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CURDS AND WHEY

The last hundred years in the cheese and milk trade seen through Derbyshire eyes.

by

Janet Arthur

PART I. General Review and the First Cheese Factories

Hard Times.

Farming in south-west Derbyshire in the early nineteenth century was very mixed, a little bit of everything. Some farms were over 150 acres but there were many smaller holdings and all had a few cows, sheep, pigs, poultry, horses for the work and orchards for fruit. Apart from providing for the household the chief product of the larger farms was cheese, made in the summer and stored until ripe for sale in the autumn. During the winter there was so little feed for cattle that little milk was produced, though some butter was made. Farms within reach of Burton-on-Trent benefited from the growth of brewing. Farmers could fetch the waste grains from the breweries and store them for use as cattle feed, which prolonged milk production but cheese was still a seasonal business.

Cheese-making was heavy work done by the women. During the summer most of the day would be occupied in making cheese and turning those already made. The cheese matured slowly and was sold at annual cheese fairs, though some buyers visited the farms to pick choice quality. Towards the end of the century the farmers began to find they had foreign competition and just at a time when bad weather meant poor crops and sick cows, they found it more and more difficult to get a good price for their cheese.

The effect of the enclosure of land in this country had rebounded. Intended to enlarge and improve the farms, parliamentary enclosure of the common lands had begun slowly in the early 18th century and speeded up towards the end of that century. Gradually the bigger landowners bought out the people who had had a few plots and grazing rights. These cottagers left the land and in the poverty after the Napoleonic wars they set off for America, Australasia and South Africa. At home the fewer, larger farms did improve, produced more food for the townspeople and between 1815 and 1846 the Corn Laws kept the price of corn high for the farmers. But the settlers in America were working hard and taking more land into cultivation and by the 1870s they were ready to compete with the farmers in Britain. They grew corn in such plenty that it could be sold cheaper than English corn and the cheaper bread was welcomed by the poor factory workers. The wheat was harder than that grown in England and better for bread making. With the invention of refrigerated ships, meat and dairy products began to flow across the Atlantic. In spite of the cost of

transport American cheese sold for 30% less than English cheese.(1) It cost the English dairy farmers more to make their cheese than they could obtain by selling it. Their income went down as prices went down and their share of the market fell. The only thing they could do was cut back, reduce their output to the amount they could sell, compete fiercely with their neighbours for buyers and hope the market would stabilise. But the laissez-faire system of reducing production in order to increase the price did not work while overseas produce continued to be imported.

It was difficult for many to understand why the farmers did not pull themselves out of their depression. An article in the Derby Mercury on 21st September, 1892 said it was "not complimentary to English agriculture that we should rely on imports, especially butter, cheese, eggs and bacon, when assured of the depression of agriculture in the United Kingdom", but farmers were unable to work profitably.

The decline in farming activity is demonstrated by statistics for 1881 which show that in Derbyshire 52,000 acres had been taken out of the rotation of cultivation and instead of producing corn, green crops and clover, were now additional permanent pasture.(1) This state of affairs continued for a considerable time. (2)

The farmer in this country fended for himself and could not improve his position. In America after 1850 farmers had begun to group together to make cheese successfully. This system was brought to Derbyshire in 1870, but it was up against both the existing difficulties in farming and also the problem of adapting a foreign technique to the local conditions. Another challenge grew out of the factory system itself. Instead of the farmers making and selling cheese, the accent changed to them producing and selling milk. At first they sold to their local factory for cheese-making, but quite soon they sold individually to contractors from the cities, in fact to anyone who would buy.

The building of the railways greatly facilitated the transport of milk and brought Derbyshire within reach of the London and Manchester centres of population. The greater demand for milk there encouraged farmers to enlarge their herds, which improved their incomes but increased the need for a secure market. The effort involved in making cheese on the farm when a buyer failed was greater once the routine of cheese-making had gone, but at any time the buyer could telegraph and stop the milk, leaving the farmer with more milk to make up into cheese, if it was not to be wasted, than in the days when cheese-making was a regular task. Once the herds had built up so that the milk supply exceeded the demand at certain times of the year, the farmers were again vulnerable and this time with a perishable commodity. The cheese factories did not receive a large enough regular supply of milk to make them secure financially. The farmers looked to the liquid milk

trade for their regular income and turned to the cheese factories only when there were no other buyers. At times the factories were flooded out with milk, but the market for their cheese was still uncertain.

Some farmers did try to look ahead and formulate a joint policy. In 1892 one was writing to the newspaper urging his fellows not to fall for the milk contractors' tricks:

> "The Derby Agricultural Show will soon be held and as this is the time when London Milk Dealers come 'not for business but just on a visit' meet with milk producers, judiciously selecting a few weak and more pliable ones, and get contracts at a very low figure, it is well to be on the look-out.
>
> "Such contracts will later be confidentially (?) produced to other sellers for the purpose of getting them to sell at a ruinous price and so unintentionally the first weak seller does much mischief to all his fellow farmers.
>
> "With a poor crop of hay, higher prices for cake, meal grains, wages, milk will cost more to make.
>
> "Our keenest competitors the Scotchmen, who took farms that had been vacated in Essex so long, and sold their milk at prices below those current with their neighbours, now find it will not answer to do so, and are calling out for better terms.
>
> "New proposals are made to form farmers' dairy companies in London and in Derby and if better prices are not obtained it will be the producers' own fault. How dairy farmers' associations have been formed, and increased activity, is manifested everywhere.
>
> "It is to be hoped that dairy farmers will in the future show a little more spirit and loyalty to those who are trying to help them than they have done in the past". (3)

A letter the following week from R. W. Osmaston went further. He said that the best time to enter a contract would be October or November, when milk was scarce and dairy cows dear. It was a cause of friction between the buyer and farmer if the latter sent too much milk in the summer because it clogged the market. Milk held back would quicken demand and if it was sent to London and turned back it was fit for nothing, especially after a second railway journey. There was no outside competition for milk, so they should make the most of the monopoly. "As Derbyshire stands unrivalled

for splendid dairy cattle, the reasonable trades unionism of the farmer might be appropriately originated in this locality".

Cooperative dairies had begun in this locality but had been swept aside as farmers competed against their neighbours for the contract of the milk buyer. There was no central organisation for the sale of milk and dairy products. Improvements had to be made by local initiative, and there was no market research or effort to increase consumption.(4) The government had to consider the health of the workers when so many recruits for the first world war were found to be unfit. Agriculture was encouraged but an attempt to organise the milk industry failed. Farmers had formed much larger groupings than the little early cooperatives,(5) but legislation was needed to provide a national organisation that encompassed production, marketing and retailing. The sale of milk was not put on a sound footing until the Agricultural Marketing Acts set up the Milk Marketing Boards in 1933.

At last the farmer could feel assured of a market for his milk, with a milk cheque coming each month. Clean, cool milk was distributed rationally throughout the country, the farmer being directed to send his milk to a particular centre. Very few farmers now concern themselves with making cheese or butter, which is produced in much larger and better equipped factories than the early ones. The amount of milk used in manufacture is controlled centrally. The Milk Marketing Board is responsible not only for the marketing of milk but also its production, even advising farmers when and how much to feed Bluebell or Daisy III, testing the standard of her milk and the cleanliness of her milking machine.

Lord Vernon's Initiative.

The factory system of cheese-making came to Derbyshire as a consequence of Augustus Henry, sixth Baron Vernon's interest in agriculture. He was born in Rome. His father had shut the Hall at Sudbury and lived much of the time in Italy, as he was a writer and authority on Dante. Augustus Henry was also scholarly. He tried university and then the army, but then he married, re-opened Sudbury Hall, settled there and devoted his energies to improving the estate, which led him into the field of agriculture. His wife, incidentally, was the great grand daughter of Coke of Norfolk.

By 1859, when he was thirty, he was a member of the Council of the Royal Agricultural Society of England. He was on sub-committees for Chemicals, Implements and Show-yard Contracts and he was not a passive committee man. He fought against the swindling that went on in the manufacture of manures and cattle foods. On the mechanical side, he acted as steward for the implements section of the Society's shows at Canterbury, Leeds and Battersea, supervising the trial of steam ploughs at the Leeds show in 1861. Steam ploughs had come into

use in 1857. He became President of the Society, offering in 1871 at Wolverhampton "a prize of £100 for the best combination of machinery for the cultivation of land by steam power, the cost of which should not exceed £700. He identified with farmers and their difficulties and "as Chairman of the French Farmers Seed Fund in 1871, he took an active part in the relief of the French agriculturists who had suffered during the Franco-Prussian war". On the day he died, May 1st, 1883, he was in London, "to present a bill for the amendment of the law relating to Agricultural Holdings, the aim of which was to secure the outgoing tenant farmers compensation for the beneficial value of the improvements they have left upon their farms". (6)

Lord Vernon was able to meet people all over this country, and from abroad, who were involved in the latest advances. He introduced some as speakers to the Derbyshire Agricultural Society, to increase the knowledge and capability of local landowners and farmers. The idea of the cheese factories perfectly suited his outlook, from the mechanical and economic aspects and for the convenience and benefit to the farmers and their wives.

Cheese factories were not new when Lord Vernon moved at the Council of the Royal Agricultural Society on July 1st, 1868 that the Journal Committee should obtain information about the American factories. There were none in this country, but twenty years earlier an unsuccessful attempt had been made in Ashtabala, Ohio to transport curds from different farms to a factory and in 1851 Mr. Jesse Williams had successfully begun transporting whole milk. He lived near Rome, Oneida County, New York and his newly-married son lived nearby. The father was a skilful cheese-maker and made a good contract which included the milk from his son's farm, but the son felt too inexperienced to fulfil it and they arranged to carry his milk to the father's farm for manufacture. They soon collected from neighbouring farms as well. (7)

Gradually factories were built, the number in production reaching 21 by 1859, when there was a sudden increase together with an expansion of the export trade. In 1863 and 1864, 111 and 210 new factories were established in New York state alone and virtually all milk was sent to factories and little cheese was made in individual dairies. Butter factories were also in operation and the system covered the whole of the United States as well as Canada and had been begun in Sweden. In fact Britain was getting left behind, but had not always been so.

When Mr. X. A. Willard had visited Europe in 1866, for the American Dairyman's Association, he wrote

> "I went into the dairy districts of Great Britain, and made an examination of all the best English methods of manufacture. I found that in the

> matter of cleanliness, care of milk, treatment of stock, management of pastures, etc., the English were in advance of us, and my Report upon these points has effected a great change in American dairy practice. I am glad to say also that we are beginning to cool milk at the farm before canning (in churns). Thd result of all this, I need not say, has greatly improved the character of American cheese". (7)

The investigation of the American factories was delayed by the long illness and death of the editor of the Royal Agricultural Society's Journal, Mr. Frere, but the next editor, Mr. H. M. Jenkins acted on Lord Vernon's motion, researching in the papers of Boards and Associations in America and writing to experts in New York and Ohio, who replied with detailed descriptions and plans covering every aspect of cost and production and offers of the services of an experienced cheesemaker. Considering that they were in competition with English manufacturers, the Americans were most generous in their response.

Mr. Jenkins' very full report was not published until 1870 but no doubt Lord Vernon saw the details and provoked discussion in Derbyshire before publication. Surprisingly he did not himself speak about it, but must have influenced Mr. Crompton who did, at the 1869 dinner of the Derbyshire Agricultural Society.

John Gilbert Crompton was born in 1820, the son of Gilbert Crompton of Durrant Hall, Chesterfield and grandson of John Crompton who was Mayor of Derby five times and High Sheriff of the County. His uncle lived at Duffield Hall and he lived himself in 1869 at The Lilies, Brailsford. He moved to Milford and Turnditch and eventually died at Windley aged 93. He was not a member of the landed gentry settled on an estate but took his place, after the titled and before the plain misters, with the esquires. With his friend T. W. Evans Esq., he worked for the improvement of Derby and Derbyshire. He was a banker and ran Crompton and Newton and Co. in Irongate, Derby with C. E. Newton Esq., another member of the Derbyshire Agricultural Society who lived at the Manor House, Mickleover. Their firm was to join with Walter and Samuel Evans, cousins of T. W. Evans, and finally become part of Westminster Bank.(8)

J. G. Crompton was interested in agriculture and a founder member of the Derbyshire Agricultural Society, but he was also interested in action. In fact, according to Gilbert Murray, after explaining at the dinner the present position and future prospects of English dairy farmers he pointed out the necessity for prompt and decisive action to improve the quality of their produce.

The Derbyshire Agricultural Society's role lay in an annual competitive show, an annual meeting and an annual dinner. The minutes consist largely of who gave and received prizes.

In fact the cheese factories were the only major innovation at that time. There were also lectures and a great deal of interest in agriculture. The Hon. E.K.W. Coke, son of Coke of Norfolk, who continued his father's policies on the Longford estate was a member, as was T.W. Evans Esq., politician and great philanthropist who owned estates in at least fourteen parts of the county as well as Allestree, where he resided. Mr. Gilbert Murray, the steward of the Earl of Hartington's estates in Derbyshire since 1863 lived at Elvaston and wrote many articles on all aspects of farming. He later promoted the Derbyshire Dairy Farmers Association and was active in the English Cart Horse Society, changing its name to the Shire Horse Society. He was a pioneer. The Derbyshire Agricultural Society was a receptive group. Yet the opportunity used by Mr. Crompton and Lord Vernon could so easily not have appeared.

