The Volta Temple at Como.

IN the year 1899 the centenary of the discovery of the voltaic pile was celebrated in Como, Volta's native city, by a joint International Electrical Exhibition and a National Exhibition of Silk Products. On the morning of July 8, fire broke out in the Exhibition, and the buildings and their contents, including the precious collection of Volta relics, were almost entirely destroyed within the short space of forty minutes.

Of the instruments constructed and used by Volta in his epoch-making experiments, only a few damaged fragments were recovered. By a fortunate chance, Volta's documents were not being exhibited, as the Royal Institute of Lombardy had refused to allow them to be sent to Como. The rebuilding of the Exhibition was commenced immediately, and was prosecuted with such vigour that the reopening ceremony took place on Sept. 1, less than two months after the fire.

A few years later the more difficult problem of the restoration of the Volta relics was attacked energetically and, in view of the apparent futility of the attempt, secretly, by one of Como's citizens, Francesco Somaini, with the help of a small band of earnest coadjutors, and in due course was successfully accomplished. No pains were spared and no document or drawing bearing on the subject was left unstudied, so that the resemblance of the reproductions to the original instruments is as close as it is humanly possible to make it. Besides having this work done and bearing the cost thereof, Somaini has, also at his own expense, erected the sumptuous Volta Temple, in which the whole of the relics, including Volta's records, the national edition of Volta's works, etc., are now housed.

This temple was designed by Frigerio, and is situated close to the shore of the lake. It is of incombustible material throughout, and is in the neoclassic style, consisting essentially of a circular court or hall of ceremonies, surmounted by a hemispherical cupola which admits a soft light to the interior. On the roof of the building, at each of the four corners, is a pedestal light faced by a griffin. The main floor of the temple is approached by two wide lateral staircases, and the doorway has, on either side, recessed statues representing Faith and Science.

Within, the recesses between the central court and the outer walls of the building contain glazed cases in which are arranged both the fragmentary remains of the instruments rescued from the fire and the reproductions of the originals. The court contains a bust of Volta on a tall column and an ornamental bronze tripod presented by the University of Pavia, where Volta served for several decades as professor and rector.

Photo.] FIG. 1.—The Volta Temple, Como. [*A. C. Gatti, Milan.*

A marble staircase, to the left of the entrance, leads to a gallery which surrounds the central hall and contains the library, manuscripts (including some which Somaini was fortunate enough to discover at Vienna), medals, minor records, etc. The cupola is supported by four decorated angular pilasters and eight marble columns. On the front of the parapet of the gallery are sixteen plaques giving the most significant dates in Volta's life, and four bas-reliefs representing him teaching at the University of Pavia, demonstrating his pile to Bonaparte at Paris, receiving the Emperor Napoleon in Pavia, and prophesying, as he leaves the church at Lazzate, telephonic communication. The mosaic paving of the circular hall and of the surrounding recesses is ornamented with marble, onyx, and alabaster, and the framework of the glazed cases in which the exhibits are arranged is of iron or bronze coated with green patina so as to resemble ancient bronzes.

The skeleton of the building, including the foundations, is of reinforced concrete, the external ornamentation being chiefly of Aurisina stone and the internal of Musso marble, Viggiù stone, and stucco. The structure measures about 20 metres wide by 25 deep, and the height to the apex of the cupola is more than 21 metres. The building was commenced in November 1925 and was completed by May 1927.

First among the instruments invented by Volta comes the electrophorus (1775), which followed as a natural consequence of the views expressed in his dissertation: "De vi attractiva ignis electrici ac phenomenis independentibus," published in 1769. In the three years subsequent to the appearance of the electrophorus, Volta studied, both theoretically and experimentally, the influence of the form on the electrical capacity of a conductor and elaborated the conception of tension or electrical potential. These considerations formed the starting-point of a thorough investigation into the action of atmospheric electricity, this leading to the invention of the condenser, which is also numbered among the exhibits. While developing his ideas concerning electric meteorology and the origin of atmospheric electricity, Volta devised the very sensitive straw micro-electrometers and the electrostatic balance, reproductions of these being among the apparatus shown. The various forms of voltaic pile assembled by the inventor from such ordinary household articles as spoons, and water-vessels from bird-cages, are also included.

