

[No. 34]

JOURNAL

of the

Straits Branch

of the

Royal Asiatic Society

JULY 1900

Agents of the Society :

London and America	..	...	...	TRUBNER & Co.
Paris	..	...	.	ERNEST LEROUX & Co.
Germany	...	..	.	OTTO HARRASSOWITZ, Leipzig.

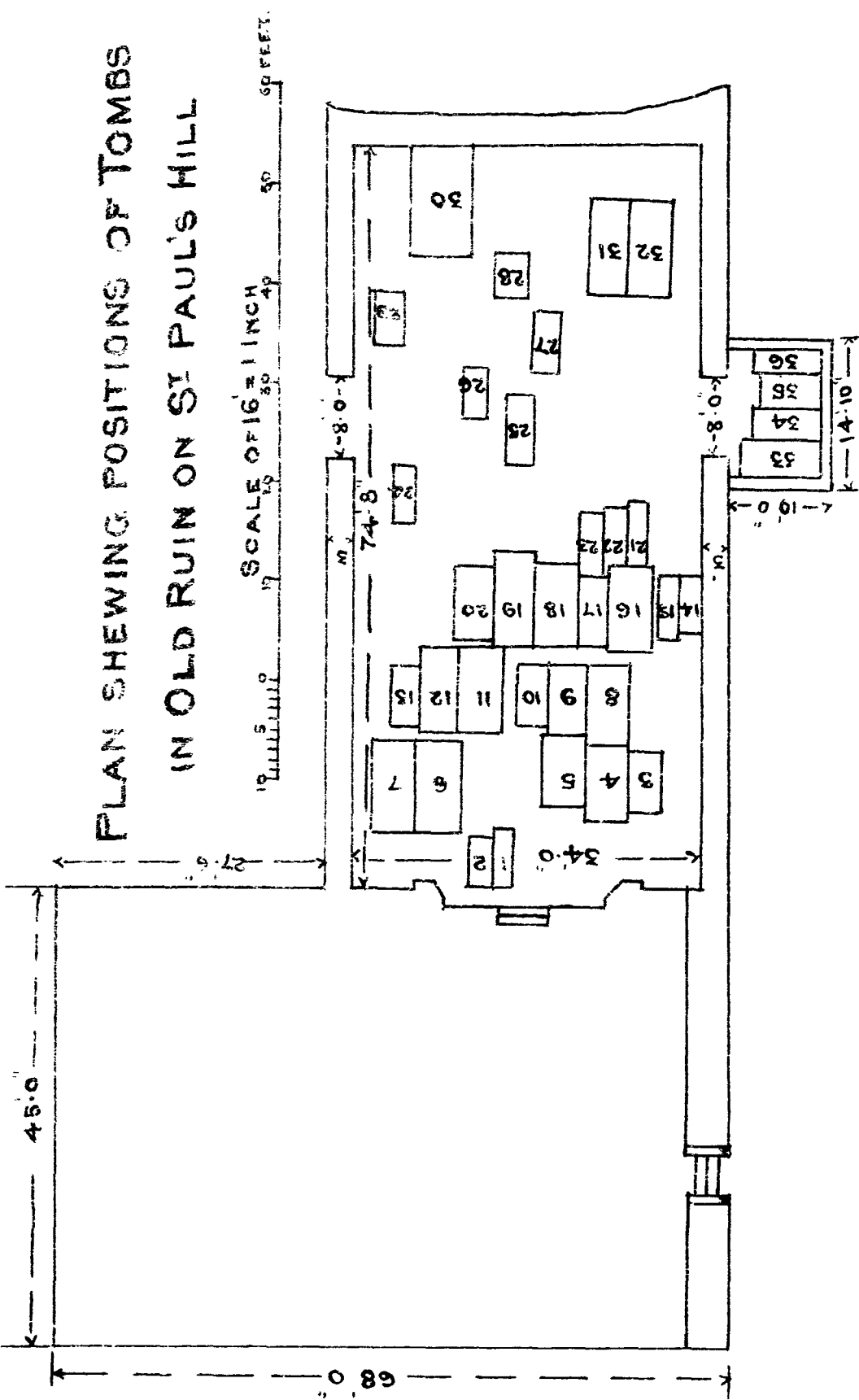
SINGAPORE :

PRINTED AT THE AMERICAN MISSION PRESS.

Table of Contents.

Inscriptions in St. Paul's Church, Malacca, by <i>E. M.</i> <i>Mercuether</i>	1
A Botanical Excursion to Gunong Jerai, by <i>H. N. Ridley</i>	23
The Use of the Slow Loris in Malay Medicine, by <i>H. N. Ridley</i>	31
A List of Brunei-Malay Words, collected by <i>H. S. Hynes</i>	39
An Expedition to Mount Kina Balu, British North Borneo, by <i>R. Hanitsch, Ph. D.</i>	49
Dammar and Wood Oil, by <i>H. N. Ridley</i>	89
Notes on the Flying Frog, by <i>R. Hanitsch, Ph. D.</i> ...	96
Short Notes	97

PLAN SHEWING POSITIONS OF TOMBS
IN OLD RUIN ON ST PAUL'S HILL



Inscriptions in St. Paul's Church, Malacca.

The inscriptions on the tomb-stones in the old church of St. Paul at Malacca are of considerable antiquity, the dates ranging from A.D. 1568 to the early part of the eighteenth century, and are of no little interest to the student of the past history of the Settlement.

In some cases, the lettering of the inscriptions and the outlines of the coats of arms are as fresh and sharply-defined to-day as they were on the day when they were first cut. In other cases, on the contrary, the inscriptions are either entirely illegible, or can only be deciphered with difficulty. I therefore seized the opportunity afforded by a temporary residence in Malacca to make copies of all the inscriptions which are still legible, with a view to placing them on record in the journal of the Society, before time and the action of the weather have wrought any further havoc among them.

Curiously enough, while I was engaged in this work, the Acting Col. Chaplain (Mr. J. Hardy) discovered among the old Dutch records a list of the inscriptions on the tomb-stones made in 1713 by one Michiel de Bruyn, the Sexton, which was of considerable use to me in deciphering some of the more illegible inscriptions. The list is not complete, however, as the worthy Sexton left the Portuguese inscriptions and some of the Dutch ones, which are difficult to decipher, severely alone. A translation of the document is annexed (C).

I have drawn up a list of the inscriptions in brief (A), giving the names and the dates of birth and death, and I also give the inscriptions in full (B), with a translation of each in parallel columns. I further had a plan of the church made, showing the positions of the different stones, which are marked with numbers corresponding to those in the list of inscriptions.

2 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA

Another Dutch document found in Malacca, of which I give a translation (D), shows that at one time there were a good many coats of arms hanging on the walls of the church, but these have all disappeared.

A few stones, which were lying about loose, were removed several years ago by Mr. D. F. A. Hervey, late Resident Councillor Malacca, to the present Protestant Church (Christ Church) at Malacca, where they still remain. The inscriptions on these are, however, almost entirely illegible.

In concluding these few remarks, I desire to acknowledge the great assistance rendered to me by the late Mr. P. Nuy, Librarian of the Malacca Library, and formerly a member of this Society, in deciphering the inscriptions on the tomb-stones. The two Portuguese inscriptions (Nos. 1 and 24) were deciphered and translated by Mr. H. L. Noronha.

E. M. Mercerether

Singapore, March, 1900.

A.

List of Inscriptions on the Tomb-stones in St. Paul's Church, Malacca.

1. Pinto da Fonsequa, d. 27th Sept., 1635.
2. Portuguese. Almost entirely illegible.
3. Daniel Massis, b. 21st June, 1658, d. 19th Feb. 1660;
and Sophia Massis, b. 21st June, 1664, d. 11th
Nov., 1665 (Probably children of Johan Massis.*)
4. Maria Noelmans, wife of Theodorus Zas, d. 14th
March, 1660.
5. Hendrik Schenkenbergh*, Opperkoopman, d. 29th June,
1671.
6. Maria Bort, wife of Nicolaes Müller, Onderkoopman,
b. 5th Aug., 1639, d. 25th Aug., 1661.
7. Balthasar, infant son of Mathaeus Sonmans and Johanna
Rycke, d. 3rd Aug., 1667. Also Johanna Rycke,
b. 2nd Feb., 1655, d. 25th Jan., 1673.
8. Mons. Gillis Syben, d. 27 Aug., 1663, and his wife
Anna Odame, d. 6th July, 1669.
9. Reynier d' Dieu, Opperkoopman, d. 17th July, 1655.
10. Johanna van Twist, daughter of Johan van Twist,* first
Governor, d. 12th June, 1644.
11. Manuel Dumoulin,* Opperkoopman and Sabandar d.
25th July, 1660.
12. No name—3 persons, probably brothers.

NOTE.—The names marked with an asterisk will be found in the list of Dutch Officials given in *Journal* No. 13, pp. 55-61.

4 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

13. Hendrick van Eeckel, Opperkoopman, b. 20th March, 1619, d. 7th July, 1650.
14. Davidt Walravens, b. 18th Sept., 1623, d. 28th May, 1645.
15. Valerius van Gisteren, b. 19th May, 1614, d. 22nd April, 1646 (? 1664).
16. Theodorus Herbers, d. 18th April, 1659.
17. Partly illegible. No name.
18. Maria Quevelerius, wife of Joan van Riebeck,* Governor b. 20th Oct., 1629, d. 2nd Nov., 1664.
19. Johanna Dumoulin, wife of Balthasar Bort,* Governor, b. 19th May, 1653, d. 17th March, 1676. (Probably daughter of Manuel Dumoulin—see No. 11.)
20. Johan Wilhem van——, d. 26th Nov., 1655.
21. Anganeta Robberts, wife of David Verdonck, d. 26th Feb., 1652.
22. Pieter Pietersen, Deacon, d. 27th May, 1644.
23. Maria van Vliet, daughter of Jeremias van Vliet,* second Governor of Malacca, d. 12th June, 1650.
24. Ricardo Gonsalves (?) and Magdalena Trinidad, his wife, d. 29th March, 1568.
25. Dominus Petrus, Order of Jesuits, second Bishop of Japan, d. at Singapore, Feb. 1598.
26. Agneta Trip, wife of Arnold van Alsem,* Stone erected 14th Feb., 1697.
27. Matthys Jansen, d. 5th Feb., 1673.
28. Salandar Pedel (?).
29. Nicolaus Basly, d. 9th April, 1678.

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 5

30. Tablet. Major Ferrier, 48th Reg't M. N. I., Resident Councillor of Malacca, b. 14th Nov., 1811, d. 24th July, 1854.
31. Theodorus van de Kerckhoven, d. 5th Nov., 1660.
32. Johan van Zyl—Opperkoopman and Fiscaal,* d. 3rd Jan., 1656.
33. Constantyn Johannes Rooselaar, son of Pieter Rooselaar,* Governor and Director of Malacca, b. 13th July, 1703, d. 18th Jan., 1707. Also, Sophia Huigelbosch, wife of Pieter Rooselaar, b. 24th March, 1674, d. 9th March, 1709.
34. Francisca Barber, wife of Capt. James Barber, d. 10th Sept., 1695.
35. George Cooke, d. 6th Sept., 1712.
36. Hendrick Evertsen, d. 22nd Jan., 1698.

B.

No. 1.

S DE AN^{to} PINTO DA
FONSEQVA COMENDA-
DOR DA ORDEM DE SAN-
TIAGO PROVEDOR GERAL
QUE FOI DAS FORALEZAS
DA INDIA CAPIAM GERA
DE MAR E TERRA NAS
PARTES DO SUL FALECEO
AOS 27 DE SEZEMBRO DE
1635.

Sepultura de Antonio Pinto
da Fonseca Commendador da
Ordem de Sam Tiago Provedor
Geral que foi das Fortalezas da
India Capitam Geral de Mar e
Terra nas partes do Sul Fale-
ceo aos 27 de Dezembro de
1635.

Grave of Antonio Pinto da
Fonsequa, Commander of the
Order of Sam Tiago former-
ly Commissary-General of the
Forts of India, Captain-General
of the Sea and Land in South-
ern Parts, who died on the
27th December, 1635.

No. 2.

DE ZIEL VAN D'EERSTE
SOON EN DOCHTER NAM GOD
MEDE NAA R'S HEMEL'S
THROON EN LIET HAAR LIC-
AEM HIER BENEDE.

The souls of the first son and
daughter God took to heaven's
throne, and left their bodies
here below.

No. 3.

HIJER ONDER LEGGEN BE-
GRAVEN DANIEL MASSIS,
DE IONGSTE GEBOREN DEN
21^a JUNY 1658 GESTORVEN
DEN 19^a FEBRUARY 1660 EN
SOPHIA MASSIS, GEBOREN

(Arms.)

Hereunder lies buried Daniel
Massis the younger, born the
21st June 1658, died the 19th
Feb. 1660, and Sophia Massis,
born the 21st June 1664 and
died the 11th November 1665.

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 7

DEN 21ⁿ JUNY 1664 EN GESTORVEN DEN 11ⁿ NOVEMBER 1665.

No. 4.

(Arms.)

HIER ONDER LEYŦ BEGRAVEN MARIA NOELMANS HUISVROUW VAN DE THEODORIUS ZAS PREDICANT IN MALACCA GODSALICHTLYK IN DEN HEERE ONTSLAPEN DE 14ⁿ MAERT A^o 1660.

Hereunder lies buried Maria Noelmans, wife of Theodorius Zas, Minister at Malacca, who piously fell asleep in the Lord on the 14th March 1660.

No. 5.

(Arms.)

HIER LEYŦ BEGRAVEN HENDRIK SCHENKENBERGH IN SYN LEVEN OPPERCOOPMAN EN TWEDE PERSON DER STAD EN FORTRESSE MALACCA. OVERLEDEN DEN 29ⁿ JUNY 1671.

Here lies buried Hendrik Schenkenbergh, in his life Chief Merchant and Second Personage of the Town and Fortress of Malacca. Died the 29th June 1671.

No. 6.

(Arms.)

HIER ONDER LEYŦ BEGRAVEN JUFF^{te}MARIA BORT GEWESENE HUYSVROUWE VAN NICOLAES MULLER ONDERCOOPMAN EN WINCKELIER ALHIER GEBOREN BINNEN Amsterd^{am} A^o 1639 den 5 Augusty, en GODSALICHTLYK IN DEN HEERE ONTSLAPEN DEN 25 Aug: A^o 1661 OUT ZYNDE 22 Jaeren En 20 Dagen.

Hereunder lies buried Mrs. Maria Bort, who was the wife of Nicolaes Müller, Under-Merchant and Warehouse-keeper here. Born at Amsterdam the 5th August 1639 and piously fell asleep in the Lord the 25th August 1661, aged 22 years and 20 days.

8 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

No. 7.

HIER LEYŦ BEGRAVEN
BALTHASAR SONMANS EEN-
IGSTE SOONTJE VAN MA-
THEUS SONMANS EN JOHAN-
NA RYCKE. GEBOREN DEN 30th
JULY 67. EN GESTORVEN
DEN 3rd AUGUST DESSELFDEN
JAERS.

HIER LEYŦ BEGRAVEN JO-
HANNA RYCKE HUISVROU
VAN MATHEUS SONMANS
EENIGSTE DOCHTER VAN IS-
AACK RYCKE EN MARIA
BORT. GEBOREN DEN 2nd FE-
BRUARY 1655. EN GESTOR-
VEN DEN 25th JANUARY 1673.

(Arms).

Here lies buried Balthasar
Sonmans, only son of Mathae-
us Sonmans and Johanna Rycke,
born the 30th July, '67, and
died the 3rd August of the
same year.

Here lies buried Johanna
Rycke, wife of Mathaeus Son-
mans, only daughter of Isaack
Rycke and Maria Bort, born
the 2nd February, 1655, and
died the 25th January, 1673.

No. 8.

WIEN ECHTE HOÿLIX
BANDT GEBONDEN HAD AEN
EEN RUSTEN OOCK BY
MALKAER HIER ONDER DE-
SEN STEEN.

HIER LEGGEN BEGRAVEN
MONS^r GILLIS SYBEN GE-
BOORTICH VAN HAERLEM IN
SYN LEVEN OPPERCOOPMAN
EN SECUNDE PERSOON, AL-
HIER GESTORVEN DEN 27th
AUGU=1663. EN DE SYN
HUÿSVROUW ANNA ODAME
UIT SCHRAVENHAGE GES-
TORVEN DEN 6 JULY 1669.

Those whom the bond of
marriage had joined together
in one, rest also by one another
under this stone.

(Arms.)

Here lies buried Mons^r Gillis
Syben, born at Haerlem, in his
life Chief Merchant and Second
Personage, died here the 27th
August 1663, and his wife Anna
Odame of Schravenhage, died
the 6th July, 1669.

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 9

No. 9.

HIER ONDER LEYT BE-
GRAVEN REYNIER D'DIEU
IN SÏN LEVEN OPPERCOOP-
MAN IN DIENST DER E.
COMP^{te} OVERLEDEN DEN 17^{de}
JULY A° 1655.

Hereunder lies buried Rey-
nier d' Dieu, in his life Chief
Merchant in the service of the
Honourable Company. Died the
17th July, 1655.

No. 10.

HIC IACET
VAN TWIST
PRIM OMA
MAL ATOR
OVIT
AN 164
ÆTATIS SVÆ DECM

Note. This inscription is in-
complete, and it is not in Mi-
chiel de Bruijn's list; but it is
probably the tomb of Johanna
van Twist, daughter of Johan
Van Twist, first Governor of
Malacca (1641-1642). She is
mentioned in the list of coats
of arms as having died on the
12th June, 1644. (See No. 10.)

No. 11.

HIER LEYT BEGRAVEN
Manuel Dumoulin, IN SÏN LE-
VEN OPPERCOOPMAN EN SA-
BANDAER DER STADT MA-
LACCA GEBOOREN IN 'T
JAAR 1620 DEN 5 DECEMBER
EN GODSALICHLÏK IN DEN
HEERE ONTSLAPEN DEN 25
JULÏ A° 1660 OUT ZÏNDE
39 JAER EN 7 Maenden.

(Arms.)
Here lies buried Manuel
Dumoulin, in his life Chief Mer-
chant and Harbour Master of
the town of Malacca, born the
5th December 1620, and pious-
ly fell asleep in the Lord the
25th July 1660, aged 39 years
and 7 months.

No. 12.

DRIE DIE NATUUR EEN
HUIS EN'T SAMEN WONING
GAF DIE LEGGEN HIER
BÏEEN BESLOTEN IN DIT
GRAF.

Three to whom nature gave
one house and joint dwelling
now lie here together enclosed
in this tomb.

10 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

OBÿT	$\left\{ \begin{array}{c} 1647 \\ 29 \text{ DECEMBER} \\ 25 \text{ FEBRUARÿ} \\ 19 \text{ MARTÿ} \\ 1660 \end{array} \right\}$	AN°	Obiit	$\left\{ \begin{array}{c} 1647 \\ 29 \text{ December} \\ 25 \text{ February} \\ 19 \text{ March} \\ 1660 \end{array} \right\}$	An°
------	--	-----	-------	--	-----

(Arms.)

DEN GAFFEL-BOYER IS
ONS GROOTVADERS EERSTE
VONDT ONS VADERS EERSTE
HUIS NU SLUYT SE ONS
DE MONDT.

The "gaffel-boyer"* is our
grandfather's first discovery.
Our father's first house now
closes our mouths. (The mean-
ing of this is not clear).

No. 13.

HIER LEGHT BEGRAVEN
HENDRICK VAN EECKEL
GEBOREN TOT AMSTERDAM
IN 'T JAER 1619 DEN 20ⁿ
MAERT Bÿ SÿN LEVEN OP-
PERCOOPMAN EN HOOFT DES
NEDERLANDSZ=COMPTOIR
LIGGOOR OVERLEDEN DEN
7 JULY A° 1650.

Here lies buried Hendrick
Van Eeckel, born at Amsterdam
the 20th March 1619 : in his life
Chief Merchant and head of the
Netherlands factory at Ligor.
Died the 7th July 1650.

No. 14.

(Arms.)

HIER LEIDT BEGRAVEN
DAVIDT WALRAVENS GE-
BOREN DEN XVIII SEPTEM-
BER AN° MDCXXIII EN IN
DEN HEERE ONTSLAPEN
DEN XXVIII MAÿ MDCXXXV.

Here lies buried Davidt
Walravens, born the 18th Sep-
tember 1623, and fell asleep in
the Lord the 28th May 1645.

No. 15.

(Arms.)

HIER LEYT BEGRAVEN VA-
LERIUS VAN GISTEREN

Here lies buried Valerius van
Gisteren of Amsterdam, Chief-

* An old-fashioned Dutch vessel.

INSCRIPTIONS IN ST. PAUL'S CHURCH. MALACCA. 11

VAN AMSTERDAM OPPER-
KOOPMAN GEBOOREN A°
MDCXIV DEN XIX MAY IS IN
DEN HEERE ONTSLAPEN
DEN XXII APRIL A° MDCXLVI.

Merchant, born the 19th May
1614, fell asleep in the Lord
the 22nd April 1646.

No. 16.

(Arms.)

HEIC SEPULTVS THEODO-
RVS HERBERS GF: OBYT:
ÆTATIS NONO A° J659: J8:
April.

Here (lies) buried Theodorus
Herbers. Died in the 9th year
of his age, 18th April 1659.

No. 17.

(Arms.)

DE GAFFEL
BOYER IS NYIS (ONS?)
GROOTE VADERS VOND
(ONS?) VADERS EERSTE
HYIS NV SLVYT SE
(ONS DE?) MOND

Note. This part of the in-
scription is incomplete, but it
seems to be almost identical
with the latter part of No 12.

(Arms.)

GRAF DICHT
HIER LEIDT DES
MOEDERS VREUCHD
EN VADERS EERSTE
STAM DIE OP DE
SELFDE DAG BEGIN
EN EYNDE NAM

Close grave.
Here lies the mother's joy
and father's first off-shoot,
which on the same day had
beginning and ending.

No. 18.

HIC JACET SEPULTA MA-
RIA QUEVELERIUS UXOR IL-
LUST=D' JOANNES A RIE-
BECK PRIMI COMMENDATOR-
IS ET FUNDATORIS ARCIS
ET COLONIÆ IN PROMON-
TORIO BONÆ-SPEI IN AFRICA
SUB DITIONE SOCIETATIS
INDIA (E) ORIENTALIS NUNC-
COMMENDATORIS ET PRÆSI-

Here lies buried Maria Que-
vellerius the distinguished wife
of Johannes Riebeck, first Com-
mander and founder of the fort
and colony on the Cape of Good
Hope in Africa, under the rule
of the East India Company, now
Commander and Governor of
the city and province of Malac-
ca, born at Rotterdam 20th

12 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

DIS CIVITATIS ET DITIONIS
MALACENCIS NATA ROTTER-
DAMI A. D. MVIXXIX Oc-
TOBER XX DENATA NOVEM-
BER II-XVIIIXIV.

