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PHILOSOPHICAL  
TRANSACTIONS.

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- I. *An Account of a Journey to Mount Etna, in a Letter from the Honourable William Hamilton, His Majesty's Envoy Extraordinary at Naples, to Mathew Maty, M. D. Sec. R. S.*

S I R,

Naples, Oct. 17, 1769.

Read Jan. 18,  
1770.

**E**NCOURAGED by the assurances you give me, in your last obliging letter of the 15th of June, that any new communication upon the subject of volcano's would be received with satisfaction by the Royal Society, I venture to send you the following account of my late observations upon Mount Etna, which you are at liberty to lay before our respectable Society, should you think it worth its notice.

VOL. LX.

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After having examined with much attention the operations of Mount Vefuvius, during the five years, that I have had the honour of refiding as his majesty's minifter at this court, and after having carefully remarked the nature of the foil for fifteen miles round this capital, I am, in my own mind, well convinced, that the whole of it has been formed by explofion. Many of the craters, from whence this matter has iffued, are ftill vifible; fuch as the Salfaterra near Puzzole, the lake of Agnano, and near this lake a mountain compofed of burnt matter, that has a very large crater furrounded with a wall to inclofe the wild boars, and deer, that are kept there for the diverfion of his Sicilian majesty; it is called *Astruni*: the Monte Nuovo thrown up from the bottom of the lucrine lake in the year 1538, which has likewise its crater, and the lake of Averno. The iflands of Nifida and Procida are entirely compofed of burnt matter; the ifland of Ifchia is likewise compofed of lava, pumice, and burnt matter; and there are in that ifland feveral vifible craters, from one of which, no longer ago than the year 1303, there iffued a lava which ran into the fea, and is ftill in the fame barren ftate as the modern lavas of Vefuvius. After having, I fay, been accuftomed to thefe obfervations, I was well prepared to vifit the moft ancient, and perhaps the moft confiderable volcano that exifts; and I had the fatisfaction of being thoroughly convinced there, of the formation of very confiderable mountains by meer explofion, having feen many fuch on the fides of Etna, as will be related hereafter.

On the 24th of June last, in the afternoon, I left Catania, a town situated at the foot of mount Etna, or as it is now called Mon Gibello, in company with lord Fortrose and the canonico Recupero, an ingenious priest of Catania, who is the only person there, that is acquainted with the mountain : he is actually employed in writing its natural history, but I fear will not be able to compass so great and useful an undertaking, for want of proper encouragement.

We passed through the inferior district of the mountain called by its inhabitants La Regione Piemontese. It is well watered, exceedingly fertile and abounding with vines, and other fruit trees, where the lava, or, as it is called there, the Sciara, has had time to soften and gather soil sufficient for vegetation, which I am convinced from many observations, unless assisted by art, does not come to pass for many ages, perhaps a thousand years or more ; the circuit of this lower region, forming the basis of the great volcano, is upwards of one hundred Italian miles. The vines of Etna are kept low, quite the reverse of those on the borders of Vesuvius, and they produce a stronger wine, but not in so great abundance. The Piemontese district is covered with towns, villages, monasteries, &c. and is well peopled, notwithstanding the danger of such a situation. Catania, so often destroyed by eruptions of Etna, and totally overthrown by an earthquake towards the end of the last century, has been re-built within these fifty years, and is now a considerable town, with at least thirty-five thousand inhabitants. I do not wonder at the seeming security, with which these parts are inhabited, having been so long witness to the same near mount

Vesuvius. The operations of nature are slow; great eruptions do not frequently happen, each flatters himself it will not happen in his time, or if it should, that his tutelar saint will turn away the destructive lava from his grounds; then indeed the great fertility in the neighbourhoods of volcanos tempts people to inhabit them.

In about four hours of gradual ascent we arrived at a little convent of benedictine monks, called St. Nicolo dell' Arena, about thirteen miles from Catania, and within a mile of the volcano from whence issued the last very great eruption in the year 1669, a circumstantial account of which was sent to our court by a lord Winchelsea, who happened to be then at Catania in his way home, from his embassy at Constantinople. His lordship's account is curious, and was printed in London soon after; I saw a copy of it at Palermo, in the library of the prince Torremuzzo \*. We slept in the benedictines convent

\* It is intituled, A true and exact Relation of the late prodigious Earthquake and Eruption of Mount Ætna, or Monte Gibello; as it came in a letter written to his majesty from Naples, by the right honourable the earl of Winchelsea, his majesty's late ambassador at Constantinople, who in his return from thence, visiting Catania in the island of Sicily, was an eyewitness of that dreadful spectacle; together with a more particular narrative of the same, as it is collected out of the several relations sent from Catania; published by authority. Printed by T. Newcomb, in the Savoy, 1669, p. 38.

