

of Sir P. Sidney and Languet, ed. Pears, 2, 46; Index to Strype's Works; Thomas's Hist. Notes, i. 395.] T. C.

BLAUW, WILLIAM HENRY (1793-1870), antiquary, was born in London 25 May 1793. He was educated at Eton and Christ Church, Oxford, where, after taking a first class in classics, he graduated B.A. in 1813, and M.A. in 1815. He was elected a fellow of the Society of Antiquaries in 1850; was treasurer of the Camden Society for many years, and member of many other learned societies. Blaauw resided at Newick, near Lewes, Sussex, and under his guidance the Sussex Archaeological Society was founded in 1846. He was the editor of the society's collections till 1856, when the eighth volume was issued, and was its honorary secretary until 1867. He died 26 April 1870.

Blaauw's chief work was a history of the barons' war of Henry III's reign, which was first published in 1844. It is a very careful production, is especially valuable in its topographical details, and forms the chief modern authority on its subject. Its author was engaged at the time of his death in preparing a revised edition, and this was issued under Mr. C. H. Pearson's editorship in 1871. Between 1846 and 1861 Blaauw contributed nearly thirty papers on Sussex archaeology to the 'Sussex Archaeological Collections.' He communicated a paper on Queen Matilda and her daughter to the 'Archæologia' (xxxii. 108) in 1846, and he exhibited many archaeological treasures at meetings of the Society of Antiquaries and of the Archaeological Institute in London. A portrait of Blaauw is prefixed to vol. xxii. of the 'Sussex Archaeological Collections.'

[Sussex Archaeological Collections, xxii. 9-11; index to the first twenty-five volumes of the Sussex Archaeological Collections, where a full list of Blaauw's papers may be found.]

S. L. L.

BLACADER or **BLACKADER**, **ROBERT** (d. 1508), archbishop of Glasgow, was the son of Sir Robert Blacader, of Tulliallan, by Elizabeth, daughter and coheirress of Sir James Edmestone, of Edmestone. He is first mentioned as a prebendary of Glasgow and rector of Cardross. On 23 June 1480 he sat among the lords of council as bishop elect of Aberdeen. He was translated to the see of Glasgow previously to February 1484. The see was erected into an archbishopric 9 Jan. 1492. On account of this a bitter rivalry ensued between him and the archbishop of St. Andrews, and the estates had to intervene to silence their quarrels. Archbishop Blacader was frequently

employed in the public transactions with the English, especially in 1505. Along with the Earl of Bothwell and Andrew Foreman, prior of Pittenweem, he negotiated a marriage between King James IV and Margaret, eldest daughter of Henry VII. In 1494 the archbishop sent up thirty persons from the district of Kyle, in Ayrshire, who had been convicted of the Lollard heresy by the ecclesiastical judicatories, for punishment by the civil power; but nothing further was done in the matter. He died 8 July 1508 (*Regist. Episcop. Glasg.* ii. 616). According to Knox (*Works*, i. 12) and Bishop Lesley (*Hist.* ed. 1830, p. 78), the latter of whom gives the date of his death as 26 July, he died in the Holy Land, during a pilgrimage to Jerusalem. David Laing, in 'Proceedings of the Scottish Society of Antiquaries,' ii. 222, quotes extracts from the contemporary diary of the Venetian, Maria Sanuto, describing the reception by the doge of Venice of the 'rich Scottish bishop,' who arrived there in May 1508 on his way to Jerusalem. This diary also states that the vessel from Jaffa, in Palestine, returned to Venice in November 1508, and that the 'rich bishop' was one of the twenty-seven pilgrims who died on the voyage.

[Keith's Scottish Bishops, ed. 1824, pp. 254-5; Gordon's Eccles. Chron. of Scotland, ii. 512-4; Knox's Works, ed. Laing, i. 7, 10, 12, vi. 663-4.] T. F. H.

BLACATER, ADAM (fl. 1319), was descended from a family of good position in Scotland, and after studying at several universities on the continent became successively professor of philosophy at Cracow in Poland, professor of the same subject at Bologna, and rector of one of the colleges of the university of Paris. He wrote 'Dissertatio pro Alexandro M. contra T. Livii locum ex decade i. lib. ix,' which was published at Lyons.

[Dempster's Hist. Eccles. Sect. Gent. (1627), 124; Tanner's Bibl. Brit. 102; Mackenzie's Scottish Writers, i. 420-2.]

BLACK, ADAM (1784-1874), politician and publisher, was the son of a builder in Edinburgh, and was born 20 Feb. 1784 in Charles Street, a few doors from the birth-place of Lord Jeffrey. He was educated at the High School of Edinburgh, and during one session attended the Greek class at the university. After serving an apprenticeship of five years to a bookseller in Edinburgh, he went to London, where he was for two years assistant in the house of Lackington, Allen, & Co., the 'Temple of the Muses,' Finsbury. In 1808 he returned to Edinburgh, where, after carrying on a bookselling business for

some years in his own name, he took his nephew into partnership, and established the house of Adam and Charles Black. On the failure of Archibald Constable & Co. in 1827 the firm acquired the copyright of the 'Encyclopædia Britannica,' the seventh and eighth editions of this important work being undertaken while he was head of the firm. In 1851 they purchased from the representatives of Mr. Cadell, for 27,000*l.*, the copyright of Sir Walter Scott's Waverley novels and other works, which they immediately began to issue in editions suited to all classes of the community with remarkable success.

