

CHAPTER XII

The trading year 1909/10 had seen the lowest output by the company since 1898, but three years later sales had risen to above £60,000. By this time the wages bill was over £21,000 and the value of stock over £10,000. Profits, however, were still very low and no ordinary dividends had been paid since 1906. It was, in fact, to be the last year of the Great War before an extremely modest dividend of 2½% was distributed.

The period of severe financial difficulties, which had lasted from 1906 to the end of 1910, had placed a heavy strain on the Ashwell brothers, who had worked hard to keep the company on an even keel and had pledged their credit in its support. No fees had been paid to them in 1909 and 1910, in spite of the calls on their time which they could ill afford to spare from their own business affairs; but by February 1911 the position of Ashwell and Nesbit Ltd. appeared to have been at least temporarily stabilised and in that month Arthur and Charles Ashwell resigned. Both had accepted that Frank's early death in 1896 had placed them under an obligation to stand by the business he had started but it had become increasingly more difficult to work with David Nesbit. Now they handed over their role of counsellors and controllers to Arthur's partner George Tutin and to T. G. Mellors who had been the firm's accountant and financial adviser from the start.

David Nesbit now became chairman as well as managing director, supported by Fred Jennings, manager of the London office, and by James Playfair, the company's representative in Scotland, where a small office had been opened in Glasgow in 1907. These two had been invited to become directors in 1908, following the resignation of Stephen Robinson. R. E. Atkinson resigned in 1911 and in October of that year Austin Ashwell joined the board and took charge of the Leicester office. Finally the re-organisation was completed in June 1912 with the appointment of F. C. Pulsford as director, while continuing to hold the office of secretary which he had taken over from Frank Robinson four years before.

During these early years of the century Ashwell and Nesbit continued to develop the various patented systems of heating and ventilating, which had been introduced mainly by D. M. Nesbit and modified and refined by his chief technical assistants. The most important and successful of these was the "Nuvacuumette" system, a development of the apparatus marketed by the Atmospheric Steam Heating

Company and briefly described in Chapter Eight. In the older system an automatic thermostatic valve was placed at the outlet of each radiator, which opened when comparatively cooler air collected in it, allowing the air to be sucked out and thus creating a partial vacuum. A second valve on the inlet side acted as a control valve. In the "Nuvacuumette" system a combined thermostatic and control valve was placed on the inlet side so that the outlet of the radiator gave unrestricted access to a common condensate return main to which a vacuum pump was fitted. All the advantages of the earlier apparatus, such as evenness of temperature, economy of fuel and the prevention of overheating and drying up of the air, applied equally to the "Nuvacuumette" system. A further refinement, known as the "Nutomatic" system, involved the use of a thermostatic device, fixed in each room, which controlled the temperature of the radiators. There was also the "Nucalometer" system which employed a thermostat to control and maintain the temperature of hot water in a calorifier.

Various patents in connection with these systems, including those for the types of valve used, were held by D. M. Nesbit and R. E. Atkinson, and in 1908 it was decided to assign these patents to a new company, to be known as the "New Vacuum Heating Company". It was hoped that this development would lead to a wider use of the "Nuvacuumette" system and an increase in the profits accruing to the patentees and to Ashwell and Nesbit Ltd. who would continue to manufacture the valves. With this in mind Nesbit and Atkinson invited two other heating firms to become associated with them in this project. These were Rosser and Russell Ltd., represented on the board of the new company by J. A. Naylor, and Clements Jeakes and Co. whose nominee was J. H. Clements. Both of these firms were based in London and both were long established. Rosser and Russell, whose origins go back to circa 1800, are a leading heating company today; but of Mr. Clements' firm the writer can find no trace in modern records.

