Keighley Association of Engineers

FOUNDED 1900

The First Hundred Years

The story of the Association and the town's engineering history so far

This booklet has been researched and written by E Donald Haigh, Honorary Life Member and Past President of the Association. He has been assisted by Melville Barker C.Eng.M.I.E.E., President 1999-2001 and Honorary Life Member and Michael Laycock C.Eng. M.I.Mech.E., Vice-President 1999-2001 and Past President.
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Foreword

When Donald Haigh asked me to write a foreword to the book for Keighley Association of Engineers "THE FIRST 100 YEARS" I was happy to oblige. Although I never aspired to being an engineer as many women today do, I nonetheless feel I have a trickle of lubricating oil running through my veins. My father-in-law was a highly skilled (and proud of it) machine tool fitter. My husband would have followed him, but was encouraged by both parents to gain a degree. He, however, spent his happiest hours under the bonnets of Armstrong Siddley cars, driving steam locomotives on the Worth Valley Railway or tending to their maintenance.

One of my proudest moments as MP for Keighley was to go down into the hole that was to become Westminster Underground Station, part of the Jubilee Line extension, beneath my desk more or less, to see the completed escalators made and fitted by the former O & K Escalators of Keighley. The largest single escalator contract ever awarded, completed bang on time, and unlike many other aspects of the extension running without a hitch. My boots were two sizes too large and my head felt enormous with the hard hat, less than elegant, but what an experience!

Keighley has a long and rich industrial heritage, mainly in Engineering and Wool Textiles, the two going hand in hand since many of the machines that produced the fine worsted cloth were made by Keighley engineers. On entering a Keighley engineering workshop I always feel at home, the oily smells adding a strange excitement, the industrial revolution going on.

Keighley Association of Engineers is one of the guardians of our magnificent engineering heritage and I give them my thanks, congratulations and warmest best wishes for the next one hundred years.

Ann Cryer J.P., M.P.

Chapter 1

The Founding Fathers

It was during a meeting of the Keighley Engineering Society, reported in both the Keighley News & The Keighley Herald around the 23rd February 1900, that the proposal for a new Engineering Society was first made. Sir Swire Smith was Chairman of the meeting and, following what was described in the contemporary press as a *"Racey Address"* by him, he introduced the speaker Mr J Miley of The Miley Engineering Company.

Mr Miley lectured on the subject of Pumps and Hydraulics and included a reference to the harnessing of the power generated by the Niagara Falls. He talked of the competition the United States of America was mounting, and the need to educate our engineers to meet the challenge and help ensure the proud heritage of our Country was not eroded. It was in this context that he proposed the formation of a new society, with the emphasis on the education of our engineers.

Following the reports of this meeting in both the local newspapers a letter from the A.S.E. Trade Union appeared in the Keighley News raising doubts about the political motivation of a new society. The letter was answered by one published in the Keighley News the following week, stating that any new society formed would endorse the Political Rule as incorporated in the current Rule Book of the existing Society. This letter was signed by George Grace, Hon. Treasurer and J B Wright, Hon. Secretary.

Finally, on the 17th March 1900, an advertisement appeared in the Keighley News inviting all those who were interested to attend a meeting in the Mechanics Institute on Saturday 24th March 1900 to discuss the formation of a new society. Both the 30th March issue of the Keighley Herald and the 31st March 1900 issue of the Keighley News gave a full report of this meeting.

The Keighley Mechanics Institute

Mr J Miley presided over the meeting, and it was reported as having a good attendance of engineers. He first presented a provisional set of rules based on those of the existing Society, and suggested that a change of name should be considered. After some discussion, the name was changed to ***"The Keighley Association of Engineers"*** and the provisional set of rules accepted, albeit with a few minor alterations.

To illustrate how little they have changed over the ensuing 100 years, here quoted are two of the originals:

1. *Objects of the Association at founding:*

"To further the study of subjects connected with Engineering by means of Lectures, Papers, Discussions and Visits, also the formation

of a Library of Standard and Scientific Works. The Association would not in any case discuss the Politics of the Trade, i.e. Trade Disputes and Disputes between workmen and masters."

The current equivalent rule states:

Objects:

"The objects of the Association shall be to further the study of subjects connected with Engineering by means of lectures, films, discussions and the visiting of places of Engineering interest and to promote Social Activities. The Association shall not on any occasion discuss the Politics of the Engineering Trade."

2. *Constitution at founding:*

"The Council to consist of President, Chairman, Vice Chairman, Hon. Secretary, Hon. Treasurer and eleven members of Council. Council elected by members at the Annual General Meeting and serve for 3 years, except the President who would be elected annually.
Three classes of membership:

1.	*Honorary*	*Members beneficial to the Association*
2.	*Ordinary-*	*Over 21 years of age*
3.	*Junior*	*Under 21 and over 17 years of age*
		Not eligible for Council membership and have no vote."

The current equivalent rule states:

"The affairs of the Association shall be conducted by a Council consisting of the following:

A President who shall be Chairman of Council.
A Vice-President
The immediate Past President
Hon. Lecture/Social Secretary
Hon. Treasurer
Hon. Secretary
9 Members

Of these FIVE to form a quorum which must include at least TWO ordinary Members.

All Members of the Council, with the exception of the immediate Past President shall be elected by the members of the Association at the Annual General Meeting. Members of Council shall be eligible for re-election at the expiry of their term of office.

The President shall hold office for TWO years

The Vice-President shall hold office for TWO years

The Hon.Lecture/Social Secretary, Hon. Secretary, and Hon treasurer shall each hold office for ONE year.

The 9 members of Council shall hold office for THREE years and it shall be arranged that three of them shall end their term of office each year.

The Council shall have the power to co-opt any member to fill any vacancy on the Council caused by the death or resignation of a Council member. The member so co-opted shall serve for the period of office that he or she replaces.

The Council shall be empowered to confirm membership of Council for ONE year upon Past Presidents and others who have served the Association with particular distinction provided that such members satisfy the following requirements:

1. *That they are current Members of the Association and are of good standing;*
2. *They have a minimum of 10 years continuous membership.*

All members of Council shall have equal voting rights.

On receipt of the notification of the Annual General Meeting any member may hand in nominations for the vacancies on the Council."

There then follows a separate rule defining the types of Membership.

"The members of the Association shall be in four classes:

1. *Life Honorary Members*
2. *Ordinary Members*
3. *Retired Members*
4. *Student Members*

A Life Honorary Member shall be a person proposed by a Council member and elected by the Council.

An Ordinary Member shall be a person over the age of 21 years and engaged in, or connected with, the Engineering Industry.

A Student Member shall be a person engaged in Engineering and shall be over 16 and less than 21 years of age.

A Retired Member shall be an Ordinary Member who has reached Statutary Retirement Age.

All paid up members of the Association shall be eligible to vote at all meetings of the Association and shall be eligible for election to the Council."

Officers elected at the Inaugural Meeting were:

President:	Mr H C Longsdon
Chairman:	Mr J Miley
Vice Chairman:	Mr W S Clapham
Hon. Treasurer:	Mr George Grace
Hon. Secretary:	Mr J H Wright

Members of Council:	Messrs. J Widdop; E Fortune; Joseph Whitaker; Robert Hudson; H Driver; H Lund; T Keighley; J Halliday; Feather Whitaker; Joseph Feather; and F Lister.
Auditors:	James Crabtree and J W Shuttleworth.

Between 40 and 50 members enrolled at this Meeting.

The first President of the Association was Mr Henry Crofts Longsdon. He was the Mayor of Keighley from 1899 to 1902, and Managing Director of W Summerscales Limited, Laundry Engineers, for some years. Born at Seacroft Leeds in 1857, the only son of the Rector, he moved to Keighley when his father became Rector of Keighley from 1877 to 1888. He married Miss Anne Summerscales, daughter of Joseph Summerscales, and was associated with public, business and religious life of the town for 40 some years.

Henry Crofts Longsdon in his Mayoral Robes

Only scant details of the Chairman, Mr J Miley have been located. Originally from Staffordshire, he was born in 1851, married with one son, he worked as a Mechanical Draughtsman. To be described as a Draughtsman in those days indicated that the person was a well educated and trained Engineer. And indeed this was confirmed by the report on the lecture he gave on Pumps and Hydraulics on behalf of the Company bearing his name, and also the fact that he was elected Chairman of the Association at its founding.

The Vice-Chairman Mr William S Clapham was the grandson of one of the founders of Clapham Bros. This Company commenced business as Iron Founders in Greengate, Keighley, in the year 1837 which saw the beginning of Queen Victoria's reign. The early growth of the firm was slow, but 1850 saw an additional foundry in Lawkholme Lane. William became Chairman of the Company in 1915, a position he held until his death in 1936.

William S. Clapham

These then are the people who guided the Association through its formative years. Some of the activities of the next 100 years are recorded in the following Chapters.

Chapter 2

Activities

The first recorded activity of the Association merited a detailed report in the Keighley Herald dated the 25th May 1900:

> *"Through the courtesy of the management of the Leeds Steelworks About 60 members of the Keighley Association of Engineers were on Tuesday night enabled to pay a visit which was both interesting and profitable to the well-known steelworks at Hunslet. The party arrived by 7:30pm and were kindly received by Mr Richards, Managing Director and the managers of the various departments. The visitors were divided into two parties and the tour of the works was made by different routes. The greatest willingness, even anxiety being shown throughout in the matter of imparting information.*
>
> *The works were, of course in full swing and among the various plant inspected and described were the cowper hot blast stoves and a range of steam boilers (fired by the waste gases from the blast furnaces) apparatus for recording temperature of blast and waste gases; blowing engines aggregating 1500 H. P.. Bessemer Convertors in which by a refining operation affected by powerful blasts of air blowing through the liquid iron, iron is converted to steel , about 12 to 13 tons being heated at one operation; reheating in furnaces in which the steel ingots are reheated preparatory to being rolled, the furnaces being fired by waste gases; rolling mills which, in under seven minutes can produce from the heated ingots, tram rails and section bars, which are cut by a hot sawing machine; and arrangements for testing the steel including chemical analysis, falling weight and tensile tests are made in Bucktens 100 Tons Testing Machine. The three furnaces of the Company produce nearly 100 tons of Pig Iron per day.*
> *About a quarter to ten the party assembled in the office buildings, where refreshments were most hospitably provided by the firm. Mr Dennis Barrett (Principal of the Keighley Technical Institute)*

expressed his gratification that the new Association had received such a kind, courteous and hospitable reception and hoped that such an interesting and profitable excursion was an omen of future success. Mr J Miley in proposing a vote of thanks to Mr Richards and his staff enumerated the processes shown and pointed out that economy of materials was one of the most important features of the system. The motion was seconded by Mr G Grace, and Mr Richards in acknowledging, said that they owed a great deal to mechanical engineering and it was the policy of the company to do all in their power to further engineering processes, an end which was best secured by pointing out openings for further improvement. He expressed great pleasure at being able to receive the deputation and hoped to have a similar pleasure in the future. The party left the works at 10.30pm.

This was a very full and comprehensive report of what is believed to be the first works visit made by the Association's members. There is another equally comprehensive report published in the same newspaper on the 14th of September 1900 referring to a visit made on the 13th of the month. A party of 50 members visited the Clarence Steel Works of Messrs. Taylor Bros. of Leeds. Again, the processes seen are described in detail, the main product being wrought iron known throughout the World as "*Best Yorkshire*". Steel made into tyres for railway wheels and, from larger ingots into hollow shafts, crankshafts and connecting rods. Equipment in the factory included Siemens' regenerative furnaces, a 1200 ton hydraulic press by Whitworths of Manchester and a large bandsawing machine by Noble and Lund of Newcastle.

Again, Mr J Miley gave the vote of thanks seconded by Mr G Grace. Mr Miley pointed out that the Association owed a lot to Leeds having made 3 visits to works and that several of the lectures for the winter season were to be delivered by Leeds gentlemen. The response was made by Mr Harcourt and Mr Lane on behalf of Taylor Bros.

Lectures do not appear to have received the same publicity. However, from the minutes of a Council Meeting held on the 15th March 1915 came a proposal that the lectures be printed along with a yearly report of the activities of the Association, this was seconded, and a sub-committee was formed to meet and read the papers and if necessary to condense some with permission for this to be sought from the Lecturer. Two of these Annual Report Books have survived 1916-1917 and 1918-1919.

The 1916-1917 book starts by listing the Officers of the Association for the current year, makes reference to the Library, Reading and Lecture rooms and states that lectures are arranged to take place on the second Saturday in each month during the Winter Session (October to March). Qualification for Membership, Statement of Accounts for the year ending March 31st 1917, List of Past Presidents, Honorary Members and Ordinary Members are all included, followed by the Presidents Address. The President was Mr J A E Mitchell and it is interesting to note a few items from this Address:

> *"Gentlemen. I must congratulate the members of the Association on the satisfactory position in which the Association stands both financially and energetically. The membership is still increasing, the Hon Members being 16 and the Ordinary Members 186."*

He goes on to say he would have been pleased for a larger increase in membership as no doubt the work of the Association, chiefly from an educational point of view, is worth a much better response from the Engineers of the district. In his response to the Essay Competition he says that the Council has again decided to postpone it but as soon as the opportunity arises energy will be given to make the Competition as successful as it has been in the past. There then follows a lengthy paragraph about youth in the industry, which he concludes by saying:

> *"If the war had not happened there is no doubt Keighley would have had a very creditable Engineering Department at its Institute. Gentlemen it is our bounden duty to encourage the next generation to prosper with all the means in our power."*

The rest of his Address is devoted to listing the lectures given and commenting on them as a whole, to thanking firms on behalf of the Council for donations made, making reference to the effect of the War and what must be done to alleviate the problems caused. Surprisingly, in view of the rules of the Association he talked about the trouble between capital and labour. He then returned to the subject of training *"our boys"* which must be given more thought in future, for example, after reaching 12 years of age and then also at 15 years he felt it essential they should work on very scientific lines and be trained by thoroughly practical teachers.

