proper management, and a Government which would give some security for life and property, these mines might be rendered very productive and remunerative. Whether the Patani Malays will ever see the wisdom of encouraging Chinese miners by the offer of better terms, it is impossible to say: the Perak claim, which has been dormant since the war between that State and Kedah in 1818, may perhaps some day receive consideration, and its recognition would probably be the best security for the future prosperity of the Intan tin industry.

The passages printed in italics are taken from the "Journal of the Straits Branch of the Royal Asiatic Society," June 1882: they were written by the late Sir William E. Maxwell, K.C.M.G., after he made his journey on foot to the Patani frontier in 1876.

It is of especial interest now that, by the Treaty of March, 1909, between England and Siam, a British Protectorate has been established over Kedah, Kelantan, Trengganu and that portion of Patani called Reman (or Rahman) which has been so long in dispute.

Ever since the British Protectorate was set up in Perak in 1874, the claims of Perak to this territory have been periodically urged by various Administrators in the Straits Settlements and Perak, notably Sir Frederick Weld, Sir Hugh Low and Sir Frank Swettenham.

It is a great triumph that in the Consulship of Sir John Anderson, and during the reign of the enlightened Sultan of Perak, Sir Idris Mersid el Aäzam Shah, G.C.M.G., it has been found possible to conclude the negotiations which have added to Perak a tract of country not less than one thousand square miles in extent, and a population of at least three thousand persons. The whole length of the beautiful Perak river, 260 miles from its source to its mouth, has now come into Perak territory.

From the Sultan downwards amongst Perak Malays there is great satisfaction at the restoration of a country which they have always claimed and for which they have patiently waited.

I have had occasion recently to visit the north-west corner of this territory on two occasions, travelling as far as Betong in Patani.

My first visit was to see how far it is possible to prevent the silt from the tin mines at Klian Intan and elsewhere from finding its way into and polluting the Perak river, and my second visit was to take over, by order of Sir John Anderson, the country restored to Perak under the Treaty between Great Britain and Siam.

On my first visit I was accompanied by R. O. N. Anderson and Hubert Berkeley. I started from Grit on Sunday, the 6th June, 1909. We walked 4½ miles to Pahat, and then went on to Krunei on elephants. Krunei was once thickly peopled. There are fine open plains, and here was the fort of To Nong Patani, a remarkable lady, who was a friend of, and very hospitable to, Sir Hugh Low. On my second visit I appointed Ali bin Mehar, the Kemenan, to be our Penghulu, and under him are the villages of Pong (two), Pahit, Plang, Jong, Alei and Krunei. At Krunei, just as some of our party were crossing the Rui river, one Majid, a Patani Malay, ran

amuck (*mengamok*) and killed a follower of Berkeley's, named Lebei Awang, cutting at, and slightly wounding, two others. He then ran on to Jong and gave himself up at a wedding party, and was promptly secured and bound. Berkeley has since learned that he started out with the intention of killing him and me.

He had made up his mind to cut us down if he found us on foot alone, and if not to shoot us while the elephants were being unloaded in camp, when, of course, a rifle or two would be lying about. But at Krunei there was a short halt, and the voice of Haji Brahim, calling out, " What are we waiting for? " roused his maddened spirit to action.

We camped at a village called Jong, picturesquely situated, with the river on one side and rice fields behind, to bury Lebei Awang, and the next day sent the murderer back to Grit. He died that night immediately after his arrival. It was an awful night with ceaseless rain: the wedding chorus went on through the night intermittently, and, when it stopped, the murderer's shouts filled up the intervals.

The Rui flows through Jong and is quite as dirty and full of silt as the Kinta river at Ipoh.

We broke camp at 8 a.m. on the 7th June and rode on elephants till 5.30 p.m. with only a short halt for lunch: the going was bad, being through rocky broken country with some plains. On one of these we crossed the line of the hundred graves of the Perak Shahids (men killed in battle), who attacked Patani and were cut down by Mengkong Delaha in 1846.

Their graves are an interesting relic of the days when the Northern Perak Chief (the Dato' Sri Adika Raja) in an attempt to recover what he considered to belong to Perak—viz., the mines at Klian Intan—came into conflict with the Reman power.