One of the committee's duties was to appoint a President of the Exhibition and Dinner. In 1869 no fewer than five men approached, declined this honour. At first Dr. Hitchman, the founder and chairman, Col. Wilmot M.P., Mr. Thacker and Mr. Hall were sent as a deputation to wait upon the Earl of Hartington respectfully requesting him to accept the office. If he declined, as he did, Dr. Hitchman, Mr. Sims and Mr. Stretton were to wait upon the Earl of Chesterfield. In case of failure, John Harrison Jr., Esq., of Snelston Hall was to be invited. Alas, they also declined. Dr. Hitchman himself was invited. In July a letter from Mr. Sims of Stanton-by-Bridge was read in which he declined. At last the Annual Report on the 24th December reveals that "the public dinner was well attended and was presided over with consummate ability by Mr. Crompton who introduced to consideration of the members the great success of the Americans in cheese making and the rapid rise in the markets of the price and quality of their cheese; and pointed out the possibility of that nation becoming a formidable rival to the English dairyman in the production and sale of cheese. His valuable remarks excited attention and may probably lead to some extensive changes in the disposal of milk and the production of cheese in this country".

The dinner had been held on 15th September. Support was soon forthcoming and on the twentieth of September Mr. James Nuttall of Chaddesdon, a large dairy farmer, advocated establishing the factory system in Derbyshire.

At the Annual Meeting, on the 24th December, when he was given a vote of thanks "Mr. Crompton replied and then entered into an elaborate statement as to the working of the factory system of cheese making in America and the effects of its introduction in this country". It was proposed by Lord Vernon and seconded by C.E. Newton Esq., that a committee be appointed, composed of those gentlemen who have taken an active interest in the subject to examine anything for and against the system and report afterwards to a meeting of the society. This was carried unanimously.

This special committee worked fast and were ready to report at a General Meeting of the Society held in the Town Hall, Derby, on 17th February, 1870. They were Lord Vernon, the Hon. E.K.W. Coke, Lieut. Colonel Wilmot, V.C.,M.P., The Mayor of Derby (T.W. Evans Esq.), J.G. Crompton Esq., Mr. Murray, Mr. Nuttall, Mr. Coleman, Mr. Greatorex, Mr. Sims, Mr. C. Canner, Mr. Faulkner, Mr. T. Travis, Mr. M. Walker, Mr. Jacob Smith and Mr. Finney. Dr. Hitchman and Mr. Alderman Roe had joined them later as plans developed. They had met frequently, listened to all opinions and set out the results of their deliberations. The advantages were slightly drawn out to make them more impressive but were basically, enhancement of the uniformity, quality, and value of the product of dairies and improvement in skill, equipment and supervision. The third advantage listed is "the removal of an arduous occupation, frequently deterring men of capital, from domestic considerations from entering upon farming in which cheese making forms a prominent feature", a manufacture hitherto subject to great uncertainty and vicissitude.

They had decided that one factory should be established in Derby and a second in a dairying district in the country. The Derby one was to be in Siddals Lane in a most suitable building, which had been used as a cheese warehouse, offered rent free for the first year by Mr. Alderman Roe. The location of the country factory had taken longer to select. A building would have to be specially erected, so it was decided to offer 40% repayment to the owner in case of failure and to pay rent. That settled, several districts were looked at and local meetings held to ascertain the facilities being offered and the quantity of milk available. Sudbury, Weston-under-Woods and Etwall were tested, but, after careful consideration, Longford was unanimously chosen. The committee expected to receive the milk from five hundred cows at Longford and, to encourage the farmers, had decided to offer them $6\frac{1}{2}$d a barn gallon (9) as well as a share in the profits. Sympathy was expressed for C.E. Newton Esq. whose generous offers at Etwall had not been accepted.

The committee had advanced somewhat further than their terms of reference "to examine anything which might be stated for or against the system, and as to its introduction into this county and to report afterwards". Not only had they committed themselves to two sites but after advice from a member of an eminent firm in London (the largest exporter of factory made cheese from America), had engaged an experienced man for one year to superintend the factories.

A guarantee fund of £3,000 had been raised, which the committee hoped would be enlarged so that the call on each guarantor would be as light as possible. After expressing their gratitude to all their supporters the committee explained that they thought it prudent to proceed no further with arrangements until the arrival of the manager, but fully expected to see the system in work about the beginning of April.

The proceedings ended when a vote of thanks to the Duke of Devonshire for presiding was carried by acclamation.

Could the cheese factories turn the tide?

The committee who first investigated the factory system continued to influence its development. They supervised the two factories at Derby, where Mr. Crompton was chairman of the committee, and at Longford, with the Hon. E.K.W. Coke in the chair, for the first two years. The contributing farmers then took over the management as cooperatives. Mr. Crompton demonstrated his confidence in the system by converting a malthouse at Windley into a cheese factory, which ran very successfully. Mr. Newton built the Etwall factory on his land and Mr. Evans soon had a factory on his estate at Brailsford.

In many places the farmers needed the financial help of the land owners and this was forthcoming. The Sutton-on-the-Hill farmers, seeing the success of their colleagues at Longford persuaded the Chetham estate, with advice from the Longford manager, to build a dairy in their village. The Chandos-Pole-Gells of Hopton Hall provided a cheese factory at Grange Mill and Major McCreagh-Thornhill another at Gratton. The Duke of Devonshire made provision at Hartington. At Reaps Moor, the Holms Dairy was a combined effort, the land being given by Mr. Joseph Shirley, the materials by Miss Prince of the Brund and the labour by the contributors; but at Hope Dale the factory was built entirely by the cooperative capital and efforts of the farmers themselves. This became the pattern and factories were built at Marston Montgomery and Rocester and Egginton. Other factories were built or provided at Kedleston, Higham, Ecton, Mayfield, Parwich, Glutton Bridge, Waterhouses, Croxden, Elton and Spondon.(10)

They formed two distinct clusters, one in the uplands of the River Dove, the other on its alluvial plain, west of Derby, before it joins the Trent. Very few documents remain relating to these factories. There follows a record of the memories of those who worked at some of them or who were connected with them. Many regret that even sample papers are no longer available but, as there has been more than one source for each area, it has been possible to verify and confirm most of the observations. The detailed contemporary reports of the Derby, Longford and Sutton-on-the-Hill factories are extensively quoted as they cover the period before my present informants were alive.

After the initial enthusiasm, the history of the dairies is varied. Some had difficulties in making a profit even in the early years. Many closed before the 1914-18 war as a result of competition from milk contractors. Mr. J.R. Bond, retired Principal of Broomfield Agricultural College commented: "At the time that the factories were starting there was a

serious outbreak of rinderpest and the London dairymen had to come out into the country to get milk. Derbyshire had the railways and the cattle and they missed the disease largely and that was how the liquid milk trade started. The farmers had begun transporting milk from the farms to the factories instead of making cheese at home, so it was as easy to take it to the railway to send to London. The factories became a bit of a nuisance to the milk trade and there was a constant war between the contractors and the people wanting to run the cheese factories".

This is borne out by the Report of the Associated Dairies (Derby and Longford) in 1873. At first there was "no little prejudice" against taking milk from the farm to the factory, even if only a very few miles, "difficulties of conveyance at that time seemed so overwhelming and the risk of injury to an article so perishable appeared to be so great". But they found from the first year that "even in hot weather with ordinary precautions milk could be conveyed long distances without injury and this at once stimulated the desire on the part of the producers to dispatch their milk to distant centres for consumption. Before the feasibility of moving milk had been proved, scarce a single churn of milk was sent out of the county. At the present (1973) time the traffic in milk from the Derby Station to the Metropolis, exclusive of all milk sent to Manchester, may be quoted at twelve tons per day, whilst special trucks, termed milk vans, have been built by the Midland Railway Co. to meet the unexpected and increasing traffic".

At this stage the factory committee were too engrossed with the opposition from cheese factors to appreciate the danger from milk contractors: "Not only had the various phases of the system to be watched with minute attention; under the full consciousness that the slightest error in make would involve a large pecuniary loss; but the mere commercial part of the undertaking, the having to dispose of such large stocks of cheese, with, at one time, well nigh every factor a foe, and every dealer determined to crush out a movement from which they anticipated nothing but evil, was an undertaking of great and serious responsibility".

The factories did take a lot of cheese making off the farms, but they never became the major cheese industry that had been envisaged. They developed a compromise. A lot of milk was sent on by them to London, while the surplus was made into cheese. The cheese making side became subsidiary to the liquid milk trade and where the milk contractors had the upper hand, the factories closed. Farmers began to make contracts with milk buyers or leading farmers. Mr. Mellor of Barrow Hill used to buy the milk all round Uttoxeter and send it to London and Mr. Wall sold milk for farmers in the Rowsley area.

Mr. J.R. Bond: "Sending milk to London became a big business. They used to run milk from Tutbury. There was a night train of practically all milk. Derbyshire milk was popular in London because it kept so well. The people who had been in the habit of making cheese understood the principles of cleanliness and Derbyshire milk had the reputation of long keeping. It was nothing to do with the limestone. They didn't know about pasteurising, though that came in before the first war. The trade did learn to pasteurise milk, whereby it would keep, but farmers' milk would be sent at night to be retailed on the streets sweet. If if was sour, of course it was sent back again".

By the turn of the century, most of the little cheese factories were finished. One entrepreneur, Mr. F.W. Gilbert, bought several and when United Dairies was formed, as the result of the first war, a number of smaller dairies were not large enough to be considered in the amalgamation or were squeezed out. Some were bought up in order to close them. This eventually happened to the original Derby factory.

There was a little movement in the other direction. The Nuttall family opened a factory for Stilton cheese, moving to Ashbourne and later to Woodeaves, also re-opening the Hartington dairy, for Stilton. Nestles began a milk condensery at Hatton and another at Ashbourne and, when farmers thought Nestles were misusing the power of their monopoly, they rebelled and re-opened the Brailsford factory and began their own at Willington and Ashbourne. Sir Charles Markham opened up the old Longford factory, and Lord Vernon built a new factory at Sudbury for making butter which also did produce some cheese and cream.

Some of the older dairies stayed open throughout. Reaps Moor eventually closed in 1950. Glutton Bridge carried on until the 1960s and Gratton until 1930. The Egginton factory never closed and is still in operation making Stilton cheese, although it never made hard-pressed cheese in the early days.

Mr. J.R. Bond: "Another change has been the growth in the use of oil cake which is the by-product of crushing oil for soap manufacture, linseed, palm seed and coconut. Soya is a much later product. The old farmers did not have these oil cakes, so they did not produce milk in winter. It was only when the oil cakes became plentiful that they could produce milk by feeding oil cake to the cows. You cannot produce milk in winter on hay only; very good hay might give a moderate yield. And the fertilisers for grassland enable people nowadays to improve the output and carry a greater number of cattle on the farm. In the old cheese making days, the cows were calved in March and April and went dry in October. That suited the cheese making because you cannot make cheese in Winter, not on the farms. A farmer's wife had to have a warm hand to make cheese and a cold hand to make butter. The old-fashioned Derbyshire cheese, once made with a little square piece of a calf's stomach floating in the milk to turn it, is no longer made on the farms".

One could say that the cheese factories came too late. They would have been of benefit years earlier, but by the time they were established in Derbyshire, the milk industry was moving on to a larger organisational base. It was difficult from the beginning to make the factories large enough to be profitable. Mr. Jenkins', in his report to the Royal Agricultural Society, quoted Mr. X.A. Willard who estimated the costs of factories and pointed out that the expense of building a factory was nearly as much for the milk of three hundred cows as for that from six hundred cows. Whereas he estimated the profit from a six hundred cow factory at £258 a year, that for a three hundred cow one, on the same principle, would be reduced to £18, and less than three hundred cows would run at a loss. Although factories in America varied from three hundred to two thousand cows, he recommended five to eight hundred cows as there was less waste than at the very large factories to which milk travelled long distances, and more efficient use of machinery than the smallest.

The villages in the south-west of Derbyshire are generally about three miles apart and the factories were also about three miles apart, which limited the number of cows supplying milk to each factory. When the Derbyshire Agricultural Society set up the first factories they were looking for an area that would produce the milk from five hundred cows and their report said of Longford "there are already absolute promises from farmers in that district to supply the milk of more than five hundred cows", but in the first year they had milk from 458 cows at Longford and at the Derby factory from 274 cows. During difficult years for agriculture the small turnover of the factories must have reduced their chance of profitability.

Recent factories built by the Milk Marketing Board are on a much larger scale, receiving milk from a radius of twenty miles. One of the largest in the country is at Alfreton. It was built in 1968 to provide extra capacity for the manufacture of butter and skim milk. Thousands of gallons of surplus milk from all over the district are taken in three thousand gallon tanker lorries onto a weighbridge and the milk sucked down into holding tanks. Modern roads and improved transport have made it possible to fulfil the early dreams.

Setting up the Derby factory.

There was a Joint Committee of Management for the Derby Associated Dairies, which had a lot of responsibility as no-one knew how to run cheese factories. Under it there were two local committees and two factory management committees. The local committees consisted of those who had subcribed at least £50 to the Guarantee Fund and three of the local management committee, seven to be s quorum, and provided a forum for interested parties without them interfering with the minutiae of management. The factory management committee had two of the milk suppliers among six members and had entire

control of the factory, the officers, the manufacture of cheese and the disposal of whey, but their finance sub-committee of three, including the chairman or his deputy, controlled the sale of cheese.

The Joint Committee appointed Messrs. Crompton, Newton and Co. as treasurers and Mr. J.C. Smith as secretary. Mr. Smith was expected to audit the managers' accounts each month, prepare reports, accounts and minutes and pay the milk suppliers 6½d per barn gallon on the first Friday in every month between ten and one o'clock at his Derby office. The share of the profits was to be paid at the end of the season. He kept the accounts of the two factories separate and had to pay by cheque for any amount above one shilling, the cheque being signed by the chairman of the management committee or his deputy.

