

quality, and a very small part of the classical portion of it has alone stood the test of time. In an article in 'Fraser's Magazine' for February 1853, which was afterwards published in pamphlet form, and has been attributed, correctly, as we believe, to Dr. J. W. Donaldson, the author of the 'New Cratylus,' the attempt was made in very forcible language to throw discredit on the whole of Arnold's classical schoolbooks. But the unmeasured vituperation of the criticism, which attracted considerable attention at the time, is only very partially justified. In a temperate reply, written a few weeks before his death, Arnold successfully rebutted some of the more sinister imputations on his character introduced into the article; and he justly remarks, in reference to the multiplicity of his works, that 'regular industry with a careful division of time and employment, carried on, with hardly any exception, for six days in every week, will accomplish a great deal in fifteen years.' The popularity of a few of the books that Donaldson specially denounced has, moreover, survived his fierce attack, and his Latin and Greek 'Prose Compositions,' new editions of which, revised by leading scholars, appeared in 1881, are valued highly at the present day by many teachers of eminence.

[Gent. Mag. (new series), xxxix. 667; Athenæum for 1853, i. 353; Brit. Mus. Cat.; Arnold's Few Words in Answer to the Attack on my Classical School Books (1853).] S. L. L.

ARNOLD, WILLIAM DELAFIELD (1828-1859), Anglo-Indian official and novelist, the second son of Thomas Arnold, D.D., was born at Laleham, 7 April 1828, and was educated at Rugby. He was elected a student of Christ Church, Oxford, in 1847, and in the following year proceeded to India as ensign in the 58th regiment of native infantry. He soon became an assistant commissioner in the Punjab, and in 1856 was appointed by Sir John Lawrence director of public instruction. The department was new, and its organisation fell entirely upon Arnold, who, after much invaluable service, was obliged to quit India on sick leave, and died at Gibraltar on his way home, 9 April, 1859. His wife, Frances Anne, daughter of Major-general Hodgson, had died shortly before in India. Their joint memories are celebrated by his brother Matthew in 'A Southern Night,' one of the most beautiful memorial poems in our language. Arnold's name is further perpetuated by an annual distribution of medals, bearing his likeness, to the best pupils in the schools which he founded, provided from a fund subscribed by his fellow-

workers in the Punjab. He is the author of 'Oakfield, or Fellowship in the East,' a novel in two volumes, published in 1853 under the pseudonym of 'Punjabee.' It depicts the struggles of a young officer of exceptional culture and seriousness to elevate the low tone of the military society about him, and the trials and problems forced upon him by this peculiar form of quixotism. It is well written and deeply interesting, imbued in every line with the spirit of the author's illustrious father; but, as is usually the case when the ethical element largely predominates, is open to the charge of insufficient sympathy with types of character alien from the writer's own. He also translated Wiese's 'Letters on English Education' (1854), and published in 1855 four lectures, treating respectively of the Palace of Westminster, the English in India, Caste, and the Discovery of America.

[Prospective Review, x. 274-303; information from Miss Frances Arnold.] R. G.

ARNOT, HUGO (1749-1786), historical writer, was son of a merchant at Leith, where he was born 8 Dec. 1749. He changed his name from Pollock to Arnot on succeeding to his mother's property of Balcormo, Fifeshire. He became an advocate 5 Dec. 1772. In 1777 he published a satirical paper, called an 'Essay on Nothing,' read before the Speculative Society, and made himself unpopular by his sarcasms. In 1779 he published his 'History of Edinburgh' (a second edition appeared in 1817), and in 1785 a 'Collection of Celebrated Criminal Trials in Scotland.' Both works were pirated in Ireland. He published the second at his own expense in defiance of the Edinburgh booksellers, and the gross proceeds were 600*l.* His books show reading and shrewdness. He became prematurely old from asthma, and his irritability and caustic language hindered his success at the bar. Many anecdotes are told of his eccentricity. He wrote many papers on local politics, opposed local taxation, and is said to have retarded for ten years the erection of the South Bridge in Edinburgh. He died 20 Nov. 1786, and left eight children. He was a favourite subject with John Kay, the Edinburgh caricaturist, who took full advantage of the extreme slimmness of his figure.

[Kay's Edinburgh Portraits, with biographic sketches, Nos. v, viii, lxvi, cxxxii, and pp. 16, 25, 157, 324, ed. 1877; Anderson's Scottish Nation.]