We camped at Kuala Endak. The Endak brings down the silt from the Reman mines. It flows northwards and empties itself into the Sungei Kwa. The Kwa flows southwards and is clean as far as Kuala Endak. After that it is fouled, and in turn flows into and fouls the Rui.

Early on the morning of the 8th June we walked up the bed of the Endak for two miles to Rantau Panjang. The river is very badly fouled, and brings down stuff that ought never to be allowed to escape into any river. In places the Endak is very narrow with precipitous rocky sides, while elsewhere it widens out. It is a very easy river to dam, and three or four dry stone dams will, Anderson thinks, keep back the heavy silt, which would then fill up the wider portions of the river. But additionally heavy silt should be retained up above at each mine.

Above Rantau Panjang there are Chinese miners at Kota Bunyi.

We left Kuala Endak at 11 a.m. on the 8th June and rode on elephants to Lapang Nenering—the scene, in 1845, of a battle between the men of Perak and Patani.

There we stopped in some beautiful wide plains for lunch, and found 48 Patani men, with 100 buffaloes, bound for Ipoh. We journeyed on, crossing the watershed, and at 4 p.m. camped at Berchang. On the 9th June we broke camp at 8 a.m. and reached Betong at 11.45 a.m. This is the headquarters of the Siamese District Officer or Amphur—Wan Husein. He was hospitality itself to us. He gave us a roomy house all to ourselves, and we lunched and dined with him.

At his pressing invitation we spent the next day, the 10th June, at Betong and went out for a deer drive without success. Wan Husein's wife brought out lunch and an excellent curry, which we ate out of doors on the banks of the Kasinei river.

On the 11th June we left Betong for the mines at Klian Intan on elephants, Wan Husein accompanying us. We travelled along an earth road for 14 miles. At 11.30 we crossed the Samagaga Pass (watershed) into what is now Perak territory. We crossed and recrossed the Sungei Kwa and entered the Kroh plateau. This was the place chosen in anticipation in 1883 by Sir Hugh Low for an Upper Perak Station. It is about 1,500 feet above the sea—is cool, and there are few mosquitoes. It has been extensively occupied in the past and carries a not inconsiderable population now: there is plenty of good water.

My own opinion is that the lowest pass from the Kroh plateau to the mines, and also the lowest pass from the Kroh plateau into Kedah, will be found to be at Padang Niring Todok. We then went on to Padang Berkwai, a mile or so further, and camped there. Dato' Mat Saleh, the Kemenan of Kroh, received us and had a long chat.

On my second visit I appointed him to be our Penghulu. Under him are the villages of Becha Deradap, Padang Berkwai, Kwa (three), Kroh and Klian Intan.

Under the Kemenan are "Neban" (local headmen), who are only appointed if there are ten families in a village. They have no very definite rights or duties, but are occasionally useful to the Penghulu or Government Officer when labour has to be procured for some special purpose. They have hitherto been responsible for the carrying out of "forced labour."

At 8 a.m. on the 12th June we moved on, and at 12.40 reached the mines—very bad broken hilly country. Mr. Kemp, of the Reman (or Rahman) Tin Mining Co., met us and put us all up. Mr. Kemp's mine is a revelation, and it is almost incredible that he has been able to convey so much machinery and set up so magnificent a mill in such an inaccessible place. There are 25 head of stamps on a hill, next door to Mr. Kemp's house. Water is brought by gravitation from the Kajang river from a hill behind. Firewood is brought from the valley below on an endless chain, railway trucks, full of water, pulling up the trucks of wood. The mine itself is a hill, 2,300 feet high, in front of the mill, but ¾ mile away. An overhead wire rope—3,800 feet long—carries 11 cages at one and the same time, brings the stone from the hill top to the mill, and takes empty cages back to be filled. The mine is technically known as a Stockwerk, and it is estimated that it will produce 10,000 pikuls of tin in the next twelve months. The property is 220 acres in extent.

The Rahman Hydraulic Mine—Mr. Pearse, Manager—has about 600 acres of land all round Mr. Kemp's hill top. The water for this proposition is brought in an open ditch for

eight miles, but is hardly sufficient in quantity. There is a considerable area of land to be worked, and the output for the next twelve months is estimated at 4,000 pikuls. Tin and tin ore is exported viâ Becha Deradap to Baling in Kedah, where it is taken in boats down the Ketil and Muda rivers to Kuala Muda, and thence to Penang.

