the lawn, which had been when intact about thirty feet high. The upper portion was shivered, fragments being scattered far and wide both over the lawn and an adjoining field, some fragments sticking in the grass lawn and showing that they must have been hurled with great force.

At the same time twenty-four panes of glass in front of the house were smashed by the violence of the explosion, at a distance from the tree of twenty-three to forty-three yards.

It was noticed that windows of plate glass, as well as windows which happened to be open at the time, escaped. The explosion is said to have been quite unlike thunder, and to have resembled the report of a heavy piece of ordnance. It is probable that the report was heard here in Rugby, as I find that two persons who happened to be in my house at the time remember hearing a double report at about the same hour, which they remarked upon to each other as being like the distant firing of a cannon.

As to the evidence of the agent of destruction being a fireball, I have, through the kind help of Mr. Harrison, been enabled to examine four witnesses, all of whom agree that during an interval of two minutes before the explosion a large fiery globe was seen travelling through the air, and emitting light of such dazzling brilliancy that the only one of them who was out of doors at the time was for a moment blinded and dazed, and felt for some short time afterwards a sensation of pain in the back of the head and the neck.

A fifth witness, whom I did not see, was at the time of the explosion in a room overlooking the lawn on which the tree grew, and states that she saw through the drawn blind the reflection of a fiery round ball at the instant of explosion.

The ball seems to have been larger than any hitherto observed, all speaking of it as appearing larger than the sun or moon, and one of them said it was as large as an ordinary fire-balloon when seen at a short distance. The colour is said to have been of an intense fiery red, but a person who did not see the ball was startled almost at the instant of the explosion by the lighting up of a long passage in Dunchurch Hall by an intense blue light.

The path taken by the fireball during the two minutes it was observed could hardly have been direct, as the direction taken when first seen makes an obtuse angle with the direction indicated by all who saw it immediately before the explosion.

14 Bilton Road, Rugby. L. CUMMING.

P.S.—I have submitted a draft of this letter to Mr. Harrison, who agrees with me in the accuracy of the report given above.

The Suicide of Rattlesnakes.

I NOTICE in NATURE for June 1, 1893, page 107, an inquiry by Mr. R. I. Pocock as to the suicidal habits of scorpions. His conclusion is that if scorpions sometimes kill themselves, the verdict must be "accidental suicide, or suicide while of unsound mind." I have no evidence to offer as to the habits of Californian scorpions, but I have myself witnessed the deliberate suicide of a rattlesnake, and think that a brief account of it may be worth recording. In the summer of 1888 Prof. Keeler saw a large rattlesnake (with seven rattles) crawl under the foundation of the dome of the six-inch equatorial. With the nice manipulation for which he is famous, Dr. Keeler fastened a pair of blacksmith's tongs about the animal's neck, and brought him into the large marble vestibule of the observatory. The snake was furious and was practically uninjured. After every one had seen him it became a question what to do next. It was resolved to put him into a gallon jar of water. Dr. Keeler had the task of getting the very lively animal (which was some three feet long) into the jar, and of letting go with the tongs; while I undertook to put in the stopper of the bottle at an auspicious moment. All this was accomplished very nicely, and the next step was to drown the snake by inverting the jar at intervals. After a little time it became obvious to every one, the snake included, that the animal must soon be drowned. At this moment the snake ceased any attempt to rise to the surface of the water in the jar, and in the most deliberate manner struck its fangs deep into its body. I have no doubt whatever that the blow was intentional, and with suicidal purpose. It was a single deliberate blow. There was no flurry. As far as one could see the animal was of sound and disposing mind and memory. It had been full of fury at first, but latterly had only sought to escape from the water to the air at the top. When this became hopeless the snake ended its own struggles. I had often heard that snakes (and scorpions) put an end to their own lives. Here is an instance which occurred before my eyes. The snake is now preserved in alcohol at the observatory, and the marks of the fangs are plainly to be seen.

Lick Observatory, July 19. EDWARD S. HOLDEN.

New Conclusions.

IN the last volume of the Proceedings of the Royal Society of Victoria, a paper appears by us entitled "Preliminary Account of the Glacial Deposits of Bacchus Marsh." In this paper we claimed to have shown that there were two distinct deposits of till separated by sandstones assigned to the Triassic age, and moreover that the upper till rested on the denuded surface of the latter.

Further examination has shown that we were mistaken as regards the last point. Our conclusion had been drawn mainly from a section which we have described and figured as occurring at a small quarry on the Korkuperrimul Creek. At this place we described till as overlying, and a granite boulder over a yard in diameter, together with smaller boulders, as being jammed into, the broken surface of the sandstone.

The real state of things is that the clay material containing the boulders is really a bed intercalated with the sandstone, the whole being inclined at about 35°–40°. What was described as till overlying these sandstones turns out to be a "wash" containing striated stones, and derived from an outcrop of a till-like deposit a little above. Besides the larger clay bed containing the large boulders, there are several other thin bands of clay intercalated with the sandstone containing pebbles, several of which we found to be striated.

The real succession in this locality would now appear to be as follows:—

(1) Till, undoubtedly morainic, and probably resting on silurian rocks.

(2) Shales.

(3) Massive sandstones with intercalated bands of clay bearing transported boulders.

(4) A till-like deposit containing boulders.

(5) Shales and well-stratified fine argillaceous sandstones.

It would be unwise to assume that this succession represents the general order in Victoria, as stratified deposits associated with till may be of local significance only.

As the fossil evidence so far obtained points to the sandstone being of fresh-water origin, it seems reasonable to suppose that it was deposited in a glacial lake into which sub-glacial streams flowed, and in which floating ice wandered, dropping boulders here and there. At the quarry above-mentioned, the clay bed containing the large boulders, and the sandstone adjacent to it, are remarkably contorted as if an iceberg had grounded there.

As to the real nature of the till-like deposit referred to as overlying the sandstone, we do not yet care to speak definitely. It presents some strong points of resemblance to true till, but it may be of aqueous origin aided by floating ice.

It will be now seen that the sandstones known as the Bacchus Marsh Sandstones must be considered as part of the glacial series. Our friend Mr. Charles Brittlebank has also come to this conclusion quite independently of us. Of course the other sections given with our paper will have to be altered in accordance with the foregoing.

Having recently had an opportunity of seeing the glacial deposits near Heathcote, described by Mr. Dunn last year, we may say that there, as at Bacchus Marsh, the lowest member, at least, is a true till due to the action of land-ice. We cannot agree with Mr. Dunn in his opinion that these deposits are entirely an iceberg drift.

A notable point of difference between the till at Bacchus Marsh and that at Heathcote, lies in the immense quantity and variety as well as the great size of the rock-debris in the latter locality. Mr. Dunn well expresses it when he says that it looks as if the ruins of a continent were gathered here. It would almost seem as if Heathcote were in the region of a terminal moraine. The somewhat unsatisfactory evidence afforded by the "roche moutonnée," known as Dunn's rock, seems to indicate that the ice came from the south in this district.

GRAHAM OFFICER.

Melbourne University, July 4. LEWIS BALFOUR.