N.CH. Many chemists prefer "grouping," a safer word often used by Prof. Odling in his lectures.

After all, the question is really a gnat amongst the camels of our present nomenclature in organic chemistry. The sooner the last straw comes the better. What would Morveau or Lavoisier say, for instance, to "dimethyldiethylhydroxytrimethylenecarboxylic acid (1, 3, 2, 3, 2, 1)," in Dr. Perkin, Junr's., paper, *Journal* Chem. Soc., 1885, p. 807? Chemists who doubt the propriety of spelling a word in two ways must have excessive sympathy with the geographers who are trying to get their brethren to select one of over forty different "spellings" of Fuchau or Foo-Chow. J. F. HEYES

12, Merton Street, Oxford, April 12

Square Bamboo

NATURE was so good as to publish (August 27, 1885), a communication from Mr. W. T. Thiselton Dyer in relation to my discovery of the square bamboo. Supplementary to the information therein given I send the following which I have just met with in a Chinese work:—"It grows wild in the north-eastern portion of Yunnan on the sequestered mountains of Takuan-ting and Chênhsing Chou, to which in spring men, women, and children resort for cutting its shoots, which they tie in bundles and send to market. It is prized above all other bamboo shoots as an esculent." D. J. MACGOWAN

Wenchau, February 8

Ferocity of Animals

ALTHOUGH the animals in question are not rats, it may interest Mr. Romanes to hear that some years since a friend was on a railway journey in the north, having with him two large dogs. These were confined together in the brake-van. During the journey one of these dogs (a bull-dog) attacked and seriously injured the other (a retriever, if I remember rightly), although ordinarily they were very much attached to one another. My friend's idea was that the bull-dog became frightened at the motion of the train, which oscillated considerably, and imagined that the other dog was the malefactor. This may be merely theory, but the case perhaps is worth noting. UNUS

Birkbeck Institute, April 6

MR. VERBEEK ON KRAKATAÕ

MR. Verbeek's work on the Krakataõ eruption has now been completed. The first part, which deals principally with the history of the great eruption, came out more than a year ago, and has been made accessible to English readers in a French translation. It was desirable, says Mr. Verbeek, in his introduction to the second part, of which an abstract is given here, that that portion of the work should appear as soon as possible, to contradict the many untrue statements that had found their way into the newspapers, and even been partially adopted in scientific magazines.

The second part, a quarto volume of some 500 pages, with additional drawings and maps, which will likewise shortly appear in French, gives an account of the phenomena observed both during and after the eruption, besides a description of the old Krakataõ. Mr. Verbeek's task has been a very laborious and comprehensive one, for while the consequences of most eruptions are confined to the immediate neighbourhood of the volcano, those which followed the great Krakataõ eruption have been observed all over the earth, and have as much interest for the hydrographer, the meteorologist, and the astronomer, as for the geologist.

It may be said without exaggeration that the Krakataõ eruption has been the most remarkable catastrophe of the kind of which the human race has kept a record, for, though other eruptions, such as that of the Tomboro in 1815, no doubt caused important atmospheric disturbances, there were no instruments at that time to make accurate observations, and thus they were lost for science.

How invaluable the self-recording barometers and tide-gauges have been on this occasion has been conclusively shown, but the number of these instruments is comparatively small, and Mr. Verbeek hopes that his work may lead to an increase of the number of barographs which mark the atmospheric pressure as an unbroken curved line, and especially of self-registering tide-gauges at favourable points on the coasts, and on various islands in the ocean.

In spite of the assistance Mr. Verbeek gratefully acknowledges to have received from innumerable persons in obtaining accurate information, he has had much difficulty in sifting the often conflicting evidence. Even now a few data are wanting, which will probably make an appendix necessary.

As the work with which the Dutch Indian Government had intrusted him would take a considerable time, they wished him to issue a preliminary report[1] which had necessarily to be drawn up in a limited period before the close examination of the volcanic substances could have taken place. Mr. Verbeek had in consequence to modify some of the views he expressed there. For instance, he no longer considers the balls of marl to have been produced by a rapid revolving motion of marl, mud, or sand, because at a later period similar balls were found in claystones, and thus were shown to have already existed before the eruption. He was also obliged to give up the notion that the dust found in snow and rain in various parts of Europe was derived from Krakataõ. A slight modification had to be made in the time when the four greatest explosions occurred, and a more considerable one in the time of the rising of the greatest wave. Hence also the figures given for the medium depths of the sea had to undergo an alteration. Finally, the composition of some of the volcanic products was accurately determined by a later and more elaborate chemical analysis, and it was proved that the percentage of silica given in the short report is generally too large. Those are the only modifications of any importance which Mr. Verbeek says he had to make in the preliminary report.

The book—which he has spared no pains to make as complete as possible, and which is indeed the most complete work of the kind ever written—will, he hopes, serve as a standard guide for any future eruption of the same magnitude that might still occur in this century. In such an undesirable but not improbable contingency a great deal of trouble will be saved by referring to its pages, where information laboriously collected from innumerable sources may be found, as well as elaborate calculations which will not require to be repeated.

No hypotheses are offered for explaining the unusual number of volcanic phenomena in 1883, because every certain foundation is wanting. If the cause of eruptions is to be found in the first place in the water penetrating from the surface into the interior of the earth, and if their multiplicity must therefore be traced to the formation or opening up of lines of dislocation, or to subterranean subsidences, which both facilitate the access of water and increase the pressure in the subterranean regions, there still remains the question what specially produced these altered conditions in 1883.

A connection has been supposed to exist between the volcanic phenomena on the earth and the intense activity of the sun in that year. The maximum of the sunspot period seems to fall on 1884·0, thus a few months only after the eruption. The interesting researches of Prof. R. Wolf at Zürich have shown a connection between the number of sunspots and the daily variation of the magnetic declination. At a maximum of the spots, therefore, strong terrestrial magnetic currents might arise which might produce chemical disturbances in the interior of the earth that would be favourable to earthquakes or eruptions; but it must not be forgotten that at the periods 1829·9, 1837 2, 1848·1, 1860·1, and 1870·6 maxima

[1] This report appeared in NATURE, vol. xxx. p. 10.