The village of Klian Intan is in a basin surrounded by hills. One of these was occupied by the Siamese Police Station, where there are an Inspector of Police and 20 Siamese Police.

The village has since my first visit been burned down for the third time. It was one of the filthiest I have ever seen, and is extraordinarily unhealthy. It is filled with Chinese, the riff-raff of Perak, and a taking of finger-prints would probably prove 50 per cent. of its native inhabitants to be criminals. I was told that it contained 140 shops.

On Sunday morning, the 13th June, we walked down, accompanied by Mr. Pearse, about two miles to his dam. On our return we walked up the hill where Mr. Kemp is working, and on which one of his mine Managers lives. It was a steep climb of over 1,100 feet, but we were rewarded on arrival at the top by a glorious view.

In the long distance westward was Kedah peak: below to the north lay the far-stretching Patani valleys: to the south were visible the Perak river and the towering mass of Kendrong (4,000 feet); while in the east one could see the Legeh and Kelantan hills. A view of practically the whole breadth of the Peninsula from the Gulf of Siam to the Straits of Malacca is commanded from this hill. It was a magnificent panorama on a beautiful clear morning.

A delightfully cold bath and a capital midday meal were very acceptable after the hot walk to the dam, and after the steep climb in a burning sun.

In the evening I went with Wan Husein to inspect the Police Station in which he puts up when business takes him to the mines.

Early on the 14th June we started for Becha Deradap—six miles. Anderson and I, walking on ahead, did the distance

in exactly two hours, and on my second visit Jelf and I did it in the same time. The road is quite impossible in gradient, and rain makes the clay soil very slippery. It is pleasant to descend into the beautiful open plateau of Kroh.

At Becha Deradap, corrupted by the mines' people into Cheradap, Mr. Kemp and Mr. Pearse each have a store, and the Siamese have an Inspector of Mines, a Customs House, and a Hospital which has never been used. It was erected by the munificence of certain persons as a memorial of the Siamese Administration, and it is an excellent building of squared timber with a shingle roof.

There are a few shops and a considerable peasant population planting padi. The road from Betong through the Kroh plateau ends here. Near by is the charming natural lake at Tasik, a curious phenomenon of which is that it is periodically half emptied by what appears to be a natural siphon in the shape of a deep hole some distance from the main lake, the water re-appearing about two miles away.

This lake occupies about 25 acres of ground when fairly full. It is one of the very few natural lakes in Malaya. It is most picturesque, and at one end of it is a very ancient and quaint Buddhist temple, which ought to be repaired in old style and preserved. We camped by the lake that night.

On Tuesday, the 15th June, we broke camp at 8.30 and Anderson and I walked on ahead, 5½ miles in 1¾ hours, into Baling, a Kedah Station, where Che Mat Deli, the Malay Magistrate, entertained us. Baling is one of the most beautifully-situated places I have ever seen. It is on the banks of a big river (the Ketil), and just across the river, rising perpendicularly, is an immense limestone rock as like as possible to Gunong Pondok at Padang Rengas, only more covered by vegetation. Mr. Kemp and Mr. Pearse each have a comfortable house at Baling on the river bank, and all their tin is shipped there in boats for Penang. The little town was decorated in our honour with flags and Che Mat Deli turned out a guard and the whole population. A fine new Police Station and Barracks have been built by the Kedah

Government. Che Mat Deli gave us dinner, and after dinner we witnessed a capital *Ma'yong* (theatrical performance).

Che Mat Deli provided me with a comfortable Government boat and gave me a Kedah Sergeant and constable as escort. We left at 7.45 a.m. on the 16th June down river, Wan Husein still with us. We reached Kuala Kupang at 10.15 a.m. There is a village here, and one of the Kedah Rajas is in charge (Tungku Eda), but he had gone to Kedah on account of the death of his father, the famous Tungku dia Udin. Che Mat Deli left us to return to Baling, and we went on downstream. We tied up for the night at a place called Padang Pulai. All this part of Kedah, as far as the eye can see and right down to Kuala Muda, consists of flat plains, and they would carry an immense population if irrigated.

