

# Creed and Company Limited. The First 50 years.

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Although this outline of Company history dates from 1912 (the year of our incorporation under the Companies Act), our story has its beginning around the turn of the century.

**In 1897** the founder, the late Frederick George Creed, then a young man of 26, came to Scotland with an idea for a revolutionary telegraph machine. Born in Mill Village, Nova Scotia, in 1871, Mr Creed began his career as a check boy for the Western Union Telegraph Company at Canso, Nova Scotia, where he taught himself cable and land line telegraphy. He later accepted a job as a telegraph operator with the Central and South American Telegraph and Cable Company in Peru. This in turn led to a transfer to that company's office in Iquique, Chile, where, as a practical and often overworked telegraph operator, he found the equipment far from perfect and resolved to do something about it.

Those were the days of hand-operated Morse key circuits and Wheatstone telegraphy. The latter system was speedy on the lines, being automatic in operation and based on the use of punched tape. Coding the message into punched tape for subsequent transmission was a boring and laborious job, however. The perforator was provided with three operating plungers - one for the dot, one for the dash, and one for the space. The operator, by striking these plungers with small rubber tipped mallets, one in each hand, made the appropriate perforations in the tape. Thus, he not only had to punch out each element of a Morse code combination separately, but had to supply the energy to move the tape as well. Moreover, only operators with a thorough knowledge of the code could be employed to work such a machine. This slow and wearysome method of coding messages led Mr Creed to the idea of a typewriter style machine that would enable complete Morse code signals to be punched in the tape simply by operating the corresponding character keys.

Fired with enthusiasm, he threw up his job and set sail for Britain, determined to put this and other ideas into practice. Working in a garden shed in a suburb of Glasgow - with the aid of an old typewriter bought for fifteen shillings in a Sauchiehall Street auction sale - his ideas began to take shape. Although he had no engineering training, and despite repeated advice to "return to your key", he persevered and finally came up with a prototype keyboard perforator. When the late Lord Kelvin saw this first effort, he told Mr Creed there was no future in the idea, even though at that time morning newspapers were covering week-old foreign events as current news, due to the poor communications of the day. Disappointed but undeterred, Mr Creed pressed on, and what eventually emerged was a tape perforator operated by compressed air and controlled by a keyboard similar to that of a typewriter.

Its superiority over the "stick perforator" then in current use attracted the attention of the GPO, who in 1902 placed an order for 12 machines. By now Mr Creed had turned his thoughts to the development of equipment that would improve message handling on the receiving side. In the Wheatstone system, as then generally employed, the incoming signals were recorded on a moving strip of paper by a pen and ink device. This merely recorded the signals as a series of dots and dashes, and again a skilled operator was required to decode the message. With the aid of a small team of mechanics Mr Creed produced two further machines. These were a receiving perforator (reperforator), which recorded the incoming signals in a perforated tape identical with that used at the other end of the line for transmission; and a printer which accepted the received message tape and decoded it into plain language printed characters on ordinary paper tape. Thus was born the "Creed High Speed Automatic Printing Telegraphy System".

A small factory was opened in Glasgow in 1904 and remained there until 1909, when Mr Creed moved to Selsdon Road, South Croydon, along with six of his skilled mechanics from Scotland. Little headway was made at first. The scepticism which had attended earlier development efforts now showed itself in a marked disinclination on the part of potential customers even to try out the equipment, let alone purchase it. But gradually sales resistance was broken down and the machines began to find promising, if limited, user acceptance.

**1912** Bille, as & that time Mr Creed was incorporated under the Companies Act of 1908. It was known as Creed, Bille, & Co. and its first managing director was Harald Bill, a well known Danish telegraph engineer. Mr Bille became managing director of the Company, but met his death in a local railway accident in 1916, after which his name was dropped from the Company title. By now the advantages of the Creed system were becoming more widely known in telegraph circles and the Company payroll had increased to 72 persons. A big boost came in 1912 when the Daily Mail became the first newspaper in the world to adopt the Creed system. In a very short time the entire contents of the newspaper were being transmitted daily from London to Manchester for simultaneous publication. Other newspapers shortly followed this lead and export business began to develop with orders from telegraph administrations and companies in Denmark, India, Australia, South Africa and Sweden.

**1913** This year marked the first experiments in high speed automatic telegraphy by wireless. Messages were successfully transmitted via an aerial on the roof of the Selsdon Road premises to Mr Creed's home about three miles away. The experiments had to be discontinued on the outbreak of the First World War, when the aerial was dismantled on Government order.