He concludes by suggesting that what he has said may be an inducement to all Engineers to do their utmost to join the Association and also to suggest that other Associations be urged to have inter lectures and discussions. It took another 20 years for this to be put on a formal basis (see Chapter 3).

In his comments about the lectures of the last session he said that they had been the brightest and most interesting character and no doubt the members agreed that it would have been most difficult to arrange a more suitable Syllabus for the Association.

It is worth while commenting on some of these lectures, particularly the first one, "SALES METHODS" by John Judson of Saturday October 14th 1916. John Judson was the Sales Representative for a firm of machine tool merchants with houses in most of the important cities in Europe. A number of slides illustrated how successful this firm had been selling their lines in protected Continental countries. He also showed that his firm was doing for the trade after the War in respect of the British machine tool industry by showing some slides of advertisement blocks mostly relating to machine tools built in Keighley. He said that after the War the British manufacturers would not only have to fight the Germans but also the American Industry. America during the past two years had increased her wealth by £2000 million a proportion of which had gone in to the American tool shops. There was no doubt that the Americans were taking time by the forelock and substituting the newest types of machine tools for those they considered to be obsolete in order that they might be in a position after the War to capture the bulk of the trade of manufactured articles of the world. It was time therefore for the British manufacturer to put his workshop in order so that when peace came he would be able to take his share of orders with competitors abroad.

He goes on to make a few comments about labour relations recognising the fact that special efforts would be required to preserve industrial peace after the War. Every individual connected with the industry and those in control of trade unions needed to understand that to get back to the position held 25 years ago as the leading machine tool manufacturing nation it was absolutely essential that improvements be made. Efficient manufacturing and efficient selling of goods were two of the most essential things to be borne in mind by every Britisher after the war. It should be remembered that America did not enter the war until 6th April 1917.

The second lecture "SOME MODERN DEVELOPMENTS IN STEAM ENGINE PRACTICE" was presented by W Eastwood M.I.Mech.E. A.M.I.C.E. This lecture dealt with the Steam Engine, its steam generating apparatus and accessories. The developments to be noted are those which make for a maximum overall efficiency, rather than the efficiency of any one particular part of the plant. An effort was made to show what degree of perfection had been attained and what remained to be done. This lecture was well received and a note at the end states that a verbatim report in book form of this interesting lecture may be had on application to the Hon. Secretary or direct to the lecturer c/o Messrs. Newton, Bean and Mitchell, Engineers, Dudley Hill, Bradford.

The third lecture "SOME POINTS IN THE DRIVING OF TEXTILE MACHINERY" was presented by Professor Charnock M.Sc. M.I.C.E. The subject was selected for a joint lecture with the Textile Society. The Chairman J.A.E.Mitchell (President) remarked that such gatherings would be a great benefit to members of the Associations and that more such meetings should take place, as no doubt Textile friends would be in a sorry plight if it were not for the Engineers, and at the same time the Engineers would learn more about the work their machinery accomplished.

Other lectures published in full include: "METHODS OF MOUNTING PATTERNS FOR PLATE AND MACHINE MOULDING" by H R Shackleton (Winner of the Association Essay Competition 1912 and 1914); "THE SHAPE OF GEAR TEETH" by L H Wright A.M.I.Mech.E.; " THE HISTORY AND ROMANCE OF STEEL" by Arthur Shepherd J.P. joint lecture with the Textile Society; and "PROGRESS IN ELECTRICAL POWER PLANTS" by Harry

Webber A.M.I.E.E. M.I.M.EA Borough Electrical Engineer and Tramways Manager. This was a particularly interesting lecture in that he described the transition from reciprocating steam engines to steam turbines for driving electricity generating machinery referring, of course to the Hon. C A Parsons who had perfected his reaction turbine in about 1884. Mr Webber goes on to state the steam turbine had been brought to a high degree of perfection and had displaced steam reciprocating engines for all large electrical units.

The eighth and last lecture "FOUNDRY PRACTICE, MECHANICAL TESTS FOR CAST IRON" by F J Cook was a very comprehensive technical lecture with diagrams, graphs, photographs and a diagram of a Testing machine taking up some 28 pages (About A5 size) of the report.

The foregoing set the pattern for the principle activities of the Association for the next 100 years. Much more recent lectures and works visits have included for example: "FLEXIBLE MANUFACTURING SYSTEMS" presented on the 9th December 1987 by Mr M Banks Engineering Director Landis Lund.; and "THE DESIGN AND CONSTRUCTION OF THE AIRE VALLEY TRUNK ROAD" presented on the 17th of February 1988 by Mr Graham Dawson of Babtie, Shaw and Morton, the Civil Engineering Company responsible for the design of the road.

Visits took place in the same year to David Brown Gear Industries, Huddersfield, (incidentally the first recorded visit to these works was during the 1918-1919 session). Also to Holset Engineering, Huddersfield, a Cummins Engine subsidiary and makers of Turbo Chargers, on the 9th of November 1988.

No up to date account of activities of the Association would be complete without a mention of the lecture on the Channel Tunnel. The British and French Governments had agreed to go ahead with the project and the lecture was presented on the 15th March 1989 when 28 members and 25 visitors attended. However, we have to go back to the opening lecture of the 1920-1921 season for the first lecture on this subject when a Captain Durtnall M.I.Loco.E. M.I.Mar.E. presented "THE PARAGON EXPRESS", a story of the Channel Tunnel or, "FROM KEIGHLEY TO BAGHDAD WITHOUT A CHANGE OF CARRIAGE"

The last decade of the Century saw lectures on subjects not dreamt of in the first decade such as "BORN AGAIN THE RESTORATION OF SPITFIRE PS 915" presented on the 22nd of March 1990 by Mr Wally Rouse, Archivist and Historian, British Aerospace. On Wednesday the 13th of February 1991 "THE ELECTRIFICATION OF THE EAST COAST MAIN LINE" was presented by Mr C N Schofield of British Rail Eastern Region. The 1992 H C Town Memorial Lecture was on the subject of "SIMULTANEOUS ENGINEERING" by Mr Graham Hoare of the Rover Group Ltd. Again by courtesy of the Rover Group, "VEHICLE AND POWER TRAIN ELECTRONICS" by Mr Ewan Morton and Mr. Jonathon Hunt was presented on the 27th of October 1993.

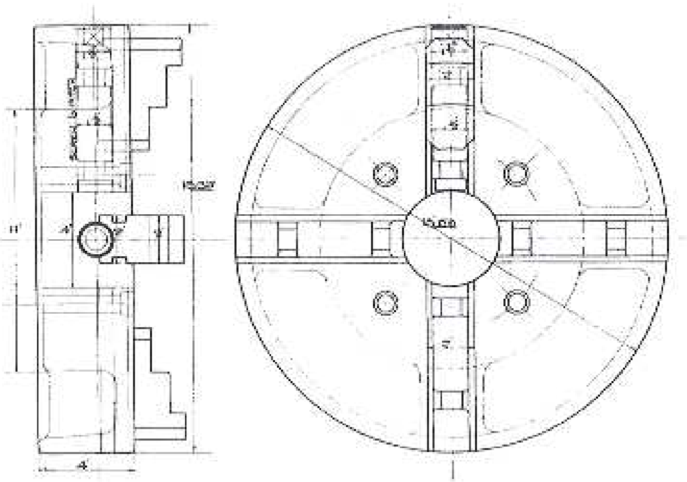
It can be noticed that the subject matter is becoming less technical and covering a wider range of topics, the emphasis being on creating and maintaining an interest in all aspects of engineering rather than trying to supplement the work of the Further Education bodies. A typical example being the Keighley College sponsored lecture on the vast subject of "AIRLINE AIRCRAFT MAINTENANCE" by Mr George Taylor, Chief Engineer, British Airways.

Works visits are of course not forgotten, on the 25th January 1990 a party of twelve including three guests visited Airedale General Hospital to see the high technological level of Engineering Services and maintenance required in a modern Hospital. In total contrast, on the 15th of April 1992, fifteen members and nine guests visited Denholme Velvets and observed the machinery at work producing velvet cloth. Other visits have included Civil Engineering on the Worth Valley Railway, work originally done before the Association was formed, and Landis Lund to see one of the finest machine tool manufacturing facilities in Europe, a far cry from the days of the Barrett family ownership when the factory was known as Eastburn Foundry and again before our Association was founded.

Throughout the 100 years of our existence attempts have been made to include social activities the majority of which have proved successful. The prime example is, of course the Annual Dinner, however the ladies have never been forgotten, and from the minutes of a Council Meeting Thursday the 26th of June 1919 arrangements for the Garden Party were reported by the President. All members were in agreement to accept the kindness of Samuel Clough to allow the use of his grounds (Steeton Hall). Again from the minutes of the Council Meeting of the 20th April 1921, arrangements were made for the Ladies Picnic to be held at Farnhill Hall and to travel there by boat. Unfortunately, no mention is made of the point of embarkation or of the boat itself. A change of style for this event was reported at a Council Meeting held on the 10th of March 1922. Members of the Association had been granted permission by Bradford City Council to visit Angram Reservoir and water works, this visit to be made the occasion of the Ladies Picnic.

More recently the Annual Dinner was changed to a Dinner Dance rather than the formal dinner of earlier years so as to include the ladies. More recently still a suitable topic for a talk followed by a buffet supper at a local hostelry has been the norm for the Ladies Evening. Such interesting topics as "KEIGHLEY DURING THE SECOND WORLD WAR" presented by local historian Ian Dewhurst and a "DIFFERENT LOOK AT THE LAKE DISTRICT" by Mr J Stanley Bell, a former Mayor of Keighley, was illustrated with some superb slides. Nor has the canal been forgotten, it is now of course, a leisure waterway and two Ladies Evening outings have been arranged sailing with Pennine Boat Trips of Skipton to Gargrave and back also to Farnhill Woods and back. No Picnic at Farnhill Hall this time but an excellent buffet on board.

There has been over most of the 100 years attempts to run an Essay Competition, firstly open to all members where entries were submitted under a pseudonym, the adjudicators thus having no idea, one assumes, whose entry was being studied. There are a number of occasions when the Council has decided that the competition should be postponed for another year and, generally no reasons are given. There was however a very successful competition run in September 1921 the details being shown below. Mr. William Haggas provided the chuck details.



September, 1921.

ESSAY COMPETITION.

The Council offer prizes for the best papers written on the subject :— **"THE MANUFACTURE OF FOUR JAW INDEPENDENT LATHE CHUCKS 18" DIAMETER,"** in accordance with the terms and conditions set out below for which prizes of the following values will be given :—

First Prize - - - **£5-0-0.**
Second Prize - - **£3-0-0.**
Third Prize - - - **£2-0-0.**

CONDITIONS :—

Each Competitor must have been a Member of the Association prior to October 1st, 1921.

Each Competitor is expected to make a rough working drawing of the Chuck (no marks will be given for the technique of the drawing).

Each Competitor is required to give the best and simplest method of :

1st. Making the patterns.
2nd. Moulding same.
3rd. Machining and assembling same including all component parts ready for use, for the manufacture of TWELVE Chucks. No Backplate to be provided, but provision made for same.

Each paper to be signed under a nom-de-plume, marked "ESSAY COMPETITION." In addition the name and address of each Competitor must be enclosed in a separate sealed envelope, with the nom-de-plume ONLY written on the outside, papers having any other distinguishing mark will be disqualified.

The Adjudicators will consist of Members of the Council (and other co-opted members if necessary), the sealed envelopes not being opened until all the papers have been adjudicated upon.

The Adjudicators reserve the right of with-holding any of the prizes if in their opinion the quality of the essays is not of sufficient merit.

The Essay papers must be lodged with the Hon. Secretary not later than ~~December 9th, 1921~~.

Members of the Council of The Keighley Association of Engineers are not eligible to compete.

T. E. WILLIAMS.

The First prize of £5 went to Mr George Dewhurst
The Second prize of £3 went to Mr W B Midgley
The Third prize of £2 went to Mr Fred Hartley

In the previous year, without any record of the actual subject matter, the Council decided that the first and second prizes should be added together then equally divided between Mr R G Hewitt and Mr W B Midgley.

A change of style came with the 1922 Essay Competition when members were invited to submit papers written on two of the lectures presented during the year, full details are shown below.

ESSAY COMPETITION.

OCTOBER, 1922.

The Council offer prizes for the best papers written on the two following Lectures:

"Jigs and Fixtures and their Influence on Design,"

By T. ELLIOTT, Esq.,

To be given on SATURDAY, NOVEMBER 11th, 1922,

—AND—

"The Relations of Iron with Carbon, Silicon and Phosphorous,"

By F. C. A. LANTSBERRY, Esq.,

To be given on SATURDAY, MARCH 10th, 1923.

In accordance with the terms and conditions set out on opposite page, for which Prizes to the value of Two Guineas each will be given for the Best Paper on each Lecture.

CONDITIONS

Each Competitor must have been a member of the Association prior to October 1st, 1922.

The Essays to consist approximately of 1,000 words, sketches will be permissable to illustrate any point.

Each paper to be signed under a nom-de-plume, marked "ESSAY COMPETITION." In addition the name and address of each Competitor must be enclosed in a separate sealed envelope, with the nom-de-plume ONLY written on the outside, papers having any other distinguishing mark will be disqualified.

The Adjudicators will consist of Members of the Council (and other co-opted members if necessary), the sealed envelopes not being opened until all the papers have been adjudicated upon.