October, 1629, died 2nd Nov-
ember, 1664.

(Arms.)

WIEN ROTTERDAM HET
LICHT LEYDEN QUE(?) SEDEN
GAF WIENS TROUDAQH
HIELT SCHIEDAM LEYTHIER
NU IN DIT GRAF.
IMWERTM.

She to whom Rotterdam gave
the light and Leyden education,
whose wedding was celebrated
in Schiedam, lies here now in
this tomb.

No. 19.

Ter Gedachtenisse van Juf-
rouw Joanna Du Moulin Huys-
vrouw van de Heer Balthasar
Bort Raedt Extraordinaris van
India Gouverneur en Directeur
der Stadt en Forteresse MA-
LACCA Overleden den 17^e Meert
1676.

To the memory of Mrs. Jo-
anna Du Moulin, wife of Heer
Balthasar Bort, Councillor Ex-
traordinary of India, Governor
and Director of the town and
fortress of Malacca. Died the
17th March, 1676.

(Arms.)

Joanna du Moulin rust onder
desen Steen die vroeck al toen
se Juist twee Maenden en twee
dagen min drie en twintich
Jaer had 's werelts pad bet-
reen, d'onsterfelyke Ziel quam
Gode op te dragen ten uijterste
gerust Getroost in God's be-
drijf gevoelde sij geen smert
in't scheijden uijt het lijf.

Joanna Du Moulin rests un-
der this stone, whose immortal
soul, when she had trodden
this world's path just two
months and two days less than
23 years, God came and bore
away to its last rest. Submis-
sive to God's will, she felt no
pain in parting from the body.

No. 20.

JOHAN WILHEM VAN———
IN ZYN LEVEN KAP^{EN} DE-

Johan Wilhem Van———
in his life Captain of this garri-

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 13

ZES GARNIZ^{NS}. OVERLEDEN son. Died the 26th Nov., 1655,
DE 26 NOV^{ER} A^O. 1655 LEGT lies buried here.
HIER BEGRAVEN.

No. 21.

HIER LECHT BEGRAVEN Here lies buried Anganeta
ANGANETA ROBERTS ALMA Robberts, venerated wife of the
HUÿSVROVWE VAN DEN COOP- merchant David Verdonck, aged
MAN DAVID VERDONCK 29 years, died the 6th Feb.,
OVT 29 IAREN STERFDE DEN 1652.
6 FEB. A. 1652.

No. 22.

HIER LECHT BEGRAVEN Here lies buried Pieter
PIETER PIETERSEN VAN EN- Pietersen of Enchuÿsen, in his
CHUÿSEN, IN SYN LEVEN life visitor of the sick and
GRANC BESOECKER EN DE Deacon of the Church. Died
DIAKEN DER KERKE GESTOR- 27th May A. D. 1644.
VEN 27 MEY ANNO D 1644.

No. 23.

(Woman's Arms.)
HIER LEGHT BEGRAVEN Here lies buried (Maria Van)
(Maria van) VLIET (Dogter) Vliet, (daughter) of (Jeremias
VAN (Jeremias van) VLIET van) Vliet, second Governor
TWEDE GOUVERNEUR (VAN) (of) Malacca, died the 12th
MALACCA GESTORVEN xii. (June) 1644 (?)
(Juny) AN^O. MDCXLIV.*

No. 24.

ESTA SEPVLTRA E DE
RGOGL (?) HE DE MADANELA
TI (?) NAD A SYA MOHER QVE
FOI MORDOMO D' ESTA CASA
DE NOSSA SNRA MADRE DE
DEOS MVITOS ANOS HO QVAL

* The inscription on this stone is incomplete, but I have filled it in from the copy in Michiel de Bruÿn's list. There is some doubt about the date, but as J. Van Vliet was Governor from 1642 to 1645, it is probably correct.

14 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

FALECEO AOS 29 DE MARCO
D 1568 ANOS.

PATER NOSTER.

Esta sepultura é de Ricardo Gonsalves e de Magdalena Trindade (sua mulher) que foi Mordomo d'esta casa de Nossa Senhora Madre de Deos muitos annos o qual faleceo aos 29 de Março de 1568 anos.

Pater Noster.

This is the grave of Ricardo Gonsalves and of his wife Magdalena Trindade, who was for many years Majordomo of this House of Our Lady, Mother of God, and who died on the 29th of March of the year 1568.

Pater Noster.

No. 25.

HIC JACET DOMINUS
PETRUS SOCIETATIS JESU
SECUNDUS EPISCOPUS JAPO-
NENSIS OBIT AD FRETUM
SINGAPURÆ MENSE FEBRU-
ARIO ANNO 1598.

Here lies Master Peter of the Order of Jesus, Second Bishop of Japan. Died at the Strait of Singapore in the month of February, 1598.

No. 26.

D. O. M.

PIAEQUE MEMORIAE AGNE-
TAE TRIP UXORIS CASTAE
FOECUNDÆ DILECTÆ.

D. O. M.

And to the pious memory of Agneta Trip, chaste, fruitful, and beloved wife.

(Arms.)

HOC MONUMENTUM PT.
(POSUIT) ARNOLD VAN ALSEM,
FISCI ADVOCATUS 14 KAL^m
FEBRUARY MDCXCVII.

This monument was erected by Arnold van Alsem,* Advocaat Fiscaal. 14th February, 1697.

No. 27.

HIER ONDER LEGHT BEG-
RAVEN MATHÿS JANSEN VAN
THONDEREN VRÿBORGER.
IS OVERLEDEN DEN 5^{BN} FEB-
RUARI ANNO 1673.

Hereunder lies buried Mat-
hÿs Jansen of Thonderen, free
citizen. Died the 5th Febru-
ary 1673.

* See Journal No. 13 p. 53.

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 15

No. 28.

Note. There is no inscription on this tomb, and apparently there never has been any, except the two lines at the foot.

DUSVERRE STRECKT HET Thus far extends the tomb
GRAF VAN DEN SABANDAAR of the Harbour-master Pedel.
PEDEL.

No. 29.

HIER ONDER LEÏT BEGRA- Hereunder lies buried Nico-
VEN NICOLAUS BASLÿ, IN laus Baslÿ, in his life a free
SÿN LEVEN VRYBORGER citizen. Obiit 9th April 1678.
OBÏT DEN 9ⁿ APRIL A^o 1678.

No. 30.

SACRED
TO THE MEMORY OF
MAJOR FERRIER
(OF BELSIDE)
48TH REG^T M. N. I.
AND RESIDENT COUNCILLOR
OF MALACCA. HE WAS BORN
IN SCOTLAND 14TH NOV^R
1811. DIED AT PRINGIT IN
MALACCA 24TH JULY 1854.
THIS TABLET IS ERECTED BY
HIS WIDOW.

No. 31.

HIER ONDER DESEN STEEN UÏTGELOVEN
LEGHT THEODORUS VAN DE KERCKHOVEN
IN SÿN LEVEN WAS Hÿ VADER'S
EN MOEDER'S VREUGT
SÿN BROEDER LEEFDE Hÿ
TOT EEN GENEUGT
EEN JAER MIN DRIE DAGEN

16 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

WAS DESE SPRUIT
DOEN GOD DE ZEL DEED GÆN
HET LIGHAEM UIT
EN OFTER NAE SÏN UIT VÆRT
YEMANT VROEG
NOVEMBER VÏF MEN IEM
TER ÆDREN DROEG
IN'T JÆR SESTEN HONDERT
EN SESMAEL THEN
BINNEN DE STAT MALACCA
SAG MEN'T GESCHEN.

Here in the hollow under this stone lies Theodorus Van de Kerckhoven. In his life he was his father's and mother's joy: he loved his brother dearly. One year less three days was this tender plant when God caused the soul to leave the body: and frequently after his interment people asked about him. On the 5th November in the year sixteen hundred and six times ten (1660) was he borne to earth: in the town of Malacca was the occurrence seen.

No. 32.

(Arms.)

HIER-ONDER LECHT BEG-
RAVN JOHAN VAN ZÏL
GEBOORTICH VAN VÏANEN
IN SÏN LEVEN OPPERCOOPⁿ
EN FISCH DESER STFDE
OVERLEDEN DEN 3^{en} JANUARY
1656.

Hereunder lies buried Johan Van Zyl, born at Vyanen, in his life Chief-merchant and Fiscaal of this town. Died the 3rd January, 1656.

No. 33.

(Arms.)

HIER RUST CONSTANTYN
JOHANNES ROOSELAAR
Zoontje van den E. E. ACT-
BAREN HEER PIETER ROOSE-
LAAR Raad Extraordinaire van
INDIA Mitsgaders GOUVER-
NEUR EN DIRECTEUR deser

Here rests Constantyn Jo-
hannes Rooselaar son of the very
honourable Heer Pieter Roose-
laar, Councillor Extraordinary
of India, also Governor and
Director of this town and fort-
ress of Malacca. Born the 13th

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 17

STAD EN FORTRESSE MALACCA. GEBOREN den 13ⁿ July Anno 1703 en OVERLEDEN den 18ⁿ JANUARY 1707.

Alsmede MEVROUWE SOPHIA HUIGELBOSCH gewesene waerde Gemalinne van opgamelde Edele Heer PIETER ROOSELAAR Geboren binnen de Stad ROTTERDAM op den 24ⁿ MAART Ao 1674 en in 't Kraambedde Overleden den 9ⁿ Maart Anno 1709.

July 1703, and died the 18th January, 1707.

Also Mevrouw Sophia Hui-
gelbosch, who was the beloved
wife of the said noble Heer
Pieter Rooselaar, born in the
town of Rotterdam on the 24th
March, 1674, and died in child-
birth the 9th March, 1709.

No. 34.

Francisca Barber Cap. Jacobi
Barber UXOR pientissima Mari-
tum e Bombaya insula Chinam
profectum ultro Comitata ad
hanc Malaccam jam gravida
mansit Ubi exacto gravidarum
termino Dum frustra Batavi
Genus Hospitale Hospitis vitae
salutique student prius quam
levata est fatali onere sub onus
succubuit Decimo Die Septem-
bris 1695.

Francisca Barber, most
pious wife of Capt. James
Barber, who accompanied her
husband on his way from the
Island of Bombay to China,
being great with child, remain-
ed here at Malacca: where,
when the period of her pregnan-
cy was complete, while the hos-
pitable Batavian people vainly
laboured for the life and safety
of their guest, before she was
relieved of her dread burden she
sank beneath its weight, on the
10th day of September 1695.

No. 35.

Vivere Cælicolis terræ ten-
toria liqui. Vita labor fuerat ;
Mors Mihi vita fuit.

In certa et constanti spe Re-
surrectionis hic positæ sunt
exuviæ GEORGH COOKE quodā

To dwell with the heavenly
host earth's tents I left. My
life had been a toil; death
to me was life.

In sure and certain hope
of the resurrection, here are
laid the remains of George

18 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA.

Navis Hoivlādīæ Capitanei Vir
Probitate Præclarus Fidelitate
Insignis et variis Scientiis præ-
ditus in reditu a China Obiit 16
Septembris Anno Salutis nos-
træ 1712 Et Aetatis suæ 36.

Cook, formerly Captain of a
Dutch vessel. A man distin-
guished by his uprightness,
renowned for his trustworthi-
ness and endowed with vari-
ous kinds of knowledge, he
died on his way back from
China on the 16th September in
the year of our salvation 1712,
and in the 36th year of his age.

No. 36.

HIER LEYD BEGRAVEN
HENDRICK EVERTSEN in syn
LEEVEN BORGER CAPT. en
VRYKOOPMAN Alhier Obiit
22 JANUARY 1698 out 52 JA-
AREN.

Here lies buried Hendrick
Evertsen, in his life Citizen,
Captain and free Merchant here.
Obiit 22nd January, 1698, aged
52 years.

C.

Report made by the undersigned sexton, Michiel de Bruyn, to the honourable Heer Anthony Hansius, Chief Merchant and second personage (of Malacca), likewise first Churchwarden of this Government, regarding the inscriptions which are engraved on the stones in the Church of St. Paul on the hill, and correctly recorded as follows hereunder, to wit.

(Here follow inscriptions Nos. 3, 4, 5, 6, 8, 9, 11, 12, 16, 18, 20, 21, 22, 23, 27 and 29).

Malacca, 17th March, A° 1713.

(Sd) M. de BRUYN.

D.

List of the Coats of Arms hanging in the Church of St. Paul, within this fortress of Malacca.

1. On the right side of the pulpit, in a frame with ornaments :—

The arms of the very honourable Heer FREDRICK GOBIUS, in his life Governor and Director of this town and fortress.
Died the 13th October, A° 1730.

2. Over the pew of the Honourable Council of Police,* in a frame :—

The arms of MEVROUW SOPHIA HUYCHELBOSCH,† in her life wife of the Right Honourable Pieter Rooselaar,‡ Councillor Extraordinary of Netherlands India, likewise Governor and Director of this town and fortress.

Died the 9th March, A° 1709.

3. Thereafter follow, over the same pew, in a frame with ornaments :—

The arms of the very honourable Heer THOMAS SLICHER, ‡ in his life Governor and Director of this town and fortress.

Obiit 18th October, A° 1691.

4. Beside the above follow, between the said pew and that of the Chief Citizens' Company, without a frame :—

The arms of the gallant Military Captain JAN CHRISTOFFELMOM. Died the 25th September (written "7-ber") 1736.

5. Thereafter follow, over the last-mentioned pew, without a frame :—

* In the original "Raad Van Politie" This may mean either a Police Council or Commission, or a person holding the office of Police Commissioner : just as a Member of the Council of Netherlands India is spoken of as "Raad Van India"

† See No. 33, in the list of inscriptions.

‡ See Journal No 13, p. 56.

20 INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA

The arms of the noble Heer GERRIT VERSCHRAGEN, in his life Chief Merchant and second (personage) of this Government.
Obiit, 26th May, A° 1735.

6. Then follow further on, without a frame :—

The arms of the gallant Military Captain ADRIAAN TOOT.
Obiit 23rd July, A° 1698.

7. Next hang, without a frame :—

The arms of the gallant Military Captain HENDRICK FEMMER.

Obiit 26th October, 1692.

8. Thereafter follow, towards the wall of the choir, without a frame :—

The arms of Mevrouw SUSANNA SCHAICK, in her life wife of the very honourable Heer Carel Bolner,* at that time the retiring Governor and Director of this town and fortress.

Obiit 4th February, A° 1707.

9. In the middle of the said wall, right over the pulpit, in a frame :—

The arms of Mevrouw ANNA WILDELAND, in her life wife of the very honourable Heer Harmanas van Suchtelen,* Governor and Director of this town and fortress.

Obiit 21st May, A° 1725.

10. Near the above, towards the wall before mentioned, on the other side without a frame :—

The arms of the young lady JOHANNA VAN TWIST,‡ daughter of the very honourable Heer Johan van Twist,§ Governor and Director of this town and fortress.

Obiit 12th June, A° 1644.

* See Journal No. 13, p. 56.

‡ See list of inscriptions No. 10.

§ See Journal No. 13, p. 55.

INSCRIPTIONS IN ST. PAUL'S CHURCH, MALACCA. 21

11. Thereafter follow, on the side-wall, over the seat of the Treasurer, without a frame :—

The arms of Mejuffrouw MARIA QUEVELERIUS* in her life wife of the right honourable Johannes van Riebeck,† Commander and President here.

Obiit 2nd November, A^o 1664.

12. Near the above, between the said seat and that of the last-named officer, in a frame :—

The arms of Mejuffrouw AMARENTIA KOECK, wife of the noble Heer Pieter du Quesne,‡ then Chief-merchant and second (personage) of this (place) likewise pro tempore Commander here.

Obiit 15th November, A^o 1730.

13. Near the above, next the door, over the pew of the last-named officer, in a frame :—

The arms of Mevrouw JOHANNA DU MOULIN,|| wife of the noble Heer Balthasar Bort, † Councillor in Ordinary of Netherlands India, and Governor and Director of this town and fortress.

Obiit 11th March, A^o 1676.

14. On the other side of the door, over the seat of the Consistory, in a frame with ornaments :—

The arms of the very honourable Heer GILMEN VOSBURG,† in his life Governor and Director of this town and fortress.

Obiit 19th February 1697.

15. On the left side of the pulpit, without a frame :—

• The arms of the youth THEODORUS HERBERTS, son of the noble Heer Gerard Herberts, Chief Merchant and second (personage) of this Government.

Obiit 18th April 1659. Aged 9 years.

* See list of inscriptions, No. 18.

† See Journal No. 13, p. 61.

‡ See Journal No. 13, p. 56.

|| See No. 19 in the list of inscriptions.

A Botanical Excursion to Gunong Jerai. (Kedah Peak.)

BY H. N. RIDLEY.

The great isolated mountain commonly known as Kedah Peak, which forms so conspicuous an object in the view from Penang, has been several times ascended by Europeans, but as far as I am aware no account of it has been published. The following description of its ascent may therefore be useful to those who intend to scale it.

I left Penang on June 4th, 1893, in the "Rosebud" launch, accompanied by Mr. Curtis, intending to make the ascent from the village of Yan, which lies at the foot of the mountain and is the best starting point, though there is another route from the Merbau river. The weather was very bad and when we had arrived opposite Yan, a heavy squall came up and we had to fly for shelter to Pulau Song-song, where the water was deep and quiet. With some difficulty, owing to the strong headwind and dense rain which completely hid the view, we managed to get under lee of the island, and shortly after the rain abated we determined as it was rather late to spend the night at Pulau Song-song, especially as the surf was breaking heavily on the coast and would make it difficult for us to land the baggage from the boats. We therefore landed on the island and took up our quarters in a native hut. The village is small and the inhabitants gain their living by catching and curing fish and by collecting turtle eggs. The island is rocky, the prevailing rock being clay ironstone with ferruginous sands and clays. It is thickly wooded with fairly large trees, among which were *Swintonia spicifera* and *Anisoptera Curtisii*, both in fruit. The former appeared very abundant and was very conspicuous on account of its masses of red-winged fruits, but the trees were too tall for us to secure good specimens. Strolling along the shore we

24 BOTANICAL EXCURSION TO GUNONG JERAL.

collected a few interesting plants, among which were *Atalantia monophylla*, forming a bushy tree loaded with its small green oranges, *Cordia Sebestena*, the iron wood tree of Cocos island, with its showy orange flowers, a pretty *Hoya* with white sweet-scented blossoms, and creeping over the sandy banks a pretty *Ruellia* with fairly large violet flowers. *R. prostrata*, not previously recorded from the Malay Peninsula nor have I ever met with it since. Orchids were not wanting on the trees by the beach. *Aerides odoratum* seemed common and was in bud, and some fine plants were secured. It seems to have a liking for the sea shore as I have several times found it abundantly on the smaller islets in the Straits in similar localities. *Eria bractescens*, *Cirrhopetalum Medusae*, the common *Cymbidium* (*C. aloifolium*) and the pigeon orchid *Dendrobium crumenatum* were also found but were not in flower. The maiden hair fern, *Adiantum Capillus-veneris*, also grew on the rocks by the sea.

During the night a large turtle landed on the beach near the village and laid about forty eggs in the sand which were easily found next morning by the villagers, as the animal had left a large wide track like that made by pushing down a boat through the sand from its nest to the sea.

Next morning being quite fine we hastened across the Yan. The sea on this coast is very shallow and even small steam launches have to anchor a mile away at least. The mouth of the river is exactly opposite Pulau Song-song. A plantation of coconut palms runs along the coast south of the river, terminating near its mouth, and thus forms a good land mark. The river being tidal is fringed with the common tidal swamp vegetation, the commonest tree being *Avicennia*. The wild date palm, *Phoenix paludosa* is abundant, *Pluchea indica*, *Wedelia biflora* and the common *Acanthus* (*A. ebracteatus* Vahl) are also conspicuous. This latter plant has a great reputation in Penang as a medicine for boils. The seeds are roasted, pulverised and mixed with water, and the liquid drunk. The natives state that the patient will be freed from boils for as many years as there are pounded seeds in the draught. This *acanthus* known here as Jeruju, has the flowers light blue or white, usually the latter in the south of the peninsula and blue in the north and Java, but blue flowers occur in some parts of Singapore. The large and brilliant-

flowered *A. ilicifolius*, I have only met with in the Lankawi islands: the prickly holly-like foliage is similar, but the flowers are more than twice as large, and of a beautiful blue.

The village of Yan is not visible from the sea-shore but is situated a few hundred yards from the mouth of the river, which at high water is deep enough to float good-sized tongkangs. There is another route to it through a swampy piece of ground behind the coconut plantation south of the river mouth. This swamp had apparently been under paddy cultivation but at this time was covered with a dense bed of sedges chiefly *Scirpus grossus* which is used in mat making. Among it grew the charming water balsam *Hydrocera triflora*.

The village is of fair size and there are a good many Chinese settled there who make a living by cutting timber on the slopes of the mountain and by making charcoal. Durians, Mangosteens, Rambai, Bachang and other fruit trees are largely cultivated. The Durian trees were of remarkably large size, and all day but especially in the evening and early morning one could hear the crash of the falling fruit. Squirrels seemed to be doing much damage to them and the village children were provided with pellet-bows made of bamboo and rattan, from which they discharged stones at the little animals. So famous are the Durian trees of Yan that the natives gave a half humorous derivation of the word Durian, from Deri Yan.

There were many pepper gardens in the neighbourhood and I also saw coffee, patchouli and tobacco cultivated there, but the latter seemed for the most part to be abandoned. Indigo I was told had been tried but apparently without success.

As in other native states under Siamese influence, such as Kelantan, the women are less confined to the house than in the Southern States and go about more in the villages. There was a good deal of sickness apparently and as the natives had no European medicines and knew nothing about indigenous drugs, there was an extensive levee of applicants for medical treatment every morning. Badly neglected wounds on the feet and legs from falling durians seemed to be the chief ailments.

The Penghulu Rajah, who had been forewarned of my arrival from Penang, very considerately put an empty house—the best in the village—at my disposal, assisted me to procure coolies and

sent an armed guard to watch over the house at night while I was there, as well as a patrol who rambled about at night armed with spears and lanterns. The use of the stocks for malefactors was not abolished here, and in one house we saw a native fixed in them by one leg.

The natives recommended that I should start early in the morning for the Peak, as it rained frequently in the afternoon, so it was determined to remain in Yan for the rest of the day. Mr. Curtis returned to Penang and I occupied the time in collecting in the nearest patch of jungle, where were a number of trees hardly or not at all known to me. Among them a large *Magnolia* (*Talauma* sp.) with very large white fruit with pink seeds, *Strophanthus Jackianus* with its long-tailed orange flowers, a pretty *Elettariopsis* (*E. latiflora*) with white, crimson and yellow flowers, and the shrubby *Bauhinia mollissima* with red flowers, one petal of which is white and yellow, especially claimed attention. Specimens of a small tree called here Nasi Sejuk (cold rice) were brought me by the men. The branches bore a handsome fruit as large and of the same colour as a good orange. It contained several large seeds wrapped in a sweet well-flavoured pulp. The tree proved to be *Salacia flavescent*.