We continued our journey at 5.35 a.m. on the 17th June. At 7.15 we reached Kuala Ketil and entered the Muda river, a magnificent sheet of water navigable up to this point by launches of 40 tons. I landed and visited the Police Station, where the Kedah Government keeps a Sergeant and six men, because the people were a thieving lot and used to rob stores while being taken out of big boats, which bring them up the Muda river, to be loaded into smaller boats, which take them up the Ketil river to Baling. From Baling goods are humped by coolies, 11½ miles to the mines, a climb of 850 feet. Owing to this expensive transport, every pikul of stuff used at the mines costs $8 more than its market price in Penang.

The Ketil river is one of the most winding I have come across, the turns and bends often come right back on each other. It is swift running and is full of snags. It takes six nights to go up from Kuala Ketil to Baling, and when the river is high it may take ten or eleven nights.

A perfectly flat road can undoubtedly be made on the proper left bank of the Muda river, to cross the Hetil river about a mile below Kuala Kupang to a point about 1½ or 2 miles above Baling. It would then climb over one pass into Padang Niring Todok and over another pass behind that place into Sungei Buloh (the site of Mr. Pearse's dam), and thence into

Klian Intan. The distance, I reckon, would be about 28 miles. There may, of course, be a better route from Baling to the mines. At 9 a.m. on the 17th June we left Kuala Ketil and went on down the Muda. The river is clean until you get to the Kuala Seding and Kuala Karangan. We got to these rivers at 11.20 a.m. They are within 50 yards of each other; the former, the bigger on the two, comes down quite clean, and the latter is very badly fouled, persumably from the Kulim mines.

At 12.15 we stopped for lunch at a settlement called Alor Madu. It is a very old Siamese Settlement, and there were several priests there. They have quite a nice Waht or temple, and were very civil to us. At 3.20 p.m. we passed the pillar, which marks the boundary between Province Wellesley and Kedah, on the left bank of the Muda. We stopped for tea and a nice bath in the river below the Province Police Station of Pinang Tunggal and soon afterwards came in sight of Penang. The afternoon was so beautiful that it beggars my powers of description. Kedah peak and the small hills were bathed in the light of a lovely sunset and it did not get really dark till past 7 p.m. We reached Kuala Muda at 8 and were housed in a capacious and well-built Rest-house, where we were the guests at dinner of Inche Mat, the District Officer.

On the early morning of the 18th I went round the town of Kuala Muda with Inche Mat and the Malay Inspector of Police. A guard of honour was turned out and I visited every public office, the hospital and Inche Mat's house. The Kedah Administration has established itself on good lines at Kuala Muda. The country beyond the town is in need of roads.

Inche Mat took us across the river at 8.30 a.m. and saw us into my motor car in Province Wellesley, whence, after thanking and saying good-bye to him, we motored to Taiping—71 miles.

The whole distance travelled was about 300 miles. We had rain the first night at Jong, rain in the night, one night at Klian Intan, and a sharp Sumatra in the afternoon at Baling. The rest of the fortnight was fine, and for the most part the weather was cool.

The taking over from Siam of Part of Reman or Rahman.

By E. W. Birch, C.M.G.

In the account of my visit to the Klian Intan Mines I stated that my second visit was made by order of Sir John Anderson, G.C.M.G., the High Commissioner for the Federated Malay States, to take over under the Anglo-Siamese Treaty that portion of Reman or Rahman which is now restored to the State of Perak.

I was accompanied by Hubert Berkeley, the long-time District Officer of Upper Perak, whose intimate acquaintance with almost everything animate and inanimate in those parts made our journey very easy; by A. S. Jelf, of the Perak Secretariat, who was of much use to me and from whose writings I have freely quoted; by the Orang Kaya Mentri, one of the Four Great Chiefs of Perak, and by the Orang Kaya Kaya Sri Adika Raja, one of the Eight Chiefs and the hereditary Chieftain of the north of Perak.

We took with us ten Indian Police to station at Klian Intan and six Malay Police to station at Tasik. Inspector Simpson went with us to place them in their stations. We had 26 elephants and a large following.

We left Grit on the 14th of July, 1909, and, by travelling all day along the Kendrong river, we managed to reach Dusun Pahit at a quarter to seven in the evening.

The next day we broke camp at 7 a.m. and reached the Rui river at 10.45. Fording the river twice we arrived at the

village of Kampong Pahit, a picturesque little place, with fertile bendang (padi fields) and healthy coconuts. It contains about 40 people, who work the padi fields with their own buffaloes.