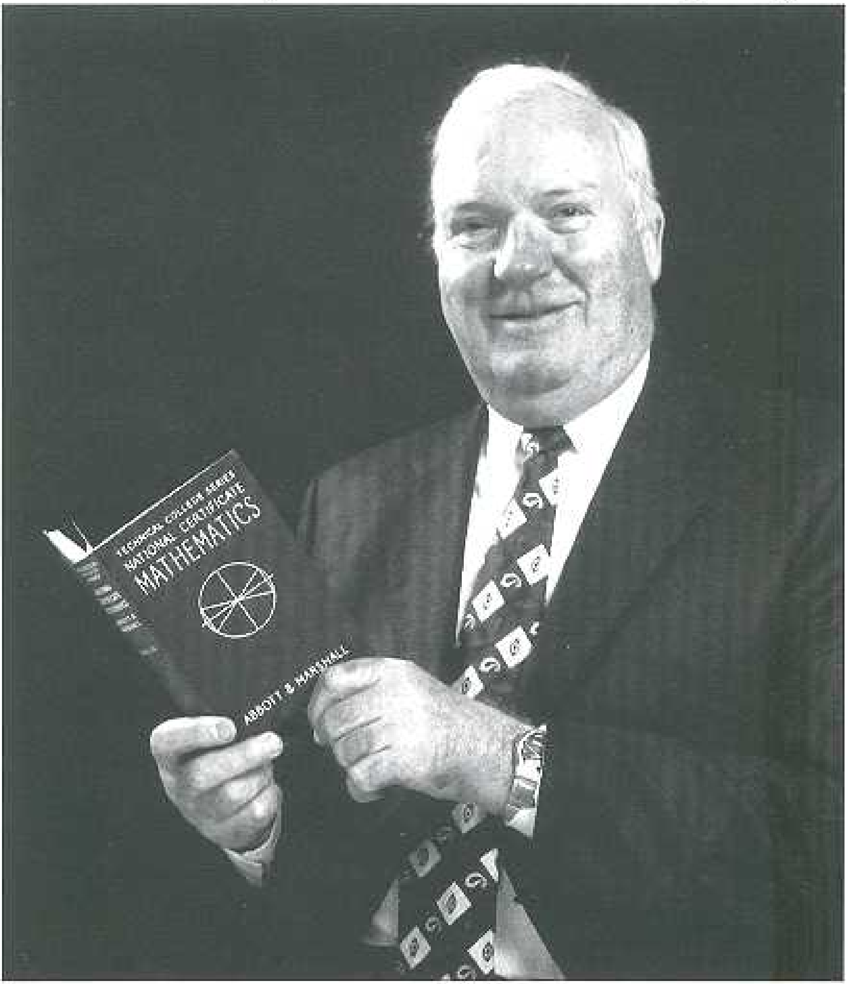
The Adjudicators reserve the right of withholding any of the prizes if in their opinion the quality of the Essays is not of sufficient merit.

The Essay papers must be lodged with the Hon. Secretary within one month after the date of each lecture.

Members of the Council of the Keighley Association of Engineers are not eligible to compete.

T. E. WILLIAMS,
Hon. Secretary.

The Essay Competition benefited from a generous donation of £100 invested in a Keighley Town Council Bond by Mr Frank Watson, a prominent member, benefactor and Past President (1933-35) of the Association. The interest from the Bond being the prize money which the winner had to spend on books or tools. Junior Member Michael Laycock (and future President) was the winner in 1954 with an essay on Motor Cycle Engines. His prize money was spent on a book *"National Certificate Mathematics"* and cost 8/6d (42 1/2p).



Michael Laycock. C. Eng. M.I. Mech. E. Vice President of the Association with his 1954 Frank Watson Essay Competition Winner's Prize.

Presentation to the Frank Watson Essay Competition Prize Winners at the 1958-59 Annual Dinner.
(l to r) Prize Winner; V.J. Wood, President; Prof. J. Loxham, Chief Guest; Prize Winner; Stuart Robinson, Prize Winner; Prize Winner; Frank Watson

This photograph is the only remaining record of a prize presentation and shows four winners receiving their award at the 1959 Annual Dinner.

Some difficulties were experienced with the prize when Keighley was absorbed into the Bradford Metropolitan Council in the 1974 reorganisation of local government. These were eventually resolved and the money returned to the Association. This together with another £100 donated by the Frank Watson Business then being run by his two sons and £100 from the Association has been reinvested, and, what was known as the Frank Watson Essay Competition has become the Frank Watson Prize of the Keighley Association of Engineers awarded biannually. The full details of how this is organised follow.
Copy of letter sent to all local Engineering companies:

Dear Sir,

The Frank Watson Prize of the Keighley Association of Engineers.

The Council of the Association, together with Frank Watson & Sons Ltd., are particularly anxious to encourage Engineering Apprentices who have come through Craft & Technician Training and have shown ability and ambition in their workplace and College subject. You are therefore invited to submit one or more entries for the above prize. An entry form and guide sheet for the use of applicants is enclosed.

The winner and their company will be presented with the Trophy to keep for two years and the winner will receive a prize to the value of £50. and free membership of the Association up to the age of 25. Other accepted entries will receive two years free membership of the Association. The prize will be presented at the Annual Dinner.

Your support in nominating for the prize would be appreciated. Please return the application form by ... to:

The Secretary
Keighley Association of Engineers
c/o Keighley & District Training Association Limited
New Devonshire House
Devonshire Street
Keighley BD21 2AU

Yours faithfully

President

Ref. No.

CONFIDENTIAL

KEIGHLEY ASSOCIATION OF ENGINEERS

STUDENT ENGINEER AWARD SCHEME

APPLICATION FORM

PLEASE COMPLETE IN OWN HANDWRITING

SURNAME (Block Letters)	OTHER NAMES	DATE OF BIRTH

PERMANENT ADDRESS	ADDRESS FOR CORRESPONDENCE (If different)
Telephone No.	Telephone No.

SCHOOL LEAVING QUALIFICATIONS:- (If none please state)	DATE OF LEAVING SCHOOL:
NAME & ADDRESS OF SCHOOL:	

TITLE OF EXAM	DATE	SUBJECT	RESULT/GRADE

FURTHER EDUCATION:-
DETAILS OF COURSE(S) TAKEN

NAME & ADDRESS OF SCHOOL/COLLEGE		DATE from/to	TITLE OF COURSE & STAGE	SUBJECT	RESULTS
	Yr 1				
	Yr 2				
	Yr 3				

DETAILS OF APPRENTICESHIP:

NAME AND ADDRESS OF COMPANY (or Companies)   TELE NO.

STARTING DATE (Month/Year)

GRADE OF APPRENTICESHIP

YEAR	DEPARTMENTS	PERIOD OF TIME
1		
2		
3		
4		

Give brief outline of your present job and future career ambitions. Use the other side of the sheet if necessary.

Date........................   Signed............................

Training Officer's Comments.

Date........................   Signed............................

KAE Assessment.

Date........................   Signed............................

NAME:

ASSESSMENT FOR THE FRANK WATSON PRIZE OF THE KEIGHLEY ASSOCIATION OF ENGINEERS

OBJECTIVES			ASSESSMENT
GRADING OF APPLICATION FORM RE QUESTION: - "BRIEF OUTLINE ON PRESENT JOB AND FUTURE CAREER AMBITION"	WELL PRESENTED AND INFORMATIVE WELL PRESENTED, COULD HAVE BEEN MORE INFORMATIVE FAIR PRESENTATION, COULD HAVE BEEN MORE INFORMATIVE POORLY PRESENTED AND LACKING INFORMATION	4 3 2 1	
ENGINEERING KNOWLEDGE	BROAD KNOWLEDGE SOUND KNOWLEDGE REASONABLE KNOWLEDGE POOR KNOWLEDGE	7 5 3 1	
CONTRIBUTION TO COMPANY	IMPORTANT CONTRIBUTION MADE SOUND APPLICATION AND DEDICATION SOME CONTRIBUTION EVIDENT NO SIGNIFICANT CONTRIBUTION EVEIDENT	4 3 2 1	
AMBITION (CAREER OBJECTIVES)	VERY AMBITIOUS TO GO TO THE TOP SEEKING TO ACHIEVE A SOUND POSITION SOME AMBITION NO STRONG AMBITION	7 5 3 1	
PRESENTATION VISUAL AND VERBAL	VISUALLY SMART AND ARTICULATE SOUNDLY PRESENTED – APPEARANCE/VERBALLY LESS WELL PRESENTED – APPEARANCE/VERBALLY POORLY PRESENTED – APPEARANCE/VERBALLY	4 3 2 1	
		TOTAL	

ANY ADDITIONAL COMMENTS THAT WOULD HELP IN THE EVENT OF A TIE:

ASSESSOR NAME: SIGNATURE: DATE:

These details are sent to all companies within the Keighley and District Training Associations area of responsibility and who have Apprentice Training Schemes. The competition has run successfully since 1986 with the introduction of the changed format and the increase in the prize money.

The 1999-2000 winner was John Freeman an apprentice with Landis Lund, his prize being £100 (special for the Centenary) the Trophy being displayed at the company's offices.

Of the actual presentation the Keighley News of Friday March 31st 2000 reported:

> *"Prestige Award far top Engineering Apprentice.*
>
> *Promising young engineering apprentice John Freeman is this year's winner of the prestigious Frank Watson prize which he received at the Centenary Dinner of the Keighley Association of Engineers on Friday. John 21 from Oakworth started work at Eastburn company Landis Lund after a year's basic training at Keighley College. His five-year apprenticeship finishes in the summer. John now works in the Research and Development section at Landis Lund, where he has been helping to develop a new cam grinding machine. He says "it is nice to receive the award especially in the Associations Centenary year. I have thoroughly enjoyed my apprenticeship and I am sure I will go on to enjoy a career in engineering".*

Association Treasurer John Pankhurst said the prize was presented biannually to the best young engineer

> *"This year there were seven excellent candidates to choose from, any one of which local companies would queue up to sign on".*

Centenary Year. The Frank Watson Prize of the Keighley Association of Engineers being presented to John Freeman by President Melville Barker, C. Eng. M.I.E.E.

It is believed that the Annual Dinner has been a feature of the Association's activities throughout the 100 years of its existence although the earliest reference we have to it is in a report in the Keighley Herald on the second Annual General Meeting dated 5th April 1901. Amongst items such as the financial state of the Association, membership numbers (7 honorary, 87 ordinary and 20 junior) and a medal for the best paper, the Annual Dinner is mentioned. The first actual record is a photograph dated 30th March 1935.

***Standing* – Guest, Guest, Tom Mercer, Bob Hudson, Guest, Joe Smith, John Stell, Horace Green, Guest, H.C. Town, Fred Watson**
***Top Table* – Guest, Willie Haggas, Dr. Hatfield, Frank Watson (President), Tom Broster (Mayor), Walter Slingsby**
***Front* – Dick Hewitt, Guest, E. A. Roper, Eddie Carr, John Scarborough, Guest, Harry Smith**
Four Junior Members

And to give some idea of the standing of the Association in mid Century the Chief Guest at the 1943-45 Dinner was Roy Chadwick who achieved fame as the designer of the Second World War Avro Lancaster Bomber.

1943/45 Annual Dinner with from l to r; Frank Watson, Roy Chadwick, W. Womersley, President of the Association and Edgar Middleton, Mayor of Keighley

The format of the Annual Dinner has changed little over the years, the Loyal Toast and Toasts to The Association, The Town and Trade of Keighley and Our Guests with suitable responses have been included.

During the earlier and mid term period entertainment was a feature of the Dinner. For example at the Diamond Jubilee Dinner of 1960 this was provided by Miss Eileen Bailey, Miss Doreen Burton, Mr Keith Marsden and Mr Joseph Bradwell.

Another feature for many years was an invitation to kindred associations for them to send a delegate. At the Diamond Jubilee Dinner these being Mr W Hammond of the Bradford Engineering Society; Mr C H Hattersley of the Leeds Association of Engineers; the Middlesborough and District Association of Engineers was represented by Mr M V Wilson; and the Newcastle-upon-Tyne District Association of Engineers by Mr J Dowse. A party consisting of the Delegates and volunteer Council Members of the Keighley Association then gathered the following morning to have a local works visit followed by lunch before the Guests departed for home. Sadly of these only the Leeds Association remains but happily the two Associations still exchange Delegates.

The Programme/ Menu for the Diamond Jubilee Dinner is reproduced below:

Menu

Grapefruit Cocktail

—

Mushroom Soup

—

Poached Salmon

—

Roast Chicken
Stuffing
Chipolata Sausage etc.
Bread Sauce
Garden Peas
Brussels Sprouts
New Potatoes

—

Fruit Salad
Fresh Cream and Ice Cream

—

Cheese and Biscuits

—

Coffee

Toast List

"THE LOYAL TOAST"

Interval

Entertainment

"THE KEIGHLEY ASSOCIATION OF ENGINEERS"
Proposed by R. O'Brien, Esq., D.S.O., M.C., B.A., J.P.
Response by F. D. Haigh, Esq., G.I.Mech.E.

Presentation of Annual Essay Competition Prizes

Entertainment

"THE TOWN AND TRADE OF KEIGHLEY"
Proposed by W. Hiles, Esq.
Response by His Worship The Mayor of Keighley,
Councillor H. Hammond, J.P.

"OUR GUESTS"
Proposed by P. F. Simpson, Esq., A.M.Inst.B.E.
Response by C. H. Hattersley, Esq.

Entertainment

The Queen

Entertainment by Miss Eileen Bailey, Miss Doreen Burton,
Mr. Keith Marsden and Mr. Joseph Bradwell

Toastmaster—G. E. Wood, Esq.

One other effort made by the Council was to organise an exhibition of Local Industry in an attempt to boost interest in Engineering as a career, the targeted audience being, of course the local upper schools .The net was spread out to include Bingley, Shipley, Keighley, Skipton and Silsden. Held over 2 days 27th and 28th February 1974 the photographs illustrate what a good show was put on.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Chapter 3

The West Riding Federation of Engineering Societies.

