successful prosecution has concomitantly increased. To replenish the waste, artificial cultivation of the pearl-oyster has been tried in various localities; and of all these, the author considers that the islands of Torres Straits are the most likely to yield successful results.

The last three chapters, respectively entitled "Marine Miscellanea," "Insect Oddities," and "Vegetable Vagaries," we are reluctantly compelled to pass by without mention, although all merit the reader's best attention. Were our notice extended to three times its length, even then but comparatively few of the more interesting points in this volume could be touched upon; but as it is,

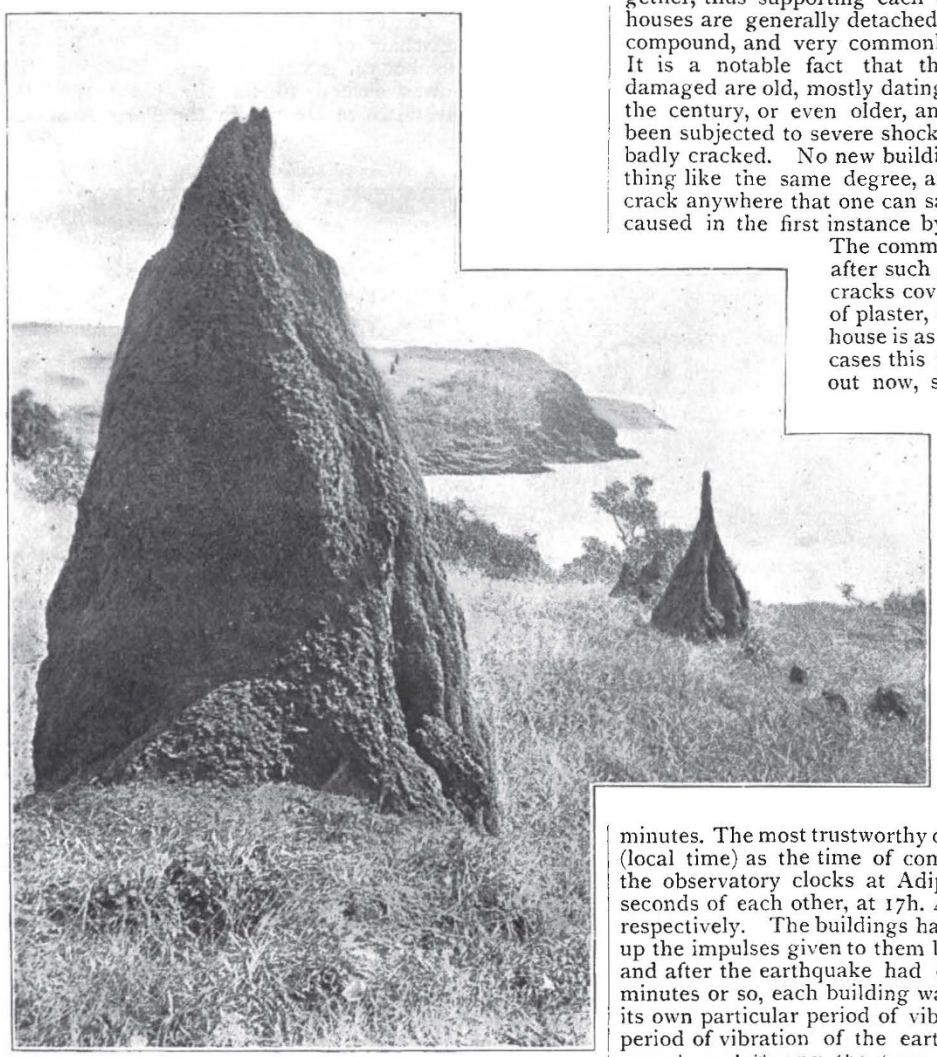

FIG. 2.—Termite mounds, Albany, North Queensland.

enough has been said to indicate how well the author has made use of his exceptional opportunites of observation, and in what an attractive guise he has presented his results to the public. R. L.

THE CALCUTTA EARTHQUAKE.