“ I accepted, says the author, the invitation of the bishop of  
 “ Catania to stay a day with him, that so I might be the better  
 “ able to inform your majesty of that extraordinary fire, which  
 “ comes from Mount Gibel, 15 miles distant from that city,  
 “ which, for its horridness in the aspect, for the vast quantity  
 “ thereof (for it is 15 miles in length, and 7 in breadth), for its  
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the night of the 24th, and passed the next morning in observing the ravage made by the abovementioned terrible eruption, over the rich country of the Piemontese. The lava burst out of a vineyard within

“ monstrous devastation and quick progress, may be termed an  
 “ inundation of fire, a flood of fire, cinders, and burning stones,  
 “ burning with that rage as to advance into the sea 600 yards,  
 “ and that to a mile in breadth, which I saw; and that which  
 “ did augment my admiration was, to see in the sea this matter  
 “ like ragged rocks, burning in four fathom water, two fathom  
 “ higher than the sea itself, some parts liquid, and throwing off,  
 “ not with great violence, the stones about it, which like a crust  
 “ of a vast bigness, and red hot, fell into the sea every moment,  
 “ in some place or other, causing a great and horrible noise,  
 “ smook, and hissing in the sea; and that more and more coming  
 “ after it, making a firm foundation in the sea itself. I stayed  
 “ there from 9 a clock on Saturday morning, to seven next  
 “ morning” (this must have been towards the middle or latter  
 end of April); “ and this mountain of fire and stones with  
 “ cinders, had advanced into the sea 20 yards at least, in several  
 “ places; in the middle of this fire, which burnt in the sea,  
 “ it hath formed like to a river, with its banks on each side very  
 “ steep and craggy, and in this channel moves the greatest  
 “ quantity of this fire, which is the most liquid, with stones  
 “ of the same composition, and cinders all red hot, swimming  
 “ upon the fire of a great magnitude; from this river of fire  
 “ doth proceed under the great mass of the stones, which are  
 “ generally three fathoms high all over the country, where it  
 “ burns, and in other places much more. There are secret con-  
 “ duits or rivulets of this liquid matter, which communicates  
 “ fire and heat into all parts more or less, and melts the stones  
 “ and cinders by fits in those places where it toucheth them,  
 “ over and over again; where it meets with rocks or houses  
 “ of the same matter (as many are), they melt and go away  
 “ with the fire; where they find other compositions, they turn  
 “ them to lime or ashes (as I am informed). The composition  
 “ of this fire, stones and cinders, are sulphur, nitre, quick-  
 silver, sal ammoniac, lead, iron, brass, and all other metals.  
 “ it moves not regularly, nor constantly down hill; in  
 a mile

a mile of St. Nicolo', and by frequent explosions of stones and ashes, raised there a mountain, which, as near as I can judge, having ascended it, is not less than half a mile perpendicular in height, and is certainly at least three miles in circumference at its

“ some places it hath made the valleys hills, and the hills  
 “ that are not high are now valleys. When it was night, I  
 “ went upon two towers, in divers places, and could plainly see  
 “ at ten miles distance, as we judged, the fire to begin to run  
 “ from the mountain in a direct line, the flame to ascend as  
 “ high and as big as one of the greatest steeples in your ma-  
 “ jesty's kingdoms, and to throw up great stones into the air ; I  
 “ could discern the river of fire to descend the mountain of a  
 “ terrible fiery or red colour, and stones of a paler red to swim  
 “ thereon, and to be some as big as an ordinary table. We could  
 “ see this fire to move in several other places, and all the coun-  
 “ try covered with fire, ascending with great flames, in many  
 “ places, smoking like to a violent furnace of iron melted,  
 “ making a noise with the great pieces that fell, especially those  
 “ which fell into the sea. A cavalier of Malta, who lives there,  
 “ and attended me, told me, that the river was as liquid where  
 “ it issues out of the mountain, as water, and came out like a  
 “ torrent with great violence, and is five or six fathom deep,  
 “ and as broad, and that no stones sink therein. I assure your  
 “ majesty, no pen can express how terrible it is, nor can all  
 “ the art and industry of the world quench or divert that which  
 “ is burning in the country. In 40 days time it hath destroyed  
 “ the habitations of 27,000 persons, made two hills of one,  
 “ 1000 paces high apiece, and one is four miles in compass ;  
 “ of 20,000 persons, which inhabit Catania, 3000 did only re-  
 “ main ; all their goods are carried away, the cannons of brass  
 “ are removed out of the castle, some great bells taken down,  
 “ the city-gates walled up next the fire, and preparations made  
 “ to abandon the city.