The nominal capital of the New Vacuum Heating Co. was fixed at 6,500 £1 ordinary shares of which 6,050 were fully paid. As the majority of the patents assigned had been in Atkinson's name he was allotted 2,650 shares, whereas Nesbit took only 1,500. The rest were divided between the three interested firms and their nominees, who included Walter Clowes, the senior engineer in the London office. An agreement was made with Ashwell and Nesbit fixing the prices at which the patent valves would be sold to the new company. It is not the intention of the writer to go very deeply into the history of the New Vacuum Heating Co. It outlived D. M. Nesbit by only two and a half years but had become a trading organisation only in name sometime before that. At first modest profits were made,

sufficient to pay a dividend of 5%. Sales reached a peak in 1913 at nearly £4,000, but declined to under £2,000 during the war years when a series of trading losses were recorded. In the early years meetings of directors were held at regular intervals but by 1915 these were taking place only once or twice a year, usually for the transaction of purely formal business. Ashwell and Nesbit were clearly the dominant partner in this enterprise and gained most of what advantages there were, and, although R. E. Atkinson retired in 1912 he was replaced as director by J. M. Playfair and as secretary by F. C. Pulsford.

So matters remained until 1923. In that year most of the patents ran out and, as losses of £145 and £13 had been incurred in the two previous years, it was suggested that the company should be wound up; but as D. M. Nesbit refused to agree to this Ashwell and Nesbit bought up the whole of the share capital at one shilling per share and Clements and Naylor resigned. In 1929 Mr. Nesbit died, and in 1932 the New Vacuum Heating Company finally went into voluntary liquidation, assigning all goodwill and trademarks to the parent company.

For Ashwell and Nesbit the "Nuvacuumette" system was a distinct success. Even by 1914 this apparatus had been erected in seventy major buildings and a large number of smaller properties of almost every type. In addition to factories and shops over thirty hospitals had been heated by this system, and other installations included hotels such as the Grosvenor in London and the Metropole at Brighton, town halls at Perth, Deptford and Sutton Coldfield, and even Arbury Hall at Nuneaton. Two famous London theatres, the Empire and the Coliseum and concert halls in Glasgow and Edinburgh were also included in the list. Following the completion of the contract at the Hotel Metropole, D. M. Nesbit, who afterwards became a regular visitor, received a most flattering letter from the management, who were particularly pleased with the automatic temperature control. Several other testimonials to the efficiency of the apparatus were obtained; for example, after twelve months working of the "Nuvacuumette" system at St. Andrews Hospital, Northampton, the engineer reported a saving in coal of between £800 and £900, so at least one of the company's claims was not exaggerated.

An extension of the firm's operations, which began in 1910, and which might have had an interesting future, was the installation of services in steamships. The living quarters of the "Franconia" and the "Laconia", sister ships of the Cunard line, were heated by the "Nuvacuumette" system; whilst the domestic hot water arrangements in two famous liners, the "Mauretania" and the ill-fated "Lusitania", were converted to the "Nucalometer" system in 1912. Similar work in ships of the Allan and Dunn companies was also carried out

during this time. Whether these installations were subsequently found to be less successful than appears from the records, or whether as rumour has had it, there were quarrels with officials of the Cunard Company after a certain maiden voyage, history does not relate; but the fact remains that operations in this direction never fulfilled their early promise and ceased altogether soon after the end of the Great War.

CHAPTER XIII

The annual accounts for the year which ended on the 30th June, 1914 were presented by the auditors to a meeting of directors held in the Lodge at Barkby Road on the day war was declared upon Germany. Although the value of sales had nearly doubled at a figure of £119,000, the gross profit was comparatively low at £21,700 leaving a nett amount for distribution of less than £3,000. In the words of the board minute concerning the disposition of profits, "a conservative policy would best serve the interests of the company in view of the financial (sic) crisis in the Country." In other words no dividend was to be paid, which was not in any case very surprising under the circumstances of such a small return. However there appears to have been a genuine effort to meet the claims of the preference shareholders who were paid their 6% and at the same time informed that a special fund was to be instituted to pay off arrears of dividend as soon as possible.

