

the party had the good fortune to see the volcano in great perfection. There existed at the time of the visit four concentric crater rings and two main vents ejecting red-hot lava cakes, which the geologists were able to approach within ten yards, after which they descended some distance on the slopes of the great cone to a small lava stream issuing from its sides, at which various experiments were performed. The director, who has visited the crater over sixty times, remarked that he had never but once seen it to greater perfection.

The numerous volcanoes of the Phlegrean fields were examined, and most of those present expressed their satisfaction at the many important lessons to be learnt from them. At Pompeii the members had the valuable direction of Dr. A. Sambon for the archaeological part, whilst Dr. Johnston-Lavis devoted himself only to explaining the phenomena and materials associated with the destruction of the buried cities.

After Naples the party examined on their way northwards the volcano of Roccamonfina, under the direction of Dr. Johnston-Lavis, and Monte Cassino under that of Prof. Bassani of Naples. The Lyceum at Sessa Aurunca was kindly lent by the commune to accommodate the members during their night's stay on their way over the mountain, a sumptuous dinner being provided by the municipality. The carriages the next day were offered by the province of Terra di Lavoro, and after the ascent had been made of the central cone (Mount Santa Croce) a lunch not less sumptuous than the dinner of the preceding evening was given by the town of Roccamonfina.

The next day was devoted to Monte Cassino, its manuscript and art treasures, as well as the Cretaceous limestones constituting the mountain upon which it is built. Prof. Bassani acted as geological director.

At Rome the party examined the concentric craters, parasitic cones, crater lakes, lava streams of the Alban volcano, also the fossiliferous Pliocene beds capped by volcanic deposits close to the Eternal City. The lower Mesozoic limestones, the travertine, the sulphur springs, and all the other points of geological interest of the Campagna Romana were visited.

As directors of the excursions around Rome may be mentioned Profs. Mele, Portis, and Strüver. Signor Zezi (secretary of the Italian Geological Survey), Signors Demarchi, Clerici, Tellini, and Prof. Lanciani kindly undertook the archaeological demonstrations which acted as dessert to the rich geological repast.

The official excursions terminated on October 28, with the trip to Tivoli, although a number of geologists remained to visit the sights of Rome. In the evening a dinner was offered to Dr. Johnston-Lavis, Mr. L. Sambon, and the Roman directors. The thanks of the party were offered to the Minister of Public Instruction, Prefects and Mayors, and private individuals, who had done so much to facilitate the progress, through often almost inaccessible districts, for a large party.

Special votes of thanks were proposed to the different Italian geologists who had kindly offered their services in directing the party through their districts, and lastly to Dr. Johnston-Lavis for originating this new departure in scientific excursions, as well as acting not only as director in his own districts, but interpreting and organizing during the whole excursion, and to Mr. L. Sambon for his administrative skill, his attainments in different branches of science, which added so much to the success and comfort of over forty English geologists, not to speak of the numerous Italians who from time to time joined.

REMARKABLE HAILSTONES.

ON p. 43 of the present volume of NATURE the following extract is given from a paper by Prof. Houston in the Journal of the Franklin Institute:—"On some of the hailstones, though not on the majority of them, well-

marked crystals of clear transparent ice projected from their outer surfaces for distances ranging from $\frac{1}{8}$ to $\frac{1}{4}$ of an inch. These crystals, as well as I could observe from

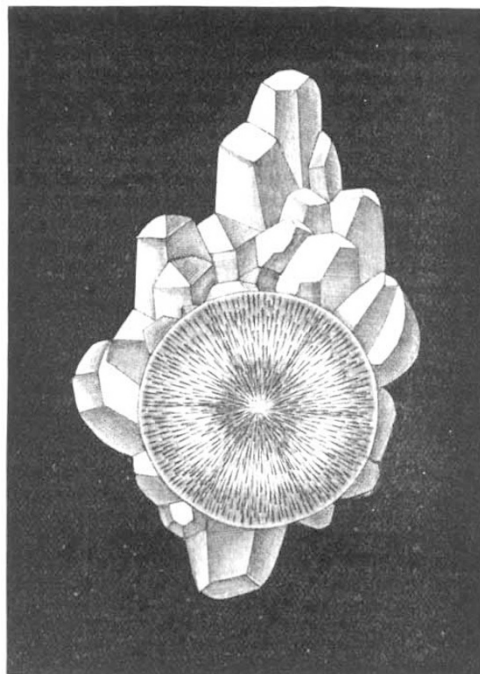


FIG. 1.