ARNOT, WILLIAM (1808-1875), preacher and theological writer, was born at Scone, where his father was a farmer, 6 Nov. 1808. In early life he was apprenticed to a

gardener; but the deep impression made on his mind by the death of a religiously minded brother led him to study for the ministry. In his university career in Glasgow he gained distinction in spite of his poverty, especially in the Greek classes. He had for classfellows two men, whose biographies he afterwards wrote: James Halley, who died quite early, and James Hamilton, afterwards minister of the National Scotch Church in Regent Square, London. Arnot was of an honest, joyous, unconventional, hearty nature, with a dash of originality almost amounting to eccentricity. Writing to his father he revealed the true secret of his character: 'I love, in a greater or less degree, every person whom I know, and also all that I do not know; and this is one grand source of my happiness.'

Soon after completing his theological studies he was called, in 1838, to be minister of St. Peter's Church in Glasgow, one of the new churches built under the extension scheme of Dr. Chalmers. He soon became one of the most popular ministers of the city. His ministry, which after 1843 was carried on in connection with the Free Church, was marked by an intense love of nature, united with a poetical temperament; by sympathy with young men; by ardent advocacy of temperance, and a strong appreciation of ethical christianity. He strongly sympathised with all movements fitted to advance the welfare of the working class.

In the year 1863, on the appointment of Dr. Rainy to a professorship, Arnot was called to be minister of one of the leading congregations of the Free Church in Edinburgh, where for the last ten years of his life he was a conspicuous figure. During that time he edited a monthly religious magazine, called the 'Family Treasury.' He thrice visited America: in 1845, to render important ministerial service in the dominion of Canada; in 1870 as a delegate from the Free Church of Scotland to congratulate the presbyterian churches in the northern states on their happy reunion; and for the third time, in 1873, as a member of the Evangelical Alliance, to attend its meetings at New York. Having been a steady sympathiser with the northern states and the anti-slavery movement, he was received in the United States with extraordinary cordiality.

The degree of D.D. was virtually offered to Mr. Arnot by the university of Glasgow, and afterwards formally by the university of New York; but for personal reasons he declined to avail himself of it in either case. He died after a short illness at Edinburgh, 3 June 1875.

His chief works were the following:

1. 'Life of James Halley.'
2. 'The Race for Riches, and some of the Pits into which the Runners fall: six lectures applying the Word of God to the traffic of man.' It had a wide circulation both in this country and America, as following up the principles of Chalmers's 'Commercial Discourses.'
3. 'The Drunkard's Progress, being a panorama of the overland route from the station of Drouth to the general terminus in the Dead Sea, in a series of thirteen views, drawn and engraved by John Adam, the descriptions given by John Buiyan, junior.'
4. 'Laws from Heaven for Life on Earth; Illustrations of the Book of Proverbs.' 2 vols. This was one of his most characteristic and successful books, treating of the maxims of Hebrew wisdom viewed from a christian standpoint in the nineteenth century.
5. 'Roots and Fruits of the Christian Life.'
6. 'The Parables of our Lord.'
7. 'Life of James Hamilton, D.D.'
8. 'This Present World.' Some thoughts on the adaptation of man's home to the tenant.
9. A posthumous volume of sermons.

[Autobiography, with Memoir by his daughter, 1877.] W. G. B.

ARNOTT, GEORGE ARNOTT WALKER (1799-1868), botanist, was born at Edinburgh, 6 Feb. 1799. His early years were spent at Edenshead and Arlary, on the borders of Fife and Kinross; in 1807 he went to Edinburgh, entering the university in 1813, where he took his A.M. degree in 1818. He studied for the law, and was admitted to the faculty of advocates in 1821; but the profession was uninteresting to him, and he soon abandoned it. His attention some three or four years previously had been turned to botany, and to this study he now devoted himself, becoming acquainted with Wight and Greville, and a little later with Dr. (afterwards Sir William) Hooker. In 1821 he went to France, where he worked in the Paris herbaria, and published two papers on mosses. He afterwards visited Spain and Russia, and, on his return to Scotland, married in 1831 Miss Mary Hay Barclay, of Paris, Perthshire. From 1830 to 1840 he was engaged with Sir William Hooker upon an account of the plants collected in Captain Beechey's voyage to the Pacific and Behring's Straits, which formed a quarto volume published in 1841. During these ten years he was very active in publishing descriptions of new plants from South America, India, and Senegambia, in various periodicals; he co-operated with Wight in his 'Illustrations of Indian Botany,' and in the 'Prodromus Floræ peninsulae Indiæ Orientalis.' In 1839 he temporarily took Dr.