I secured a specimen of a small prettily marked snake with remarkably large eyes and later in the day a large black and white Typhlops was brought me. These were all the reptiles I saw except the common green tree snake *Tragops porcinus* and a very large tortoise which I perceived creeping along the bottom of the river in the early morning as I went down to bathe. It burrowed under the bank and I could not get it out. There were said to be no crocodiles in the river.

About three miles from Yan is a fine waterfall which is well worth a visit. The route to it follows the telegraph line towards Kedah. The fall is visible for a considerable distance out at sea. After remaining a day at Yan, I started with the coolies to ascend the mountain. Passing through a little open country interspersed with woods, one reaches the dense jungle which covers the mountain-side. A guide is necessary for at least the first part of the way, as there are many tracks made by charcoal-burners and timber-cutters, which are likely to lead the explorer astray. The lower woods would well repay a thorough botanical investi-

gation, as there seemed to be very many plants of interest, but time did not permit of a careful search. The path was strewn with fruits and seeds of various kinds fallen from the trees. At one place were innumerable fruits of the ellow flowered *Wormia meliosmaefolia*, at another those of the Minyak Kruen, *Dipterocarpus pterygocalyx*. *Melumnorhea Curtisii*, one of the trees known as Rengas, was loaded with its red-winged fruit and formed a conspicuous object. The timber of this tree was in request by the woodmen, and felled trunks could be seen lying in the wood. The heart wood is hard and dark red, and as there is much soft white sap wood, the felled logs are left on the ground till the termites have eaten off the sap wood, when the heart wood untouched by them is dragged to the foot of the hills on buffalo-sleds. *Vitex coriacea*, a small tree, was bright with its innumerable violet flowers which attracted hosts of butterflies. Leeches are rather troublesome in this part of the wood but disappeared in the higher parts of the hill. The track is an easy gradient but long and toilsome and was decided by my boy and the plant collector to be worse than that up Mount Ophir. At one spot a fine view towards the northwest is to be obtained, but otherwise the path is entirely closed in by jungle. At about 2000 feet altitude the flora suddenly changes. The trees are smaller and more slender and the ground in the more rocky spots is covered with orchids and ferns. The path traversed a thick scrub of the curious fern *Oleandra neriiiformis* as high as one's head. Here and there were open grassy spots on which grew many pink-flowered *Sonerilas*, white *Hedyotis* and yellow *Xyris*, the latter being a new species described as *Xyris Ridleyi*. ♀

The turf was ploughed up at one of these grassy patches by rhinoceros, but the animals were not seen. The camping ground lies in the highest of these spots between two peaks of the range, the highest of which lying towards the south is a thousand feet above it, and is the summit of Gunong Jerai. There is a good stream of water and plenty of firewood here. The rocks consist of quartzite, sandstones, and micaceous schists and piles of stones were pointed out as relics of tin mining operations abandoned some few years previously. A little way below the camp was an outcrop of iron ore (haematite). Close to the hut were evident very recent traces of a large tiger,

but nothing was heard or seen of the beast. Kijang were said to be common here, but none put in an appearance. On one occasion I heard in the evening the cry of a Lotong (*Samnophithecus*) but no other animals were seen or heard except one or two small bats. Birds too were very scarce and mostly small species, as at Mount Ophir. Three fine hawks passed over the camp one afternoon, but kept well out of range. Butterflies and beetles were numerous and among the latter I secured a specimen of *Odontolabis gazella* a well known Ophir insect. One of the men caught also a death's head moth, but it escaped his grasp. The flora round the camp bore some resemblance to that of Mount Ophir, many of the trees being of the same kinds: such were the Conifers, *Dammara orientalis*, *Dacrydium elatum* and *Podocarpus cupressinus*; as also *Tristania merquensis*, *Boeckia frutescens* and *Leptospermum amboinense*. The wild Aniseed, *Illicium Cambodianum*, with rosy or white flowers and star like capsules, resembling those of the true Star anise of Cochin China but quite odorless, was plentiful in the woods, but the most striking shrub was a beautiful white *Rhododendron* about twelve feet tall which bore bunches of large white flowers with a yellow centre. A plant well worthy of cultivation, but unfortunately neither seeds nor young plants could be obtained.

Among the smaller plants a charming little sonerila with mauve rarely white flowers, and leaves of every shade of green olive and purple frequently spotted or marbled with white was very abundant. Botanically it was especially interesting from its possessing a tuberous root. *Burmannia disticha* was unusually abundant and fine, both in size and color. One plant was gathered with twenty-six flowers in a head, and growing in masses as it does here its beautiful blue flowers reminded one of the blue hyacinths of the English woods. Another pretty blue flowered plant was a tall grassy leaved *Ancilema* (*A. giganteum* Br.) which opened its azure flowers only at noon. It was hitherto unknown from the peninsula, though of very wide distribution, occurring in Africa, India, Ceylon, the Malay islands, China and Australia. A curious little sedge, *Scleria Neesii* var. *borneensis*, was another important addition to our flora, as its distribution is confined to Ceylon and Borneo. Twining in the grasses close to the stream in damp spots was a pretty *Utricularia* with large

yellow flowers. It was described under the name of *U. involvens*, Ridl.

The ascent to the summit of the mountain is steep in parts but there is a good track through the woods which clothe it to the top. The view from the point is very fine and embraces an extensive tract of country, while on the sea side the Lankawi islands can plainly be seen. The height is estimated at a little over 4000 feet; by my aneroid I calculated it to be a little under, viz., 3495 feet. The southern side is quite precipitous with nearly vertical walls of many hundred feet; at one spot not far from the camp a stream runs over one of these precipices so steep that standing on the edge one cannot see the fall of the stream without bending over. Part of the rocky slopes on this side is coated with turf upon which I was about to step when one of the men restrained me and showed me that at a slight push the whole mass slid off from the smooth rock and went down the side of the precipice. On these rock-slopes grew a pretty *Bau* (*B. elegans*) the only one I have met with which did not grow on limestone rocks, and with it was an *Arundina* with small flowers, not unlike the *Arundina Philippi* of our gardens. The biggest trees on the top were a species of *Pieris*, somewhat resembling an *Arbutus* with long racemes of white bell-shaped flowers. A new species of *Hedychium* (*H. collinum*) with white flowers was obtained, but only beginning to flower. A white-flowered *Canscora* was common near the top. It was quite distinct from the one which grows around the Kwala Lumpur Caves, and is the second species obtained in the peninsula, none being recorded in the Flora of British India.

Orchids are far more numerous here than on Mount Ophir, and in places form an important portion of vegetation. In some spots the ground was so thickly covered by them that one was nearly up to the waist in them and had to cut one's way through the masses of tangled stems. Among the most striking were *Spathoglottis aurea*, *Cypripedium barbatum*, *Dendrobium sanguinolentum* and more commonly the pale ochre-colored form *cerinum* *D. Hughii*, with large thin white flowers tinted with violet, and *D. revolutum*. Bulbophyllums were very abundant, among them were *B. longiflorum* with large pink striped flowers with an orange lip, and *B. hispidum* only met with at the very summit.

with clusters of fairly large deep red hairy flowers with a very putrid odour. Upwards of fifty kinds of Orchids were collected here, of which eight kinds were peculiar to the range. As on Mount Ophir *Didymocarpi* were not common and what species did occur seemed to be endemic. Among the most conspicuous Ophir plants absent were *Rhododendron Malayanum* and *R. jasminiflorum*, *Arundina speciosa* *Dendrobium uniflorum*, *Cladium Main-gayi*, *Lepidosperma Chinense* and *Balanophora*, but this latter being often rather deeply buried in the soil may not be discoverable unless in flower, and may perhaps be found later in the year. On the whole the flora most resembles that of Mount Ophir and is very different from that of the Main Perak hills. The flora of the Lankawi islands which one can see at no great distance from Kedah Peak and where so many remarkable plants have been found by Mr. Curtis is very distinct from that of any part of the peninsula, having in fact a closer relation with that of Tenasserin. I had expected to find on Kedah peak traces of this northern flora, but there was nothing of the kind, the plants are typically Malayan. I remained on the mountain for six days during which the weather was tolerably fine. Rain fell however almost every night. The temperature is fairly cool, the thermometer falling to 70 at sun down. Mosquitoes occur at the camp, which is unusual at this elevation, so those who are troubled by them would do well to take mosquito curtains. The expedition including going from and returning to Penang has, I believe, been done in a day, but it can hardly be worth the labour it entails to make so hurried a visit. The ascent from Yan takes from $3\frac{1}{2}$ to 4 hours, and if wet it will probably take longer as the track becomes very slippery after rain.

On the Use of the Slow Loris in Malay Medicine.

BY H. N. RIDLEY.

The following instructions for the medical and magic uses of the Loris, were copied some time ago from a manuscript in Malay, and are excellent illustrations of Malay ideas as to medicine. In many respects these receipts recall European medical ideas of some four centuries ago. The notion that one drug will act beneficially in all diseases that flesh is heir to is by no means extinct among the more ignorant classes at the present day, while the use of animals, especially if of strange and uncanny appearance, simply because they were odd looking, was formerly quite common in Europe. Thus the viper, and the scinc (*Mabnia*) were valued highly as late as 1694. (Pomet's Drugs). Still earlier toads, bats and other such animals were used in magic as the Loris is among the Malays and Indians to this day.

The Kongkang, or Slow Loris (*Nycticebus tardigradus*) is common all over the peninsula and also occurs in India. Its strange appearance with its large eyes and ape-like hands, its nocturnal habits and its manner of covering its eyes with its hands, have stamped it in the eyes of all Orientals as an uncanny beast closely associated with demons, which it is supposed to have special facilities for seeing. I have been informed that its tears if applied to the eyes impart such clearness of vision that the person using it is able to see ghosts. The method of obtaining the tears is to take the animal among a herd of cows when it commences to weep, but another plan which indeed sounds more likely to succeed was to wrap the animal's body in a white cloth, and throw pepper in its eyes. The tears are collected on a bit of cotton.

Five varieties of the Loris are recognised by the Malays, viz., the Kongkang ayer, the common grey forn, so called

32 USE OF THE SLOW LORIS IN MALAY MEDICINE.

because it is said it can swim; Kongkang angin, which is black. This variety is said to have the power of vanishing when a storm arises, if it is merely tied with a string in a house, but if confined in a cage it cannot do. Kongkang api is red with a white mark on its forehead and nose. Kongkang orang is brownish with a red line over its head and down its back. The white variety Kongkang puteh or Kongkang Kayu is very rare and is the most valuable one for magic purposes. It derives its second name from the peculiar property of causing a tree to fall in any desired direction. To effect this it must be either found dead or killed in a special manner known only to an initiated few, its bones are then laid in a row in the direction in which it is desired that the tree shall fall when felled and the tree will fall exactly on the bones.

In cutting up a Kongkang for magical purposes it is necessary that the knife used shall be ornamented with gold. The skull if put in a hole in the ground beneath a house will cause ghosts (hantus) to appear. The fur if burnt and given to a woman to eat will cause her to like her husband however much she may have previously disliked him.

PASAL PERGUNA'AN KONG KANG.

Ayer mata-nya itu jika di pakai pada badan kita yani di masokkan k-dalam suatu bekas di-pakai sperti azimat. Insha Allah sklian yang mmendang kita kaseh sklian-nya.

2. Darah-nya jika di champor dngan dawat di tuliskan azimat Insha Allah mustajab barang perbuat tau-nya, dan jika di champor dngan ayer susu manusia di sapukan pada mulut periok, mlainkan tiada masah nasi itu.

3. Prot-nya itu di jmur kring kring dan apabila kita handak naik rumah orang di asah dngan ayer embon dan jebat di sapukan di dawah lantai-nya nschaya tertidor orang yang di dalam rumah itu dan tiada ktahui kita naik rumah-nya itu, dan jika di sapukan pada binatang yang buas buas, sperti Harimau, Sapi, atau Gajah terplihara deri-pada kjahatan-nya, dan jika orang sakit di asah dngan kulit dedak sdikit di-bri minum nschaya semboh.

4. Prot-nya itu jika di-bri kring kring apabila ada prem-puan susa lindak beranak di asah dngan mempedu-nya dan ayer

mawar di sapukan pada ari ari-nya prempuan itu neschaya kluar anak-nya itu.

5. Mata-nya yang kanan itu jika di lumatkan di champor dngan susu orang atau susu kambing dan minyak Yatmon di champorkan pada surmoh di-buat chelak neschaya trang mata yang kelam dngan kuasa Tuhan.

6. Mata-nya kiri itu di lumatkan halus halus di champor dngan ayer Mawar, ayer madoo dan kapor barus, di buat chelak mata atau di makan dngan sirih yang bertmu urat neschaya kaseh orang mmandang kita, dan jika di bri makan pada binatang yang liar mjadi jinak.

7. Hati-nya itu jika di kringkan baik baik pada panas kndian di lumatkan dan di champor dngan minyak Zitton dan di sapukan pada (Zakar) bawa jinak terlalu lazat, dan jika di tanam pada rumah kita jadi hormat rumah itu.

8. Tulang blakang-nya jika di tanam di bawah pintu rumah kita mlainkan tiada boleh pnehuri masuk.

9. Tulang kaki-nya itu jika di kolom di dalam mulot di bawah berchakap-chakap di hadapan Raja raja lmah lahya berbunat dhalim di atas kita dan jika di masak dngan minyak ular atau harimau atau minyak zitton di sapukan pada kaki orang yang lemah neschaya affiat olehnya.

10. Paruparunya itu jika di tampal pada pintu orang melainkan bercherai berai orang rumah itu.

11. Jantongnya itu di kringkan di ambil satu (kerat) dan di asah dengan (mani) kita di bri makan perumpuan neschaya kaseh dia dengan kita.

DIRECTIONS FOR THE USE OF THE LORIS.

1. If the tears of this animal be worn on the body, we can place them in a small case and carry as a sacred wand. All persons beholding our countenance shall by God's will bear an affectionate feeling towards us.

2. Its blood may be mixed with ink, and written with as a sacred writing, by the will of God any business will prove successful; and it can be mixed with milk and rubbed on the mouth of a pot, when the rice which is to be cooked will never be done.

34 USE OF THE SLOW LORIS IN MALAY MEDICINE.

3. Its gut is to be dried, and when we want to use it, take a piece and rub it on a stone with dew and civet; when rubbed below the floor of a house, the inmates will fall asleep and will not know we are getting in, and if rubbed on wild animals such as tigers, oxen or elephants, the person approaching will be safe from harm, and if ground up with a little bark of Dadup (*Erythrina*) and given to a sick person it will cure him at once.

4. The gut when dried and ground with its gall together with rose water and rubbed on the abdomen of a woman in confinement, will assist to cause delivery.

5. The right eye dried and ground to powder and mixed with human or goat's milk and some sweet oil may be used as an eye ointment which will make dim sight bright by the will of God.

6. The left eye ground fine and mixed with rose water, honey and camphor (*Sumatran*) can be used as an eye ointment or eaten with sirih leaf, the nerves of which meet together causes all who look on us to love us, and if given to a wild beast it will become tame.

7. The heart well dried and ground and mixed with olive oil and rubbed on acts as an aphrodisiac and buried in the front of a house makes it appear respectable.

8. If its backbone is buried beneath the door of the house we can prevent thieves from entering.

9. If the bone of its left leg be kept in the mouth during a conversation with a rajah, it will prevent his doing any acts of tyranny to us, and if we cook it with oil of snake or tiger or olive oil and rub it on the feet of a weak person, it will strengthen him.

10. If its lung is placed beneath the door, the people of the house will be separated.

11. If the liver be dried and a piece taken and rubbed up and given to a woman to eat it will produce in her feelings of love towards us.

A Review of Dr. A. B. Meyer's "Negritos."

BY R. N. BLAND.

A pamphlet with the above title has recently been presented to the Library of the S. B. R. A. S. by the author. It is a translation from the German of two chapters of a larger work, published in 1893, dealing with the Negritos of the Philippines, and is confined to a consideration of the distribution of the Negritos within the Philippines and beyond.

The author, who is the Director of the Royal Zoological, Anthropological and Ethnographical Museum at Dresden, is a scientific traveller of established reputation. He has since 1875 published over 20 volumes on Anthropological and Ethnographical subjects connected with the far eastern Archipelago. The subject is one that possesses a particular interest in this "corner of Asia," as amongst the natives of the Peninsula we have tribes representing the ancient race of Pigmy negroes, small black men with frizzy hair concerning whom science has speculated since the time of Herodotus.

Jakuns, Sakai, Semang, Orang Raiat, Orang Bukit, Orang Panggang, Belenda, Bidnanda are some of the names by which these people are known in different parts of the Peninsula. Possibly the Orang Laut, who to this day inhabit the villages at the mouth of the Rochor River, in the harbour of Singapore, and even the curly-headed "have-a-dive" boys of New Harbour are also related to this ancient people, but this is still an open question.

The author concerns himself only with the distribution of the Negritos in the Far East—that is, where these people are to be met with and where not. In support of his arguments he quotes over 200 different authorities, and more often than not, differs from them.

The writers that our author quotes most, and differs from most violently, are MM. de Quatrefages and Hamy, both of them anthropologists of renown. To readers of this Journal, the criticisms of the views of M. de Quatrefages will be of interest, as some of these views are set forth in two articles entitled the "Pigmies" published in Nos. 11 and 13 of the Journal, S. B. R. A. S. Let us take some of these references in detail.

P. 23. "The most prolific writer on the Negritos is de Quatrefages, who published a monograph in the year 1872, entitled "Etude sur les Mincopies et la race Negrito en général" . . . and then in 1882, together with Hamy, the "Crania Ethnica."

"I will not enter into a detailed discussion of this writer's partially fantastic ideas on the Negrito question. Time will decide whether the views advanced by him with great certainty will hold good, in that traces of the Negritos are found nearly everywhere from India to Japan and New Guinea, and that Negritos and Papuans live together in New Guinea and elsewhere, owned and intermixed, differing from the true Papuans" . . . The same illustrations too are continually reproduced . . . De Quatrefages' literary references are frequently untrustworthy. He is in spite of his shortcomings respected by many writers as a reliable authority, etc., etc."

The "Crania Ethnica" is a constant stumbling-block and rock of offence to our author. He writes of a certain skull described as coming from Borneo. P. 26. "The mischief caused by this Negrito skull will be carried on in books for some time to come in consequence of this frequent repetition." He is strongly of opinion that the existence of Negritos in Borneo has not yet been proved, and is much annoyed with M. de Quatrefages for assuming the contrary on the evidence of a solitary skull.

Writing of the Moluccas of Lesser Sunda isles, our author disputes an opinion of Prof. Flower regarding the existence of a "small Negroid population" in certain islands. "He is" he says, "surely adopting, absolutely without the test of criticism, de Quatrefages' more recent statements (Les Pygmées, 1887) which are more or less figments of de Quatrefages' imagination," etc.

Again (with reference to Negritos in Java), "Flower appears here again to follow de Quatrefages (Pygmées, 1887)

"blindly, but the statements in question are very much open to "controversy." As in the case of Borneo, Mr. Meyer holds that the existence of Negritos in Java has not been proved.

In examining the evidence as to Negritos in Formosa, Herr Meyer again falls foul of "*Crania Ethnica*" and writes, "For to "conclude the occurrence of a race in a country from certain "characters in two skulls, when this race has not yet been registered from that country, is in the present embryonic state "of craniology, an unwarrantable proceeding, and the two "French writers will certainly find no follower in this respect, "except such as simply copy their assertions."

Here Meyer disputes the existence of Negritos in Japan, on the evidence of certain skulls described by Hamy. He writes: "In consequence, this Negritos Japanese skull found its way into the '*Crania Ethnica*' and was duly recorded in all the writings of de Quatrefages and in many others."

As regards China, Herr Meyer equally questions the evidence as to Negritos. "*De Quatrefages and de Lacouperie* "looked upon each other as authorities, the assumption of the "one standing for truth to the other, and *vice versa*; in consequence they tried to support each other, but it is more than "questionable whether others will have the same belief in the "categorical statements of these two writers."

In short, as regards the Dutch possessions, China and Japan, Herr Meyer finds that all accounts of Negritos outside the Philippines are traced on very poor evidence, or properly speaking on none at all. He reminds one of the famous chapter in the "*Natural History of Iceland*" headed "*Snakes—There are none.*" Professor Meyer goes on to discuss the Negritos question as it concerns the Malay Peninsula, the Andamans, the Mergui and Nicobar Islands, Anam, Cochin China, Cambodia, India, Australia, and New Guinea. He glances (p. 72) at the question as to whether we are to regard the Negrito people as the little modified descendants of an extremely ancient race, ("*gens prisca mortalium*") the ancestors of all the Negro tribes, or whether they may be regarded as a type of comparatively recent growth, retrograded to their present condition after centuries of isolation and confinement to a limited space. "For at "the present time our knowledge of the mutability and amount of

"variation in organic form and their result is still so inadequate, that it is extremely rash to speculate in this general manner on the genetic connection of races, and doubtless easier to set up a clever hypothesis than to prove its full legitimacy, let alone necessity."

In his conclusion he deplores the practice of describing skulls in detail "which will never lead to profitable results." He thus takes a final shot at the "*Crania Ethnica*," "Whoever wishes to obtain an idea of the chaos which reigns here let him read the '*Crania Ethnica*' of de Quatrefages and Hamy: he would need Ariadne's clue to find his way in this labyrinth of skull descriptions."

He appeals to "some able investigator" to dedicate his powers to the Negritos of the Philippines (as the Saranies have done for the Weddas), and hopes that later generations will attain to the "heights of knowledge" and be able to look back to the present time with its gropings in the dark, its daring hypotheses, its paucity of facts, as the childhood of Anthropology.

A List of Brunie-Malay Words.

COLLECTED BY H. S. HAYNES.

NOTE. In Brunie-Malay the final *k* sounds *strong*.

There are a number of obsolete Malay words in common use here—such as *topih*, a short sarong, but as they are to be found in the dictionary of L'Abbé Favre I have not put them in this list. Here many Malay words are altered slightly, as for instance *lari* for *layer*, a sail (*lari berlari*, to sail.)

GAYA, 27th May, 1900.

Achang	.	.	The tame pigeon.
Ajie	.	.	The chin.
Alak Alak	.	.	The uvula.
Ali Ali	.	.	Separate.
Alun Alun	.	.	A road.
Ambok	.	.	A monkey.
Ambulong	.	.	Raw sago.
Ambuyet	.	.	Cooked sago.
Ampas	.	.	Accent.
Ampol	.	.	Light (not heavy).
Ampuân	.	.	A title of rank.
Ampus	.	.	Asthma.
Anchow	.	.	A fine net for catching Bubuk, made of Sadok.
Andang Andang	.	.	From the beginning.
Andiang	.	.	The frond of the Cocoonut palm.
Ang-up	.	.	To stutter.
Anus	.	.	The cuttle fish.
Arang Atasan	.	.	Soot.

