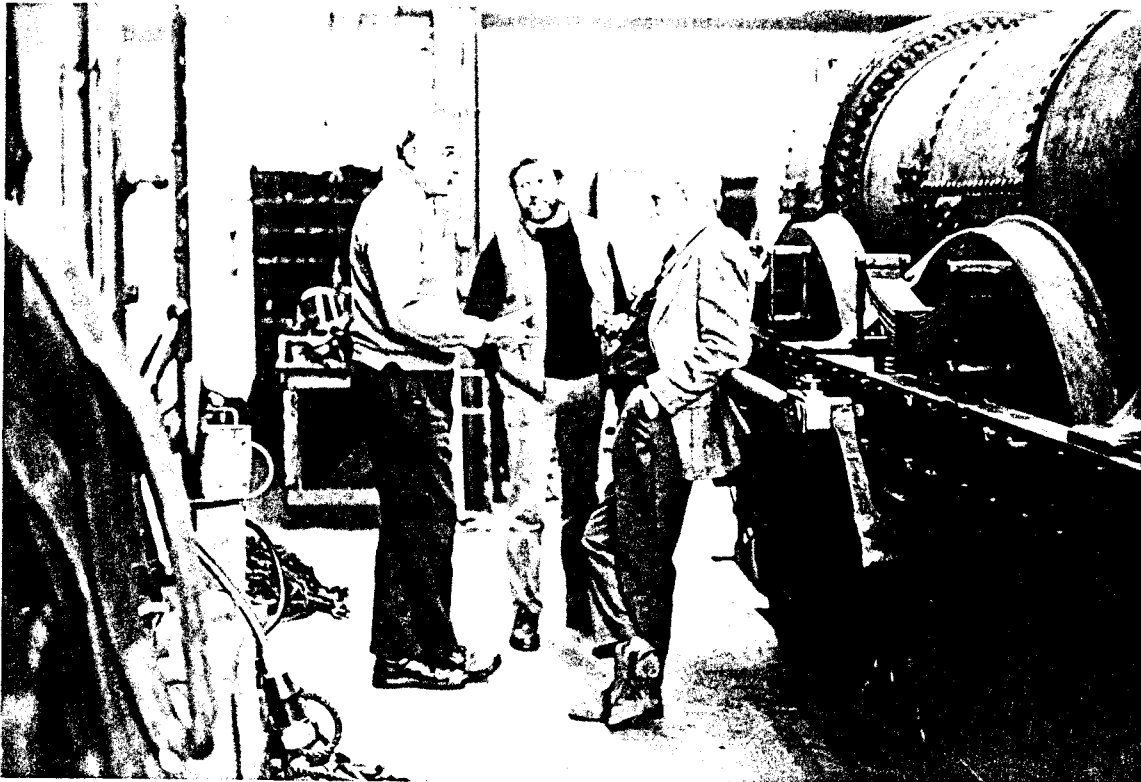


# LIONSHEART

1991 Issue 4

October 1991

## LION SURVEY IN PROGRESS



On 5th October 1991, Mr. David Hodgson of Dorothea Restorations allowed OLCO members to study LION in detail. Members literally climbed over and under LION taking photographs and making measurements. Measuring, photographing and earnest discussion on early locomotive engineering was followed by tea and biscuits, kindly provided by Dorothea Restorations.

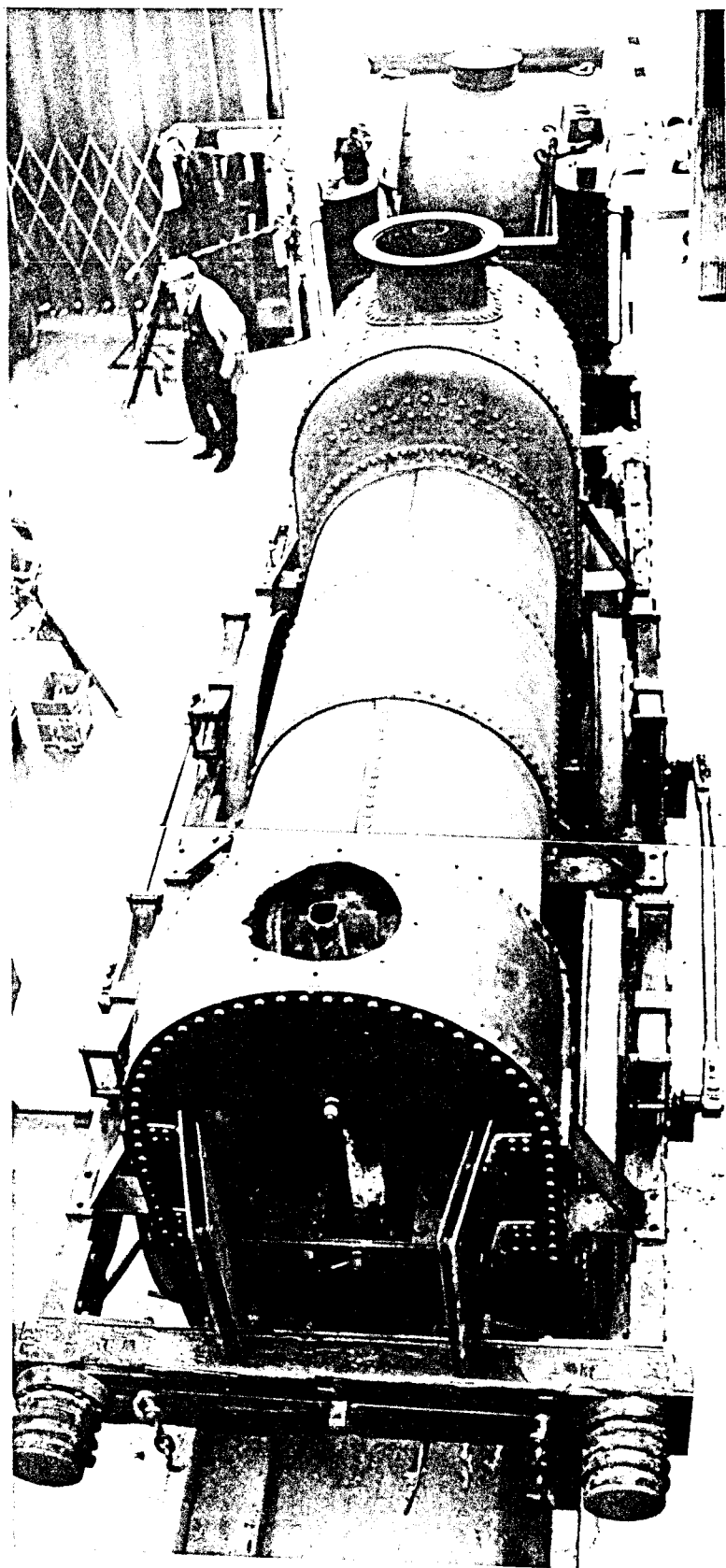
Our thanks go both to Mr. David Hodgson for his hospitality and to Miss Loraine Knowles of Liverpool Museum for agreeing to this informal examination of LION.