Very soon after he settled in Edinburgh he began, at considerable risk to his business prospects, to take a prominent part in burgh and general politics as a liberal politician. As a member of the Merchant Company, of which he was elected master in 1831, his energetic advocacy of a thoroughgoing measure of burgh reform was of great assistance in hastening the downfall of close corporations, and in regard to the Corporations and Test Acts his procedure was equally uncompromising. Having become a member of the first town council of Edinburgh after the passing of the Reform Bill in 1832, he was chosen treasurer of the city at the time of its liquidation, and materially assisted in arranging its affairs. He was twice elected lord provost, and on account of his successful administration of the affairs of the city at this critical period, 1843-8, received the offer of knighthood, which he declined. In all prominent public schemes connected with the city he took an active interest, and on the foundation of the well-known Philosophical Institution in 1845 was elected its first president. He was instrumental in introducing Macaulay to the electors of Edinburgh, and, when the latter was elevated to the peerage in 1856, succeeded him as member for the city, which he continued to represent till 1865. His practical shrewdness and straightforward honesty secured him the special confidence of the leaders of the liberal party in parliament, by whom he was much consulted in matters relating to Scotland. He died in Edinburgh, in his ninetieth year, 24 Jan. 1874. By his wife, the sister of William Tait, of 'Tait's Magazine,' he left issue, and he was succeeded by his sons in the business of A. & C. Black. In recognition of his services to Edinburgh a bronze statue was in 1877 erected to his memory in East Prince's Street Gardens.

[Scotsman, 26 Jan. 1874; Men of the Time, 8th ed.; Crombie's Modern Athenians, ed. Scott Douglas (1882), pp. 179-83; Trevelyan's Life of Lord Macaulay; Nicolson's Memoirs of Adam Black (1885).] T. F. H.

BLACK, ALEXANDER, D.D. (1789-1864), Scottish theologian, was born in Aberdeen in 1789, where his father, John Black, owned a few fields and carried on the business of a gardener. He was educated at the grammar school and Marischal College, and after studying medicine devoted himself to preparation for the ministry. His abilities and application to study were so remarkable that, when a vacancy occurred in the chair of divinity in King's College, Aberdeen, he offered himself as a candidate, and went through the examinations prescribed to the applicants. His fellow-candidates were the late Dr. Mearns, then minister of Tarves, who was successful, and the late Dr. Love, of Glasgow. Young Black, though unsuccessful, attracted the attention of the Earl of Aberdeen, who on the promotion of Dr. Mearns to the chair presented him to the parish of Tarves, and there Black was ordained in 1818. From Tarves Black was transferred to Aberdeen in 1832 as professor of divinity in Marischal College. His great powers as a linguist and his very large and particular acquaintance with rabbinical literature caused him to be selected in 1839 by a committee of the general assembly, along with the Rev. Dr. Keith, St. Cyrus, Rev. R. M. McCheyne, Dundee, and Rev. A. A. Bonar, Collace, to go to the East to make inquiries as to the expediency of beginning a mission to the Jews. After a good many difficulties and trials Black and his brethren returned to Scotland, and an interesting report of their mission was presented to the general assembly. At the disruption in 1843, joining the Free church, he gave up his chair at Aberdeen and removed to Edinburgh, where he was connected with the New College. Referring to the linguistic powers of Black and his colleague, Dr. John Duncan (*Colloquia Peripatetica*), Dr. Guthrie used to say that 'they could speak their way to the wall of China;' yet no corresponding products of their learning were given to the public. Black published a 'Letter on the Exegetical Study of the Scriptures to the Moderator of the General Assembly of the Free Church.' He also contributed a discourse to the volume on the 'Inauguration of the New College.' He died at Edinburgh in January 1864.

[Report of a Mission of Inquiry to the Jews in 1839, by Rev. A. A. Bonar; Scott's Fasti; letter to the writer from Mr. Alexander Black, son of the subject of this notice.] W. G. B.

BLACK, JAMES (1788?-1867), physician, was born in Scotland about 1788. He was admitted a licentiate of the Edinburgh

College of Surgeons in 1808, and then entered the royal navy. At the end of the war he retired on half-pay and began practice at Newton Stewart, but shortly afterwards removed to Bolton, where he resided until 1839. From that date to 1848 he practised at Manchester, and again at Bolton until 1856. He eventually removed to Edinburgh, where he died on 30 April 1867, aged 79. Dr. Black was an M.D. of Glasgow, 1820; a licentiate of the Royal College of Surgeons, 1823; and F.R.C.P., 1860. He was for some time physician to the Bolton Infirmary and Dispensary, and to the Manchester Union Hospital; president of the British Medical Association, 1842; and of the Manchester Geological Society. His contributions to medical literature include: 1. 'An Inquiry into the Capillary Circulation of the Blood and the intimate Nature of Inflammation,' London, 1825, 8vo. 2. 'A Comparative View of the more intimate Nature of Fever,' London, 1826, 8vo. 3. 'A Manual of the Bowels and the Treatment of their principal Disorders,' London, 1840, 12mo. 4. 'Retrospective Address in Medicine,' 1842. 5. 'Observations and Instructions on Cold and Warm Bathing,' Manchester, 1846, 8vo. Dr. Black published several papers on geological subjects, and communicated to the Literary and Philosophical Society of Manchester 'Some Remarks on the Seteña and Belisama of Ptolemy, and on the Roman Garrison of Mancunium' (2nd edition, Edinburgh, 1856, 8vo). In 1837 he published a paper of 100 pages in the 'Transactions of the Provincial Medical and Surgical Association,' entitled 'A Medico-Topographical, Geological, and Statistical Sketch of Bolton and its Neighbourhood.' On the establishment of a free library in Bolton, Dr. Black was chosen as a member of the committee, and he published 'A few Words in aid of Literature and Science, on the occasion of opening the Public Library, Bolton,' 1853.