As mentioned earlier, Mr J A E Mitchell in his Presidential Address at the 1917 Annual General Meeting suggested that Associations be urged to have inter lectures and discussions. On the 23^{rd} of July 1936 a joint meeting was held at the Victoria Hotel, Bradford. Present were representatives from the Huddersfield, Spenborough, Brighouse and Bradford Societies, Keighley and Leeds were unable to attend. After opening remarks, the delegates conveyed to the meeting the attitude of their various committees on the formation of a body whose duty it would be to work in the interests of the Associations as a whole without interference in any of the individual activities. There was a unanimous feeling that such an amalgamation of interests would be to the advantage of all concerned. After a lengthy discussion it was unanimously agreed that a body be formed on the lines as above and that the body be called ***"The West Riding Federation Of Engineering Societies"***, that a joint syllabus card be produced, and that the Federation be allowed to develop normally by:

A) *"A linking up of societies;*
B) *Throwing open lectures to all federated societies;*
C) *Making arrangements for getting lectures not normally available to individual societies;*
D) *Arranging social activities."*

At a further meeting in September 1936 it was agreed that the Council of the Federation would consist of two delegates from each Association. The meeting of the 27^{th} of August 1936 saw two members of the Keighley Association, Mr A B Auty and Mr J W Rice, attend for the first time. It was at this meeting that it was decided to get quotations for the printing of 1500 copies of the Federation syllabus.

The first lecture was on the subject of "AIR RAID PRECAUTIONS" presented by a representative of the Home Office on the 20th of April 1937. The next mention of the Keighley Association is in the minutes of the Federation meeting held on the 31st of May 1937 when Messrs. Roper, Rice and Auty were welcomed by the President who hoped that Keighley would join. It was at this Council Meeting that a works visit was proposed to the Hawthorne Leslie Shipyard, Newcastle upon Tyne by motor coach. The visit took place on the 11th of July 1937 when 167 members boarded 5 coaches, the costs being: Coach 12/6d (62 1/2p); Lunch 2/- (10p); and Tea 1/6p (7 1/2p). So followed Summer visits: 19th of June 1938, 523 members most of them travelling by train visited the Mersey Tunnel; the "Duchess of Richmond" a twin screw steamer powered by Parsons turbines; and Gladstone Dock of the Mersey Docks and Harbour Board. The next proposed visit was to the L.M.S.Railway Works at Derby in the Summer of 1939 - it would appear from the records that this never took place.

A Council Meeting of the Keighley Association of Engineers was called for Friday the 30th of June 1939 to discuss affiliating with the West Riding Federation of Engineering Societies. It was reported that feelings ran high and that it was resolved by 7 votes to 6 votes <u>not</u> to join.

Following applications for membership from Shipley Technical College Engineering Society and the Wakefield Society of Engineers a Federation meeting was called for the 28th of August 1939. It was at this meeting that a sub-committee was formed to take over all the assets and interests of the Federation for the period of the War Emergency. There would be no further Federation activities but members of affiliated societies were asked to keep each other informed of their activities.

It was not until the 4th of June 1947 that a meeting of the trustees was called: W Brook F.I.A.A. President; Dr J Ward B.Sc. Ph.D. M.I.Mech.E. Huddersfield Society; W Hiles, Bradford Society; C A Parkinson; W Knowles; and Mr S Longden of the Spenborough Society acted as Convenor. It was decided after discussion that the time was opportune to revive the activities of the Federation, the Secretary to issue invitations to kindred associations to appoint representatives to attend an inaugural meeting at the Bradford Technical College on Wednesday the 2nd of July 1947 for the purpose of re-establishing the Federation to serve the various societies as in pre-war years.

The inaugural meeting under the Chairmanship of W Brooke F.I.A.A. saw representatives from Bradford, Leeds, Spenborough, Brighouse and Wakefield attending. Mr Brooke welcomed the representatives saying that their attendance showed that enthusiasm for the work of the Federation was as strong as ever despite the lapse of 7 years, that the trustees work was justified, and that the work of the past could be at least maintained. He saw no reason why the Federation should not aspire to greater heights and be a great help to kindred associations in their work of furthering the cause of Engineering in all its aspects.

Some discussion took place, then Mr Hiles (Bradford) moved that the affairs of the West Riding Federation of Engineering Societies be re-started as from where it left off. Mr Timms (Leeds) seconded, and the proposal was carried unanimously.

At the first Council Meeting following, held on the 27th of August 1947, Mr R C Jones of the Wakefield Society proposed, and Mr C Forbes of the Leeds Association seconded, a motion that the Keighley Association of Engineers be again invited to join the Federation. Mr J Ward (Huddersfield) President, and Mr W Hiles (Bradford) were appointed to represent the Federation at any meeting with the Keighley Association. However, it was not until the Council Meeting of the 3rd of February 1948 that the Keighley Association of Engineers joined the Federation. The Association's two representatives were Mr R G Hewitt and Mr W Womersley who, after being welcomed by the President reported that the Keighley Association had 350 members (no breakdown of Hon., Ordinary or Junior members is listed). They also invited a representative of the Federation to be a Guest of the Association at its Annual Dinner on Saturday 6th of March 1948 at the Keighley Mechanics Institute. Mr W Hiles (Bradford), Past President, agreed to attend.

1947-1948 Annual Dinner
(top table l to r) Unknown, N.S. Kilner, John Hill, Dr. J. Ward, Frank Watson, Dr. T. Bedford, H.C. Town, Ald. Wright, A. Connelly, Unknown, J. Nicholson, Unknown

Finally at this meeting, it was agreed that Federated Societies send their individual Syllabus of Lectures etc. for the coming Winter session to the Federation Secretary so that a joint Syllabus may be published. It was left to the next Council Meeting held on the 22nd of June 1948 to draw up a set of rules and it is worth listing some of these:

"The title be "THE WEST RIDING FEDERATION OF ENGINEERING SOCIETIES"

2) *That the objects of the Federation being the placing before individual members of the federated societies the opportunity of attending lectures at any of the societies concerned, and thereby further advancing the science and practice of Engineering, the wide interchange of opinions by the reading of communications from members and others, and by lectures and discussions upon Engineering and allied subjects.*

3a) *Membership shall be open to Engineering Societies formed in the West Riding of Yorkshire.*

3b) *Membership shall consist only of individual members of those Societies who are members of the Federation.*

Other rules covering management, election of President and Secretary (in rotation from affiliated societies), funding etc. followed."

It was at this meeting that an invitation for the Federation President to attend the inaugural meeting of the Shipley Engineering Society on the 1st of July 1948 was read out.

The next Council Meeting held on the 27th of July 1948 saw the inauguration of the Federation Lecture, suggestions for speakers and subjects being:

- Dr Smith of Metropolitan Vickers on GAS TURBINES;
- Mr J Foster Petree (editor of Engineering magazine) THE DEVELOPMENT OF SHIPS AND SHIPPING OVER 10,000 YEARS;
- Dr Bowden of C.A.Parsons on STEAM TURBINES;
- Dr Mullins of Kodak on X RAY FILMS.

It was decided to arrange a works visit for the next year, suggestions being Metropolitan Vickers works at Trafford Park, and Stewart Lloyd Steelworks at Corby.

By the beginning of 1949 eight societies had formed the West Riding Federation: Bradford with 300 members; Leeds 100; Huddersfield 350; Wakefield 160; Shipley 160; and Keighley with 250 members.

The question of a Federation Lecture was taken a stage further at the next Council Meeting held on the 25th of January 1949. The Leeds Representative Mr Cooke suggested an individual society arrange a special lecture and invite member societies to attend. In this way the venue would be changed each year. Thus was born the practice of linking the Federation Lecture to the society providing the President for that year, a system which was to continue until the demise of the Federation in 1983.

There are records of lectures and works visits recorded in the archive material retained in the West Yorkshire Archive section of the Huddersfield Reference Library. One of the more significant ones, it appears inevitably, was on the subject of a Channel Tunnel presented on Monday the 12th of November 1962 by Andrew B Henderson M.A. M.I.C.E. M.I.Mech.E. He gave a talk on the general scope of the work of the Study Group, existing traffic routes, and the need for a Tunnel to cater for the increase in the volume of traffic. He considered a Bridge, an Immersed Tunnel, and a Bored Tunnel including proposed methods of boring. The lecture was closed with a description of the railway terminals. So, there have been three lectures on the subject of a Channel Tunnel within the 100 years under review.

An interesting proposal for a Summer outing was made at the Council Meeting of 14th of February 1950 - by train to Liverpool, then by boat to Manchester, via the Ship Canal, returning to Keighley by train from Manchester. At a cost of: Boat Hire £260 plus 1/6d (7 1/2p) per head; plus Canal Tolls; plus 9/- (45p) fare to Liverpool; plus lunch 5/- (25p). Time on the boat was 7 hours - after discussion the idea was dropped.

Mr J C Barwick of the Keighley Association was elected President of the Federation at the 1952 A.G.M. and Mr A Connelly also of the Keighley Association was elected Secretary / Treasurer.

The following year, 1953, with Prof. J G Jagger of the Bradford Society in the Presidential Chair, Mr Newall (Leeds Society) brought forward a suggestion made to him by Mr Carver of the London Society that a National Federation of Engineering Societies be formed. Initially this would consist of London, Newcastle, Middlesborough, Manchester and the eight West Riding Federation Societies. A meeting to discuss the matter was held on the 30th of September 1953, the outcome being that only the Leeds Society would join if formed. By the time of the next West Riding Federation Council Meeting on the 1st of January 1954 it was decided not to proceed with the idea.

The demise of the West Riding Federation of Engineering Societies started with the folding of the Shipley Society announced at the Federation's A.G.M. on the 22nd of September 1965 and being due to lack of support. Reports at the following A.G.M.s up to 1968 spoke of declining attendance at Federation Lectures and that the interchanging of members between Societies was also very low.

However, following yet another proposal from the London Society for a British Federation of Engineering Societies, passed on by the Bradford Society, Mr J Longden, West Riding Federation and the Keighley Association President, said that it would be more advantageous for the West Riding Federation to put its house in order, and suggested that the following points be studied:

1) Lectures arranged too close together;
2) Compressed into too short a time 3 to 4 months;
3) Lack of interchange of members between societies;
4) Examination by the Federation as to why some member societies were thriving and some nearing extinction.

Few comments on this were recorded, car parking problems, and most of the individual societies holding one meeting per month from September through to March being mentioned.

A more interesting comment came from the retiring President Mr. J. Longden at the A.G.M. of September 18th 1968, when he reported the proposed formation of the Keighley Association of Young Engineers with their own Council - two Senior Members to sit on the Junior Council and two Junior Members to sit on the Senior Council. Unfortunately this proposed Junior Section failed to materialise due to lack of enthusiasm and the idea was abandoned.

The second lecture of the 1968/69 season was arranged as a joint function with the Graduate Section of the Institution of Mechanical Engineers and was about the "DESIGN, CONSTRUCTION AND DEVELOPMENT OF CONCORDE", the lecture coincided with the first flight of the French built aircraft.

Towards the close of the 1969/70 season it was announced that the Brighouse Society had regretfully ceased to be active. About the same time it was decided not to hold independent Federation Lectures, and instead to ask that the Society providing the Federation President in the September hold the Autumn lecture, and that the society which had provided the President for the previous year host the Spring lecture. Subsequent reports indicate a much improved attendance.

The Bradford Society went through a very lean time from 1973 to 1975 but reported a membership of 32 at the 1975 A.G.M. About the same time

Spenborough resigned from the Federation, acceptance of which was held in abeyance for 12 months. By the early Eighties reports show that the Federation was losing its effectiveness and some of the remaining societies were struggling to keep going.

The end came with a letter from the Federation Secretary Mr E T Wardle (Huddersfield Society) to the Secretaries of Leeds, Keighley, Wakefield, Huddersfield and Bradford Societies dated the 10th of September 1983. He wrote:

> "*Dear Hon. Secretary*
>
> *With reference to my request for member societies' views on the future roll of the above Federation I have only received replies from Leeds, Huddersfield and Keighley Engineering Societies, all three members are of the opinion that the affairs of this Federation be suspended until further notice. All the records i.e. Minute Books, Syllabus cards, etc. are being handed to the Kirklees Local Studies Archives Dept. (now West Yorkshire Archives, Central Library, Huddersfield) from whom they can be retrieved as and when any member wishes to re-instate the Federation.*
>
> *Thanking you for your past assistance to this Federation and wishing you all success with your own society.*
>
> *Yours Sincerely*
>
> *E.T. Wardle C.Eng. M.I.Mech. E.*"

There has been no attempt to revive the Federation and of the eight societies flourishing in the Fifties there remains only the Leeds Association established in 1865 and the Keighley Association of Engineers (1900).

Chapter 4

The Town & Trade of Keighley

In 1938 the Keighley Corporation issued an official guide to: "KEIGHLEY - A YORKSHIRE INDUSTRIAL CENTRE WITH MANY RESIDENTIAL ADVANTAGES." In this guide under the heading of "*Keighley's Industrial Activities*" the following comments are made:

> *"So numerous are the trades of Keighley and so many the sub divisions of each that anything like a complete survey is well-nigh impossible. However comprehensive he attempts to cast his net the historian and recorder is certain to miss something of minor, if not, major importance.*
>
> *Of the town's many industrial activities its textile operations may be considered the most widespread and diversified; but its engineering pursuits run these pretty close as regards both extensiveness of range and numbers employed. In respect of its most prominent branch of the latter industry it can claim to be the most important Centre in the United Kingdom or even in the whole world.*
>
> *Its makers of machinery for every stage of worsted manufacture have so concentrated on their particular line that the town stands pre-eminent in this class of engineering output. Keighley machines for drawing, spinning and weaving are at work in every country where worsted manufacture is carried on to any appreciable extent.*
>
> *The production of the great Keighley firms specialising in textile machinery making is not by any means, confined to mechanisms for the making of worsted goods. Practically every branch of textile manufacture is catered for, from Jute to Silk and even Wire Weaving machines."*

Sadly none of the textile machinery makers have survived the 100 years under review.