Our picture shows, from left to right, Mr. E. F. Clark (founding member of OLCO), Mr. David Hodgson (Dorothea Restorations), Charles Taylor-Nobbs (founding member of OLCO).

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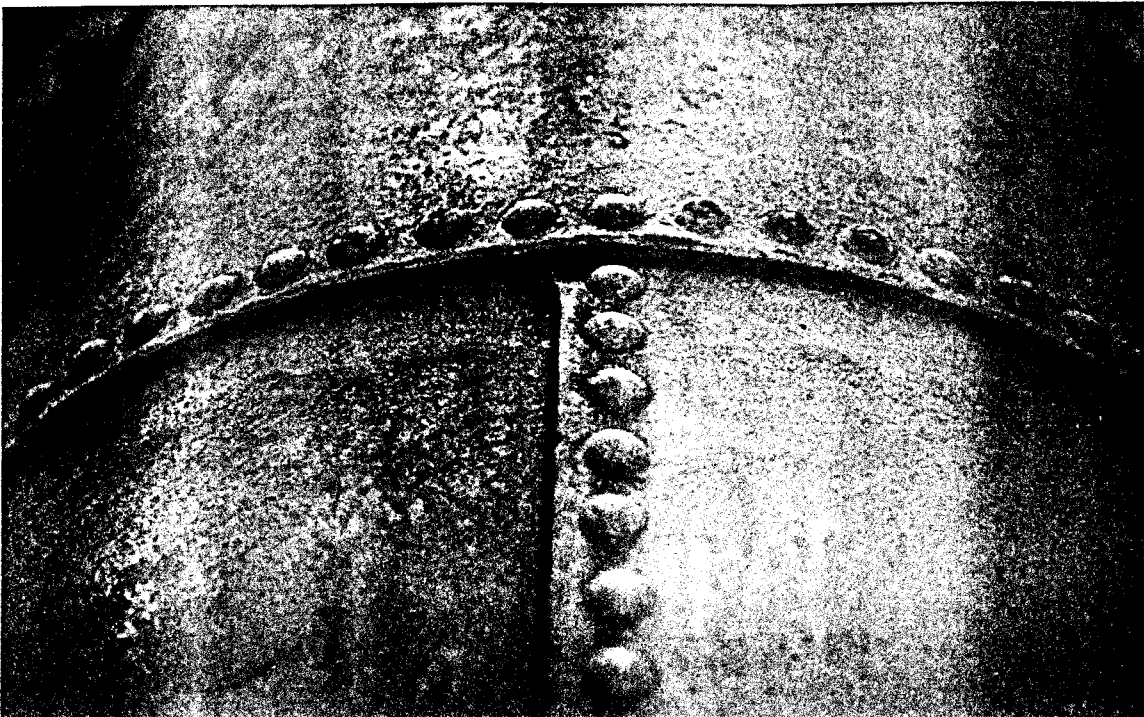
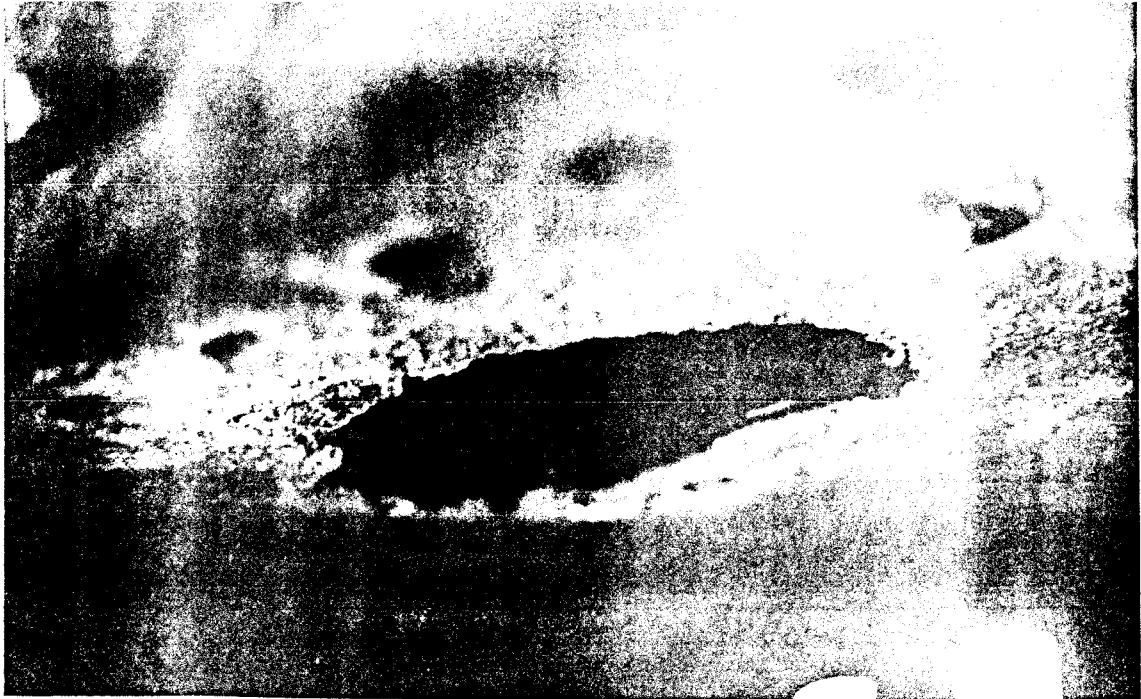


On this page, we show a composite view of the now-naked LION and her tender.

Opposite page, top: This view shows the hole in the bottom of the smokebox, which was covered with a plate simply laid inside during latter steamings.