The managers were to have the power to refuse milk that was inferior, sour or dirty. Any contributor who sent skimmed or adulterated milk was to be reported to the Joint Committee and was liable to expulsion from the Association.

The Bye-laws of the Derby factory further specified that no milk was to be received after half past seven in the morning and half past seven at night. A ticket of weight of milk would be given to the person who brought it each time. The milk from newly calved cows must not be sent for four days after calving. The rules and bye-laws had to be signed by the milk contributor before he became a patron.

The Derby Committee were Mr. Crompton, Mr. Murray, Mr. Nuttall, who was a tenant of Sir Henry Wilmot Bart at Chaddesden, Mr. Tomlinson and Mr. Burnett. They were able to proceed at once in setting up the factory, owing to the liberality of Mr. Roe in furnishing a suitable building and Mr. Higginbotham in supplying steam from the boiler of the engine in his silk mills adjoining it, both as a free gift for the first year.

"Through the interest taken in the experiment by Mr. Hayes of the well known firm of William Cary and Co., London, your committee were enabled to procure through Messrs. Cary's American Agent, an educated American Cheese Maker, Mr. Cornelius Schermerhorn, who arrived in England on the 11th March, and under whose direction the entire plant and organisation at both Dairies were made; and to whose superintendance the Derby factory was entrusted, opening its doors for the first time on 7th April 1870 and receiving the milk supplied by three hundred cows, representing the dairies of thirteen farms". (11)

They soon found that running two dairies under one manager was too much, so Mr. Schermerhorn's brother Levi was sent for and took over the Derby factory while Cornelius set up the one at Longford. Levi returned to America after the first season and though Cornelius was engaged for a second season

at Longford, he was transferred back to Derby "so important did it appear to Mr. Coke and his committee men to eradicate every possible trace of the American type of Cheese, and to adopt under an English maker the advantages of the machinery, concentration of labour, and economy of manufacture to the slower and more careful process of English made Cheese". It was not plain sailing running such an experiment but by the start of the third season the supplying farmers had the confidence to form Associated Dairies at both factories, relieve the guarantors from further risk and Mr. Cornelius Schermerhorn went on to Holland to help Mr. Hoffman at Brock in Vaterland.

There was great praise for "the general organisation, the simple machinery and the labour saving devices of the American system", but there had been some anxiety as Mr. Schermerhorn did not arrive until the eleventh of March and no machinery was prepared until he could supervise it and even then "every portion of the required plant had to be made from oral instruction, frequently involving two and even three attempts before arriving at a satisfactory result". This may have been partly due to the fact that Mr. Murray joined in experiments to improve the machinery then in use in America. He showed models of the equipment at the 1870 Oxford Show of the Royal Agricultural Society and was awarded a Silver Medal. (12)

Mr. Willard of Henkina, New York County had begun to urge Americans to cool milk at the farms after his 1866 visit to Europe and since then a number of devices had been invented in America to cool it to sixty degrees. Mr. Chapman of Madison, New York, had recommended to Mr. Jenkins that the cans (churns) should be stood in cold water, changing the latter two or three times. The Derby factory used a cylindrical can, of the same width throughout. "The lid exactly fits the cylinder like a piston, and so accommodates itself to the supply of milk, thus preventing waste and undue agitation. In the centre of the lid is a tube projecting six inches inside; this, when filled with cold water, tends to lower the temperature of the milk". (11) The cans were supplied by the committee to the farmers at cost price, but the design evidently did not become popular as seventeen gallon churns, adapted from those normally used for churning butter from whole milk, were used for carrying milk throughout the area until Nestles introduced the ten gallon churn years later.

Mr. Coleman went on to describe the automation introduced at the factory, which although it sounds slightly Heath Robinson was ingenious. "As the evening's milk arrives it is emptied into a large tin which stands on the platform of a portable weighing machine, the weight being duly entered in duplicate, one entry going back to the sender. In the bottom of the weighing-tin is a brass valve, corresponding to a hole in the centre of the weighing-machine platform; to this valve a small brass chain is attached, by which it can be raised and the milk allowed to escape into a tin tube, which conveys

it direct to the vats in the making room. The vats consist of two separate parts; the outside part is constructed of two inch deal board, tongued and grooved, and supported on wooden legs; the inner case consists of strong tin secured to a rim of four inches deep and two inches wide; in the inside between the bottom of the outer and inner vats is a space of two inches, which contains the steam pipes, and into which cold water is carried in order to lower the temperature of the milk when required. As soon as the whole of the evening's milk has arrived, and been run into the vats, the cold water is turned on and soon fills the space between the vats, about six inches from the bottom; and at the contrary end to which the water enters, an overflow pipe is inserted, this pipe conveys the water to a small over-shot water wheel, the small quantity of water gives a regular but intermittent motion to the wheel; this motion is communicated to a shaft running longitudinally through the building, to this shaft are again attached a series of wooden rakes, which float on the surface of the milk, and by their action keep up a continuous agitation, thus preventing any cream from rising.

"When the morning's milk arrives it is weighed and run into the vats, and mixed with that of the previous evening; by opening a tap at the bottom of the vat the cold water is all run off, and steam turned on, by an inch pipe running around the inside of the vat. This pipe has small perforations throughout its length, and through these the steam is equally distributed; when the proper temperature has been attained the rennet and annatto are added, the mass is well stirred, and is then covered up until the curd has formed. To facilitate the separation of the whey the curd is cut with knives specially constructed for that purpose, the temperature is then slowly raised, until the whey has arrived at a proper state of acidity; it is then run off by means of a syphon into a drain in the floor, which conveys it into the whey cistern outside, the curd is then tipped into the dry vat, and is here well stirred by the hand and exposed to the atmosphere, the principle object being to lower the temperature of the curd before salting. In order to reduce manual labour to the minimum, in many of the American factories there is a difference of three feet in the level of the floor of the making room, this is there called the drop; by opening a trap in the end of the milk vat the curd is emptied into the dry vat without being touched by hand. Mr. Murray has introduced a considerable improvement by the application of a simple mechanical arrangement of the screw principle, by which, when the whey is run off, the vat containing the curd is raised to the level of the dry vat; the screws at each end of the vat are of different pitch of thread, so that when elevated to its full height the one end is four inches higher than the other, a valve at the lower end is opened and the curd easily passes into the dry vat. The curd when salted is put into hoops, these are placed in the presses, and pressure of from three to five tons applied.

"The American presses consist of a screw working through a nut attached to a strong wooden beam; a circular print, six inches in diameter, is loose reefed on to the bottom end of the screw; this print is for the purpose of distributing the pressure on the follower, which fits into the inside of the hoop on the top of the cheeses, the screw is turned by a hand lever fitting into holes in the print; the only practical objection to this system is there is no continuous pressure. Mr. Murray has likewise invented a new press, by which a large number of cheeses can be pressed at the same time; each cheese is placed separate, and the pressure applied by means of screws working in bevel gear and turned by a crank-handle. A ratchet-wheel, to which is attached a lever, is placed on the spindle, and by this means any amount of continuous pressure can be obtained, the cheese only requires to be kept from ten to twelve hours in the press, they are then raised by a lift to an upper floor, where they are turned daily until fit for market".

Mr. Murray described the Derby factory in an address to the Royal Agricultural Society in 1871: "The building is sixty feet long and thirty feet wide and consists of three separate floors. It adjoins the Derby canal and Mr. Roe's timber yard, the ground on one side being level with the first floor. The basement being an excavation insures an equable temperature, which is conducive to uniform quality in the cheese. A width of six feet in the east end, embracing the whole width of the building, was partitioned off and excavated to the depth of four feet, lined with blue bricks laid in cement, and converted into a whey cistern capable of holding three thousand five hundred gallons". Four weeks after the arrival of the manager, the fittings were complete and the first cheese was made.

Making the cheese at Derby.

In his address to the Royal Agricultural Society Mr. Murray went into the actual process of cheese making. Rennet appeared in the Derby Factory accounts, while Longford in 1872 bought "skins for rennet". Mr. Murray said good rennet could coagulate fifteen hundred times its weight of milk, the action being more rapid when the milk was slightly sour and the thicking process accelerated if the temperature was increased up to 120°, but became inoperative at 135°, and lost its vitality. The quality of the rennet caused more diversity in the taste and flavour of cheese than anything else. In America filtration had been tried. He himself had experimented on a small scale by passing the liquid through wood-charcoal, placed in a flannel bag and found the active principle unimpaired.

Under ordinary circumstances the curd would be ready to cut from thirty to forty minutes after the rennet was added, when the curd had obtained sufficient consistency to break smooth, without whitening the whey and before it became tough.

The cutting should be done as carefully and evenly as possible, with despatch but with as little motion as may be. First it was cut into prisms, from bottom to top, then parallel to the surface dividing the prisms into cubes. There was a difference of opinion whether to cut small or large pieces. Coarse curd gave greater quantity as less caseine and buttery mattery ran off in the whey but it was liable to give an open and uneven texture and inferior flavour. He recommended the blades of the knives should be not more than a quarter of an inch apart.

After cutting the temperature was raised rapidly to between 98° and 104°, according to the weather and sourness of the milk. The exact degree of acidity was a matter of vital importance, but could then only be approximated, the maker being guided entirely by taste and smell. A simple instrument constructed to show exact acidity would be of great value to even the most experienced maker. "In America what is claimed as a infallible test of acidity is the application of a hot iron to a lump of curd. The iron should only be searing hot; the whey pressed with the hand from a piece of curd, which is held on the hot iron until it adheres, when the iron is pulled gently away from the curd: if the curd is raw it will break short away from the iron; as the acid becomes developed the curd will pull out into long threads, often six or eight inches in length before it breaks; it is claimed the proper degree of acidity is that at which the curd shows the finest and most numerous threads".

The dry vat was sixteen feet by three feet ten inches by one foot deep, having a wooden rack or perforated false bottom over which a cloth strainer was spread to facilitate the thorough draining of the curd. Salt was applied and the curd turned over carefully by hand several times. Sometimes the temperature was reduced and the salt added before the curd was "dipped" or put into the dry vat. Salt varied from different districts and altered the quality and flavour. Two and a half pounds was added to each hundred pounds of milk, or three pounds if the curd was hot. The salt contained a lesser or greater quantity of free soda, which would return the curd to liquid. The chemical action set up by the soda could taint the whole mass and cause flecking or the spotted appearance met in coloured cheese. Salt needed to be chemically purified to achieve the desired mild, clean flavour.

The hoops were fifteen inches in diameter and twenty inches deep "made of strong galvanised iron in order to resist the great pressure to which they are subjected". The press had a square moveable board fitted to the bottom, which could be drawn out and rested on two legs at the front. A hoop was placed on this, a square of cloth, two inches wider than the hoop's diameter, being laid across the top. The curd pouring into the hoop from a filling tube, carried the cloth to the bottom of the hoop. A similar cloth was placed

over the full hoop, under the bed or follower. The board was pushed back into the press and pressure applied, slightly at first, increasing for two hours when three to four tons was attained. "This solidifies the curd and ensures sufficient cohesion to enable the maker to remove the cheese from the hoop and put on the permanent bandage, made of thin cloth called tiffany". In width it was about two inches more than the depth of the cheese, long enough to encircle it with an overlay seam. It slipped on and tucked over the top and bottom of the cheese, which was then returned to the hoop and pressure again applied, up to four or five tons, for eighteen or twenty hours.

After pressing the cheese was taken to the curing room. "For the first two or three days after the cheese has been removed from the hoops it should be daily rubbed over with melted butter in a hot state. If this is neglected, sudden changes of temperature cause the rind of the cheese rapidly to contract, leaving it full of unsightly cracks and fissures, forming a birthplace for flies, skippers and a whole host of insect enemies".

The ventilation in the curing room followed that recommended from America, with air coming in at floor level and escaping at the ceiling. For the first six weeks the temperature was kept at 70° to 75° and then gradually cooled to 65°, for two weeks when, if the cheese was well made it would have "attained that stage of mild flavour so generally appreciated by the best customers". Both at Derby and Longford the heating of the curing rooms was accomplished by the use of stoves, but Mr. Murray thought hot water would give heat more evenly distributed.

A little whey was sold for drinking at 2d a gallon, and the rest was carted away to feed pigs.

The cream gauge was used to assess the quantity of cream and the lactometer, used for showing the specific gravity of the skim milk, would indicate an excess of water if any had been added. Mr. H.N. Jenkins, on a visit to the factories had suggested the use of graduated glass tubes to test caseine or cheesy matter, contained in different samples of milk. Rennet would be added to a little milk, the curd cut, the tube dipped in hot water to separate the whey and a scale on the tube would show the level of settled curd. This could be perfected by weighing the pressed curd in the samples, but it was thought that more delicate machinery and better educated and more intelligent men would be needed to carry it out than were then available.

Mr. Murray gave some general comments: turnips and acrid weeds would flavour the milk; even well-fed lean cows would give poor milk as the food would fatten the cow first; cows needed clean water to drink, yet often had stagnant dirty water, particularly during a drought, which caused inferior

cheese; cows spayed six weeks after having a calf might give more milk.

He ended his address with some of the faults and difficulties that arose in cheese making, which sound like a list of the factory's disasters: expulsion of whey would be more thorough with the pressure in a deep rather than a shallow vat. One cubic foot of whey was estimated to weigh sixty-two and a half pounds and the pressure in a common vat twenty inches deep would be one hundred and four pounds per square foot. A high temperature and less rennet had been found to retard ripening; salt retarded fermentation (so keeping well); highly salted at 90°, the cheese became sharp; at 70° it took longer to cure; highly salted at a high temperature it would soon become rotten; at a low temperature it soon became tasteless; acidity modified the action of the rennet, heat and pressure; the want of acidity was manifested by numberless small cavities; to secure clear flavour, plenty of pure air in the make room was of prime importance. Curing rooms exposed to the exhalations arising from sour whey and unclean drains were fatal for cheese.