[Munk's Roll of the Royal College of Physicians, 1878, iii. 277; Brit. Med. Journal, 25 May 1867, p. 623; Whittle's Bolton-le-Moors, p. 372; Royal Society's Cat. of Scientific Papers, 1867, i. 401; Proceedings of the Geological Society, 1868, p. xxxviii]. C. W. S.

BLACK, JOHN (1783-1855), journalist, editor of the 'Morning Chronicle,' was born in a poor cottage on the farm called Burnhouses, four miles north of Dunse in Berwickshire. His father, Ebenezer Black, had been a pedlar in Perthshire, of the stamp of Wordsworth's hero in the 'Excursion.' In the decline of life he accepted employ-

ment at Burnhouses, and married Janet Gray, another worker on the farm. Four years afterwards Janet was left a widow with one daughter and a son, John, and before the latter had reached his twelfth year mother and sister died. The orphan was sheltered and fed by his mother's brother, John Gray, a labourer on the same farm, who sent him to the parish school at Dunse, four miles off. Black gained at Dunse a knowledge of English, Latin, and Greek. He became the friend of James Gray, scholar, poet, and missionary, of Adam Dickenson, of James Cleghorn, of Jock M'Crie, brother of the biographer of Knox, and others. At the age of thirteen Black was articled by his uncle to Mr. Turnbull, a writer of Dunse, with whom he remained four years. During this time he read all the books of the subscription library in the town, and formed a very creditable collection of his own. He accepted a well-paid clerkship in the branch bank of the British Linen Company, but was obliged to leave the town on account of a practical joke played upon one of the 'respectabilities.'

Black found a situation in Edinburgh in the office of Mr. Selkrig, an accountant, who, in addition to an adequate salary, allowed his clerk time to attend classes at the university. His official duties were strictly performed, his attendance in the lecture-rooms never failed, and he undertook any remunerative work that offered, notably some translations from the German for Sir David Brewster's 'Edinburgh Cyclopaedia.' He met with an intellectual companion in William Mudford, the son of a London shopkeeper. 'Cobbett's Political Register' was then a popular serial, and there Black and Mudford engaged in another 'battle of the books,' the former defending ancient classical study, the latter insisting on the acquisition of modern learning as better. 'Doctor Black, the feel-osopher,' seemed to be at a rather later time Cobbett's favourite aversion.

In Edinburgh Black is reported to have delivered a dozen challenges before he was thirty years old. His schoolfellow James Gray was now classical master at Edinburgh High School, and exercised a moderating influence upon him. In 1809 he was in the way of making a happy marriage with a lady from Carlisle, but the engagement was broken off by him because he was disappointed of an expected increase of income. The failure of this engagement seems to have had a demoralising effect upon Black. He fell into the coarse indulgences of low dissipation, quarrelled with his employer, from whom he was receiving a salary of 150*l.* a year, and distressed his best friends. His friend

Mudford was then in London and editor of a 'Universal Magazine,' to which Black contributed articles on the Italian drama and on German literature in 1807-8-9.

By Mudford's persuasion he left Edinburgh for London in 1810. Dr. C. Mackay gives as a doubtful statement of Black himself, that he walked with a few pence in his pocket all the way from Berwickshire to London, subsisting on the hospitality of farmers. He carried a letter of introduction to Mr. Cromek, engraver and publisher, who received him at once into his friendly home. Three months after his arrival in London he was engaged as a reporter by James Perry, an Aberdonian, who, with another Scotsman named Gray, had in 1789 become proprietors of the 'Morning Chronicle.' Besides reporting Black had to translate the foreign correspondence. As a reporter he was considered to be very rapid, but Mr. Proby, the manager of the paper, used to say that Black's principal merit consisted in the celerity with which he made his way from the House of Commons to the Strand. He was already, in 1810, engaged in translating into English 'Humboldt's Political Essay on New Spain,' which was published in four volumes (1811-12). In 1813 Black completed the translation of a quarto volume of 'Travels in Norway and Lapland, by Leopold von Buch,' and, in 1814, 'Berzelius on a System of Mineralogy.' In 1814 he translated 'Schlegel's Lectures on Dramatic Literature,' and the 'Memoirs of Goldoni.'

At the house of one of his London friends Black was introduced, in the autumn of 1812, to his friend's mistress, who was not averse to a marriage which her old lover seemed anxious to promote. Black fell into the snare, and five days later, in the month of December 1812, they were married. The union was a most unhappy one. His wife made no pretence of love for him. In the space of two months she had involved him in debt, sold some of his furniture, and clandestinely renewed acquaintance with her former lover. Black bore patiently with her whims. Before the beginning of March 1813 she left him altogether, and Black knew how much she and their common friend had befooled him. He challenged the betrayer. But the spell was not broken. His wife had only to write him a penitent letter to obtain from him the money supplies she demanded. In 1814, however, he sought a divorce. An arrangement was made that the wife should go to Scotland and be domiciled there long enough to sue for a divorce on *her* petition. The project, however, failed, the proof of domicile of both parties not being deemed

adequate by the court. Black, in full expectation of a divorce, had offered marriage to an old friend, who became his housekeeper and bore the name of Mrs. Black. The undivorced wife did not fail to extract money from her husband. This pertinacious persecution went on for many years.

This episode in Black's career explains the disorganisation of his official labours which led to a quarrel with Mr. Perry. Due explanation being given the breach was healed. In 1817 Mr. Perry's health was giving way, and the functions of editor gradually devolved on Black.