ON Saturday, June 12, at almost precisely five o'clock in the afternoon, Calcutta was visited by a somewhat severe shock of earthquake, most sensational reports of which, judging from the accounts that have appeared in the Indian papers, were probably telegraphed to England, and must have caused considerable anxiety among those who have relatives or friends out here. As a matter of fact few lives were lost, the warning given by the preliminary tremors allowing every one ample time to escape from their tottering dwellings, while in the crowded native quarters of the city the damage done is remarkably slight, the European quarter having suffered most. This apparent partiality of the shock is not, I think, to be attributed to any difference in its severity over the two areas, but rather to differences of construction and environment of the buildings. In the native town the houses are, as a rule, low, and built close together, thus supporting each other, while the European houses are generally detached, each standing in its own compound, and very commonly three stories in height. It is a notable fact that the only buildings greatly damaged are old, mostly dating back to the beginning of the century, or even older, and that they have already been subjected to severe shocks of earthquake, and were badly cracked. No new buildings have suffered in anything like the same degree, and it is difficult to find a crack anywhere that one can safely assume to have been caused in the first instance by the present earthquake. The common practice of the owners, after such a visitation, is to have the cracks covered up by a thick coating of plaster, so that to all appearance a house is as sound as before. In many cases this practice is being followed out now, so that there is every prospect of the next earthquake being attended with still more disastrous results.

In addition to the faulty construction of the buildings just mentioned, the damage caused must be attributed to the duration of the earthquake, rather than to any inherent severity of the shock itself. Various estimates are given as to the duration of the shock, ranging from four to ten minutes, and it must have lasted at least six minutes. The most trustworthy observations give 16h. 58m. (local time) as the time of commencement, while two of the observatory clocks at Adipur stopped, within a few seconds of each other, at 17h. 4m. 22s. and 17h. 4m. 26s. respectively. The buildings had thus ample time to take up the impulses given to them by the vibration of the soil, and after the earthquake had continued for a couple of minutes or so, each building was rocking to and fro with its own particular period of vibration, irrespective of the period of vibration of the earth, which I do not think varied much during the time it lasted. I happened to be on the third story of a new building, which was not damaged, at the time of the earthquake, and it seemed to me (and my observation has been confirmed by others to whom I have spoken on the subject) that distinct nodes were perceptible, during which, presumably, the vibrations of the house and those of the earth interfered with each other, and it is to the twisting effect produced by the presence of these nodes that I would attribute most of the damage done. It is curious that not a single factory chimney was overturned, or even cracked, though the chimneys rocked violently from side to side; their rate of vibration probably synchronised more or less with that of the earth. On the other hand, three, at least, of the church spires have broken off near the top; but in

their case the vibrations were probably more complicated than in the chimneys, through their being attached to the body of the church in each case, and also owing to their conical shape.

Falls of isolated objects, unconnected with any building, from which the direction of the shock might be ascertained, are exceedingly rare. Only two of the monuments in the old cemetery were affected, but both of these give the same direction, viz. approximately N. 30° E., S. 30° W., the fall being in each case towards the S.W. One of these monuments is an obelisk over the tomb of Sir William Jones, the founder of the Asiatic Society of Bengal. The building of this Society has suffered severely, being cracked in every direction.

It is too soon as yet to speak with certainty of the extent of the earthquake, or of the causes which led to it. So far as present reports go, the province of Assam has suffered most damage, and it is possible that the cause of the earthquake will be found in some movement