Not quite so distinctive of the town, and not perhaps so extensively carried out as in the pre-war years, but still a highly important and, in some departments, specialised local engineering industry is the making of machine tools. In this respect no review of engineering and the machine tool industry in Keighley would be complete without some reference to the late H C Town A.M.I.Mech.E. M.I.P.E. F.R.S.A. who was, for many years Head of the Department of Mechanical Engineering at the Keighley Technical College, and a tireless worker for the Association. His recruitment of students under his care to membership of the Association was the way many of us became members. He wrote many technical books, principally on the subject of Machine Tools and also contributed articles to some of the Technical Journals.

In the 1938 guide book Harold Town wrote the following article:

> *"The engineering productions of Keighley although of great diversity of type have deservedly obtained a high reputation throughout the world. Prominent amongst them is the Machine Tool, unique in that it is the only machine that reproduces itself, that is machine tools are used to make machine tools. They are of course used in the manufacture of every other kind of machinery and must therefore possess such accuracy and stability that the user can produce his machines with the maximum precision.*
>
> *Rightly regarded as the key industry in engineering, the machine tool trade in Keighley dates back to the year 1856, and from modest beginnings to the present period, the local machine for quality, sound design and accuracy of operation has been equal to any produced in the Country. Furthermore in proportion to the size of the town Keighley can claim to be pre-eminent in regard to the quantity produced, while in regard to size and variety they are unequalled. From small lathes to massive ones and weighing close on 100 tons, grinding machines, planing, shaping, slotting, drilling and milling machines of all types are produced by engineers highly skilled by continuous training in this branch of engineering.*
>
> *During the war the Country was more dependent than ever on the machine tool, and Keighley supplied a vast number of shell lathes, standard machine tools and special equipment for armament work.*

The great trade slump in the aftermath unfortunately saw the closing down of several firms of long-standing and great credit is due to the tenacity and business acumen of those who weathered the storm.

Never in the history of machine tool engineering have new developments proceeded as fast as today. This is largely due to the increase in cutting speeds supplemented by varied and related factors including electrical control, hydraulic transmission and the development of new materials.

It is a matter of satisfaction that in these modern developments the Keighley Machine Tool is in the forefront, all types of electric motor drives, either separate or built in flanged motors are freely incorporated in the designs. Remote control is included to allow starting and stopping of the machine from any point, while the problem of disposal of cuttings on some machines due to the high cutting speeds has been surmounted by special bed designs. On other machines the problems encountered by the introduction of carbide tools have been solved by new designs with increased rigidity to resist vibration and a more generous use of ball and roller bearings for shafts and spindles.

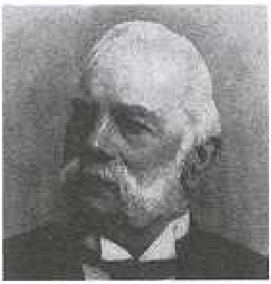
The latest development, that of hydraulic transmission is nowhere better utilised than on grinding machines produced in Keighley. Oil pressure in place of mechanical transmission has been considered as desirable for precision tools due to the smooth action and freedom from shock. Other advantages include an infinitely variable speed range, for either driving or feeding purposes, not obtainable with gearing or with the same range by electrical means. It can be rightly claimed that after approximately 80 years of machine tool making in the Borough, the present-day Keighley engineers by their industrial and technical training and co-operation with the Engineering Association are keeping their productions not only up to the standard set elsewhere, but in many cases surpassing them."

In the same official guide book there are articles covering other engineering companies manufacturing such things as wringing machines and diesel engines, whilst reference is also made to the engineering aspects of local transport, electricity and gas supply, pattern making and foundries.

To return to the subject of the machine tool industry so far as our research has gone two companies have been identified as surviving the 100 years albeit with the change of name.

D S G Lathes Ltd.

The first one is probably the best-known name in British lathe makers. Dean Smith and Grace Ltd was founded in 1865 with a partnership of three Keighley engineers. Joseph Dean, 41 year-old engineer and millwright; James Smith at 33 years one of the most dependable men on whose sound engineering knowledge, craftsmanship and sense of duty the company was to a great extent built up; and John Grace the youngest of the three, a well-educated man whose fine draughtsmanship can be clearly seen to this day in the early catalogues and drawings still in the firm's possession.



Joseph Dean

James Smith

John Grace

They first occupied premises in Hanover Street, but in 1870 took the plunge, borrowed money, and bought land on the banks of the River Worth from the Duke of Devonshire. The works then began to grow, first the foundry then a 3000 square foot machine shop followed by offices, tool room, fitting bay, pattern shop and erecting bay. It would appear that due to the short term span between the founding of the company and this building project, every penny possible was being ploughed back.

The first apprentice fitter Mr Benjamin Smith joined the firm in 1867. The partners fostered good labour relations - mention is made in the company's Centenary book published in 1965 that an old employee recalls the works outing to Birkenhead with fares paid and five shillings to spend. Birkenhead was chosen because the firm had just delivered the largest planer ever constructed in England destined to work on the dock gates of the Manchester Ship Canal, the workpeople saw the planer at work, a just reward for their labours.

In 1886 a Mr Turner was employed as the first travelling Salesman and the firms trading area began to widen. Machines were supplied to Italian companies, exhibitions in Cardiff and Liege were attended and during the 1880s the firm was modernising at a fast rate. In this period, between 150 and 200 employees started work at 6am every morning and worked a 54 hour week for a standard rate of pay of 24 shillings per week in the foundry. Apprentices started at 14 years of age and received four shillings per week rising by one shilling each year (one shilling is 5p in today's money).

By 1883 the Duke of Devonshire was finally paid for his land and by 1891 all mortgages had been repaid. The company was becoming known in other parts of the world. In 1886 the Railway Supplies Journal shows the firm as contractors to the Royal Dockyards, the Indian State Railways, the East Indian, the Southern Mahratta, Bengal and North Western, the Rohilkurd and Kumaon Railways. Throughout this period many different types of machine tools were made although railway wheel lathes were included.

Joseph Dean retired in 1888, and the partnership was converted to a limited company in 1898 and in 1900 a reorganisation and rebuilding programme started. The next decade saw the departure of all the founders, James Smith retired in 1906 two years after John Grace, and in the same year the decision was made to manufacture only one type of machine tool - the lathe. Important technical advances in the world at large did much to bring about this change, and instead of building to customers' requirements, the company's own range of lathes was the great concern.

At the outbreak of the First World War the company made breech blocks for guns as well as lathes. In 1915 Harry Smith joined other local industrialists who acted as directors, on an honorary basis, for a new shell factory on a Keighley site. In 1918 King George V visited the shell factory and the K.B. E. was conferred on Harry Smith in recognition of his services to the nation.

An intensive drive to capture overseas markets was made in the inter War period and in 1928 there were revolutionary consequences from a visit to Essen. The firm's representatives saw for the first time a tungsten carbide tool in use and it was decided that a lathe had to be designed to "beat the tool". This they did and by the time that tungsten carbide was being used in this country a special super high-speed Dean Smith and Grace lathe was available, a design which was not superseded until the new range was shown at Olympia in 1948.

The world wide depression of the late Twenties and early Thirties had a profound effect on the company and they had once again to resort to diversification into other products to survive. However, by the mid Thirties the worst was over and when Mr Arthur Smith retired in 1938 the company was a prosperous concern once again. The firm now came under the Directorship of Sir Harry Smith and his son James Pearson Smith and Arthur Smith's nephew Mr Bert Laycock began to take an active part in the company's affairs. At this time modern and spacious offices were built on adjoining land and as a result of a visit to the USA, by Mr James P Smith and Mr Bert Laycock, considerable purchases of plant were made which were to prove invaluable to the firms and the nation's War effort.

In the post-war period the 1948 Machine Tool Trades Association exhibition at Olympia saw the introduction of a new range of lathes which was very well received, exhibiting also at the Canadian International Trade Fair in Toronto the company was again on a winner due much to the skill and initiative of Mr Bert Laycock.

The following 13 years were particularly marked by the continual updating of plant, the development of an increasingly close relationship between management and labour, and a great expansion of the export trade. In 1957 Mr Ian Smith son of Mr J P Smith joined the company, and in 1962 was appointed General Manager and a decision was made to go ahead with the greatest expansion programme in the firm's history. The years 1962 to 1965 saw this expansion take place, a new foundry was built in Lawkholme Lane, the first outside the Worth Valley, and as a result the whole of the Worth Valley works were replanned by Mr James P Smith and his son Ian.

James Smith retired in 1972 following the completion of the new assembly bay across the road from the main works. Trading conditions were difficult in the early Seventies, marking the beginning of dramatic change in technology with the advent of computers to control machine tools. Dean Smith and Grace built their first NC lathe in 1967 and sold nearly 80 machines up to 1974. Developing high-technology machine tools was an expensive business and the company's finances started to deteriorate with relatively high bank borrowing.

Ian Smith decided to sell the company in 1974 and in November that year The Monarch Machine Tool Co in the USA bought the company. After afurther year Ian Smith left the company and Mr Richard Hole was appointed managing director. Mr Hole had joined Dean Smith and Grace from William Asquith in Halifax the previous year, and is still Managing Director today having completed over 25 years service.

During the late 1970s Dean Smith and Grace continued to build a complete range of centre lathes but also manufactured some of the CNC lathe models of its parent company Monarch. Market conditions were favourable and DSG were successful in expanding the production of CNC lathes, and also developed a market for Monarch Machining Centres.

The financial condition of the company improved significantly and investments in new machines and equipment followed. The foundry started to manufacture castings for Monarch in the USA and 30 tonnes per month were shipped. This led to a major re-equipment at the foundry involving new melting equipment and an extension.

In the early 1980s the entire western machine tool industry was hit by the advent of low-cost CNC lathes and machining centres from Japan. Together with the recession in the industry in 1982-83 the whole machine tool industry went into steep decline with major closures of such well known names as Alfred Herbert. Dean Smith and Grace were badly hit and nearly 70 percent of the workforce was made redundant over a 2 year period. Similar events happened in the USA although the full effect was not felt there until 1984.

Despite frequent restructuring Dean Smith and Grace decided to develop a range of CNC lathes based on its range of centre lathes. This was opposed by Monarch in the USA but the company's success in securing orders and stopping horrendous trading losses was at least tolerated. It remains odd that

Monarch did not pursue the same policy but continued to fight a losing battle against the Japanese.

The 1980s were difficult period for any manufacturing company and Dean Smith and Grace found it difficult to maintain a consistent level of business. The inability of the company to develop export business in the USA due to the presence of Monarch was a major handicap. The company did develop some markets in Europe and the middle East but not sufficiently large enough to sustain a viable business. Despite some last-minute attempts to redesign the product range with Monarch it was becoming obvious by 1990 that its future with Monarch was questionable.

In November 1992 Monarch announced the closure and liquidation of Dean Smith and Grace. The Managing Director Richard Hole formed a new company D.S.G. Lathes Ltd and with the co-operation of Monarch purchased some of the assets of the old company. Over a three-year period the entire inventory, the intellectual property rights, the new building and a 2 acre plot of land were purchased.

The new company focused on the rebuilding of the Dean Smith and Grace range of centre lathes and developed a new range of dual/manual CNC lathes based on this range. Although the new company operated on the much smaller scale it enjoyed the support of a wide customer base due to the exceptional quality of all D S & G machines many of which are still giving good service after 50 years.

D.S.G. Lathes Ltd has been able to increase its manufacturing facilities by the addition of a new extension. For the first time in its history the company operates on one site with up-to-date facilities. Despite continuing decline in the UK engineering sector the company continues to flourish and now maintains a consistent policy of product innovation and apprentice recruitment.

Landis Lund

The factory was established in the latter quarter of the 18th Century by the Barrett family, the exact date is not certain, and the business continued in the hands of successive generations of the same family until 1904. In 1832, the works were being operated by Peter Barrett Senior, Thomas Barrett, and Peter

Barrett Junior, millwrights of Sutton. And in 1884 by John Barrett, iron-founder and wheelwright, of Woodburn Cottage, Eastburn who was succeeded by his son, Walter Barrett, who continued to run the business until 1904.

The original activities of the company consisted of the repair and maintenance of the new power operated textile mills of South Craven, which were rapidly replacing the old hand operated cottage machinery as the Industrial Revolution gained momentum. Their activities extended to include the building and installation of waterwheels at various mills in the district. A 48 foot diameter example remains at Wilson's Mill in Lothersdale.

John Lund acquired the business in 1904, and was succeeded on his death in 1912, by his son, Arthur D Lund. In 1931 the business was registered as a limited liability company.

John Lund had previously been employed by Dickinsons, machine tool makers in Keighley, and during the next 28 years produced machine tools of many kinds, mainly lathes, but also drills, planers, shapers, slotters, millers, and gear cutting machines. This range was extended in 1923-24 to include surface grinding machines. Hydraulic operation of machines was introduced in 1928.

The business was taken over by Clapham Bros. in 1932, and the firm concentrated almost exclusively on grinding machines, including cylindrical, universal, and surface grinders, under the trade name PRECIMAX, indicating precision and maximum production. In 1939 the company introduced the PRECIMAX range of fine boring machines.