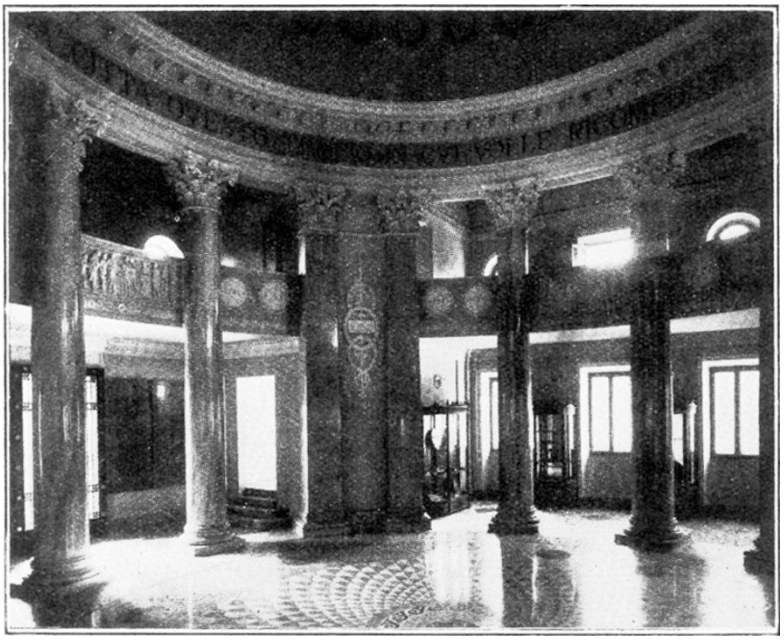

Photo.] FIG. 2.—Interior of the Volta Temple. *[A. C. Gatti, Milan.*

The temple has been placed in the charge of Prof. Felice Scolari, in conjunction with the Royal Lombardy Institute, and has been generously provided, also by Somaini, with an endowment fund of 500,000 lire, the income from which is to furnish annual prizes of 5000 lire each, to be awarded to distinguished students of Como or of the canton of Ticino desirous of prosecuting studies in electrical subjects.

Physics in Relation to Oil Finding.[1]

By Prof. A. O. RANKINE.

EVIDENCE has accumulated during recent years that physical methods can be used under suitable conditions to facilitate the detection and location of minerals buried under the ground. This is a fact of considerable economic importance, having regard to the very great and wasteful expense of indiscriminate boring. Even the most careful geological survey often fails to fix with sufficient accuracy the points at which drilling is likely to be successful. Here, properly applied, physics may make its contribution to enhance the probability of success.

We are not now concerned with the divining rod and similar devices—similar, at any rate, in the respect that they can only be operated by persons specially endowed with certain obscure faculties. Sometimes the devices are dressed up to have the appearance of physical apparatus, and the methods are called geophysical; but all have this in common—that they are not capable of being independently checked, and for that reason may safely be ruled out of serious consideration. We are dealing with genuine physical methods which depend on the differences of physical properties of underground materials, and produce above the surface reliable indications, the measurement of which may provide valuable information regarding sub-surface structure.

It is important to emphasise at the outset that there is no question of physics being employed to the exclusion of geology. At the best the problems to be solved are extremely difficult, and the closest possible co-operation between the two sciences is essential. This alliance is implied in the term 'geophysics,' and for the successful development of this as a practical subject, geophysicists adequately trained both in physics and geology are the ideal personnel. Physics alone cannot solve problems of underground structure, whatever may be the efficiency of the method employed, for the unknown factors are far too numerous for a unique solution to be possible. The geologist must first indicate the kind of underground structure which is sought, and all the probable conditions under the region to be surveyed, before the physicist can even decide whether any available physical method

[1] Substance of two lectures delivered at the Royal Institution on Feb. 21 and 28.