The 'Morning Chronicle' was the most uncompromising of all the opposition papers, and Black maintained its position, being much assisted by the counsels of Mr. James Mill. At one time there was scarcely a day that they did not walk together from the India House giving and receiving political inspiration. John Stuart Mill wrote of Black: 'He played a really important part in the progress of English opinion for a number of years which was not properly recognised. I have always considered Black as the first journalist who carried criticism and the spirit of reform into the details of English institutions. Those who are not old enough to remember those times can hardly believe what the state of public discussion then was. People now and then attacked the constitution and the boroughmongers, but no one thought of censuring the law or the courts of justice, and to say a word against the unpaid magistracy was a sort of blasphemy. Black was the writer who carried the warfare into these subjects, and by doing so he broke the spell. Very early in his editorship he fought a great battle for the freedom of reporting preliminary investigations in the police courts. He carried his point, and the victory was permanent. Another subject on which his writings were of the greatest service was the freedom of the press on matters of religion. All these subjects were Black's own' (*Private Letter*, 1869). At the outset of his editorial career he attracted much public attention by his determined condemnation of the authorities in their conduct at Manchester in the affair long known as the Peterloo massacre (16 Aug. 1819). In the matter of the queen's trial the 'Chronicle' leaned to the unpopular side, deeming her majesty guilty, and the circulation of the paper was greatly diminished.

In 1821 Mr. Perry died, and his executors sold for 42,000*l.* the newspaper which thirty years before had been bought for 150*l.* Black retained his post of editor, but the new proprietor, Mr. Clement, owner also of the 'Ob-

server' and of 'Bell's Life,' had not the public spirit of his predecessor, and the paper began to decline in a commercial sense. In 1834 it was again sold for the sum of 16,500*l.* to Sir John Easthope and two partners. The 'Times' had distanced the 'Chronicle,' when, by a sudden change in its politics in 1835, it caused numbers of its whig subscribers to abandon it and support the 'Chronicle.' Black was so elated by this turn of fortune that he exclaimed, 'Now our readers will follow me anywhere I like to lead them!'

In 1835 Black fought a duel with John Arthur Roebuck. The latter had published a pamphlet in which cowardice was attributed to the editor of the 'Chronicle.' A meeting took place at which the principals fired twice, and the seconds nearly engaged in mortal combat.

When Lord Melbourne returned to office (8 April 1835) he found a useful ally and a congenial companion in Black. A story is told of the prime minister having vowed he would make Black a bishop on an occasion when he was foiled of his intention to confer that dignity on Sydney Smith. Black supported the ministry with all his powers, and wrote some specially vigorous articles against Sir Robert Peel in 1839. Melbourne during his next administration professed a desire to serve Black, who declined the offer on the ground that he 'lived happily on his income.' 'Then by — I envy you,' said the peer, 'and you're the only man I ever did.' With Lord Palmerston he did not get on quite so well. He once vexed the soul of the busy foreign secretary by launching out into half an hour's dissertation on the ethnological peculiarities of the yellow-haired races of Finland, when the business of the interview was simply to know what the government meant to do at a certain crisis in foreign affairs. Lord Brougham was very intimate with 'Dear Doctor,' as he styled Black, a title derisively applied by Cobbett, and not agreeable to Black's ears. It was Black's great pleasure to encourage the budding talents of the young writers around him, and among others that of Charles Dickens, who began his literary career as a reporter for the 'Chronicle.' Latterly there was thought to be a decline of energy in the management of the paper, and Black, in 1843, received an intimation that his resignation would be accepted. Black, who was now sixty years old, had saved no money, and had to part with his beloved books, some 30,000 volumes. Friends and admirers rallied round him, and a sum, to which the proprietors of the 'Chronicle' contributed, was raised sufficient to buy him an annuity of 150*l.* His old friend Mr. Walter

Coulson placed a comfortable cottage at Snodland, near Maidstone, at his disposal, and there Black passed the remaining twelve years of his life in the study of his favourite Greek, chiefly the Septuagint version of the Scriptures, and in the assiduous practice of gardening. Black's Newfoundland dogs, Cato and Plutus, were as well known as himself. One of them rescued from the Thames a boy who subsequently attained a seat on the judicial bench. Mr. James Grant describes Black in his latter years as having 'the blunt and bluff appearance of a thickset farmer . . . never seen in the streets without being accompanied by a large mastiff (? Newfoundland), and a robust stick in his hand.' He died 15 June 1855.

[Hunt's Fourth Estate; Mackay's Forty Years' Recollections; Grant's Newspaper Press; Black's Private Papers.] R. H.

BLACK, JOSEPH, M.D. (1728–1799), an eminent chemist, was born in 1728 at Bordeaux, where his father, John Black, carried on the business of a wine-merchant. John Black was a native of Belfast, but of Scottish extraction, and married a daughter of Robert Gordon, of the Gordons of Hillhead in Aberdeenshire, like himself engaged in the Bordeaux wine trade, by whom he had eight sons and five daughters. The worth of his sterling character and well-informed mind obtained for him the friendship of Montesquieu. At the age of twelve Joseph Black was placed at a grammar school in Belfast, and in 1746 proceeded thence to the university of Glasgow. There he chose medicine as his profession, and became enamoured of chemistry through the teachings of William Cullen, the first in Great Britain to raise the science to its true dignity. Cullen noted Black's aptitude, promoted him from the class-room to the laboratory, and imparted to him, as his assistant, his own singular dexterity in experiment.

When Black went to Edinburgh to complete his medical education in 1750 or 1751, he found an active controversy in progress as to the mode of action of the lithontriptic medicines then recently introduced into the pharmacopœia. He took up the subject, and finding himself, in 1752, on the brink of an important discovery, he postponed taking his degree until its proofs were assured. There is, perhaps, no other instance of a graduation thesis so weighted with significant novelty as Black's 'De humore acido à cibus orto, et Magnesia alba,' presented to the faculty 11 June 1754. Developed and perfected, it was read before the Medical Society of Edinburgh 5 June 1755, published in the second

volume of 'Essays and Observations' (1756), with the title 'Experiments upon Magnesia alba, Quicklime, and some other Alkaline Substances,' and subsequently twice reprinted (1777 and 1782).

