

Hooke calculated the vibration of sounds by the striking of the teeth of brass wheels, 1662.
Savart determined the number of vibrations belonging to a given note, about 1700.

Velocity of sound said to be 1473 feet in a second, by Gassendi; 1172 feet by Cassini, Romer, and others; 968 feet by Newton; 1090 feet, at the temperature of 32° Fahrenheit, by Tyndall; the velocity increases with the rise of temperature.

Chladni (who raised acoustics to an independent science) published his important discoveries on the figures produced in lavers of sand by harmonic chords, &c., in 1767, and since.

Cagniard-Latour invented the *Sirène* (which see), 1819.
Savart determined the range of the perception of the human ear to be from 7 to 24,000 vibrations a second, 1830.

Blot, Savart, Wheatstone, Lissacous, Helmholtz, Tyndall, Lord Rayleigh, and others in the present century have greatly increased our knowledge of acoustics.

Over-tones, harmonics, well investigated by Helmholtz; under-tones by Auerbach, 1878.
Tyndall's experiments off the South Foreland on fog-signals and gun-cotton, demonstrated that the transmission of sound is checked by the non-homogeneity of the air, independently of fog and rain, July, 1873.

The results of Tyndall's experiments showed, that the parabolic-muzzle gun with gun-cotton, and that of Sir Richard Collinson's gun-cotton rocket, are very effective fog-signals. Fine-grain gunpowder with howitzers is the best sound-producer; pebble powder the worst, 1874-7.

Sound produced by electricity, light, and from radiant heat, see *Telephony* and *Photophony*, 1881.

Mr. A. Stroh exhibits the attraction and repulsion (resembling magnetic) produced by sonorous vibrations in tubes to the Telegraph Engineers, 27 April, 1882.

ACRE, a land measure, formerly of uncertain quantity, and differing in various parts of the country, was reduced to a standard by Edward I., about 1305. In 1824 the standard here was ordered by statute to contain 4840 square yards.

ACRE, Acca, anciently Ptolemais, in Syria, was taken by the Saracens in 638; by the crusaders under Baldwin I. in 1104; by Saladin in 1187; and again by Richard I. and other crusaders, 12 July, 1191, after a siege of 2 years, with a loss of 6 archbishops, 12 bishops, 40 earls, 500 barons, and 300,000 soldiers. It was then named *St. Jean d'Acre*. It was retaken by the Saracens in 1291, when 60,000 Christians perished, and the nuns, who had mingled their faces, were put to death. Acre was gallantly defended by Djezzar Pacha against Bonaparte, till relieved by Sir Sidney Smith, who resisted twelve attempts by the French, between 16 March and 20 May, 1799, when Bonaparte retreated. Acre, as a Turkish pashalic, was seized 27 May, 1832, by Ibrahim Pacha, who had revolted. On 3 Nov. 1840, it was stormed by the allied fleet under Sir Robert Stopford, and taken after a bombardment of a few hours, the Egyptians losing upwards of 2000 in killed and wounded, and 3000 prisoners, while the British had but 12 killed and 42 wounded; see *Syria* and *Turkey*.

ACROBAT, from the Greek (*akron*, extremity, *baineo*, I go), a person who does difficult feats, rope dancing, &c. In the 19th century, Farioso, mdine, Saqui, sig, Diavolo, were celebrated. The French acrobat, Jean François Gravalet, popularly called Blondin, born in 1824, began his performances when five years old. See *Ningaro*, 1859; Crystal Palace, 1861-2. His last performance was at Belfast in Aug., 1896. He died at Niagara house, Ealing, London, 22 Feb., 1897.

ACROPOLIS, the ancient citadel of Athens, built on a rock. Near it stood the temple of Minerva, the Parthenon, which see. Other cities had similar fortresses.

ACROSTIC, a poem in which the first or last letters of each line, read downwards, form a word or sentence, is said to have been invented by Porphyrius Optalimus in the 4th century. Double acrostics became very popular in 1807.

ACS or ACZ (Hungary). The Hungarians under Görgey were defeated here by the Austrians and Russians, on 2 and 10 July, 1849.

ACT OF SETTLEMENT, &c.; see *Accession*, *Succession*, *Supremacy*, and *Uniformity Acts*.

The Act of Settlement passed in 1701, which secured to various persons the possession of forfeited estates of Irish rebels, was repealed by actuation by the Parliament summoned by James II. in May, 1689, and much confiscation of the property of Protestants ensued. The act was restored by William III. 1690.

ACTA DIURNA; see *Newspapers*.

