THE GEOLOGY OF SOUTH PERAK, NORTH SELANGOR, AND THE DININGGS. WITH A GEOLOGICAL SKETCH-MAP

by

J.B. SCRIVENOR AND W.R. JONES
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Chapter I.

PREVIOUS LITERATURE.

Very little has been written on the geology of the districts with which this volume is concerned. The following is a list of publications of original work:


In this comprehensive work Mr. Errington de la Croix gives a brief description of the geology of the Kinta Valley. See pp. 12, 13, 15, 18, 47, 67-73, also the map and Plate II.

Mr. Errington de la Croix published an earlier paper in 1881 on the same lines as this in No. 7 of the Journal of the Straits Branch of the Royal Asiatic Society (June, 1881, pp. 1-10).


A short letter in which the granite ranges of Perak are stated to be flanked by lower limestone ridges, forming detached hills. These are evidently the Kinta limestone hills. "There is a palaeozoic sandstone, clay slate or gneissose formation lying between the limestone and the granite."


In this communication the Rev. J. E. Tenison Woods says that a recent volcanic rock occurs in the Kinta River Valley.


This paper gives the author's views in some detail. The commencement of the paper shows that the succession is misunderstood. The "palaeozoic clays" frequently referred to are evidently weathered phyllites and shales. On p. 18 the following passage occurs:

"Near Papan, in the Kinta District, on the road between Batu Gajah and Papan, there is a small cutting through a recent volcanic rock. It is basaltic, and the appearance is very like the doleritic lavas of Australia. A small section showed crystals of augite in a glassy paste with abundance of microliths and magnetite. In the drifts about this neighbourhood I found many rounded water worn pebbles of basalt, the vesicles of which are either filled with zeolites or lined with chalcedony. I believe this is the first discovery of recent volcanic rock in this part of the Malay Peninsula, and of course
there must be more than this example. It is most interesting as showing the former connection of this land with the great volcanic belt which runs through Sumatra, Java and the islands to the eastward. Whatever connection there was has now completely died out nor does it appear probable that its manifestation has in any important degree modified the physical geography of the Peninsula."

The fact that the tourmaline-corundum rocks are more abundant in this part of the Kinta Valley than elsewhere makes me think it very probable that they were the basalt referred to. I have not seen any basalt there myself, but not very long ago a number of tourmaline-corundum rocks figured in the Perak Museum as "trap rocks" from Kinta.


The first part of this paper is largely concerned with Kinta. Plate VIII is a beautifully clear map of the Kinta Valley, and Plate IX gives some equally clear sections, but the limestone is shown above the schists.


Chapter II of this work is a sketch of the geology of Perak and includes Kinta.

Wray, L., jun.—"The Black Limestone of Kamuning," Perak Museum Notes, No. 1, p. 29, 1893.

In this paper Mr. Wray says "in the schistose beds beneath the limestone, graphite has been found at Batu Gajah." Mr. Wray refers to carbonaceous shales, which are not uncommon, but they are above the limestone.


This book contains the author's views of the geology of the mining districts, including Kinta (pp. 73-95), but, unfortunately, he has the succession wrong (pp. 79-80).

On p. 81 is a photograph showing limestone bed-rock in a mine at Rawang, Ulu Selangor.

Mons. Collet's work, which is little known, is well worth reading.


This is a very interesting paper illustrated by numerous photographs. Mr. Penrose evidently thought alluvium to be largely developed in the Kinta District, which he states has no definite boundaries (p. 140). On p. 145 a list of minerals associated with the tin-ore in Kinta is given. Among these hornblende and sapphire are mentioned, which I have not yet seen, although poor specimens of sapphire have been found at Chendriang in the Batang Padang
District. Rhodochrosite also, mentioned on p. 147 as occurring in limestone with tin-ore, I have been as yet unable to prove. A statement on p. 139 shows that Mr. Penrose thought that certain sandstone beds he saw were younger than the limestone, but he appears to have also thought them to be younger than the granite, so it is doubtful if he refers to the weathered quartzites.

The author also refers to Brusch, but states that he did not visit this locality, his remarks being based on specimens of ore and rock (pp. 147, 148).


Mr. Rumbold gives a section of the Kinta Valley and describes briefly alluvial deposits, the tin-deposits in limestone and granite, and discusses their origin.