“ That night which I lay there, it rained ashes all over the  
 “ city, and ten miles at sea it troubled my eyes. This fire in  
 “ its progress met with a lake of four miles in compass, and it  
 “ was not only satisfied to fill it up, though it was four fathom  
 “ deep, but hath made of it a mountain.”

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basis. The lava that ran from it, and on which there are as yet no signs of vegetation, is fourteen miles in length, and in many parts six in breadth; it reached Catania, and destroyed part of its walls, buried an amphitheatre, an aqueduct, and many other monuments of its ancient grandeur, which, till then, had resisted the hand of time; and ran a considerable length into the sea, so as to have once formed a beautiful and safe harbour; but it was soon after filled up by a fresh torrent of the same inflamed matter, a circumstance the Catanians lament to this day, as they are without a port. There has been no such eruption since, though there are signs of many, more terrible, that have preceded it.

For two or three miles round the mountain raised by this eruption, all is barren, and covered with ashes; this ground, as well as the mountain itself, will in time certainly be as fertile as many other mountains in its neighbourhood, that have been likewise formed by explosion. If the dates of these explosions could be ascertained, it would be very curious, and mark the progress of time with respect to the return of vegetation, as the mountains raised by them are in different states; those (which I imagine to be the most modern) are covered with ashes only; others of an older date, with small plants and herbs, and the most ancient, with the largest timber trees I ever saw; but I believe the latter are so very ancient, as to be far out of the reach of history. At the foot of the mountain raised by the eruption of the year 1669, there is a hole, through which, by means of a rope, we descended into several subterraneous caverns, branching out and extending much farther  
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and deeper than we chose to venture, the cold there being excessive, and a violent wind frequently extinguishing some of our torches. These caverns undoubtedly contained the lava that issued forth and extended, as I said before, quite to Catania. There are many of these subterraneous cavities known, on other parts of Etna ; such as that, called by the peasants, La Baracca Vecchia, another La Spelonca della Palomba (from the wild pigeons building their nests therein), and the cavern Thalia, mentioned by Boccaccio. Some of them are made use of as magazines for snow ; the whole island of Sicily and Malta being supplied with this essential article (in a hot climate) from mount Etna ; many more would be found, I dare say, if searched for, particularly near and under the craters from whence great lavas have issued, as the immense quantities of such matter we see above ground must necessarily suppose very great hollows underneath.

After having passed the morning of the 25th in these observations, we proceeded through the second, or middle region of Etna, called La Selvosa, the woody, than which nothing can be more beautiful. On every side are mountains, or fragments of mountains, that have been thrown up by various ancient explosions ; there are some near as high as mount Vesuvius, one in particular, (as the canon our guide assured me, having measured it) is little less than one mile in perpendicular height, and five in circumference at its basis. They are all more or less covered, even within their craters, as well as the rich valleys between them, with the largest oak, chestnut, and fir trees, I every saw any where ; and indeed



it is from hence chiefly, that his Sicilian majesty's dock-yards are supplied with timber. As this part of Etna was famous for its timber in the time of the tyrants of Syracuse, and as it requires the great length of time I have already mentioned before the matter is fit for vegetation, we may conceive the great age of this respectable volcano. The chesnut-trees predominated in the parts through which we passed, and, though of a very great size, are not to be compared to some on another part of the Regione Selvosa, called Carpinetto. I have been told by many, and particularly by our guide, who had measured the largest there, called La Castagna di Cento Cavalli, that it is upwards of twenty-eight Neapolitan canes in circumference. Now as a Neapolitan cane is two yards and half a quarter, English measure, you may judge, sir, of the immense size of this famous tree. It is hollow from age, but there is another near it almost as large and sound; as it would have required a journey of two days to have visited this extraordinary tree, and the weather being already very hot, I did not see it. It is amazing to me that trees should flourish in so shallow a soil, for they cannot penetrate deep without meeting with a rock of lava, and indeed great part of the roots of the large trees we passed by are above ground, and have acquired, by the impression of the air, a bark like that of their branches. In this part of the mountain, are the finest horned cattle in Sicily; we remarked in general that the horns of the Sicilian cattle are near twice the size of any we had ever seen; the cattle themselves are of the common size. We passed by the lava of the last eruption in the year

1766, which has destroyed above four miles square of the beautiful wood abovementioned. The mountain raised by this eruption abounds with sulphur and salts, exactly resembling those of Vesuvius, specimens of which I sent some time ago to the late lord Morton.