Arap Arap	.	.	To cut up small.
Arik	.	.	To call.
Arok, Mengarok	.	.	To thrust a spear up through the floor of a house.
Aukup, Snapang	.	.	A breech-loader.
Aumpok	.	.	A box made of Selad leaves.
Auras	.	.	Rubbish.
Aurok	.	.	To open.
Ausai	.	.	To settle. To arrange matters.
Ausus	.	.	A bradawl.
Autik	.	.	Cataract of the eye.
Babat	.	.	To tie.
Babau	.	.	Dumb.
Badong	.	.	An eel.
Baguring	.	.	To roll.
Bakat	.	.	A scar.
Bakut, Membakut	.	.	To heap up.
Balan	.	.	Steel.
Balong	.	.	Jelly-fish.
Balot	.	.	Bêche-de-Mer.
Bangas	.	.	Sour. Stale.
Bangkawat	.	.	The rainbow.
Bangking	.	.	A bug.
Banun	.	.	A herd of cattle.
Bari	.	.	Steel.
Basak	.	.	A fisherman's basket
Basing	.	.	A squirrel.
Baston	.	.	A walking-stick.
Batah	.	.	A long time.
Batak	.	.	To rob. Cattle-lifting.
Baul	.	.	Brackish (of water.)
Bawet	.	.	Cycas revoluta.
Bayung	.	.	A bag made of rushes.
Beabas	.	.	Guava (fruit.)
Beading	.	.	Shark's fins and tails.
Beli	.	.	A stick of tobacco.
Beluri	.	.	To get, to catch, to obtain.

Bengkatang	.	.	The Proboscis Monkey.
Benukal	.	.	An earthenware jar.
Berbakut	.	.	To box. To fight.
Berkami	.	.	To make water.
Barega	.	.	To proclaim.
Berling Katak	.	.	A frog.
Berling Karong	.	.	A grass lizard.
Bergalop	.	.	To play. To act the fool.
Berinyut	.	.	Slowly, by degrees.
Bekrapak	.	.	To speak.
Berleon	.	.	To go round.
Bêlusier	.	.	To run.
Bertangar	.	.	To pole a boat up stream.
Bertapak	.	.	To hide.
Berian	.	.	Pregnant.
Blani	.	.	An earthenware jar.
Blatak	.	.	A basket.
Brian	.	.	Money, or goods paid for a wife.
Bubuk	.	.	The small shrimp.
Bubut	.	.	To follow, to chase, to pursue.
Bubus	.	.	Worn in holes at the bottom.
Bujak	.	.	A spear.
Buli Buli	.	.	Sand fly.
Bunga Lapang	.	.	The white crest on the waves, (breakers.)
Bunga Takat	.	.	Sponge.
Bungkutut	.	.	The fresh water shrimp.
Bungal	.	.	Deaf.
Bungal	.	.	The sea turtle.
Bruet Ruet	.	.	Barbed as a fish spear.
Buyuk	.	.	To cheat.
Chabok	.	.	A bathing bucket.
Chaka	.	.	Industrious.
Chakal	.	.	To wrestle.
Chandas	.	.	Chinese chop sticks.
Charok	.	.	The bow of a boat, or ship.
Chuet	.	.	A plate.

Damal	.	.	Damp.
Damit	.	.	Small.
Dapong	.	.	A boat with outriggers.
Dudus	.	.	Mutilated.
Dugal	.	.	Spleen. Nausea.
Eno	.	.	Phosphorescence of the sea.
Epong	.	.	An earthenware jar.
Gabus	.	.	Proud.
Gadong	.	.	Green.
Gagar	.	.	To shake.
Gagas	.	.	In haste.
Gaggo	.	.	To be busy.
Gaggut, Bergaggut	.	.	To make a disturbance.
Garit	.	.	A scratch.
Gauk	.	.	Wicked. Naughty.
Geok	.	.	A worm.
Gaul Bergaul	.	.	To sound a gong.
Gubong	.	.	A dug-out canoe.
Gucho	.	.	An instrument for pounding betel nut.
Gulian	.	.	Vegetables.
Guling Tangan	.	.	7 or 8 graduated gongs.
Guntian	.	.	Thread for sewing.
Gureding	.	.	A Jew's harp.
Gusey	.	.	A sacred jar.
Hias	.	.	To make haste, to spurt, to finish.
Inda Inda	.	.	Different kinds of things.
Indek	.	.	To kick.
Indong	.	.	Mother, of animals.
Ingut	.	.	To shake in a pile.
Jagau	.	.	Tall

Jahat Nawa	.	.	Sick, unwell.
Jelamah	.	.	A human being.
Jenguni	.	.	The Nicobar pigeon.
Jurong	.	.	Oval.
Kaban	.	.	A box.
Kalabutan	.	.	The cuttle fish.
Kalakati	.	.	Betel nut scissors.
Kalas	.	.	Light red colour.
Kalat	.	.	Rope.
Kalindo	.	.	A jungle spirit.
Kamah	.	.	Dirty.
Kanowi	.	.	The white paddy bird.
Kapunan	.	.	Misfortune.
Karo	.	.	Stiff.
Katawi	.	.	A place for paddy.
Katrahan	.	.	A place for fowls to lay and sit.
Keap	.	.	A fan.
Kelala	.	.	To recognize.
Keri	.	.	The eye brows.
Keri	.	.	Nepa leaves used to make cigarettes.
Kubut	.	.	An earthenware jar.
Klakar	.	.	To speak falsely.
Kudut	.	.	A plate.
Kuling Bambong	.	.	A butterfly.
Kuling Papat	.	.	A firefly.
Kuratu	.	.	In times long ago.
Kuroh	.	.	To snore.
Lago	.	.	To call.
Lakat	.	.	To remain, to stay in a place.
Lalam	.	.	Rain when the sun shines.
Lalap	.	.	Meat dried in the sun.
Lambu	.	.	The Illanun boat.
Lampo	.	.	Stout, fat.
Lamunta	.	.	Raw sago.
Langis	.	.	Clean.

Langong	.	.	A cooking pot.
Lanto	.	.	A bad smell.
Lasak	.	.	Bald headed.
Lasuk	.	.	A basket.
Lauangan	.	.	A curtain.
Lauk	.	.	Live or fresh fish.
Lechak	.	.	Soft.
Lekup	.	.	The small hornbill.
Limpaku	.	.	A passage between the coral reefs.
Limpong, Malimpong	.	.	To lie down.
Lulan	.	.	A seam, a hem.
Lulup	.	.	A woolly kind of stuff obtained from the Bengkola Palm, used to caulk boats.
Lundong	.	.	Lazy.
Malagas	.	.	Bald, leafless.
Malangup	.	.	To open wide the mouth.
Mandu	.	.	10 Gantang measure.
Mata-Mata-i	.	.	To mend a net.
Mauk	.	.	To vomit.
Menggagap	.	.	To feel about in the dark.
Meris	.	.	Leaky, not water-tight.
Maritam	.	.	Pulason fruit.
Mais	.	.	Orang utan.
Moah	.	.	The face.
Mungalimut	.	.	To slander.
Muli	.	.	To return, to go home.
Nandong	.	.	The dragon fly.
Napu	.	.	Sago flour.
Nyanat	.	.	To repeatedly commit the same offence.
Pajah	.	.	To put out a light.
Pajal	.	.	To force.
Pakaram	.	.	To fish.
Pakarangan	.	.	A fishing boat.

Pakul	.	.	A saddle.
Palowi	.	.	A fool.
Pampangan	.	.	Stocks, place of punishment.
Pandiang	.	.	A prostitute.
Pandidip	.	.	Matches.
Panggal	.	.	To cut in two.
Panguling	.	.	A midwife.
Panyangat	.	.	A wasp.
Papak	.	.	To chew.
Pantaran	.	.	Verandah.
Paropok	.	.	Bamboo grass.
Patungut	.	.	A fire stick.
Peasow	.	.	The cocoanut palm.
Pengaluru	.	.	To mock.
Pengambat	.	.	A travelling trader.
Peratasan	.	.	The watershed.
Petang	.	.	Dark. Darkness.
Piho	.	.	Deer (<i>Cervus</i> .)
Piok	.	.	To handcuff.
Porok	.	.	Earth eaten by the natives.
Puchok Rabong	.	.	The gums.
Pundok Pundok	.	.	To sit idle.
Pungarusan	.	.	A charm attached to a fishing net.
Pungaut	.	.	A rice spoon.
Pungar	.	.	A dead tree.
Puputan	.	.	Bellows.
Rahap	.	.	A shroud.
Radu	.	.	A plough.
Rambat	.	.	A casting net.
Ranik	.	.	Small, as leaves.
Rangit	.	.	Mosquito.
Ranggas	.	.	Leafless.
Repow	.	.	The refuse of sago.
Rampok	.	.	To shake out.
Rogat	.	.	Torn ears.
Rumbia	.	.	The sago palm.

Runding	.	.	To make up an account.
Sabang	.	.	A pass between the reefs or sand banks.
Sabal	.	.	Blunt.
Sabat	.	.	A knapsack.
Sadok	.	.	A kind of coarse canvas.
Sadi	.	.	To dry a boat.
Sadian	.	.	A boat shed.
Salajur	.	.	At once.
Salambo	.	.	A fishing net.
Saling Kawang	.	.	Bracken fern.
Samandak	.	.	A heifer.
Sumba Sumba	.	.	Mantis (Praying Insect).
Sambat Sambat	.	.	Early in the morning.
Sampar	.	.	An evil spirit.
Sangup	.	.	A fish spear.
Sapar Sapar	.	.	Divided.
Sarah	.	.	A box.
Sarang Sarang	.	.	A dish cover.
Saroung	.	.	A conical hat.
Sarudong	.	.	A hut built on the floor of an unfinished house.
Sawang	.	.	A hole.
Sear	.	.	A shrimp.
Sebur	.	.	Raised divisions in the paddy fields.
Segi	.	.	Cowry-shell.
Segup	.	.	Tobacco.
Selering	.	.	A fishing net.
Sepok	.	.	Having an extra finger or toe.
Sekup Keri	.	.	Left-handed.
Sekut	.	.	To carry on the back.
Selankier	.	.	The starling.
Serah	.	.	Salt.
Sering	.	.	The edge. Sea shore.
Sêrong	.	.	The spaces between the posts of a house.
Sêut	.	.	A landing net.

Spurdian	.	.	Of one family.
Stagal	.	.	A little time.
Stampik	.	.	One side.
Sulup	.	.	A hut, a shelter.
Sumbrana	.	.	Careless.
Suri Pimping	.	.	A kind of bamboo grass.
Suroh	.	.	A cricket.
Tabok	.	.	A window.
Tabak	.	.	To stab.
Tagar	.	.	Rust.
Tajow	.	.	A jar.
Takat	.	.	A coral reef.
Tambok	.	.	A cooking place.
Tambing	.	.	The river bank.
Tambuku Bamban	.	.	Buttons.
Taming	.	.	A shield.
Tampeling	.	.	A slap in the face.
Tampik	.	.	To split wood, etc.
Tangan Tanguan	.	.	The castor oil plant.
Tunghil	.	.	The Cicada.
Tapuk	.	.	To hide.
Tara Tara	.	.	A sea gull.
Tarok	.	.	The colour magenta.
Tebaro	.	.	Bamboo grass.
Tekuyong	.	.	A shell.
Tepi	.	.	Pearl shell.
Teranang	.	.	A water bottle.
Timbaran	.	.	A tree of the bread-fruit kind, the bark of which is used to make rope called Peliau.
Tislear	.	.	To make the mouth water.
Tengkalak	.	.	The block fixed on the top of the tripod bamboo mast of a boat.
Trepas	.	.	The small green love bird.
Tumpong	.	.	A bamboo used for carrying water.

Tumpuk	.	.	Heaps, groups, tufts.
Tunduk	.	.	The scalp lock.
Tundun	.	.	The back of the neck.
Tunkus	.	.	Grave-clothes.
Turuk Turuk	.	.	A silver heart-shaped ornament for a little girl.
Yubengkong.	.	.	The hammer-headed shark.

STRAITS BRANCH, R. As. Soc.

J. xxxiv, pl. 4. ❁ ❁ ❁



R. Hantsch Phot

Kadamaian River, Kina Balu, British North Borneo, 2000'

(LOOKING DOWN)

An Expedition to Mount Kina Balu, British North Borneo.

BY R. HANITSCH, PH.D.

(With four plates.)

Introductory remarks: The first part of this paper, containing the narrative of the expedition to Kina Balu, is based upon diary notes written during the journey and is practically the report which I sent in to the Committee of the Raffles Museum on April 27th of last year. The second part, containing the scientific results, could only be compiled after considerable delay: most of the zoological specimens obtained during the expedition had to be sent for identification to specialists at home and elsewhere, viz., Messrs. G. A. Boulenger, Edgar Smith, L. de Nicéville, R. Shelford, D. Sharp and L. A. Borradaile, and I take this opportunity of thanking them for their assistance. Two papers by Mr. Boulenger, the one containing the description of a new Freshwater Fish (A. M. N. H., Ser. 7, Vol. IV., pp. 228-229) and the other that of three new Reptiles and a new Batrachian (ibid. pp. 451-454), and a paper by Mr. Borradaile on Freshwater Crustacea, one of which is new (P. Z. S., 1900, part I, 2 pp.) are reprinted.

The Government of this Colony had kindly furnished me with credentials to the British North Borneo Government, and my thanks are due to the officials there, chiefly Mr. R. M. Little, Resident of Labuan, and Mr. H. S. Haynes, Magistrate, Province Keppel, who made all arrangements for carriers and who otherwise assisted me in every possible way.

Narrative.

The Mount of Kina Balu, British North Borneo, was first ascended in the year 1851 by Hugh Low (6), and since then by Spenser St. John (8) in 1858, F. W. Burbidge (4) in 1877, R. M. Little (5) in 1887, John Whitehead (10) in 1887 and 1888, and

G. D. Haviland (9) in 1892. The idea of attempting the ascent myself occurred to me in January last (*i. e.* 1899) when I made the acquaintance of Mr. H. T. Burls, M. I. M. E., F. G. S., who was passing through Singapore on his way to North Borneo in order to prospect there for oil, and who wished to ascend Kina Balu apart from his primary business object. After some discussion on the subject in Singapore, we settled the preliminary arrangements for a joint expedition by correspondence after Mr. Burls had arrived in Labuan. H. E. Governor Beaufort, British North Borneo, expressed his willingness to join the expedition.

I left Singapore by the S. S. 'Ranee' on *Saturday, March 4th, 1899* accompanied by my assistant P. M. de Fontaine and two native servants, a Chinese cook and a Malay, and reached Labuan, after an unfavourable passage, on *Thursday, March 9th*. Mr. R. M. Little kindly met me on landing and explained to me the various preparations for transport and carriers which were being made by Mr. Haynes at Gaya. Unfortunately I heard at the same time that Mr. Burls and H. E. Governor Beaufort were prevented from joining the expedition, the former through an accident to his knee, the latter in consequence of his accelerated departure for Europe. However, Mr. Burls kindly offered to take me on a short trip to Brunei the next day, and we slept the night on board his steam launch "Marudu" in order to make an early start for Brunei.

Friday, March 10th. We left about 3.30 a.m. for Brunei, arriving there at 9 a.m., explored the neighbourhood a little, visited a pawnshop where I bought a number of parangs and krisses for the Raffles Museum, and left again in the afternoon. We arrived in Labuan at 8 p.m. and slept on board the 'Marudu.'

Saturday, March 11th. Mr. Burls being unable to accompany me, I chartered the steam-launch 'Enterprise,' started from Labuan at 8.45 a.m., and had a pleasant run to Gaya, where I arrived at 7 p.m. We landed at the pier which is in process of being broken up. Since Mat Salleh destroyed the greater part of this village, including the Government offices, in 1897, the latter have been shifted to Gantian, on the mainland of Borneo, and the woodwork of this pier is now required for Gantian. In the darkness we climbed along the remains of the pier (at least $\frac{1}{4}$ mile long), and, when near the other end, were rescued by a

native boat. Soon after, we met Mr. Haynes. As Mr. Little in his letter of instructions to Mr. Haynes had recommended that we should take the Tuaran route to Kina Balu, he very kindly promised to accompany me the next day as far as Panjut, a village on the mainland where our luggage carriers were awaiting us. I slept on board the 'Enterprise.'

Sunday, March 12th. We left the 'Enterprise' at sunrise and noticed crowds of the long-spined Sea-Urchin *Diadema setosum* in the shallow water below the pier, mostly sticking on to pieces of rotten timber lying at the bottom. From a fisherman we obtained a large number of the huge worm *Sipunculus robustus* which he was digging from the sandy shore for bait. At 8.30 a.m. we left Gaya in two rowing boats manned by Bajous, and had a most pleasant journey. When nearing Gantian, we passed through shallow water with beautiful corals and numbers of the striking red and black starfish, *Oreaster nodosus*. At Gantian, usually known as Kalaggu by the natives, we met Mr. C. H. Keasberry, Sub-Treasurer and Postmaster. Then proceeding, we entered the Menkabong river at 1 p.m., passed the village of Mumpelum at 2 p.m., and soon after reached Berunggis where we landed. Here, without waiting for the second boat in De Fontaine's charge, which had dropped somewhat behind, Mr. Haynes and myself, with a few of the men, walked on to Panjut, about $2\frac{1}{2}$ miles distant, passing through swampy fields with exceedingly poor padi—I hear by the way that this year's padi crop has been a failure throughout North Borneo—and reached Panjut at 3.15 p.m. We settled down in a spacious Dusun house, with a splendid verandah, ornamented with about twenty head-trophies, and caused the drums to be beaten, which signal was to call the men to fetch our luggage from Berunggis. After about $1\frac{1}{2}$ hours' waiting, six Dusuns appeared with sledges drawn by water-buffaloes and started off towards our boats. At 6 p. m., as there were no signs of the luggage, I went back to Berunggis to hurry the men on and found that the second and larger boat had been obliged to stop lower down the river, as the tide had gone out, and that only a part of the luggage could be removed that evening. We returned towards Panjut, and feeling somewhat fatigued I mounted a water-buffalo, but as it floundered into a hole, I was promptly thrown off.

The harness was broken and the luggage upset, but otherwise no harm was done, and I mounted another buffalo, this time behind a Dusun driver; our progress was now safe, but the odour arising from my driver necessitated my holding my nose at a laterally elevated angle of 45°.

Monday, March 13th. We signalled for more men to fetch the rest of our luggage, but, after long waiting, only two men appeared. We followed them towards Berunggis and found a large fair in progress where the Dusuns from the interior were selling and exchanging their jungle produce with the Bajous, from the coast for fish, etc. Here Mr. Haynes introduced me to Malagup, a Dusun chief, who was to accompany me to Kina Balu, in charge of the coolies. Not catching the man's name I asked him directly for it, but was told by Mr. Haynes that the natives, and especially the chiefs, feel offended at being asked for their names directly; one is supposed to know them and in any case must find them out from a third person. Most of the Dusuns had come to the fair on their buffaloes, so that we now found no difficulty in getting sufficient conveyances for our luggage. Mr. Haynes here left me to return to Gantian, and I went back to Panjut, arriving there about 11 a.m. The coolies in the meantime had begun to gather, but appeared most indolent; they tried package after package, but finding them all too heavy, dropped them again in disgust. The situation seemed hopeless; even Malagup had vanished, and in the burning mid-day sun I had to go to his house, two or three miles distant, to look for him. I rode back on a buffalo to Panjut, but now our patience with the carriers was exhausted. The men had apparently only been awaiting for some forcible language, and at last took up the luggage. We made a start at 2.30 p.m., and after about 10 minutes' walk from Panjut we reached the broad and rapid Tuaran river. Only a single small boat, a dug-out, was available, and it took more than an hour to ferry us all across. Here we met a jovial old Chinaman who invited us to spend the first night in his house, in the village of Bandeian, not quite 2 miles higher up on the right bank of the Tuaran. This we accepted. The first day's march was thus only short, but I was glad to have made a start, and to have got the coolies away from their homes. They camped on a nice grassy ground be-

tween the house and the river, whilst I, with my men from Singapore, slept inside.

Tuesday, March 14th. We left the Chinaman's house at about 7 a.m., walking through an open cultivated plain, passing many buffaloes grazing there who were apparently on the best of terms with flocks of snow-white herons who stalked about between them, or stood on their broad backs. We reached Menkaladai at 8 a.m., and soon after arrived at the foot of a long chain of hills. The ascent was steep and slippery, sometimes passing through old jungle, more often through high bamboo,alang and fern. We rested on the top of the hill, and refreshed ourselves with delicious water from the branches of a creeper, called Pokok Gunatol by the natives, which the men cut off with their parangs, for every man was thus armed, some also carrying spears in addition. We marched on, and reached Kappa at 1.30 p.m. This is a miserable village of four or five houses in the midst of the jungle, with no attempt at a clearing, but plenty of filth and pigs about. We settled down in a house adorned with ancient skulls of deer and wild boar.

Wednesday, March 15th. We left Kappa at 8 a.m., and walked along mountain ridges through bamboo, fern, and deep grass, or occasional forest. Drizzling rain set in soon and lasted for some hours. In the afternoon we passed through several clearings indicating the vicinity of a village, and reached Kalawat at 4 p.m., though some of the men only turned up at 6 p.m. This was a small but picturesque village, looking like an oasis in the wilderness around: an open grassy space with granite boulders lying about, and clumps of coco-nut palms shading the houses. The houses, however, were few, about five, and small, and their unpromising interiors together with the fineness of the night induced us to pitch our tent and camp outside. Many of the men did likewise. Malagup showed himself useful by buying for us a fowl and a joint of bamboo full of honey for seven cents.

Thursday, March 16th. About 2 a.m. I was awakened by a heavy thunder-storm. I felt safe and comfortable in my tent (lent by the P. W. D., Singapore), till suddenly a little rain came trickling through my blanket, and I roused myself to find that it was pouring into the tent which was supposed to be waterproof.