Opposite page, middle: OLCO member Charles Ashforth makes a close inspection of LION.

Opposite page, bottom: A close-up view of the boiler barrel made from Low Moor wrought iron.



## LION SURVEY

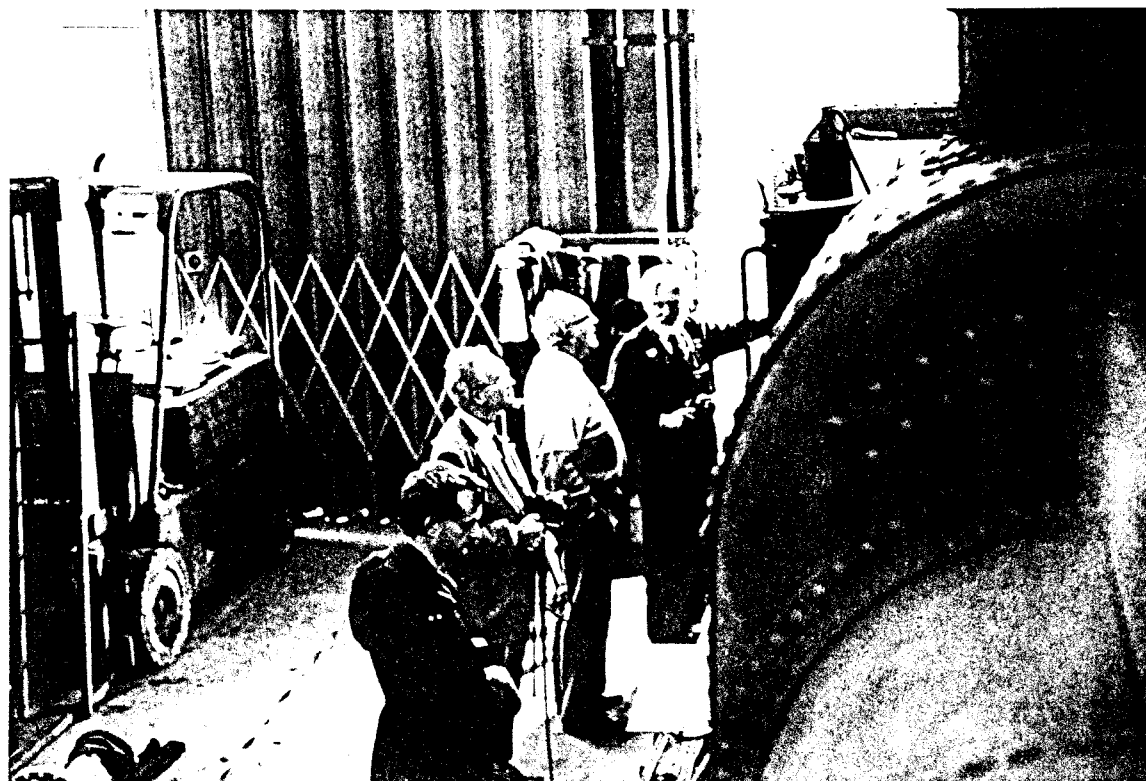
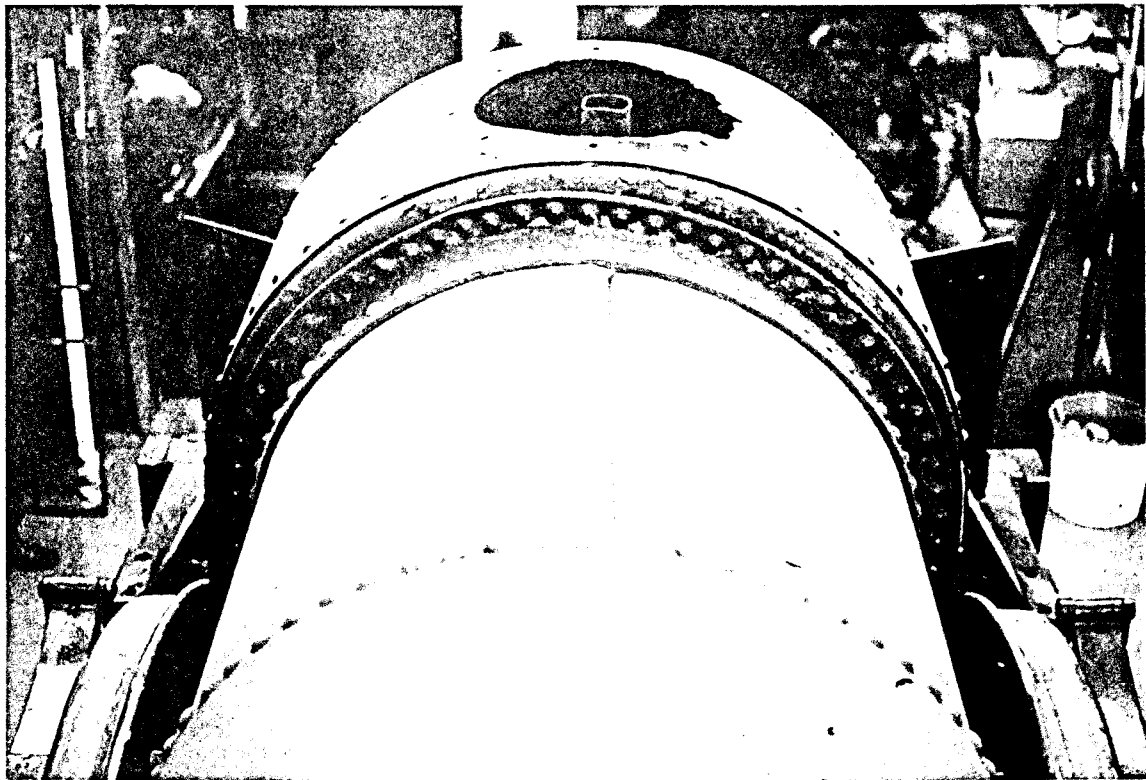
Opposite page, top: The view looking into the dome, towards the backplate. Steam collecting pipe at the top, leading down to the regulator.