**1914** The start of the First World War focused attention on the need for communications equipment and within days the Company was called upon to supply two sets of equipment to the Central telegraph Office in London. These machines were used on circuits to Southampton and Grimsby, and successfully handled a large volume of message traffic in connection with the landing in France of the British Expeditionary Force.

**1915** With production continuously expanding, the original Selsdon Road premises were no longer adequate and it was decided to move to the present site of Telegraph House at East Croydon. Occupation of a former roller-skating rink and a collection of wooden huts provided some 21,000 square feet of floor space. The fledgling company was now able to spread its wings. Much of the effort during the 1914-18 War was devoted to filling the need for high-grade instruments, the manufacturing facilities for which were extremely limited in Britain at that time. Equipment produced included tube amplifiers (then the last word in radio technique), spark transmitters for aircraft, air compasses, small high-tension generators, bomb release gear and high explosive shell and bomb fuses.

**1919-21** Activities in the field of wireless transmission were resumed after the War with the design and manufacture of the first high-speed pneumatically operated radio keys. These were high-power (300kW) jobs and saw service at the famous Rugby wireless station and in Government departments. Also produced were low-power (5kW) high-speed radio keys. Another activity at this time had to do with the Stentorphone, a public address system. The electronic valve amplifier had not then appeared on the scene and the Stentorphone provided means whereby gramophone records could be amplified through a sound-box consisting of a comb-valve which vibrated a column of compressed air. A number were made and used at exhibitions, open-air concerts, etc.

The most important order received in this period for telegraph equipment came from the Press Association in London. Faced with the growing problem of ensuring that news reached all subscriber papers simultaneously - a key feature of news agency operations - The PA decided to investigate the possibility of a 24 hour private telegraph system linking their Fleet Street offices with newspapers taking their service. A demonstration was given at Croydon in 1920 and Creed equipment was subsequently installed for use on a circuit between London and Bristol. It was a great success and Exeter, Plymouth, Newport, Cardiff, Bath and Swindon were added shortly after, followed by centres at Manchester, Leeds, and Glasgow, each of which in turn served a group of newspapers in the area. In all, several hundred units of Morse equipment came into use on the PA system, which eventually served practically every morning daily in the country and remained the largest single network of Creed machines until comparatively recent times.

Most of the machines used in the system were greatly improved versions of the original equipment arising from important developments carried out during the years 1919-21. In common with the original keyboard perforator, both the subsequent receiving reperforator and printer depended on compressed air as the motive force for punching and printing. Installation of the equipment was therefore a complex and costly business, since a compressed air supply - at about 25 pounds per square inch - had to be piped to each machine from a central compressor plant. This was required in addition to an electrical supply for the motors driving the machines. As a first step the printer was made to work with a self-contained air compressor. Later the need for compressed air, both in the case of the printer and the reperforator, was eliminated altogether.

For certain applications it became desirable to have messages printed in page form, and a page printing facility was subsequently brought out as an alternative to the original tape printing arrangement. Also introduced was a new keyboard perforator together with an automatic tape transmitter, as the latter had not been made by Creed up to this time. These new and improved machines were well received and came into widespread use both in the UK and overseas. Company payroll reaches 250.

**1923-26** The teleprinter now came into the picture with the arrival from the USA of the Morkrum Teletype machine. This operated on the now familiar 5-unit start-stop signalling code and was a "direct printer". This means it recorded messages directly from the incoming line signals, instead of from tape via a reperforator as in the Creed system. This machine represented competition with a capital "C" and the Company lost no time in meeting the challenge. The result was the introduction of a separate keyboard transmitter and a receiving page printer, both operating on the 5-unit start-stop teleprinter code.

In **1924** an order was received from the Central News Agency in London for a number of the machines to provide a news distribution service to various Fleet Street newspapers. It was not long before the Exchange Telegraph Company, the British United Press and others had printers working in Fleet Street. The first printer, the Model IP, was soon superseded by the improved Model 2P, a number of which are still in operation to this day. This marked the start of Creed's business in the teleprinter field, and practically all subsequent development work had to do with 5-unit systems.