To leave the tent and take refuge in the houses seemed impossible; it was pitch dark and the weather outside too awful. So I remained soaking till 6 a.m. when I fled to the next house. This experience cost us dear, since many of our things got wet through and remained so for several days. We left Kalawat in disgust at 9.50 a.m., fine rain falling at the time, but fortunately the sun came out soon after. Our path now descended, and we had an easy march to the Inuman River, arriving there about noon. This is a splendid river, rushing along over boulders and shaded by mighty trees. Here we bathed and the men caught me some remarkable tadpoles with huge suckers (*Rana cavitypanum*). They always found these tadpoles attached to the boulders in the most foaming parts of the river. We crossed by a ford to the left bank, and then over a low watershed and reached the Menternan River. This river we had to ford three times in close succession: the natives apparently making a speciality of short cuts: in this case it seemed to me it would have been much easier to ford the river once and then proceed along the bank, but my guides had different ideas. At 2.45 p.m. we reached Bungol, a large village on the left bank of the Menternan. Here the men begged me for a treat to buy them a bull. As this somewhat startling proposal only involved an expenditure of \$3, and it was a splendid young beast, I agreed, and much admired the speed with which the animal was despatched and disappeared in the various cooking pots. I myself had an excellent steak before me about an hour after the bargain had been concluded. Heavy rain fell during the late evening.

Friday, March 17th. The day opened somewhat foggy, but fine, and we started at 7.45 a.m., fording the Menternan three times, and ascending Gunong Kampil by a slow incline. Then followed a tremendously steep descent, about 2000' down a grass-covered slope, to the Kadamaian river, which is the local name for the upper course of the Tampassuk. The river here is already deep and difficult to ford on account of its strong current. The men were up to their necks in water, and had to carry the luggage on their heads. Fortunately everything remained dry, with the exception of my camera. We rested on the right bank of the river, and reached Koung at 2.15 p.m., having had fine weather during the march, though rain set in

soon after. I heard that the rice coolies were awaiting us in this village. They had left Panjut on March 5th with instructions to proceed to Kiou, but, being afraid of the people of Kiou, they had stopped here.

Saturday, March 18th. We left Koung at 7.40 a.m. and proceeded along the right bank of the Tampassuk, climbing over many cliffs and boulders along the edge of the river. Then we forded the deep and rapid river Lobang near its junction with the Tampassuk, passed through some swampy undulating ground covered with grass, fern and bushwood, forded the small and winding Kiulan river several times, ascended a high and steep hill, and reached Kiou at 12.30 p.m. Kiou is a village of considerable size, the largest we had met so far during our march, scattered over an extensive grassy clearing on an enormous slope, with many clusters of coco-nut palms in the vicinity of the houses. I heard that I was the first European who had visited Kiou for four or five years, but it is apparently more than that, as two men showed me certificates from Dr. G. D. Haviland, dated April 24th, 1892, which stated that the bearers had acted as his guides during his ascent of Kina Balu in March 1892. Dr. Haviland, called 'Tuan Bunga' by the natives, seems to have been the last European here, and before him Mr. John Whitehead in 1887, who is remembered as 'Tuan Burong.' Malagup, the Dusun Chief, here came to me soon after our arrival, saying:

M. 'Tabek, Tuan, itu orang coolie mau satu ayam.'

R. II. "Apa? Itu orang coolie samoa samoa mau satu ayam?"

M. 'Tabek, Tuan, satu ayam besar.'

R. II. "Satu ayam besar? Apa macham ayam besar?"

M. 'Tabek, Tuan, satu kerbau.'

The men had apparently enjoyed the bullock I had given them two days before, but I am afraid my answer to Malagup did not encourage similar requests. Still the men seemed to be bent on pleasure, for they asked me for a holiday the next day, which happened to be a Sunday. To this I agreed. In the morning the weather had been dry, except for a few minutes of drizzling rain. But we had rain all afternoon till late into the night. Aneroid at 3.45 p.m. 2400'; thermometer 76° F.

Sunday, March 19th. I ascended with De Fontaine to the top of Kiou hill which is covered with deep jungle and is about 1000' above the village. From a clearing we had a wonderful view of Kina Balu; nothing intervened between here and the foot of the mountain which seemed scarcely more than three miles off, and the top of the mountain, bare and rocky, stood out chiselled clear and sharp against the sky. Our success in collecting was small, but the men brought in a good deal, especially stag-horn beetles and several species of coconut beetles. *Megalophrys nasuta*, the strange frog with the large projecting triangular eye-lids and triangular flap to its nose, seemed to be common here, as we found it the day before in Koung. I interviewed the guides; the one informed me he could only start with us in two days, as he had to get a fowl and seven eggs for sacrifice to the spirits of the mountain. Arguing with him led to no results. The other guide, however, declared that he would be ready on the next morning.

Monday, March 20th. We rose early to make a start for Kina Balu, but the coolies, who had scattered over the whole village, were slow in assembling. I interviewed Malagup at 8 a.m. and tried to expedite matters, but at 10 a.m., as sufficient men had not appeared, I decided to leave some of my luggage behind and start. But we had still to wait for the guide who finally turned up after urgent messages. He now refused to go without his colleague, the fowl and the seven eggs. So at 10.45 a.m., with blessings on the guides, the fowl and the seven eggs, I decided to abandon the start. Things seemed utterly hopeless.—Morning sunny, afternoon dreadfully rainy and dreary.

Tuesday, March 21st. Dull morning, rain until daybreak. The men really turned up soon after 6.30 a.m., but a start was not made until 7.30 a.m. After a steep descent we reached an isolated group of houses, which the natives still called Kiou, at 8 a.m., aneroid 1800', then continued the descent to the Kada-maian River which we reached at 8.25 a.m., aneroid 1500', crossed twice by bamboo bridges and twice by fords, passed a little village in the midst of an extensive plantation of Keladi and a little maize, had to cross by a formidable ford just below the place where the river forms a small island, and from there

our way lay almost exclusively inside the bed of the river which consisted of a never-ending series of foaming cataracts rushing over boulders of granite, and we had to force our way through the one and climb over the other. The men seemed disheartened, and the guides recommended waiting a day for the water to go down. This seemed an empty excuse at the time, but a little experience showed us later on how very variable the height of the water is in these mountainous regions. We still plodded on, and after many difficulties and some mishaps—one of which was the breaking of the ground glass of my camera—we reached at 1 p.m., a spot on the bank of the river sheltered by a huge slanting rock. Here we camped. Aneroid 2150.'

Wednesday, March 22nd. I slept little during the night, being kept awake by the comparative cold (about 65° F.) and the roaring of the river. Aneroid, 6.30 a.m.: 2050'. We started at 8.25 a.m., proceeding again chiefly in the bed of the Kadamaian. The cataracts and boulders were, if anything, worse than the day before. My sturdy Chinese cookie got washed away by the torrent, but was rescued by the men. After some hours we finally left the river, and began a steep ascent, first along a little brook which came dancing down over precipices, then along an ordinary steep jungle path. Mosquitoes, which during the whole journey, even in the native houses, had been scarcely noticeable, began, from about 3500', to be very troublesome whenever one was still. At 2.45 p.m., we reached a huge ledge of rock similar to the one under which we had camped the previous day. Here we stopped. When changing, as I always did on reaching camp, I found a leach on my leg, the only one during the whole expedition, although I took no special precautions against them. Aneroid 4140'. Sunny morning, foggy late in the afternoon, and a little rain.

Thursday, March 23rd. Another cold night, during which, as in fact during the whole expedition, I enjoyed little sleep, feeling the cold chiefly in my joints, notwithstanding plenty of warm clothing and blankets. The morning opened dismal, with drizzling rain. The guides informed me that it would now take two more days to reach the cave (about 9500'), and as at that rate probably two additional days would be required to reach the summit (13,698'), and probably as much time again to descend

to where we were, say eight days in all, without any time for collecting, and as of the first half of the time allowed for the expedition only two days were left, I decided to proceed no further, but to begin to collect on the spot. I was also influenced by the guides' statement that the next climb would be stiffer than before and would have to be done without shoes, and that most of the men and the bulk of the luggage would have to be left behind. That these statements were no exaggerations, I knew from the accounts of former travellers. It was a severe disappointment to give up the idea of reaching the top, but I saw that a hurried climb with all sorts of discomfort would bring little practical result, and that the aim of the expedition would be served better by collecting now on the lower ranges of the mountain. I therefore made the men go out collecting, and as I promised them little rewards, I was kept busy all morning receiving and bottling specimens. Dismal rainy afternoon, during which I amused myself (and still more the natives) by compiling a little Dusun vocabulary, chiefly with Malagup's help. Temperature at 5 p.m. 66°. Glorious sunset. Fine moon during the night which, however, did not favour sleep, and though the slanting rock protected us against rain, it was of no use against the moonlight.

Friday, March 24th. The temperature between 5 p.m. on the previous evening and 7 a.m. varied between 60° and 64° F. Aneroid 4210'. I went out collecting with my men in the vicinity of the camp. The ground was exceedingly steep, and there was a great deal of loose rock about: I had constantly to warn the men to collect at the same level, not below and above each other; the rocks were continually crashing down into the valley like miniature avalanches. Mosquitoes were again very troublesome in parts of this jungle. The men brought in small Mammals (shrews, squirrels, rats), trapped during the night, and also a good many Reptiles, Amphibians and Insects. A welcome surprise: the guides, who were now convinced that I should not attempt to ascend to the summit, presented me with the fowl which had been intended for the spirits of the mountain. Apparently we did not require any spiritual protection in these lower ranges. The natives evidently did not mean to swindle the gods, as the fowl was most excellent and tender. Maximum



R. Hamisch Phot.

Kadamaian River, Kina Balu, British North Borneo, 2000'

(LOOKING UP.)

temperature during the day: 67°, down to 65° at 5.45 p.m.: fine, but foggy, in the morning; the usual rain in the afternoon.

Saturday, March 25th. Temperature during the night 60.5°-63°. Nice clear morning. Many frogs were brought in by the natives. We packed, and began our descent and our way home at 9.45 a.m., as now the first half of my leave had expired (*i. e.* three of the six weeks.) We reached the Kadamaian at 11.45 a.m., and our old camp, under the ledge of rock, at 1.25 p.m., where I decided to stay a day to collect. The descent to the river was steep and difficult, but this time the river itself offered no dangers and difficulties comparable with those of a few days before, as the water had gone down. Weather fine until 3 p.m., when the usual rain set in.

Sunday (Palm Sunday), March 26th. Although the temperature at night time here was only very little higher than in the upper camp (63°-65°, as against 60°-64°), we found the change very noticeable and most agreeable. I mended my camera by substituting a piece of oiled paper for the ground glass broken some days before, and took a few views of camp and river. Then we went collecting, the men bringing in a good deal.

Monday, March 27th. Lowest temperature during the night 64°: at 6.30 a.m. 65°. I took some more photographs, and we started for Kiou at 9.30 a.m., the progress through the river being very easy. We reached the open field at 9.50 a.m., and Kiou at 12.30 p.m. [Two of the photographs are here reproduced, both taken from the same point, but one looking up, the other down, the Kadamaian River. Within the bed of this river our route lay for a considerable distance up and down Kina Balu. But on the day when these photographs were taken, the water was considerably lower than on March 21st and 22nd when we went up the mountain.]

Tuesday, March 28th. Early in the morning I went with De Fontaine to the top of Kiou hill to take some photos of Kina Balu, but found it hazy and the sun standing just above the mountain. We waited for matters to improve, and climbed about in search of a favourable spot, finding the heat of the morning scarcely bearable. Finally we took a few views, and returned to Kiou, hot and tired. Then after calling the coolies together, we left the village at 10.30 a.m., went down a steep descent,

proceeded along our former path, and got a view of the picturesque village of Lobang, perched on a hill in front of us, and, like most of the villages here, fringed round with coco-nut palms. We passed below the village, and reached the river Lobang at 11.45 a.m. We had to ford it as before, and most of the men as usual took the opportunity of having a proper bath, but, for the first time during the expedition, I felt myself disinclined for the exertion. Rain set in soon after, and we reached Koung at 1.55 p.m. I developed a strange dry cough in the evening, which, however, disappeared during the night.

Wednesday, March 29th. I had the usual trouble with the coolies before they took up their luggage. Some were scattered over the village, and with Malagup I had to go to a house on the hill to fetch the last stragglers. Whilst the men were still packing, I left Koung by myself at 8.15 a.m., wishing to proceed slowly and intending to await the others at the ford of the Tampassuk which I thought I remembered. But after half an hour's walk, I found that I had lost my way, and endeavoured to return, passing through jungle and wet grass, breast high. At last I heard the shouts of the men, and reached the ford just as the last of them were crossing. I felt pretty well exhausted, but undressed and went through the rapid river, requiring all my energy to keep my balance. When dressing again I had great difficulty in putting on my clothes which were damp with perspiration and with wading through brooks and tall grass during the last hour. I called out for help and then almost immediately collapsed in a faint, though retaining consciousness. I felt as if I had arrived at a very literal 'dead stop,' lying groaning between the boulders on the bank of the river and suffering much from cramp in my limbs. When able to speak again, I got the men to make me a bed of leaves and light a fire, and then to prepare for me a strong soup. After taking this I felt better, and when half-an-hour or so had passed, was able to get up again. A message was sent to the men in front of us to stop. De Fontaine as usual proved most helpful and equal to emergencies, as he had been throughout the whole expedition. All this happened on the left bank of the Tampassuk which, consisting chiefly of sand and boulders, was only a few yards broad and rose at once into the extremely steep Gumong

Kampil, about 2000' high. Being covered with grass only, this hill was exposed to the full glare of the sun. However, I decided to push on to our next stopping place, Bungol, rather than return to Koung, but progress was exceedingly slow, as after every twenty yards or so of climbing I had to rest. After an hour's time I took a tin of Brand's Essence of Beef, and in another hour a cocktail, and, with the help of a man in front of me, who pulled me up with his stick, I progressed better. The men were most patient and stopped every time with me. At about 2 o'clock the sky darkened, affording at least some protection against the burning sun, and finally the usual thunderstorm broke forth, but with abnormal violence. Still climbing and quite drenched, we reached a little broken-down shed where some of the men, with most of my private luggage and the tent, were awaiting me. Most of the party, however, including Malagup, had gone on to Bungol. Here I partook of more refreshment, and feeling very much better by this and probably also by the cooling rain, I, after a little rest, astonished and amused my men by shouting out 'lakas, lakas' when they were taking up their things at 4.15 p.m. The ascent continued, so did the pouring rain, and finally, near the top of the mountain, we entered thick jungle. Lightning and thunderclaps were now frequent, and were greeted with yells by the men. Now began a slow descent along a clayey and deeply worn jungle path which in many places was transformed into a yellow stream. About 6 p.m. the rain ceased, and we approached the River Menternan with many misgivings. I knew it had to be forded before reaching Bungol, and when we arrived on the bank at 6.15 p.m., I was not surprised to find it a roaring yellow torrent, impossible to cross. But we had some hope, as from the marks along the bank we saw that it was going down rapidly after the heavy thunderstorm. So we decided to wait a little, I trying to keep myself warm by walking about. It got dark now and I lit the stump of a candle which I found in my portmanteau, and the men made long, but fruitless efforts to light a fire. Two or three of our most plucky men were daring enough to cross the river in order to go to Bungol for help and a lamp, but they did not return. Waiting and shivering with cold, we stood about till 8. p.m., when I decided to stay where I was and fix up my tent. I put

on dry clothes, wrapped myself in blankets and felt warm and comfortable, although getting only little sleep. But as the river by this time had gone down considerably, De Fontaine and some of the men managed to cross and reached Bungol in safety. Only a few Dusuns stayed with me, making as usual next to no effort to prepare a sleeping place for themselves, but remaining squatted on the wet ground, some perhaps with a few sticks between it and themselves, but in no case with protection above. My camp-bed broke down partly during the night.

Thursday, March 30th. I got up at 6 a.m. and found that there had actually been no rain during the night. Some of the men had already returned from Bungol to help us across the Menternan, so we left at 6.30 a.m., and as I still wore my dry and warm flannels from the previous evening, I had myself carried across the river, which we had to ford three times, and reached Bungol at 7.45 a.m. I felt the need of a day's rest, and decided to remain here, but gave directions to Malagup to proceed with the coolies carrying the luggage which was not immediately required, to Panjut, our starting place on the coast. I gave him instructions to reach there on the Saturday following, and to discharge the coolies on arrival, giving him also a letter for the district officer there to the same effect. I spent the day resting and taking notes. Dull day, drizzling rain from about 1 p.m., heavy rain from 3 p.m.

Friday (Good Friday), March 31st. I had a comfortable night, although only little sleep. We left Bungol at 8.3 a.m., forded the Menternan and Inuman Rivers, climbed the Gunong Kalawat, and reached Kalawat at 1.55 p.m., in fog and rain. It was a heavy day's work, ascending nearly all the time, added to which was the recollection of our march over the same ground two weeks ago, when we had found the down-hill way so easy. This time we did not attempt to camp out in this village, and I managed to get a tiny, but comfortable room all to myself.

Saturday, April 1st. We left Kalawat at 7.30 a.m., caught sight of the sea for the first time again at 9.40, and were overjoyed, like Xenophon and his companions. When approaching Kappa, about 2 p.m., one of the men who had been in advance came running back to say that a 'Tuan' had arrived in the village and wished to see me. It was Mr. Burls on his way to

wards Kina Balu. He told me that he had left Labuan on March 16th, and, on account of trouble with the carriers, had been detained on his way. The old Chinaman whose hospitality we had enjoyed some weeks ago in Bandaian, had turned up in Kappa before my arrival, and had informed Mr. Burls that gold was to be found one hour's walk from here. So Mr. Burls sent for the Dusun who was supposed to know the spot, and, on my advice, asked the man to fetch him a piece of the precious metal. The man promised to do so next morning at daybreak.

Sunday (Easter), April 2nd. At 7.30 a.m. Mr. Burls heard that the Dusun had not started as yet for the gold, but would do so after his breakfast. This was at last over, but then the Chinaman came to say that the locality was unsafe on account of an enormous snake. The Chinaman's arms were just long enough to give us an idea of this snake's diameter. We tried to allay those fears, but were then told that the gold was down a deep hole, that candles were required, and that at least three men would have to go. To my regret I had to leave Kappa in the midst of this interesting discussion, starting at 8.40 a.m. It was a nice morning, after pouring with rain all night until 6 a.m. We began the descent at 10.15 a.m., reached the plain at 10.50, the village of Menkaladai at 11.30, rested a little, and reached the Tuaran River at 2.20 p.m., one of the men taking us through a most swampy 'short cut,' between padi fields. Here we had to wait a little while for a boat, and I reached Panjut somewhat in advance of the others at 3 p.m., with feelings of profound relief. Being transplanted comparatively suddenly from the hilly interior to Panjut, in the plain and near the sea, the people here struck one at once as more comfortable and better off: they had more buffaloes, many goats, and sledges, which indeed would have been impossible inland, and better clothing, and were also oftener intoxicated, a sure sign of civilization. But there were also more flies and ants in the houses, and more mosquitoes at night time, which, however, were not very troublesome. We heard that on the day before there had been a large funeral here, on which occasion five buffaloes were killed.

Monday, April 3rd. As I was absolutely in the dark as to when and where, whether in Gaya or in Labuan, we should be

able to catch a steamer to take us to Singapore, I sent De Fontaine to Gantian to make enquiries. I spent the day taking notes, the coolies and crowds of villagers as usual standing and squatting round me, and watching every movement, nearly distracting me by their continuous coughing. But I found some music going on in a neighbouring house very soothing.

Tuesday, April 4th. De Fontaine came back at 7 a.m., after having travelled part of the night, bringing the dismal news that a coasting steamer had left Gaya for Labuan at midnight. This really made no difference in the end, however, as we heard later on that this boat had no connection in Labuan with boats for Singapore. He had brought with him a large rowing boat, and so I decided to leave at once for Gantian. We started from Panjut at 8.30 a.m., reached Berunggis at 9.15, left there by boat at 9.30, and reached the district office of Menkabong, at the mouth of the Menkabong river, at 12.30. Here we had a rudimentary tiffin, left again at 2 p.m., and, rowing and sailing, reached Gantian at 4.53 p.m. It was a very trying journey: the day was hot and cloudless, and we sat in an open boat cramped between piles of luggage. To my regret, I found Mr. Haynes, who in the meantime had shifted from Gaya to Gantian, down with liver, but Mr. Keasberry kindly took charge of us and put us up in an unfinished wooden house intended for the native clerk. The carpenters with their boards and wood shavings lying about were cleared out in a few minutes, and we established ourselves there in a rough and ready fashion.

Wednesday, April 5th. No work done, all feeling the need of a day's rest. I saw some newspapers, for the first time for about a month.

Thursday, April 6th. I hired a native boat and went out at 6.30 a.m. to the reefs where I did some collecting, chiefly corals, a native diving for them, and spent the greater part of the day in cleaning and bleaching the corals. A coasting steamer brought the welcome news from Mr. Little, Labuan, that two gentlemen, Messrs Lower and Pavitt, would arrive in Gaya on Sunday next with the steam-launch 'Sri Putri,' and could take me down to Labuan just in time to catch the 'Hecuba' for Singapore. De Fontaine was ill this day.

Friday, April 7th. I collected more corals, and De Fontaine went out shooting birds and squirrels. There were strange rumours about: trouble was expected with the natives in the neighbourhood, and rough defences, consisting of breast-high boarding with sand between and plenty of barbed wire outside, were erected around the offices. We noticed several little colonies of natives settling down on the shore of the bay just to the north of Gantian, having left their homes out of fear.

Saturday, April 8th. We spent the day in packing and preparing for our return to Singapore.

Sunday, April 9th. Messrs Tower and Pavitt arrived here at 8.45 a.m., and informed me of the arrival of their steam-launch in Gaya. I reached Gaya at 12.15 p.m., and we all left for Labuan at 4.40 p.m.

Monday, April 10th. We anchored during the night off Pulo Tiga, reached Labuan at 10.53 a.m. and put our luggage on board the 'Hecuba'. I went to see Mr. Little, made two or three calls and returned to the 'Hecuba' which was to sail at 4 p.m. On my way down to the boat I found the place in great excitement as Governor Beaufort was leaving by her for Singapore, bound for Europe. The natives expressed their farewell good wishes by firing off crackers, and by music and processions. Also a large party of Europeans came on board to see H. E. off. The boat left at 5.15 p.m.

Tuesday, April 11th—Thursday, April 13th. At sea. Pleasant passage.

Friday, April 14th. We anchored off Singapore soon after midnight, and landed at Johnston's Pier at 7.15 a.m.

General Remarks.

Barter and Coinage. When preparing for my expedition I was in doubt as to whether I should take with me a supply of barter, as Spenser St. John, Whitehead, and others had done, but was afterwards glad that I had abandoned the idea. The things I would have taken would certainly have been almost useless. What we were asked for in every village to and from Kina Balu was kerosine oil, and the natives always annoyed us by bringing large vessels in the hope of sharing our little supply. Next in demand were soap and matches. Only once in Kiou were we

asked for cloth and red beads. Thus, with the exception of the last, it is the necessities of life which would seem to be required, not trifles, though the red beads, as universally worn by the women, may almost also be regarded as necessities. Instead of barter I had supplied myself with plenty of small silver, but was highly astonished to find these coins were almost unknown; even Malagup, the Dusum chief, living in a comparatively rich district on the coast close to where a large fair is held once or twice a week, did not know the value of a 5-cent piece. These coins were always accepted with distrust, except by a young man in Bungol who had a collection of them. But he had lived in Kudat for some time and spoke Malay fluently. On the other hand, notes (B. N. Borneo has notes down to the value of \$1. 50 cents, and 25 cents), silver dollars, and copper cents were always acceptable, copper being apparently the chief currency, though the natives were glad when they could exchange their copper savings for silver dollars with us. In great demand also were the empty provisions tins, especially those with lids, and it was amusing to see the scramble when one threw an empty condensed milk tin away.