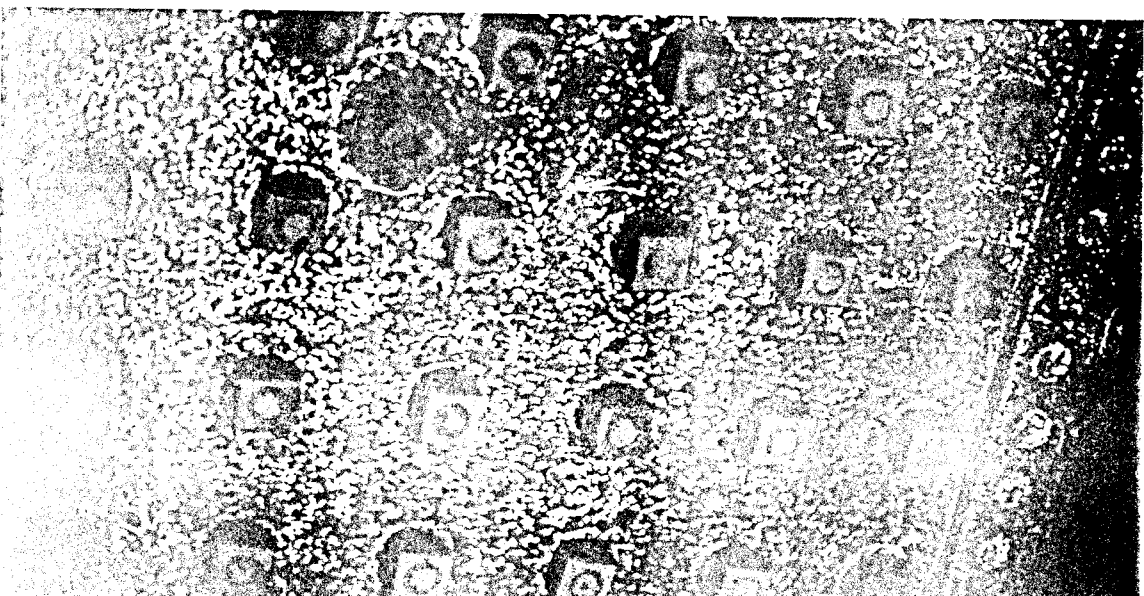
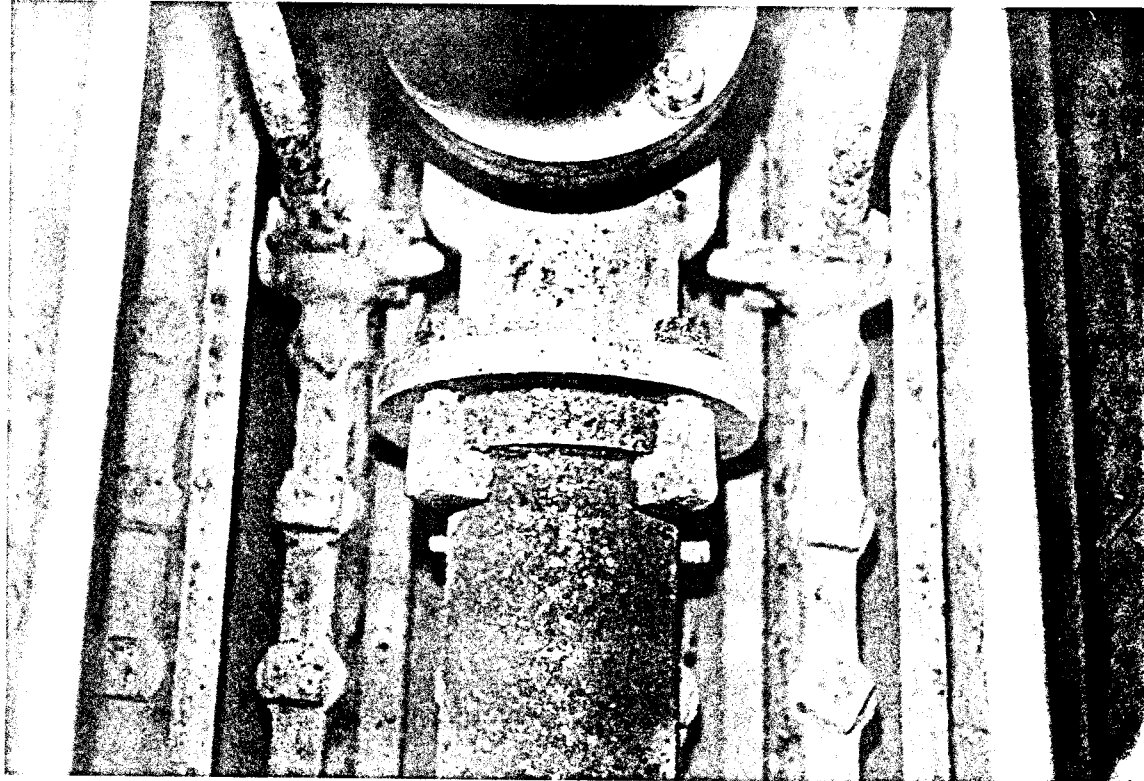
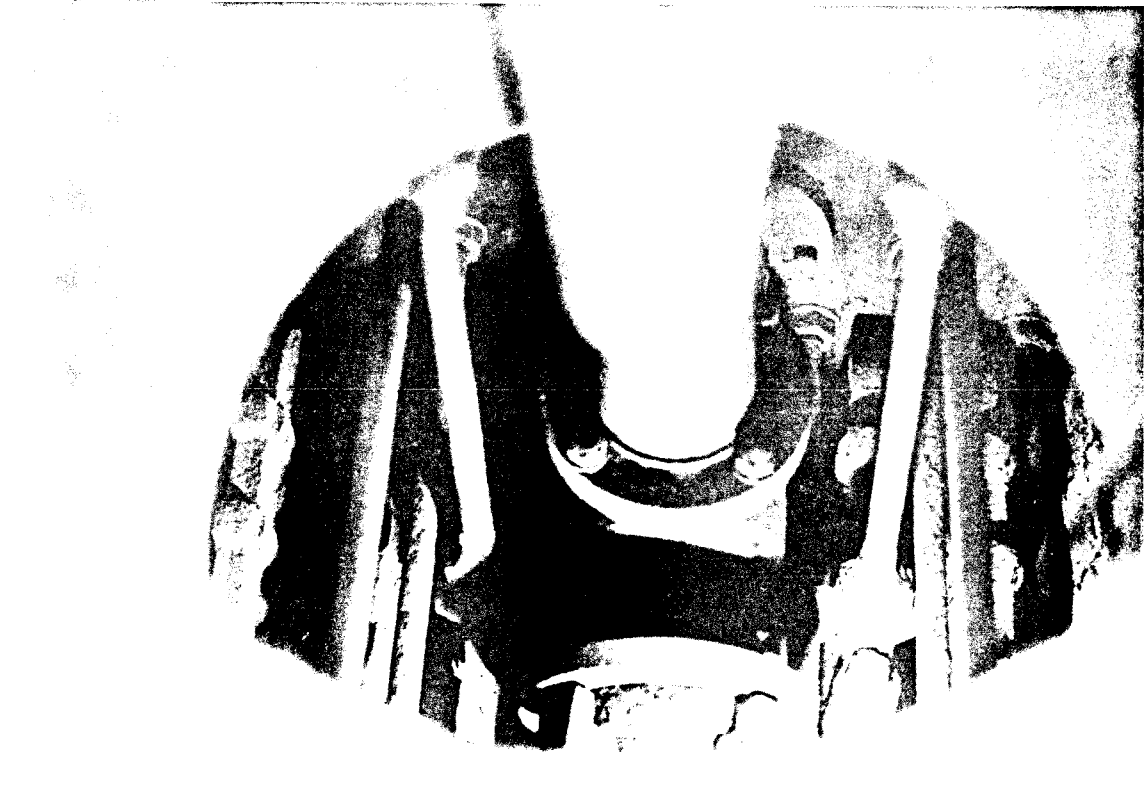
Opposite page, middle: Looking vertically downwards into the dome, towards the firebox roof, showing the girder stays and main steam pipe. The square-headed bolts through the girder stays are held by the square nuts seen in the lower picture.