Here, as at all the villages through which we passed, a Proclamation announcing the transfer from Siamese Suzerainty to British Protection of this portion of Reman was first read aloud and then handed to the head of the village.

We then moved on, reaching an hour later a small village called Kepayang, inhabited intirely by Siamese, where we halted for half an hour for lunch.

Travelling on, we ascended an almost interminable valley, that of the Sungei Kepayang, where the going was exceedingly heavy for the elephants, up to a place called Ulu Kali, and then across some very mountainous country viâ a pass known locally as Dusun Pawang, finally arriving at Klian Intan at 6 o'clock in the evening, the whole party, including the elephants, rather wearied after two days' journey of ten and eleven hours, respectively. We were most hospitably entertained here by Mr. J. D. Kemp, Manager of the Rahman Tin Co.

There seems to be some doubt as to the name of this populous mining locality. In the story of my first visit to it I have quoted at length from Sir William Maxwell, who called it and wrote of it as Klian Intan.

Berkeley, whose local knowledge must have much weight, is of opinion that the name is Klian Hitam (Black Mine), but that, owing to the admitted inability of the Petani Malay to pronounce the letter "m," the latter of the two words has become Hitan (or Itan). He is supported in this view by Wan Husein, the Ampur of Betong, who has just handed over the district.

On the other hand, the Datoh Sri Adika Raja, whose ancestors lived and fought in and about the mines and had hereditary rights therein, states that the name was Klian Intan (Diamond Mine), the belief in former days being that diamonds were to be, or would be, found there. It is said to be a common practice among Northern Malays to drop the

"n" before "t," which might account for the form "Itan.' (Curiously enough, M. de Morgan, the eminent French Geographist, who, in 1884, came out to Perak at the request of Sir Hugh Low and made a very accurate map of the Perak valley, does not refer to the place). The two European Mining Companies speak of it and write of it as Klian Intan, and I am inclined to adopt the view of the Sri Adika Raja.

I had arranged, through Berkeley, with the Ampur of Betong, Wan Husein, to meet me at Klian Intan.

I did so because that is by far the most important place in the new Territory, carrying the largest population of mixed nationalities with a not inconsiderable Siamese Police Force.

At 10 a.m. on the 16th July it was rumoured that Wan Husein had arrived. Berkeley went up to the Police Station to call on him. After some conversation they came together to Mr. Kemp's house and I went down with the Dato Sri Adika Raja to meet them. It was evident from the cordial greeting that the Ampur gave me that he was anxious to play his part in a friendly manner, and Berkeley assured me that nothing could be more satisfactory than the arrangements Wan Husein had made. He detailed them to me, and I, of course, agreed to fall in with them to the letter.

At 1.45 p.m. the Siamese Police under their Inspector and the Perak Indian Police under Inspector Simpson were drawn up in front of the Police Station on the hill, on opposite sides of the small square where the flagstaff stands on which the Siamese flag was flying. I went up with a large following of Europeans at 2 p.m., the time appointed. Wan Husein came down the hill in uniform to meet us. As he and I reached the top of the hill both detachments of Police presented arms. He took the Perak salute and I that of the Siamese Police. We then stood on the station side of the square, with our backs to the building, and Wan Husein advancing to the flagstaff made a speech in Malay to the following effect:

He had received a letter from Prince Damrong, informing him that a friendly Treaty had been made between the

King of England and the King of Siam by which the Siamese surrendered to England's protection all those countries divided by a watershed, which he shortly described, thus—the valleys of all rivers flowing into the Gulf of Siam remained Siamese territory and the valleys of all rivers flowing into the sea on the other side became the territory of England. He was only concerned about the valleys of the Petani and the Perak rivers. What now became Perak territory was not very different from the old boundaries of Perak. The territory which he was there to hand over to the Resident of Perak and to his old friend Mr. Berkeley comprised a population of 2,624, of whom 1,295 were Malays and others, 975 Chinese, 346 Siamese and 8 Europeans. There were 423 buffaloes, 441 cattle and 5 elephants, and 148 guns of different sorts. He said there were certain buildings, and he ended the enumeration of these properties by giving a humorous list of the furniture in the Police Station. He pointed out the uses to which the three tables were put, and emphasised the fact that though there were only four chairs they were large enough to accommodate eight persons. Resuming the serious and dignified way in which he had spoken, he said that all the people handed over had been under his care, and he hoped that the Resident would treat Mr. Kemp, Mr. Pearse, the Europeans working under them, the Siamese, the Malays, the Chinese, the Indians and the foreign Malays as if they were his own children.