On the March. We generally started at 8 a.m. and reached the next stopping place about 2 p.m., the villages being at convenient distances from each other. The weather as a rule was fine in the morning, but rain set in nearly always in the early afternoon, so that we seldom reached camp without getting wet. However, this made little difference, as we were often soaking wet from fording the rivers. Naturally we always changed on reaching camp and made an attempt to dry our things, but they were generally still wet on the next morning, and when setting out on our march we always put on the wet things from the day before, feeling only little discomfort. There is a narrow path from Panjut right up to Kiou, just wide enough for one man, but broadening out in the neighbourhood of the villages, and of course branching off here and there. It runs for a considerable distance along the top of the mountain ridges, rather provokingly following every one of their curves, but having the advantage of a free outlook for ascertaining one's whereabouts. Paths along the rivers on this route were exceedingly rare, thus differing essentially from the Tampassuk

route to Kina Balu. After Kiou the path continued in the usual way, became somewhat indistinct after we had left the Kada-maian River, but was more noticeable here and there from old camping places and traps for birds and smaller game set at intervals.

Life amongst the Natives. We found the Dusuns very good-natured and harmless people, and quite honest until the last day in Panjut when our kerosine oil disappeared for a few hours and some other trifling things for ever. They were certainly somewhat lazy in the morning, and there was generally a great deal of grumbling before they took up their loads, but when once started, they left little to be desired, and showed themselves splendid carriers especially on hilly ground. Very annoying was their intense curiosity: when we arrived at a village, not only our carriers and the people of the house with their immediate friends, but all the village came and stood there, several rows deep, around us. We could not change our socks or any other part of our dress without themselves and their women and children taking stock of every movement and every article. It was the same when the cook prepared my meals or when I partook of the same, when I wrote my notes or bottled specimens, when I undressed at night-time and disappeared behind the mosquito-curtain, everything formed food for their admiration and amazement. Sometimes when I sat perfectly still without doing anything, their attention relaxed, but my slightest movement had the effect of the curtain rising at the Pantomime, the eyes and open mouths of all present were directed to one point. No box or portmanteau could be opened without every one rushing to see what it contained. When I awoke in the morning I was sure to find people squatting round my camp-bed who had apparently been anxiously waiting for signs of my awaking. The worst was that it was impossible to escape from it: as, once arrived at a village at about 2 o'clock in the afternoon, we changed, and as we nearly always had rain from that hour and the neighbourhood of the houses was a mass of filth, accumulated ever since the houses had been built, we did not care to go out and get wet and dirty again. The inside of the houses was at least dry and fairly clean, the floor, raised about five feet above the ground, being formed of split bamboo, in

many cases covered by rattan matting, and in a few cases the owners of the houses brought me a special mat to sit upon. The space below the houses was generally inhabited by pigs, but though they grunted day and night, it did not interfere with our peace. Much more annoying was the continuous coughing of the people, many of them seeming to suffer from chronic colds. Taken altogether, the stay in the Dusun houses was far from pleasant, and on dull days exceedingly dreary, but, after our experience at Kalawat, it was preferable to camping in the open.

Food. As I mentioned before, the last padi crop was a failure in N. Borneo, but even in prosperous years it would probably be impossible to get sufficient rice from the different villages for a large body of carriers, and on this occasion people did not even like to sell a few cents' worth. In the district we visited communication is a matter of intense difficulty, everything has to be carried by man, the hilly parts are quite impassable for bullocks, and the rivers are torrents along which even the smallest crafts could not find a passage except for a few hundred yards at a time. However, in almost every village I was able to get fowls and eggs for my own consumption, the former ranging in price between 10 and 20 cents, sometimes even less, and eggs from 1 to 2 cents. But large parties would probably have been unable to get sufficient. Milk was unknown. Coco-nuts we got in every village free of charge, and they were always welcome. There was practically no house without a group of coco-nut and betel-nut palms close by. Two or three times we got Langsats, which seemed to grow half wild, especially near Koung. They were very refreshing, but unusually sticky.

Scientific Results.

MAMMALS.

From the list given below it will be noticed that no big game was obtained during the expedition. The largest mammal seen was a black long-tailed monkey, probably *Semnopithecus femoralis*, observed near Gantian. However, in the mountain jungle between Kappa and Kalawat, we passed several traps which we were told were intended for Tembadaus (*Bos sondaicus*).

These traps consisted of two rows of substantial upright poles rammed into the ground and converging at one end, the other end being open and continuous with the jungle path, so that the animal once entered would jam itself between the poles at the far end of the traps. Traps for small mammals, as figured by Burbidge (4), p. 87, and Whitehead (10), p. 167, were frequently seen on Kina Balu, and most of our mammals were obtained with them. The only mammal we saw in anything like numbers was the bat *Cynopterus lucasi* which made its appearance generally late in the afternoon at our upper camp, 4,200'. The following is a complete list of the mammals obtained.

- Cynopterus lucasi* ♂ ♀ Kina Balu, 4,200'.
Scotophilus temminckii ♀ Kappa.
Tupaia ferruginea longipes ♂ Kina Balu, 4,000'.
Crocidura fuliginosa ♂ Kina Balu, 4,000'.
Gymnura (Hylomys) suilla ♀ Kina Balu, 2,100'.
Sciurus brookei ♂. Kina Balu, 4,000'.
 ——— *notatus* ♀. Gantian.
 ——— *precostii* ♂. Gantian.
Mus mülleri ♀. Kina Balu, 4,000'.
 ——— *sabunus* ♂. Kina Balu, 2,000'.
 ——— *whiteheadi* ♀. Koung.
 ——— *ephippium* ♀. Bungol.
 ——— *rattus* ♂ ♀. Several specimens on the hills and in the low lands.

BIRDS.

Only three common birds were obtained in the lowland near Gantian :

- Bubulcus coromandus* ♀.
Nyctiornis amicta ♂ ♀.
Rhinortha chlorophæa ♀.

At Kiou, 2,400', a female *Merula obscura*, since identified by Mr. A. L. Butler, was obtained.

REPTILES.

The chief prizes obtained during the expedition belong to this group, as of the 18 species collected three proved new to

science, one of them representing a new genus, and two others new species. It is noteworthy that of only a very few species was more than one specimen obtained. The collection comprises :

CHOLONIA :

Trionyx carolinensis, Gunong Kalawat.

LACERTILIA :

Gymnodactylus marmoratus, Kina Balu, 4,200'. 8 specimens.

Hemidactylus frenatus, Near Tuaran River.

———— *platyrus*, B. N. B.

Gekyra mutilata, B. N. B.

Gekko rhacophorus, n. sp. Kina Balu, 2,100'.

Dracon cornutus, Kiou.

Calotes cristatellus, B. N. B.

Japalura nigritabris, Kina Balu, 4,200'. One ♂ ; two (♀).

Mabuia rudis, B. N. B.

———— *multifasciata*, B. N. B. 3 specimens.

Lygosoma variegatum, Kina Balu, 2,100', and 4,200'. Many specimens.

OPHIDIA.

Stoliczkaia borneensis, n. sp. Kina Balu, 4,200'.

Tropidonotus conspicillatus, Near Tampassuk River.

———— *flavifrons*, Kina Balu, 2,100'.

———— *saravacensis*, Kina Balu, 2,100'.

Oreocalamus hanitschi, n. g. and n. sp. Kina Balu, 4,200'.

Lachesis gramineus, Kina Balu, 2,100'.

The description of the three new species as given by Mr. G. A. Boulenger, F.R.S., (3) pp. 451-453 is as follows :

Gekko rhacophorus.

“ Head moderately large, once and one-third as long as broad ; snout longer than the distance between the eye and the ear-opening, once and a half the diameter of the orbit ; ear-opening round, its diameter one-third that of the eye. Body and limbs much depressed, bordered with dermal expansions ; fingers

and toes fully half-webbed. Head, body, and limbs covered with minute granules intermixed with small, round, smooth tubercles; rostral a little more than twice as broad as deep, without median cleft; nostril pierced between several small scales; nine upper and ten lower labials; symphyseal small, pentagonal; a series of six small chin-shields; spine-like tubercles on the sides of the head, the largest above the ear. A moderately developed scalloped membrane on each side of the body, scaled like the body and fringed on the edge. Abdominal scales flat juxtaposed granules. An angular series of præanal pores. Tail depressed, scaled like the body, bordered with a series of rounded lobes. Greyish above, speckled with darker and with wavy dark transverse lines; brownish beneath throat with darker dots."

Millim.

Total length	...	...	...	105
Head	...	...	...	18
Width of head	...	...	...	14
Body	...	...	...	47
Fore limb	...	...	...	21
Hind limb	...	...	...	28
Tail	...	...	...	40

"A single specimen from the Kadamaiian River, Kina Balu, 2,100 feet."

"This species connects *Gecko* with *Ptychozoon* and stands in the same relation to the latter genus as *Hemidactylus platyrus* does to *Muraenozoon*. The lesser development of the parachute-like lateral membrane and the absence of differentiation in the lepidosis of that membrane, justify its allocation to the genus *Gecko* rather than *Ptychozoon*."

Stoliczkaia borneensis.

"Rostral moderately large, triangular, not visible from above; a pair of very narrow internasals; a pair of large præfrontals, separated from the frontal and supraoculars by a series of small scales; frontal a little broader than long, a little shorter than the parietals; supraocular very small; eye very prominent, with vertically subelliptic pupil, surrounded by the supraocular, two or three præoculars, the fifth labial, and seven or eight small scales; nostril very large; loreal much longer than deep;

ten upper labials, the two last longest; temporals small, scale-like; a single pair of small chin-shields, in contact with three lower labials. Scales in 30 rows, those on the vertebral region and those adjacent to the ventral shields largest, elongate rhomboidal, juxtaposed, the others very small and separated by naked skin. Ventrals 210; anal entire; subcaudals 124. Rufous, with large blackish spots, at least as large as the space between them, disposed more or less regularly in three longitudinal series: brown beneath, the shields edged with yellowish."

"Total length 750 millim.; tail 240."

"A single female specimen from Mount Kina Balu, 4,200 feet."

Oreocalamus, gen. nov.

"Agrees in every respect with *Macrocalamus*, Gthr., except in the presence of a pair of internasal shields."

Oreocalamus hantschi.

"Snout pointed. Rostral as deep as broad, the portion visible from above measuring half its distance from the frontal; internasals half as long as the prefrontals; frontal hexagonal, once and a half as long as broad, longer than its distance from the end of the snout, shorter than the parietals; nostril close to the rostral, between a nasal and the first labial (the suture between the two shields has disappeared on the left side of the type specimen); loreal longer than deep, its lower border forming an angle wedged in between the second and third labials; one præ-and one postocular; temporals 1+2; eight upper labials, fourth and fifth entering the eye, seventh largest; first lower labial in contact with its fellow behind the symphysial; four lower labials in contact with the anterior chin-shields; posterior chin-shields shorter, in contact with each other. Scales smooth, in 17 rows. Ventrals 127; anal entire; subcaudals 26 pairs. Blackish brown above and on the outer ends of the ventral shields; belly yellowish white, with a few scattered brown dots; tail brown beneath, with a darker median streak."

"Total length 375 millim.; tail 50."

"A single male specimen from Kina Balu, 4,200 feet."

AMPHIBIANS.

Of these we obtained fifteen different species, one of which proved new to science. Unlike the Reptiles, we obtained of most species of this group numerous specimens, until on Kina Balu we had to refuse the more common species which the men brought in. We also noticed on our march how the various species of Batrachians replaced each other as we went along. At Panjut, nearest the coast, we obtained only *Rana erythraea*, which was followed by *Rhacophorus leucomystax* at the Tuaran River, by *Rana kuliti* on Gunong Kappa and Gunong Kalawat, by *Megalophrys nasuta* at Koung, Kiou and the Kadamaian River, Kina Balu, 2,100'. Finally *Bufo leptopus*, *B. penangensis* and especially *Rana whiteheadi* were dominant on Kina Balu. Of the latter species enormous numbers were brought in. The single specimen of *Ichthyophis glutinosus* was found lying near the bank of the Menternan River, after a heavy thunderstorm, with a great deal of sand sticking to its slimy surface.

Very interesting were the tadpoles of *Rana cavitypanum*, with their huge ventral suckers, which my men found attached to the boulders in the most foaming parts of the Inuman River where the current was so strong that we could keep our feet only with the greatest difficulty. T. Mocquard (7) in an appendix to Whitehead's 'Exploration of Kina Balu,' pp. 285-286, discusses these adhesive disks and considers the tadpoles to be parasitic. If, however, he had had the opportunity of seeing these creatures alive in their natural surroundings, he would have had no difficulty in discovering the true function of those suckers, which can only be to enable their owners to hold on to a firm object in the midst of the raging torrent in which their existence commences.

The Amphibians obtained are :

- Rana cavitypanum* (tadpoles). Inuman River.
- *erythraea*. Panjut.
- *kuliti*. Gunong Kappa and G. Kalawat.
- *luctuosus*. Koung.
- *whiteheadi*. Kina Balu, 2,100' and 4,200'.
- Rhacophorus acutirostris*. Kina Balu, 4,200'.
- *leucomystax*. Tuaran River.

Icalus natator. Kina Balu, 4,200'.

Oreobatrachus batuensis. Kina Balu, 2,100'.

Bufo leptopus. Kina Balu, 2,100' and 4,200'.

———— *penangensis*. Kina Balu, 2,100' and 4,200'.

Leptobrachium batuense, n. sp. Kina Balu, 4,200'.

———— *hasseltii*. Gunong Kappa.

Megalophrys nasuta. Koung, Kiou and Kina Balu, 2,100'.

Ichthyophis glutinosus. Menternan River, near Bungol.

Eight specimens were obtained of the new form *Leptobrachium batuense* and Mr. Boulenger, (3), pp. 453-454, gives the following description of the one specimen submitted to him:

Leptobrachium batuense.

"Tongue pyriform, entire. Vomerine teeth in two small widely separated groups behind the line of the choanae. Head much depressed, nearly twice as broad as long, semicircular in outline; skin adherent to the rugose skull; snout shorter than the diameter of the orbit, not projecting beyond the mouth; canthus rostralis angular; loreal region vertical, concave; interorbital region nearly twice as broad as the upper eyelid; tympanum feebly distinct, three-fifths the diameter of the eye. Fingers rather elongate, slender, first extending a little beyond second. Foot much longer than the head; toes moderately long, slender, with a very short web at the base; no subarticular or metatarsal tubercles. The tibio-tarsal articulation reaches the shoulder. Skin perfectly smooth; a very small tubercle near the border of the upper eyelid, above the pupil. Back and upper surface of snout dark grey; posterior half of upper surface and sides of head blackish brown; a curved light streak, the concavity turned forwards, across the upper eyelids and the interorbital region, followed by a Y-shaped blackish marking; two light spots on the upper lip, below the eye; large blackish-brown partly confluent spots on the back; sides dark brown, light-edged above; limbs dark brown, with rather indistinct darker cross-bars; throat brown, belly brownish white."

"From snout to vent 65 millim."

"A female specimen, full of ripe eggs, 3 millim. in diameter, from Mount Kina Balu, 4,200 feet."

"Nearest allied to *L. Few*, Blgr. Distinguished by the smaller head, the distinct tympanum, the longer digits, and the absence of a large horn-like tubercle on the upper eyelid."

FISHES.

Only two freshwater fishes were obtained during the expedition, both from the Kadamaian River, Kina Balu, 2,150', viz: one specimen of the remarkable *Gastromyzon borneensis* (= *Lepidoglanis monticola*) with its flat sucker-like ventral surface, enabling the animal to live in the mountain torrents, like the tadpoles of *Rana curitupum* mentioned above; and many specimens of a new homalopteroid fish, named by Mr. Boulenger (2) *Glanioptis hanitschi*, n. g. and n. sp. He gives the following description of this fish:

Glanioptis, gen. nov.

"Head and anterior part of body depressed: snout scarcely projecting beyond the mouth, which is moderately large; five pairs of barbels—two in front of the snout, two at the angle of mouth, and one between the two nasal openings; gill-openings narrow. Body covered with small scales, head naked; lateral line present. Dorsal fin short, further back than base of ventrals; anal short; pectoral and ventral fins horizontal, many-rayed, the outer rays simple."

"Well distinguished from *Homaloptera* by the presence of a nasal barbel."

Glanioptis hanitschi.

"Depth of body $6\frac{1}{2}$ times in total length, length of head 5 to $5\frac{1}{2}$ times. Head scarcely longer than broad; snout rounded; eye in the middle of the length of the head, its diameter 5 times in length of head, $2\frac{1}{2}$ in interorbital width; barbels subequal in length, twice as long as diameter of eye. Dorsal 8, commencing a little behind base of ventrals, situated at equal distance from the end of the snout and the end of the caudal. Anal 7. Pectoral as long as head, terminating at a considerable distance from the ventral. Caudal as long as head, scarcely emarginate. Caudal peduncle as long as deep. Scales extremely small, smooth; lat. l. 120-125. Yellowish brown above, with trans-

verse dark brown spots or interrupted cross-bands; head dark olive-brown above; lower parts whitish; dorsal and caudal greyish, the latter blackish at the base; pectorals greyish olive above, white beneath; ventrals and anal white; a black spot at base of ventral."

"Total length 93 millim."

"A female contains ripe ova of large size, 2 millim. in diameter."

MOLLUSCA.

The following land and fresh-water mollusca, as identified by Mr. EDGAR SMITH, British Museum, were obtained during expedition:

Helicarium whiteheadi, Godwin-Austen. Kina Balu, 4,200'.

Macrochlamys subconsul, Edgar Smith. Gantian and Kina Balu, 2,150' and 4,200'.

Macrochlamys sp., Kina Balu, 4,200'.

Rhyssota brookei, Adams and Reeve. Kappa.

Hemiplecta densa, Adams and Reeve. Kina Balu, 2,150' and 4,200'.

Hemiplecta sp., Kiou.

Trochonanana kinabaluensis, Edgar Smith. Kina Balu, 2,150' and 4,200'.

Chloritis tomentosa, Pfeiffer. Kiou. Kina Balu, 2,150'.

Amphidromus adamsi, Reeve. Kina Balu, 2,150'.

Leptopoma sericeatum, Pfeiffer. Kina Balu, 2,150' and 4,200'.

—— *undatum*, Metcalfe. Kina Balu, 4,200'.

Microparmarion simrothi, Collinge and Godwin Austen Kina Balu, 2,050'.

Pterocyclos tenuilabiatus, Metcalfe. Kina Balu, 2,150'.

Cyclotus trusanensis, Godwin Austen. Kina Balu, 4,200'.

Dyakia n. sp.? Kina Balu, 4,200'.

Lagochulus kinabaluensis, Edgar Smith. Kina Balu, 4,200'.

Pythia scarabovus, L. Gantian.

Melania episcopalis, Lea. Menternan River.

INSECTS.

All the Insects I obtained, with the exception of the Lepidoptera, were sent to Dr. Sharp who kindly identified all the known species. The collection, however, contains, especially

amongst the Orthoptera, quite a number of species which, according to Dr. Sharp, are probably new, and their identification is unavoidably left for some future occasion.

Some of the most remarkable Insects on Kina Balu, 4200', were certain forms which Dr. Sharp considers to be coleopterous larvæ, probably of *Lycides*. They were constantly brought in by my men in handfuls, and I collected them myself on the ground, on rotten pieces of wood, and on low shrubs. These larvæ resemble in many points certain larvæ which I collected on Bukit Timah, Singapore, and on Maxwell's Hill, Perak, and which, according to Dr. Sharp, belong to another species of *Lycides*. It is apparently this form from the Malay Peninsula which is figured by C. J. Gahan, NATURAL SCIENCE, Vol. VII (1898), p. 43, in an article on the carboniferous *Dipeltis*. Since, however, Gahan's figure is not accompanied by a description and since, as far as I know, the larva from the Malay Peninsula has never been described, I have thought it advisable to give the following description of it.

The animal is remarkably flat and leaf-like, only a few parts of its body exceeding 1 mm. in thickness, the greatly expanded lateral portions of the thorax being even thinner. The head is very small, 1.5 mm. across, and can be retracted within the cavity of the prothorax, and is always so in dead specimens. Eyes very small, black. Both maxillary and labial palps are cone-like structures, with four and three joints respectively, the basal joint in each being very much broader than the distal joint. Mandibles small. The antennæ are very short club-shaped bodies, about 0.68 mm. in length and 0.5 mm. in greatest thickness. There is a chitinous ring round the narrow base, distally followed by a crown-like chitinous structure, consisting of a broad ring from which four lobes arise lying close round the 'club.' In the living specimen, the antennæ often appear as if they themselves were retractile, but as at the slightest disturbance the entire head is withdrawn inside the tubular cavity of the prothorax, and the antennæ are so very minute, nothing definite could be ascertained. The prothorax is somewhat triangular, about twice as broad as long; both mesothorax and metathorax are nearly three times as broad as long, and the posterior border of the metathorax is deeply concave. Of the abdomen, nine segments are visible ex-

ternally, and its length is only about that of prothorax and mesothorax together. The width of the first segment is two-fifths that of the metathorax, that of the last segment one-fifth. The prothorax bears dorsally two tubercles, about equidistant from the middle line and the side, and slightly nearer the posterior than the anterior margin. The mesothorax bears two pairs of tubercles, an anterior and a posterior, the posterior pair being situated near the centre of each half of the segment, and the anterior pair at equal distance from the posterior pair and the anterior margin of the segment, and nearer the middle line; the metathorax also has two pairs of tubercles, placed like those of the mesothorax. The first eight abdominal segments bear three pairs of spines each, viz. one pair of lateral ones (shown in Gahan's figure), and two pairs of ventral ones: the last segment has lateral spines only.

Colour: the thoracic tubercles are black, and the tips of the ventral spines are yellowish. The rest of the body is uniformly deep chestnut brown.

Size: length of the largest Singapore specimen 41 mm.; of the largest Perak specimen 49 mm.; greatest width (metathorax): 21 mm. in both cases.

Hab: mountainous jungle of Singapore and Malay Peninsula. Rare.

