

Anniversaries of Science

August 24, 79—The eruption of Mt. Vesuvius which destroyed Herculaneum, Pompeii and Stabiae took place.

My uncle was at Misenum, where he was in personal command of the fleet. On the ninth day before the calends of September at about the seventh hour (1 p. m.), my mother, observing the appearance of a cloud of unusual size and shape, mentioned it to him. . . . Immediately upon hearing her remark he called for his shoes, and ascended to a spot from which he could more easily observe this marvelous phenomenon. The cloud was to be seen gradually rising upwards, though from the great distance it was uncertain from which of the mountains it arose; it was afterwards, however, ascertained to be Vesuvius. In appearance and shape it strongly resembled a tree; perhaps it was more like a pine than anything else, with a stem of enormous length, reaching upwards to the heavens, and then spreading out in a number of branches in every direction. I have little doubt that either it had been carried upwards by a violent gust of wind, and that the wind dying away, it had lost its compactness; or else that, being overcome by its own weight, it had decreased in density and become extended over a large surface. At one moment it was white, at another dingy and spotted, just as it was more or less charged with earth or with ashes.

To a man so eager as he was in the pursuit of knowledge, this appeared to be a most singular phenomenon, and one that deserved to be viewed more closely.

The elder Pliny accordingly crossed the bay and went to the home of his friend Pomponianus in Stabiae where he remained until sometime in the night.

The court-yard which led to his apartment had now become filled with cinders and pumice-stones to such degree that if he had remained any longer in the room, it would have been quite impossible for him to leave it. On being aroused, he immediately rejoined Pomponianus and the others, who had in the meanwhile been sitting up. They then consulted together whether it would be better to remain in the house or take their chance in the open air, as the building was now rocking to and fro from the violent and repeated shocks, while the walls, as though torn up from their very foundations, seemed to be at one moment carried in this direction, at another in that. Having adopted the latter alternative, they were now alarmed at the showers of light calcinated pumice-stones that were falling thick about them—a risk, however, to which, as a choice of evils, they had to submit. In taking this step I must remark that, while with my uncle it was reason triumphing over reason, with the rest it was only one rear getting the better of the other. Taking the precaution of placing pillows on their heads, they tied them on with towels, by way of protection against the falling stones and ashes.

—Pliny the Younger, in a letter to Tacitus written at the time of the eruption.

The spinning-jenny, with which one spinner could spin 120 threads, was invented by a poor English weaver about 1750.

August 29, 1831—Faraday obtained the first indications that an electric current can induce another in a different circuit.

The good time was now come. The first paragraph in the laboratory notebook is, "Experiments on magnetism." His first experiment, detailed in the second paragraph, records the discovery by which he will be forever known.

"I have had an iron ring made (soft iron), iron round and $\frac{3}{8}$ ths of an inch thick, and ring six inches in external diameter. Wound many coils of copper round, one half of the coils being separated by twine and calico; there were three lengths of wire, each about twenty-four feet long, and they could be connected as one length, or used as separate lengths. By trials with a trough each was insulated from the other. Will call this side of the ring A. On the other side, but separated by an interval, was wound wire in two pieces, together amounting to about sixty feet in length, the direction being as with the former coils. This side call B.

"Charged a battery of ten pairs of plates four inches square. Made the coil on B side one coil, and connected its extremities by a copper wire passing to a distance, and just over a magnetic needle (three feet from wire ring), then connected the ends of one of the pieces on A side with battery: immediately a sensible effect on needle. It oscillated and settled at last in original position. On breaking connection of A side with battery, again a disturbance of the needle. . . ."

Writing to his friend R. Phillips, September 23, he says, "I am busy just now again on electro-magnetism, and think I have got hold of a good thing, but can't say. It may be a weed instead of a fish that, after all my labor, I may at last pull up."

—Jones: *Life and Letters of Faraday*

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PHYSICS

Do You Know about Magnets?

The following interesting problem is given in "Scientific Paradoxes and Problems," by A. S. E. Ackermann (London: *Old Westminster Press*):

"Given two straight bars of steel identical in every respect with the exception that one of them is magnetized, in what way can it be determined which piece is magnetized? No third article of *any kind* is to be used. You may not even balance one or both bars on a finger or finger nail, but you may hold the bars in your hands."

Many physicists, engineers and other scientists to whom this problem has been put have been stumped. Think a bit about properties of magnets, and see if you can figure out the answer before next week, when we will publish it in the NEWS-LETTER.

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Possibility of making artificial silk was discussed by a British scientist in the seventeenth century.

Summer Measles Dangerous

Beware of measles in August and September. The Metropolitan Life Insurance Company has just made a study of death rates among its policy holders that reveals that more measles cases die in these two months than at any other time of the year.

Though the regular measles season is late winter and early spring it is up to parents, say health authorities, to exercise every precaution to safeguard the young victims that fall a prey to the disease during this dangerous period.

In the meantime scientific research is closing in on the germ that causes this most contagious of diseases. Drs. J. H. Musser, C. W. Duval and R. J. Hibbard, of Tulane University, New Orleans, have been working with a streptococcus, apparently identical with one first described by Dr. Ruth Tunnicliff of the John McCormick Institute for Infectious Diseases at Chicago.

The investigators at Tulane isolated their germs from the blood of measles patients in a recent epidemic in New Orleans. From them Dr. Musser prepared a toxin that gave a skin reaction when injected into susceptible people but which failed to show on the skins of those who had had measles. This is considered fairly conclusive proof that the cause of measles has been located. The next logical steps of working out preventive and curative serums are probable developments to be expected in the near future.

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PALEONTOLOGY

New Fossil Porpoise

Porpoises, little brothers of the whales, once swam in the shallow seas that are now dry land in California. A newly discovered fossil, reported by Dr. William K. Gregory and Dr. Remington Kellogg of the American Museum of Natural History, links California of a hundred thousand years ago with South America of today, for the bones dug up by a San Diego naturalist, Charles K. Sternberg, closely resemble those of a small group of living porpoises that are now known only from certain rivers of the southern part of South America. The teeth of the newly discovered fossils are shaped like little battle-axes.

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