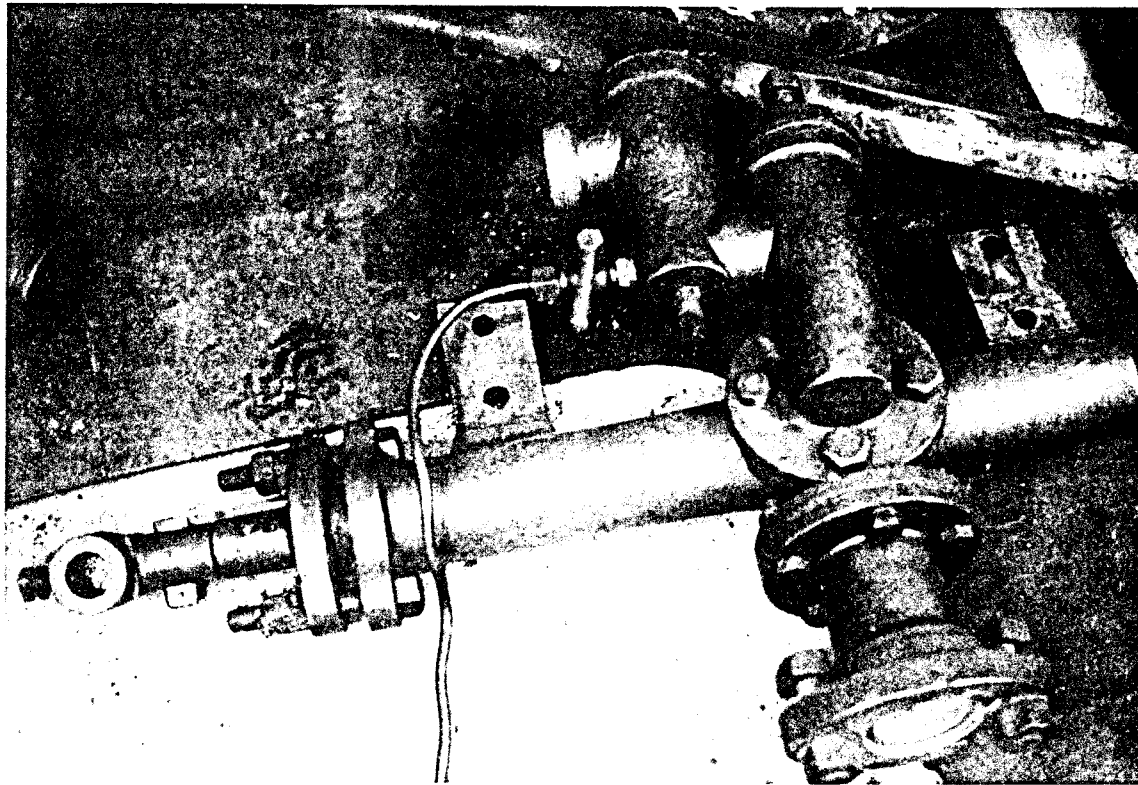
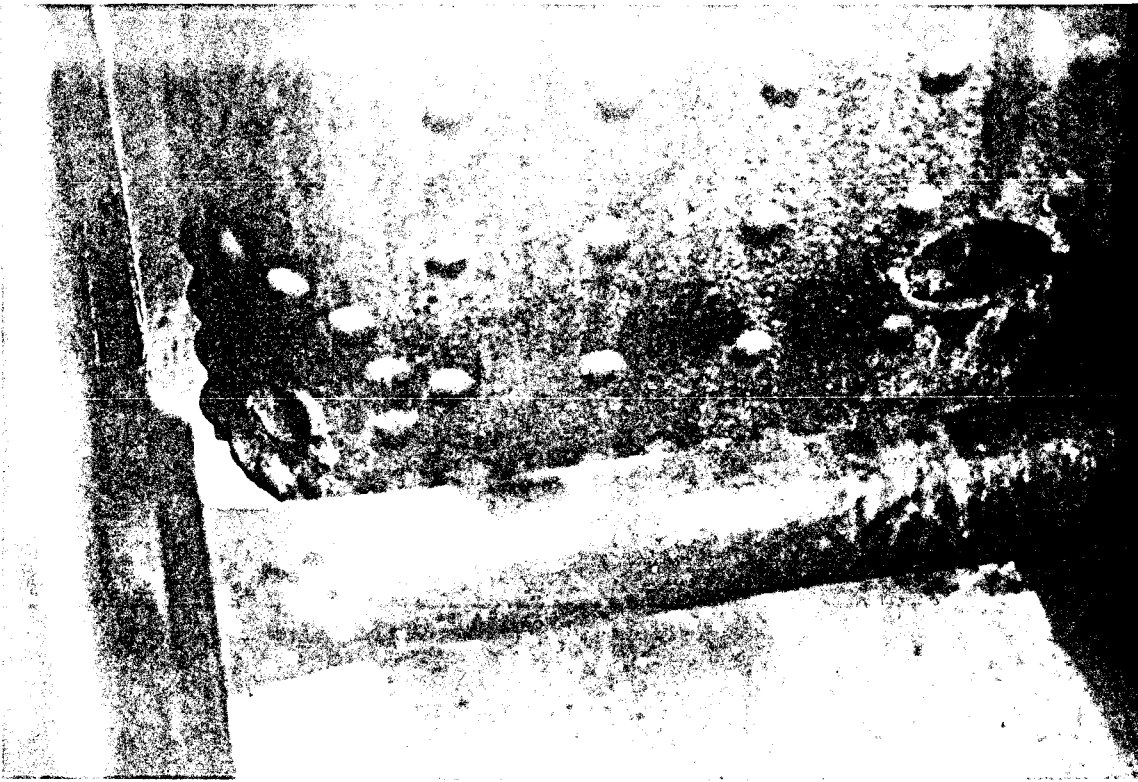
Opposite page, bottom: A view of the firebox roof from inside the firebox. The tubeplate is towards the right hand side. The fusible plug is between the second and third nuts from the top left.