Meanwhile, Donald Murray, a New Zealand farmer turned journalist, had invented the Murray multiplex system - another 5-unit code system - which had become popular in India, Australia, New Zealand, Brazil and Russia. Murray made a valuable contribution to telegraphy by rationalising the allocation of the combinations of the 5-unit code to the characters of the alphabet on a frequency-of-occurrence basis. His arrangement of the code, in which the most frequently used letters of the alphabet are represented by the smallest number of holes in the tape, has since become standard practice. Murray's Multiplex system and other telegraph patents were acquired by Creed in 1925 and these machines were produced at Croydon for many years. They were "Rolls-Royce" jobs and some of them are in service to this day. A Murray Keyboard Perforator is, in fact, still being used at Telegraph House. In 1926 came the introduction of the Creed Model 6S Automatic Tape Transmitter, the ancestor of the present standard Teleprinter Auto-Transmitter.

**1927** By this time the GPO had decided to adopt a uniform telegraph system based on voice frequency signalling, giving 18 telegraph channels on a circuit that would only carry one channel on the system formerly used. The separate keyboard and receiver page printer units which comprised the Creed teleprinter at that time were not suitable for the new service which was intended to handle public telegram traffic. For such work it was also necessary for messages to be printed on a tape from which all unwired signals could be readily removed before it was gummed down on to the familiar form for delivery to the public. This led to the development of the Model 3 Tape teleprinter, which was the first Creed machine produced as a combined start-stop transmitter-receiver. The Model 3 teleprinter incorporated a number of features that were novel at the time and was the first Creed machine to go into volume production, many thousands being sold in the years 1927-42.

**1928** In July of this year Creed & Company became part of the International Telephone and Telegraph Corporation. This event, coinciding as it did with Creed's growing activities in the teleprinter field, marked an important step in the development of the Company. Foreign markets, which until then had been relatively uncultivated, were opened up on a world-wide basis and co-operation with other IT&T System Companies became possible. A new era of expansion began.

**1930** Mr Creed, who had stayed on as chairman of the Company, now retired from the scene. But almost to his death at his Croydon home in 1957, at the age of 86, his inventive mind remained active. Financing schemes with a substantial sum of money received upon disposal of his interest in the Company to IT&T, his ideas ranged far and wide, and even included a mid-ocean "Sea Drome" based on his earlier project for an "unsinkable" boat. None of these schemes materialised, but his name will remain in the history of communications as a pioneer in the field of automatic Morse telegraphy.

**1930-31** Although telegraphic communication was now an important factor in the operations of telegraph administrations, the Press and railways, the business community had made little use of it, apart from the GPO's telegram service. An important development, which was to change this situation and set a pattern for the future, was then proposed by the GPO. This was the inauguration of a person-to-person public teleprinter service (Telex), designed primarily for business and industrial use. Today Telex is a vast communications complex that speeds the affairs of business around the world, enabling tens of thousands of organisations to enjoy accurate and economical printed contact with each other at the touch of a keyboard. And what has already been achieved is only a beginning. Telex has a long period of expansion still ahead of it that promises to make the teleprinter almost as commonplace an item of office equipment as the telephone or typewriter, whose functions it combines. But first it was necessary to design a new teleprinter to meet the special needs of the telex service, as no existing machine would adequately fulfill all requirements.

What eventually emerged was the famous Model 7 Teleprinter. This was a revolutionary machine in those days with its unit construction, ribboninking, interchangeable page and tape units, an answer-back device, use of ball bearings on all high-speed shafts and a lubrication system that permitted 100 hours continuous operation without attention. Many improvements and new facilities have since been introduced, but the soundness of its basic design may be judged from the fact that the Model 7 is still in volume production today, and the number delivered is now approaching the 76,000 mark, with orders for many more still to be filled.

In some communications systems a need now arose for a means whereby a message received in one office could be relayed to another with minimum handling. The Model 7TR Teleprinter Reperforator was thereupon developed to record incoming line signals on 5-unit punched tape, which enabled messages to be retransmitted automatically over other circuits with no duplication of the original manual keyboarding operation. This machine also went into general production in 1931. To date well over 5,000 have been sold.

**1933** This year saw the introduction of the Commercial Typewriter Keyboard as an optional keyboard for the Model 7 Teleprinter. This was another Creed "first" which proved popular in countries such as Sweden with more than 26 letters in their alphabet. The 5-unit code arrangement provides for 26 characters in the "Letters" shift and any extra characters required must be accommodated in the "Figures" shift. Consequently, when handling expanded alphabets with ordinary keyboards, it was often necessary to operate "Figures" and "Letters" shift keys in the middle of a word - a highly inconvenient and time wasting procedure. The Commercial Typewriter Keyboard overcame this difficulty by providing means whereby the necessary "Figures" and "Letters" shifts were automatically inserted as required. This keyboard was later made available with a tape punching attachment.

