

Anniversaries of Science

March 3, 1845.—Sir John Franklin sailed with two ships, the *Erebus* and *Terror*, for the Arctic to find the Northwest Passage.

The agitation of the Royal Geographic Society for further exploration of the northern coast of America and search for the Northwest Passage, was successfully renewed when the return of James C. Ross from the Antarctic seas left two well-found ships, the *Erebus* and the *Terror*, available. Captain John Franklin, just returned from seven years of service as governor of Tasmania, was 59 years old, but as full of Arctic enthusiasm as ever. He would not apply for the duty, but when all turned to him as fitted by experience and capabilities for this dangerous service, he accepted unhesitatingly. He said: "No service is dearer to my heart than the completion of the survey of the northern coast of America and the accomplishment of the Northwest Passage."

—A. W. Greely: *A Handbook of Polar Discoveries*.

March 4, 1913.—The first Federal law protecting migratory birds was enacted.

The indirect economic importance of birds is enormous. Without them agriculture would be impossible, and all plant-life would be endangered by the rapid multiplication of insects and of small mammals. In this respect very many species of birds are to be classed as wholly beneficial, very many more as largely beneficial, and still others as at least neutral. . . . Even in the few cases where a bird seems at first sight to be largely or wholly injurious to human material interests, it may play a part in the scheme of things which cannot be eliminated without disastrous results. The balance of nature, as many lessons have shown, is not to be disturbed with impunity, whether it be by the reduction or extinction of birds on the one hand or by excessive preferential protection, or by the artificial introduction of inappropriate species into new areas, on the other.

—A. Landsborough Thomson: *Problems of Bird Migration*.

March 5, 1827.—Death of Alexander Volta, inventor of the voltaic battery.

In 1791 Galvani, professor of anatomy at Bologna, gave an account of his experiments on the contraction of frog's legs when touched with two different metals in series and, with much ability, supported the view that it was an electrical manifestation. He naturally supposed that the origin of the electrical disturbance was in the animal tissues. This was combated a year later by Volta, who referred the seat of the forces involved to the point of contact between the dissimilar metals, and gave good evidence that they were electrical. The effects, however, were very small, and interest flagged until 1800, when Volta invented the "pile," by means of which very appreciable results could be obtained. This at once excited much attention; and in the same year Nicholson and Carlisle in England in experimenting with the Voltaic pile observed the decomposition of water by

electrolysis, and shortly afterwards Humphry Davy advanced the chemical theory of the pile, which, after many years of struggle, eventually superseded the contact theory of Volta. There was a rapid advance in the knowledge of the electric current, of batteries, and of the electrolytic process. These experiments produced a profound effect upon chemistry through the electrochemical theory of Berzelius; and although this has long been given up, the most modern theories have, in a different form, reverted to the view that chemical forces are of electrical origin.

—Bumstead: *Physics in The Development of the Sciences*.

March 7, 1927.—Alexander Graham Bell was issued the patent on the telephone. Alexander Graham Bell in an address before the Telephone Pioneers of America in 1911, said:

I feel it a little presumptuous on my part to try to speak of the telephone to telephone men. You have all gone so far beyond me. Why, the little telephone system that I look back upon, what is it compared to the mighty system that goes through the whole extent of our country today. It is to you that this great telephone development is due, and I feel that it behooves me to speak very modestly of the little beginning that led to this great end. I cannot tell you anything about the telephone. I cannot speak to you about undulating current, intermittent current, and pulsatory current. I belong to the past; you belong to the present.

On January 1, 1926, there were 16,720,224 telephones in the Bell system in the United States.

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ENGINEERING

Smoke Dangers Manifold

Dangers to health and property from smoke in large cities are manifold and are inadequately handled by smoke ordinances, it was pointed out by H. B. Meller, chief of the Pittsburgh Bureau of Smoke Regulation at the recent meeting of the American Society of Mechanical Engineers.

Smoke irritates the sensitive membranes of eyes, nose, throat, lungs and the digestive tract, he said. It increases susceptibility to diseases affecting these parts of the body, diminishes the human working capacity and may hasten premature decay. It has a very important effect on the pneumonia death rate. Its effect on buildings is obvious. It is costly. Pittsburgh annually pays out millions of dollars for the privilege of being known as "the smoky city."

Smoke ordinances are not uncommon at the present time but they are inadequate to cover the dangers from smoke, Mr. Meller said. Ordinarily they regulate only the dense type of smoke which is actually less injurious than the light and invisible smokes. In controlling dense smoke the ordinance controls only the tar deposit,

which is but a small percentage of the products of combustion. The more dangerous products such as fine coke particles, ash, iron and sulphur oxides are emitted with light or invisible smokes and no attempt is made to regulate them.

Manufacturers and railroads are responsible for the greatest amount of the dense smoke emitted in the cities. They have cooperated with smoke ordinances satisfactorily. The thing now is to control the other types of smoke. The small heating plant is the real problem, it was pointed out, for it is scarcely ever regulated. Simple firing methods such as the use of coke would do much to better conditions.

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CHEMISTRY

Tung Oil in Florida

That American tung oil, an urgent need of the national paint and varnish industry, will begin coming into the market before 1928 is the belief expressed by Henry A. Gardner of the Institute of Paint and Varnish Research in a report to the American Chemical Society.

The project of developing an American tung oil industry was undertaken by the American paint and varnish industry some three years ago. Three hundred acres of land in the vicinity of Gainesville, Florida, were planted with tung trees to demonstrate to Florida farmers the possibilities of such a crop. Nurseries were established for distribution to other planters, and it was not long before one organization acquired a large amount of land near Gainesville and planted 1,200 acres of it in tung trees with seedlings from the nurseries. In this vicinity there are now about 300,000 tung trees, from one to two years old, some of which are bearing a substantial crop of seeds. The oil yield may range from 400 to 1,800 pounds per acre, Mr. Gardner says, beginning from the third to the ninth year. The average producing age of the trees has been estimated at from 25 to 30 years.

From these nurseries and from others established by the Florida Experiment Station, seedlings have been supplied to individuals in Alabama, Cuba, Florida, Georgia, Louisiana, Mississippi, South Carolina, Texas, the Philippine Islands, and Hawaii.

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New York health department records show a falling off of about 5,000 cases of diphtheria a year since the children have been immunized against it.