In about five hours from the time we had left the convent of St. Nicolo dell' Arena, we arrived at the borders of the third region, called La Netta, or Scoperta, clean or uncovered, where we found a very sharp air indeed; so that in the same day, the four seasons of the year were sensibly felt by us, on this mountain; excessive summer heats in the Piemontese, spring and autumn temperature in the middle, and extreme cold of winter in the upper region. I could perceive, as we approached the latter, a gradual decrease of vegetation, and from large timber trees we came to the smaller shrubs and plants of the northern climates; I observed quantities of juniper and tanzey; our guide told us, that later in the season there are numberless curious plants here, and that in some parts there are rhubarb and saffron in plenty. In Carrera's history of Catania, there is a list of all the plants and herbs of Etna, in alphabetical order.

Night coming on, we here pitched a tent and made a good fire, which was very necessary, for without it, and very warm cloathing, we should surely have perished with cold; and at one of the clock in the morning of the 26th, we pursued our journey towards the great crater. We passed over valleys of snow that never melts, except there is an eruption of lava from the upper crater, which scarcely ever happens; the great eruptions are usually  
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from the middle region, the inflamed matter finding (as I suppose) its passage through some weak part, long before it can rise to the excessive height of the upper region, the great mouth on the summit only serving as a common chimney to the volcano. In many places the snow is covered with a bed of ashes, thrown out of the crater, and the sun melting it in some parts makes this ground treacherous; but as we had with us, besides our guide, a peasant well accustomed to these valleys, we arrived safe at the foot of the little mountain of ashes that crowns Etna, about an hour before the rising of the sun. This mountain is situated in a gently inclining plain, of about nine miles in circumference; it is about a quarter of a mile perpendicular in height, very steep, but not quite so steep as Vesuvius; it has been thrown up within these twenty-five or thirty years, as many people at Catania have told me they remembered when there was only a large chasm or crater, in the midst of the abovementioned plain. Till now the ascent had been so gradual (for the top of Etna is not less than thirty miles from Catania, from whence the ascent begins) as not to have been the least fatiguing; and if it had not been for the snow, we might have rode upon our mules to the very foot of the little mountain, higher than which the canon our guide had never been: but as I saw that this little mountain was composed in the same manner as the top of Vesuvius, which, notwithstanding the smok issuing from every pore, is solid and firm, I made no scruple of going up to the edge of the crater, and my companions followed. The steep ascent, the keenness of the air, the vapours of the

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sulphur,

sulphur, and the violence of the wind, which obliged us several times to throw ourselves flat upon our faces to avoid being over-turned by it, made this latter part of our expedition rather inconvenient and disagreeable. Our guide, by way of comfort, assured us that there was generally much more wind in the upper region at this time.

Soon after we had seated ourselves on the highest point of Etna, the sun arose and displayed a scene that indeed passes all description. The horizon lighting up by degrees, we discovered the greatest part of Calabria, and the sea on the other side of it; the Phare of Messina, the Lipari Islands, Stromboli with its smoking top, though at above seventy miles distance, seemed to be just under our feet; we saw the whole island of Sicily, its rivers, towns, harbours, &c. as if we had been looking on a map. The island of Malta is low ground, and there was a haziness in that part of the horizon, so that we could not discern it; our guide assured us he had seen it distinctly at other times, which I can believe, as in other parts of the horizon, that were not hazy, we saw to a much greater distance; besides, we had a clear view of Etna's top from our ship as we were going into the mouth of the harbour of Malta some weeks before; in short, as I have since measured on a good chart, we took in at one view a circle of above nine hundred English miles. The pyramidal shadow of the mountain reached across the whole island and far into the sea on the other side. I counted from hence forty-four little mountains (little I call them in comparison of their mother Etna, though they would appear great any where else) in the middle region on the Catania

