THE STREET OF THE TOMBS, POMPEII.

THE Street of the Tombs is one of the most interesting features of Pompeii, as it is in an exceedingly good state of preservation, and teems with monuments interesting alike from an architectural and an historical point of view. The Romans, who practiced cremation, and merely preserved the ashes in the tombs, were not compelled by hygienic reasons to place their cemeteries outside the town, and were wont to devote a long street, usually at the extremity of the town, to the erection of handsome funeral monuments. As Pompeii was buried beneath a dense mass of cinders, and not overwhelmed by lava like Herculaneum, many of these monuments have been unearthed intact, although the less solidly built houses adjoining have suffered considerably. Indeed, the tombs are intermingled with houses of all kinds, residences of patricians, inns, and shops of every description, while on the hill on the right is the funeral pyre, where the bodies were burnt. The architecture of the funeral monuments is distinctly Grecian, and had evidently been designed and constructed with as much taste and skill as could be bestowed on the houses of the living. Thus, the first tomb on the right seen on entering this street, and which is shown in our illustration, is that built by a patrician lady, Nevoleia Tiche, wife of Caius Munazius. Before her death she had superintended the construction of the monument, which consists of a *bisellius* (chair of honor, which had been voted to her by the people), her portrait, and bas-reliefs representing a funeral rite and a ship entering port. Opposite is a tomb which a priestess of Ceres, Alleia Decimilla, built for her husband and son, while

examined was partially decomposed, he devoted all his attention to the metallic elements, with the brilliant results that are so well known. This crust, however, when examined on well preserved specimens, proves to be an essential part of the meteorite, in nothing inferior in interest to the metallic portion. Aside from the many interesting points of structure it presents in itself, it affords the best of proofs that the mass is really of meteoric origin, a matter which the peculiar properties of the iron had placed in doubt. Moreover, it appears to indicate the existence of a new group of meteorites intermediate in character between the holosiderites (composed wholly of iron) and the syssiderites (with stony portions disseminated in a spongy metallic mass) of Daubré, or perhaps rather it should be said that it throws new light on the real structure of the former.

This crust has been observed in two forms, which, from the aspect presented macroscopically, may be called provisionally the granitoid and the porphyritic. Although the former has not, like the latter, been observed adherent to the iron, it is evidently the primitive form and will be described first. It consists essentially of olivine in small, glassy, crystalline fragments and of plagioclase feldspar (apparently anorthite) in grains up to 6 or 8 millimeters in diameter. It is traversed by fine veinlets of black limonite, which has also stained the mass red, so that it presents the appearance of ordinary half decomposed granite. Under the microscope it has the aspect of a porphyry, the clear grains of olivine and such of the plagioclase as has escaped decomposition standing out brilliantly in a dark opaque ground mass consisting of limonite and of

cation of the margins of the grain, and not to decomposition, as in the case of the granitic rock.

In order to verify the idea that was at once suggested, that this porphyritic rock was the result of the partial fusion of the granitoid, I attempted to reproduce the peculiarities it presents. Taking quartz to represent the infusible element and labradorite for the fusible, I made a mixture of these minerals broken into small fragments, but not ground, adding some scraps of iron turnings and fragments of magnetic pyrites. After an incomplete fusion, the characters above mentioned were found to be very satisfactorily reproduced. The principal differences noted were that the glass was clearer and that those grains of feldspar which escaped complete vitrification were, for the most part, more troubled, many of them becoming quite opaque and with an abundant development of microlites.

It appears therefore that this meteorite presents a mixture of metallic and siliceous elements combined in a way that has not hitherto been noticed, and that the stony portion also presents a new type of structure in which olivine and plagioclase are the predominant elements. The partial vitrification of the stony portion seems to afford unequivocal evidence of the meteoric origin of the mass. The presence of silicates in part fusible, which would form a crust of low conducting power about the iron, will enable us to account satisfactorily for the low magnetism of portions of the mass noted by Lawrence Smith and Becquerel,* which led them to infer that the iron had crystallized below, a red heat, a fact which it would be difficult to reconcile with the incandescence of meteorites, if the mass had been composed exclusively of metal. It may be reason-

RECENT EXCAVATIONS AT POMPEII, ITALY.—THE STREET OF TOMBS.

the next tomb on the right is that of Caius Calventius Quietus, one of the most wealthy and generous inhabitants of the town, and who was also voted a *bisellius* for his liberality. The neighboring tomb is in memory of Quintus Amphictus, and is remarkable for the bas-reliefs which surround it, and which represent hunting scenes and gladiatorial combats, both on foot and on horseback, with very interesting inscriptions. Our view is from one of the latest photographs of the street, and shows the monuments which had been unearthed at the close of last year.—*London Graphic*.