At the beginning of the war an addition to the board of directors was made in the person of William Townsend who had been a member of the technical staff at London and Leicester, and a shareholder, since 1903. This continued the deliberate policy of appointing only members of the staff to be directors, and since the beginning of 1911 and the retirement of Arthur and Charles Ashwell the board had consisted entirely of executives of the company. In January 1919, however, William Townsend was asked to resign, although he remained a shareholder until his death in 1955. The vacancy created was not filled until March 1920 when T. G. Mellors was appointed as a director without executive responsibilities, and since that time the board has always included at least one "outside" director. In modern times fees paid to directors have varied considerably and it is accepted that non-executive members of the board receive a higher fee than those who are remunerated by salary. In 1914 the fees were fixed by the Articles of Association at £250 per annum for the chairman and £50 for other directors. In 1915 there was some suggestion that Mr. Nesbit should accept a lower fee in view of his heavy withdrawals from the company in the form of salary and royalties, but he at once referred his colleagues to the relevant Article and the matter was dropped.

D. M. Nesbit was of course very much the dominant figure in the company at this period. He found it difficult not to supervise directly almost every operation of the business, and by 1914 when he was in his 60th year, this continuous activity had begun to affect his health. He was ordered to rest by his medical adviser in the spring of the following year and departed to Harrogate for a month. Two years

later he delegated some of his responsibilities, at least in theory, by appointing F. C. Pulsford joint managing director.

As to most engineering firms the Great War brought many changes to Ashwell and Nesbit Ltd. In the works a gradual switch to war production carried with it a considerable increase in the numbers employed, which as time went on included a comparatively high proportion of women. Between June 1914 and the middle of 1916 the wages bill for the works rose from £7,500 to nearly £16,000. Some new plant was installed with financial help from the Ministries responsible for the production of strategic materials, but existing resources were, of course, used as far as possible. Throughout the war the manufacture of valves, calorifiers, radiators and other heating and ventilating products continued for the contracting department, whose activities were now to be largely concentrated on the munitions factories and other buildings connected with the war effort. Later the foundry began to produce the German "Allweiler" hand pump in considerable quantities. This pump, operating on the semi-rotary principle, was used to clear front-line trenches of flood water, but there were many other uses for it both on active service and at home. The patterns for the castings were taken from examples of the pump found in trenches captured from the enemy.

On the 1st November 1915 the Company received a notice from the Ministry of Munitions which had the effect of putting the productive capacity of the business under government control. Thereafter a very much greater proportion of the firm's operations were directed towards the national effort. For example from the end of that year thousands of 6" shell cases were turned out, the demand for which increased year by year as the vast consumption of ammunition on the Western Front grew to the peak of 1918.

During the middle and latter part of the war a major proportion of the company's resources were concentrated on the engineering services contract at the enormous munitions factory at Gretna in Scotland and to a lesser extent at the Houston Filling Factory near Paisley. Although there was now an office at 233, St. Vincent Street, Glasgow, staff and workmen from all parts of the country were recruited for these jobs and all the preliminary work was done at Leicester. These contracts were far larger than anything previously undertaken by Ashwell and Nesbit. The value of the materials purchased for the Houston factory amounted to over £90,000 but this was a very much smaller enterprise than the Gretna project. At the latter site most of the work was done in the buildings comprising what was known as the Cordite area, which stretched for more than $1\frac{1}{2}$ miles. This area was divided into eight units, each with its

own calorifier chamber fed with steam from a central boilerhouse. The heating surface within the buildings consisted of 4" cast iron pipes with socket and spigot joints and altogether 67 miles of these pipes were laid. The steam and condensed water mains feeding the heating chambers ran for a total of 12 miles and the cold water mains for 22½ miles. The total length of pipe laid at Gretna was no less than 129 miles.