This page, top: Another view of the boiler barrel, looking towards the smokebox.

This page, bottom: View looking towards the firebox. The OLCO members looking on are, from left to right, Mike Parrott, David Neish, Geoff Wright and Charles Taylor-Nobbs.







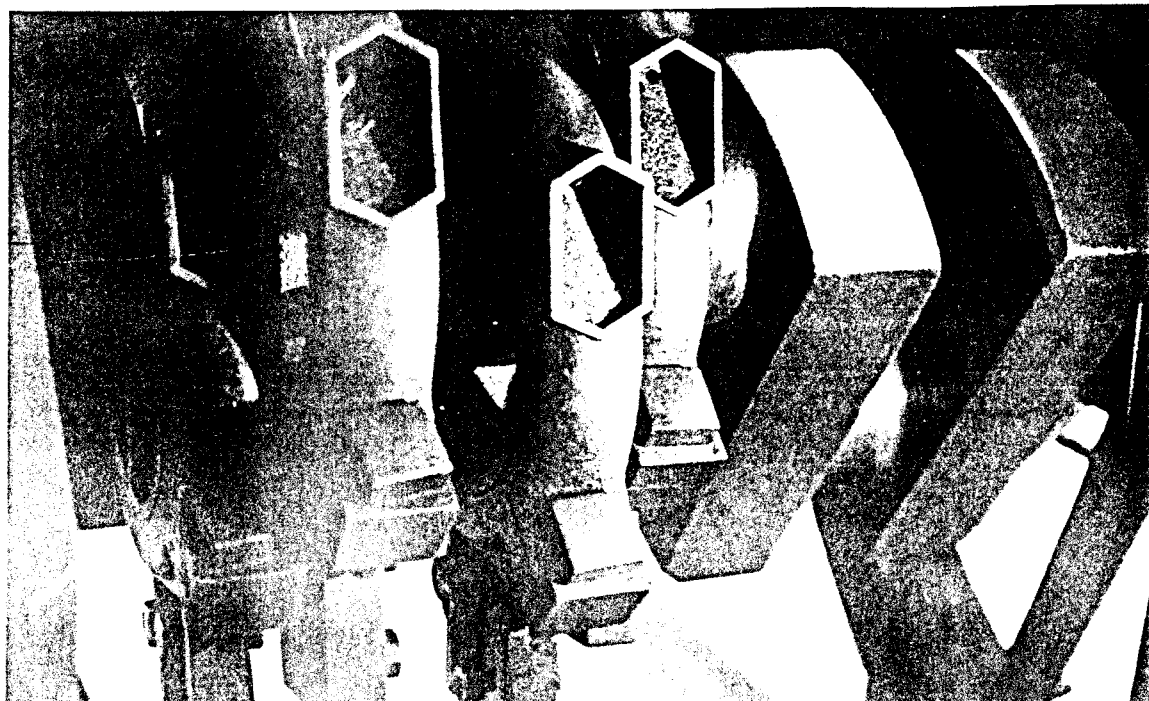
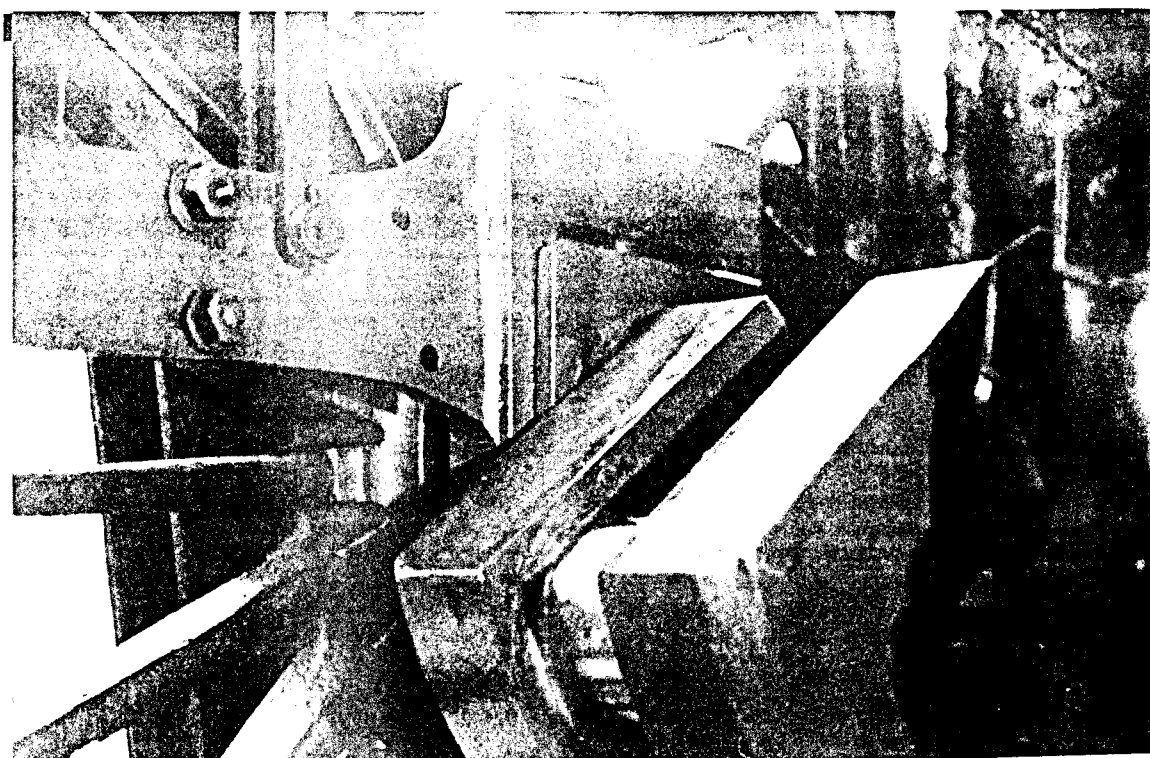
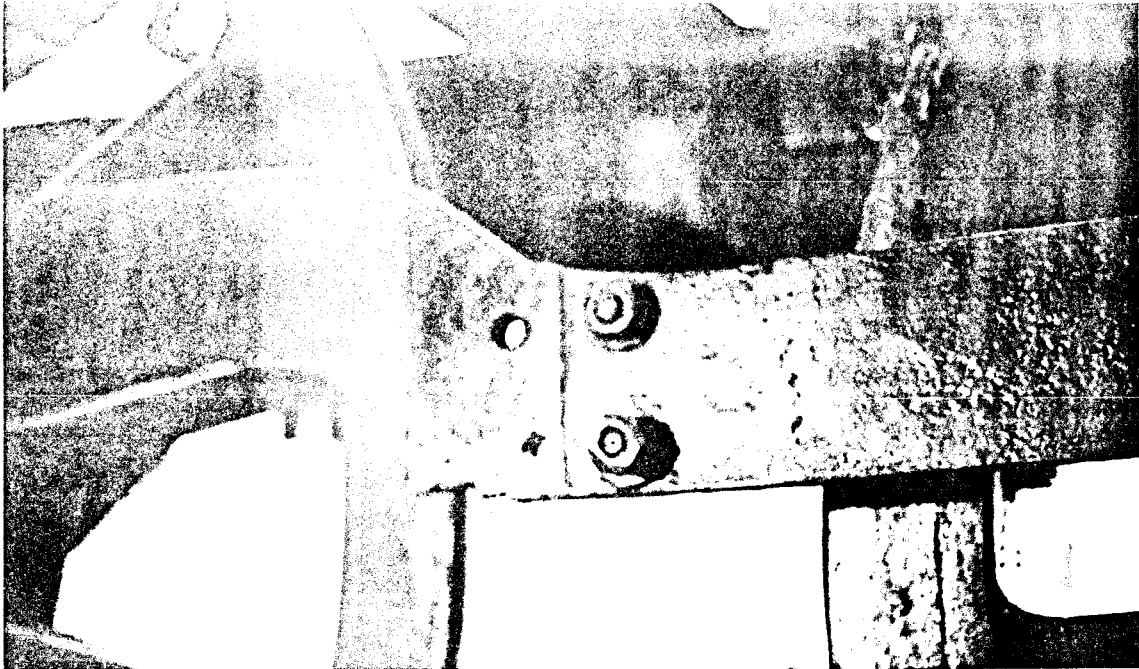
This page, top: With the footplate removed, the age-worn original (?) wrought trailing axle is revealed. The trailing wheels and axle were found discarded in the 'Lionhouse' when LION was rescued in 1923 and probably have not been replaced since LION left Kitsons. Two mudholes can be seen in the firebox.