tania side, and many others on the other side of the mountain, all of a conical form, and each having its crater; many with timber trees flourishing both within and without their craters. The points of those mountains, that I imagine to be the most ancient, are blunted, and the craters of course more extensive and less deep than those of the mountains formed by explosions of a later date, and which preserve their pyramidal form entire. Some have been so far mouldered down by time as to have no other appearance of a crater than a sort of dimple or hollow on their rounded tops, others with only half or a third part of their cone standing; the parts that are wanting having mouldered down, or perhaps been detached from them by earthquakes, which are here very frequent. All however have been evidently raised by explosion; and I believe, upon examination, many of the whimsical shapes of mountains in other parts of the world would prove to have been occasioned by the same natural operations. I observed that these mountains were generally in lines or ridges; they have mostly a fracture on one side, the same as in the little mountains raised by explosion on the sides of Vesuvius, of which there are eight or nine. This fracture is occasioned by the lava's forcing its way out, which operation I have described in my account of the last eruption of Vesuvius. Whenever I shall meet with a mountain, in any part of the world, whose form is regularly conical, with a hollow crater on its top, and one side broken, I shall be apt to decide such a mountain's having been formed by an eruption, as both on Etna and Vesuvius the mountains formed by explosion

explosion are without exception according to this description; but to return to my narrative.

After having feasted our eyes with the glorious prospect above-mentioned (for which, as Spartian tells us, the emperor Adrian was at the trouble of ascending Etna), we looked into the great crater, which, as near as we could judge, is about two miles and a half in circumference; we did not think it safe to go round and measure it, as some parts seemed to be very tender ground. The inside of the crater, which is incrusted with salts and sulphurs like that of Vesuvius, is in the form of an inverted hollow cone, and its depth nearly answers to the height of the little mountain that crowns the great volcano. The smoak, issuing abundantly from the sides and bottom, prevented our seeing quite down; but the wind clearing away the smoak from time to time, I saw this inverted cone contracted almost to a point; and, from repeated observations, I dare say, that in all volcanos, the depth of the craters will be found to correspond nearly to the height of the conical mountains of cinders which usually crown them: in short, I look upon the craters as a sort of suspended funnels, under which are vast caverns and abysses. The formation of such conical mountains with their craters are easily accounted for, by the fall of the stones, cinders, and ashes, emitted at the time of an eruption.

The smoak of Etna, though very sulphureous, did not appear to me so fetid and disagreeable as that of Vesuvius; but our guide told me that its quality varies, as I know that of Vesuvius does, according  
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to the quality of the matter then in motion within. The air was so very pure and keen in the whole upper region of Etna, and particularly in the most elevated parts of it, that we had a difficulty in respiration, and that, independent of the sulphureous vapour. I brought two barometers and a thermometer with me from Naples, intending to have left one with a person at the foot of the mountain, whilst we made our observations with the other, at sun rising, on the summit; but one barometer was unfortunately spoilt at sea, and I could find no one expert enough at Catania to repair it; what is extraordinary, I do not recollect having seen a barometer in any part of Sicily. At the foot of Etna, the 24th, when we made our first observation, the quicksilver stood at 27 degrees 4 lines, and the 26th, at the most elevated point of the volcano, it was at 18 degrees 10 lines. The thermometer, on the first observation at the foot of the mountain was at 84 degrees, and on the second at the crater at 56. The weather had not changed in any respect, and was equally fine and clear, the 24th and 26th. We found it difficult to manage our barometer in the extreme cold and high wind on the top of Etna; but from the most exact observations we could make, in our circumstances, the result was as abovementioned. The canon assured me, that the perpendicular height of mount Etna is something more than three Italian miles, and I verily believe it is so.

After having passed at least three hours on the crater, we descended and went to a rising ground, about a mile distant from the upper mountain we had just left, and saw there some remains of the foundation

