

HERCULANEUM MANUSCRIPTS.

There is scarcely an article of antiquity in the world, which has furnished mankind with a greater fund of entertainment, than the ruins of Herculaneum. Dionysius Halicarnensis conjectures, that this city began to exist about sixty years before the war of Troy, or about 1342 years prior to the Christian era. It continued to flourish about 1400 years, and was finally overwhelmed by an eruption of Mount Vesuvius, in the first year of the empire of Titus, A. D. 79.

Although it was well known that this city had existed, its exact situation remained a secret, from the time of its destruction, until the year 1713, when it was accidentally discovered by some laborers, who, in digging a well, struck upon a statue, on the benches of a theatre, into which they had entered. The depth at which this city now lies, beneath the present surface of the earth, varies from 70 to 112 feet. The incumbent mass of matter bears undeniable marks of six different volcanic eruptions, the strata of lava or burnt matter having distinct veins of vegetable soil between them.

From this subterraneous city, many articles of great curiosity have been taken up; and there is no doubt that many more still remain. Such as have been secured, are now scattered over Europe, and either lodged in public museums, or preserved in the cabinets of the curious. But, in addition to the busts, altars, paintings, vases, kitchen utensils, and appendages of opulence and luxury, many ancient manuscripts were discovered among the ruins. When these were first brought to light, great hopes were entertained, that original works of the classic writers would be recovered, and that the world would be enriched with some long lost literary treasures. But the sheets containing these manuscripts being rolled together, adhered so firmly, that the difficulty of separating them, without destroying the writing, was soon found to be a task which no one could hope fully to accomplish. To unroll these sheets, no effort that ingenuity could suggest, has been left untried, and no expense has been spared.

But it is only in a partial manner, that all the skill and laborious patience hitherto employed, have been crowned with success. The sheets unrolled, contain writing in the Greek language, but nothing of importance has thus far been presented to the literary world. Of these ancient manuscripts, many are at Madrid; but a great number remain at Pompeii, a village not far from the spot beneath which the ruins of Herculaneum lie. On these, additional experiments are repeatedly making; and from some recent efforts of our celebrated countryman Sir Humphrey Davy, the hopes of the learned have been greatly revived. Of the opinion entertained by this scientific gentleman, respecting the Herculaneum manuscripts, his chemical experiments to unroll them, his successes and hopes, an interesting account was published in No. XIII. of the Quarterly Journal of science. From this account we have taken the following extracts, which contain the essence of his observations.

Report of Sir Humphrey D.

"Having witnessed Dr. Sichi attempts to unroll some of the Herculaneum MSS., it occurred to me, that a chemical examination of the nature of the MSS., and of the changes they had undergone, might offer some data as to the best methods to be attempted for separating the leaves from each other, and rendering the characters legible.

"My experiments soon convinced me, that the nature of the MSS. had been generally misunderstood; that they had not, as is usually supposed, been carbonized by the operation of fire, and that they were in a state analogous to peat, or Bovey coal, the leaves being generally cemented into one mass by a peculiar substance which had formed during the fermentation and chemical change of the vegetable matter composing them, in a long course of ages. The nature of this substance being known, the destruction of it became a subject of obvious chemical investigation; and I was fortunate enough to find means of accomplishing this without injuring the characters or destroying the texture of the MSS.

"After the chemical operation, the leaves of most of the fragments perfectly separated from each other; and the Greek characters were in a high degree distinct: but two fragments were found in

peculiar states; the leaves of one easily separated, but the characters were found wholly defaced on the exterior folds, and partially defaced on the interior. In the other, the characters were legible on such leaves as separated; but an earthy matter, or a species of tufa, prevented the separation in some of the parts: and both these circumstances were clearly the results of agencies to which the MSS. had been exposed, during or after the volcanic eruption by which they had been covered.

"It appeared probable from these facts, that different MSS. might be in other states, and that one process might not apply to all of them; but even a partial success was a step gained; and my results made me anxious to examine in detail the numerous specimens preserved in the museum at Naples.

"An examination of the excavations that still remain open at Herculaneum immediately confirmed the opinion which I entertained, that the MSS. had not been acted on by fire. These excavations are in a loose tufa, composed of volcanic ashes, sand, and fragments of lava, imperfectly cemented by ferruginous and calcareous matter. The theatre, and the buildings in the neighbourhood, are encased in this tufa, and, from the manner in which it is deposited in the galleries of the houses, there can be little doubt that it was the result of torrents laden with sand and volcanic matter, and descending at the same time with showers of ashes and stone still more copious than those that covered Pompeii. The excavation in the house in which the MSS. were found, as I was informed by Monsig. Rosini, has been filled up; but a building, which is said by the guides to be this house, and which, as is evident from the engraved plan, must have been close to it, and part of the same chain of buildings, offered me the most decided proofs that the parts nearest the surface, *a fortiori*, those more remote, had never been exposed to any considerable degree of heat. I found a small fragment of the ceiling of one of the rooms containing lines of gold leaf and vermilion in an unaltered state; which could not have happened if they had been acted upon by any temperature sufficient to convert vegetable matter into charcoal.