The steam raising plant consisted of sixteen Lancashire boilers evaporating something over 13,000 gallons of water per hour. D. M. Nesbit was proud of the fact that of this volume of water about two-thirds was returned to the hot tanks after condensation, but nevertheless there was some criticism of the steam trapping arrangements by the Ministry's engineer at Gretna. This was answered in a letter from D. M. Nesbit dated 17th March 1917 in which he observed: "When it is borne in mind that practically 66% of water evaporated in the boilers is being conserved and returned for re-use in the boilers I think it reflects most satisfactorily on the steam traps that take care of so large an amount of condensation. As to the traps I would like to observe that in all new jobs where traps or such-like apparatus are installed, there is always a difficulty in the first winters working owing to matters over which steam fitters have little or no control. In new installations there is of necessity always present a large amount of sand, dirt, scale jointing material etc., being removed from new surface due to erosion and this is caught up by the traps and at times 'chokes them up'. It is surprising how much trouble is thereby caused in starting up a new apparatus."

One must remember that in 1917 the proper recovery of condensed water was not the automatic procedure that it is today and Mr. Nesbit took great pains to point out to the Ministry the saving in coal due to the high temperature of the water feeding the boilers. He claimed that the saving amounted to 949 pounds of coal per hour which equalled 3,710 tons per annum at about 20/- per ton. As this applied to only six-eighths of the installation and there was also a great economy in water charges he calculated a total saving due to the recovery of condensate, of over £6,000 a year. Mr. Nesbit ended his letter to the Ministry by expressing the opinion that this was a great achievement and a fitting termination of his own labours "on this stupendous work".

Not all had gone smoothly at Gretna, however, and difficulties had been encountered with the caulked pipe joints. Many of these had failed after installation and the directors went so far as to recommend the transfer of the engineer on the site, Ernest Staples, to another job. Eventually the company had to find a sum of £6,000 to cover the cost of the remedial work involved.

Altogether this contract took 2½ years to complete and cost the firm about £75,000 in wages and £175,000 in materials, in addition to items supplied by the Ministry as a free issue. But there was little

return for all the effort and in any case more than half the available nett profit in the year 1916/17 was taken by excess profits duty and what was known as the Munitions Levy, which together amounted to nearly £7,000.

CHAPTER XIV

The end of the war found the company greatly enlarged both in terms of output and of establishment. The volume of work done had reached a peak in 1917 at a figure of £330,000, more than five times the sales of ten years before and three times those of 1914. The following year saw a fall to £170,000 but most of the big government contracts had by then been completed. The wages bill had been over £100,000 in 1917 and salaries had reached nearly £7,000; in the next year, although contracting wages fell considerably, manufacturing wages and staff salaries went up and continued to rise in 1919. Profits had not by any means kept pace with activity, however, remaining a little over 1% of sales throughout the war, a very low margin by any standards. There had been no distribution of ordinary dividend for twelve years, and the 2½% paid in 1918 cannot have been much encouragement to patient shareholders. The necessary redemption of debentures, high bank interest, and the excess profits levy had been a heavy drain on the company's earnings, so that little had been ploughed back into the business since 1914.

For some years the company's operations had been conducted from four regional offices. Leicester was the registered office, but London had always been regarded as the head office of the heating and ventilating business. In Scotland, where J. M. Playfair was in charge, the office was in St. Vincent Street, Glasgow; and at Manchester there was an address in York Street, although previously there had been an establishment at Withington. Since 1912 the company had maintained a sub-office in Liverpool consisting of a room in Royal Liver Buildings; later the address changed to 5 Strand Street and activities continued there until 1922 when work in ships had been almost entirely discontinued. In May 1919 a branch office was open at 3 Newhall Street, Birmingham where a large contract at the Aston Cross Works of the Dunlop Rubber Company was in progress. A future director, Walter Charles, spent over two years on the site and had been successful in obtaining other work in the district, as well as working on the plans of the great Fort Dunlop building. He moved permanently to Birmingham from Leicester in 1923.

In addition to these offices from which the heating business was carried on, a number of agencies for the sale of the products of the works had been established. Primarily these agents handled the semi-rotary pump, for which the trade mark 'Runwell' was registered in 1919, and included representatives in Canada, Belgium and Holland. The various patented valves were sold through the New Vacuum Heating Company, to which previous reference has been made, and other products were handled by British Steam Specialties, no longer a subsidiary, but with close trading ties to Ashwell & Nesbit.

