

ONE HUNDRED YEARS  
*of*  
MAP MAKING

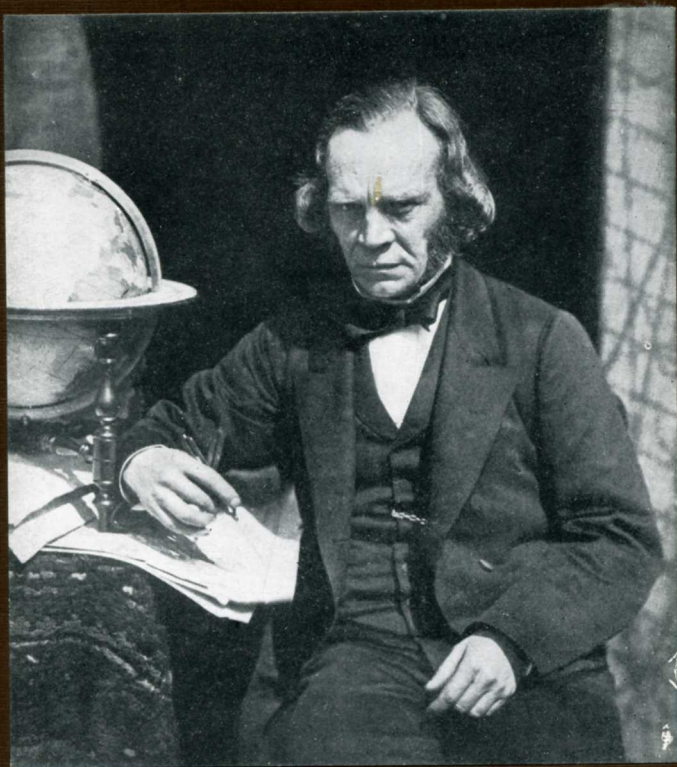


Photo by D. O. HILL, R.S.A.

ALEXANDER KEITH JOHNSTON  
(1804-1871)

# ONE HUNDRED YEARS OF MAP MAKING

*The Story of  
W. & A. K. Johnston*



PRINTED BY  
W. & A. K. JOHNSTON, LIMITED  
EDINA WORKS, EDINBURGH

# ONE HUNDRED YEARS *of* MAP MAKING



THE Borderland of England and Scotland, in the days before the Union of the two Kingdoms, was a district apart from the rest of the realms to which it belonged. There on either side of the frontier line dwelt a population that lived by the sword, governed, so far as they were governed at all, by their own chiefs and leaders, under different laws from the rest of their fellow subjects.

Along the frontier, until the Union, there was a chronic state of warfare and feud, either between Scots and English, or between the different Border clans and families themselves; and the men of the Border were bred hardy, ready of resource, and prompt in action. Notable among these warrior clans on the Scottish side of the Border, in the mountainous district of Annandale, in Dumfriesshire, were the Johnstons, whose chief, the Laird of Johnston, often held office as Scots Warden of the West March, and was responsible for the safety of the Border. They were, as Sir Walter Scott has described

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them, "a race of uncommon hardihood, much attached to each other and their chieftain." Alert against danger and swift to strike, they chose as their crest a "Flying Spur" and as their motto "Ready Aye Ready."

### *Foundation*

With the Union in 1603 the moss-trooper of the Border found his occupation gone. He had to beat his sword into a ploughshare, but the qualities bred into his race by centuries of active warfare carried him to success in many tamer walks of life. With these endowments, and with not much else, a young Borderer, William Johnston, son of Andrew Johnston, an Edinburgh merchant, and his wife, Isabella Keith, commenced business on his own account in Edinburgh on Christmas Day, 1825, at the mature age of twenty-three. He had been educated at the Royal High School, and trained as a clerk with the engraving firm of W. H. Lizars in that city; and had learned the printing trade with James Kirkwood & Sons. Kirkwood had in 1817 issued a fine large-scale Map of Edinburgh, and had followed it with others in 1819 and 1821; and William Johnston thus probably already had some knowledge of geographical work when he set up his hand-press at 6 Hill Square, and

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started business as a steel-plate and copper-plate printer. It was, however, the influence of his younger brother, who joined him in partnership in May 1826, that turned the fortunes of the firm into a definitely geographical channel.