The Kina Balu larva differs from this one (1) in the proportions of its dimensions, the thorax being narrower, and the abdomen longer and broader: (2) in the position of the thoracic tubercles, which are always placed in one row and close to the posterior margin of the segments; (3) in the presence of abdominal tubercles, viz., two in each of the first eight abdominal segments, also placed close to the posterior margin of the segments; (4) in the structure of the antennæ, which, although of the same size and shape, and having also a narrow chitinous ring round their base, have the crown-like chitinous structure at their distal end divided, not into four, but into 12 narrow finger-like lobes; (5) its colour, being of a lighter chestnut brown, with an orange line along the sides of the thorax, the tubercles and feet also being orange. The number of thoracic tubercles and abdominal spines is, however, the same in the two species.

No luminosity was observed in either species, although I

had the one from the Malay Peninsula alive for several weeks, and was able to watch the Kina Balu one for several nights, as much of the material brought in had to be rejected and the larvæ were crawling about near our camp.

A tabular statement of the chief points of difference may be useful :

	<i>Malay Peninsula form.</i>		<i>Kina Balu form.</i>
Length :			
total	49 mm. (P)	41 mm. (S)	52 mm.
thorax	27	25	26.5
abdomen	22	16	25.5
Width :			
metathorax	20.5	21	18
abdomen	10	9	12
Tubercles :			
prothorax	two near centre	two near post. edge.	
mesothorax	four do.	four do.	
metathorax	four do.	four do.	
abdomen	none	two in first 8 segments.	
Antennæ :			
chitinous crown	four lobes	twelve lobes	
Colour :			
general	dark chestnut	light chestnut.	
edge of thorax	do.	orange	
tubercles	black	do.	
feet	dark chestnut	do.	
spines	do.	do.	
Occurrence :	rare	common (4200', March 1899).	

NOTE : 'P' and 'S' refers to the largest specimens obtained in Perak and Singapore respectively.

On Kina Balu, 4200', I also found two specimens of another form which bore some superficial resemblance to the larvæ described above, but which I now consider to be adult females of some beetle, as they are luminous. Dr. Sharp (Cambridge Natural History, Vol. VI, p. 251) refers to a paper by Haase (Deutsche Ent. Zeitschrift, Vol. XXXII, 1888, pp. 145-167) where an extraordinary light-giving larva-like adult female beetle from South America is described (*Phengodes hieronymi*). The Kina Balu

form has, however, except for its luminosity and absence of wings, little resemblance to the S. American form, and rather recalls an *Oniscus* in its oval shape and uniform segments, although its body is more elongate. Its head is small and black. Mouth appendages normal; mandibles long, thin, curved, and crossing each other in repose. Antennae with four joints each: length of first joint, 2 mm., of second 1 mm., of third 4 mm., of fourth 1 mm.: first and second joints and proximal half of third joint white, distal half of third joint black, fourth joint yellow and covered with setae. Eyes small (0.5 mm. diameter), placed behind the base of the antennae. The body is much depressed, with little difference between the segments of the thorax and abdomen. The larger of the two specimens captured is 60 mm. in length (prothorax 12, mesothorax 7, metathorax 6, abdomen 33 mm.), 18 mm. in greatest width (metathorax), 7 mm. in greatest thickness. The terga are slightly arched and entirely smooth; colour black, with a narrow white marginal border on the prothorax which is continued and widens posteriorly until, in the eighth abdominal segment, only a small black patch is left in the centre of its posterior margin. The last segment is small, 4 mm. across, and entirely black. The legs are black, with the exception of the tibiae: the first seven and the ninth sternum, the chitinous patches around the thoracic (prothorax and mesothorax) spiracles and those around the first seven abdominal ones are also black: the rest is white, viz., the eighth sternum, except for a black cross, the membranous portions between the sterna, the tibiae, and especially also the circular area around the eighth abdominal spiracle. In this oval white patch, measuring 3.5 by 2 mm., the luminous organ is situated, and the light given off by it is of an extraordinary brilliancy. I had one of these larvæ alive for nearly a week, and enclosed in a glass-tube, it served me as a night light during the long sleepless nights on Kina Balu.

Dr. Sharp to whom I submitted this species for identification, marked it 'Larva of *Lampyrides*, unknown,' but on account of its luminosity I venture to regard it as an adult female, similar to the S. American form mentioned above. The absence of sufficient material for dissection, however, makes a final decision impossible.

The following is a list of the Orthoptera, Coleoptera and Rhynchota as identified by Dr. Sharp.

ORTHOPTERA.

- Discotettix belzebuth*, Kina Balu, 2,100'.
Marmessoides n. sp. Bungol.
Clitarchus n. sp. (No. 1) Kina Balu, 2,100'.
Clitarchus n. sp. (No. 2) Kiou, 2,400'.
Hierodula birivia, var. *minor*, Koung.
Deroplatys essiccata, Kiou.
Tenodera aridifolia, B. N. B.
Panesthia sp. (near *P. javana*), Kina Balu, 4,200'.

COLEOPTERA.

LAMELLICORNIA :

- Aceranus* sp. (near *A. borneanus*). Kina Balu, 4,200'.
 ——— sp. (near *A. grandis*). B. N. B.
 ——— n. sp. ? Kina Balu, 4,200'.
Catharsius molossus, ♀. Kappa.
Chalcotheca auripes, Kina Balu, 2,100'.
 ——— *spathulifera*, ♀. Kiou, 2,400'.
 ——— sp. (called *C. pomacea* by Heyne). Kina Balu,
 2,100'.
Lachnosterna sp. Kina Balu, 4,200'.
Leucopholis sp. Kiou, 2,400'.
Milon sp. ♀. Kina Balu, 2,000'.
Odontolabis brookmanus, ♂ ♀. Kiou, 2,400'.
Trichogomphus milon (?) ♂. Bungol.
 ——— sp. B. N. B.
Westwoodia sp. (near *W. howitti*). Kiou, 2,400'.
 ——— sp. Kina Balu, 2,000'.
Xylotrupes gideon, var. ♀. Kiou, 2,400'.

CURCULIONIDÆ :

- Cyrtotrachelus* sp. Kiou, 2,400'.
Macrocheirus sp. Kiou, 2,400'.
Protocerus colossus. Koung.
Rhynchophorus sp. Kiou, 2,400'.

BRENTHIDÆ :

- Eutrachelus tenuincki* ♂ ♀. Kiou, 2,400'.

LONGICORNIA :

- Apriona flavescens*. Kiou, 2,400'.
Batocera titana var. Koung.
Epepseotes luscus. Kiou, 2,400'.
Palumnia tessellata. Kiou, 2,400'.
Thysia wallichii. Kiou, 2,400'; Kina Balu, 2,000'.

PHYTOPHAGA :

- Anisodera sheppardi*. Kiou, 2,400'.
Aplosomyr sp. Kina Balu, 2,100'.

EROTYLIDÆ :

- Triplatomia macleani* var. Kina Balu, 4,200'.

ENDOMYCHIDÆ :

- Eumorphus quadrinotatus*. Kina Balu, 2,100'.

RHYNCHOTA.

- Tacuna speciosa*. Kiou, 2,400', and Kina Balu, 4,150'.
Cryptotympana aquila. Kiou, 2,400', and Kina Balu, 2,150'.
Dindobia rugivena. B. N. B.
Cosmosearta viridans. Kina Balu, 2,100'.
Pycnum pretiosum. Kiou, 2,400'.
Tessaratomia malaya. Kiou, 2,400'.
Eusthenes robustus. Kina Balu, 2,000'.
Prionolomia heros. Kina Balu, 4,200'.
Laccotrephes ruber (?). B. N. B.
Flata (*Pæciloptera*) *circulata* (?). Kiou.

LEPIDOPTERA.

The specimens collected during the expedition were identified by Messrs. L. DE NICEVILLE and R. SHELFORD :—

- Hestia lynceus*, Drury. Kiou.
Ideopsis daos, Boisd. ♂ Kina Balu, 2,000'.
Danaus intensa, Moore. ♀ Kina Balu, 2,000'.
 ——— *crowleyi*, Jenner Weir. ♂ Kina Balu, 4,150'.
 ——— *aspasia*, Fabr. Kina Balu, 2,000'.
 ——— *septentrionis*, Butl. Kina Balu, 2,000'.
Mycalesis orseis, Hew. Kina Balu, 2,000'.

- *polydecta*, Cram. Kina Balu, 2,000'.
 ——— *janardana*, Moore. Kiou.
 ——— *pitana*, Staud. Kiou.
Ypthima pandocus, Moore. Kina Balu, 2,000'.
 ——— var. *corticaria*. Kiou; Kina Balu, 2,000'.
Amnosia baluana, Fruhstorfer. Kina Balu, 2,000'.
Thaumantis odana, Godt. ♂ Kiou.
Tenaris occulta, Grose Smith. Kiou.
Clerome besa, Hew. Kiou.
 ——— *kirata*, De Nicéville. Kiou.
Xanthotania busiris, Westw. Kina Balu.
Vanessa perakana, Distant. Kiou.
Symbrenthia hippoclus, Cram. ♂ Kiou; Kina Balu, 2,000'.
 ——— *hypselis*, var. *balunda*, Staud. Kina Balu, 2,000'.
Euthalia ambalika, Moore. Kiou.
Chersonesia ruhria, Moore. Kiou.
Neptis leucothoe, Cram. Kiou.
Athyma kresna, Moore. Kiou.
Cethosia hypsea, Doub. and Hew. ♂ Kina Balu, 2,000'.
Cynthia deione, Erichson. Kina Balu, 2,000'.
Manto martina, Hew. Kiou.
Sinthusia amata, Dist. Kiou.
Sithon kiana, Grose Smith. Kina Balu, 2,000'.
Rapala sphinx, Fabr. Kiou.
Leptosia xiphia, Fabr. Kina Balu, 2,300'.
Delias parthenia, Staud. Kiou.
 ——— *eumolpe*, Grose Smith Kiou.
Terias hecabe, L. Kina Balu, 2,000'. Kiou.
Huphina (= *Appias*) *hespera*, Butl. Kina Balu, 2,000'.
Ornithoptera andromache, Staud. Kiou.
 ——— *brookeana*, Wallace. ♂ Kina Balu, 2,150'.
 ——— *ruficollis*, Butler. ♂ Kiou.
Papilio procles, Grose Smith. Kina Balu, 2,000'.
 ——— *stratiotes*, Grose Smith. Kina Balu, 2,000'.
 ——— *sclateri hewitsonii*, Westwood. Kina Balu, 2,000'.
 ——— *memnon*, L. (m.) Kiou.
 ——— *helenus*, var. *palawanicus*, Staud. Kiou; Kina Balu, 2,000'.
 ——— *delesserti*, Guérin. Kiou.

- Hasora mus*, Elwes. Kina Balu, 4,150'.
Telicota bambusa, Moore. Kiou.
Odontoptilum pygela, Hew. Kina Balu, 2,000'.

MYRIAPODA AND ARACHNIDA.

Some of the specimens obtained in these groups were identified by Dr. Sharp as follows :

CHILOPODA :

- Scolopendra sespinoza*. Kina Balu, 2,150'.

DIPLOPODA :

- Spirotreptus baluensis*. B. N. B.
Zephronia sp. (near *Z. everetti*). Kina Balu, 4,200'.
Stenomionides baluensis. Kina Balu, 2,150'.

SCORPIONINA :

- Chærilus harrimanus*. Kina Balu, 4,150'.

PEDIPALPI :

- Thelyphonus* sp. (near *T. klugi*). Kina Balu, 4,150'.

PHALANGINA :

- Sagrella* sp. Kina Balu, 2,100'.

ARANEINA :

- Gasteracantha vittula*. B. N. B.
 ———— *fornicata*. Kiou, 2,400'.
Herennia ornatissima. Kiou, 2,400'.

FRESHWATER CRUSTACEA.

One species of prawn and three species of crabs were obtained. One crab, *Potamon consobrinum*, was common in the Kadamaian River a few yards from our camp on Kina Balu, 2,100', where it lived in the crevices of the rock just below the water. The men caught them by holding bait at the mouth of these crevices. The following list gives the species and the number of specimens collected :

- | | |
|------------------------------------|-------------|
| <i>Palæmon pilimanus</i> de Man. | 1 specimen. |
| <i>Potamon convecum</i> (de Man), | 2 „ |
| <i>Potamon consobrinum</i> de Man, | 26 „ |
| <i>Potamon kadamaianum</i> n. sp., | 1 „ |

Mr. Borradaile to whom one or more specimens of each species were submitted, reports as follows:—"Each of the three known species is already recorded from Borneo; and the new

one is allied to a form found in the island by the Dutch Central Borneo expedition."

Suborder MACRURA

Tribe CARIDEA.

Family PALÆMONIDÆ.

Genus PALÆMON.

1. "PALÆMON (MACROBRACHIUM) PILIMANUS de Man.

Palæmon pilimanus, de Man, Notes Leyd. Mus. i. p. 181 (1879); Veth's 'Midden Sumatra,' Crust. p. 4, pl. ii. fig. 2 (1882).

Palæmon (Macrobrachium) pilimanus, Ortmann, Zool. Jahrb. x. Syst. p. 735, pl. xlvii. fig. 9 (1891); de Man, Notes Leyd. Mus. xx. p. 158 (1898).

The single specimen, which is from the Innuman River, between Kalawat and Bungol, British North Borneo, differs from Ortmann's figure in having the submedian spines of the telson considerably shorter; it is very possible, however, that the ends of these have been worn or broken off."

Suborder BRACHIYURA.

Tribe CYCLOMETOPA.

Family POTAMONIDÆ.

Genus POTAMON.

2. "POTAMON (PARATHELPHUSA) CONVEXUM (de Man).

Paratelphusa convexa de Haan, de Man, Notes Leyd. Mus. i. p. 63 (1879); Max Weber's 'Reise Ned. O. Ind.' ii. p. 302 (1892).

Potamon (Paratelphusa) convexa, de Man, Notes Leyd. Mus. xxi. p. 142 (1899).

The single specimen seems, by the following characters, to belong to this species.

- i. There are two epibranchial teeth on each side.
- ii. There is a spine near the end of the merus in the walking legs.
- iii. The distance between the tip of the postorbital tooth and that of the first epibranchial tooth does not exceed the distance between the first and second epibranchial teeth.
- iv. The outer edge of the first epibranchial tooth is strongly convex.
- v. There are no spots on the carapace or limbs.

The dactyles of the walking-legs are rather shorter and stouter than is indicated in de Man's figure of the allied *P. maculata*. The fingers of the chelæ are dark in colour. *P. convexa* is already recorded from Java, Timor, and New Guinea, and doubtfully from Borneo¹. *P. maculata* (de Man) 1879 is a closely allied form from Sumatra.

1 ♀ British North Borneo."

3. "POTAMON (THELPHUSA)² CONSOBRINUM, de Man.

Potamon (*Potamon*) *consobrinum*, de Man, Notes Leyd. Mus. xxi. p. 99, pls. vi., ix., x. fig. 10 (1899).

This species is already reported from Borneo (Mt. Damoes and Upper Sibau River) by de Man. Ortmann (Zool. Jahrb. x. Syst. p. 301) gives a list of allied forms and their distribution.

2 ♂, 1 ♀ : Kadamaian River, Kina Balu, 2,100 feet."

4. "POTAMON (GEOTHELPHUSA) KADAMAIANUM, n. sp.

A single female specimen of a form allied to *P. obtusipes* (Stimps.) 1858, and *P. dehuani* (Gray) 1847, seems to deserve a name of its own. Whether it were not better treated as a local race of one of the above species, or all three as local forms of *P. dehuani*, is a question to be settled when the subject of the interrelationship of the various forms in the genus comes up for discussion. In the meantime its distinctness seems quite as great as that of several of the generally accepted species. It differs from *P. obtusipes* in the greater slenderness of its legs, especially of the dactyles, which are long and narrow and end in a sharp claw.* A *Potamon* of the subgenus *Geothelphusa* with the surface of the carapace smooth and finely pitted over the greater part of its extent, finely granular on the front, more coarsely so on the forepart of the branchial region, rugose on the hinder part of the same region; the front much deflexed, ending below the outer angles of the orbits, when viewed in front bounded by an almost straight line curving away gradually towards the outer angles :

¹Miers, Ann. Mag. Nat. (5) v. p. 306 (1880).

² According to Ortmann (Zool. Jahrb. x, Syst. 300) *Thelphusa* is the correct name for the subgenus in which this species must be placed.

* The portion defined by asterisks was by Mr. Borradaile's wish substituted for the original passage in the P. Z. S.

the median furrow of the carapace continued over the front to its anterior edge, behind each orbit a shallow triangular depression of the carapace reaching backwards through rather less than half the length of the cephalothorax and separating the branchial from the gastric region; the chelipeds subequal, similar, when fully extended outwards reaching the end of the carpopodite of the second walking-leg, the wrist and palm rugose tuberculate, the fingers rather shorter than the greatest length of the palm, the immoveable finger with two ridges along the outside, the moveable with one, the wrist with a sharp point at the outer end, and a strong tooth on the inside; the second walking leg rather longer than the third, the latter longer than the first and fourth which are approximately equal, the upper edges of the meropodites of all the legs rugose, the propodites of the walking legs somewhat longer than the carpopodites, the dactyles about equal to the propodites, sword-like, ending in a sharp claw, and provided above and below with spines. * The length of the cephalothorax is 15 mm. The colour in spirit is a dark brown.

P. dehaani has been found in Japan and the Loo Choo Islands; *P. obtusipes* in the Loo Choo Islands and the Philippines.

P. bicristatum de Man, 1899, is an allied species from Borneo (Mount Liang Koeboeng). In view of the peculiarities of the distribution of the genus, it seems best to choose a territorial name for the new species. That of *kadamaianum* is therefore proposed, derived from the name of the river in which the present specimen was found.

1 ♀ : Kadamaian River, Kina Balu, 2100 feet."

Literature.

1. *Borradaile, L. A.*, On a small collection of Decapod Crustaceans from Freshwaters in North Borneo. Proc. Zool. Soc. 1900, pp. 93-95.
2. *Boulenger, G. A.*, Descriptions of Two new Homalopteroid Fishes from Borneo. A.M.N.H., (7) Vol. IV (1899), pp. 228 & 229.
3. ———— Descriptions of Three new Reptiles and a new Batrachian from Mount Kina Balu, North Borneo. A. M. N. H., ser. 7, Vol. IV (1899), pp. 451-454.
4. *Burbridge, F. W.*, The Gardens of the Sun, or A Natura-

list's Journal on the Mountains and in the Forests and Swamps of Borneo and the Southern Archipelago.' London, 1880.

5. *Little, R. M.*, Report on a Journey from Tuaran to Kiau and Ascent of Kinabalu Mountain. J. Straits Branch, R. As. Soc., No. 19, (1887), pp. 1-25.

6. *Low, Hugh*, Notes of an Ascent of the Mountain Kina-Balow. J. Indian Archipelago, Vol. VI, (1852), pp. 1-17.

7. *Mocquard, F.*, Sur une Collection de Reptiles et de Batraciens des Iles Borneo et Palawan. (Whitehead, Exploration of Kina Balu. pp. 285-286).

8. *St. John, Spenser*, Life in the Forests of the Far East: or Travels in Northern Borneo. 2 Vols. London, 1863.

9. *Stapp, O.*, On the Flora of Mount Kina Balu, in North Borneo. Trans. Linnean Soc., Botany, ser. 2, Vol. IV (1893), pp. 69-263. (Contains Dr. G. D. Haviland's Narrative of his ascent of Kina Balu in 1892).

10. *Whitehead, John*, Exploration of Mount Kina Balu, North Borneo. London, 1893.

Explanation of the Plates.

N. B. Plates I and II illustrate the animals first described by Mr. Boulenger in the '*Annals and Magazine of Natural History*.' They are, however, now figured for the first time.

PLATE I.

- Fig. 1. *Gecko rhacophorus*, Boulenger (p. 70.)
 „ 2. *Stoliczkaia borneensis*, Boulenger (p. 71.) Dorsal, ventral and lateral views.
 „ 3. *Oreocalamus hanitschi*, Boulenger (p. 72.) Dorsal, ventral and lateral views.

PLATE II.

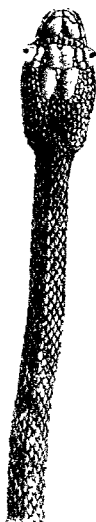
- Fig. 1. *Leptobrachium baluense*, Boulenger (p. 74.)
 „ 1a. „ „ „ „ Mouth.
 „ 2. *Gliniopsis hanitschi*, Boulenger (p. 75.)
 „ 2a. „ „ „ „ Ventral view.

PLATE III.

Kadamaian River, Kina Balu, 2000', Looking up. March 27th 1899.

PLATE IV.

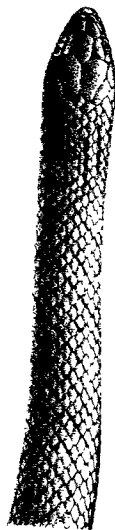
Kadamaian River, Kina Balu, 2000', Looking down. Mar. 27th 1899.
 Taken from the same spot as Plate III.



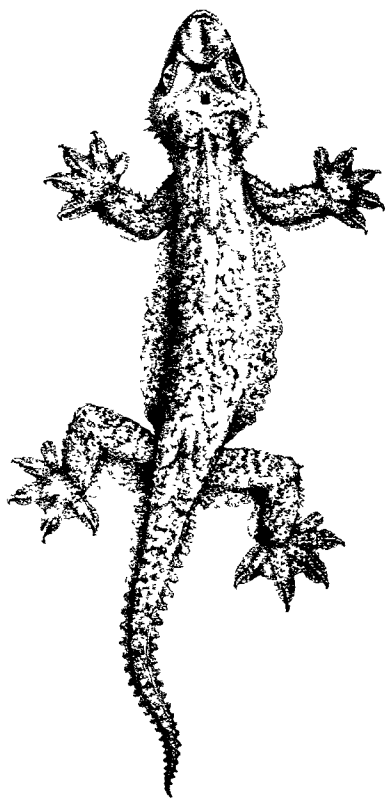
2



3



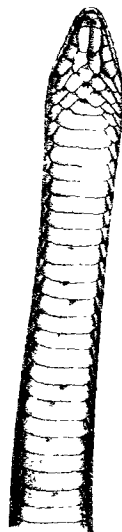
3



1



2



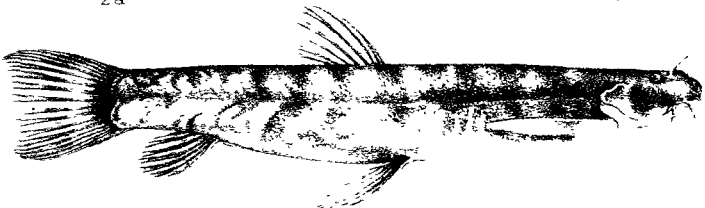
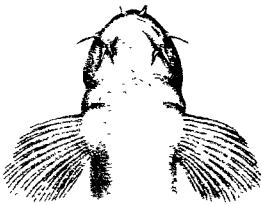
J. Green del. et lith.