Hooker's place as botanical lecturer at Glasgow, and in 1845 was appointed professor of botany in that university, leaving Arlary in 1846, and taking up his residence in Glasgow. In 1850 he was associated with Sir William Hooker in the sixth edition of the 'British Flora.' About this time he took up the study of Diatoms, of which he formed a large and valuable collection, publishing several memoirs on the subject. In 1868 his health, which had previously begun to fail, gave way, and the delivery of his university course had to be abandoned. Jaundice set in, and he died on 17 April 1868, and was buried in the Lighthill cemetery, Glasgow. He left three sons and five daughters. His large collections subsequently became the property of the university of Glasgow. He was a good correspondent, an esteemed professor, an accurate observer, and a zealous worker.

[Trans. Bot. Soc. Edinburgh, ix. 414-26.]

J. B.

ARNOTT, NEIL (1788-1874), physician and natural philosopher, was born at Arbroath, in Scotland, where his father held a valuable farm. His father had become a catholic in early life; and his mother, Ann, daughter of Maclean of Boteray, was of the same faith. Misfortunes compelled the father to give up his farm and settle first at Blair and afterwards in Aberdeen. Neil was taught by his mother and at the parish school of Lunan, and in November 1798 entered Aberdeen grammar school. In 1801 he was entered as a student in the Marischal College, with a small bursary, where he remained during four sessions, and was especially interested by the lectures of Patrick Copland on natural philosophy. He graduated M.A. in 1805, and at once commenced the study of medicine in Aberdeen. He supported himself partly by acting as shop-assistant to a chemist. In September 1806, he went to London, and became a student at St. George's Hospital, under Sir Everard Home. A year later Home's favour obtained him an appointment as surgeon in the East India Company's service, and he sailed for China in April 1807. During the long and stormy voyage he appears to have made a number of physical and meteorological observations regarding ocean currents, tides, winds, and other atmospheric phenomena, waves, &c., many of which are recorded in his 'Elements of Physics.' He learned languages and gave lectures to the captain and officers. He also turned his attention to sanitary matters, clothing, and ventilation. In 1809, he returned to England, and

in the following year made a second voyage to China. He performed a novel operation for stricture, which saved the life of the captain, and devised new modes of ventilating the ship.

On his return to London, in 1811, he commenced practice in Hunter Street, Brunswick Square, in partnership with a friend named Darling, and he soon afterwards began a course of lectures on Natural Science applied to Medicine at the Philomathic Institution, which, in 1827, were published under the title of 'Elements of Physics.' In 1813 he obtained the diploma of the College of Surgeons, and in 1814 the university of Aberdeen conferred upon him the degree of M.D. He continued to practise as a physician till the year 1855, and enjoyed a large and lucrative practice.

Arnott's catholic connections and knowledge of languages helped him in his profession. Many foreigners consulted him. In 1816 he became physician to the French, and some time afterwards to the Spanish embassy. In the same year he dissolved his partnership with Darling, who had married, and took up his residence in a large house, No. 38 Bedford Square, where he remained to the end of his professional life—more than forty succeeding years. During the next seven or eight years but few changes appear to have taken place in his career.

About 1823 he began to prepare his 'Physics.' Sir David Barry was at this time propagating his views concerning the circulation of blood through the capillary tubes and the veins; and he attributed this to atmospheric pressure. The view was opposed by Dr. Armstrong, who begged Arnott to take up his cause. This led to the delivery of lectures on medical physics in 1825 in Arnott's house. Professor Bain says: 'The lectures made a great impression, and there was a strong desire expressed that he should repeat them.'

The first volume of Arnott's 'Physics' appeared in 1827, and it was received with enthusiasm. A second edition was printed in the same year, a third in 1828, and a fourth, together with Part I. of the second volume, in 1829. In 1833 appeared a fifth edition of the first volume, with a second of vol. ii. Part I. It was speedily translated into Spanish, French, Dutch, and German. The book went out of print, and Arnott spent much time upon a sixth edition, half of which appeared in 1864, and a second half, with new chapters, in 1865; a seventh edition has appeared since his death.