### *Alexander Keith Johnston*

Alexander Keith Johnston, born 28th December 1804, at Kirkhill, near Edinburgh, is one of the great names in the history of geographical knowledge and map production. He had been educated at the Royal High School, where Sir Walter Scott was taught, and at the University of Edinburgh. His original intention had been to take up the study of medicine; but he was early caught by the fascination of geography, and, in order to become proficient in the production of maps, like his elder brother was apprenticed in 1820 to Kirkwood the engravers. In 1830, in the course of a walking tour with some friends in the West Highlands, he found so many inaccuracies in the best maps of Scotland then obtainable that it urged on him the idea of producing better maps himself. Map production thus became developed as the main concern of the firm of W. & A. K. Johnston, with the result that to-day they are recognised as one of the leading geographical houses of the

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world. The firm took as their own the crest and motto of the Johnston clan as a token of the service to the public they meant to render.

### *High Street and St. Andrew Square*

The business had, in the meantime, in 1826, moved from Hill Square to 160 High Street, in the Old Town of Edinburgh, and an office had been opened in 1835 in the New Town, at 107 George Street. In 1834 the honour of appointment as engravers to King William IV. had been conferred upon the firm, and three years later, on the accession of Queen Victoria, the royal warrant of appointment to Her Majesty was also received. Times were prosperous, business was growing, and in 1837 fresh and larger premises were again taken, works and offices being this time combined at 4 St. Andrew Square, which was to be the home of W. & A. K. Johnston for more than forty years.

### *“National” and “Physical” Atlases*

The first maps published by Keith Johnston appeared in 1830 under the title “A Traveller’s Guide,” but the first work of importance with

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which his name was associated was the "National Atlas." This came out after five years work in 1843, most of the forty-five maps having been engraved by his own hand, and gained for him the distinction of Geographer at Edinburgh in Ordinary to Her Majesty. His firm were appointed Geographers to the Queen. Humboldt, the great German scientist, next drew his attention to the importance of physical geography; and in 1848, after years of labour in collaboration with the chief authorities of the day, he produced his fine "Physical Atlas," engraved and printed by W. & A. K. Johnston and published by William Blackwood & Sons. This great work, including both maps and descriptive letterpress, illustrated the geology, hydrography, meteorology, botany, zoology, and ethnology of the globe. It was the pioneer work in English in the sphere of physical geography, and its appearance is a date of first importance in this branch of science. Second editions were called for of the "National Atlas" in 1855 and the "Physical Atlas" in 1856.

It is of interest to note that, while the first editions of these atlases were printed from a hand-press from the engraved plates, in the interval before the second editions appeared lithography, the art of printing from a design on specially prepared stone, which had been invented in



