

Urema was that they may represent the site of a filled-up lake or series of lakes. It must be admitted, however, that at present there is not much field evidence in support of this view. No lake terraces have been observed, and nothing is known concerning the nature of the deposits underlying the superficial cover of sand and clay.

*Summary of Conclusions.*

The coastal lowlands form an imperfectly belted coastal plain 80 to 100 miles in width. Its innermost longitudinal lowland has no eastern wall in the central portion, for the middle upland belt of limestone rocks, which is well developed in Sheringoma and Western Sofala, is replaced by the low plains of the Pungwe in the central portion.

Downwarping of this region may be the explanation of this feature, probably causally connected with the heavy sedimentation in the vicinity of the Pungwe estuary. Though the belted structure of the lowlands may account largely for the features developed, it is certain that in the Urema region, and probably in the Buzi depression to the south, it has been assisted by tolerably recent faulting.

The line of this depression being a direct continuation of the Nyasa-Shire tectonic line suggests the probability of a synchronous control. The surface features here, however, are affected to a much less extent, indicating probably that the strength of the tectonic dislocation was dying out to the south.

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## TWO IMPORTANT MAPS FROM THE SURVEY OF INDIA.

TIBET AND ADJACENT COUNTRIES, 1 : 2,500,000.

CARTE INTERNATIONALE DU MONDE AU 1,000,000°. North E. 43, BOMBAY.

A GOOD map of Tibet and the adjacent countries has long been needed. Since the last edition of the Society's map of Tibet was published in 1906 much fresh information has been obtained which could scarcely have been shown upon the relatively small scale of that map. Moreover, it would hardly have been possible to undertake successful revision, inasmuch as the officers of the Survey of India have done far more than any others in the exploration of Tibet, and an important part of the new information remained inaccessible in the Survey Office at Dehra Dun. There alone was it possible to undertake the task of compiling a map such as that now under review.

The new map, on the scale of 1 : 2,500,000, is bounded by parallels 44° N. and 26° N. and by meridians 72° E. and 102° E., and is printed

in four sheets. The projection is not stated, but it is apparently a conic with two standard parallels.

It is needless to say that the compilation has been carried out with great care and skill; that the selection of place-names has been made judiciously; and that the map is full of new and interesting material. The feature which will provoke most interest and arouse most discussion is the representation of relief. The scale of layer colouring running up to a brilliant red is already familiar in the publications of the Survey of India; and when extreme heights are not too frequent the effect is excellent. It must be confessed, however, that when the country to be represented is Tibet, and the whole central part of the map is covered with brilliant red, there may be two opinions as to the wisdom of the choice of colour scale.

The problem which the Survey of India have set themselves in the production of this map is the representation of the most violent relief upon the surface of the Earth. The ground to be shown ranges from Mount Everest, 29,000 feet above, to the depression south of the Tian Shan range, several hundred feet below sea-level. Moreover considerable stretches of the country are under perpetual snow, which, in accordance with the recent decision of the International Map Conference, is left white, whereby the contrast is greatly exaggerated in spite of the blue form-lines which are where possible shown upon the snow. Where the snowline descends below 15,000 feet none of the brilliant red appears; and thus the great mountain Tengri Khan, 23,600 feet high, is not made sufficiently conspicuous. It is doubtful whether a solution can be found to reconcile the conflicting ideals of representing increasing height by increasing intensity of colour, and at the same time showing the limits of perpetual snow.

Contours are drawn and the layer tints are changed at 250, 500, 2000, 3000, 6000, 10,000, and 15,000 feet. The colour scale approximates in its lower ranges to that of the London Conference of the International Map; in the higher ranges to that which was adopted at the Paris Conference of 1913, but with a tendency "vers le rouge" rather than "vers le marron," which latter found more favour in Paris. The yellow tints of the old London colour scale have a decided use on this map and form a pleasant transition between the green and the brown which is lacking in the second map to be described.

The map is described as a rough provisional issue, and may therefore be discussed as an experiment, in the hope that variants may be produced for comparison. It would, for example, be very interesting to see the effect of hill shading, especially on the snow; or to try to carry the contours right up at a uniform interval, even though the interval must necessarily be a large one, and auxiliary contours would be required below 2000 feet. It might be worth while to try red contours on the snow above 15,000 feet, or alternatively, white contours cut into the red, to

maintain the colour scale while indicating the snow. Progress in the experiment must be gradual, as contours become more precise.

In view of future editions it may be noted that the limits of snow seem to be incorrect about the Shyok Valley and east of Kangchenjunga ; that the large title breaks into the mountain range unnecessarily ; and that the numerous spaced-out names might perhaps be shown to more advantage as an index diagram. The name "Chinese Empire" survives though the date of the map is 1914.

The first Indian sheet of the International Map should receive a cordial welcome. An attached memorandum explains that the Survey of India was already committed to a series on the scale of 1/M, but covering  $4^{\circ} \times 4^{\circ}$  instead of  $4^{\circ} \times 6^{\circ}$ , and with heights in feet instead of metres. These form the key to the whole system of numbering and arrangement of the Indian topographical maps, and this series must be maintained. Happily the Indian Government have not hesitated to undertake also the sheets of the International Map falling within its sphere ; and they are to be congratulated on this important resolution.

The Bombay sheet under notice was engraved in accordance with the characteristic sheet of the London Conference, 1909 ; but the scale of layer colours has been changed to accord with the intentions of the Paris Conference of 1913, whose report is not yet published. "It is the first engraved sheet printed at Calcutta in colours from separate colour plates, a process which in the climate of Bengal presents certain difficulties not met with to the same extent in Europe." The result requires no apologies. It is an excellent specimen of clean-colour printing, of a region which does not lend itself to a pretty result : a high plateau falling steeply to the sea.

Contours are drawn at 100, 200, 300, 400, 500, 600, 800, 1000, 1200, 1500 metres ; but the layer tints are not changed at 800 and 1200. The gauge of lettering for the lowest class of towns, which is left to discretion, is perhaps rather small for legibility ; and the sign for ports with regular mail communication is used somewhat freely : it may be doubted whether local mail services need be shown with this rather heavy sign. These are small points of interpretation in which there is divergence of practice. In general the Bombay sheet conforms as closely as may be to a scheme which was undergoing revision while the engraving of the map was in progress. Further sheets of this most valuable series will be awaited with interest : in particular the sheets covering the area of the map on a smaller scale noticed above.

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