**1934** The Commercial Typewriter Keyboard, with its tape punching attachment, was now provided as an independent unit with its own motor and emerged as the Model 7P Keyboard Perforator. Subsequently an Auto-Transmitter Head was added to the assembly to make the Model 67P Combined Keyboard Perforator - Auto-Transmitter.

Manufacture of marine radio transmitters was now started on behalf of the International Marine Radio Company of Croydon (a fellow IT&T Associate). This activity continued for a number of years. Also produced for another Associate Company, Standard Telephones and Cables Limited, was a range of totalisator equipment.

**1935-36** Arising from the work of the CCIT the need for more accurate signal transmitters was recognised, and the "striker" type transmitter was introduced for the Model 7 Keyboard. Creed were also first in the field with this type of transmitter.

**1936-39** Development attention now turned to a high-speed "stock ticker" for the Exchange Telegraph Company and this machine was completed shortly before the outbreak of the Second World War. Identified as the Model 10 Tape Teleprinter, it was novel in many respects, but only a comparatively small quantity was made, although a number saw service with the Royal Air Force. The Company now has over 800 employees.

**1939-45** With the clouds of war gathering darkly on the horizon, it became evident that existing production facilities at Telegraph House would no longer be adequate to meet the unprecedented demands that could be expected from the Fighting Services. Also, it was appreciated that Croydon was a vulnerable target for air attack. So, in 1939, production of the Treforest, South Wales, plant was ordered. Initially providing some 18,000 square feet of floor space (today it is over 50,000 square feet in area), it was equipped with a balanced plant so that in the event of Telegraph House being knocked out, it would at least be able to ensure a small output of equipment. However, despite the attentions of Hitler's Luftwaffe, who presented Croydon with some 2,600 high-explosive bombs, countless incendiaries and scores of flying bombs, not one direct hit was scored on Creed premises.

Both Telegraph House and Treforest pressed on jointly with round-the-clock production of tens of thousands of machines, concentrating on the Model 7, standardised by the British Services. Also produced in quantity was a variety of special equipment, including aerial navigation instruments, cypher machines on which top-secret messages were sent, Morse apparatus for aircrew training and automatic bomb sights. The Company had a major role in the design and production of the latter which helped in the sinking of the German Navy battleship Tirpitz.

**1945** During the war all development effort had focused on military needs, but considerable thought was nevertheless given to post-war telegraphic requirements. The 1939-45 hostilities had established beyond doubt the superiority of the teleprinter for fast, accurate communication. Moreover, through their contact with the machines, thousands of Service personnel were coming back to "civvy street" with the realisation that the teleprinter was no less useful in peace than in war. It was a safe prediction that a major expansion of the use of teleprinters in the commercial field was around the corner. The most pressing post-war need, however, was for a new tape teleprinter to replace the now elderly Model 3, for use by telegraph administrations modernising and reorganising their run-down public telegram services.

**1947** This new machine went into production in 1947. Identified as the Model 47 Tape Teleprinter, it combined the best features of the time proven Model 7 with numerous new ideas, and was subsequently ordered in quantity by customers all over the world. The Model 47 was also adopted by the GPO for their automatic switched telegraph service and many thousands are today in operation all over the UK. The development and engineering work associated with this machine was completed in the Company's location at Purley Way, Croydon. Acquired in 1946, the Purley Way premises today provide 29,000 square feet of floor area and are the centre of the Company's research, development and engineering activities.

**1948-53** By now a period of intense development effort was getting under way, and the ensuing years were to see the introduction of a series of important new machines, as well as improved versions of existing equipment. The well-known Models 85 and 86 Printing Reperforators made their appearance, along with the Three-Gang Transmitter and the Models 6S/3, 6S/4 and 6S/5 Auto-Transmitters. The latter version incorporated the improved "striker" action and step-by-step feed mechanism, both of which features have been continued in the current Model 6S/6 introduced in 1958. The new "N" Type Keyboard originally introduced on the Model 47 Teleprinter was extended to the Model 7P/N Keyboard Perforator and to the Model 7 Teleprinter.