With this general expansion of the business output rose almost to the 1917 peak, approaching £300,000 in the year 1921 when a dividend of 6% was declared. But, although profits were a little better, problems of liquidity again appeared in an acute form. The increasing size of the establishment during the war had again put a heavy strain upon financial resources, and the attempt to maintain and even enlarge this establishment in the immediate post-war years, without the considerable improvement on profit margins which might have been expected, only exacerbated the difficulty of maintaining sufficient working capital. Various means had been sought to raise money, and in February 1919 the company was at last successful in selling the remainder of the freehold property in Great Central Street. A portion of the land and buildings had been sold to Whitbread and Co. the brewers, in 1912 for £2,700 but subsequent attempts to dispose of the remainder of the site had failed. In the same year a small strip of land at Barkby Road was bought by J. Bates and Son for £400. However, something much more fundamental appeared to be required to solve the Company's problems and in November 1919 D. M. Nesbit made the rather shattering suggestion that the firm's manufacturing facilities should be sold lock, stock and barrel. He had even a prospective purchaser in mind, an organisation known as Wells Vegetable Fuel Power Co. Ltd., and mentioned a possible selling price of £100,000 which was about double the balance sheet value of the plant. It is evident that negotiations to further this idea did not succeed, as the board, after hearing from T. G. Mellors and George Tutin, decided to "arrange to do all possible to develop the manufacturing portion of the business with the object of making it a more remunerative asset". However, a reciprocal trading agreement was drawn up between the two companies which allowed the Wells organisation, who were manufacturers of gas producers and refuse destructors, to utilise some of the Ashwell & Nesbit patents while granting manufacturing rights to the latter. D. M. Nesbit joined the board of the Wells Company but the relationship with them, which in fact lasted until 1931, was an uneasy one, mainly due to their reluctance to pay their bills, but also to technical difficulties with the gas producers, including one minor explosion in a factory at Halifax.

By the early summer of 1920 the bank manager, Mr. Newell, was again asking for a reduction in the overdraft which had risen over a period of twelve months from an average of £8,000 to a figure of up to £17,000. Parr's Bank had recently amalgamated with the London County and Westminster and there was no doubt a fresh desire to tidy up the Ashwell & Nesbit account. At this time the outstanding First and Second Debentures stood at £12,800 of which £4,000 were still held by the bank, but at the end of the year a new series of

debentures was created and the previous first and second issue were cancelled. Some of these were taken up by senior staff such as J. T. Swift and J. W. Sleightholme, who was assistant company secretary; and others by such men as Charles Ashwell and F. N. Ellis, who was Austin Ashwell's first cousin. This did not solve the company's financial problems, however, as capital expenditure during the year had amounted to nearly £19,000 against the nett increase in capital of £17,200. So once again the directors were called upon to give personal guarantees, although there was evidently some reluctance to comply on the part of Fred Jennings and J. M. Playfair.

Early in 1921 an approach was made to the Joint City and Midland Bank, for whom F. C. Pulsford prepared a long report setting out the company's position in detail. There was no doubt a hope that better financial accommodation might be had from new sources or that Parr's Bank might possibly become more generous if they thought there was a danger of losing the account. In the end the flirtation with the Midland seems to have had the desired effect and reasonably satisfactory terms were negotiated with Mr. Newell, who was also impressed by the much better result in 1920/21 when profits were at their highest level for fifteen years.