As a model for philosophical investigation this essay was, by Brougham and Robison, placed second only to the 'Optics' of Newton. Its importance in chemical history is twofold. By setting an example of the successful use of the balance, it laid the foundation of quantitative analysis; and by the distinction of qualities conveyed in it between 'fixed' and common air, it opened the door to pneumatic chemistry. Up to that time the causticity of alkalis after exposure to strong heat had been universally attributed to an acrid principle derived from fire. Black showed that they lost instead of gained in weight by calcination; and that what they lost was a kind of 'air' previously 'fixed' in them, and neutralising, by its acid qualities, their native causticity. The effervescence of 'mild' and non-effervescence of 'caustic' alkalis when dissolved in acids were alleged in countenance of the new theory, which, nevertheless, encountered a vigorous, though futile, opposition in Germany. It was pointed out in the same remarkable treatise that magnesia, until then generally held to be a variety of lime, formed, with the same acids, wholly different salts, and was consequently to be regarded as a distinct substance.

Black was fully aware of the vastness of the field of research thrown wide by the discovery (or rather individualisation) of fixed air, named by Lavoisier in 1784 'carbonic acid' (*Mém. de l'Acad.* 1781, p. 455). In 1757 he ascertained its effects upon animals, and its production by respiration, fermentation, and the burning of charcoal (*Lectures*, ii. 87-8). He also inferred its invariable presence, in small quantities, in the atmosphere. Here, however, he stopped, leaving the path which he had struck out to be pursued by Cavendish, Priestley, and Lavoisier.

On the removal of Cullen to Edinburgh, Black was appointed in 1756 to replace him in the chair of anatomy and chemistry in the university of Glasgow; but dissatisfied with his qualifications for the former post, he exchanged duties with the professor of medicine, and lectured during the ensuing ten years with much care and success on the institutes of medicine. He was at the same time in large practice as a physician, and devoted the most anxious care to the welfare of his patients. Nevertheless he found time to complete the second achievement in science with which his name remains associated. 'This is the discovery of what is termed 'latent

heat.' In 1756 he began to meditate on the perplexing slowness with which ice melts, and water is dissipated in boiling. He divined the cause in 1757, and ascertained it in 1761. A large quantity of heat, he found, is consumed in bringing about these changes in the state of aggregation, and is thus rendered insensible to the thermometer. The cause of this disappearance, according to modern theory, is the employment of the absorbed heat in doing work—that is, conferring 'potential energy' on material particles; in Black's view it was the formation of a quasi-chemical combination between those particles and the subtle fluid of heat. But this erroneous conception in no way detracted from the importance of his discovery. The decisive experiment of obtaining from water during congelation an amount of heat equal to that expended or rendered 'latent' in its liquefaction was performed in December 1761. This quantity he measured at rather more than would have sufficed to raise the temperature of the same weight of water 140° Fahrenheit (accurately 143°). He, however, considerably underestimated the latent heat of steam, fixing it, with his pupil Irvine's assistance, 9 Oct. 1764, at 750° (later at 810°) instead of 967°. The results of this brilliant investigation not only formed the basis of modern thermal science, but gave the first impulse to Watt's improvements in the steam-engine, and thereby to modern industrial developments. Black read an account of his successful experiments before a literary society in Glasgow, 23 April 1762, and from 1761 downwards carefully taught the doctrine of latent heat in his lectures, dwelling with sedate eloquence on the beneficent effects of the arrangement in checking and regulating the processes of nature. But he published nothing on the subject, and was thus scarcely entitled to complain if his ideas were appropriated with little or no acknowledgment. To the same society he detailed, 28 March 1760, a series of experiments instituted with the object of testing the validity of thermometrical indications. He originated, moreover, the theory of 'specific heat,' or of the various thermal 'capacities' of different bodies, but committed it to Irvine to work out.

Still treading in his master's footsteps, Black became, on Cullen's advancement to a higher post in 1766, professor of medicine and chemistry in the university of Edinburgh. His career thenceforward was exclusively that of a teacher. Restricting his medical practice to a narrow circle of friends, and abandoning all thought of original research, he concentrated his powers upon the effective discharge of his official duties. His success was con-

spicuous. During above thirty years he inculcated the elements of chemistry upon enthusiastic and continually growing audiences. 'It could not be otherwise,' Robison wrote in 1803. 'His personal appearance and manner were those of a gentleman, and peculiarly pleasing. His voice in lecturing was low, but fine; and his articulation so distinct that he was perfectly well heard by an audience consisting of several hundreds. His discourse was so plain and perspicuous, his illustrations by experiment so apposite, that his sentiments on any subject never could be mistaken, even by the most illiterate; and his instructions were so clear of all hypothesis or conjecture, that the hearer rested on his conclusions with a confidence scarcely exceeded in matters of his own experience' (BLACK'S *Lectures*, preface, lxii). His lectures had thus a powerful effect in popularising chemistry; and attendance upon them even came to be a fashionable amusement.