Another expansion of plant facilities came in 1950 with the occupation of a 17,500 square feet location at Progress Way, Croydon. This location handles the overall processing of customers' orders for machines and spare parts, including packing and shipment and related billing activities. An important new Company activity was started in 1953 with the formation of the Creed Rental and Maintenance Organisation. Established as a service for customers wishing to lease (instead of purchasing them outright), and have the maintenance done for them, it is currently looking after 3,000 units of equipment in the field. Service is at present provided from eleven centres in the UK, augmented by a mobile unit and a special apparatus group responsible for the introduction of Creed equipment to new renters. Another product, and related service, is that provided by the Technical Training School at Croydon, established some years previously. This exists to provide comprehensive maintenance training on Creed equipment for customers' own mechanics, and has a current intake of 250 trainees per year, including a large number from overseas.

The expanding role of teleprinters in private business and industry began to impose many new demands. Machines had to be capable of operation by relatively unskilled personnel, while the noise, bulk and appearance of earlier printers were becoming increasingly unacceptable. Equipment was required to be simpler and quieter, more compact and streamlined in appearance, offer a wider range of facilities and need less frequent servicing. The page model teleprinter was dominating the field and it was evident that while the "old faithful", the Model 7, could go some way toward meeting the new trend it was fast approaching the end of its development life. A completely new approach was clearly necessary.

**1954** As an interim measure, the Model 7 was revamped as far as practical and emerged as the Model 54 Teleprinter. With its improved printing visibility, combined with numerous detail improvements and the introduction of such facilities as immedia type, two-colour ribbon, reperforating attachment and an overall cover giving much quieter operation with better appearance, it quickly won favour with customers both at home and overseas. Some 6,000 have been delivered to date. At the same time work was started on the development of a radically new page teleprinter which was to form the basic unit of a fresh generation of machines.

This new printer was to be far smaller and lighter than its predecessors and be capable of operating at 100 words per minute (a 50 per cent advance in speed) with reduced maintenance, while offering facilities not previously available. The story of this important and now well-known machine - the Model 75 Teleprinter - will be told elsewhere, together with details of the numerous units of the Model 75 line that have since been developed: the reperforating (tape punch) attachment; printing reperforator; projector printer, film titler; printing card punch; and tape reader attachment.

Meanwhile, two interesting developments had taken place. One of these was the manufacture of facsimile communication equipment under licence from the Western Union Telegraph Company in the USA, a pioneer in this field. Starting off with the Desk-Fax Transceiver, a compact push-button electronic machine for the error-free transmission and reception of all types of written, printed and drawn material over distances of up to 25 miles, the equipment range was subsequently extended to provide a variety of machines and facilities of appeal to business users. Several thousand of these units are now in service.

The other development was the impact on our operations of the new-born data processing industry, stimulated by the introduction of electronic digital computers. Seeking equipment to feed problems into and out of their "electronic brains", computer engineers turned to Creed. And they liked the look of what they saw. Here was equipment in quantity production, and therefore economically priced, which could, moreover, be adapted to their immediate needs. Particularly attractive to them was our work in the field of punched paper tape equipment, since many of their ideas were tape oriented. One snag, however, was the slowness of the equipment, since electronic computers required the use of machines capable of speeds far in excess of those encountered in telegraphic communications, for which Creed equipment was, at that time, exclusively designed. Still, they reasoned, it would suffice until something better came along. Few computer engineers believed that Creed machines would have any real future in their developments, since it was thought that our interests, and capabilities, did not go beyond the communications field. This was challenge and the Company decided to accept it. To date the value of orders received for data processing equipment is in excess of £2,000,000 and orders booked in 1961 accounted for 17 per cent of our total new business in that year.

**1955-59** Our first true data processing machine (as distinct from a modified unit of telegraph equipment) was the Model 25 Tape Punch. Capable of recording computer output in punched paper tape at a speed of 33 characters per second - five times faster than an ordinary teleprinter punch - it ushered in a whole new line of Creed machines. In rapid succession came verifiers, readers, comparators, reproducers and interpreters, all designed specifically to meet the needs of the data processing industry.

**1956** Further enlargement of production facilities now took place with the occupation of new locations at Progress House, Croydon, and Burgess Hill, Sussex, together providing over 53,000 square feet of floor area. The former accommodates the Special Apparatus Division, established and equipped to handle the assembly of custom-built "specialists", equipment systems and other items for which production-line techniques are not appropriate. Repair and reconditioning of customers' equipment is another activity at this location. Also based at Progress House are the Technical Training School and the administrative offices of the Rental and Maintenance Organisation, together with some general production facilities.

