

subject will be of much use to machine-tool makers. The book under notice is well worth studying; it gives an able description of the metallurgy of iron and steel; it deals with the subject in a concise manner and contains much useful general information. The subject is approached from a scientific point of view, and this is as it should be. Special tool steels are now coming very rapidly to the front; in fact, "Musbet," so long the sheet anchor of the machine shop, is being displaced by these special steels, which only require hardening in a blast of compressed air, thus getting over the risk of cracks due to water hardening and doing infinitely more work. Machine tools have now to be designed to meet the requirements of these new tool steels, more power being required to take the heavier cuts rendered possible by their use. The volume contains much unusually accurate information, but in section 72 we read that the piston rod of a steam engine is of "mild steel"; if a forty-ton steel can be called "mild," then the reviewer is with the author; the same may be said of material for crank pins. Taken as a whole, we can recommend this book. Students of machine design should study it, and those of metallurgy will not waste their time by doing so.

LETTERS TO THE EDITOR.

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Traces of Past Glacial Action in the Orange River Colony, South Africa.

THE subject of glaciation in South Africa is so interesting and important that I venture to take an early opportunity of directing the attention of geologists to the farm of Brit Koppje, situated about three miles west of Vredefort Road Station, fifty miles north of Kroonstad, in the Orange River Colony. Here, on a koppje, the surface of the rock is so very conspicuously smoothed and rounded that its appearance can hardly, I think, be attributed to the action of any agent other than ice. The general resemblance to photographs of the glaciated rocks at Prieska in Cape Colony recently shown me by Mr. A. W. Rogers, of the Cape Colony Geological Commission, is very great (see a paper read before the South African Philosophical Society by Messrs. Rogers and Schwartz on November 29, 1899).

The bedding planes of the rock are perpendicular and the strike is nearly from north to south. So far as I can recollect (although I was unable to take any accurate observations on this point), they are cut across by the slope of the rounded surfaces, which run rather in a north-easterly to south-westerly direction.

The locality can be very easily visited from Vredefort Road Station.

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December 22, 1902.

Risley's "Tribes of Bengal."

HAVING had occasion to make use of Mr. H. H. Risley's valuable anthropometric data of the tribes and castes of Bengal, some of the "means" for the cephalic breadth, minimum frontal breadth and maximum bizygomatic breadth were incidentally recalculated. This was done whenever the tabulated value for the mean seemed a highly improbable one, and as some serious differences between our means and those given by Mr. Risley were found, it was thought well to point this out for the benefit of those who may be basing their arguments on these data without recalculation. Thus, in vol. i., for the Murmi tribe of the Darjiling Hills, for the mean minimum frontal breadth Mr. Risley gives 113.5, where we find 107.2; for the maximum bizygomatic breadth Mr. Risley's value is 145.9, ours is 138.4.

In vol. ii., Kachi caste of N.W. Provinces and Oudh, for the maximum bizygomatic breadth Mr. Risley's value is 120.8, ours is 130.0. Pathan caste of Panjab, for the minimum frontal

breadth Mr. Risley's value is 117.7, ours is 110.3. These are very serious differences.

As it was important to determine how far these discrepancies reflected on the general accuracy of the work, the means for six tribes taken at random were recalculated. I will merely give a list of the figures for the means:—

Risley.	Recalculation.
132.5	132.57
143.2	143.25
102.6	102.60
132.5	132.59
138.6	138.69
97.7	97.73

There is substantial agreement, except in the decimal figure.

S. M. JACOB.

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December 21, 1902.

Local Floras of India.

THE writer of the notice of "The Trees, Shrubs and Woody Climbers of the Bombay Presidency," by W. A. Talbot (NATURE, December 18, 1902, p. 148), refers to the need of local floras to supplement Sir Joseph Hooker's "Flora of British India," and names several works of this nature, though not always correctly, which have already appeared. Perhaps I may be permitted to add a few facts on this subject.

In the first place, it should be known that Sir Dietrich Brandis's "Forest Flora of the North-West and Central India" is not, in any sense, an outcome of the "Flora of British India," as it was published before the first volume of the latter work. Further, the late Dr. Trimen's "Handbook of the Flora of Ceylon" was not completed by himself, the last two volumes having been prepared by Sir Joseph Hooker. Among the local floras not mentioned by the writer of the notice in question is Dr. T. Cooke's excellent "Flora of the Bombay Presidency" (see NATURE, vol. lxxv., 1901, p. 88), of which two parts have been issued, containing the natural orders Ranunculaceae to Leguminosae. Two other important works of the same class are nearly completed, namely, "The Flora of Bengal" and "The Flora of the Gangetic Plain." The former is by Major D. Prain, the Superintendent of the Calcutta Botanic Garden and Director of the Botanical Survey of India, and the latter by Mr. J. F. Duthie, Director of the Botanical Department, Northern India. I am not sure that I have given the exact titles these two books will bear. Then there is the modest but useful "Forest Flora of the School Circle, N.W.P.," by Upendranath Kanjilal. More ambitious among the works supplementary to the "Flora of British India" are the "Annals of the Royal Botanic Garden, Calcutta," commenced by Sir George King and continued by Major Prain. Upwards of 1600 quarto plates illustrative of the flora of India have appeared in this publication, including 450 orchids. Finally, there is the second edition of Gamble's "Manual of Indian Timbers," which contains a vast deal more information than the title would imply.

W. BOTTING HEMSLEY.

Herbarium, Kew.

It was not necessary for our purpose to cite all the works dealing with the Indian flora that were published during the quarter of a century that elapsed between the issue of the first (1872) and of the last volume of Sir Joseph Hooker's "Flora of British India" (1897). In the preface to vol. vii. of that work, the "Forest Flora of the North-West and Central India," by Dr. now Sir, Dietrich Brandis, is mentioned among the works "that have appeared during the publication of the 'Flora of British India,'" and the date assigned is 1874.

The first part of Sir Joseph Hooker's "Flora" was issued in May, 1872, the second in January, 1874, the third in February, 1875; it is in this latter section, at p. 527, that we find the first citations from Dr. Brandis.

Other publications of Mr. C. B. Clarke, the late Mr. Kurz and Colonel Beddome are alluded to in Sir Joseph Hooker's preface, in addition to those cited in Mr. Hemsley's note.

The second edition of Mr. Gamble's "Manual of Indian Timbers" has only reached us quite recently, and, as we believe, since our previous note was written.

THE REVIEWER.