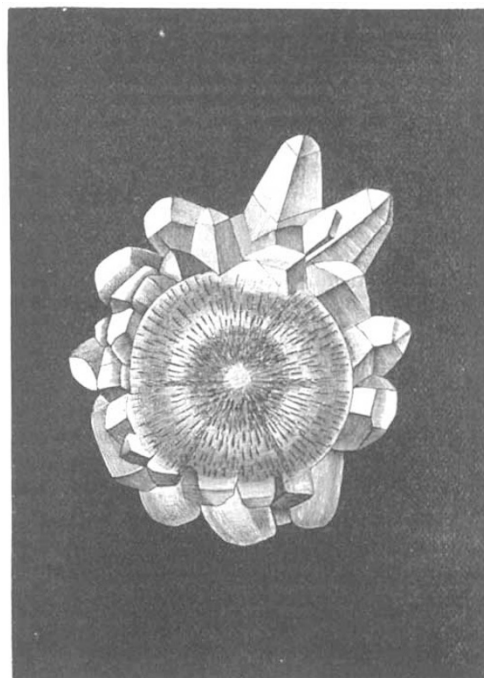


FIG. 2.

the evanescent nature of the material, were hexagonal prisms with clearly cut terminal facets. They resembled the projecting crystals that form so common a lining in

geodic masses, in which they have formed by gradual crystallization from the mother-liquor. They differed, however, of course, in being on the outer surface of the spherules."

It is evident from Prof. Houston's paper that this peculiar form of hail was unknown to him, and, as it must also have been unknown to many who have propounded theories as to the formation of hail which will not account for it, I think that a service may be rendered to meteorology by the reproduction of three of the exquisite lithographs of this form of hail given in Prof. Abich's paper, "Ueber krystallinischen Hagel im Thriaethischen gebirge," published at Tiflis in 1871. The hailstones represented in Figs. 1-3 all fell on June 9 (21), 1867, at Bjeloi Kliutsch, a village about twenty miles south-west of Tiflis,

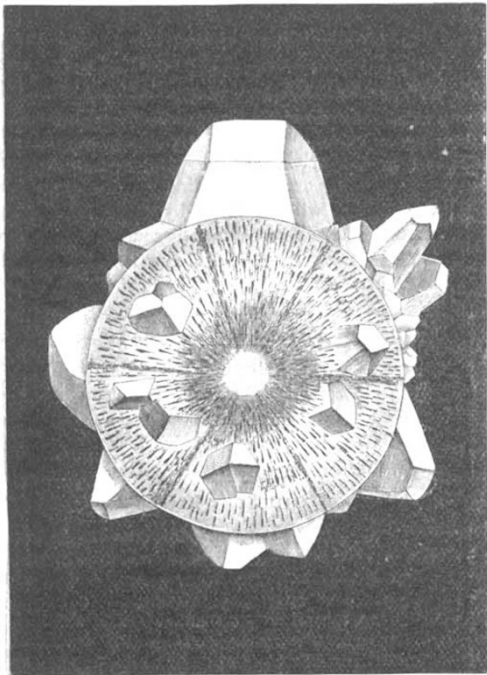


FIG. 3.

and 12,425 feet above sea-level (lat. $41^{\circ} 33' N.$, long. $44^{\circ} 30' E.$)

Theories of the formation of hail are almost innumerable. I was reading a pamphlet not long since which contained summaries of, I think, twenty-three theories. Some—like Prof. Schwedoff's, that hailstones come from interplanetary space (Brit. Ass. Report, Southampton, 1882, p. 458)—are very droll; but the subject is a very difficult one, and one upon which I do not know of a single good treatise in our language. Possibly, the reproduction of these figures may induce someone to prepare an exhaustive memoir. I could place a large amount of historical and theoretical material at the disposal of any competent person who would undertake the preparation of such a work, it being quite impossible for me to do it myself.