The general description of making cheese by Mr. Murray is similar to that given to Mr. Jenkins from America, though they cut the curd into squares of half to three quarters of an inch and did not raise the temperature above 96°. It differed from the method for making Derbyshire cheese on the farm, described in 1852 by Mr. Mark Abbott in a lecture to the Wirksworth Farmers Club. At that time the curd was cut six inches apart, which necessitated pressure to remove the whey before the curd was ground in a mill. He used thirty-three pounds of curd to a sixteen inch diameter cheese, which when dry gave five cheeses to the hundredweight. Eight ounces of salt was intimately mixed with the curd of each and more was added when the cheese was turned in the press, where it remained in all five days, after which it was turned and salted for three days on salting stones, wiped clean and dry and put in a cheese turner. When it had been turned for three or four weeks it was laid on a clean plaster floor and went to market seven or eight weeks after it was taken from the press. The new equipment at the factory made it much easier to cut the curd and release the whey with less waste. The salt was all added during the making, the cheese was less time in the press, the temperature during the making and curing was better regulated, but the seven to eight weeks until marketing given by Mr. Abbott is no longer than that achieved by the factories although the quick results of the American system were meant to be an advantage. (13)

It seems that by 1871 the factory was already half way to making Derby cheese. The dry vat was still in use but the curd alone was transferred. From a description given in 1906 by Prof. J.P. Sheldon (14) it appears that the American method involved stirring the curd and whey so that the curd did not gather together into large lumps, but floated about in the whey and was swept with it into the

drying vat. The curd was in tiny grains and kept loose in the second vat, so as to make grinding unnecessary. This made a less compact cheese than Derby cheese, that did mature more quickly, but proved difficult to sell than local cheese. While the Americans were so successful at selling their type of cheese, it seems surprising that the English factory had difficulty, but this may have been due to the opposition of local cheese factors. The chief recommendation for the American system was that it quickly produced acidity, which was a help if the milk was old and tainted, preventing the taint, or too fresh and slow in reacting. With the great distances the milk travelled in America this may have been necessary, but was less important in Derbyshire.

Qualified success.

In making their report after the first year the committee of the Derby factory were cautious. They had arranged to accept milk from thirteen farms but "had reluctantly to refuse an equal number more, as, from a sense of their inexperience and a fear lest they should involve the interests of the guarantors, they deemed it prudent to act with caution". The cows had been affected by foot and mouth disease and pleuropneumonia. Drought in April and May had produced a failure of the hay crop, which made it difficult to draw firm conclusions from the first year's results. The steam supply was not entirely satisfactory. The temperature of the milk was raised to 82° in hot weather and 86° in cold weather as coagulation takes place much quicker at a higher temperature, but it was difficult to achieve a uniform temperature. If the milk was too hot in parts, the rennet acted more quickly producing patches of tough curd, cooler parts being free and open. At first the vat was covered by a thick cloth to prevent loss of heat by evaporation but later they tried continuous stirring, with better results.

The financial side of the project was also worrying. They were uncertain of the value of milk for cheese making and the quantity of cheese obtained from a certain quantity of milk. If they assumed that it would take one gallon one and a half pints to produce one pound of cheese, at the agreed price of 6½d a gallon, a hundred and twenty pounds (one hundredweight at that time) would cost 77/6d with an additional 4/- a hundredweight for the cost of labour etc. "It would follow that your committee would be under the obligation of realising from the products of the milk an amount equivalent to 81/6d per hundredweight of a hundred and twenty pounds or being obliged to fall back heavily upon the Guarantee Fund. Now inasmuch as the average price of entire make of Derbyshire cheese has ruled for the past at 72/6d a hundredweight (the exceptional dairies realising 80/- and upwards being an insignificant percentage of the entire make) your committee had no little anxiety (buying milk in such terms) lest they should be unable to sell the produce at prices so much in advance of Derbyshire rates, as to cover the large amount

of money expended in the purchase of milk; they feel gratified that they have been enabled to do so". Another problem was that the gallon had been reckoned according to the American custom at ten pounds, but measurements showed that a gallon was actually ten pounds four ounces so that the farmers had a bonus of four ounces on every gallon, which amounted to £114, but they had agreed to rectify this the following year.

Not only was there difficulty over the price but some cheese had had to be disposed of in a distant market, with the added cost of transport, "caused in some measure by the extraordinary unexpected jealousy and dislike with which the movement was viewed by some factors of considerable influence in the trade, and the fact that the bulk of the cheese had been made at both dairies in the Cheddar shape". A considerable quantity of flat cheese was made and sold locally. The committee waxed indignant at the uncalled for and unworthy suspicion and drew attention to the names of upwards of five thousand visitors in the visitors' book, to show that hostility was passing away. However the visitors "to an experiment made in public free and open to all, were causing in the Derby dairy considerable loss, much time being taken up by the large flow of visitors daily passing through the factory and materially interfering with the careful attention to the process". As well as sightseers and interested farmers, people came from Russia, Denmark, Sweden and Holland for five or six weeks at a time. The final drawback was not having made whey butter, but they had sold whey back to the farmers.

The result after one year at the Derby dairy was that they had made 942 cwt. 2 qtrs. 8 lbs (long weight, 120 lbs to the cwt.) which was equivalent to 50 tons 9 cwt. 3 qtrs. 16 lbs. (of 112 lbs to the cwt.), the whole of which quantity was sold at an average of 76/6d per cwt. A footnote decried the habit of quoting the top price obtained instead of the average price. The conclusion of the committee was that the standard and sales of the first year were sufficiently successful to keep the support of the suppliers, while the good quality and the fact that they had not failed would have impressed the opposition. As the experiment was to last three years, there would be time to adjust the system to making Derbyshire cheese which would sell more easily. "Being entirely under the direction of the American makers, the cheese made was not only American in appearance, but had all the peculiarity and some of the defects of the American make; these may shortly be described as too great eagerness to obtain rapidity of make and quick access to market at the cost of quality and fine flavour".

The following comment expresses the feeling of the hard pressed committee: "Amidst much bitter opposition to the introduction of this system from the trade generally, your committee have much pleasure in acknowledging the friendly aid and ready advice, tendered by some whose high position

placed them beyond the narrow minded jealousy and factious opposition; and they would particularly acknowledge the assistance they have received from Mr. Barber, Cheese Factor, St. Peter's Street, Derby, assistance rendered doubly valuable by the spirit in which it was given as well as his long experience in the trade".

In dealing with the accounts after the first year of operation, the Joint Committee pointed out that the Americans had cost £350 beyond the £200 appearing in the working expense accounts of the two factories. Interest on money paid to suppliers before the cheese was made came to £112. The cost of printing and advertising was £30, the secretary's salary, insurance of cheese and rent of warehouse £90, deficiency in the Derby factory (4oz. on a gallon) £88, leaving £960 expended in the plant and fitting up of the two dairies, which remained the property of the guarantors, and at their disposal at the end of the three years stipulated for the trial. (15)

There were thirteen contributors. None had less than twelve cows, one had twelve, one had eighteen, three had between twenty and twenty-five, seven had between thirty and thirty-five and one had forty-five cows.

By the end of the 1872 season the Derby factory was selling milk as well as making cheese. The demand for milk in Derby and the convenient position near the railway, with access to the metropolis and other large towns, induced the contributors to take advantage of the high prices offered for liquid milk. In spite of this trade, which did not appear in the accounts, they made three hundredweight more cheese than in the first year receiving nearly the same price for it. Slightly more money was made from whey and butter than before and there was a saving on salaries, but the committee had to pay rent and for steam and water, £21 for the repair of the plant as well as the inclusion of a tinman's and cooper's account under sundry expenses.

The factory closed at the end of October, losing November "the month in which milk invariably produces the largest yield of curd in the whole cheese making season" which reduced the profit. This may have been wishful thinking rather than accurate, as the Longford statistics show that April gave the largest yield followed by a steady decline until November with the lowest. The nett return for each of the 274 cows, which came from ten farms, after paying all the expenses, was £12 13 9½d a year, which with 30/- for the calf and 45/- for the milk before and after the factory opened, brought the farmer a total of £16 13 9½d per cow per year.

The calculation of the money paid to the suppliers, £3517 17 8d, to the price per gallon came to sixpence three farthings and seven eights of a farthing per Imperial gallon, after paying all the expenses. The sixpence halfpenny given

when the factory opened had proved a fair offer. It was helpful for farmers to know that at sixpence halfpenny a gallon, one gallon one and a half pints of milk for a pound of cheese meant that a hundredweight of a hundred and twenty pounds cost seventy-five shillings, allowing the whey and whey butter to pay for the labour and cost of making. "Still the cheese must make the high price of seventy-five shillings per hundredweight to pay for the milk, showing the erroneous opinions held by many as to the value of milk for cheese making ". The farmers were not in the habit of balancing accounts in this way, which put them at the mercy of ruthless contractors.

An item in the receipts was for interest paid for advances to the milk suppliers. The system of advancing money before the share-out of profit was considered a great benefit to the contributors who were thus not "compelled to seek the too ready assistance offered from other quarters, and so losing control over the price of their season's make by practically placing it under equitable mortgage". "Free access to the best markets is as important to the cheese maker as to any other seller of produce, and from this advantage his poverty too often debars him". Evidently many a farmer previously found himself obliged to sell his cheese in advance at a poor price. Under the factory system, he was able to draw three quarters of the value of his milk, paying interest to the general fund and paying off the loan at the division of the profits.

One experiment was carried out at the Derby factory. Four square inches of cheese were tested for specific gravity and compared with samples from four of the best Derbyshire dairies. The results showed the factory cheese was highest, which was attributed to the greater quantity of butter in factory made cheese. (16)

The difficulties they experienced with coloured cheese, the colour not coming true, spotting and fading was attributed to the Cheddar method of making: "a considerable degree of heat is necessary. When the curd in the whey is cut rather coarse, and the temperature rapidly raised before the whey has been completely expelled from the particles of curd, the butter has formed an impervious covering hermetically sealing up small pieces of curd". These small lumps failed to be broken in the mill and the trapped whey changed chemically, spoiling the colour and flavour.

The later history of the Derby factory is somewhat obscure. In 1881, H. Shardlow & Co. had the cheese factory and also were dairymen at 33 Siddals Road. They carried on until 1891, when they still had the factory, but John Heald was the dairyman at number thirty-three. In 1895 G. and J. Heald had both the factory and the milk round. By 1915 cheese was not mentioned in the directory and Healds were listed as Milk and Cream Contractors. Mrs. Annie Jackson had taken over the milk round. Mr. F.W.M. Gilbert bought out

the Healds during the second war. He said "Their collections were only local and the volume of their sales was low. Five hundred gallons a day would cover the lot. They sold what they could in Derby and were specialists in supplying men even smaller than themselves. In certain seasons of the year they made cheese. It's a low-built depressing sort of place, alongside the canal. They were able to receive milk by canal from Shardlow. I bought the dairy from George, Harry and Alfred, the sons of John Heald. He had a brother and I think he was friendly with Nuttalls of Hartington. When I bought it the sons were getting old". Mr Gilbert closed the factory. It is at present occupied by Town Tyre Supplies Ltd., the canal has been filled in and the area has greatly changed.

Longford.

It was appropriate that Longford should have been chosen for the site of the country cheese factory. The estate had belonged to the Cokes since Tudor times and together with Holkham, Norfolk had benefited for the last hundred years from the innovations of Wenman Coke (1717-1776), who ploughed and carted with oxen harnessed similarly to horses, and his son Thomas William "Coke of Holkham" (1752-1842) who built bridges, refurbished cottages and promoted the use of manure to enrich the land, and nutritious feeding to fatten the cattle and enrich the manure. There was a saying in Norfolk "Du (if) the other farmers do as Mr. Coke do, they'd do a lot better than what they do do". In 1868 "Coke of Holkham's" second son Edward Keppel Wentworth Coke, lived at Longford, pursued his forebears' concern for agriculture and became one of the pioneers and most successful breeders of Shire horses. He offered to have the cheese factory at longford, to be built at his own cost on his land.

There was need for haste as the farmers who were to supply the factory had not engaged dairymaids, hoping the factory would be ready for the cheese season. When Mr. Schermerhorn arrived, in March 1870, plans were drawn up by Messrs. Giles and Brookhouse of Derby, gratuitously, for a cork-lined wooden building similar to those in America. (17) This would be quicker to erect and not much more expensive than bricks and mortar. Messrs. Moore and Turner of Derby contracted to do the work for five hundred pounds. Mr. George Dakin, joiner of Derby, made all the vats, presses and tables. These were sufficient for the milk from six hundred cows. The ground plan shows four vats, one dry vat and no less than twenty-four presses. Water was brought over a mile by pipe as the brook was inclined to dry up during the summer.

The members of the Longford committee were the Hon. E.K.W. Coke as chairman, Mr. Coleman, Mr. Lowndes and Mr. Salt. The factory opened on the 4th May, 1870 prepared for the milk from five hundred cows of twenty-seven suppliers. (18)

Cornelius Schermerhorn had moved from Derby to organise it but the committee later regretted having been swept so far in the American direction and after the first year changed to making Derbyshire cheese, some faulty cheese being made during the change-over.

The tricky part of the American system was that as the acidity developed in the whey, if the whey was left in the curd too long and became too acid, the cheese would not ripen. It needed more skill to obtain the best results. It was a full cream cheese, whereas the farmhouse Derbyshire cheese had a considerable quantity of cream removed and was a half-skimmed cheese. Farmhouse cheese was not salted until after the cheese went to press, salt being applied the following evening and morning, the whey was dipped off as early as possible without heat being applied after coagulation. The factory changed to a cheese half way between English Cheddar and American, salt being mixed with the curd which was allowed to form larger lumps and was turned and then ground. The whey was taken off early but the curd was allowed to develop acidity before going to press.

