

Calendar of Industrial Pioneers.

February 23, 1860. Joseph Miller died.—Trained as a mechanical engineer at Boulton and Watt's, Miller in 1822 with Barnes established one of the most successful marine engineering works on the Thames. He was a promoter of screw propulsion, and for H.M.S. *Amphion* built the first set of direct-acting screw engines placed below the water-line.

February 24, 1815. Robert Fulton died.—Famous as the pioneer of steam navigation in the New World, Fulton was born in 1765, and in early life attained success as an artist. Afterwards in England and France he turned to mechanical pursuits; in 1800 he constructed a submarine, and in 1803 experimented with a steamboat on the Seine. He returned to America in 1806, and the following year built the *Clermont*, which, driven by an engine constructed by Boulton and Watt, ran successfully between New York and Albany. Among other vessels built by him was the *Demologos*, the first steam man-o'-war.

February 24, 1875. Marc Seguin died.—A nephew of the aeronaut Montgolfier, Seguin was the first to construct an iron-wire suspension bridge and one of the earliest of French railway engineers. In 1827 he invented the tubular boiler, and the same year applied it to a locomotive for the railway from St. Etienne to Lyons. He also made scientific investigations and endeavoured to develop the mechanical theory of heat.

February 26, 1834. Alois Senefelder died.—The inventor about 1798 of the art of lithography, Senefelder, who in his youth was connected with the stage, was led to his discovery through seeking for a cheap method of reproducing his comedies. He established a lithographic establishment at Munich, and afterwards was Director of the Bavarian Royal Lithographic Office.

February 27, 1794. Jean Rudolphe Perronet died.—Perronet has been called the Telford of France. From the office of the City Architect of Paris he entered the Government service, and in 1747 became the first director of the Ecole des Ponts et Chaussées founded by Trudaine. He was the first to introduce bridges with level roadways, and among his most notable works was the bridge across the Seine at Neuilly.

February 27, 1913. Sir William Henry White died. From an apprentice at Devonport Dockyard White rose to be Chief Constructor of the Navy, a post he held from 1885 to 1902. During this period he was responsible for the construction of 245 vessels costing about 100,000,000*l.* A great master of his profession, he added much to the literature of naval architecture, held the presidencies of various technical societies, and was instrumental in forming the Royal Corps of Naval Constructors.

February 28, 1875. Sir Goldsworthy Gurney died.—One of the pioneers of the steam road carriage, Gurney practised as a surgeon at Wadebridge and then in London. He was the inventor of the Drummond light, the steam blast, and a water-tube boiler, and in 1829 went from London to Bath in a steam-driven carriage at 15 miles an hour.

March 1, 1911. Robert McAlpine died.—McAlpine is regarded as the father of wood-pulp paper. Emigrating from Scotland to Massachusetts at the age of sixteen, he mastered the business of paper-making, and in 1867 produced the first sheet of paper made from ground wood-pulp, the initial step in the production of abundant supplies of cheap paper.

E. C. S.

Societies and Academies.

LONDON.

Royal Society, February 16.—Sir Charles Sherrington, president, in the chair.—L. Hill, D. H. Ash, and J. A. Campbell: The heating and cooling of the body by local application of heat and cold. When the hands are heated or cooled by water the amount of heating or cooling is large, but not constant for a given range of temperature. The degree of heating or cooling is obtained from the temperature of the skin over the median vein at the elbow, the thermometer used being coiled and insulated from the air. Loss of 20 to 25 kilo-calories of heat from the hands in thirty minutes, *i.e.* a loss almost equal to the basal metabolism, does not appreciably affect the body metabolism.—J. B. Cohen, C. H. Browning, R. Gaunt, and R. Gulbransen: Relationships between antiseptic action and chemical constitution, with special reference to compounds of the pyridine, quinoline, acridine, and phenazine series. Certain acridine derivatives, salts of diamino-acridine and the methochloride of this base, are extremely potent antiseptics. Pyridine and quinoline derivatives ("fragments" of the acridine molecule), a number of acridine derivatives, and some phenazine compounds were also investigated, but none approximate to diamino-acridine in antiseptic properties. Dealing with the acridine group, the presence of amino-groups increases antiseptic power, and effectiveness in serum is a characteristic of compounds with unsubstituted amino-groups, and especially of their methochlorides. Other radicals replacing the methyl group in the methochloride do not alter the antiseptic action, but substitution of alkyls in the amino-group tends to diminish antiseptic action, while acetylation or replacement of the amino-group destroys it. Antiseptic action on organisms of different types shows marked irregular variation.—D. T. Harris: Active hyperæmia. The lingual nerve contains true vaso-dilator and the sympathetic vaso-constrictor fibres; both are equally independent of the intervention of metabolites. Experiments show that increased blood-supply during muscular activity is due entirely to the products of metabolism, and of the metabolites estimated carbon dioxide and α -hydroxy organic acids were increased. Vaso-dilator nerves are concerned with the control of body temperature; active hyperæmia in the dog's tongue may be induced by reflex excitation of the vaso-dilator nerves through the stimulation of heat receptors in the skin.—B. B. Sarkar: The depressor nerve of the rabbit. The depressor nerve of the rabbit is connected in part with a special collection of ganglion-cells in the vagus, distinct from the ganglion of the trunk, which may extend into the superior laryngeal or the vagus trunk. These cells probably give rise to the afferent fibres of the depressor. The nerve is usually formed by two branches, one from the superior laryngeal and one from the vagus, and is connected with the inferior cervical ganglion, the root of the aorta, and the base of the heart. The left nerve of the pair is generally larger and contains more fibres than the right. The depressor contains medium-sized and very fine myelinated fibres, and others which are non-myelinated. Probably it is not wholly formed of afferent fibres, for these fine myelinated and non-myelinated fibres presumably belong to the autonomic nervous system and are efferent.—A. Lipschütz, B. Ottow, C. Wagner, and F. Bormann: The hypertrophy of the interstitial cells in the testicle of the guinea-pig under different experimental conditions. Partial castration often causes enormous hypertrophy of the interstitial tissue. This hypertrophy is not compensatory, for the tendency to