Black was a prominent member of the intellectual society by which Edinburgh was then distinguished. Amongst his intimates were his relative and colleague Adam Ferguson, Hume, Hutton, A. Carlyle, Dugald Stewart, and John Robison. Adam Smith, with whom he knit a close friendship at Glasgow, used to say that 'no man had less nonsense in his head than Dr. Black.' He was one of James Watt's earliest patrons, and kept up a constant correspondence with him. Though grave and reserved, Black was gentle and sincere, and it is recorded of him that he never lost a friend. He was at the same time gifted with a keen judgment of character, and with the power of expressing that judgment in an 'indelible phrase.' In person he is described as 'rather above the middle size; he was of a slender make; his countenance was placid, and exceedingly engaging' (THOMSON). As he advanced in years, Robison tells us, he preserved a pleasing air of inward contentment. Graceful and unaffected in manner, 'he was of most easy approach, affable, and readily entered into conversation, whether serious or trivial.' Nor did he disdain elegant accomplishments. In his youth he both sang and played tastefully upon the flute. He had talent for painting, and 'figure of every kind excited his attention . . . even a retort or a crucible was to his eye an example of beauty or deformity.' But love of propriety, the same authority informs us, was his leading sentiment. Indeed, his mind was so nicely balanced as to be deficient in motive power. He had all the faculties of invention, but lacked fervour to keep them at work. Hence the slackness with which he pursued discoveries

which his genius, as it were, compelled him to make.

A perhaps more prevailing reason for his inaction was the weakness of his constitution. The least undue strain, whether physical or mental, produced spitting of blood, and it was only by the most watchful precautions that he maintained unbroken, though feeble, health. From 1793, however, it visibly declined, and he led, more and more completely, the life of a valetudinarian. In 1795 Charles Hope was appointed his coadjutor in his professorship; in 1797 he lectured for the last time. The end came 6 Dec. 1799 (Dr. G. WILSON, in *Proc. Royal Soc. Edinburgh*, ii. 238), just in the way he had often desired. 'Being at table,' Ferguson relates, 'with his usual fare, some bread, a few prunes, and a measured quantity of milk diluted with water, and having the cup in his hand when the last stroke of the pulse was to be given, he appeared to have set it down on his knees, which were joined together, and in the action expired without spilling a drop, as if an experiment had been purposely made to evince the facility with which he departed.' The provisions of his will curiously illustrated the just but cold precision of his modes of thought. He divided his property, without specification of its amount, into 10,000 portions, 'parcelled to a numerous list of relatives, in shares, in numbers or fractions of shares, according to the degree in which they were proper objects of his care or solicitude.' He was never married, but lived on the best terms with his family. His morals were irreproachable, his habits abstemious, his frugality was free from parsimony. Indifferent to fame, he disliked the publicity of authorship, and never could be induced to vindicate claims which his friends held to be, in many quarters, encroached upon. He enjoyed, nevertheless, a unique reputation. Fourcroy called him 'the Nestor of the chemistry of the eighteenth century' (HOEFER, *Hist. de la Chimie*, ii. 353); Lavoisier acknowledged himself his disciple. Black, on his side, while professing the highest admiration for Lavoisier's genius, and admitting his discoveries, intensely disliked what he regarded as his premature generalisations. 'Chemistry,' he observed, 'is not yet a science. We are very far from the knowledge of first principles. We should avoid everything that has the pretensions of a full system' (*Lectures*, note xxvi.) This philosophic caution was eminently characteristic.

Amongst other honours Black was elected member of the Paris and St. Petersburg Academies of Sciences, of the Society of Medicine of Paris, as well as of the Royal Society

of Edinburgh, and of the Royal College of Physicians. He was, besides, first physician to his majesty for Scotland. It is worth notice that he made, in 1767, the first attempt to inflate a balloon with hydrogen (*Ed. Encycl.* iii. (pt. ii.) 553). His lectures were published by Robison in 1803 from notes found after his death, eked out by those of his hearers, in two quarto volumes, entitled 'Lectures on the Elements of Chemistry, delivered in the University of Edinburgh.' A German translation by Crell appeared at Hamburg in 1804-5, and again in 1818, in four vols. 8vo. Black communicated to the Royal Society of London a paper 'On the supposed Effect of Boiling upon Water in disposing it to freeze more readily, ascertained by Experiment' (*Phil. Trans.* lxxv. 124), and to that of Edinburgh 'An Analysis of the Waters of some Hot Springs in Iceland' (*Trans. R. Soc. Ed.* iii. 95). Two letters by him on chemical subjects were published, one by Lavoisier in the 'Annales de Chimie,' the other by Crell in his 'Collections' for 1783.

[Ferguson, *Trans. R. Soc. Ed.* v. 101 (Hist. of Soc.); Robison's Pref. to Black's Lectures; Thomas Thomson, M.D., Brewster's *Ed. Encycl.* iii. (pt. ii.), 548; Sir A. Grant's *University of Edinburgh*, ii. 395; *Bibl. Britannique*, xxviii. 133, 324 (1805); *Phil. Mag.* x. 157 (1801); *Ann. Phil.* iii. 324; Bromley's *Cat. of Engraved Portraits*, 383.] A. M. C.

BLACK, PATRICK, M.D. (1813-1879), physician, was son of Colonel Patrick Black, of the Bengal cavalry, and like his father was called after his ancestor, Sir Patrick Dun, president of the Irish College of Physicians in 1681. He was born at Aberdeen in 1813, was sent to Eton in 1828, matriculated at Christ Church in 1831, and graduated M.D. at Oxford in 1836. In 1842 he was elected assistant physician to St. Bartholomew's Hospital, in 1851 warden of its college, in 1860 physician to the hospital, and somewhat later lecturer on medicine in the school. Black was a tall and handsome man, and the trust which his open countenance encouraged was never disappointed. He was a careful observer, a just reasoner, well read in medicine, a scholar who enjoyed literature, a physician who, as one of his patients remarked, hastened no one into the grave, yet he never attained a large practice. That he was a man of considerable property perhaps stood in his way, but another reason was that he had so little belief in treatment that both students and patients perceived that he regarded his own prescription as a ceremonial observance rather than as a practical measure. He even questioned