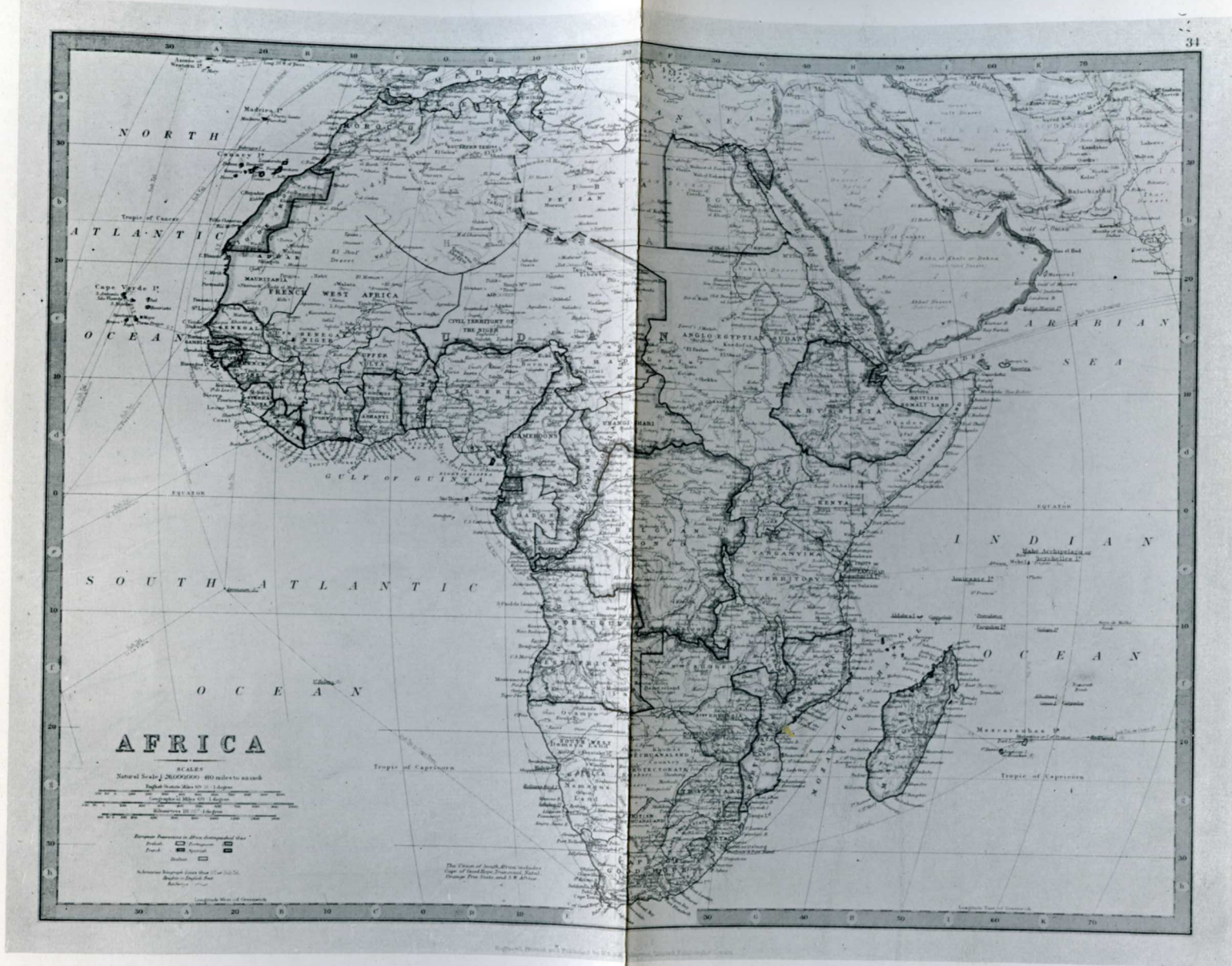
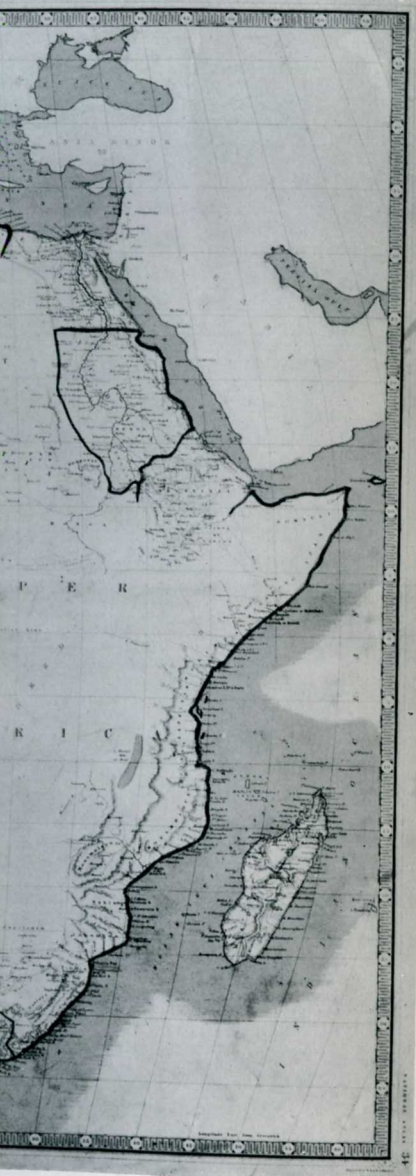
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Germany by Senefelder in 1796, had meantime come into use, and the second editions were lithographed, though colours were still added by hand. It was not till about 1860, however, that a really satisfactory type of lithographic machine, with a cylinder to give the pressure, was introduced from France, and it would seem that colour printing by lithography was adopted at 4 St. Andrew Square, as a general method of reproduction of maps, about 1865. It had at once the important result of greatly cheapening the cost of production of maps. It is also claimed that Keith Johnston introduced into cartography the convention now generally followed, of colouring all portions of a map which represent water—lakes, rivers, seas, and their names—in blue.