The committee had calculated that the daily produce should be worth between thirty and forty pounds, but they failed to reach this turnover. The receipts for 1870 were £5049 17 4d and 1872 were £6642 7 0d, which was only about twenty-six pounds a day. However at the end of the first year there was a balance at the bank of £8 6 0d, which would have been £114 12s 0d more but for the miscalculation of the weight of a gallon.

The experiment was carried out as scientifically as possible. When some critical farmers suggested that more butter should have been made, as would have happened on the farms, Mr. Coke was able to give them the results of tests performed by Dr. Voelcker, Analytical Chemist to the Royal Agricultural Society. Mr. Coke had held from the beginning that the great art of cheese making was to leave all the butter in the cheese, producing a better cheese and more of it. He had carefully collected, in May 1872, three samples of whey and forwarded them to Dr. Voelcker. One was whey from a farmhouse with one of the best cheesemakers in the district, the second was factory whey before skimming and the third was factory whey after skimming. The butter contents were respectively .53%, .22% and .08%. Dr. Voelcker's comments were that the farmhouse sample had far too much butter left in it and that the second sample also had too much, the third being about right. In the clearest whey he had found .03% and this should be aimed for, when it came fresh from the curd. They were approaching the satisfactory position in cheddar cheese-making when no butter could be made from the whey. With more butter left in the cheese and in spite of some coloured cheese proving faulty they had obtained a high average price. This and another comment in favour of the Cheddar system over the Derbyshire, on the earlier ripeness of the cheese, some leaving the factory at

eight weeks and some even sooner, implies that the exasperation with the American style of cheese-making had been mitigated. The factory had settled into a routine, the committee of milk suppliers were said to"pull well together" and felt justly rewarded by a balance of three hundred pounds in 1872.

The ground plan of the factory shows a water wheel, similar to the Derby one, which turned agitators keeping the milk in constant motion and preventing the separation of the cream. Working up large quantities of milk on the Cheddar system made it possible to extract a large yield of curd from the milk than on the farm. The results were not quite as good as those reported to Mr. Jenkins from America, which for three examples were that under 9½ lbs. of milk produced one pound of green cheese and under ten pounds of milk produced one pound of cured cheese. "Some skilled manufacturers get a pound of cured cheese., (average for the season) from a trifle less than nine pounds of milk". The Derbyshire results were at Longford nine pounds thirteen ounces to a pound of green cheese, ten pounds twelve ounces to a pound of mature cheese and at Derby ten pounds twelve ounces to a pound of green cheese and eleven pounds four ounces to a pound of mature cheese, but this compared favourably with the accepted twelve pounds two and three quarter ounces of milk required to make a pound of mature farmhouse cheese. The shrinkage or loss of weight during ripening, was given by Mr. Willard as 4 1/3% in an American factory whereas Longford's report "thirty pounds in one quarter or as near as 10% as possible".

The report of the Joint Committee in 1873 went into some detail of the results of the three year experiment. They were not entirely satisfied with the cheese during the first two years but had achieved almost perfect uniformity during the third season and had not that year had a single cracked or heaved cheese. Financially the factories were a success. (99)

They calculated that the labour costs at Longford were less than half they would have been under the old method, but this was based on hypothetical discarded dairymaids. The factory was open only for the cheese season from March the eighteenth until November the thirtieth, after which one man remained to turn the cheese. The cost of salt for a year at the factory had been the same as only one farm of thirty cows had used before and there was a saving on fuel. As well as this economy, the average prices gained for the cheese, at Longford 74/10½d for 120 lbs. and at Derby 74/7d, were ten shillings over the price given to most other dairies. The nett price for cheese paid to the milk suppliers, after the deduction of working expenses was 74/3d per 120 lbs. In fact the whey butter and whey had paid the working expenses except for about £52.

They estimated that where poor quality would be improved by changing to the factory system, an estate or district could make a thousand pounds more than by the old farmhouse

system. Even if this appeared optimistic, it had become clear that better kept cows gave a greater quantity of milk and earned more. The original price of 6½d had been considered a generous offer in order to attract the contributors. It had been uncertain what the actual value of the milk had been owing to the former practise of quoting highest and not average prices. The factories' careful book-keeping had shown the average earnings per cow on different farms, which varied from £11 11s 11d to £20 19s 1d, not necessarily improving with the size of farm, and this was independant of the value of the calf and the milk outside the cheese season.

The cost of delivering the milk to the factory was put at three shillings per cow if two or three farmers joined together, but again this was conjecture as the wagonner was presumably in employment on the farm already.

Another useful statistic was the varying yield of cheese throughout the year, falling away very much after August. Careful records were kept of the supply and prices at Derby Cheese Fairs throughout the year. With all these figures and details it was possible to assess the progress and competitiveness of the factory.

Longford after the Cokes.

The Longford estate remained in the Coke family until 1921. The Hon. E.K.W. Coke died, childless, in 1889, and was succeeded by his brother The Hon. John Henry Coke. John Gillman of the Hartington family ran the dairy for many years and the schoolmaster John Keyworth was secretary. (20) Like many others the factory closed in the 1890s. By 1905 the Nestles factory at Hatton was using the Longford dairy as a milk collecting depot. (21) Reginald Grey Coke succeeded his father in 1916 and sold the estate to Sir Charles Markham in 1921. Whereas the Cokes had been associated with Longford for centuries, the Markhams were fairly new to Derbyshire.

Sir Charles Markham's grandfather moved from Northampton to Tapton House near Chesterfield. He was a Justice of the Peace and became High Sheriff. Sir Charles' uncles founded various ironworks and collieries including the Markham colliery, and his father was member of Parliament for Mansfield in 1900. They were an industrial rather than an agricultural family.

Whether it was lack of interest on the later Cokes' part or a low ebb in the business, the Longford cheese factory had declined. Before Sir Charles Markham took over, the milk had been taken to Brailsford where Mr. Wood made it up into cheese. "That very dry summer 1921, when the hay harvest was got in about a month, dried everything up, I don't know if it was the following year or the year after that we made

this cheese. I think the Royal Show was at Cambridge. We didn't enter any Brailsford cheese. Longford entered cheese. We got all their cheese together up there, a lot of it, and Mr. Ford picked two out and of course Longford got the credit. We made it. It was made out of their milk you see, but we'd made it at Brailsford".

Sir Charles revived the Longford Dairy. He put in new equipment and sank a well to improve the water supply. As there was no one locally to make cheese, two students from Sutton Bonnington, Colehurst and Stringfellow, came to take charge. Mr. Wood remembers them. "I know I was all on my own up at Brailsford Dairy one day and these two young fellows came and said they were going to be at Longford and they asked me all sorts of questions and I was that filled up with what I knew, I practically told them how we made cheese, how we pressed it and everything. Manager Ford was very cross. He said "They've picked your brains. And I don't think they were very good at it. It's all right knowing the theory, but you've got to know the practical. It's all right going to college and learning all the theory, but when you get to the practical and you get snags in, you don't know what to do. And you do get some snags in cheese-making".

Mr. R.T. Archer remembered Sir Charles: "Such men never ought to die, generous to a fault, but he overspent and his uncle stopped backing him so he had to sell Longford. He was a generous fellow. I mean Sir Charles meant nothing to him at all. He drove a train during the General Strike. Because of his spendthrift nature I suppose, he was just over generous, but everybody spoke well of him. Arthur Bull said that all the farmers used to have such parties at the Hall. All the farmers and farm workers were invited and he said 'We had such feasts'. Sir Charles re-opened the cheese factory. We were married in 1924 and I push-biked from Bradley Pastures to Sutton Mill courting. Now I remember that artesian well being bored. One Sunday night the pipe was about three or four inches above the ground and they'd got sacking tied over it and water was spurting out like a forked shaft. I think it's three hundred and seventy feet deep. I think they were three sixty and they had not got much water, not the water they wanted and so the contractor said to Sir Charles

"'Sir Charles..'

"'Enough, I've no more money. We cannot spend any more' he said.

"'Well, let me go another day, another ten feet'.

"'Well ten feet and no more'.

"Well they went so many feet, it might have been three sixty, three seventy, probably did the ten feet and they tapped this water and it literally blew the tackle out of the ground. They sunk iron pipes down and it's still running over all the year round into the brook. It's an artesian well. They tap an underground spring. They took all the core out and laid it out". Mr. Jack Walker said that when the tackle blew out, a live crab came up and was sent off to be identified because it was thought such a strange thing to happen.

The well overcame what was described as "the greatest difficulty" in the first report "to obtain a sufficient supply of water at a low temperature, though a considerable stream passed within a few yards of the building".

Brick extensions for storage and a new boiler house were added and the dairy was equipped for cheese and butter. Mr. J. Cope was employed as machine fitter and stayed for twelve years. Fred Orton previously head gardener for the Cokes, helped in the remodelling. (22)

There was an enormous butter churn for whey butter. Jack Walker remembers an occasion when one of the students was nudged into it, still greasy from the batch just taken out. He had made Jack and Sammy, the lorry drivers, some ice cream with eggs they had brought and it had not come up to expectations.

As well as getting the dairy into action, Sir Charles set up a pig factory at Mansfield. The Longford farmers could have the whey free and send fattened pigs to Mansfield.(23)

Messrs. Colehurst and Stringfellow stayed at Longford for one year and then separated to start their own businesses. A fellow student and friend named Solomon took their place. Mr. J. Solomon had spent the year as a lecturer at the college. He became manager at Longford in about 1923 and stayed until November 1930. Mr. Orton remembered the dairy being very busy at this time, with Derbyshire, Leicester, Cheddar and Cheshire cheeses turned out in substantial quantities, 3,000 gallons of milk brought daily to the factory and, when there was too much milk at Nestles the extra would be sent to Longford for cheese-making. Mr. Arthur Pendry remembers that Alf Bull was sent up to Longford to turn it.

Part of Mr. Solomon's job was to go to London to find buyers. He became influential in the trade and was connected with Mr. J. K. Knowles of the National Farmers' Union, who wrote on his retirement in 1968, to Mr. Solomon's widow "Between us we broke what turned out to be the last buyers' milk strike in England and that was quite something. That knowledge and memories of the battles that had to be fought and difficulties overcome more valuable as time goes on". (24)

Mr. Solomon's widow recalls their courting days. She would meet him at Hatton and travel back to Longford, where he lived in the schoolhouse. He had a housekeeper and the house was part of the job. She remembers the excitement of the first milk tanker and another memory was of a court case because the effluent from the factory went straight into the stream. She still has the borer he used when tasting cheese. He had qualified N.D.A. and N.D.D. and later became the Butter and Cheese Grader for the whole of the east of England down to the south coast and at another time he went to Somerset to teach a farmer how to make double Gloucester cheese. He was the last to make cheese at Longford.

Mr. Solomon worked for Sir Charles Markham and when Sir Charles got into financial difficulties and sold the factory to a colliery owner named Hall, he continued working for Mr. Hall. However Mr. Hall then sold it to the Midland Counties Dairy and they brought in their own man as manager. Mr. Solomon had to arrange the sale and the loss of his own job. Seventy-one milk producers joined in a presentation cheque for £22 5s Od "as a token of appreciation for his unfailing courtesy and straight-forward dealings whilst manager of Longford factory". There had been only 28 farmers involved when the dairy began, but the 71 listed were still very local. They mostly came from Longford and a three mile radius which included Hollington, Yeaveley, Cubley, Alkmonton, Hungry, Bentley, Osleston and Boylestone. (25)

The Midland Dairies took over the Longford factory in 1930 and the Derby Cooperative Society in February 1937. (26) They used the building for receiving milk, separating cream for ice cream and making dried milk.

Mr. T.B. Bullock living at Bafton Park Farm, Barton Blount, said "I've been here probably as long as most people. When I first came here in 1936 there was a dairy at Longford. It used to belong to the Midland Counties Dairy, Birmingham. They used to collect the milk. Walter Salt from Longford - he collected the milk in those days - took it to that dairy and they used to distribute it to wherever they wanted it, in different parts. It often went back to Birmingham. If they were short in Birmingham they would take a load, two loads, or to some other factory or cheese factories, just wherever it was wanted. That's where my milk went to start with and that was before the Milk Marketing Board started working, because we used to negotiate with the manager of the dairy for a contract. In the first place if you could find a buyer for your milk you could sell it. It would be only a year or two like that. I know, at that time of day I was very young and hadn't much money, I remember I settled for my milk and some of the older farmers, one in particular, he was very upset because I'd settled with my milk and he hadn't settled with his. That was Captain Young. He used to be at Longford Woodhouse. It was a vital thing you see, if you could just get it sold. He was all right in the end. He was a bit of a sergeant major sort of chap and tried to frighten me, but it didn't come off".

Mr. Massey at Sudbury, thought the last manager at Longford was a Mr. Brinkman. During the second world war the factory was used as a training centre by the Home Guard. The Archers, local farmers, bought it in 1954 to use as a store place.

REFERENCES.