the value of quinine as a remedy for ague. In 1855 Black wrote a short treatise: 'Chloroform; how shall we ensure safety in its administration?' In 1867 he revised the Latin part of the 'Nomenclature of Diseases' for the College of Physicians, of which he was a fellow and three times censor. In 1876 he published a popular lecture on 'Respiration,' a pamphlet on 'Scurvy,' and an 'Essay on the Use of the Spleen.' His sceptical turn of mind is noticeable in all: he doubts whether chloroform ever causes death except by simple suffocation, doubts whether lime juice prevents scurvy, and doubts whether the spleen does anything but regulate the current of the blood. His scepticism was an infirmity which prevented his accumulated observation from yielding its proper fruit, but it did not affect his personal relations with mankind. He was sound in his judgment of character, firm in his friendship, and universal in his kindness. He died on 12 Oct. 1879. His colleague, Dr. Reginald Southey, wrote his memoir in the *St. Bartholomew's Hospital Reports*, vol. xv., and his former house physician, Dr. R. Bridges, published in 1876 a Latin poem dedicated to Dr. Black, and describing in Ovidian verse his personal appearance, character, and manner of teaching.

[Southey's Memoir; personal knowledge.]

N. M.

BLACK, ROBERT, D.D. (1752-1817), Irish presbyterian minister, was born in 1752, the eldest son of Valentine Black, a farmer at Mullabrack, co. Armagh. In 1770 he entered the class of ethics under Dr. Thomas Reid at Glasgow. He was licensed by the Armagh presbytery, declined in 1776 a call to Keady, co. Armagh, and in the following year, on the death of Alexander Colville, M.D., the non-subscribing minister of Dromore, co. Down, he accepted the call of this congregation, which returned to the jurisdiction of the general synod of Ulster. Black was ordained at Dromore by the Armagh presbytery on 18 June 1777. On 15 Feb. 1782 he attended the convention of Irish volunteers at Dungannon as Captain. Robert Black, and seconded the resolution adopted in favour of catholic emancipation. Like other ministers of that date, he sometimes preached in regimentals, and with drumhead for book-rest. He attended also the second great Dungannon convention on 8 Sept. 1783, when his eloquence attracted the attention of Frederick Augustus, earl of Bristol and bishop of Derry, and of Robert Moore of Molenan near Derry. Hence his call to First Derry, where he was installed

by the Derry presbytery on 7 Jan. 1784 as colleague to David Young. On 2 Dec. 1788 he was elected synod agent for the *regium donum*, in succession to James Laing. He delivered an applauded oration at the centenary commemoration (7 Dec. 1788) of the closing of the gates of Derry. As agent for the royal bounty, he exerted himself to secure its augmentation; in 1792, by help of the Earl of Charlemont, Henry Grattan, and Colonel Stewart of Killymoon, the Irish parliament passed a favourable resolution, and 500*l.* a year was added to the grant, thus increasing the dividend from about 10*l.* to 32*l.* (Irish currency). In gratitude for his services the synod in 1793 presented Black with a piece of plate. The seditious tendencies now beginning to appear in the volunteer movement excited his alarm, and he delivered a solemn warning against them in a speech at a meeting of the parishioners of Templemore held in Derry Cathedral on 14 Jan. 1793 (see abstract in *Belfast News-Letter*, 25 Jan. 1793). He never, however, receded from the positions he had taken in favour of parliamentary reform and catholic emancipation. In the rebellion of 1798 he was strongly on the side of constituted authority, and had great influence as the friend and correspondent of Castlereagh. One form in which this influence was exercised was a further increase of the *regium donum*, which from 1804 was distributed in three classes (100*l.*, 75*l.*, and 50*l.*), the agent being henceforth appointed not by the synod but by the government. Black held this office till his death, and did not scruple to use the power it gave him. Opponents called him 'the unmitred bishop' and 'chief consul of the general synod.' In 1800 or 1801 the degree of D.D. was sent him by an American college. As a speaker he had no equal in his day. In theology he was strongly suspected of heresy, a view which is countenanced by the fact that in 1804 he endeavoured to secure as his colleague William Porter, whose Arianism was openly known. His local prestige was impaired by the circumstances of Castlereagh's defeat at the county Down election of 1805, but his influence at Dublin Castle was equally strong with all ministries. In 1809 the synod publicly thanked him for his exertions in procuring the act of parliament incorporating the widows' fund. In 1813 his controversy with William Steele Dickson, D.D. [q. v.], one of the chief victims of the rebellion of 1798, was ended by a synodical resolution declaring that words in a previous resolution (1799), complained of by Dickson, had been 'inaccurately used;' but Black's influence was still powerful

enough to cause the expulsion of an elder who, in the course of debate, had laid charges against him in connection with the bounty. Black was a strong opponent of the establishment of the Belfast Academical Institution (opened 1814); at the synod of 1815, in Black's absence from ill-health, a resolution was passed in its favour; in the same year government made the institution an annual grant of 1,500*l.* Next year the grant was withdrawn on political grounds, but Black vainly endeavoured, in two successive years, to procure the rescinding of the synod's resolution. His defeat was softened by a not very successful public dinner, given by his admirers in Belfast. Black was a man whose ambition could not brook repulses; his temperament alternated between geniality and gloom. Loss of leadership unhinged his spirit. He threw himself over the railing of Derry Bridge, and was drowned in the Foyle, on the evening of 4 Dec. 1817. His body appears to have been filched from its grave. There is a curious caricature engraving of Black in 'The Patriotic Miscellany,' 1805, a collection of squibs relating to the Down election of that year. It represents him as a short corpulent man, with a large head and strong profile. He had married his cousin, Margaret Black (who died in April 1824), and left three sons and two daughters. He published: 1. 'A Catechism.' 2. 'Substance of Two Speeches delivered at the Meeting of Synod in 1812, with an Abstract of the Proceedings relative to the Rev. Dr. Dickson,' Dublin, 1812.