ACTA SANCTORUM ("acts of the saints"), a work begun by the Jesuits. The first volume appeared in 1643; the publication was interrupted in 1704, when 54 volumes, bringing the work down to 15 October, had been published. The work was resumed by the Jesuits in 1837, and 6 more volumes had been named in 1807. The writers have been named *Bollandists*, from John Bolland, who published the first two volumes.

ACTINOMETER, an instrument to measure the heating power of the solar rays, invented by Sir John F. Herschel, and described by him in 1825. Others have since been invented. See *Sun*.

ACTIUM, a promontory of Acarnania, W. Greece, near which was fought, 2 or 3 Sept. 31 B.C., the battle between the fleet of Octavius Caesar, and that of Marc Antony and Cleopatra, which decided the fate of Antony; 300 of his galleys going over to Caesar. This victory made Octavius master of the world and the Roman empire is commonly dated 1 Jan. 30 B.C. (the *Actian Era*). The conqueror built Nicopolis (the city of victory), and instituted the Actian games.

ACTON BURNEL, or Shrewsbury. At the parliament held here by Edward I., Oct. 1283, the "statute of merchants" against debtors was enacted.

ACTONIAN PRIZE, see under *Royal Institution*.

ACTON MURDER, see *Trials*, 1880.

ACTRESSES appear to have been unknown to the ancients, men or eunuchs performing the female parts. Mrs. Colman was the first English public actress; she performed the part of *Ianthe* in Davenny's "Siege of Rhodes," in 1656. *Victor*.

ACTS OF THE APOSTLES, supposed to have been written by Luke in continuation of his Gospel. It terminates A.D. 64.

ACTS OF PARLIAMENT, OR STATUTES, see *Parliament* and *Statutes*. The following are among the most celebrated early statutes:—

Provisions of Merton, 1235-6.
Statute of Marlborough, 1267.

" of Bigamy, 1275-6.
" of Gloucester, the earliest statute of which any record exists, 6 Edw. I. 1278.

" of Mortmain, 1279.
Quo Warranto, Oct. 1280.

Statute of Merchants or Acton-Burnel, 1283.
Statutes of Wales, 1284.

" of Winchester, Oct. 1284.
" of Westminster, 1275, 1285, 1290.

Statute forbidding the levying of taxes without the consent of parliament, 1297.
" of Praemunire, 1306.

Statutes first printed in the reign of Richard III., 1483.
Statutes of the Realm, from Magna Charta to George I., printed from the original records and MSS. in 12 vols. folio, under the direction of commissioners appointed in 1801, 1811-28.

The statutes passed and printed annually in Abstracts are given in Between 1823 and 1829, and 443 repealed in 1829. The consolidation of the laws Peel; of these acts, large, and 225 to obsolete statutes (com repealed).

By the Statute Law Revision Act, 1863, wholly repealed, and similar acts since passed have been repealed, 1867.

" Acts of parliament, a Lord Brougham 12 Feb. The Interpretation Act 1410 acts (passed between wholly repealed, 1867.

" Chronological Table, end of 1869," published 1883, published 1884.

Publication of the revised 1876; 18 volumes published. Report of select committee, 1876.

ished July, 1875. New edition of the revised Statutes.

Short Titles Act passed, 1892. Agitation for improvement.

The greatest number of since 1800 was 570, in were local and personal.

In 1841, only 13 were of which two were public acts. In the number of acts, of public.

The number of public given in 1852, 88; in 1853, 13; 1856, 120; in 1857, 16; 1860, 154; in 1861, 134; 1864, 121; in 1865, 127; 1868, 130; in 1869, 117; 1872, 98; in 1873, 91; 1876, 81; in 1877, 69; 19 and 48 (new parliament 62; 1884, 78; 1885, 60; 1888, 66; 1889, 76; 1893, 73; 1894, 60; 1895, 44.

Acts in operation: 75 vol reported; Dec. 1892.

ACTS, in dramatic the Romans. *Five act* (Art of Poetry) as the

ACTUARY, an accountant. The Institute 1848, publishes its pro Magazine." International

May, 1898.

ADAM AND EVE Bible, 4004 B.C.; see C

ADAMITES, a sect 130, and to have been religious assemblies, asse sinned there would

Their chief was named elements, rejected prayer necessary to confess Christ

this name arose at Ant under Fandemus or 1 3000 soldiers and other

It became extinct soon but another of the same appeared shortly after

Picard, a Fleming, rove about 1415; it was suppl

ADDA, a river N. of after defeating the French