dation of an ancient building ; it is of brick, and seems to have been ornamented with white marble, many fragments of which are scattered about. It is called the Philosopher's Tower, and is said to have been inhabited by Empedocles. As the ancients used to sacrifice to the celestial gods on the top of Etna, it may very well be the ruin of a temple that served for that purpose. From hence we went a little further over the inclined plain abovementioned, and saw the evident marks of a dreadful torrent of hot water that came out of the great crater at the time of an eruption of lava in the year 1755, and upon which phænomenon the canonico Recupero, our guide, has published a dissertation. Luckily this torrent did not take its course over the inhabited parts of the mountain, as a like accident on mount Vesuvius in 1631 swept away some towns and villages in its neighbourhood, with thousands of their inhabitants. The common received opinion is, that these eruptions of water proceed from the volcanos having a communication with the sea ; but I rather believe them to proceed merely from depositions of rain water in some of the inward cavities of them. We likewise saw from hence the whole course of an ancient lava, the most considerable as to its extent of any known here ; it ran into the sea near Taormina, which is not less than thirty miles from the crater whence it issued, and is in many parts fifteen miles in breadth. As the lavas of Etna are very commonly fifteen and twenty miles in length, six or seven in breadth, and fifty feet or more in depth, you may judge, sir, of the prodigious quantities of matter emitted in a great eruption



eruption of this mountain, and of the vast cavities there must necessarily be within its bowels. The most extensive lavas of Vesuvius do not exceed seven miles in length; the operations of nature on the one mountain and the other are certainly the same; but on mount Etna, all are upon a great scale: As to the nature and quality of their lavas, they are much the same; but I think those of Etna rather blacker, and in general more porous, than those of Vesuvius. In the parts of Etna that we went over I saw no stratas of pumice stones, which are frequent near Vesuvius, and cover the ancient city of Pompeia; but our guide told us, that there are such in other parts of the mountain. I saw some stratas of what is called here Tuffa, it is the same that covers Herculaneum, and that composes most of the high grounds about Naples; it is upon examination a mixture of small pumice stones, ashes, and fragments of lava, which is by time hardened into a sort of stone. In short I found, with respect to the matter erupted, nothing on mount Etna that Vesuvius does not produce, and there certainly is a much greater variety in the erupted matter and lavas of the latter, than of the former; both abound with pyrites and crystallizations, or rather vitrifications. The sea shore at the foot of Etna, indeed, abounds with amber, of which there is none found at the foot of Vesuvius. At present there is a much greater quantity of sulphur and salts on the top of Vesuvius than on that of Etna; but this circumstance varies according to the degree of fermentation within, and our guide assured me he had seen greater quantities on Etna at other times. In our way back to Catania, the canon shewed me a

little hill covered with vines, which belonged to the jesuits, and, as is well attested, was undermined by the lava in the year 1669, and transported half a mile from the place where it stood, without having damaged the vines.

In great eruptions of Etna, the same sort of lightening, as described in my account of the last eruption of Vesuvius, has been frequently seen to issue from the smোক of its great crater. The ancients took notice of the same phænomenon, for Seneca (lib. ii. Quæst. Nat.) says,—“ *Ætna aliquando multo igne*  
 “ *abundavit, ingentem vim arenæ urentis effudit,*  
 “ *involutus est dies pulvere, populosque subita nox*  
 “ *terruit, illo tempore aiunt plurima fuisse tonitrua et*  
 “ *fulmina.*”

Till the year 252 of Christ, the chronological accounts of the eruptions of Etna are very imperfect; but as the veil of St. Agatha was in that year first opposed to check the violence of the torrents of lava, and has ever since been produced at the time of great eruptions, the miracles attributed to its influence having been carefully recorded by the priests, have at least preserved the dates of such eruptions. The relicks of St. Januarius have rendered the same service to the lovers of natural history, by recording the great eruptions of Vesuvius. I find, by the dates of the eruptions of Etna, that it is as irregular and uncertain in its operations as Vesuvius. The last eruption was in 1766.

On our return from Messina to Naples, we were becalmed three days in the midst of the Lipari Islands, by which we had an opportunity of seeing that they have all been evidently formed by explosion; one of  
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them, called Vulcano, is in the same state as the Solfaterra. Stromboli is a volcano, existing in all its force, and, in its form of course, is the most pyramidal of all the Lipari Islands; we saw it throw up red hot stones from its crater frequently, and some small streams of lava issued from its side, and ran into the sea. This volcano differs from Etna and Vesuvius, by its continually emitting fire, and seldom any lava; notwithstanding its continual explosions, this island is inhabited, on one side, by about an hundred families.

These, as well as I can recollect, are all the observations that I made with respect to volcanos, in my late curious tour of Sicily; and I shall be very happy should the communication of them afford you, or any of our countrymen (lovers of natural history), satisfaction or entertainment.

I am, sir,

with great regard and esteem,

your most obedient

humble servant,

Wm. Hamilton.