To St. Andrew Square for two years' work under Keith Johnston came in 1845 a future famous German cartographer, Alexander Petermann, founder of "Petermann's Mitteilungen." In 1851 the firm, who had already printed maps of Edinburgh on a smaller scale for Gray's Directory in 1834 and subsequent years, published Lancefield's beautiful map of the city, the first to be produced from a complete survey of its whole area. In the same year Keith Johnston executed the first physical globe ever made, 30 inches in diameter, showing the





From the "HANDY ROYAL ATLAS," 1924

A comparison of these two Maps shows the great progress made in geographical knowledge in the last seventy years. In 1855 Livingstone was just beginning his work of exploration in Central Africa. The "Scramble for Africa" which divided the whole country up among the principal European powers was still thirty years off; and in South and Central Africa white knowledge and settlement were confined to the coasts.

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geology, meteorology, and hydrography of the earth. For this the Medal of the Great Exhibition of 1851 was awarded.

### *“Royal” Atlas*

Keith Johnston had since 1855 been engaged in the preparation of a new general atlas, more beautifully engraved, and more minutely accurate than any produced up till that time. The Prince Consort took great interest in his work, asking to see proof sheets of all the plates, and heartily approving the dedication of the atlas to the Queen. In 1861 this appeared as the Royal Atlas of forty-eight maps ( $19\frac{1}{4}$  by 24 inches). This became the standard atlas of his firm, and was brought up to date year after year in repeated editions. Honours now showered upon him. He was already Honorary Member of the Geographical Society, Berlin, and a Member of many other foreign Geographical Societies. In 1865 he was awarded the degree of LL.D. by Edinburgh University, and in 1871 the Patron's Gold Medal of the Royal Geographical Society. Other works for which he was responsible were a “Dictionary of Geography” (1850), an atlas to accompany Alison's “History of Europe” (1850), Atlases of Astronomy and Geology, an Atlas of the United States (1857), and in his later years

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especially many educational works. He died at Ben Rhydding Hydropathic in Yorkshire in July, 1871. The record of his private and public life alike hands him down to us as quiet, modest, deeply religious, and a brilliant and conscientious worker in the service of science.

His son, young Alexander Keith Johnston, born in 1846, inherited a large share of his father's scientific genius. He was trained as a draughtsman with his father's firm, and afterwards in London and Germany. He was author of a number of geographical works and papers, and carried out exploration work in Paraguay, but died an early death at Berobero in East Africa in 1879, a victim to dysentery, while leader of the Royal Geographical Society's expedition to Lake Nyasa.