This is a short article in which the writer states that it is the invariable custom of the Chinese to forsake stanniferous country when the shallow and easily-worked deposits of alluvial tin-ore are approaching exhaustion. He illustrates the difficulty of working the deeper deposits which, he says, to his certain knowledge are present in the Serendah Valley.


Johnsen, A.—“Sekundare Zwillingslamellen im Zinnstein.” Centralblatt fur. Min. Geol. und Palaeont, 1908, p. 426.

This refers to cassiterite from Selangor.

Wolff, W.—“Im Malaiischen Urwald und Zinngebirge.” Berlin, 1909.


Osborne, F. Douglas.—“Tin Resources of the Empire.” Read before the Society of Arts, London. 31st January, 1911.


“The Tourmaline-corundum Rocks of Kinta.”


“On an Occurrence of Native Copper with Tin-ore in the Federated Malay States.”

Mining Magazine, XV, pp. 299-301, 1910.

“Notes on Cassiterite in the Malay Peninsula.”

Mining Magazine, XVI, pp. 118-120, 1911.


"The Deposits of Tin-ore in the Limestone of the Kinta Valley, Perak, Federated Malay States. Ipoh, 1914.


CHAPTER II.

PHYSICAL FEATURES AND GENERAL GEOLOGICAL SKETCH.

The main physical features of South Perak and North Selangor may be summarized as follows: On the east is a portion of the Main Granite Range of the Peninsula, that extends from Negri Sembilan to a little-known part of the Peninsula beyond the source of the Perak River, the highest peak being Kerbau or Riam (7,160 feet). Other granite ranges are the Kledang Range on the west of Kinta (highest peak Peninjau, 3,469 feet) and the higher range on the west of the Perak River that stretches northwards past Taiping and ends near Grik in Upper Perak (highest peak in the south, Gunong Bubu, 5,434 feet, S.W. of Kuala Kangsar). A few isolated outcrops of granite are known; for instance, the large outcrop at Tapah, and the granite hill at Kuala Selangor, and, most extensive of all, the Dindings. In Kinta, at the foot of the Main Range are the limestone hills. Further south, beyond Tapah, on descending from the granite hills, a rough jungle-covered country is entered, stretching far down into Selangor and containing hills of quartzite and shale (e.g., Besut 1,420 feet, Belata 1,450 feet). To the west of this quartzite and shale country is a broad plain about 50 feet above sea-level, and composed of recent detritus. This extends northwards, past the quartzite hills, through Lower Perak, into Larut. In Selangor small quartzite and shale hills rise from this plain and the available evidence leaves no doubt that they and the Kuala Selangor granite were once islands in the sea like Pulau Angsa of the present day.

Although covering a large area it happens that it is possible to look over the greater part of the country with which this volume is concerned from one of our hill-stations, the bungalows on Kledang, and from the trigonometrical beacon just above them, whence one obtains the most extensive view. For beauty, and for interest, the view from Kledang would be hard to surpass. Its chief interest is in the fact that to the west of the range lies the Perak Valley with the river winding among Malay kampongs, giving place to virgin jungle at no great distance from the stream, a valley in which there has been little change for many years, which is essentially a Malay country and agricultural, while on the east is what we know as the Kinta Valley, the richest tin-producer in the world and supporting a large Chinese population. Here virgin jungle is not easy to discover between the mountain ranges: instead are splashes of white, yellow, brown, red, and the sparkle of innumerable pools marking the site of old mining operations, and in the centre, the sombre greens of rubber-estates.
At night also the contrast is maintained. From the Perak Valley no sound comes and rarely a light. The Kinta Valley on the other hand is ablaze with lights marking the sites of towns and mining villages, each a constellation that one learns to recognize readily.

The Perak Valley is flanked on the west by the granite range of which, in the south, Buku is the principal peak. This range dies away in the vicinity of Parit and gives place to a broad flat plain extending as far as the sea. To the south-west, however, the plain is broken by the granite hills of the Dindings. To the south of the Dindings one can see the Pulau Sembilan, and beyond them, on a very clear day, Pulau Jarak, an island far out in the Straits of Malacca.