G. J. SYMONS.

NOTES.

At a largely attended meeting in Edinburgh on Tuesday, Dec. 3, Sir Douglas Maclagan in the chair, it was resolved that Mr. Geo. Reid, R.S.A., should be commissioned to paint a portrait of Prof. P. G. Tait, to be placed permanently in the rooms of

the Royal Society of Edinburgh. A committee was appointed to carry out the resolution, including, among others, Mr. John Murray (*Challenger Expedition*), Convener; Mr. Gillies Smith, Hon. Treasurer; Lord President Inglis, Lord Kingsburgh, Lord Maclaren, Sir William Thomson, Sir Arthur Mitchell, Prof. Robertson Smith, Prof. Chiene, Dr. Alexander Buchan, Mr. Robert Cox, and Mr. William Peddie. It was proposed that an etched engraving of the portrait be prepared for distribution among the subscribers, the plate to be destroyed after the required number of copies have been thrown off. It was further resolved that all the Fellows of the Royal Society of Edinburgh, the Professor's old pupils, and others, be afforded an opportunity of taking part in this public recognition of Prof. Tait's eminent services to science.

ITALY, France, and the United States of America were represented in the elections to foreign membership of the Royal Society on Thursday last. Prof. Stanislo Cannizzaro, of Rome, was elected on the ground of his researches on molecular and atomic weights; Prof. Chauveau, of Paris, for his researches on the mechanism of the circulation, animal heat, nutrition, and the pathology of infectious diseases; and Prof. Rowland, of Baltimore, for his determination in absolute measure of the magnetic susceptibilities of iron, nickel, and cobalt; for his accurate measurements of fundamental physical constants; for the experimental proof of the electro-magnetic effect of electric convection; for the theory and construction of curved diffraction-gratings of very great dispersive power; and for the effectual aid which he has given to the progress of physics in America and other countries.

ADMIRAL MOUCHEZ and MM. Janssen and Perrotin, head astronomers of the Observatories of Paris, Meudon, and Nice, were raised, in November, to the grade of Officer of the Order of the Rose of Brazil, and MM. Frassenet, Paul, and Prosper Henry, admitted to knighthood in the same order. The Paris Correspondent of the *Daily News* says that the diplomas securing to them these distinctions were the last official documents signed by Dom Pedro. He asked his secretary to add a personal compliment to each of the astronomers with whom he was personally acquainted.

SOME time ago we announced that a Physical Society was about to be formed in Liverpool. This has now been done, and we are glad to learn that the new Society begins its career under most favourable conditions. The meeting at which it was constituted was well attended, and displayed much interest in the scheme. Nearly ninety names were at once handed in to the secretary, Mr. T. Tarleton, for membership. Prof. Oliver Lodge, F.R.S., was appointed President. The next meeting will be held in the Physics Theatre, University College, Liverpool, on Monday, the 16th inst., at 8 o'clock, when the President will deliver his inaugural address.

DR. JOHN G. MCKENDRICK, F.R.S., Professor of Physiology in the University of Glasgow, has been elected President of the Philosophical Society of Glasgow.

PROF. LESQUEREUX, the eminent American bryologist and palæontologist, died in his house at Columbus, Ohio, on October 25, at the age of nearly eighty-nine years.

WE regret to learn from a memoir that has been sent to us by Prof. Barboza du Bocage, that Señor José Augusto de Souza died recently at Lisbon, where he was Curator of the Zoological Department in the Museum. He was the author of some useful memoirs on African birds, and is best known for his Catalogue of the *Accipitres*, *Columbæ*, and *Gallinæ* in the Lisbon Museum.

THE fifth of the series of "One Man" Photographic Exhibitions at the Camera Club will be open for private and press