

## Science News a Century Ago

### Ericsson's Caloric Engine

In 1833 John Ericsson, the famous Swedish engineer, patented a form of hot air engine and his invention formed the subject of a lecture by Faraday on February 14, 1834, at the Royal Institution. Referring to this lecture, the *Mechanic's Magazine* said that "after the very favourable opinion we expressed of this invention it gave us no ordinary pleasure to hear it so well spoken of by so eminent authority, in all matters of science, as Dr. Faraday. He pronounced the theory on which the engine was constructed to be philosophically correct, and the arrangements for turning it to a practical account to be at once novel and ingenious, but expressed some doubts as to whether sufficient provision had been made for preserving that regular alternation of pressure which is necessary to keep the pistons in motion". In Church's "Life of John Ericsson", (vol. 1, p. 75) it is said: "Just as Faraday was preparing to appear upon the platform he came to the conclusion that he had made a mistake as to the principle of the expansion of air upon which the action of the machine depended. He accordingly commenced his lecture, greatly to the disappointment of Ericsson, by the announcement that he was unable to explain why the engine worked at all". According to the *Mechanic's Magazine*, Ericsson was not at the lecture owing to illness.

### Great Lenses in One Piece

"At the meeting [on February 14] of the Royal Society of Edinburgh . . . three splendid polyzonal lenses were exhibited by permission of the Commissioners of the Northern Lighthouses. One of these was made in Paris; another in London; and the third in Newcastle. The diameter of the outer zone of two of these lenses is 2 feet 6 inches, and that of the London instrument is three feet. Their focal distance is about three feet. At the desire of Mr. Robinson, the Secretary, a single argand burner was placed in the focus of one of the lenses, but the effect was feeble, as this instrument requires a powerful light. By exposing it to the rays of the sun it suddenly melts pieces of copper and other metals placed in its focus. The Newcastle lens is made of one piece of highly polished glass. Buffon, nearly a century ago, first suggested the idea of a polygonal burning glass; but the construction of this instrument has till now been considered beyond the skill of the artist, and the method of building them in separate pieces was afterwards suggested and practised . . . in this country and in France. Messrs. Corkton, however, the plate glass makers of Newcastle, at length triumphed over the difficulties which so long retarded the execution of Buffon's project. These lenses are about to be removed to Gulland Hill, where their effect will be fully tried, along with the light invented by Lieut. Drummond, from the experiment rooms of the Northern Lighthouse Board." ("Annual Register", 1834.)

### Liverpool and Manchester Railway

In the *Mechanic's Magazine* of February 15, 1834, is an article on the half-yearly report of the Liverpool and Manchester Railway, for July-December 1833. There had been a very considerable increase in traffic and a dividend of 9 per cent had been declared.

The total number of passengers booked had been 215,071 and the total quantity of goods carried 98,247 tons, beside 40,134 tons of coal. The number of trips of 30 miles performed by locomotives with passengers had been 3,253 and with merchandise 2,587. The figures showed an increase in the number of passengers of 32,248 and an increase in the weight of goods of 11,405 tons. The winter had been very wet and stormy, there had been great difficulty in keeping the railway in good order and the boisterous weather and the dirty state of the rails had impeded the passage of the trains; "assistant engines had frequently been required to ensure their progress even on the level parts of the way". Among other items mentioned was that gas coke was being tried in the engines in the place of Worsley coke at a cost per ton of less than a half.

### Death of Lionel Lukin

On February 16, 1834, Lionel Lukin, one of the pioneers of the lifeboat, died at Hythe, Kent, at the age of ninety-one years. Born at Dunmow, Essex, on May 18, 1742, Lukin became a London coach-builder having premises in Long Acre, where he continued in business until more than eighty years of age. Fertile in invention and with scientific leanings, he invented an adjustable bed for invalids, a raft for rescuing persons from under ice and a rain gauge. For a long period he kept a daily meteorological record. His experiments with boats were begun in 1784, when he altered a Norway yawl and tested it on the Thames. The following year he obtained a patent for his "unsubmersible boat". His claims included a method of construction for either sailing or rowing boats which would neither upset in violent gales nor sink if accidentally filled with water. He proposed to fit projecting gunwales, either hollow or filled with cork, together with watertight compartments at the stem and stern and under the seats, which would contain air or cork. His invention was submitted to many distinguished men and was tried at Ramsgate and Margate. He had, however, to contend with seafaring prejudices and his boats were in little request. A description of them was published by him in 1790. Lukin's invention was almost contemporary with that of the Shields boat-builder, Henry Greathead (1757-1816), through whose work lifeboats were introduced in the north of England.

### Royal Society Fellowship, 1834

One hundred years ago there was practically no restriction as regards the number of fellows that might be elected in the course of the regular meetings of the Royal Society. A statute, enacted in 1831, provided that no election for fellows or for foreign members should take place excepting on the first ordinary meetings of the Society in December, February, April and June. This remained in force until 1835, when it was repealed. In 1847 the plan of electing fifteen fellows annually became the rule, and in 1930 the number was increased to seventeen. The following were elected in February 1834: Capt. Francis R. Chesney, Thomas Copeland, Sir Edward Cust, James Horne, John Russell Reeves, Lieut.-Col. William H. Sykes, John Waterhouse. No foreign members were elected during the year 1834.

The custom of holding no meeting on the anniversary of the death of Charles I lapsed after January 30, 1834.