It was perhaps, unfortunate, considering the shortage of ready money, that at this point of time the Doughty Estate decided to sell No. 12 Great James Street. By an earlier arrangement the property was offered first to Ashwell and Nesbit, the leaseholders, but the directors were in no position to raise the necessary capital, and in May 1921 informed the owners of their inability to purchase. However, D. M. Nesbit proposed that he should buy the house on his own account and re-sell it to the company on easy terms. He informed the board that he would require 8% interest on the purchase price of £4,000 and that repayment should be at the rate of not less than £500 per annum. The company must agree to bear the whole of the expenses incurred in the purchase and re-sale of the property and to defray all outgoings so that he would suffer "no expense whatsoever". In view of the obvious advantages of obtaining the freehold of Number 12 Mr. Nesbit's offer was readily accepted by the board as being really the only solution. He was certainly not a man to give anything away but the rate of interest asked for was not unreasonable, being 1% above the current bank rate and the same as that paid on the debentures. As it was, both parties must have felt satisfied with the deal, and the necessary agreement was signed and sealed at the end of August.

In 1921 Mr. Nesbit's health began to trouble him again. In the previous year he had resigned the office of joint managing director,

leaving F. C. Pulsford as sole managing director and secretary, and had been officially appointed "Consulting Engineer" to the company, whilst continuing as chairman. He was advised to take more time off by his doctor and was absent for a considerable period during the autumn. He was still very much in control, however, and was duly re-elected chairman at the annual general meeting held on the 12th September 1921, when at the same time he must have been gratified that the board was able to declare an ordinary dividend of 6% although the nett profit was still less than 2% of sales.

CHAPTER XV

As recorded in the previous chapter any ideas there may have been to dispose of the works were soon abandoned and efforts were directed towards turning the plant into "a more remunerative asset". D. M. Nesbit and F. C. Pulsford became active in putting forward new projects and reviving old ones to fill the capacity made available by the cessation of war production.

One legacy of the War was, of course, the "Runwell" hand pump, and this continued in steady production. The standard type was made in eleven sizes ranging from a unit weighing eleven pounds and moving 240 gallons of liquid per hour, up to a pump with 3" connections handling 4200 gallons, although this volume depended on the ability of the operator to maintain a speed of about forty strokes of the handle per minute. The largest size of pump was priced at £11. 15. 0. in 1915 but this figure had increased to over £18 by the end of 1922, by which time agencies had been established all over the world, some of which were still representing the company in 1968. A new development was a power operated rotary pump but this was never a great success and the writer cannot trace that many were made. No doubt competition from the more compact centrifugal pumps of other manufacturers made them difficult to sell.

The manufacture of cooking apparatus by the firm dated from 1887 when Frank Ashwell took over the Victoria Foundry and continued the previous owner's production of solid fuel stoves and ovens. These continued to be made after the move to Barkby Lane in 1904 but were quickly supplemented by steam operated equipment. This range of apparatus included water heaters, steam kettles, hot closets and "bains marie", but the major products were steam jacketed boiling pans of capacities up to eighty gallons, and wet steam ovens. The former consisted of an inner pan, which could be made of either cast iron or tinned copper depending on the type of food to be cooked, and an outer casing of cast iron, the space between forming the steam "jacket". The ovens, which could be supplied with up to six compartments, were used for steaming fish, potatoes, hams and other provisions. They were made of cast iron with heavy steam tight doors and were provided with perforated steel trays or wire baskets for holding the food. A safety device prevented the doors being opened until steam was shut off and the interior of the oven vented to atmosphere.

The nature of this type of apparatus tended to confine installations to hospitals and other large public institutions including His or Her Majesty's prisons and before the 1939/45 War a large kitchen was often completely equipped by Ashwell and Nesbit. The company continued to manufacture boiling pans and ovens until very recently although in the last few years the trade had been much reduced.

Latterly, also, cast iron pans became unacceptable to many users unless the interiors were rust-proofed or made of stainless steel, which made them very much more expensive. Today gas or electrically operated equipment has largely replaced the older type of cooking apparatus.