1. Royal Agricultural Society Journal 2nd series, vol 17, 1881 statistics.
2. A comment on Brailsford in Bulmer's Directory for 1895 says "Dairying is extensively used, very little land being under the plough". Even in 1911, when Mr. J.W. Archer moved to Ednaston Hall, near Brailsford, they had difficulty in finding a tenant and he had all the arable land rent free for the first two years because it was in such a state.
3. M.D.D.F.A., Derby Mercury, 31st August 1892.
4. In 1882 the medical superintendant of a lunatic asylum in Abergavenny considered it noteworthy that he had replaced beer with skimmed milk for the patients' dinner in an effort to improve their diet. (Cowkeeper and Dairyman's Journal May 1882) But in 1902 half the children in Leeds suffered from rickets and bad teeth because of their poor food, while at the same time the farmers of sutton on the Hill could not sell their milk and cheese and their factory was threatened with closure by the owners, The Chetham Hospital, Manchester. (Plenty and Want, John Burnett. Pelican).
5. Staffordshire Farmers 1897, Derbyshire Farmers 1917, National Farmers Union, in Derbyshire 1926.
6. Obituary Derby Mercury, May 1883, and Directory of National Biography.
7. Report of the Cheese Factory System and its adaptability to English dairy districts, H.M. Jenkins F.G.S., Journal of Royal Agricultural Society, 1870, 2nd series, vi.
8. Obituary, Derby Mercury, Nov 4th 1903
9. A barn gallon contained seventeen pints.
10. In Cheese (J.& A. Churchill Ltd. 1965) J.G. Davies says on page 8, that by 1874 there were 6 factories in Derbyshire and by 1875 Cheshire had 3, Leics., Staffs., Somerset & Glos. one each.
11. From Reports of the Joint Committee
12. Report on Implements at Oxford, John Coleman, Royal Agricultural Society Journal, 1870.
13. A century before Mr. Abbott lectured, Thomas Brown of Luton in General View of the Agriculture of the County of Derby, 1794, described the varied methods of three local cheese makers. As to the cutting of the curd, the first broke it slightly and the second very much. The latter knelt on a board over the vat in order to crush first one end and then the other. After putting the curd in a cloth she held it in warm water for three hours, while another cheese maker scalded it in nearly boiling whey. This third lady coloured her cheese by rubbing Spanish arnotta, against a smooth stone, into a little milk, adding it with the rennet. The first lady used rennet and salted the outside of the cheese, a large handful of salt on each side of a twelve pound cheese, after eleven hours in the press. Her cheese was "in perfection at a year and a half or two years old". One

lady rubbed the cheese with a linen cloth twice a week while it was soft and then with a hair cloth. At that time a good dairy would make nearly three hundredweight of cheese for each cow in a year. All the makers mentioned were making whey butter, one with sour cream, one using saltpetre to make churning easier and one heating the whey before skimming.

14. Livestock in Health and Disease. Prof. J.P. Sheldon

15. Statement of Accounts, Derby Cheese Factory 1870 on the

debit side:	£	s	d
Paid for milk 1,309,690 lbs.	3547	1	5
Labour including salary to Mr. Schermerhorn, warehouseman to commencement of present season	197	15	1
Annatto, bandages, salt, rennet and other materials	87	14	2
Commission on sales, insurance of cheese, carriage etc.	93	5	1
	£3925	15	9

On the credit side:	£	s	d
Sale of cheese 942 cwt. 2 qtrs. 8 lbs.	3607	4	9
Sale of whey	230	17	11
Balance owing at Bank	87	13	1
	£3925	15	9

There is a footnote drawing attention to the £88 due for overpayment.

The breakdown of the accounts is given: labour 3/9¼d)
materials 1/10¼d) per cwt.

"Extra assistance was required in this factory in consequence of the great number of visitors taking up so much of the maker's time, and water having to be bought was a great item of expense". There is no mention of rent because none was charged by the owners.

The accounts for the second season appear as an appendix.

16. Sample from the factory 1021½ grains
Sample from Dairy 1. 1002½ grains or 1 7/10 %
Sample from Dairy 2. 998½ grains or 2¼ %
Sample from Dairy 3. 975 grains or 4½ %
Sample from Dairy 4. 956½ grains or 6 1/3 %

17. See The Origin and Progress of the Factory System of Cheese Making in Derbyshire, Gilbert Murray, reprinted from the Royal Agricultural Society Journal April 1870.

18. In 1871 there were 493 cows from 28 contributors, of which 13 had less than 9 cows, 6 had between 13 and 26, 7 had between 30 and 36, one had 40 and one had 45 cows.

19. The accounts for the Longford factory for the season 1872 appear as an appendix.

20. He appears as John Gillman in the directories but this is probably a mistake. The factory was run under the guidance of William Gillman and there may have been confusion with John Bonsall his cousin who worked at Longford.

21. Victoria History of Derbyshire 1905 Vol 1 p.320.

22. Derbyshire Advertiser, 1961, Anthony Inchley.

23. Mr. R.T. Archer, Hollington.

24. Letter to Mrs. Ludlam, formerly Mrs. Solomon.
25. The list of milk producers who gave the cheque to Mr. J. Solomon in November 1930 was written in a small notebook in the clear and beautiful hand of the schoolmistress. They were S.T. Allen, Thos. Archer, Jas. Archer, H. Archer, W. Allcock, J. Austin, E.H. Barker, E.J. Barker, J. Bourne, G. Cartlidge, Mrs. E. Carter, F. Chadfield, Miss M.A. Coxon, F. Clarke, S. Cope, W. Cope, G. Derbyshire, Mrs. L.A. Dakin, Mrs. Edge, J. Faulkner, E. Fox, T.W. Foot, N.A. Gadsby, F. Glover, W.H. Glover, F. Glover, T. Glover, S. Goodall, W. Goodall, A.W. Goodwin, G.H. Hawksworth, P.G. Holmes, J. Hulland, P.J. Hulland, R. Hammersley, R. Harrison, J. Hislop, J. Harris, J. Hitchcock, G. Kent, J. Large, G. Lawley, J.B. Marsh, W. Millward, J.G. Mason, J. Millward, Miss M.A. Oakden, J. Saint, T.W. Sessions, B. Swale, A. Salt, W. Salt, W.J. Slater, C. Salt, J.W. Seals, R.F. Seals, V.T. Sutton, S.S. Taylor, F. & E. Twigg, T.C. Waterfall, C. Wheeldon, J.R. Wibberley, J. Wright, J.E. Young, W. Hellaby, T. Mycock, Salt Bros., P.S. Spencer, J. Wrathall, B.E. Wrathall, W.E. C. Clock.
26. Deeds held by Mr. R.T. Archer.

LOCAL HISTORY IN ASHBOURNE STREET NAMES.

BY

Reginald C. Smith

Many problems are involved in the investigation of the origin of street names. Many names given long ago now seem inappropriate and some old street names are now disused. It is of interest therefore to examine the names of several roads from these points of view and also to demonstrate how they reflect the local history of the town.

The road from Ashbourne Market place to Mayfield Road demonstrates many of these problems as the road does not seem to have had one name throughout its length, the names allocated to separate parts of the road have not remained unchanged and the lengths of road separately named have been uncertainly delimited. Further, some of the names for this road were adopted unofficially, so there is bound to be confusion in tracing the origins of the various names. The names that will be met with in tracing the story of the naming of this road are, Gaudy Lane, Back Lane, Dark Lane, Belle Vue Road and Union Street. The name Union Street derives from the erection on this road of the workhouse for the Ashbourne Poor Law Union, created under the Poor Law Amendment Act of 1834, and known locally as Stone House.

Bagshaw's Directory of 1846 states that Belle Vue - eventually Belle Vue Road - consisted of about a dozen houses which formed the northern suburb of the town. The residents at the time included an excise officer and a joiner and cabinet maker. The latter was probably an ancestor of the present day carpenter and undertaker on the north side of the road. Here are the remains of what is claimed to have been the largest saw pit in the county, where no less than eight sawyers came to operate at one time, four in the pit and four above, each pair using a two handed saw. There were also two academies, Ashbourne long having been known for the number of its private schools after, as well as before, the Education Act of 1870. It is assumed that this group would comprise the older houses at the end of what is now Belle Vue Road easterly from its junction with Dovehouse Green. The aptness of the name Belle Vue for the group is less obvious here than at the westerly point however, as the aspect is more limited. The origin of the name therefore would seem to be in this suburb of Belle Vue; but Kelly's Directory of 1916 (to which Mr. and Mrs. Warren of Ashbourne have drawn my attention) shows the name of the Presbytery of the Roman Catholic church of All Saints on this road to have been called Belle Vue, so this could have influenced the choice. Furthermore, the speculative builders who developed the area between the wars, and their prospective customers, no doubt found that the name was not without attraction.

The explanation of the names Union Street and Belle Vue Road is not the whole story however, as parts of both were often referred to as Back Lane. Firstly, Bagshaw's Directory mentions the new lock-up, erected in 1844 as standing on Back Lane, together with two of Ashbourne's 39 pubs, the "Ostrich" and the "Tailors Arms". Further several 19th century conveyances refer to Back Lane rather than to Belle Vue Road or Union Street. For instance, conveyances of 27, Church Street dated 24 June 1843 and of a messuage in Coxon's (or Gregory's Yard) dated 28 October 1898, refer to Back Lane rather than Union Street. It is also called Back Lane in a conveyance of 1866 of the Grey House at the westerly end of Church Street; and in a document executed on 2 February 1880, which states that Back Lane led to Mapleton, presumably via Dovehouse Green. All these references suggest that Union Street continued to be known also as Back Lane long after its renaming following the opening of the Union Workhouse, and the dual nomenclature is demonstrated in reverse by references to Union Street in other contemporary documents, namely papers relating to the Wheatsheaf Inn on Church Street, dated 24 July 1869 and 7 April 1885.

Even these variations in the use of Back Lane, Union Street and Belle Vue Road do not complete the picture for this stretch of road. Until quite recently the westerly end of Belle Vue Road was known informally as "Dark Lane". This results from the fact that the road is high-banked and had a row of large trees on the north side before the houses were built between the wars, resulting in a rather gloomy ambience described in Kelly's Directory of 1916 as "dark and frightening." In contrast to this is the use, in an indenture of 1 July 1709 relating to the property now 3 and 5 St. John's Street, of the name Gaudy Lane rather than Back Lane. This prompts speculation. Was it so called because of the junketings inseparable from the ancient fairs that were held periodically in the nearby Market Place. Cameron in his Place-names of Derbyshire records this name as mentioned in the Duchy of Lancaster Commission of 1630, but attempts no explanation. Whatever the reason we can only regret that such a colourful appellation was abandoned in favour of the dull and uninteresting Back Lane.

From the foregoing it may be inferred that Ashburnians are conservative. This will again be demonstrated in another instance. The road presently known as Old Derby Road, leading from Compton to the new Derby Road at the far end, began with a very steep rise which later becomes almost level. There are few houses on this hill and one would think little prospect of more, whereas housing development is proceeding apace on the level stretches further along. This hill also gives the impression of being separate from the upper part especially as this part deviates at the top of the hill whilst the original line of road continues along the Wyaston Road, where the two roads Wyaston and Old Derby Road separate

at a T junction. The lower part of the hill became known as Old Hill, and this use has continued but not without some confusion. For instance, the map with the official Ashbourne Town Guide does not name the lower part of Old Derby Road separately, implying that that name is applicable through the whole length. In other maps the name Old Hill is ascribed to the lower part whilst in a Derbyshire Countryside publication, J.W. Allen includes a map based on an old O.S. map on which the names Old Hill and Spital Hill appear. It is not entirely clear whether Spital Hill is intended to name the slope of the land or the road itself. It is probable that the former is intended. This does not however invalidate the suggestion that the road itself could appropriately be named Spital Hill. Allen states that the Old Derby Road did not follow its present line until the present Derby Road was turnpiked. Before this occurred the Old Derby Road (which presumably was then known as Derby Road simply) ran through Osmaston and Shirley. The Derby Road was turnpiked by Act of Parliament of 1738 and the Old Derby Road was then diverted from its present route to join the new Derby Road just below the tollhouse which is still in existence, though altered. Henceforward the names Old Derby Road and Derby Road would be used with, in due course, the informal name Old Hill for the lower part of the former. Before turnpiking took place however, the lower part of the Old Derby Road bore another name, Spital Hill.

The name "spital" - Middle English for a hospital (A.H. Smith, Cameron) - occurs several times in Derbyshire, Spital Buildings at Castleton, Spital House at Alkmonton and, perhaps best known, Spital at Chesterfield, the last named deriving from the Leper Hospital of St. Leonard. No instance of the direct use of the name Spital in Ashbourne is traced by Cameron but one possible link can be traced, namely the presence at Yeaveley of a Preceptory of the Knights of St. John founded in 1190 on the site of the Elizabethan or Jacobean Stydd Hall. Further, Dr. and Mrs. Dodd in their Peakland Roads and Trackways note that it is mentioned in the Compleat Angler (edition of 1676) that Walton and Cotton came down "Spittle Hill" into Ashbourne where they drank a tankard of ale at the Talbot Inn. Spital Hill is still recorded in 1846 by Bagshaw and Derbyshire County Council seem to have been satisfied that Spital Hill was historically correct for on a signpost at the junction of Derby Road and Old Derby Road just below the tollhouse appears a sign "Spital Hill 1 mile". It seems fair to assume that it was intended to indicate the road informally known as the Old Hill since that road had no official name. The indications are that an effort to have the name Spital Hill brought into use in preference to Old Hill will fail. This will be regretted by local historians who feel that evidence of social history in names is just as worthy of preservation as bricks and stone, books and pictures, and that historically-based names are preferable to those that ignore the historical background. This comment is particularly

justified in relation to Ashbourne where the atmosphere of history is all-pervasive from Dr. Erasmus Darwin's school in St. John's Street past the 16th century Grammar School and Dr. John Taylor's mansion to the 13th century church in Church St, and from the 13th century Market Place to the building in Compton where, according to Bracegirdle's Archaeology in the Industrial Revolution, there stands a building which has a place of its own in history for it was here that a revolution took place when the process of stay-making was broken down into separate operations permitting the division of labour for the first time.