1 From the summit of Kledang, the peaks of the Kledang Range to the north can be followed beyond Chëmor, and the limestone hills on the border of the Kinta and Kuala Kangsar Districts are visible, Southward is Gunong Hijau, the last granite peak of the range, which is then succeeded by low quartzite and shale hills that can be followed beyond Tronoh and culminate in the distant quartzite hill, Bukit Tunggal. Beyond these quartzite hills one can catch a glimpse of the Perak River between Teluk Anson and its mouth, where it flows past the flat land of Bagan Dato' to the left of which the horizon is unbroken by any hill until one comes to Changkat Jong, an outlier of the quartzite hills in the Lower Perak and Batang Padang Districts, which are clearly visible from Kledang, and of the quartzite hills in North Selangor, which belong to the same group and can be dimly discerned under good atmospheric conditions from the same mountain.

To the left of the Batang Padang quartzite hills, but much nearer, is the granite mass of Bujang Mêlaka, jutting out from the Main Range with Kampar at its foot. On the left of Bujang Mêlaka the limestone hills begin and one can distinguish the pass that leads over to Chêndriang from Kuala Dipang. Then follow the great granite mountains of the Main Range with Chabang (5,610 feet) and Kërbau, conspicuous, the former for what appears to be its isolated conical peak, which is really the end of a long ridge given off from the higher mountains behind, the latter for its great height and rugged outline.

Below the Main Range are the limestone hills with their white cliffs and irregular contours. Between Bujang Mêlaka and Gopeng is one group rising to 2,080 feet. Then comes a gap, followed by a few small isolated hills and then a large group including Lanno, Rapat, and Têrêndam. This group is bounded on the north by cliffs trending east and west and is followed by another gap. The next group is formed by the hills near Ampang and Tambun, and is flanked on the west by a line of smaller hills. Finally, in the north, are the two hills, Kuang and Kantang.

1 Vide Plate XIII.
Between the Main Range and the Kledang Range is the Kinta Valley, a broad tract of country with a small stream, the Kinta River, that does not look capable of having excavated such an enormous trough.

From Kledang rolling contours can be detected here and there in the valley, but it appears to be one fairly flat stretch of country. If we travel over it, however, we find that this is not the case. To the north of Ipoh the country is undulating. Between Ipoh, Tambun, and Ampang it is almost level, but for the limestone hills. South of Ipoh the Kinta River winds through agricultural land for a time and then enters a long tract of flat, swampy ground. Until Batu Gajah is reached this rises on the west through mining land to the Kledang Range and the spur that separates the Johan Valley from the main part of the range. On the east it terminates abruptly against hilly land composed in part of shale and quartzite, and in part of limestone. At Batu Gajah the mining land on the west near the Kinta River ends and gives place to shale and quartzite hills that extend as far as Tanjong Toalang to the south and to the north as far as "Redhills." This range of hills forms a watershed between the Johan and Kinta on the one hand and the Méndrus and Siputeh on the other, draining the Pusing and Siputeh mine-fields. On the east the hilly land is cut through by the Sungai Raia and continues until the drainage of the Kampar River is reached.

As the eye travels along the Kinta Valley and beyond Kampar towards the sea one calls to mind the evidence that has been obtained of a recent elevation of the Peninsula. There is evidence at Bagak Dato' in the form of a beach some miles inland. There is further evidence in Kedah; but the most striking testimony has been found in Perlis, where the débris of a beach was found in a limestone cave, 11 miles inland and about 300 feet above sea-level. This cave is in Bukit Chuping and is one of those from which phosphate is obtained. Now if the land were to sink again so that the sea could wash more shells and remains of crustacea into this cave, a couple of aneroid barometers and a comparison with known heights show that not only would the Kinta Valley, the limestone hills and some of the shale and quartzite hills, be under the sea, but the Kledang Range would be an island. On the east of the island would be a narrow strait covering the sites of Ipoh, Chémor, Sungai Siput, and Salak North, and connecting with the Perak River Valley, which would also be under sea water for a large part of its course, near Kuala Kangsar. The Kledang island would have somewhat the same relation to the Main Range as Pulau Pangkor has to the Dindings to-day, and the flat country of Matang, north of the Dindings, the flat country between the Dindings and the Börnamb River, and its continuation in the Kuala Sichangor District, would be under about 40 fathoms of sea water. It is at least probable that what we call the Kinta Valley now is not a valley formed by the Kinta River, but a plain of marine denudation, and that the real river valleys are those in the granite