With the future in view, the Burgess Hill factory was acquired to provide special facilities for ultra-high precision work, and it is equipped with a comprehensive range of the most modern machine tools and plant for this purpose. It is making an increasingly important contribution to overall production requirements with the Company's entry into the data processing field, and a major current activity is the manufacture of the Model 1000 Output Printer.

**1959** Another dramatic advance in tape punching speeds came with the introduction of the Model 3000 Tape Punch. This hit the headlines with its "impossible" speed of 300 characters per second (3,000 words per minute), more than 40 times the speed of tape punches produced only five years before. There is no faster paper tape punch available anywhere in the world, and the Model 3000 is being delivered in increasing numbers for service in leading electronic computer installations.

**1960** Meanwhile, in addition to continuing development of such individual units of computer peripheral equipment, attention was turned to the design of complete, self contained data processing systems. The result was "DORIS" - the Direct Order Recording and Invoicing System engineered for Shell-Mex and BP Ltd., and installed for field trials at their Royston petroleum distribution depot in Hertfordshire.

Designed to take over the clerical work associated with the booking and delivery of customer's orders, "DORIS" can accurately record telephoned orders from up to 3,000 customers covering a mixed range of petroleum products, and automatically produce all related documents, included extended invoices. It can do all this under the control of a single operator at the rate of one order every 60 seconds, and at the same time yield statistical and accounting data in byproduct tape form for further automatic processing. The "DORIS" project is an important milestone in that it has convincingly demonstrated the capability of Creed electro-mechanical and punched tape techniques to handle complex clerical operations with speed and accuracy and at a much lower cost than electronic systems. It has excited the attention and interest of data processing specialists the world over and promises to open up a significant new chapter in the Creed story.

**1961-62** A unit of punched tape equipment developed specifically for the "DORIS" system was a punched tape information store, the latest version of which is now coming into general production. Identified as the Model 2000 Tape Store, it features a capacity of up to 240,000 alpha-numeric characters with an average access time of only 7 seconds and a read-out speed of 10 characters per second. This unique newcomer to our product range promises to find extensive application as an economical "memory unit" in data systems requiring quick access to static information such as names and addresses, product descriptions, etc.

In 1961 came a further extension of Company premises with the occupation of an area of Suffolk House, Croydon. This location provides office accommodation and a showroom for the Data Processing Group and the Public Relations Department, and also houses financial accounting and purchasing personnel.

Another unique unit of data processing equipment that has now reached the production stage is the Model 1000 Output Printer. Although rapid advances have been made by several manufacturers in the field of computer output printing, the machines they have produced are line printers, designed to print a complete line of type in one operation. This method enables extremely high speeds to be attained, but a penalty is paid in design complexity which is reflected in the high price of such line printers. Using novel hydraulic principles with "mosaic" printing by means of a 5 x 5 stylus matrix, the Model 1000 Printer retains the simplicity, economy and flexibility of serial (character-by-character) printers, yet is capable of operating at 100 characters per second (1,000 words per minute) - 10 times the speed of a conventional teleprinter. The attractive speed/price ratio offered by the Model 1000 makes it suitable for use with both large and small-scale electronic computers, while applications in the field of high-speed data transmission are also envisaged.

Also scheduled for production in 1962 is the Creedomat tape punching/reading electric typewriter. Featuring various combinations of Creed punches and readers in association with an IBM electric typewriter, the Creedomat offers a wide range of facilities of special interest in the growing number of office automation systems based on the punched tape technique. Applications also include input and output operations for electronic computers, high-speed data transmission systems and other communications services.

The years 1912-62 have seen telegraphy and Creed & Company grow up together. Primitive message systems equipped with crude, faltering apparatus have given way to sophisticated, streamlined communications networks that span the globe, providing quick, sure contact over vast distances. Creed & Company has grown from humble obscurity to a dynamic, forward-looking organisation that is one of the world leaders in its field. Today we stand on the threshold of a second industrial revolution. Ahead lies an era of unprecedented technological advancement in which applications for teleprinters and data processing equipment appear to be almost unlimited. While justly proud of our past achievements we can also look forward with confidence to the opportunities and challenges that the future will bring. These first 50 years are indeed only the beginning.