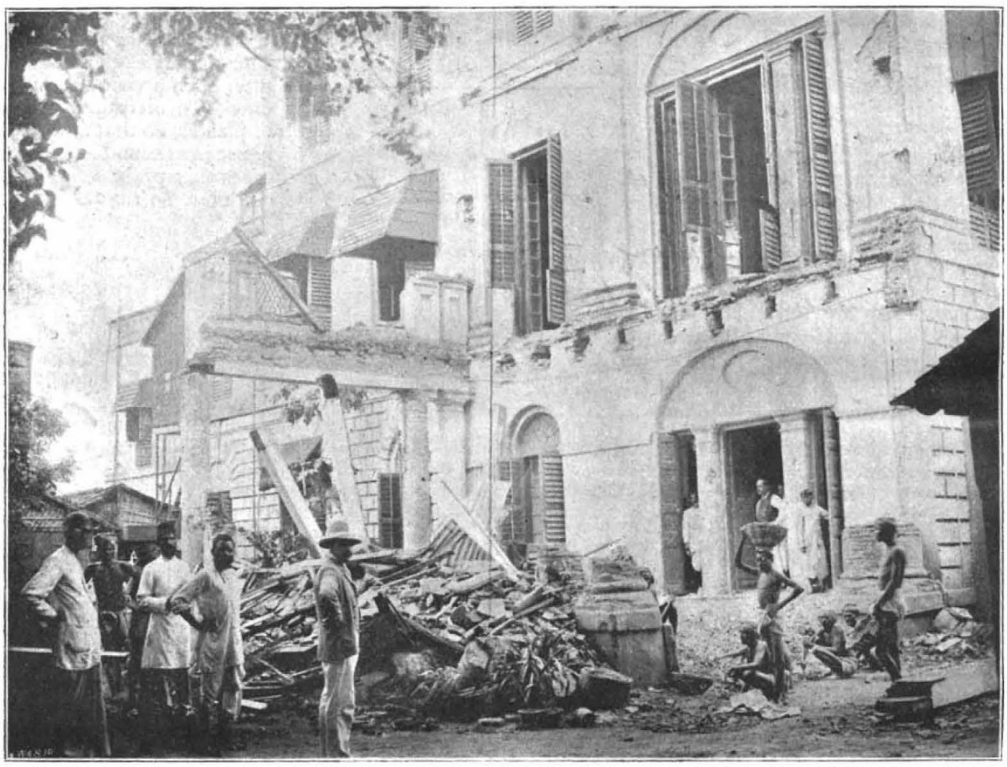

FIG. 1.—Calcutta Earthquake, June 12. Messrs. Traill and Co.'s Office, British Indian Street. A Verandah, with portico beneath it supported on pillars in front of the building, has been entirely destroyed.

either along the line of dislocation which separates the Himalayas from the Assam valley, or that which runs along the south flank of the Assam range, at the northern edge of the plains of Sylhet and Cachur.

It is unfortunate that Calcutta does not possess a single seismograph of modern construction. Without one of these it is hopeless to expect to obtain perfectly accurate details, as to time, duration, force, &c., so necessary for a full discussion of the subject.

I enclose two photographs [one is reproduced in Fig. 1] taken immediately after the earthquake, which show the kind of damage that has been caused by it. The vibration of the walls loosened the ends of the beams carrying the massive roofs, which then crushed down, carrying the lower floors with them, the outer walls being usually left standing, but badly fissured. T. D. LA TOUCHE.

PAUL SCHÜTZENBERGER.

PAUL SCHÜTZENBERGER was born at Strassburg, and died at Paris on June 28, 1897, at the age of sixty-seven. He first studied medicine at the University of Strassburg, graduating in 1855 with a thesis entitled "Du Système Osseux." Subsequently, however, he devoted himself to chemistry, occupying successively the posts of Préparateur in the chemical laboratory of the Conservatoire des Arts et Métiers at Strassburg, Professor at the Mülhausen High School, Assistant-Director of the chemical laboratory of the Sorbonne, and Head of the chemical department of the Collège de France, where, since 1876, he has occupied the chair of Chemistry. In 1884 he was elected a member of the Academy of Medicine, and in 1888 he was elected to fill the place rendered vacant by the death of Débray in the Paris Academy of Sciences.

Much of his work exhibits the influence of his earlier medical training: for example, his "Chimie Appliquée à la physiologie animale et au diagnostic médical," published in 1864, his work on fermentation (1875), and his well-known researches on the chemical nature of the albuminoids and of the vegetable alkaloids. He also devoted much attention to the chemistry of colouring matters and of their applications, in which branch of science he was one of the first authorities. His book entitled "Des Matières Colorantes," first published in 1866, is, perhaps, his best-known work. He did not confine himself, however, exclusively to organic chemistry, his name being honourably known in inorganic chemistry in connection with the discovery of hyposulphurous acid.

T. E.