Ashbourne shares with other ancient towns the characteristic of having streets that have disappeared or of which the origin of the name is obscure. The name Dig Street may be first mentioned as one having an obscure origin. In 1275 this is recorded as Loue Ditch and in 1380 as Love Ditche. This was not transmuted to Dig Street until 1630. The first element derived from "Lufu" - perhaps descriptive of some secluded spot-was lost and the street was named for the ditch only.

On the other hand, some Ashbourne street-names are easily explicable. Derby, Buxton and Belper Roads for instance obviously indicate the place to which they lead: Windmill Lane indicates the former presence of a windmill: Geographical location is indicated by names such as North, Hillside and Brookside, Avenues. North Avenue has another claim to interest as it was formerly named as Offalers Lane: this was very narrow and ran beside Callow Hall Fields, and was tenanted by butchers who burned offal there before the days of environmental services. Ashbourne had several yards or backsides, as they were described in old conveyances, for example Frith's, Smith's, Malbon's, Coxon's and Lovatt Yards. These were usually named after a resident there, but sometimes after a public house, as in the cases of the Horse and Jockey Yard, Tiger Yard and the Stag and Pheasant Yard which ran off Compton between H. Smith's and Lombard's Garage. Compton is itself of great interest in that this street is really an ancient village, Cameron recording references to it in 1258 as Campeden and in 1577 as Compton. He defines the name as meaning "village in which a fight took place". King Street was also named after one of the large number of pubs in Ashbourne, but it had an earlier name of great interest - Moton (1229) or Multon (1637) Lane - reflecting the presence of the sheep market there. This indicates indirectly the great antiquity of the market for which no original charter has yet been traced.

The patron saint of the parish church has received secular commemoration in St. Oswald's Crescent, while the former lords of the manor and ancient local families have also been recalled in street named after the Cokaynes, Beresfords, Boothbys and others. Cullen Avenue is named after a descendant of the Cokaynes. There is no reference to the Bradbournes, a member of which family founded a chantry in

the parish church, or to the Fitzherberts, which family have had close connections with Ashbourne and district for many centuries. A public benefactor, N. Spalden, donor of the almshouses, has been commemorated in Spalden Avenue, but Oldfield and Pegge, who also benefited the town similarly, have not been. A modern benefactor is indicated by the name Cooper's Close.

Many other origins are very clear: Hall Lane skirted the grounds of Ashbourne Hall in the days of their greater extent: Park Road is equally associated with the grounds of the Hall. School Lane has obvious reference to Queen Elizabeth's Grammar School founded in 1585. There is no reference to this in the records of the school but School Bridge is named in 1637. Coachman's Close is a modern indication that the stables and coachmen's quarters of Doctor Taylor's mansion were here, while Station Street and Station Road were obviously named after the now-closed railway station.

Despite all these historical allusions that have been preserved in naming modern roads, there are omissions which some will find surprising. The one that springs most readily to mind is the absence of references to Dr. Taylor, and to Dr. Samuel Johnson, who frequently visited Dr. Taylor at the Mansion. Boswell himself took the coach for Edinburgh at the Green Man, but again there is no reference to him in street-names. Another name not recalled but fully worthy of preservation is that of Dr. Keble Martin, a former curate of Ashbourne and author of Concise British Flora.

This short article has demonstrated the diverse origins of street-names in one small town and the problems involved in interpreting them, and also how the same street can be known by several different names at the same time. What will local historians, working in the distant future, make of some of the modern street names when revising Professor Cameron's book?

THE PARISH OF SEAL AND THE BORDER AREAS OF LEICESTERSHIRE AND DERBYSHIRE

by

C. Castledine.

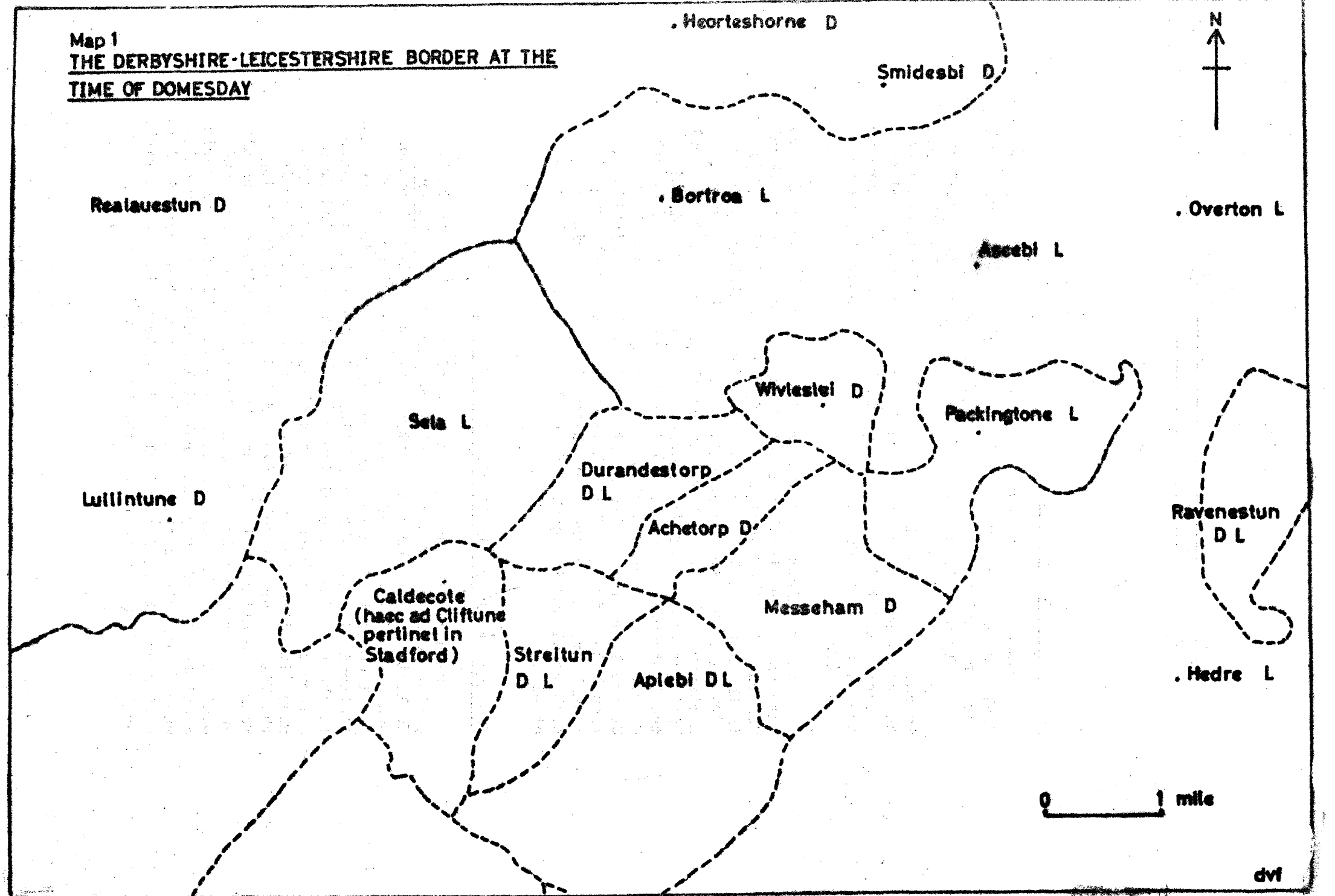
The name of the Parish

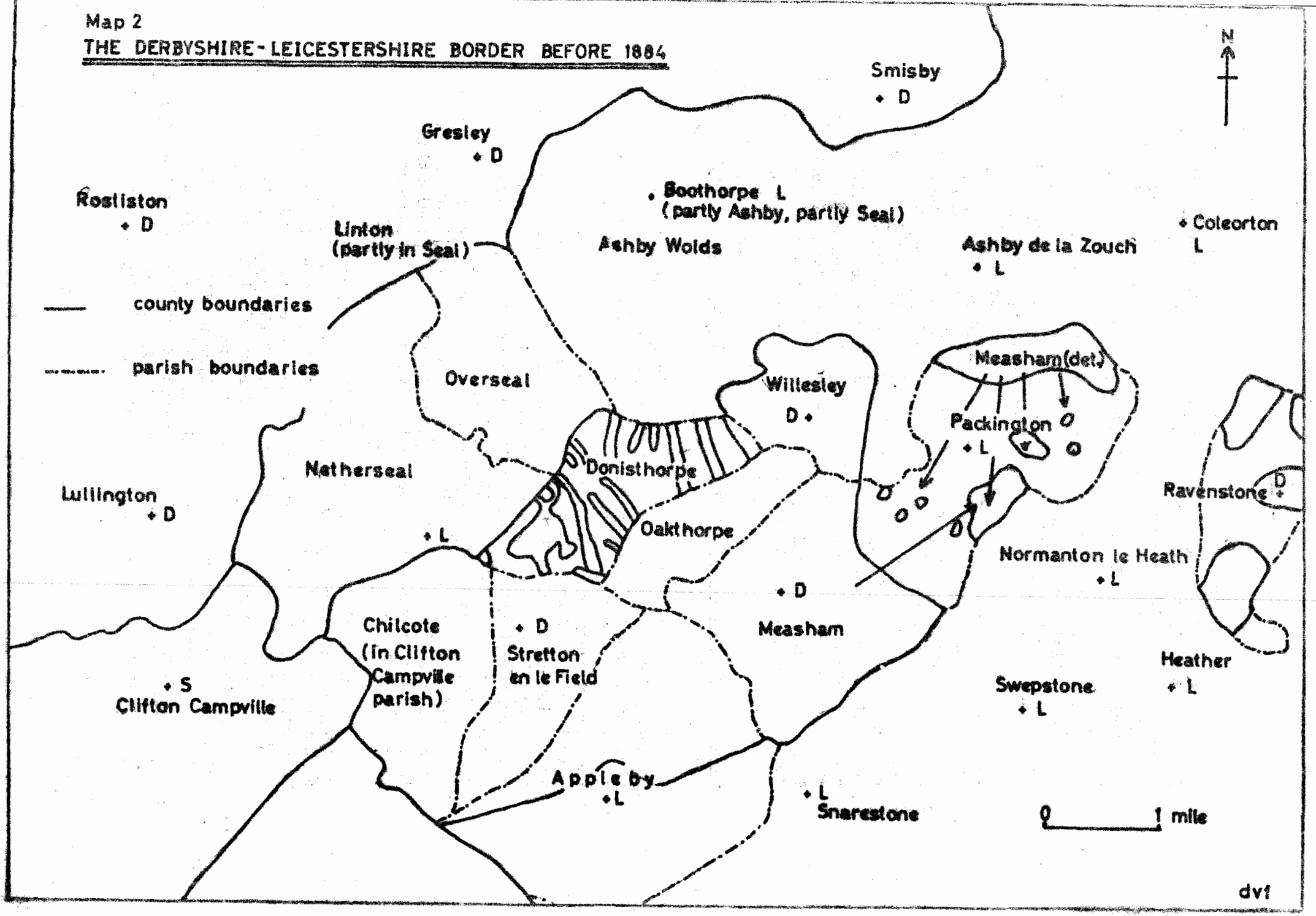
Throughout this article, except when quoting, the name Seal has been used to describe the Parish. It seems likely, however, that the names Netherseal and Overseal were generally used in the eighteenth century and indeed, long before. Thus in the Enclosure Agreement of 1755 the parish is called Netherseal; Cameron (1) quotes documents from the twelfth century onwards using 'Nether' and 'Over' to describe the two parts, though in Domesday, where there are two entries, the names Scela and Sela without prefix are used. (2)

In the nineteenth century the name Seals or Seales came into use. Thus the local authority set up under the Local Government Act of 1894 to administer those civil parishes in the Ashby de la Zouch Poor Law Union which were from 1897 in Derbyshire (Ticknall, Calke, Smisby, Woodville, Hartshorne, Netherseal and Overseal) was called the "Rural District Council of Hartshorne and Seals". (3) Likewise the last Gresley Rector (4) is commemorated in Netherseal Church as Rector of Seales. (5) Today, Netherseal and Overseal are two parishes both civil and ecclesiastical, though the livings of the latter are held by the same incumbent. The current Crockford lists the parish under Netherseal and the name Seal no longer seems to be used at all.

The extent of the Ancient Parish of Seal

Nicholls (6) uses the name Seal and states that the parish consists of Netherseal and Overseal '*cum membris*'. He lists the 'membra' as parts of the townships of Linton and of Donisthorpe and of the hamlet of Boothorpe. The problems of Donisthorpe have already been mentioned and the 'interviewing re tithes' mentioned in Appendix II relates to Thomas Gresley's decision to take tithes in kind from a farmer in Boothorpe who presumably had up to then 'got away with it'. The area of the parish is made clear in the Tithe Award of 1843, (7) which is unusual in having four maps attached to it, one for Netherseal and Overseal, and one each on a larger scale for Linton, Boothorpe and Donisthorpe. The portion of Linton township in Seal parish consists of a block of several fields adjoining Overseal, whereas in both Boothorpe and Donisthorpe the parts in Seal parish are strips intermingled with strips in other parishes or townships. At Boothorpe the other strips are in


Map 1
THE DERBYSHIRE-LEICESTERSHIRE BORDER AT THE TIME OF DOMESDAY
. Heorteshorne D
Smidesbi D
N
Realauestun D
. Bortroa L
. Overton L
Assebi L
Wivieslei D
Packingtone L
Seia L
Durandestorp D L
Lullintune D
Achetorp D
Ravenestun D L
Caldecote (haec ad Cliftune pertinet in Stadford)
Messeham D
Streitun D L
Apiebi D L
. Hedre L
0
1 mile
dvl


Map 2
THE DERBYSHIRE - LEICESTERSHIRE BORDER BEFORE 1884
N
Smisby
D
Gresley
D
Rosliston
D
Linton
(partly in Seal)
Boothorpe L
(partly Ashby, partly Seal)
Ashby Wolds
Ashby de la Zouch
L
Coleorton
L
county boundaries
parish boundaries
Overseal
Willesley
D
Measham (det.)
Packington
L
Netherseal
Donisthorpe
Oakthorpe
Lullington
D
L
Ravenstone
D
Normanton le Heath
L
D
Measham
Chilcote
(in Clifton
Campville
parish)
D
Stretton
en le Field
S
Clifton Campville
Heather
L
Swepstone
L
Appleby
L
L
Snarestone
0
1 mile
dvf

Blackfordby Chapelry and Ashby Woulds township (both in Ashby de la Zouch parish in Leicestershire), but Donisthorpe is a township in three parishes (and two counties and dioceses), Seal in Leicestershire and the Diocese of Lincoln, (Peterborough after 1834), and Gresley and Measham both in Derbyshire and the Diocese of Lichfield.