This page, bottom: One of LION's two crosshead pumps, removed and laid aside.

Opposite page, top: The view of the inside frames from between the frames. This view is only possible when the motion and crosshead pumps have been dismantled.

Opposite page, middle: Another view of the inside frame, showing the inside bearing on the driving axle and right hand driving crank. The stanchions for the R.H. inside spring can be seen, together with the buckle and lower leaves in the top centre of the picture. These springs have no function at all in normal use but exist as a safety measure in the event of the crank axle breaking - not all that uncommon in the 1830's and 1840's.

Opposite page, bottom: With the eccentric rods removed, this view of the hexagonal oil cups for the eccentrics is revealed. The left driving crank is on the right of the picture.



# ANNUAL GENERAL MEETING 1991



The Seventh AGM was held at the Jodrell Arms Hotel, Whaley Bridge on the 5th October 1991, following a visit to Dorothea Engineering to see LION.

The meeting was attended by Alan McKirdy (ex-officio meeting chairman), Barry Smith, Jan Ford (meeting secretary), Mike Parrott, David Neish, Geoff Wright, E F Clark, Eddie Ball, Jim Mercer, Charles Ashforth and C E Taylor-Nobbs. Also present as observers were Michael Bailey (Chairman of the Friends of Manchester Museum of Science and Industry) and Graham Boxer (representing LION's owner, National Museums on Merseyside).

The meeting was opened by Alan McKirdy at 5.20pm and apologies were expressed from Keith Taylor-Nobbs and John Hawley, who had remained at Dorothea to complete a series of measurements of LION.

Eddie Ball conveyed apologies from Mr and Mrs E Bellass, Mr V Smallwood and Mr L Belk. The secretary reported receipt of apologies from Mr C Taylor, Mr J A Barnes, Mrs A M Chitty, Mr H H Harris, Dr and Mrs K Heap, Mr K R Hickton, Mr P D Servis, Mr I R Steel and Mr A T Webb.

The Minutes of the Sixth A.G.M. were taken as read by unanimous consent. The Chairman invited discussion of matters arising.

Charles Taylor-Nobbs stated that LION was now being restored. The secretary suggested that this was not

quite correct: the commitment was to cost restoration, whereupon the Museum will make a decision about proceeding with putting LION into working order.

Mr. E F Clark asked who would receive a copy of the survey report on LION's condition.

Barry Smith replied that he will receive a report, but not OLCO. He continued that negotiations had been carried out by ARPS (the Association of Railway Preservation Societies).

Charles Taylor-Nobbs asked if OLCO could be involved in fund raising.

Barry Smith stated that it was all hush-hush at the moment.

Mr. E F Clark commented that the danger is that the report will over-estimate the work, for instance need to provide steel axles.

Alan McKirdy commented that the existence of wrought iron axles is a red herring: it just stops LION from working on British Rail.

