

On the 8th the sun appeared as usual. They did not notice the red glares until some days after.

Strong's Island is in lat. $5^{\circ} 20' N.$, long. $163^{\circ} 10' E.$ Their 7th is our 6th, one day later than the tremendous display of colours in the Honolulu skies on September 5.

Dr. Pease reports a considerable drift of pumice-stone landed for several months past upon the west shore of Kusaie. Many pieces are from twelve to sixteen inches thick, and loaded with barnacles. I have now before me a piece of pumice presented by Dr. Pease, with small barnacles attached. Dr. Pease also reports many large trees landed there of late. They are up to five feet in diameter, with huge buttressing roots, much pumice jammed in the roots, their wood as light as cork. This species of tree is unknown in Micronesia. Are these corky trees, as well as the pumice, part of the wreckage of Krakatoa? Dr. Pease states that this year, as happened once before, the prevailing westerly current has been exchanged for one running easterly. Drift-logs of redwood from California frequently land on Kusaie, as they do here.

On the passage hither between Kusaie and Jaluit Dr. Pease saw large tracts of floating pumice in a comminuted state. The Rev. E. T. Doane of Ponape (lat. $6^{\circ} 47' N.$, long. $158^{\circ} 20' E.$) writes me that large quantities of pumice are floating around that island. Capt. Holland, of the *Jennie Walker*, states that all the way between Jaluit and Ruk or Hogolen, some 1500 miles, he encountered vast tracts of pumice. Many pieces were as large as hats. He met five or six large trees in the same regions. One with its branches was mistaken for a boat. This association of floating trees with pumice seems very suggestive of Krakatoa, especially as all have been long floating in the sea.

I send herewith a small slab of the pumice from Strong's Island, hoping that you will have it compared with known Krakatoa ejecta.

During the past month of December the sky-glow has doubled in brightness. A like augmentation of brilliancy took place at the same period in 1883, as reported by me in your columns. Permit the suggestion that the winter cold enlarges the concretions of ice around the dust-nuclei in the upper atmosphere, thereby multiplying their reflecting power. I see no reason to believe that any addition has been made to the original diffusion of dust from Krakatoa. The whitish corona which first appeared around the sun in September, 1883, has always and continuously been conspicuous since that time. It is one and the same continuous phenomenon which began here with that tremendous dust-cloud of September 5, 1883.

S. E. BISHOP

Hawaiian Government Survey, Honolulu, Dec. 29, 1884

Recent Earthquakes

EN relation possible, mais non probable, avec les tremblements de terre d'Espagne j'ai à vous signaler les secousses suivantes observées en Suisse:—

25 décembre, 1884.—à Zernetz, Engadine, secousses à 8h. 17' S., et 11h. S., heure de Berne.

(8h. 17' heure de Berne correspond à 7h. 32' heure de Madrid. La première de ces secousses a donc eu lieu 20m. avant la grande secousse de Grenade du 25 déc. à 8h. 52' soir.)

1 janvier, 1885.—2h. matin, légère secousse, signalée à Lausanne par un seul observateur.

21 janvier, 1885.—Entre oh. et 1h. matin, secousse à Ennenda, canton de Glarus.

Dans les Alpes françaises.

le 5 janvier, 1885, à 3h. matin à Chambéry (Savoie).

à 5h. 50' matin à Embrun (Hautes Alpes).

Agréé, Monsieur, l'expression de mes sentiments très distingués.

F. A. FOREL

Morges, 24 janvier

ON Thursday evening last, at a time which is variously stated from 8.30 p.m. to shortly before 9, a rumbling noise, accompanied by a sensible trembling of the earth, and in some instances by a slight "rocking" of cottages, was heard and felt over several parishes in this neighbourhood. I have already had independent testimony of it from West Buckland, Bradford, Nymhead, and Langford, in a line from north-west to south-east across the upper part of the Vale of Taunton. Some observers state that the noise and motion seemed to come from the north-west. There can be but little doubt but that this was a slight

shock of an earthquake. It would be interesting to know whether anything of the same kind had been observed elsewhere at the same time.

W. A. SANFORD

Nymhead Court, Wellington, Somerset, January 24

The Lexden Earthquake

THE earthquake alleged to have taken place near Colchester on Sunday night, Jan. 18, and mentioned in the "Notes" of NATURE last week, on the authority of the *Standard* newspaper, turns out on inquiry to have been reported on very doubtful authority. The place referred to as "Leden" is evidently meant for Lexden, which is really a suburb of Colchester. Immediately after seeing the newspaper paragraph I communicated with some of the residents, asking them to obtain particulars for me, as the occurrence of another shock so near the district which was shaken in April of last year, would have been of considerable interest in connection with the report upon this last earthquake, which I am about to present to the Essex Field Club. It seems, however, according to the results of these inquiries, confirmed by a paragraph in the *Colchester Gazette* of January 21, that the shock was said to have been felt by one person only, the postman, and nobody else in the place heard or felt anything, nor was any crockery shaken or any vibration experienced in any other house. One gentleman, who was out of doors at the time mentioned (midnight), states that he heard a peal of thunder, but felt no shock, and he suggests that this might have awakened the postman, upon whose authority the newspaper paragraph appears to have been founded.

The statement that the shock was felt at Aldeburgh rests also on the authority of one person only, and it shows with what caution such statements should be received in the absence of instrumental records.

R. MELDOLA

21, John Street, Bedford Row, January 24

Barrenness of the Pampas

MR. EDWIN CLARK overlooks, I think, an important factor in the present treeless condition of the Pampas (of the La Plata, so far as my own knowledge extends only), and of the difficulty of establishing trees on those plains. North of Monte Video, for some hundreds of miles, the leaf-eating ant is omnipresent. I have seen streams of them running along the beaten paths to their nests, each ant carrying the yellow petals of some plant similar to the buttercup. When I first noticed, from my horse, this procession of golden leaves, I was greatly astonished. Familiarity, however, soon dispelled this. The *opima spolia* was being carried to their nests and taken under ground, no doubt as a provision for the winter. The ants were about a quarter of an inch in length, and of a beautiful steel-blue colour. Those I picked up for examination demonstrated their powers by shearing off the hard cuticle of my thumb or fore-finger with their mandibles. Subsequently, I made the acquaintance of a gentleman, well known in the Banda Oriental, the owner of the "Estancia Sherenden." He showed me a splendid grove of about two acres of *Eucalypti* of several species—the "blue" and "red" gum chiefly. These he had reared from seed, their enemies being these ants. As soon as the first leaves of his cherished plants appeared, the ants cut them off. He then got a drum of gas-tar sent up from town, and made a circle round each plant. The ants objected to this, and all the trees made a start. For three years in succession he carefully painted the stems with tar, and eventually they got so far away as to be able to supply the wants of their foes and still flourish. When I saw these trees they bore finer foliage than I ever met with in the Australian bush during four years' experience. They were then eight years old. Many were forty feet high, and thirty-six inches round at some three feet from the earth.

I think none of the animals mentioned by Mr. Clarke, *certainly not any of the rodents* in his list, would be likely to touch gum trees, and the repugnance to them of sheep, oxen, and horses in Australia is well known.

Maize grows freely in the Banda, but it grows too fast for these ants to destroy it. The attacks of those from nests within marching distance are powerless on an acre of Indian corn.

When I examined the *Eucalypti* at "Sherenden," many ants were coming down the trees with cuttings of the leaves in their mandibles.

If you will allow me a word of suggestion in addition, I would say to every one who establishes trees on the Pampas