1 *Gecko rhacophorus*

2 *Stehocnema borneensis*

3 *Oreocalamus nanutschi*

M. Stearn Bros. int.



Dammar and Wood Oil.

By H. N. RIDLEY.

Dammar is the resin exuded from various trees when wounded. The trees producing it belong chiefly to the order *Dipterocarpaceæ*, and to the genera *Shorea*, *Hopea* and *Anisoptera*, but the Malays also class as Dammar resins derived from certain species of *Camarium*, and *Trionoma* (*Barringtonia*) and *Calophyllum* (*Guttiferae*).

The resins are exuded from wounds in the trunk or branches, or sometimes a tree is hollow in the centre, and the space is filled or partly filled with the dammar, which thus forms a cast of the hole. At times it is exuded beneath the bark when it sets in the form of a plate or lamina, or it may drip slowly from a broken or cracked bough, so as to form stalactitic pipe-like masses on the injured part, and sometimes a stalagmitic mass on the ground below. The exudation does not commence immediately the wound is inflicted, and is produced very slowly, at first like turpentine, but soon setting into a hard crystalline mass. Even quite young trees, such as *shoreas*, produce the dammar when the stem or twigs are broken or bored by insects. The masses of dammar are not only modified in form by their method of production but also in colour and transparency. Many of the native and trade names have reference rather to the form and colour of the resin mass than to the tree from which it is derived. Thus Cat's-eye Dammar (*Dammar mata kucing*) is a transparent, pale, yellowish resin, usually in small pieces, and can be derived, I believe, from almost any of the *Hopeas*. *Dammar duyung*, a dark brown, often handsomely marbled resin, often occurs in large masses showing the form of the hollow of the tree in which it was exuded. A very beautiful dammar of which I obtained a specimen from Johore was a clear sea green. It was found buried in the ground as is often the case, and there was no clue as to what tree produced it. When oxidised the resin becomes opaque

and yellowish white, and rather soft and powdery. Most of the dammar found in the ground in the forests is much oxidised outside, but the action goes on very slowly, and ground dammar in good condition can often be found in spots where for many years there has been no forest or dammar trees. Thus one can often find pieces of dammar in the ground on Blakang Mati where dammar trees have long ceased to exist. The greater part of the dammar collected by the Malays is thus found by digging in the ground where *shoreas* or other dammar trees have decayed. No attempt is made to extract it from trees as is the case in wood oil. The resin is used locally for making torches, and also for varnish, but the export trade in Singapore has very much declined of late years. Cat's-eye dammar and copal from Celebes are almost the only dammars now exported from Singapore, there being no demand for the less transparent varieties. The copal which occurs in large beautifully transparent yellow masses is derived from *Shorea selanica* Bl., and is not to be confused with the African and American Copals, which are derived from species of *Hymenaea* and *Trachylobium* (*Leguminosæ*).

Varieties of Dammar.

The following is a list of the local names of dammars of the peninsula as far as I have been able to get them.

Damar Seraya Batu; *Damar Seraya*. A hard opaque mass of a dull orange colour, probably derived from *Shorea leprosula* Miq. *Kapong Labu* is also from this tree.

Kapong Jalor. A pipe-shaped mass, brown outside, inside yellow, centre dull olive brown.

Kapong Hantu. Dark brownish colour mixed irregularly with yellow. Both of these are derived from *Shorea macroptera* Dyer, the tree known as Kepong, as perhaps are *Kapong Sabut*, *Kapong S'lawang* and *Kapong Segan*.

Meranti Bunga. An amorphous mass nearly opaque of a whitish olive yellow mixed with greenish brown and weathering yellow.

Meranti Sarang punai; *Meranti Tembaga*, *Meranti Sama*, *Meranti Ketapa* are probably derived from *Shorea*.

Meranti Batu, a dark brown weathering orange. This is very similar to the Damar Daging of the Malays, which occurs

in large masses in the ground, evidently originally exuded into the hollow of a tree and perhaps taking its brown colour from this method of production.

Damar Mata Kuching. Cat's-eye dammar appears as pale yellow or nearly white, quite transparent, glassy tears. It is the most valued of the local kinds. A number of trees are said to produce this Dammar, among them *Hopea globosa* Brandis, *Hopea intermedia*, King, and *H. micrantha* Hook. f. (Trans. Linn. Soc. XXIII. 160) also *Pachynocarpus Wallichii*.

Damar Rambi Dam. A transparent yellow Dammar, browner in the middle, occurs in a stalactitic form, and is produced by *Shorea acuminata* Dyer.

Damar Chingal is from *Shorea bracteolata*, Dyer.

Merauan Jangkar, *Merauan Jalor*, *Merauan Kumjit* are doubtless produced by species of *Hopea*.

Damar Mersawa hitam, by *Anisoptera glabra*, Kurz.

Damar Mersawa putih probably by *A. costata*, Korth.

The seagreen dammar from Johor I have already described. Another unidentified kind I have met with, had been exuded from the stump of a large tree which had been felled in the Carimon islands. It formed an opaque bright yellow mass of the appearance of bee's wax. I was informed that the tree was a *Keruing* (*Dipterocarpus*), but I could not verify this.

Besides the Dipterocarpus resins, there are some kinds which belong to very different classes of trees, and are roughly classed as Dammars by the Malays. Among these there are several from the genera *Canarium*, *Santiria* and *Triomma*, (*Burseraceæ*). The most interesting is the Kedondong Kijai from *Triomma Malaccensis*, Griff. This resin seems to set with difficulty being more of the consistency of turpentine. It is dark grey or black turning yellowish grey or opaque white with a very pleasant aromatic scent. Other resins obtained from plants of the same order are *Damar Kedondong Krut* (*Santiria* sp.) and *Kedondong Mata hari* from *Trigonochlamys Griffithii* Hook. fil. Sayang from *Santiria lara*, King. *Damar Kijai* a resin valued by the Malays, is said to be produced by *Canarium secundum* Benn.

Other resins sometimes classed as Dammars by the Malays are those exuded from wounds in various species of *Calophyllum*; *Bintangor bunga* and *Bintangor batu*, (*C. pulcherrimum*) which

produces a soft resin very sticky, of a bottle green colour when thin, and black when in mass.

Damar minyak is the name given to the turpentine of the large Conifer *Damara Orientalis*, which grows in the hill ranges of Penang, Perak, etc. This tree abounds in the turpentine, which is very liquid. I have seen it poured out in large quantities from cut roots of a big tree on the Thaiping hills. Cooke states that it was sold to varnish makers under the name of East India Dammar, and that it is much esteemed by natives for incense.

Kelulut Dammar. This is a black or more rarely grey Dammar obtained from the nest of the little stingless bees known as *Trigona*. There are several species here which make dammar nests. The commonest appears to be *T. laeviceps*, a small black kind: there is also a light brown kind, and a very small black species which frequently nests under the planks in houses. In the case of *T. laeviceps*, the nest is built in a hollow tree at the entrance to which the bees build a trumpet shaped or flattened tube projecting for six inches or more from the tree. From one nest I obtained a very large cylindrical tube a foot long ending in a flat spoon shaped portion. These tubes are made of a sticky resin, too adhesive for any insect except a *Trigona* to walk over, so that enemies cannot invade the nest. The nest itself consists of an irregular mass of dammar, in which are placed the detached elliptic cells, in which is often a good deal of black honey. The mass of dammar in old nests is often very large and must represent a vast amount of work on the part of these little bees. Both the dammar and honey are sought by Malays, and used as medicine and the resin also for torches, etc. The tube at the entrance pounded up is rubbed over the body in cases of rheumatism. The presence of a *Kelulut*'s nest in a tree is not necessarily injurious to the tree. Very large nests may occur in trees for many years without causing any appreciable injury. On the other hand it is very probable that they prevent further decay by sealing up the injured wood in dammar, and by preventing termites from effecting a lodgment in the tree. One species of *Kelulut* makes its nest in that of one of the termites underground usually at the foot of a large tree. There appears to have been some question as to what tree the *Kelulut* obtained its dammar from, as it has long been noticed (Cook's Gums and Resins) that

it was very different from any known kind of resins. The fact is that it is a mixture of all kinds of resins, indeed any resinous substance that the bees can get is collected. They quickly find any wounded resinous tree and gather as much as they can. I have seen them at work at Shoreas (*S. parvifolia*) *Garcinias*, *Calophyllum*, *Triplaris* and *Angsana* (*Pterocarpus indicus*).

WOOD OIL.

The trees of the genus *Dipterocarpus* do not, like the allied Shoreas, produce dammar but they produce instead, wood oil, or Gurjun oil, as it is commonly called, the Minyak Keruing of the Malays. The *Dipterocarpi* are trees of gigantic size, with large pink or white sweet scented flowers and globose or four or five angled or winged fruits with a pair of long oblong wings as much as nine inches long in *D. grandiflorus* Blanco. The oil is obtained by cutting deep holes into the stem of the tree with an axe or chisel about six inches square, the top of the hole sloping inwards, and the floor excavated to hold the oil. A fire is then made in the hole so as to char the sides and top, after which the oil is exuded in considerable quantities, and collected in kerosine tins. When the oil ceases to flow, it is usual to burn the wound again, when it recommences.

This operation does not necessarily injure the tree to any extent unless it is done to excess, but natives often cut so many holes in a tree that it dies and many trees have been thus killed. As the oil-trees are usually very isolated in the forests and never occur in any great number together a very large extent of forest is required to supply a comparatively small amount of oil, and the supply is now so scanty that the natives seldom go to seek it, and the oil has nearly disappeared out of commerce.

The oil is used for varnish either alone or mixed with other substances, or for caulking boats and such purposes but it is also used to a small extent in medicine under the name of Gurjun balsam, as a substitute for a Copaiba, and it is also stated to be valuable used externally and internally in leprosy. When allowed to stand the oil separates into a clear or dark liquid known as *Chaler* by the Malays and thick semi-solid resin, *Beku*.

The chief trees producing oil here, are, *Dipterocarpus grandiflorus*, Blanco. *Minyak Keruing Dadeh*; *Minyak Gombang Kechil*.

The oil soon sets into a stiff light brown resin, leaving very little of the liquid (*Chaier*). It is used for varnish either when fresh before it has time to set or mixed with other more liquid oils.

D. Kerrii, King. *Minyak Keruing Chaier*. The oil is rather thin and watery of a yellow colour, and the resin is yellowish white.

D. Hasselti Bl. *Minyak Keruing Sudi*. The oil is of a deep brown colour, red by transmitted light with a rather stiff brown resin deposit. One of the best oil trees; it is not rare to find fruits of this in which the pericarp contains nothing but a clear transparent oil.

D. crinitus, Dyer. *Minyak Keruing Bulu*. This oil is considered a good kind and used for mixing with the thicker oils. The tree is commonly known as Gombang.

Minyak Pekat, *Minyak Merah* and *Minyak Babi* are as yet unidentified.

D. incanus Roxb. and *D. alatus* Roxb. occur in Siam and supply the greater part of the Siamese Wood Oils of commerce. They will probably be found in the north of the peninsula as they are found quite in the south of Siam. Siamese wood oil (probably from *D. alatus*) is very dark in colour nearly black by reflected light but yellow by transmitted light; the resin whitish. The greater part of the Wood Oils of Commerce are now exported from Rangoon, and are derived from the forests of Burmah. The trees producing them are all species of *Dipterocarpus* but all or nearly all distinct from those of the Malay Peninsula. A full account of them is to be found in Watt's Dictionary of the Economic Plants of India.

Notes on the Flying Frog

Rhacophorus nigropalmatus.

BY R. HANITSCH, PH.D.

Mr. A. D. Machado, one of the most constant benefactors to the Raffles Museum, presented last year a specimen of a Flying Frog from Pahang which I have only recently been able to identify as *Rhacophorus nigropalmatus*. As only two specimens of this species have so far been recorded, the one obtained by Dr. Charles Hose from the Akan River, Borneo (see G. A. Boulenger, A. M. N. H. (6), XVI, p. 170), and the other obtained by Mr. L. Wray in the Piah Valley, Upper Perak (see S. S. Flower, P. Z. S., 1899, p. 899), this third specimen appears to deserve a special note.

Mr. Machado writes: "I caught this specimen in an old prospecting pit one morning (January 1899) at Kuala Merbao in Ulu Pahang. He had evidently fallen into it and could not get out. I found him swimming about in the water. The pit was about twelve feet deep."

The specimen shows in external characters no difference from those described by Boulenger and Flower, except slightly as regards its cutaneous fringes and coloration. The fringes of the arm seem to be more developed than in either of the other two specimens: there is one not only along the outer edge of the fore-arm continued right to the tip of the fifth finger, but also a smaller triangular one along the inner side, beginning at the proximal end of the upper arm and ending at the distal end of the fore-arm, being widest at the elbow joint. There is a semilunar flap on the tibio-tarsal articulation, as in the other specimens, and, after a break, a narrow fringe along the outer side of the tarsus to the tip of the fifth toe. A very much smaller fringe runs along the first toe. A flap of skin above the cloaca is scarcely noticeable.

When alive, the colour was a bright green above, but now, in spirit, a dark slate-grey with a purplish hue, with numerous minute white dots, isolated or in groups. There are five very conspicuous white spots on the upper surface of the thigh, one of them close to its origin, the other four a little lower down, arranged in a square. The flanks are whitish, veined with black, as in the Bornean specimen, the lower surface is a yellowish white. The enormous interdigital membranes are black near their base, but yellowish towards the edges, with yellow rays going into the black portion.

The specimen is male, its testes being very large, 15 mm. in length. The Bornean specimen was female, whilst there is no record of the sex of the Perak specimen.

Its length from snout to vent is 84 mm., against 80 mm. in the case of the Bornean and 98 mm. in the Perak specimen.

The Flying Frog of which Wallace (Malay Archipelago, 10th edition, p.30) gives such a graphic description, is *Rhacophorus pardalis* and occurs in Borneo and the Philippines, whilst a third Malayan species, *Rh. reinwardtii*, occurs in Java and Sumatra. Very similar species are found in Malabar (*Rh. malabarisus*), the Eastern Himalayan region (*Rh. bimaculatus*) and Madagascar (*Rh. madagascariensis*).

Some New Eastern Gingers.

The following new species of *Scitamineæ* have passed through my hands since writing the paper published in Journal No. 32 and do not appear to be described in Schumann's paper. *Alpinia pectinata* n. sp. Plant 4 to 7 feet tall. Leaves oblong lanceolate glabrous thinly coriaceous, blade 20 inches long 4 inches wide with a thick keel, ocrea obtuse. Panicle pendulous secund, with a long thick peduncle, dense with short crowded branches. Bracts many obconic half an inch long papery brown. Flowers pedicelled, pedicels in fruit: $\frac{1}{2}$ inch long. Capsule globose trilocular $\frac{1}{2}$ inch long. Seeds very numerous.

Celebes at Gumong Klabat 1300 to 1600 metres elevation, fruiting in January.

A remarkable plant in its one sided panicle with very short branches bearing heads crowded together, about 100 in a panicle.

The bracts which are ribbed and pubescent, resemble those of *Alpinia involucrata* on a small scale. The specimens are all in fruit. There are two undescribed species belonging to this section in Schumann's paper from Celebes.

A (*Hellenia*) *Celebica* n. sp. A herb more than 18 inches tall with glabrous very long pointed lanceolate leaves, 8 inches long $1\frac{1}{2}$ inch wide, petiole terete striolate graceful one inch long ochrea oblong truncate. Panicle graceful erect branches short many flowered five inches long. Bracts caducous. Flowers $1\frac{1}{2}$ inch long. Calyx tubular truncate $\frac{1}{2}$ inch long. Corolla tube twice as long, lobes oblong obtuse $\frac{1}{2}$ inch long. Lip narrow shorter than the corolla, deeply bifid, lobes spatulate emarginate. Staminodes narrow subulate. Stamen with a rather long filament, another oblong not crested. Style graceful.

Celebes.

Allied to *A Fraseriana* of Borneo, but remarkable for its very deeply cleft lip.

Anomum terminale n. sp. Stems crowded slender about 2 feet tall, or much taller $\frac{1}{4}$ inch through. Leaves dark green, elliptic lanceolate acuminate thinly coriaceous pale beneath glabrous 7 inches long, 2 inches wide, petiole very short, ochrea $\frac{1}{8}$ inch long rounded. Spike terminal or basal cylindric 4 inches long $\frac{3}{8}$ inch through. Bracts ovate obtuse margins hairy $\frac{3}{4}$ inch long $\frac{1}{2}$ inch wide red. Bracteole $\frac{1}{4}$ inch long oblong obtuse pink. Flowers in pairs. Calyx tubular dilated upwards trifid pink $\frac{3}{4}$ inch long. Corolla tube one inch long slender white, lobes lanceolate acute $\frac{1}{2}$ inch long. Lip three lobed, two lateral lobes shorter curved outwards, acute, median obovate obscurely lobed, $\frac{1}{2}$ inch long. Anther with a broad connective rounded crenulate.

Bismarck Archipelago (Micholitz.) Flowered in the Botanic Gardens, Singapore, Feb. 1900.

The habit of this plant and its red bracts cause it to resemble some species of *Zingiber*, but it has not the long anther beak of that genus. It is abnormal among *Anomums* in having the spike terminal, but it also is said to produce basal spikes from the rhizome. It is indeed difficult to refer it to any genus but I am unwilling to make a distinct genus for it alone. In some respects it may be classed with an ornamental plant known as *Costus*

Zebrinus of gardens, which however has no relationship with the genus *Costus* at all.

Tapeinocheilus Koordersiana n. sp. A tall plant, 25 feet tall. Leaves broadly oblong nearly four feet long 8 inches wide, subcoriaceous pubescent or glabrous narrowed at the base. Spike subcylindric 8 inches long, 4 inches wide. Bracts stiff coriaceous not woody oblong or ovate cuspidate ribbed pubescent the larger ones $2\frac{1}{2}$ inches long and one inch wide, the inner ones lanceate cuspidate pubescent longer. Bracteoles linear narrowed acute shorter than the flowers. Calyx tube one inch long narrow little enlarged above, lobes lanceolate acute quite covered with silky hairs. Corolla tube hairy but little longer, lobes narrow acute. Lip oblong rounded hairy. Anther oblong hairy. Capsule an inch long obovate warted covered with brown wool.

Celebes.

Another species of this grand Eastern island genus, allied to Miquel's *T. pungens* but with larger flowers and pubescent bracts. I have great pleasure in associating it with the name of Dr. Koorders, who made such fine collections of plants in Celebes recently.

The Birds of the Larut Hills.

Two birds mentioned, but not named, in my paper on the Birds of the Larut Hills have been identified for me by Dr. Hartert.

They are :

Aethopyga temminckii, Temminck's Honeysucker. The second species of scarlet honeysucker mentioned on p. 21.

Notodola leucura. The White-tailed Blue Robin, a female. The "small robin-like brown bird" alluded to at the foot of p. 30.

A. L. Butler.

Botanical Notes.

Malayan Gingers. Dr. K. Schumann has published this year in Engler's *Jahrbuch* Vol. 27, a monograph of the *Scitamineæ* collected in the various islands of the archipelago, by Beccari, in Sarawak, Sumatra and New Guinea, by the brothers Sarasin in

Celebes, and by Warburg, Holtrung and others in New Guinea. In his arrangement he adheres to the old classification including *Hornstedtia*, *Plagiostachys*, etc., under *Amomum*, and so on. One new genus he describes under the name *Haplochorema* seems to be a true *Koempferia* with creeping rhizomes. It occurs in Borneo, four kinds being described from Sarawak. One might describe it as a *Koempferia* adapted for jungle life. *Hedychium microchilum* described from Java in my paper in the last Journal, appears as *Brachychilus Horsfieldii* Peters. It was originally described under the name of *Hedychium Horsfieldii* in Hooker's Kew Miscellany, and also by Peters in a Copenhagen Botanical Journal, both works difficult to procure. The whole habit of the plant is so much that of *Hedychium*, that I think it would be better to keep it in that genus. A good figure of what is evidently the common *Costus globosus* Bl is given under the name of *C. acanthocephalus* n. sp. It was collected in West Sumatra by Beccari. The plant is evidently widely distributed. The whole monograph is interesting from a geographical point of view, for though of course one may be sure that many more of these plants will be found in the Eastern islands, it gives sufficiently clear evidence of the change in the flora as we go further east. Thus one notices that the *Globbas*, so abundant here, disappear to a large extent, few occurring in Borneo, fewer in Java, and only one (excluding *G. marantina* probably introduced) further east in the Philippines. *Gastrochilus*, except the cultivated *G. panduratus*, does not occur in the list; but probably this is due to the difficulty of getting the flowers in wild plants. *Zingiber* also disappears rapidly towards the East, but one kind has been met with in New Guinea. *Tapeinocheilus* appears to be abundant in the Papuan region, fourteen species of these grand plants being catalogued, extending from Amboina to New Guinea.

Alpinia rosella Ridl. Since publishing this species (Journal 32. p. 164) I have found a figure and description of a plant collected in British North Borneo by Burbidge and published under the name *Alpinia Fraseriana* Oliver, in the *Icones Plantarum* vol. vi. pl. 1567, which agrees closely with *A. rosella*, and is I think the same species. I also note some misprints in my description on p. 165, in line 2 *absent* should be *about*, and in line 10 the words should run "Seeds 3 about $\frac{1}{8}$ inch through."

Susu Rimau. In Journal No. 22, on page 340, I gave some account of the curious vegetable product known to the Malays as *Susu Rimau*, the sclerotium or resting stage of some species of *Polyporus*. I have since obtained other fine specimens of the tuber and the fully developed fungus attached in Singapore and Penang, and Mr. Massee, of Kew, has identified it as *Polyporus sucer*, a very widely distributed fungus.

A Pulau Tiuman Superstition.

I visited the Pahang island of Tiuman in 1898 and stumbled across a superstition which did not impress me very much at the time, though it was recalled to my memory by hearing later of an almost identical belief concerning a hill in upper Siam.

Shortly after going ashore at the island the headman requested me to prevent my Chinese cook bringing any vinegar off the boat; he informed me that if by any chance the vinegar should be spilt, the island would be convulsed and a terrible storm result. On an occasion a few years previously the cook of an European prospector at work on the island had by a similar accident raised such a typhoon that, to quote my informant "the sea was invisible for five days."

This superstition is evidently connected with the widespread belief that no dragon can face vinegar, for it was told me in the village under the peculiar double spur of hill at the extreme south of the island called "Chula Naga" (Dragon's Horns), and it has peculiar application in this instance, though dragons are accredited to several other mountains on the peninsula.

W. C.



412-25

✓
1/2

"A book that is shut is but a block"

CENTRAL ARCHAEOLOGICAL LIBRARY

GOVT. OF INDIA
Department of Archaeology
NEW DELHI.

Please help us to keep the book
clean and moving.