### *Sir William Johnston*

It was more usual then than nowadays for the heads of Edinburgh publishing houses to take an active interest in civic affairs. Adam Black, of the firm of A. & C. Black, William Chambers, of W. & R. Chambers, and Thomas Clark, of T. & T. Clark, all held the office of Lord Provost of the city, and so also did William Johnston for the three years, 1848-1851. During his period of office a notable event in

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the history of the city was the laying of the foundation stone of the National Gallery at the foot of the Mound—a ceremony performed by the Prince Consort. At the end of his term he received the honour of knighthood from Queen Victoria at Holyrood Palace. Sir William Johnston retired from business in 1867, and died at Kirkhill House, Gorebridge, in 1888. He left no sons, and only one daughter.

Thomas Brumby Johnston, the youngest brother of the two other partners, born in 1814, had also become a partner in the firm in 1852. In 1877 he was appointed Geographer to the Queen. Four of his sons, Archibald, Thomas Ruddiman, James Wilson, and George Harvey, were at one time or another associated with him as partners.

### *Bank-Note Printing*

About 1862 an important development was the acquisition by W. & A. K. Johnston of the business of W. H. Lizars. Lizars had been engraving most of the bank-note plates for Scottish Banks, and to this day W. & A. K. Johnston do a considerable amount of bank-note printing. An office in London had been opened at 74 Strand, Adelphi, in 1869. This was changed to 18 Paternoster Row in 1873,

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to 6 Paternoster Buildings in 1878, and to 5 White Hart Street in 1884. A return was made to 6 Paternoster Buildings early in the new century.

### *Edina Works*

Another big advance was made in 1879. The St. Andrew Square premises had become quite inadequate for the steadily growing requirements of the firm, and a site was acquired near Easter Road, in what was then a country district on the north-east side of the town. Here the Edina Works were built in two floors, 320 feet long and 66 wide, covering about two acres of ground, and with a (present) total floor space of over 50,000 square feet. To these fine new premises the headquarters of the firm were moved, though a Town Office, for the convenience of Edinburgh business firms has always been kept open. But the green fields of the early days of Edina Works, when Easter Road was a country lane, are now no more. The growth of the city towards its port of Leith has replaced them with busy factories, shops, and dwelling houses. Edina Place, where the works stand, was causewayed in 1889.

The progress made was now a steady one, the educational side of geographical publishing

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being specially developed, and many series of maps and school pictures being produced, to meet the growing needs of education after the Acts of 1870 and 1876 in England and in Scotland of 1872. A book-binding department was added. Among much other general map work, mention may be made of the maps for the American edition of the "Encyclopædia Britannica" in 1898, to print which several new machines were added to the lithographic department. Maps had already been printed for the ninth edition, issued by A. & C. Black, between 1875 and 1889. Stanley's "Rover" bicycle had been invented in 1885, and the Dunlop pneumatic tyre in 1888; and in the early "nineties" the Johnstons created a series of Touring Maps of England and Wales and of Scotland on the scale of 3 miles to an inch, to meet the growing demand for cycling maps.

### *W. & A. K. Johnston, Limited*

In 1897 Thomas Brumby Johnston, the last of three earliest partners, died, and in 1901 the business entered upon yet a new phase as a limited company, James Wilson Johnston and George Harvey Johnston becoming Managing Directors, while the other members of the



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Board were Sir John M. Clark, Bart., and Mr C. E. S. Chambers, two well-known Edinburgh publishers, and Mr John W. Gulland, later M.P. for the Dumfries Burghs. The appointment of Geographer to the Queen, which had been held by T. B. Johnston, was granted to G. H. Johnston as his successor.

