

and falling $\frac{1}{2}$ to 1 inch in half an hour. *Prinses Wilhelmina* at Tandjong Priok: 789-763mm. (*Nieuw. Rotterdam*, Nov. 26) (789 seems a misprint, *Nieuws van den Dag* has 750, perhaps it should be 759). *Loudon*: extremely high.

3. Compasses. Spun round (*Loudon*).

4. Degree of darkness. From all reports results that there was a moment when "no outlines of ship or men were seen." From the report of the *Annesley* results that the darkness continued after the downpour of ashes had ceased, therefore the darkness is not depending on the pouring down of ashes; it is sufficient that the sunlight be intercepted by a thick cloud of ashes. From the *Berbice* is reported:—Darkness from 26th, p.m., to 28th, a.m. From all other places is reported:—Bright, August 27, from 6 to 9 a.m., and 28th, from 6 a.m.

5. After having read the reports, the question arose to me, Was the mud ejected from the crater, or were the ashes, &c., mixed with rain or sea water? I think the latter; I remember, at least, that in 1863 (an eruption of the Merapi, Java, took place) I came into a slight downpour of ashes. I was travelling on horseback, and after some time a thunderstorm came on. All around me, which had been ashes before, was changed very soon into mud. In the report of the *Berbice* the "rain of mud" is not mentioned, but it is said that the yards were covered with a "crust," because a slight rain had met the ashes, which, however, on deck were still "ashes," because, I suppose, the rain was not hard enough to change such a thick layer into a "crust."

6. Detonations, though they were heard in Saigon, Singapore, Acheen, Ceylon, &c., were not heard on board the *Loudon*. I think this might be explained by the thunderstorm, the pouring down of mud into the sea, and the hurricane (which in Lampong Bay did more damage than the wave itself).

7. The part of Krakatoa which has disappeared sank probably August 27; at least in the report from the *Loudon* the island is described as it is now. From the *Berbice*, however, it is reported:—Saw it divided in three parts (29th); but probably they saw the remains of Krakatoa, Verlaten Island, and Lang Island, which before, when seen from the east, appeared as one island.

8. Sibessie was from the sea to the top buried under ashes (all people killed).

9. The floating pumice-stone was, in the Lampong Bay, in September, 14 feet thick; in the Semangka Bay it was very strong too. Probably, if circumstances are favourable, new islands are to be formed; though at the end of October steamers came to Telok Betong, in November a hopper-barge was, during eleven days in the Lampong Bay, beset by pumice-stone.

Besides this I beg to record:—

10. After the eruption of Krakatoa in the Indies many volcanic phenomena were observed, and they prophesied an eruption of Mount Merapi (Java) for February next. Whether they had heard of Mr. Delaunay's prophecies I am unacquainted with.

11. Up to November 1 they counted 32,635 persons killed by the eruption, &c. For the burial of the corpses the Government had spent 6000*l*.

When the Survey under my direction (1868-69) was busy connecting the triangles of Java with the Sumatra coast, the peak of Krakatoa was also chosen for a point.

Whether there were several hills on the island I cannot say, for when I saw Krakatoa it was covered with a splendid vegetation, and in such a case it is not so easy to judge of the configuration as it is when the trees are burnt, but I dare say there was only one peak.

Of the results of the Survey I keep only a map, of which I inclose a rough copy. From this it results that the signal was a little to the north of $6^{\circ} 8\frac{1}{2}'$; Kuyper puts it in $6^{\circ} 9'$, which is certainly wrong; he inserts also a peak in the centre of the island (622 metres), and says it had disappeared; this is, I am sure, a mistake. If the

military survey (which was at work now) had not yet finished its work so far as to give a map of Krakatoa (though perhaps they have not undertaken a survey of the island, since administratively it belongs to the Lampongs, and not to Bantam), it might perhaps be useful to consult the notes of the *Geographische Dienst*, which are deposited in the Archives, and a sketch of the Sunda Straits, which I offered in 1875 to the Minister of the Dutch colonies.

E. METZGER

Stuttgart, January

NOTES

WE regret to learn that Mr. C. W. Merrifield died at Brighton on New Year's Day at the age of fifty-six.

MANY of the friends of the late Dr. Hermann Müller in this country will be glad of the opportunity of testifying to their respect for his memory and their sense of the value of his work by contributing to the fund which is being raised to establish a "Müller Foundation." In the first instance the proceeds will be used to assist the widow of Dr. Müller during her lifetime, and afterwards as an endowment to some poor and deserving student at the Public School of Lippstadt desirous of devoting himself to natural science. An influential Committee has already been appointed on the Continent, including the name of Prof. Haeckel. The movement, we are sure, will commend itself to many of our readers, who may send their subscriptions either to Herr Stadtkammerer Wilhelm Thurmman, Lippstadt, or to the care of the Editor of NATURE.

FIVE HUNDRED POUNDS in prizes are offered by Mr. Francis Galton for extracts from the family records of competitors. They are to be sent him before May 15, drawn up according to the conditions and under the restrictions published in his recent book, "Record of Family Faculties" (Macmillan and Co., 2*s*. 6*d*.), which contains full explanations, together with sufficient blank forms for the records of a single family.

M. BOULEY has almost unanimously been appointed Vice-President of the Paris Academy of Sciences for 1884, and President for 1885.

EARTH tremors seem to have been of almost daily occurrence in Tasmania recently. Mr. J. R. Hurst of Longwood, near Moorina in the north-east of the colony, sends to the *Launceston Examiner* of November 12 a record extending from August 31 to October 20, 1883, noting the occurrence of several daily, some of them so serious as to be alarming. In a note in its issue of November 19 the *Examiner* says:—"The vibratory motions of the earth's surface which have been so frequent for several months past still continue with a periodicity which is at least remarkable. Ordinary tremors now scarcely arrest attention, but occasionally a quivering of unusual severity startles those who happen to notice it, and reminds them that there are forces in operation in nature which are mysterious and appalling. One of these occurred yesterday afternoon about six minutes to three o'clock, which was felt in every part of the town, and set windows and furniture rattling. Some persons fancied that they could detect a distinct undulatory motion. The shock lasted for twelve or fifteen seconds. It may be mentioned that the whole of yesterday was very stormy—frequent and heavy showers of rain, with thunder and hail, and a very low barometer. Last evening the mercury began to rise."

PROF. J. P. LICHERDOPOL writes from Bucharest, Roumania, that on January 1, at 6.13 a.m., two horizontal shocks of earthquake, from north to south and *vice versa*, were felt there, and were preceded by a loud noise, as of a distant train coming from the north. The furniture was slightly shaken and crackings were heard. The atmosphere was calm, but charged with a very