

than the whole mass of the mountain ; and in 1669, when 77,000 persons were destroyed, the lava covered eighty-four square miles.

According to Professor Dana, 15,400,000,000 cubic feet of matter flowed from Kilauea in the eruption of 1840—a mass equal to a triangular ridge 800 feet high, two miles long, and a mile wide at the base.

*New Islands formed by Volcanic Agency.*—History abounds with examples of new islands rising out of the sea by volcanic action. Such were Delos, Rhodes, and the Cyclades, situated in the Grecian Archipelago, and described by Pliny, the naturalist, and other ancient writers. In more modern times, small islands have risen in the Azore group ; such as Sabrina, in 1811, which was 300 feet high, and a mile in circumference ; but after some time it disappeared ; another in 1720, was six miles in circumference. In 1707, the island called Isola Nuova, was thrown up near Santorini, and continues to this day. Just before the great eruption of Skaptar Jokul in Iceland, in 1783, a new island appeared off the coast ; which, however, subsequently disappeared. In 1796, a new island rose to the height of 350 feet, having two miles of circumference, in the Aleutian group, east of Kamtschatka, which is permanent. In 1806 another permanent island rose in the same vicinity, four geographical miles in circumference. In the same archipelago, in 1814, another peak arose, which was 3,000 feet high ; and which remained standing a year afterwards. In those where the cone does not sink back beneath the sea, it is probably composed of the more solid lavas, such as trachyte, or basalt.

On Fig. 120 is exhibited the eruption by which Sabrina, mentioned above, was produced.

The rise of these islands is sometimes connected with submarine volcanoes. In July, 1831, a volcanic island rose up through the sea off the coast of Sicily, and was called Graham's Island. In August it was 180 feet high, and one and a third miles in circumference ; but the part above water being composed of loose materials, disappeared in two or three years, leaving a rocky shoal.

These islands are not always raised to their full height by a single paroxysm of the volcanic force ; but by a succession of efforts for months and even years.

Very many large islands appear to be wholly, or almost en-