We are now approaching present day conditions. The educational side of the business continued to be developed, and technical equipment was developed with it, the latest processes, such as photo-engraving, photo-lithography, and modern fast running machines being introduced. Map engraving was done for the British War Office, for the Department of Militia and Defence of Canada, and for the Southern Nigeria Survey. New editions were constantly printed of the "Royal Atlas," a smaller atlas called the "Handy Royal Atlas," dedicated to the Prince of Wales (? 1st edition, 1869), the "World-Wide Atlas" (? 1st edition, 1892), and many others. When the Great War came, sixty-three employees of the firm served with the forces, and nineteen of them gave their lives for their country. James Wilson Johnston died in 1906, and his brother, George Harvey Johnston, in 1921. This brought to an end the personal connection of the Johnston family with the firm they had created.

### *New Management*

On the death of Mr G. H. Johnston the Board appointed as his successor Mr W. Simpson Henderson, who is well-known in the printing and publishing trades. On taking over, Mr Henderson largely reconstructed the work and arrangements of the business. As part of the reorganisation, Mr W. R. Kermack, M.C., who came to the firm in 1910, was appointed Editor. Mr Sidney Geary, formerly of Macmillan & Co., Ltd., became Educational Manager, with headquarters at the firm's new London Office at Sentinel House, Southampton Row, W.C. 1.; and Mr W. I. Pringle was appointed Works Manager. Mr James Mitchell, who had been with the Johnstons since 1876, continued to act as Cashier.

The Board of Directors consists of Mr William Annan, C.A., Chairman; Mr Robert Wilson, of Pillans & Wilson, lately President of the Scottish Alliance of Employers in the Printing and Kindred Trades; Mr W. Simpson Henderson, Managing Director; and Mr James Falconer Fairweather, W.S. Mr C. Cosmo Monkhouse, a son-in-law of Mr James Wilson Johnston, for a short time held office, but resigned in 1923 on

appointment as General Manager of the South African Mutual Life Assurance Society, Cape Town.

### *Educational Policy*

Macmillan had since 1916 been acting as selling agents for W. & A. K. Johnston's publications in the British Isles, but this arrangement was now brought to an end (30th April 1923), and the work of bringing scholastic publications before the notice of schools was taken on by Mr Geary and a staff of educational representatives.

Abroad, W. & A. K. Johnston's interests have been represented in Canada by the Geo. M. Hendry Co., Toronto, and in the United States by A. J. Nystrom & Co., Chicago, in both cases since 1903. Messrs Torromé, Sons & Co., London, control Spain, Portugal, and part of South America. Everywhere else the firm's interests are in the hands of Messrs Macmillan.

Many new lines of educational publications are in course of production, not only in the subjects of geography and history, but also in English teaching and mathematics.



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### *Business Development*

On other sides of the business than educational, a vigorous policy has also been adopted. A great stimulus to map production was given after the war by the fact that the far-reaching changes in international boundaries due to the various Peace Treaties made entirely new maps necessary for the whole of Europe and for many other parts of the World. This meant the issue of new editions of the "Handy Royal Atlas," the "World-Wide Atlas," and numerous other maps and atlases, as well as similar work for other firms. As before, maps continued to be constructed and printed for customers from all parts of the world, and in all languages, such as Spanish, Arabic, Tamil, Chinese, Gujerati, Icelandic, and a host of others. The firm was also entrusted by Lt.-Col. R. H. Rowe, D.S.O., Surveyor-General of the Gold Coast, with the highly technical work of reproducing and printing the Standard Sheets of the Gold Coast Survey on the scale of 1:125,000 from the original Field Sheets, as well as other maps.

A cordial spirit of co-operation between management and employees has always been the rule at Edina Works, as is evidenced by the length of service many have given to the

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firm. No fewer than thirty-one members of the present staff have been more than twenty-five years with W. & A. K. Johnston, and sons have succeeded fathers in the Works. An Edina Golf Club and an Edina Bowling Club have for long flourished; and an 18-hole putting course on the lawn just in front of the Works is the latest development. No more need be said to indicate that the business, with a hundred years behind it, continues to advance with fresh vigour in all its activities, and with an assured hope of a future as interesting and as useful in the public service as its past. The crest of the firm is still the Flying Spur, its motto still "Ready Aye Ready."