In 1959, the late Mr. G.H. Green of Castle Donington wrote an article on "Historical problems of the South Derbyshire-North Leicestershire border" (8) to draw attention to a 'fascinating field for historical study', and in particular the township of Donisthorpe. He stressed that 'research is actually an urgent matter as ground traces (in Donisthorpe) are being swept away by new development'. No one, so far as is known, has followed his advice. Indeed the whole border area, where Leicestershire and Derbyshire were intermingled from Domesday and before until 1897 appears to have attracted little attention in either county. Derbyshire local historians have been mainly concerned with the county north of the Trent while Hoskins himself confesses: 'The western side of the County I never came to like, though I am frequently told this merely shows a lack of such a detailed knowledge as I have of the east'. (9)

Some possible explanations of boundaries in the township of Donisthorpe

Hoskins has described (10) how Leicestershire parishes expanded and pointed out that the 'frontiers of parishes were not reached until about 1300 or even somewhat later in some places in West Leicestershire'. He has shown how the 'great heath extending from Ashby de la Zouch to the neighbourhood of Desford (which) represented the natural vegetation of the Coal Measures' was 'one of the last areas to be colonised, owing to the poverty of its soils'. Thus, says Hoskins, Heather and Normanton le Heath were probably colonised from Nailstone while Donington le Heath and Hugglescote are probably daughter settlements of Ibstock. Map 3 attempts to show Hoskins' area of heath with lines of colonisation, and by analogy possible lines of colonisation in that part of the heath (or woulds) that stretched across what used to be Derbyshire.

The suggestion of joint colonisation of Boothorpe, Donisthorpe and Oakthorpe (11) is not based on Hoskins, though he does say that 'every Thorpe in Leicestershire can be associated with some parental village nearby'. Could it be that the first stage of colonisation of this part of the heath was to provide common grazing for the parishes that had contributed to the work? This is borne out by the existence of other such areas, e.g., Styrrup with Oldcotes, jointly in Blyth and Harworth parishes, in North Nottinghamshire (12) and Ash Meadow near Warkworth in Northamptonshire (13) where the various parishes annually (in the seventeenth century) divided the commonage by lot. Today, Styrrup with

Oldcotes is a separate civil parish (14) and Ash Meadow as a separate area had disappeared. (15) In the Pennine area on the borders of Durham and Northumberland however, the following areas are shown on the one inch O.S. map corrected to 1957 (16) as follows:

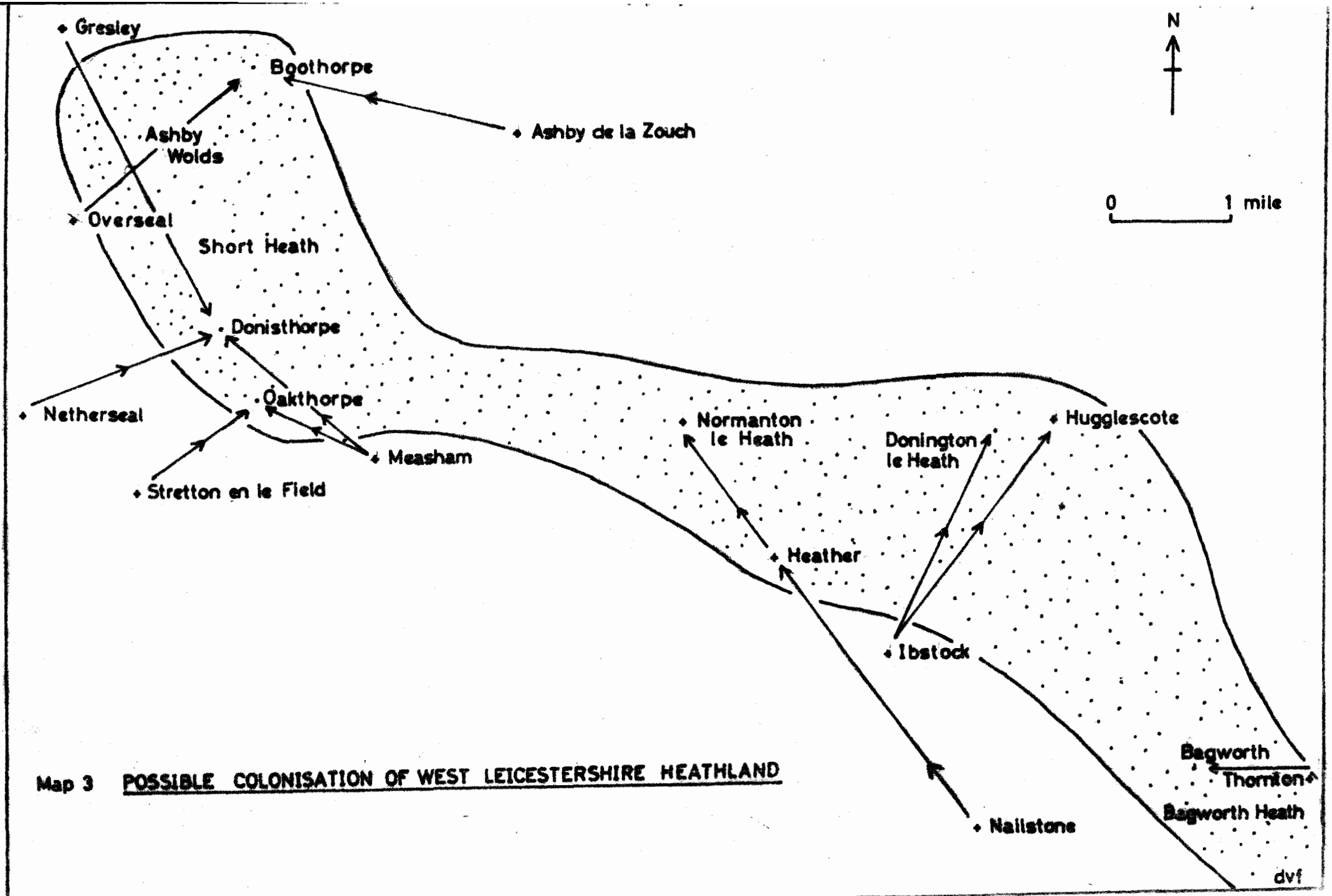
Wolsingham Park Moor Co, Durham	Common to the Parishes of:	Stanhope Wolsingham Tow Law
Hamsterley Common Co. Durham	Common to the Parishes of:	Hamsterley South Bedburn Lynesack and Softley
Allendale Common Northumberland	Common to the Parishes of:	Allendale West Allen

These areas are still open moorland but much of Donisthorpe and its neighbours was arable land as 'is indicated by the presence of ridge and furrow! It is possible therefore, that the boundary lines in these townships represent the usual strip cultivation, except that the strips belong to different manors or parishes. Two other possible examples of such strips in Derbyshire are at Hatton (near Heath Farm) where strips of Church Broughton and Hatton are still intermingled (17) and near Hulland where on George Sanderson's Map of the Country Twenty Miles round Mansfield (1830-4) (18) fields in Biggin, Hulland, Idridgehay, Ireton Wood, Turnditbh and Windley are shown intermingled. (19)

So Donisthorpe may not be such an unusual example; it certainly has attracted more attention because it is in two counties and dioceses.

The intermingling of Leicestershire and Derbyshire

Map 1 shows the position in the area at the time of Domesday and Map 2 the situation as recorded on the first edition of the O.S. 1" map of 1835 (20) indicating that little change took place until the Victorians carried out a thorough tidying. That such a situation baffled cartographers is not surprising; most maps of Derbyshire before the middle of the eighteenth century straighten the boundary and show Seal in Derbyshire. Burdett's Survey of Derbyshire 1762-7 'made after an actual survey and not in any way copied from maps previously published' (21) is believed to be the first map of Derbyshire to show Seal in Leicestershire. (22) Lists of parishes in the Leicestershire Victoria County History always include Seal in the West Goscote Hundred or the Deanery of Akely so there can be no doubt that the old maps are wrong, though it is interesting that the lawyers who drew up the Enclosure Agreement of 1755 described the Manors or Lordships of Netherseal and Overseal as 'in the Counties of Leicester



Map 3 POSSIBLE COLONISATION OF WEST LEICESTERSHIRE HEATHLAND

and Derby or one of them'. Nichols records that for Land Tax purposes the parish of Seal extended into Stretton en le Field and Appleby (23) while the Tithe award of Seal divides the amount due in cash between the Rector of Seal (£970) and the Rector of Stretton (£22). (24) So overlapping there must have been. Nevertheless with the Webbs' firm conclusions in mind (25) we can safely say that Seal was in Leicestershire until by the "Counties of Derby and Leicester, (Woodville etc.,) Order dated 30th September 1897" (26) the present boundaries were established. For Parliamentary purpose Seal remained in Leicestershire until the next redistribution of seats in 1918 and in the diocese of Peterborough until 1927 when it was agreed that the civil boundary should divide the newly formed dioceses of Leicester and Derby.

REFERENCES.

1. K. Cameron: Place Names of Derbyshire (1959) - Part III pp.645 & 651
2. V.C.H. Leicestershire, Vol. I, p.319 et seq.
3. Ordnance Survey: Diagram of Derbyshire (1923) - Hartshorne and Seals R.D.C. disappeared when its area was added to Repton R.D. under the Local Government Act of 1929.
4. The Reverend Nigel Gresley (1834-1897) Rector from 1860 until his death.
5. Memorial in the Chancel.
6. Nichols op. cit. pp.979 et seq.
7. Leicestershire Record Office.
8. Derbyshire Miscellany Vol.1, No.11. (February 1959) pp.175-7.
9. W.G. Hoskins: Leicestershire, A Shell Guide (1970) p.9.
10. W.G. Hoskins: Leicestershire, An Illustrated Essay on the History of the Landscape (1957) Chapter 1, pp. 1-15
11. Oakthorpe and Donisthorpe now form a joint civil parish (See OS 1" map, Sheet 121). Oakthorpe was partly in Measham and partly in Stretton en le Field (see Lichfield Joint Record Office Handlist - Diocesan, Probate and Church Commissioners Records. (1970) p. 36.)
12. W.E. Tate, op. cit. Map facing page 8.
13. S. and B. Webb: The Parish and the County (1906) p.10.
14. OS 1" map sheet 103.
15. OS 1" map sheet 145.
16. OS 1" map sheet 84.
17. OS 1/25,000 map sheet SK23. The Reverend D. H. Buckley kindly pointed this out.
18. Derbyshire Archaeological Reprint 1972. The scale is about 2" to 1 mile.
19. This area was part of Duffield Frith.
    It is supposed that the parish boundaries in this district were tidied under one or other of the Divided Parishes Acts 1876-1882. (See VCH. Derbyshire. Vol. II, p.192.)
20. Sheet 71NW (Derbyshire SE). Mr. A. P. Munford, DRO. kindly found a copy from the Strutt Collection (B198) which had been coloured to show counties.

21. C. C. Handford: Some Maps of Derbyshire 1577-1850. Derbyshire Miscellany Supplement No. 11 (1971) p.22.
22. Derbyshire Archaeological Reprints (1967 & 1975)
23. Nichols op. cit. p.979.
24. Leicestershire Record Office.
25. 'Though some of the fifty two counties into which England and Wales had been definitely divided since the reign of Henry VIII had . . . down to our own day many detached outliers of territory interspersed with that of neighbouring counties, the limits of jurisdiction of each county were accurately known, and the county boundary was, nearly everywhere, the deepest and most enduring of English divisions'. S. and B. Webb, op. cit. p.283.
26. Kelly's Directory of Derbyshire (1904) p.334.

The Caverns and Mines of Matlock Bath

1. The Nestus Mines : Rutland and Masson Caverns
Roger Flindall and Andrew Hayes, Moorland Publishing Co, price £1-10.
Although the caverns at Matlock Bath have been tourist attractions for almost 200 years, this is the first attempt to write an objective account of the caverns and the mineral workings that formed them, beginning with the Nestus Mines, better known now as the Rutland and Masson Caverns, the only two caverns still open to the public. This book therefore fills an obvious gap in the history of Derbyshire lead mining and does much to correct local legends perpetuated for the sake of the tourist trade. The detailed history of the mineral workings, well pieced together from often inadequate source material, is preceded by an invaluable account of the multifarious minerals which make Matlock Bath very much a geologist's dream. The book is lavishly illustrated with plans and photographs, among them detailed diagrams of the lead workings in this neglected section of the leadfield, and for newcomers to the subject there is a useful glossary of lead-mining terms.

D. V. Fowkes.