He had invited subscriptions and had received the following sums:

Mr. Kemp	$200
Mr. Pearse	200
Wan Husein	230
Raja Prempuan	150
Ah Poh	50
Toh Chawan	20
Total ...	$850

in order to establish at Becha Deradap a hospital for the sick.

The building was finished, the Resident of Perak had seen it, but it had not so far been put to the use for which it was intended. He begged that now that it was taken over it would be dedicated to that use as a memorial of Siamese Suzerainty in this district and of his administrations.

Wan Husein then proceeded to haul down the Siamese flag, and both detachments of Police presented arms and remained at the present until he had done so.

Speaking in Malay, I stated that I had received orders from His Excellency the Governor to announce that His Majesty the King was graciously pleased to extend protection to part of Reman over which the King of Siam had ceded his rights, and that all Judges, Magistatates and other officers of the Federated Malay States or Perak would have the same power and jurisdiction therein as if they were in Perak. I added that Mr. Berkeley was appointed District Officer in this new territory, that "Kuasas" would be given to Penghulus and others under him, and that no revenue would be collected by any one except with the orders of the Resident of Perak. I said that in this world there were many things certain and uncertain, but that there was one thing quite certain and that was that where the British flag was flying, even justice, irrespective of nationality, would be done to everyone. I thanked Wan Husein for the help he had given to Mr. Berkeley in the past, and promised him that effect would be given to his wishes about the hospital and that everyone who proved that rights had been given to him by the Governnment of Siam would have his rights respected by the Government of Perak.

The Perak flag was hoisted by the Tungku Mentri and the Dato Sri Adika Raja, and was saluted.

Guards were changed, and an Indian sentry marched up into the station and took possession. Wan Husein and I shook hands, and after he had taken some photographs the ceremony ended.

The population of the district thus taken over was carefully numbered by Wan Husein at the end of the Siamese year—about six months ago—with the following result:

He estimates the Malays at 1,295, of whom 771 are males and 524 females; the Siamese at 346 (204 males and 142 females); and the Chinese at 975, of whom all but 44 are men; the Europeans number 8, all men—a total of 2,624.

We may accept his statement as to the Malays. Siamese and Europeans, but there is no doubt at all that the Chinese element has largely increased since this informal census. Mr. Kemp, Manager of the Rahman Tin Co., and Mr. Pearse, of the Rahman Hydraulic Tin Mining Co., were good enough to supply me with the latest figures from their check-rolls, which gave a total of 750 and 432, respectively. I think that the total Chinese population may safely be put at 1,500, and the population of the district, by consequence, as not less than 3,300.

There was a great deal to be done at Klian Intan. The town had been burned down and 2,000 people were homeless living in temporary bamboo shanties. I had to deal with the situation at once.

The cart-road to the mines from the Muda river, if made, must enter this valley. There can, therefore, be no more suitable place to build the new town. The higher ground, above Mr. Kemp's dump, is semi-circular in shape. I arranged for the construction of 100 chains of road. The Kajang stream will run through the new town and a bridge will be built over it. I received 192 applications for shop lots along and above this circular road. So that there should be no show of favouritism the lots were drawn for. Two houses are to be built together, and then a space of 20 feet is to be left between them and the next two shops. The shops are to be 20 ft. x 66 ft. They are to be of a permanent type, squared timber, plank walls, single roof.

A good water supply can be given to the town by pipes from the intake higher up the Kajang river.

Mr. Kemp will light both the old and new towns with four or five electric lights from his mill.

We left Klian Intan on Sunday, the 18th July, and journeying viâ Becha Deradap, the Kroh plateau and

Samagaga Pass, the route taken on my first visit, we reached Betong at 1 p.m., on Monday, the 19th.

On the 20th Mr. Berkeley and the Ampur settled the new Perak boundary in accordance with instructions, the great local knowledge of these officers rendering the task one of no great difficulty. A copy of this settlement is appended to this account.

On the 21st of July we left Betong early, and travelling viâ Lapang Nenering, the Kwa river, Plang, Krai, Jong, Krunei and Pahat, a route which I have previously described, we reached Grit at midday on the 23rd July.