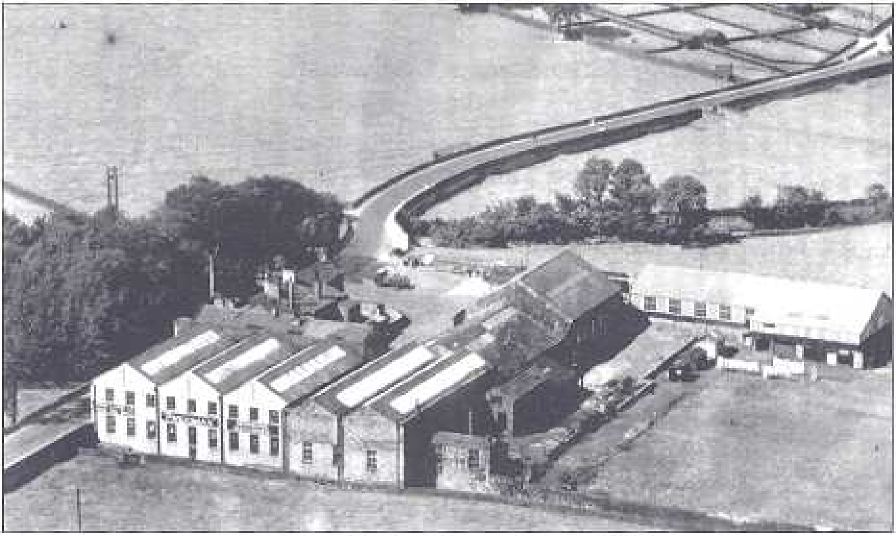
John Lund Ltd., management team after take over by Clapham Brothers

J. H. Smith
Secretary

J. D. Scaife M.I. Mech E
General Manager

J.E. Hill
Ass. General Manager

In September 1958 the business was acquired by the Landis Tool Company of Waynesboro, Pennsylvania, USA, and the name was changed to Landis Lund Ltd.



John Lund Ltd., Factory Circa 1933

Landis Lund Division of Unova U.K. Ltd Factory 2000

The PRECIMAX range of machines was phased out over the next few years, and Landis products introduced. These included, in addition to an extensive range of cylindrical grinders, specialist machines used in the grinding of automotive camshafts, crankshafts, valves, and transmission parts. Landis Tool Company also owned the Gardner Machine Company of Beloit, Wisconsin, USA, and their products - disc grinders used in the high production grinding of flat parts, were also introduced.

In 1968 Litton Inc., of Beverly Hills, California, USA, acquired the Landis group of companies, but allowed Landis Lund to retain its name. The company won two Queen's Awards: to Industry in 1970, and for Export Achievement in 1982. In 1985, when Landis Lund became a division of Litton UK Ltd., eighty percent of its output was being exported to the world's automotive manufacturers.

The early Eighties saw Landis Lund in collaboration with Cranfield Unit of Precision Engineering, which was on the campus and part of Cranfield University, designing a world leading CNC Camlobe grinding machine suitable for production grinding of automotive camshafts. This machine went on to be produced in the USA and Japan, and earned for Landis Lund another Queen's Award, this time for Technological Achievement.

In 1994 Litton Industries consolidated its commercial businesses into the newly formed separate company, Western Atlas.

1995 saw Landis Lund acquire Cranfield Precision Engineering Ltd., specialists in the design of Ultra Precision machines, and development of Ultra Precision machining techniques, including the machining of silicon discs for the manufacture of silicon chips.

Again in 1997, Western Atlas split away its oil exploration business to form UNOVA, Landis Lund now being a division of UNOVA UK Ltd.

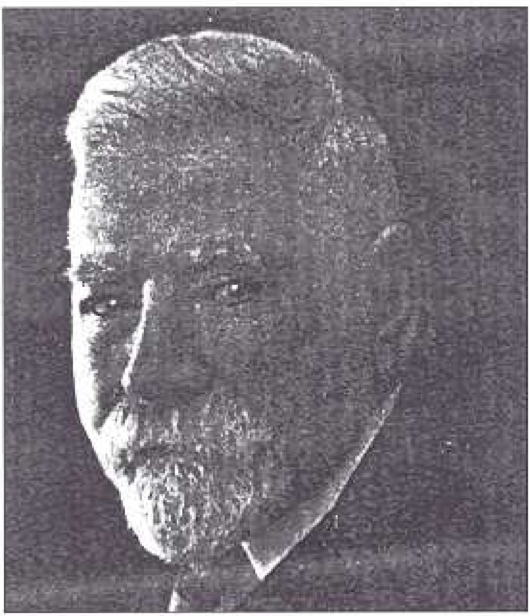
In co-operation with its sister company, Landis Gardner in the USA, Landis Grinding Systems Group has been formed to satisfy the global requirements of the world's automotive and truck manufacturing industries.

Landis Lund's responsibility will be to maintain and grow its position as a European market leader for cam and crankshaft grinding machines, and to expand into the transmission industry, As the market develops in Eastern Europe and the Pacific Rim areas, Landis Lund is well positioned to take full advantage.

A totally different product is manufactured by:-

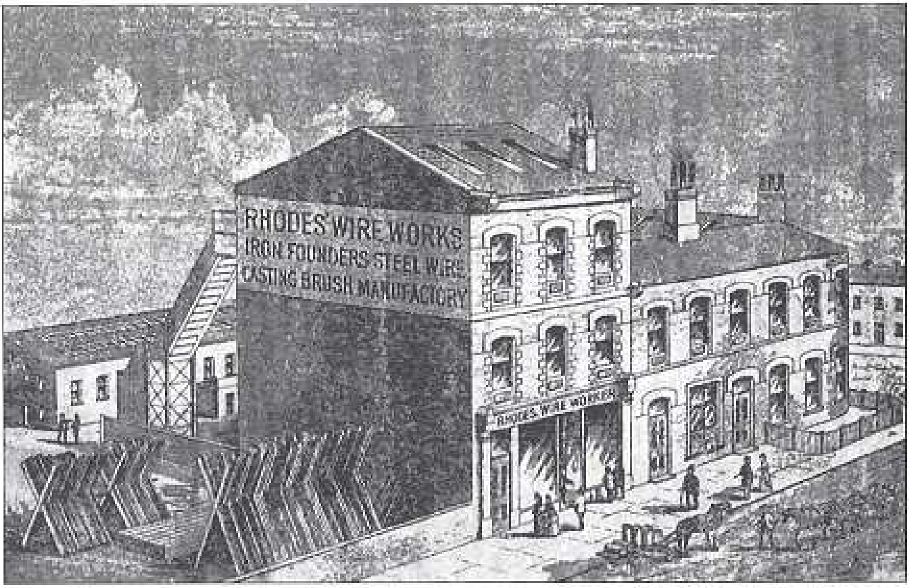
Bethel Rhodes and Son (Wireworkers) Ltd.

Mr Bethel Rhodes was a remarkable figure in the Victorian era, the period during which he made his most notable achievements. His father was a successful businessman who had been running a busy and thriving wireworking concern in the Bradford area. Mr Rhodes was born in Shelf in 1847 and began working for his father at the age of ten. At fourteen he was receiving the princely sum of 2/6d. per week for his labours, plus a wealth of priceless knowledge which would stand him in good stead for the rest of his business career.



Bethel Rhodes

Bethel Rhodes's father wanted his son to establish a branch of his business in Newcastle, but his son was far from keen on the idea, influenced, perhaps, by his decision to marry a local girl at the age of nineteen. A compromise was reached and Bethel moved instead to nearby Keighley to set up a wire-making business in Coney Lane. By 1886 the business was doing well enough to take larger premises in North Street, on a site later occupied by the Town Hall.



Bethel Rhodes North Street Wire Works. From an early line drawing.

A variety of products were on offer including wire hanging baskets, a wide range of wire brushes, wire fencing for tennis courts and strong riddles for sorting soil and other materials into different grades. Bethel Rhodes took advantage to build up his business for wire-based products and one successful line was for wire brushes used in foundries and the firm had only one other competitor in this field. By the turn of the century the reputation of Bethel Rhodes Ltd. had spread to the four corners of the world. Agents in London, Paris, New York, Milan, Sydney, Melbourne and Adelaide. Tragedy was to strike twice, in 1905 and 1907 when two of his sons died at an early age. This brought the expansion of the company to a halt, with Mr. Rhodes keeping the size of the organisation to what he could control personally. By 1913 Bethel Rhodes, at the age of 66, decided to retire to his favourite resort of Morecambe, passing control over to his son Henry Rhodes.

Mr. Rhodes's retirement was short lived, as the outbreak of the First World War caused a shortage of skilled labour. Bethel Rhodes returned to Keighley to take up the reins again, remaining there until 1923 when he returned to Morecambe. Mr. Rhodes died at the grand old age of 85 in the seaside resort of Heysham.

One milestone was the involvement in a scheme to build a tower in Morecambe. After the Eiffel Tower in Paris there were plans to build similar structures in many coastal resorts, including, of course, Blackpool. Most of the schemes failed including that of Morecambe. Before the termination of the scheme Bethel Rhodes had masterminded in conjunction with a Keighley blacksmith, the construction of a huge framework for the tower.

In 1969 forty workers had to be evacuated when fire broke out in the works. It was the fourth Keighley fire in five days, and including the Bethel Rhodes fire, the total damage was estimated at £1.5 million. The fire spread quickly, fed by a number of drums of paint stored on the floor where it began. Four fire engines were sent to the blaze, paint drums exploded and firemen were bombarded with flying slates from the roof. The blaze, amazingly enough, was brought under control within half an hour and the workers arrived the following morning to face 'mopping up' duties which they performed in true Bethel Rhodes spirit.

Over the years Bethel Rhodes's business has grown, increasing its reputation for quality and service. The name Bethel Rhodes lives on today as a company well known for combining modern manufacturing techniques with the virtues and values of the past. The pace of life is undoubtedly faster these days, but from time to time the firm's directors spare a moment to reflect on Bethel Rhodes's achievements, and the strong foundations he laid for them to build on in Keighley

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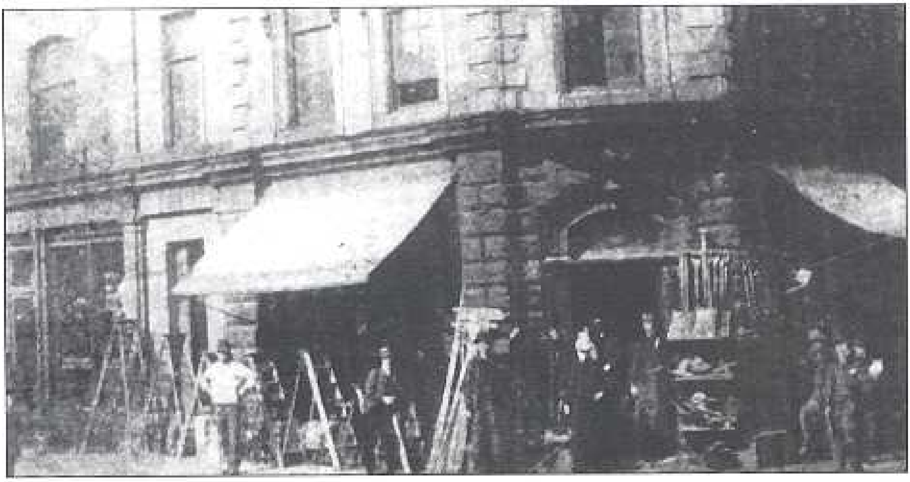
Some companies serving the engineering industry have also survived the 100 years

J.W.Laycock Ltd.

This company is one of the oldest in the area; its roots can be traced back to sometime prior to 1746. A Mr Heaton died in that year and sometime before then he had set up a nailmaking business in either Changegate or on North Street. The business was sold to a Mr Wilkinson for £6,000. John Laycock was taken on as an apprentice, later progressing to becoming a partner. In

1810 he bought the business completely and subsequently run by his son, also John Laycock.

In 1866 the shop was at the corner of North Street and Low Street with a warehouse behind it, at the South end of the present warehouse.



John W. Laycock's ironmongers shop at the corner of North Street and Low Street, prior to 1893

Between 1888 and 1893 the warehouse was enlarged, along with the present shop, which was let to a grocer. The Low Street shop was moved to 18 North Street in 1893.

In 1916 Mr. Laycock formed John W Laycock Ltd with most of the shares owned by himself and his four managers. On his death in 1923 these managers acquired his shares. One of these managers was Mr John Sugden who took control of the company in 1929 He was the grandfather of the present Managing Director Mr Philip Sugden. The company was renowned for its fireplaces that were manufactured on site and in the 1930s this side of the business increased dramatically. During the 1939-1945 War the basement of the shop was used as one of the town's main air raid shelters. Household goods and builders supplies were sold during the 1950s from the North Street Shops.

In the 1970s the fireplace side of the business was closed, enabling the company to concentrate on the engineering products. New warehouses were purchased at Stockbridge in the 1980s, vastly increasing the range of steel stocked. These warehouses have recently been extended, enabling the range of sections to be increased further and other services offered.

With the installation of new automatic saws in the late 1990s the company extended its ability to offer a rapid multiple cutting service.

The range of goods stocked in the stores covers pipe fittings, engineering and plumbing tools, hand cleaners , brushes, etc. The types of steel stocked are ever increasing and with the recent introduction of metric bright steel, the number of stock items has risen to well over 2000.

The company concentrates its business on the town and surrounding areas, so it can give a very quick delivery service to all its customers. It has also been able to adapt to the numerous changes that have occurred over the years in the local economy.

John W Laycock Ltd., is still a 'family' firm where the proprietors are involved in every aspect of the day to day running of the company.

Harrison & Clough Ltd.

In 1899 an enterprising engineer, Tom Harrison, decided to set up his own business. He found suitable premises for rent in the yard of The Great Northern Railway, acquired a handcart, and began trading in bolts and nuts. The building occupied the key position near the Railway, and as consignments of fasteners arrived by train he was able to pick them up and deliver them to the many engineering companies around Keighley. Tom Harrison carried on his business alone until 1910 when he formed a partnership with Arthur Clough. Two years later, on 24 September 1912, the company was incorporated under the Companies (Consolidation) Act of 1908. A change of premises around the same time took the business to Park Royd Works in Park Street, which the partners rented from the Keighley Corporation. The firm's name was to be linked with the premises for the next 50 years.