About the year 1855, he gave up his practice, and turned his attention more especially to scientific and sanitary matters. His name

had become well known many years earlier in connection with the invention of a smokeless grate, known as 'Arnott's Stove,' which combined economy of fuel and consumption of the smoke with uniformity of combustion. For this he was awarded the Rumford medal of the Royal Society in 1854. He devised the water-bed in 1832, and in 1838 he published an important essay on 'Warming and Ventilation,' in which both his stove and ventilator are fully described. He declined to patent any of his inventions, and was never more happy than when he could devise or apply any means of lessening human suffering, or extending man's dominion over nature. For his various inventions he was awarded a gold medal by the jurors of the Paris Exhibition of 1855, and Napoleon III. gave him the cross of the Legion of Honour. He was one of the founders of the university of London in 1836, and an original member of the senate. In the following year he was appointed one of the physicians extraordinary to the queen; in 1838 he was elected a fellow of the Royal Society, and in 1854 a member of the Medical Council. In 1861, he published a 'Survey of Human Progress,' which reached a second edition in 1862. It was well received, though criticised as representing a 'narrow utilitarianism.' In 1867 he wrote a small tract on arithmetic, and in 1870 a pamphlet on national education.

To a great age Dr. Arnott retained clear faculties, and his old spirit of inventiveness never forsook him. Among his last devices was a chair-bed for preventing sea-sickness. Having a large circle of scientific friends, and being a prominent member of the Royal Institution, he lived much in the society of the most progressive men of science in London. His benefactions were widely spread. In 1869 he gave 2,000*l.* to the university of London, and 1,000*l.* to the universities of Edinburgh, Aberdeen, Glasgow, and St. Andrews. In 1865 Mrs. Arnott gave 1,000*l.* to each of two ladies' colleges in London, and after her husband's death carried out his wishes by giving 1,000*l.* to each of the four Scotch universities.

In 1859 he caught cold, which brought on a deafness, gradually increasing, and ultimately limiting greatly his sociable habits. A fall in 1871 produced a concussion of the brain and weakened his mind. He died 22 March 1874, and was buried in Edinburgh. His wife, whom he married in 1856, survived him two years. She was the widow of one of his oldest friends, Mr. Knight, and the daughter of Mr. G. H. Holley, of Blickling, in Norfolk.

Dr. Arnott was physically a very strong

man. He was perfectly sound in health, and for more than sixty years he lived in the heart of London, and rarely sought or required a holiday. In many manual exercises, such as handicraft and games, drawing, and playing upon musical instruments, he excelled. He possessed a great aptitude for languages—wrote English elegantly, and gave fluent speech to Italian, Spanish, and French. When his 'Physics' was translated into German, he began the study of that language. His intellect was very versatile. It widely embraced both languages and science. As an inventor he possessed many resources. He was a very sociable man, was extremely amiable, and always full of philanthropic aims and objects. There is a crayon drawing of Arnott by Mrs. W. Carpenter in the Royal Society, and a portrait by Partridge in Marischal College, Aberdeen.

[Obituary notice of Dr. Neil Arnott, in the Proceedings of the Royal Society, vol. xxv. 1877; Bain's Biographical Memoir of Dr. Neil Arnott, read before the Aberdeen Philosophical Society, 1881.] G. F. R.

ARNOUL or ARNULF. [See ERNULF.]

ARNWAY, JOHN (1601-1653), royalist divine, was of a Shropshire family and heir to a considerable estate. He was a commoner of St. Edmund's Hall, Oxford, and in 1635 rector of Hodnet and Ightfield. (For difficulties connected with these appointments see *State Papers*, Dom. 1634-5.) His abounding charity and devoted loyalty were conspicuous. When he repaired to the king at Oxford in 1642, the parliament garrison at Wem plundered his house so completely that (according to his own account) they left him neither bible, nor money, nor clothes. He was promoted to be archdeacon of Lichfield and Coventry and prebendary of Woolvey. Resuming his activity in the royal service, his estate was sequestered and he imprisoned till after the king's death. He was then exiled, and took refuge at the Hague, where (in 1650) he published two pamphlets, (1) the 'Tablet,' a vindication of the king against Milton's 'Eikonoclastes,' and (2) 'An Alarm to the Subjects of England,' an account of the oppressions which he and others had suffered. He was compelled by poverty to accept an invitation to exercise his function among the English in Virginia, where he died, it is supposed in 1653. Both his tracts were reprinted in 1661 by William Rider of Merton College.

[Wood's *Athenæ Oxon.* (Bliss), iii. 307; Fasti, i. 397, 415.] R. C. B.

ARRAN, EARLS OF. [See HAMILTON and STEWART.]