By this journey, which occupied altogether ten days, of which seven were spent in travelling by elephant, we made a complete circuit of the great mountain of Kendrong, 4,000 feet high, which stands up so prominently over Grit.

The distance from Grit to Klian Intan by the way we went is 22 miles. That route will be abandoned except for the first portion of nine miles which takes you to the halting bungalow at Ulu Kendrong. At that point there is a turn-off to Asu and Pong, two villages inhabited by Siamese on the Kedah border.

The proper route from Grit to Klian Intan is that which passes Krunei and Jong: a thorough examination of the country for a good rideable bridle-path is being made.

BOUNDARY AS SETTLED AT BETONG ON 20TH JULY, 1909, BY MR. H. BERKELEY, DISTRICT OFFICER, UPPER PERAK, AND LUANG RAJ BHARAKII (WAN HUSEIN), AMPUR OF BETONG, IN ACCORDANCE WITH THE BOUNDARY PROTOCOL ATTACHED TO THE ANGLO-SIAMESE TREATY, 1909.

COPY.

In accordance with instructions received from the High Commissioner, Federated Malay States, No. G.H. 34, dated 9th July, 1909, and Prince Damrong, No. 1-7006, dated 25th Mehtu Nayun 128. We are agreed that the Boundary described in the Boundary Protocol, annexed to the Treaty, dated 10th March, 1909, or 10 Minakun 127; is as follows:

From Gunong Lang in a south-easterly direction along Bukit Peringgan, forming the Watershed between the Kapas and Sama Gaga rivers, to Bukit Berapit on the cart-road; thence along the same ridge, here known as Dan Petai, to the pass between Sungei Agam and Sungei Tualang; thence it continues along the same ridge, dividing the streams flowing into the Kwa and Berchang rivers, which ridge curves gradually to the north-east, and divides the rivers flowing into the Lanka Suka and Panei rivers, to Berapit Bukit Bertam, between the Chinaha and Bunga rivers; thence along the same ridge, here known as Dan Titi Basa, dividing the rivers flowing into the Perak and Halar rivers, to Berapit Bukit Langsat between the Kijar and Halar rivers; thence along the same ridge, here known as Dan Bukit Keting, to Berapit Luar Lantei between the Meroh and Klesyi rivers; thence along the same ridge, which here curves to the south and divides the rivers falling into the Perak and Telubin rivers, to Berapit Kaho between the Kaho and Timun rivers; thence along the same ridge to Berapit Panchor between the Panchor and Gua Mas rivers;

and thence along the same ridge to a spot which divides the streams flowing into the Tado and Perak rivers.

[*Here follows the Siamese version of the above.*]

We have compared the English and Siamese versions and believe them to be identical. We each retain one copy.

[*Siamese version of above.*]

(Signed) H. BERKELEY.

(Signed) LUANG RAJ BHARAKII.

BETONG, *20th July, 1909*

True Copy:
A. S. JELF.
28-7-09.

Short Notes.

"Haji Ka-Ta-Na-Ka-La."

In No. 52 of this Journal, p. 107, Mr. W. George Maxwell, referring to the biographical account of the Mongol general Shih-pi* in Book 162 of the History of the Yüan Dynasty, hazards the guess that "Haji Ka-ta-na-ka-la" (as that work has it) stands for *Haji Kadir Nakhoda*.

This is ingenious, but wrong. Groeneveldt's translation of the passage where the name occurs suffices to upset Mr. Maxwell's suggestion. It reads: "At that time Java carried on an old feud with the neighbouring country, Kalang, and the king of Java, Haji Ka-ta-na-ka-la, had already been killed by the prince of Kalang, called Haji Kalang. The son-in-law of the former, Tuhan Pijaya, had attacked Haji Katang, but could not overcome him," etc.

From this it clearly appears that "Haji Ka-ta-na-ka-la" was a ruling prince, not a ship's captain who had made the pilgrimage to Mecca. And in the year 1292 the ruling princes of Java were not yet Muhammadan, but Buddhist and Hindu, both in their religion and their styles and titles. As a matter of fact "Haji" here represents the old Javanese word *haji*, "king," † and has nothing whatever to do with the Malay-Arabic word for "a man who has performed the pilgrimage." "Haji Ka-ta-na-ka-la" was the Cri Kĕrtanagara mentioned on p. 142 of No. 53 of this Journal as the last ruling prince of Tumapël. He was dethroned by his neighbour Jaya Katong of Daha (otherwise Gĕlang) and his son-in-law Raden

* Not "Shih-pi's account of Java," as Mr. Maxwell has it.