An Oldham company the Oldham Bolt and Nut Works Limited, went into liquidation in 1912 and Harrison & Clough Ltd. was quick to recognise the potential. They bought the plant and business and formed the Oldham Bolt & Nut Works (1912) Ltd.

Commuting and communication problems led to the Oldham company being transferred to Keighley. Tom's son John Harrison retained a vivid memory of that move when in the space of just a couple of days the entire plant relocated to its new site, Riverside Forge, on the banks of the River Worth. The company was renamed the Keighley Bolt and Nut Works Limited.

Tom Harrison and Arthur Clough had complete confidence in each other. Business was good and in 1917, seven years after they first formed their partnership, they made a formal agreement that the partnership would never be dissolved. It was only two years later, however, that Arthur Clough had second thoughts about the agreement. He asked Tom Harrison to agree to ending the partnership - to which Tom took grave exception. A quarrel ensued, with Arthur Clough threatening to set up his own business in competition. In the end compromise was reached; they each bought the other out and went their separate ways. Tom Harrison retained the manufacturing plant while Arthur Clough took over the merchanting unit retaining the name Harrison and Clough Ltd.

At the end of the First World War a young bookkeeper, Herbert Hutchinson, on demobilisation returned to Keighley only to find his job no longer available. After a period of occasional temporary jobs he eventually secured a position as a bookkeeper at Tom Harrison's Keighley Bolt and Nut Works. Unfortunately, the depression of the 1920s saw the decline and eventual sale of this business and Herbert Hutchinson was once more out of work. His new knowledge of the fasteners industry gave him an advantage, however, and he went on to join Harrison and Clough Ltd eventually becoming Sales Representative. Around that time some members of staff left to start up their own businesses, notably Charles Greenwood and John Wilson.

Following the death of Arthur Clough in the late 1920s the shares in the company went to various family members. William H Smith Office Manager became Managing Director and Herbert Hutchinson joined the Board. As the company was without shareholding directors a shareholders meeting was set up at which it was agreed that controlling interest in Harrison and Clough Ltd should pass to Mr Smith and Mr Hutchinson through the sale of shares to them. On taking control of the business they found the company was in serious financial difficulties. They kept going, however, and the special circumstances created by the Second World War enabled them to diversify developing a lucrative export business to India and later general engineering and merchandising.

Financial circumstances caused further restructuring of the company in 1957 and after a brief time trading as H&C (Keighley) Ltd the company was re-registered as Harrison and Clough Ltd. with William Smith as Managing Director and Herbert Hutchinson as Sales Director. William Smith died in February 1962 and Herbert Hutchinson invited his 27 year-old son Neville to join the Company. His work experience to date being in the motor vehicle repair industry. At the same time Henry Fewster joined the firm directly from Keighley Boys Grammar School.

1962 also saw the start of the redevelopment of the Keighley Town Centre, the resulting demolition of many buildings causing Harrison and Clough Ltd to relocate to temporary accommodation in Goulbourne Street. Interestingly the rent for 7000 square feet of space was just £7 per week. At that time there was a total of 5 bolt and nut merchants in the Keighley area: C Greenwood and Co Ltd; John Wilson (Steel) Ltd; and H. Cockshott and Co Ltd were the three largest companies. Keighley Bolt and Nut Ltd were the smallest and Harrison and Clough's position as next to the smallest was a matter of prime concern to Neville Hutchinson.

This move presented Neville with the ideal opportunity to address the need for expansion. First, and most obviously, a company delivery vehicle was a must, none of their competitors had one. However, an opportunity of much greater significance came when G.K.N. Screws and Fasteners decided to sell its woodscrew and allied products through appointed wholesalers instead of dealing direct with individual ironmongers. Neville Hutchinson successfully closed a deal with G.K.N. which gave Harrison and Clough Ltd. Class B Distributor status, and he was given 2 years to increase its spend with G.K.N. from £8,000 to £50,000 per year. It was accomplished within the first 12 months and G.K.N. acknowledged Harrison and Clough's commitment by offering them a distributorship for their sister company G.K.N. Bolts and Nuts. Bearing in mind that the motorway network had not yet been built, these two distributorships opened the doors to every engineering merchants and ironmongers in an area covering West Yorkshire and North East Lancashire. The resulting increase in business saw the company's annual turnover go up from £52,000 in 1962 to almost £208,000 in 1968 and the outgrowing of its temporary Goulbourne Street premises. 16,000 square feet of useful space also in Goulbourne Street came on the market which Harrison and Clough Ltd. bought and moved into, owning their property for the first time.

The company had now outgrown its book keeping system, Roy Ellison, only 19 moved into the accounts and progressed so well that he was eventually appointed Executive Accounts Manager. He progressively introduced new technology as it became available and purchased the first NCR computer in 1978.

Neville Hutchinson, on promotion to Managing Director took the opportunity for further development by arranging a dependable system of distribution of GKN products within a 50 mile radius of Keighley. He appointed a representative to take over the existing customer base and also Henry Fewster as buyer which enabled Neville to exploit new sales territories. Improvements were made to the distribution system for example, deliveries to the Cumberland and Westmoreland area were changed from irregular, being dependent on volume, to regular same day of the week irrespective of volume.

As the company grew the early Seventies saw the appointment of John Dewhurst, recruited from Rycrofts of Bradford, to create a Purchasing Office and Control Systems releasing Henry Fewster who became a representative. George McArdle a warehouse supervisor applied for and accepted the job of Warehouse Manager. Also a formal management team was created: David Shaw became General Manager; Henry Fewster Sales Manager; Roy Ellison Accounts Manager; and John Dewhurst Purchasing Manager. By this time other local merchants had ceased to be major competitors but this was not the case with the larger distributors from further afield. Help came from an unexpected quarter. Denis Healey the Keighley born former Labour Chancellor of the Exchequer had developed policies that encouraged high levels of stockholding, with tax benefits available through annual increases in stock value. Consequently Harrison and Clough Ltd.found the need for further expansion of floor space. Over the next few years space was rented on two different sites until eventually it became very inefficient and the search began to find suitable land for the relocation of all three units.

It was found in the form of three acres which were available behind Aireworth Mills and by July 1981 building work was completed and the whole business, from Goulbourne Street and the separate warehouses, was concentrated on the one site.

G.K.N. who had control led the market for more than 80 years, withdrew from the industry and the new freedom from their pricing structures and conditions enabled Harrison and Clough Ltd. to offer competitive British made products and to buy and sell on attractive terms. Sales turnover quadrupled and more warehouse space was created.

Neville Hutchinson's two sons, having graduated, now joined the business, Mark becoming Operations Director and Ian Sales Director. Their intention was to continue to develop the company to face the challenges of a changing market place. The decision was made to continue to offer quality products that were priced accordingly with a promise of next day delivery. Other areas of business developed with an extended sales force both in Scotland and the South of England. A distribution centre opened in Leicester ensured daily delivery as far South as the M25.

In 1995 at the age of 60, Neville Hutchinson relinquished his post as Managing Director, in favour of his eldest son Mark, who had in 1987 secured BS 5750 quality systems recognition. Expansion and development of the company has continued, staff today number 225, a second distribution centre has been opened in Reading and the Southern area sales staff strengthened. In October 1998 the Royd Ings Avenue development was completed.

From the small beginnings a Century ago the company has become one of the Country's major wholesalers of fasteners, fixings and hand tools. Led by a management team who are blessed with a combination of useful enthusiasm, experience and professionalism, Harrison and Clough Ltd eagerly looks forward to the opportunities which await them in the next century.

Keighley Laboratories Limited

Amongst the Keighley companies who, whilst not being 100 years or more old are still worthy of inclusion in this chapter is Keighley Laboratories Ltd. The first mention of testing laboratories comes in a letter dated the 19th of May 1919 from a Mr W Bowen A.M.I.Mech E. A.M.I.E.E. of 9 Newton Road Leeds to Mr. Walter Slingsby M.I.M.E. Woodhouse Road, Keighley (the immediate Past President of the Association). The first paragraph of this letter reads:

> *Dear Mr. Slingsby, In confirmation of my telephone conversation I have had in mind to start a testing laboratory for some years but owing to the War the thing has not being developed. Now however I am able to do so, and hearing that the Keighley Association of Engineers are also considering the matter, it seems ripe for me to mention the scheme to you with a view to having the support of the Keighley people.*
>
> He goes on to say that his original thought was to have the laboratory in Leeds but *"if the Keighley Engineers strongly wish to erect a laboratory in Keighley itself and can substantially back their preference I do not see why their wish should not be gratified"*

The rest of the letter refers in the main to the financing and managing of the proposed company but in the last paragraph he writes:

> *"these proposals are only my own drafting at present, you will understand, with a view to discussion. The letter is personnal and confidential to you alone, but you have my approval to talk the matter over with the Council of the Association if you choose to do so."*

On the 9th of November 1918, prior to this letter to Walter Slingsby, W Bowen Esq A.M.I.Mech E. A.M I.E.E.. A.F.Aer Inst., Member of Faraday Society, Honorary Member Keighley Association of Engineers presented a paper to the Association on PYROMETERS AND OTHER INSTRUMENTS IN CONNECTION WITH HEAT TREATMENT. W Slingsby. in the Chair.It is interesting to note that an engineer living in Leeds had made a big enough contribution to the affairs of the Association to be made an Honorary Member, a privilege which cost him ten shilling and six pence per annum.

In the same programme of lectures on Saturday 22nd of March 1919 W H Poole presented a paper on the "RELATION OF SCIENCE TO GENERAL ENGINEERING," Herbert Widdop in the Chair. In the same month of the year Mr Poole became a Member of the Association. In the following year 1920 Keighley Laboratories Ltd, consulting metallurgists and analytical chemists was formed. Confirmation of the Association's involvement in this comes from The Jubilee Book of Keighley (Borough of Keighley Jubilee 1888-1938) where the comment is made:

> *"In the Keighley Association of Engineers the industry has a most helpful organisation for keeping the engineers of the town and district in touch with the latest developments of the time. By means of regular lectures and discussions valuable information is imparted, and every endeavour is made to encourage initiative and enterprise.*
>
> *A striking evidence of the latter quality among the leaders of the Keighley engineering trade and of their determination to ensure the quality of their products has been the establishment of the Keighley Laboratories Limited, with its splendidly equipped premises for carrying out laboratory investigations and metallurgical tests of every kind called for by the metal using industries of the district.*
>
> *On his last visit to the town in 1928 the late Professor Watkinson Professor Emeritus of the University of Liverpool, and one of the leading engineering authorities of the world, remarked that Keighley had reason to be proud of its diversity of trades, its technical College, and its testing laboratory. The last mentioned he believed it to be unique, for he did not think there was another town in England where such a laboratory as Keighley's had been provided by the united efforts to enable tests to be made on various kinds of materials.*
>
> *Professor Watkinson, it may be mentioned, was a native of Keighley, who served an apprenticeship in one of the works of the town, and received his early technical education at those Institute classes out of which have grown the present fine Technical College."*

Mr W. H. Poole was appointed Managing Director and together with Association member Mr Robert Hudson got the company up and running.

A general resume' on the work of the laboratory published at the end of the first year of trading lists the shareholders and out of 29 companies 20 are based in Keighley, there is no further mention of Mr Bowen. It would appear then that the Keighley companies, many of whose directors were members of the Association founded the Keighley Laboratories Ltd.

It is a sad reflection of our times that in the subsequent 80 years not one of those named companies, many of whom were very large employing many thousands of people, now exists, apart from Keighley Laboratories Ltd.
Over the period to mid 1980s the company expanded its core business i.e. heat treatment and metallurgical laboratory services being under the control of the following Managing Directors: H F Poole- stepbrother of W H Poole; J W Poole - son of W H Poole; and F Place. Under the supervision of the latter two, an upgraded/updated test house facility was created together with a new building in which all furnace treatments were carried out, the latter previously having been carried out in the kitchen area of the current administration building!

After the retirement of J W Poole in early 1983 followed by the untimely death of F Place mid 1983 the company entered into its next era. This was a somewhat turbulent 5-year period until present Managing Director Peter Hewitt took charge. Peter's background was in the International Automotive Industries, however in joining Keighley Laboratories he quickly realised that the company was built on its people, and that the commitment given by these people had been a notable feature in the success of Keighley Laboratories. Over the next period and bringing us up-to-date he has maintained a family company feeling whilst creating a modern up-to-date facility.

W. H. Poole

With a customer base of approximately 2200 companies of which 850+ are active every year, Keighley Laboratories Ltd services most, if not all of the UK industries.

There are of course many engineering and related companies in the Keighley area, at the last Annual Employment Survey in 1997, 2021 men and 516 women were employed in the industry in the town.

Some of these companies are over the 100 years of trading mark but have not taken up our request for information to be included in the book. For example; Foulds Parkside Tannery founded in 1837 and still supplying conveyer belting and the like; George Green Foundry Engineers and George Emmott (Pawsons) Ltd.; Spring makers of Oxenhope. Keighley has quite a reputation as a centre for spring makers, Airedale Springs of Haworth was established over 50 years ago and whose President Michael Parkinson O.B.E., Chairman of the European Spring Makers Federation is one of the Country's leading manufacturers.

So reflecting the demise of the textile machinery makers, well known names such as Prince Smith and Stells and Hattersley Looms have long since closed down. As have machine tool makers Ward Haggas & Smith, Darling and Sellars and Mitchell Lathes. There are however engineering manufacturing companies too numerous to list by name in a booklet like this still trading successfully.

Chapter 5

What of the Future ?

Before being committed to the gamble of a glimpse into the future a permanent record of the Centenary Celebrations must be made.

