FEDERATED MALAY STATES.

GEOLOGIST'S ANNUAL REPORT FOR THE YEAR 1924.

STAFF.

1. The Geologist, Mr. J. B. Scrivenor, proceeded to England on May 23rd on special service for the Government of Kelantan and returned on December 5th. He gave evidence on behalf of the Government of Kelantan in the arbitration case with the Duff Development Company Limited.

2. The Assistant Geologist, Mr. E. S. Willbourn, proceeded on leave to England on March 28th and was still on leave at the end of the year. He was on duty at the British Empire Exhibition for six weeks during his leave.

3. The Temporary Assistant Chemist, Mr. J. C. Shenton, was appointed Chemist on June 22nd in place of Mr. J. Shelton, transferred to the Institute of Medical Research. He was in charge of the department from May 23rd to December 4th.

4. Mr. H. E. Savage terminated his temporary engagement on July 31st and proceeded to England to take a course in geology at Birmingham University.

5. Mr. G. R. Fulton's agreement was terminated on April 3rd on medical grounds.

6. Inche Mohd. Ramly bin Sheik Tamin, Laboratory Attendant, and Inche Mayah bin Latib, Collector, went to the British Empire Exhibition, where they did duty as attendants. They left Batu Gajah on February 22nd and returned on October 25th.

CHEMICAL LABORATORY.

7. Mr. J. C. Shenton reports that the greater part of the work consisted of assays for miners and the Customs Department, and reports on slimes in water from tin-mines and rivers for the Mines Department.

8. Assays were as under:

Tin assays	424,	100	less than in 1923
Gold assays	10,	2	,, ,,
Miscellaneous assays and analyses ...	202,	11	,, ,,

9. The estimated revenue for the year from assays was $3,800. The actual revenue was $5,616. The excess is due to the increased scale of assay fees, which came into operation on January 1st. Bearing in mind the higher price of tin as compared with 1923 the large decrease in tin assays probably indicates that the increased fees are chiefly responsible for the decrease in the total of samples submitted, 636 as against 749 in 1923.

10. Mr. Shenton assisted the Mines Department in designing flues and furnaces for the roasting of arsenical tin-ore and in the settlement of arsenious oxide from the fumes.

11. Mr. Shenton also assisted in drawing up new rules and regulations under the Dangerous Trade Enactment for the better control of fumes from arsenical and sulphurous roasting furnaces, the settlement of arsenious oxide and its storage.

12. Applications for patent rights with regard to the recovery of tin from ores, slags, etc., were referred to Mr. Shenton.

13. The laboratory was closed for 16 days while Mr. Shenton went to Kelantan in order to sample ore-dumps in the Ulu of the Liang River.

PUBLICATIONS.

14. A paper by Mr. J. B. Scrivenor on the "Geology of Singapore Island" was published in the Journal of the Malayan Branch of the Royal Asiatic Society.

15. A map of Kinta showing all known occurrences of "lode" tin-ore was published by Mr. E. S. Willbourn with explanatory notes.

16. Mr. Willbourn's paper on minerals found in British Malaya still awaits publication.

17. Mr. Willbourn completed a geological sketch-map of Kedah and Perlis with an explanatory paper, which, it is hoped, will be published during 1925.

18. The sale of publications realized $178.

OTHER RECEIPTS AND TOTAL REVENUE.

19. Two hundred and five dollars were received from other sources, making the total revenue for the year $5,999.

FIELD-WORK.

20. Mr. J. B. Scrivenor did field-work in Kelantan before leaving for England in May. Some field-work was done in Perak.

21. Mr. E. S. Willbourn spent about a week in Perlis, finishing his field-work there. Mr. Willbourn wishes to correct a statement made in the Annual Report for 1922, paragraph 24, in which he inferred that the precipitous limestone cliffs forming the natural amphitheatre at Baling, in Kedah, were formed by faulting. He now thinks that the sandy rocks found inside the amphitheatre do not belong to the same series as the sandy rocks outside, but lie conformably below the limestone.

22. Mr. H. E. Savage continued his field-work in Kelantan until July. Before leaving for England he wrote a general account of the results of his work in Kelantan. Much work remains to be done in the basin of the Nenggeri River and in the country between the Lebir and Galas.

23. Mr. G. R. Fulton also wrote a general account of his results in Johore. It is proposed to offer both these papers to the Malayan Branch of the Royal Asiatic Society for publication.

24. The Malay Collectors did useful work. Towards the end of the year two of them collected specimens in the difficult country near the coast of Pahang, between the Pahang and Rumpin Rivers.

PALAEONTOLOGY.

25. A collection of fossils was made by Mr. Willbourn and two Malay Collectors on the Perlis Siam boundary. They are in quartzite and are being described by Mr. R. B. Newton, I.S.O. *Fusulina* is abundant, indicating a late Carboniferous or early Permian age.

26. In Kelantan Mr. Scrivenor and Mr. Savage collected fossil plant-remains from shale on the Sungei Chiku, a large right tributary of the Galas a little above Kuala Nenggeri, Kelantan (the Chiku is not marked on the Government map). These fossils are being described by Mr. W. N. Edwards, of the British Museum of Natural History.

THE BRITISH EMPIRE EXHIBITION, WEMBLEY.

27. In the Malayan Pavilion of the British Empire Exhibition the Geological Department exhibited a case of typical rock specimens and a case of typical minerals; also a Geological Sketch Map of British Malaya showing results to the end of 1923.

28. The two Malays, Inche Mohamed Ramly bin Sheik Tamin and Inche Mayah bin Latib, who did duty as attendants, evidently derived benefit from the change of climate and surroundings.

GENERAL.

29. Owing to the absence of the geological staff for a large part of the year, progress in the geological map of British Malaya was not great. The greater part of the field-work was done in Kelantan.

30. An interesting memorandum was received from Mr. J. Meiklejohn on the tin deposits at Intan.

31. Excavations for the new Post Office foundation in Singapore revealed boulders and beds of quartzite, which, with shale, is the country-rock of a large part of Singapore town.

32. Among specimens submitted for report was one of Chrome Ochre, sent by Mr. W. H. Geikie from Cheroh Rubber Estate, near Raub, Pahang.

BATU GAJAH,
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Federated Malay States Government Press.