† It is found also in literary Malay (presumably merely as a loan-word from Javanese literature): see Wilkinson's Dictionary, s. v. *aji*. I. The ruling prince of Berunai in the time of Sultan Mansur Shah of Malacca is in the Sejarah Melayu styled "Sang Aji Berunai." That would be somewhere about A. D. 1460. Possibly Berunai at that time still acknowledged the supremacy of Majapahit (see this Journal No 5, p. 1), but at any rate the title is clearly adopted from the Javanese and may perhaps be an indication that in A. D. 1460 or thereabouts the Berunai dynasty had not yet been converted to Islam.

Wijaya eventually became his virtual successor in the newly founded capital of Majapahit. The Chinese and Javanese accounts tally completely as regards all these personal names and they are further confirmed by contemporary inscriptions. So they may safely be accepted as quite certain.

O. BLAGDEN.

A Termite's Nest with Eight Queens.

In the nests of *Termes malayanus* there is usually to be found a large clay queen cell in the centre which contains one queen with a greatly swollen abdomen, accompanied by a single male. The occurrence of two queens in one cell is not very rare and on one occasion while digging out a nest with Dr. Haviland, in the Economic-Gardens, we found a queen-cell containing six queens and as many males. The males had it appeared been fighting together and had their legs and antennæ mutilated. This number of queens was the highest record for a nest, till a few days ago (Dec. 14) a nest was dug up in the Botanic Gardens containing no less than eight queens. The queens were rather smaller than usual, perhaps young, and all were in one unusually large clay cell. This number must be I think an unique one, and hardly likely to be exceeded.

H. N. RIDLEY.

An Insectivorous Hornbill.

During a recent trip to Mt. Penrissen in Upper Sarawak, Mr. H. B. Crocker of the Sarawak Government Service shot a fine male example of *Rhytidocerous undulatus*, Shaw. On opening its stomach I was much surprised to find two large green Cetoniid beetles evidently eaten quite recently. The Cetoniid proves to be *Chalcothea planiuscula*, Bates, which is

fairly common on the higher slopes of Penrissen, although apparently found nowhere else in Sarawak.

As I believe the Hornbills are generally supposed to be fruit-eaters only, perhaps this note may be of some interest. I notice that Mr. W. T. Blanford in the Funa of British India series, Birds Vol. III, refers to instances of insects eaten by *Dichoceros bicorniis*, L. but not by other Hornbills.

J. C. MOULTON.

Corrigenda to No. 53 of the Journal.

p. 142, l. 8	*for*	cri	*read*	çri
l. 27	*for*	cri	*read*	çri
p. 143, l. 25	*for*	1331	*read*	1328 or 1329
l. 33	*for*	now	*read*	vow
p. 144, l. 14	*for*	تاسک ،	*read*	تاسک
p. 147, l. 14	*for*	Těga	*read*	Těba
l. 15	*insert a comma between*			Siyak *and* Rěkan
l. 16	*for*	Barta	*read*	Barat
l. 26	*for*	Kalasaludung	*read*	Kalkasaludung
l. 36	*for*	re	*read*	ri
p. 148, l. 1	Hujung *really belongs to the end of the preceding line*			
l. 34	*for*	Gerinei	*read*	Gerini
p. 149, l. 11	*for*	Nacor	*read*	Naçor
p. 150, l. 9	*for*	Kañjapiuiran	*read*	Kañjapiniran
l. 13	*for*	(Hyang)	*read*	Hyang
p. 156, l. 21	*for*	felt	*read*	left
p. 160, l. 22	*for*	1337	*read*	1377
l. 26	*for*	Island	*read*	Islands
p. 161, l. 2	*for*	ben	*read*	been
p. 168, l. 29	*for*	lalei	*read*	talĕi

p. 169, l. 6	*for*	tĕlūt	*read*	tĕlut
l. 20	*for*	retracted	*read*	retraced
l. 24	*for*	produce	*read*	reproduce
p. 170, l. 6	*for*	Ploynesian	*read*	Polynesian
l. 12	*for*	tĕliling	*read*	kĕliling