THE SANTA CATHARINA METEORITE.

By ORVILLE A. DERBY.

HAVING recently undertaken, in company with Mr. Luiz Gonzaga de Campos, an examination of the Brazilian meteorites preserved in the National Museum of Rio de Janeiro, in which that gentleman has taken charge of the chemical and I of the physical part of the work, I have had occasion to make the following observations on the somewhat famous Santa Catharina meteorite, which seem to be of sufficient importance to warrant publication in advance of the more extended general memoir that we are now preparing.

M. Daubré, who has so thoroughly studied the metallic portion of this meteorite, mentions an ocherous crust in some of the specimens* which he took to be of secondary and terrestrial origin, and to be composed of a mass of limonite resulting from the oxidation of the iron, together with imprisoned fragments of the disintegrated granite on which the mass was stated to have rested. Misled by this conclusion (a very natural one if, as is to be presumed, the crust on the specimens

decomposed feldspar, and perhaps also of other decomposed silicates and of an original glassy ground mass, if the rock contained them. The olivine grains are beautifully clear, but much fractured, showing along the cracks a yellow discoloration which occasionally presents a beautiful botryoidal appearance. The specimens of this rock have unfortunately been hammer-dressed, so that they show nothing of the original surface. They represent, however, a thickness of several centimeters at least. No grains of metallic iron have thus far been detected in them but as points of the rock exert a slight influence on the magnetic needle, their presence is suspected. Minute grains that appear to be magnetite have been separated with the magnet, but have not yet been examined. The porphyritic rock forms a crust, 1 to 2 centimeters thick, completely enveloping an oblong rounded mass of iron, 18 centimeters long and 10 centimeters in diameter. This crust scales off readily, taking always a portion of the iron with it. Small fragments of iron are also scattered through it. The surface of this crust being somewhat decomposed and ocherous, the appearance of the entire mass, which may be called a meteoric individual, as it has evidently not been broken from a larger mass since the fall, is that of the concretionary masses of limonite common in decomposed granite and elsewhere. This is a true porphyry, consisting of grains of olivine with rare fragments of plagioclase scattered in a dark glassy ground mass which can only with difficulty be rendered transparent, when it presents a light reddish color. The mass is somewhat scoriaceous from the presence of numerous rounded cavities, and the glass presents a fluidal structure. The feldspar has much the same appearance as in the granitoid form, that is to say, a clear nucleus surrounded by an opaque portion. The nucleus, however, is not troubled as in that rock, and the opacity is, in this case, evidently due to vitrifi-

cation of the margins of the grain, and not to decomposition, as in the case of the granitic rock. It is hoped that material for investigating this and other questions may be obtained in a visit which Mr. Campos will shortly make to the place of fall for the purpose of collecting facts for the full history of this interesting meteorite.

The observations here presented suggest the suspicion that other large iron meteorites may present something analogous, and it is hoped that an opportunity may shortly be afforded for examining the famous Bemdego meteorite, which, judging from the descriptions of Mornay and of Spix, and Martius, contains stony portions. The former mentions a crust on the lower portion, and the latter state that it rested on a mass of granite fragments, which, in view of the above facts, may be suspected to have belonged to it. Both mention masses of quartz embedded in the iron, which are most probably of olivine.—*Amer. Jour. of Science*.

BEAUTIFUL MARBLES IN ALGIERS.

THE rediscovery of the ancient quarries where the beautiful antique marbles were obtained is interesting. An extensive quarry, covering two thousand acres, has been quite recently discovered in the province of Oran, near the Mediterranean coast, in Algiers. The deposit has been obtained by an Italian, who has constructed roads and begun operations. The deposit contains giallo antico, breccia, and cipoline, besides black and white marble. These fine colored stones can be laid on the wharf at Oran for about one dollar a cubic foot. The beautiful yellow marble, giallo antico, has, until this late rediscovery, been unknown, save by the fragments found in Roman ruins two or three years ago.

* Comptes Rendus, vol. lxxiv. p. 1508. *Études synthétiques de Géologie Expérimentale*, p. 536.

* Comptes Rendus, vol. xciii, p. 794, 1881. This Journal, March, 1882.