"The state of the MSS. exactly coincides with this view: they were probably on shelves of wood, which were broken down when the roofs of the houses yielded to the weight of the superincumbent mass; hence many of them were crushed and folded in a moist state, and the leaves of some pressed together in a perpendicular direction, and all of them mixed in two confused heaps: in these heaps, the exterior MSS. and the exterior parts of the MSS. must have been acted on by water; and as the ancient ink was composed of finely-divided charcoal, suspended in a solution of glue or gum, wherever the water precolated continuously, the characters were more or less erased.

"Of the MSS. the greater number, those which probably were least exposed to moisture or air, (for till the tufa consolidated, air must have penetrated through it,) are brown, and still contain some of their volatile substance, or extractive matter, which occasions the coherence of the leaves; others are almost entirely converted into charcoal, and in these, when their form is adapted to the purpose, the layers may be easily separated from each other by mechanical means. Of a few, particularly the superficial parts, and which probably were most exposed to air and water, little remains except the earthy basis, the charcoal of the characters, and some of that of the vegetable matter, being destroyed; and they are in a condition approaching to that of the MSS. found at Pompeii, where the air, constantly penetrating through the loose ashes, there being no barrier against it as in the consolidated tufa of Herculaneum, has entirely destroyed all the carbonaceous parts of the papyrus, and left nothing but earthy matter. Four or five specimens that I examined were heavy and dense, like the fragment to which I referred in the introduction to this report, a considerable quantity of foreign earthy matter being found between the leaves and amongst the pores of the carbonaceous substance of the MSS., evidently deposited during the operation of the cause which consolidated the tufa.

"The number of MSS., and of fragments originally brought to the museum, as I was informed by Mr. Ant. Scotti, amounted to 1600; of these, 88 have been unrolled, and found in a legible state;

319 more have been operated upon, and more or less unrolled, and found not to be legible: 24 have been presented to foreign potentates.

"Amongst the 1265 that remain, and which I have examined with attention, by far the greatest number consists of small fragments, or of mutilated or crushed MSS., in which the folds are so irregular, as to offer little hopes of separating them so as to form connected leaves; from 80 to 120 are in a state which present a great probability of success; and of these the greater number are of the kind in which some volatile vegetable matter remains, and to which the chemical process, referred to in the beginning of this report, may be applied with the greatest hopes of useful results.

"One method only has been adopted in the museum at Naples for unrolling the MSS., that invented in the middle of the last century; it is extremely simple, and consists in attaching small pieces of gold-beater's skin to the exterior of the MSS., by means of a solution of isinglass, suffering the solution to dry, and then raising, by means of thread moved by wooden screws, the gold-beater's skin, and the layer adhering to it, from the body of the MS.: this method of unrolling has the advantage of being extremely safe; but is, likewise, very slow, three or four days being required to develop a single column of a MS. It applies, likewise, only to such MSS. as have no adhesive matter between the leaves; and it has almost entirely failed in its application to the class of MSS. which are found to have Roman characters, and where the texture of the leaf is much thicker. It requires, likewise, a certain regularity of surface in the MSS.

"The persons charged with the business of unrolling the MSS. in the museum, informed me, that many chemical experiments had been performed upon the MSS. at different times, which assisted the separation of the leaves, but always destroyed the characters. To prove that this was not the case with my method, I made two experiments before them, one on a brown fragment of a Greek MS., and the other on a similar fragment of a Latin MS., in which the leaves were closely adherent; in both instances, the separation of the layers was complete, and the characters appeared to the persons who examined them more perfect than before.

"I brought with me to Rome some fragments of Greek MSS., and one of a Latin MS.; and experiments that I have made upon them, induce me to hope, that a modification of the process just referred to will considerably assist the separation of the leaves, even when they are not adherent; and that another modification of it will apply to those specimens containing earthy matters, where the letters are not destroyed.

"Hitherto there have been no systematic attempts to examine in detail all the MSS. which contain characters, so as to know what is really worth the labor of unrolling and preserving; but this clearly is the plan which it would be most profitable and useful to pursue. The name of the author has generally been found in the last leaf unrolled; but two or three of the first columns would enable a scholar to judge of the nature of the work; and, by unrolling a single fold, it might be ascertained whether it was prose or verse, or historical, or physical, or ethical. By employing, according to this view, an enlightened Greek scholar to direct the undertaking, one person to superintend the chemical part of the operation, and from fifteen to twenty persons for the purpose of performing the mechanical labor of unrolling and copying, there is every reason to believe, that in less than twelve months, and at an expense not exceeding £2500 or £3000, every thing worth preserving in the collection would be known, and the extent of the expectations that ought to be formed, fully ascertained.

"It cannot be doubted, that the 407 papyri, which have been more or less unrolled, were selected as the best fitted for attempts, and were probably, the most perfect: so that, amongst the 100, or 120, which remain in a fit state for trials, even allowing a superiority of the method, it is not reasonable to expect, that a much larger proportion will be legible. Of the 88 MSS. containing characters, with the exception of a few fragments, in which some lines of Latin poetry have been found, the great body consists of works of Greek