[Glasgow Matriculation Book; Reid's Hist. Presb. Church in Ireland, 1853, vol. iii.; Withrow's Hist. and Lit. Mem. of Presbyterianism in Ireland, 2nd series, 1880; Porter's Irish Presb. Biog. Sketches, 1883; Min. of Gen. Synod, 1824.]
A. G.

BLACK, WILLIAM (1749-1829), physician, was born in Ireland; studied medicine (according to *MUNK, Coll. Phys.* iii. 367) at Leyden, and took his degree as M.D. there 20 March 1772 with an inaugural dissertation 'De diagnosi, prognosi, et causis mortis in febribus.' He received the license of the College of Physicians 2 April 1787, and afterwards practised in London, residing in Piccadilly. He appears to have retired from practice before his death, which occurred at Hammersmith in December 1829.

Black did not attain any remarkable eminence in his profession, but wrote some books which are not without value as illustrating the application of the statistical method to medicine. He was one of the first writers, at least in England, who

showed that statistics, which had been previously employed chiefly in political and commercial matters, might be of great service to the progress of medicine.

Being invited to deliver the 'annual oration' before the Medical Society of London, he expanded this lecture into an octavo volume, entitled 'A Comparative View of the Mortality of the Human Species at all Ages, and of Diseases and Casualties, with Charts and Tables,' published in 1788. Before half the first edition was sold he cancelled the remainder and brought out a second and corrected edition, as 'An Arithmetical and Medical Analysis of the Diseases and Mortality of the Human Species,' 8vo, London, 1789. In this his design was to exhibit births, mortality, diseases, and casualties as being subject to arithmetical proof, to construct in fact a 'medical arithmetic,' a phrase evidently suggested by the 'Political Arithmetic' of Sir W. Petty. Although the efforts of Black have long been eclipsed by the brilliant results of Louis, Quetelet, and others in the same field, they had considerable importance in their day. The 'Dissertation on Insanity' is an expansion of a chapter in this book, and was based on observations furnished by an official of Bethlehem Hospital. His 'Sketch of the History of Medicine' is a slight work, but was translated into French by Coray.

He wrote: 1. 'A Historical Sketch of Medicine and Surgery from their Origin to the Present Time, with a Chronological Chart of Medical and Surgical Authors,' 8vo, London, 1782. In French, Paris, an vi. (1798). 2. 'A Dissertation on Insanity, illustrated with tables from between two and three thousand cases in Bedlam,' 8vo, London, 1810; second edition 1811. 3. 'Observations, Medical and Political, on the Small-pox, the Advantages and Disadvantages of General Inoculation, and on the Mortality of Mankind at every age,' 8vo, London, 1781. 4. 'Reasons for preventing the French, under the mask of Liberty, from trampling on Europe,' 8vo, 1792. 5. 'Observations on Military and Political Affairs by General Monk,' new edition, 8vo, 1796 (the last on authority of *Biog. Dict. of Living Authors*, 1816). His portrait, engraved by Stanier, was published by Sewell, 1790.

[Munk's Coll. Physicians, ii. 367; *Biog. Dict. of Living Authors* (1816).] J. F. P.

BLACK, WILLIAM HENRY (1808–1872), antiquary, was the eldest son of John Black of Kintore, in Aberdeenshire, and was born 7 May 1808. From his mother, who came of a good family (the Langleys),

possessing estates in Oxfordshire and Buckinghamshire, he imbibed his love of religion, and also his thirst for antiquarian knowledge. He was educated at a private school, and at seventeen years of age became himself a tutor among families residing at Tulse Hill and neighbourhood.

As a reader at the British Museum he became acquainted with many literary men, through whose influence he obtained a situation in the Public Record Office, attaining at last to the position of assistant keeper. It was during the time he filled this post that he corrected the errors in Rymer's 'Fœdera.' He was a prolific writer, especially on antiquarian subjects. He prepared an edition of the British part of the 'Itinerary of Antoninus' (never issued), and contributed to Samuel Bentley's 'Excerpta Historica.' He catalogued the manuscripts of the Ashmolean Museum at Oxford, the Arundel MSS. in the library of the College of Arms, and Colfe's library at Lewisham, and left behind him a monograph on the Roman mile, which still awaits editing and publication.

At the time of his death he was in nomination for, and would have been elected on, the council of the Society of Antiquaries. He was one of the earliest members of the British Archæological Society, the Surrey, London and Middlesex, and Wiltshire Archæological Societies, and the founder of the Chronological Institute of London, Palestine Archæological Association, and Anglo-biblical Institute, besides being a member of the Camden Society.

His religious views were somewhat peculiar. He was the pastor of a small sect called the Seventh Day Baptists, whose chapel is in Mill Yard, Leman Street, Whitechapel, and maintained that Saturday was the Sabbath. Black died 12 April 1872. As a conscientious and painstaking antiquary, he has had few equals in the present century.

[Private information.]

J. A.

BLACKADDER, ADAM (*f.* 1674–1696), covenanter, was second son of the elder John Blackadder [q. v.], brother of Dr. William Blackadder [q. v.], physician to William III, and of Lieutenant-colonel John Blackadder [q. v.] He was born about 1659. He was bred to the mercantile profession in Stirling, and in November 1674, while still an apprentice, he was, along with several others, apprehended, because he had not subscribed the 'Black Bond' of history, and for attending conventicles. The entire household remained steadfast to their father. His eldest brother (Dr. Blackadder) presented a petition to the privy council, and obtained his temporary re-