The introduction of a new project for the works, a Combined Destructor and Gas Producer, patented by Mr. John Wells, followed the signing of the agreement with the Wells Vegetable Fuel Power Company in 1919. This plant was designed to convert vegetable and other refuse into a gas, composed mainly of Carbon Monoxide, Nitrogen and Hydrogen, which could be used to drive internal combustion engines or applied to heating boilers, kilns or other furnaces. The plant was of considerable bulk and took up a great deal of space. F. C. Pulsford invented the name "Vegablegas", which became the trade-mark of the apparatus, and earnest efforts were made to promote it. A descriptive leaflet was published in 1922, which took the slogan that "There is power and profit in dust-bin refuse". This pamphlet was extensively interlarded with quotations from Shakespeare beginning with "If our virtues did not go forth of us, 'twere all alike as if we had them not", and ending with "Screw your courage to the sticking place and we'll not fail", which, in view of the afore-mentioned explosion at Halifax, seems a suitable epitaph to this venture. Apparently only two complete installations were ever carried out by Ashwell and Nesbit but the reason for the failure of "Vegablegas" is not clear unless it be the obvious one that town's gas was cheap and plentiful.

For some years, both before and after the first world war, the foundry produced an extensive range of cast iron radiators. There were three types of plain surface radiators, known as the "Leicester", "Nestor" and "Nestorette", made in various shapes and sizes. There was also a patent Gas Steam Radiator which was heated by gas jets and passed warm air into the room through a centre column, combining convection with direct heating surface. Another type consisted of a series of "gilled" tubes for which extravagant output claims were made. During the inter-war years the mass production of radiators by, for example, the National Boiler and Radiator Company, now the Ideal-Standard organisation of Hull, rapidly made their manufacture by a small foundry uneconomical. Even in 1919 part of a report made to the board read as follows: "At the present time the Foundry is principally kept going by putting down two full batches of radiator loops with each blow. Owing to the lack of orders the stock is getting very high, but to stop making loops would be nothing short of disastrous for the foundry and would mean general disorganisation

and the loss of any advantages we have gained in prices etc. It is therefore a pressing matter to obtain an outlet for our radiators, either through the B.S.S. Ltd., or elsewhere, if the manufacture is to be kept up to its present degree of efficiency". By 1930 production of radiators in the works had ceased altogether.

The writer does not intend to recite a complete catalogue of the products of the works during the twenties and thirties. A fair number of calorifiers were manufactured both storage types for hot water service and non-storage calorifiers for heating. Production of the "Nucconomiser" continued but only at the rate of twelve to fifteen a year. In the mid-twenties, in common with many other foundries, the Barkby Lane Works went through a very difficult period. In order to keep things going, orders from the local authority for such things as street lamp standards and brake shoes for the tramcars were accepted at cut rates. The works manager, J. T. Swift, spent a great deal of time visiting such possible clients for castings as tool makers and engine manufacturers, some of whom, indeed, became good customers in better times. But works output fell rapidly. Between 1920 and 1924 manufacturing and foundry wages dropped from an annual figure of £38,000 to £10,500 and at the end of 1924 work-in-progress stood at about £2,500.

The immediate post war years were little better for the heating and ventilating side of the business. During the war the organisation had been considerably expanded to meet the enormous growth in government sponsored work, but when this ceased it was essential to find new outlets to replace it. The number of men employed had been substantially reduced after the completion of the contracts at the armaments factories, but there was a reluctance to dispense with the services of members of the staff and those at supervisory levels, so that overheads remained high. All old customers and many new ones were pursued with vigour but by the 30th June, 1924 annual sales had fallen to just over £140,000, half the turnover of 1921; and there was a loss on trading, the first since 1911.

However, some interesting orders were received and a small but valuable new clientele established. The company was notably active in Scotland and good orders were obtained from institutions such as the University of Glasgow and Edinburgh Royal Infirmary where very extensive works were to be carried out over the next three decades. Further south the company began a longstanding connection with such concerns as Courtaulds, W. & R. Jacob, Lewis's Ltd., Rowntree & Co. Ltd., and the "Evening Standard". Between 1921 and 1926 a number of overseas installations were completed for the British-American Tobacco Company particularly in China and

also in South America. In the following years these companies were to form, with others, a first class industrial connection for Ashwell and Nesbit.