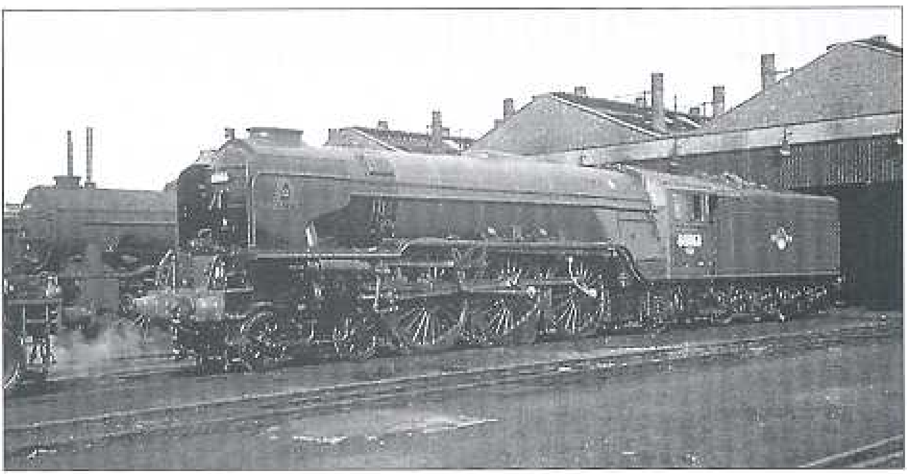
The minutes of the Associations Council Meetings from 1997 onwards will give details of the formation of the sub-committee and the subsequent decisions made leading to the celebration day on Friday 24th of March 2000, the 100th birthday of the Association.

The day started with the unveiling of a commemorative plaque kindly donated by Keighley College and mounted in the foyer of the College's Swire Smith Hall. This Hall was built on the site of the Mechanics Institute which was destroyed by fire on the 4th of March 1962.

The plaque was unveiled by Mr D B Hardaker Principal of Keighley College, who was to be chief guest for the day. It is a fitting location for the plaque, the Association was formed in a room in the Mechanics Institute and Sir Swire Smith addressed the meeting at which the formation of an Association of Engineers was first suggested (see Chapter 1).

After a short interval for tea and biscuits Mr Keith Crabtree, Northern Area Lecturer for the A1 Steam Locomotive Trust presented an illustrated talk: "Tornado, a New Steam Locomotive for the Millennium". It tells the story of the A1 Steam Locomotive Trust, a group of people dedicated to the building of a new Peppercorn class A1 Pacific Steam Locomotive to run on main and preserved lines. Sadly the last of these fine locomotives was scrapped in 1966.

Unveiling of the Centenary Plaque
(l to r) Melville Barker, C. Eng M.I.E.E., President of the Association;
Peter Lancaster, Deputy Lord Mayor of Bradford and
Keighley College Principal, Douglas Hardaker C. Chem. F.R.S.C. F.R.S.A.



A computer-generated impression of 60163 "Tornado"
as she will look on completion

It was a most suitable subject for a Centenary lecture, the design and manufacture of steam locomotives did, of course start long before the founding of the Association and has carried on throughout the 20th century in many parts of the world. The lecture was well received by some 40 members and guests and was followed by a short question time before being wound up by a vote of thanks from Doug Hardaker.

The final event of the day was the Centenary Dinner held at the Three Sisters Hotel, Haworth, the menu and toast list is shown below:

Toast List

"THE QUEEN"
Proposed by MELVILLE BARKER

Interval

"KEIGHLEY ASSOCIATION OF ENGINEERS"
Proposed by D B HARDAKER C Chem. F.R.S.C. F.R.S.A.
Principal Keighley College

Response by MELVILLE BARKER C Eng. M.I.E.E.
President of the Association

PRESENTATION
The Frank Watson Prize of the Keighley Association of Engineers

"THE TOWN & TRADE OF KEIGHLEY"
Proposed by MICHAEL H PARKINSON O.B.E.
C Eng. F.I.E.E. F.I.Mgt. D.I.C. (Eng.)

Response by: The Right Worshipful the Lord Mayor of Bradford
Councillor HARRY MASON

"OUR GUESTS"
Proposed by MICHAEL LAYCOCK C.Eng. M.I.Mech.E.
Vice President of the Association

Response by ANN CRYER J.P. M.P.

Toast Master-JOHN MASON Esq

Menu

Avocado with Prawns and Marie Sauce
OR
Garlic Mushrooms served with Crutons

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Home Made Soup

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Roast Sirloin of Beef with a Green Peppercorn Sauce
OR
Chicken Fillet Princess
(cream & asparagus sauce)
OR
Oven Baked Salmon Fillet Veronique
(cream sauce with grapes)
OR
Tortellini Ricotta (pasta filled with cheese) with a Rich
Tomato & Vegetable Sauce

~~~~~~~~

Selection of Home Made Sweets

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Coffee

The Keighley News published a full report of the day's events in the issue of Friday the 31st of March 2000. Following reports of the unveiling of the plaque and the Centenary Lecture the report on the dinner reads:

> *"A celebration dinner at the Three Sisters at Haworth was attended by nearly 80 members and guests including the Deputy Lord Mayor and Deputy Lady Mayoress of Bradford, Ann Cryer MP, Keighley College principal Douglas Hardaker and Airedale Springs President Michael Parkinson O B E ."*

Mr Hardaker gave a brief history of the Association which was formed to further the cause of Engineering through lectures, papers, discussions and visits to places of interest. By 1901 there were 120 members and by 1939 women were becoming involved. Mr Hardaker said the Centenary marked 100 years of service and integrity by the Association.

Current President Melville Barker paid tribute to the help and support of the College and particularly Mr Hardaker and talked about notables of the past like Frank Watson and Harold Town. Frank Watson was a generous benefactor of the Association, in addition to initially funding the prize competition he also presented the Badge of Office worn by the President. Mr Barker said Keighley and Leeds Associations were the only two survivors of the eight which made up the West Riding Federation of Engineering Societies.

Michael Parkinson reflected on 100 years of change for the Association, the town and its industry. He said the town had changed beyond recognition and become part of the Bradford Metropolitan District. There had been a constant danger of Keighley's unique character being ignored by Bradford and a battle to make sure its identity was retained. Trade in Keighley had changed, with a lot of old names disappearing, but manufacturing and engineering still remained at its centre. Mr Parkinson paid special tribute to the people of Keighley, they have made the town what it is and without them all the hi-tech equipment and state of the art machinery would be useless. The future is full of change, but whatever happens Keighley will survive and engineering will be the means of that survival. Keighley's tough and bloody minded citizens will rise to any challenge as they always have done.

That completed the main newspaper report. However the story is not complete without reference to the last toast of the evening, that to "OUR GUESTS" proposed by Vice President Michael Laycock who made all the Guests feel welcome and brought a light hearted touch to the proceedings. The response was by Ann Cryer J.P M.P. a staunch supporter of the Association and its ideals.

President and guests from the top table. Centenary Dinner 24th March 2000.
(Back row l to r) – Michael Laycock, C. Eng. M.I. Mech E Vice President; Mrs. Agnes Laycock, Deputy Lady Mayoress; Mrs. Shiela Lancaster, Deputy Lord Mayor of Bradford Council; Mr. Peter Lancaster; Michael Parkinson, O.B.E. C. Eng F.I.E.E. F.I Mgt. D.L.C. (Eng)
(Front row l to r) – Rev. John Hammersley; Mrs Parkinson; Mrs Ann Cryer J.P. M.P.; Mrs. Betty Barker; Melville Barker, C. Eng. M.I.E.E., President; Douglas B. Hardaker C.Chem.F.R.S.C. F.R.S.A. Principal of the Keighley College

At the Centenary Dinner
(l to r) Mrs. Janette Haigh; Donald Haigh, Hon. Life Member, Past President and Author of this book with their guests; Mrs. Audrey Wilkinson and Mr. Doug Haigh

Now having chronicled the centenary celebrations what of the future, will the Association survive another hundred years?

The current climate of the manufacturing industry in this Country is dull to say the least. All media reports indicate a marked decline in the industry. The chief cause being the strength of the pound inhibiting exports. One contributory cause is over capacity in the motor car industry, figures of 25% being quoted for Europe alone. Also a shortage of skilled workers so many having left the industry during the deep recessions of the early Eighties and the late Nineties. However, coming closer to home and quoting from the business page of the Keighley News dated the 31st of March 2000: - *"Keighley and District Training Association Ltd celebrated its 33rd birthday with an open meeting at Keighley R U F C"*. KADTAL is a trade association which prides itself on being the foremost training provider in the district with membership of more than 50 companies mainly in engineering and manufacturing. Again from the Keighley News of the 20th of April 2000 "*Employers tour College Facilities*". From the representatives of major engineering companies to small one man businesses a wide variety of local employers took advantage of the Keighley College Open Evening last week to view the extensive workshops and laboratories at the Technology centre. Another headline on the same business page "*Engineering Skills given Priority*" When so much of Keighley's prosperity is still reliant on the success of local engineering and manufacturing companies it is good to know that Keighley College still provides the high quality training needed to give their staff the skills that allow them to complete with the best in the world.

Six months after the Further Education Funding Council's inspection of Keighley College made it one of the best in Yorkshire for the overall quality of education and training provided, college inspectors have given the engineering training at the College the same stamp of consistent quality. Technology Faculty Manager John McPherson said "*We are pleased and proud that the F E F C has been able to include engineering in its inspection and has independently verified the consistently good standard of training offered by the College*".

So the basic training facilities are in place but what of the job prospects? Quoting again from the Keighley News dated Friday 28th of April 2000 headlines "*Engineering prospects best for more than a decade*" and "*Jobs born as firms flourish.*"

Keighley is rebuilding its reputation as a leading engineering town. The job prospects for Young Engineers have never been so good for more than a decade. These positive claims were made by Nigel Simpson, Business Development Manager at Keighley and District Training Association (KADTAL) he states that if "*reliable indicators were needed the number of trainees now under KADTAL's guidance would be it*". Mr Simpson confirms "*Job losses are usually well documented but what is often missed is a steady growth in companies of all sizes*".

Mr Simpson made the comments after presenting certificates to trainees attending the basic Engineering (Modern Apprenticeships) N.V.Q. Level 2 course. He says that 22 out of the latest 30 strong batch of trainees have found jobs two months before the course finishes.

Keighley's Single Regeneration Budget began funding the important first year of training in the late 1990s to help combat a worrying drop in the number of apprenticeships. Trainees spend 11 months studying full time at Keighley College then, after joining firms, continue College training one day per week throughout their apprenticeship

Most of the trainees are currently employed by local firms including Landis Lund of Eastburn, Wilkinson Pattern Makers of Keighley and Pennine Fibres of Denholme. Many of the areas best known companies such as N S F., D.S.G. Lathes and Gesipa are expanding.

Others, like Aireworth Engineering have moved to the Keighley area to take advantage of local skills and smaller companies such as Grainger Engineering are seeing potential in new areas of work. Richard Hole Managing Director of D.S.G. Lathes believes the tide is turning for engineering "it is a fairly modest pickup after a lean period".

Ingrow firm N. S. F. has increased its workforce from 55 to 75 in the past three years and is planning to take on apprentices, a long-term aim to secure the future of the company.

The future success of the Keighley Association of Engineers is dependent to a large extent on the maintenance of a successful manufacturing sector in the town, but also on the dedication of its Council in following the objectives laid down in the rulebook and quoted in the first chapter of this booklet.

The objects of the association shall be to further the study of subjects connected with engineering by means of lectures, films, discussions and the visiting of places of engineering interest and to promote social activities.

Like so many voluntary organisations the future lies in its own hands.

1900-1904	H. C. Longsdon	1954-1955	H. Raistrick
1905-1906	J. W. Smith	1955-1956	G. N Smith
1907-1909	A. Seller	1956-1957	D. O. Rushton
1910-1911	S. Padget	1957-1959	V. J. Wood
1912-1913	C. H. Dewhirst	1959-1960	E. D. Haigh
1913-1915	J. Crabtree	1960-1962	P F. Simpson
1915-1916	A. Baldwin	1962-1963	B. A. Cutter
1916-1917	J. A. E. Mitchell	1963-1964	S. R. Parker
1917-1918	W. Slingsby	1964-1965	R. Colebourne
1918-1919	H. Widdop	1965-1966	W. H. Slingsby
1919-1920	E. Foster	1966-1967	H. G. Lamb
1920-1921	J. Whitehead	1967-1968	J. Longden
1921-1922	R. Hudson	1968-1969	M. Barker
1922-1923	J. McNish	1969-1970	W. Spencer
1923-1924	W. Haggas	1970-1971	R. W. Burrows
1924-1925	H. R. Shackleton	1971-1972	D. Atherton
1925-1926	T. Mercer	1972-1974	W. P. Barker
1926-1927	J. E. Raistrick	1974-1975	V. J. Wood
1927-1928	J. Smith	1975-1977	E. D. Haigh
1928-1929	H. Smith	1977-1978	A. Sayer
1929-1930	G. A. Allen	1978-1980	R. Hunt
1930-1932	H. Binns	1980-1981	H. Forsyth
1932-1933	W. Haggas	1981-1983	B. R. Clough
1933-1935	F. Watson	1983-1985	H. M. Peat
1935-1937	G. A. Rix	1985-1987	M. Laycock
1937-1939	E. Roper	1987-1989	J. Filkin
1939-1941	J. W. Rice	1989-1991	W. J. Pankhurst
1941-1943	N. S. Kilner	1991-1993	L. Cryer
1943-1945	W. Womersley	1993-1995	W. J. Pankhurst
1945-1946	A. B. Auty	1995-1997	J. Matthews
1946-1947	R. G. Hewitt	1997-1999	L. Cryer
1947-1948	H. C. Town	1999-2001	M. Barker
1948-1949	A. Connelly		
1949-1950	J. Nicholson		
1950-1951	C. J. Day		
1951-1953	J. C. Barwick		
1953-1954	J. Whitaker		

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