

Anniversaries of Science

May 31, 1881—Pasteur inoculated 25 vaccinated and 25 unvaccinated sheep with anthrax to prove the efficacy of vaccination against germ diseases. The vaccinated sheep were unharmed, the unvaccinated controls died in two days.

The animals were collected at Pouilly-le-Fort, near Melun, on the property of M. Rossignol, a veterinarian who originated the idea of the experiment and who was to watch it. "Be sure not to make a mistake in the bottles," said Pasteur gaily, when on the fifth of May we were leaving the laboratory in order to make the first inoculations with the vaccine.

A second vaccination was made on the 17th of May and every day Chamberland and I would go to visit the animals. On these repeated journeys from Melun to Pouilly-le-Fort, many comments were overheard, which showed that belief in our success was not universal. Farmers, veterinarians, doctors, followed the experiment with active interest, some even with passion. In 1881 the science of microbes had scarcely any partisans; many thought that the new doctrines were baleful, and regarded it as an unexpected piece of good fortune that had drawn Pasteur and his staff out of the laboratory to be confounded in the broad daylight of a public experiment. They were going then with one blow to put an end to these innovations, so compromising to medicine, and to find again security in the same traditions and ancient practices, for the moment threatened!

In spite of all the excitement aroused by it, the experiment followed its course; the trial inoculations were made the 31st of May, and the rendezvous was appointed for the second of June to determine the result. Twenty-four hours before the time decided upon, Pasteur, who had rushed into the public experiment with such perfect confidence, began to regret his audacity. For some moments his faith was shaken, as though he feared the experimental method might betray him. A mental tension too long continued had brought about this reaction, which, however, did not last long. The next day, more assured than ever, Pasteur went to verify the brilliant success which he had predicted. In the multitude which thronged that day at Pouilly-le-Fort, there were no longer any who were incredulous; only admirers.

—Duclaux: *Pasteur, the History of a Mind*.

June 5, 1752—Benjamin Franklin proved that lightning is electricity by flying a kite tipped with steel points during a thunderstorm.

Benjamin Franklin next turned his attention to the subject of atmospheric electricity, with brilliant success. Thunderstorms had hitherto been regarded as due to the explosions of gases in the upper atmosphere, but Franklin had recorded a number of important resemblances between the phenomena of lightning and those of the electrical discharge as he knew it from the Leyden jar. These he set down in his note-book as follows: "Electrical fluid agrees with

lightning in these particulars: (1) giving light; (2) colour of the light; (3) crooked direction; (4) swift motion; (5) being conducted by metals; (6) crack or noise in exploding; (7) subsisting in water or ice; (8) rending bodies it passes through; (9) destroying animals; (10) melting metals; (11) firing inflammable substances; (12) sulphurous smell." He determined to apply the property of points in "drawing off the electric fluid" to see if he could "draw down" the lightning, using a metal wire attached to a kite for the purpose. His experiment, one of the most famous in the history of science, was a complete success, and led almost immediately to the installation of lightning conductors on all large buildings.

—Ivor B. Hart: *Makers of Science*.

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ZOOLOGY

New Rhinoceros

A scaly monster of the pre-human ages of the earth, surviving into modern times in the almost unvisited swampy fastnesses of southern Java, is reported to the scientific journal *Die Umschau* by Dr. P. Vageler. It is described as a one-horned rhinoceros, related to a form already known elsewhere in the East Indies but differing from it in that its almost naked hide is closely covered with small, hard, horny scales. It also has enormous front teeth, like those of a hippopotamus. It has often been described by the natives under the name "Tanggiling," which means "scaly beast," but Europeans were incredulous, regarding these reports as folklore. A few professional hunters among the whites had killed specimens; but they could obtain such high prices from the Chinese, who use the hide and horns of rhinoceroses in medicine, that they were secretive about the business and did not share their knowledge with scientists. Finally, however, photographs were brought out of the jungle, showing very clearly that the animal is something entirely new to science. Now that its existence has been authenticated it is expected that efforts will be made to secure living specimens for zoological parks.

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BOTANY

Save Roses From Disease

The brown canker disease of roses which has been troublesome in many eastern rose gardens for a number of years was discussed by Anna E. Jenkins of the Federal Bureau of Plant Industry in the *American Rose Annual*. In the opinion of Miss Jenkins, brown canker is probably one of the most important diseases of out-door roses and it seems to be spreading as well as increasing in severity. The fungus responsible

for this disease does its chief damage by cankers on the shoots which are girdled or killed. The dead area of the cankers develops, in most cases, a brown or buff color from which the name of brown canker naturally arose. The disease may be a cause of great loss in plants stored over winter or in rose cuttings. It apparently spreads readily.

To control the disease it is urged that care be taken to select for the rose garden only healthy plants. Careful pruning of diseased canes in early spring has not been as successful in keeping down the disease as might be expected. The author records, however, that use of Bordeaux mixture repeatedly during the summer and particularly during the early period of shoot formation appears to control the disease. It is recommended that a pound of fish-oil soap be added to each fifty gallons to make the mixture adhere to the canes.

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ZOOLOGY

The Earthworm

Pink and feeble though you look
Lowly and neglected,
There are powers in you that few
Persons have suspected.

Every day the whole veer round
Working all unseen,
Many shovelfuls of soil
Pass your lips between.

You're as dutiful I guess
As the strictest Quaker,
Casting up of earth each year
Sixteen tons an acre.

Thus the monuments of old
Swiftly have been buried,
Works of mighty Romans thus
To oblivion hurried.

Out of sight you drag your food
Vegetable leavings;
Let the air into the ground
Through your passage weavings.

You can grow new heads and tails
When you're cut in parts
Seldom sure your courage fails
With seven pairs of hearts;

You're hermaphrodite as well,
Two selfs in one span,
One end calls, "Hello, old gell!"
T'other, "How do, old man!"

—Anon.

From *The Agricultural Gazette and Modern Farming*, London

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