fall on the boat. They were followed by small pellets, which rattled on the deck like a shower of peas. In a minute or two fine grey ash, moist and clinging together in small globules, poured down upon us. After that for some time there was a rain of dry grey ashes. But the cloud had lost most of its solid matter, and as it shot forwards over our heads it left us in a stratum of clear pure air. When the fine ash began to fall there was a smell of sulphurous acid, but not very marked. There was no rain.

The volume of steam discharged must have been enormous, for the tongue-shaped cloud broadening as it passed southwards covered the whole sky except a thin rim on the extreme horizon. Dust fell on Fort de France and the whole south end of Martinique. The display of lightning was magnificent. It threaded the cloud in every direction in irregular branching lines. At the same time there was a continuous low rumble overhead.

What happened on Mont Pelée after this discharge cannot be definitely ascertained. For some hours afterwards there were brilliant lightnings and loud noises which we took for thunder. That night there was a heavy thunderstorm over the north-end of Martinique, and much of the lightning was atmospheric, but probably the eruption had something to do with it, and the noises may have been in part of volcanic origin.

Characteristics of the Eruptions.

There can be no doubt that the eruption we witnessed was a counterpart of that which destroyed St. Pierre. The mechanism of these discharges is obscure, and many interesting problems are involved. But we are convinced that the glowing avalanche consisted of hot sand and gases—principally steam; and when we passed the hill in R.M.S. *Wear* a few days later, we had, by the kindness of the captain, an excellent opportunity of making a close examination of the shore from the bridge of the steamboat. The south-west side of the hill along the course of the Rivière Seche was covered with a thin coating of freshly fallen fine grey ashes, which appeared to be thickest in the stream valleys. The water of the rivers flowing down this part of the hill was steaming hot. This was undoubtedly the material emitted from the crater on the night of the eruption. There was no lava. We saw no explosions of combustible gases, and nothing like a sheet of flame. We were agreed that the scintillations in the cloud were ordinary lightnings which shot from one part of its mass to another, and partly also struck the sea beneath.

The most peculiar feature of these eruptions is the avalanche of incandescent sand and the great black cloud which accompanies it. The preliminary stages of the eruption, which may occupy a few days or only a few hours, consist of outbursts of steam, fine dust and stones, and the discharge of the crater lakes as torrents of water or of mud. In them there is nothing unusual, but as soon as the throat of the crater is thoroughly cleared, and the climax of the eruption is reached, a mass of incandescent lava rises and wells over the lip of the crater in the form of an avalanche of red-hot dust. It is a lava blown to pieces by the expansion of the gases it contains. It rushes down the slopes of the hill, carrying with it a terrific blast, which mows down everything in its path. The mixture of dust and gas behaves in many ways like a fluid. The exact chemical composition of these gases remains unsettled. They apparently consist principally of steam and sulphurous acid. There are many reasons which make it unlikely that they contain much oxygen, and they do not support respiration.

THE PERSEID METEORIC SHOWER OF 1902.

THE display of Perseid meteors was fairly abundant this year, though somewhat marred, and only partially observed, in consequence of the unsettled weather which prevailed. In the west of England the first half of August proved an exceptionally cloudy period, and comparatively few observations could be secured. In the eastern counties atmospheric conditions appear to have been decidedly more favourable, for while at Bristol only meagre results could be gathered from skies wholly or partially veiled with clouds, observers in metropolitan suburbs reported clear weather and collected a plentiful harvest of meteor flights. At Hampstead Mr. G. M. Knight counted 500 meteors during the first fortnight of August. Between August 1 and 5, 167 were recorded, and on August 10, from 11h. 30m. to 15h. 15m., 239 were seen. The majority of them were Perseids of the usual swift, streak-leaving type, and there were minor showers in Cassiopeia, Andromeda, Cepheus and other regions. Mr. Knight has forwarded the writer some charts containing projections of his recorded paths, and the place of the Perseid radiant appeared to be indicated as under. The ephemeris positions given in the *Monthly Notices*, December, 1901, p. 169, are also added for comparison:—

1902.	Radiant.	No. of meteors.	Ephemeris.
August 1–3	37° + 55°	12	33°9 + 55°0
,, 4–5	40° + 55½°	26	37°0 + 55°6
,, 10	44½° + 57°	43	44°3 + 56°9

The agreement is fairly good, though the places observed this year in the early part of August are somewhat east of the predicted centres. A certain allowance has, however, to be made for errors of observation.

At Bristol the writer watched for the Perseids on parts of the nights of August 2, 6, 10, 12 and 14, but clouds prevented anything like a thorough investigation of the progress of the display. The Perseids were fairly numerous, and shot from the radiants given below, but very few meteors were seen on August 6 and 14 owing to the clouds, so that the points of emanation on those nights were merely suspected:—

1902.	Radiant.	Ephemeris.
August 6	39° + 57°	38°9 + 56°0
10	45° + 58½°	44°3 + 56°9
12	47° + 58½°	47°1 + 57°3
14	50° + 57°	50°0 + 57°7

The year 1900 not having been a leap-year, the maximum was expected on either August 11 or 12. There was an unusually bright exhibition of these meteors on August 11, 1898. It seems that the maximum intensity was well defined this year, for "a magnificent shower of Perseids" is reported to have been witnessed at Odessa on Tuesday night, August 12. The chief radiating point is said to have been at an altitude of 45° or 50° in the north-east firmament. The latter position corresponds approximately with the normal place of the Perseid centre. But, unfortunately, the report mentions no details as to the number of meteors observed or the duration of the observations, and it is impossible, therefore, to form any exact conclusion as to the character of the display witnessed. It will probably be found, however, when particulars come to hand, that it represented nothing more than a tolerably plentiful return of the stream. There are no other descriptions favouring the inference that a strikingly brilliant shower was witnessed. In and since 1898 the Perseids appear to have been richer than usual, though it is extremely difficult to ascertain the relative strength of the shower from year to year owing to the variable conditions affecting the visibility of the meteors. W. F. DENNING.

THE ZOOLOGICAL SOCIETY'S NEW APE-HOUSE.

THE ordinary plan of keeping monkeys in zoological gardens is to house them in cages which, while closed in winter, can be opened to playing-places in the external air in summer. The objection to this course is that, though it gives the great advantage of fresh air, the monkeys emerging from a heated chamber into a cooler atmosphere are very liable to catch cold and suffer from pulmonary complaints. In the case of some of the hardier Quadrumana (such as the Tcheli monkey of Mantchuria and the Cape baboon), there can be no doubt that such animals will thrive best without artificial warmth of any kind beyond the protection of a dry roof, and may be kept in the open air all the year round. This plan, however, would hardly answer in the case of the anthropoid apes, which live in hot, moist climates and are accustomed all their lives to a high and uniform temperature. In constructing the new ape-house for the special accommodation of these animals, the Zoological Society has adopted the plan, which has been tried with some success on the continent, of separating the animals entirely from the evils of a changeable climate by an air-tight glass screen through which only they can be seen by the public. The