Charles Taylor-Nobbs commented that he assumes LION would be welcome on 'certain other metals'.

Michael Bailey concurred.

The Chairman read the brief Executive Officers' Report and apologised for the lack of Club activities. He expanded on the report by saying that OLCO membership is divided between people with a primary interest in operating LION, a primary interest in modelling and members



interested in historical research. Unless LION is physically present, these interests tend to be separate. He continued by stating that ideas for other activities in the absence of LION would be welcome. He said that, as a group, members are spread around the country and that unless LION is present, say, at the Museum, members won't come. He concluded that we want to generate interest.

Charles Taylor-Nobbs stated that Vernon Smallwood had raised the question of supporting other locomotives at the last AGM, adding that we could offer our stewarding services. Charles Taylor-Nobbs said that LEWIN is a possibility with Crewe as a possible location for restoring the locomotive.

Alan McKirdy commented that we lost our activities at Wroughton through staff changes and added that this event is no longer held. Local support groups were told that their services were not required.

Charles Taylor-Nobbs asked Michael Bailey what events were staged at Manchester.

Michael Bailey replied that the Railway Weekend was the biggest thing.

Charles Taylor-Nobbs asked if there was any other opportunity.

Michael Bailey offered to relay the interest in a Joint Venture to the Friends Council.

Mr. E F Clark suggested that LION could be available next year.

Charles Taylor-Nobbs commented that we have the Costume Group.

The Chairman welcomed Graham Boxer from Liverpool Museum.

Mr. E F Clark moved acceptance of the Executive Officers' Report, Charles Taylor-Nobbs seconded with thanks to the Executive Officers and the motion was passed unanimously.

The Chairman then invited Eddie Ball to give a report from the North Western Section. Eddie Ball stated that it had been very quiet. The group continued to meet and pursue non-OLCO activities. He added that the proposed Heritage Trail visits were never publicised and never took place.

Copies of the accounts had been circulated at the AGM and the Chairman invited comments.

David Neish stated that he wants the OLCO Dinner to 'wash its face' and feels that guests should be paid for by members attending.

Mr. E F Clark asked how the expenditure to the Airedale Luncheon was incurred. After brief discussion it was agreed that this was the result of inviting Adrian Jarvis to attend as a guest of OLCO.

Charles Taylor-Nobbs stated that the drawings of LION are being updated by John Hawley and can become a sales item in the future.

Mr. E F Clark moved adoption of the accounts. This was seconded by David Neish and passed unanimously.

The Chairman invited discussion of subscription rates. The Executive Officers were suggesting that membership should be extended by a further year without payment because of the lack of activities and limited numbers of LIONSHEART.

Charles Taylor-Nobbs discussed the costs of producing LIONSHEART noting that this has been subsidised to date. The Broad Gauge Society would charge 25p to 50p per copy plus postage, so £3 per year subscription would cover the cost of LIONSHEART. In any case, he continued, we should not rely upon individuals, concluding that perhaps there should be a vote of thanks to Jan Ford.

Mr. E F Clark stated that we should not be kind to ourselves but put money in.

Eddie Ball stated that he was against a free year.

Mr. E F Clark stated that he was against subsidised printing.

David Neish agreed, but stated that a judgement had to be made as to who pays for LIONSHEART and who doesn't.

Jan Ford confirmed that the concept of a 'KEYLION' list of friends and contacts in modelling and preservation who were circulated without charge was still in effect. She reported 54 paid-up memberships for the 1990-1991 membership year and, so far, 28 renewals for the 1991-1992 year.

Mr. E F Clark moved that, whilst the membership were grateful for the suggestion concerning a free year, we should continue to pay at the present rates and pay the cost of printing from funds. This was seconded by David Neish and carried unanimously.

The Chairman introduced the election of officers, stating that he was prepared to stand down. Alan McKirdy was nominated by David Neish, seconded by Mr. E F Clark and appointed unanimously.

The retiring secretary, Jan Ford, stated that, whilst prepared to stand again, she noted that she may not have enjoyed the full confidence of the retiring committee. Her re-election was nominated by the continuing Chairman, seconded by Charles Taylor-Nobbs and she was elected nem con.

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David Neish nominated Mike Parrott to the Committee. Alan McKirdy nominated Barry Smith to the committee. There was general discussion regarding the size of the committee and it was suggested that the Editor of LIONSHEART did not need to be a committee appointment. Mr. E F Clark nominated Eddie Ball to the committee. Eddie Ball nominated Vernon Smallwood. The Secretary stated that Barry Smith and the retiring Treasurer Charles Taylor would, under the Constitution, be ineligible to serve in 1992/1993 assuming they were elected for 1991/1992. She added that Charles Taylor had indicated a willingness to serve again as Treasurer during 1991/1992 but, for domestic reasons, would not be able to continue thereafter. Barry Smith nominated Charles Taylor to the committee.

There being no other nominations, Geoff Wright seconded all the above who

David Neish asked that a note be made in the minutes regarding who is expiring.

Alan McKirdy stated that Barry Smith is a professional railwayman with wide experience and it is important that we keep people like that.

Mr. E F Clark, whilst accepting the sentiment, commented that considerable thought had gone into the constitution prior to its adoption.

The Chairman asked for Any Other Business and Mr. E F Clark stated that he had a report to make (see separate item 'LION'S TYRE ANALYSED'). Following the report, Alan McKirdy said that this report should appear in LIONSHEART.

Mr. E F Clark added that LION is made from non-modern materials and it would be a crime to replace them.

Graham Boxer stated that LION has inevitably changed but the Museum wants to preserve it as closely a possible to its present condition. This is the dilemma, to run LION but to keep as close as possible to the original form.

Mr. E F Clark commented that JOHN BULL's smokebox is full of concrete!

Barry Smith stated the the Chief Boiler Inspector of British Rail is happy with LION's boiler, subject to tubing and a few stays.

Graham Boxer added that he commented that 'You've got a good engine here'.

Mike Parrott stated that Blists Hill are making wrought iron 3 days a week and asked if wrought iron could be used in the restoration of LION.

Graham Boxer explained that Dorothea make their own wrought iron.

Charles Taylor-Nobbs commented that Neil Cossons talked about Blists Hill and said that Health and Safety had stopped the wrought iron making.

Mike Parrott said that iron making has now restarted.

Eddie Ball asked if Charles Taylor-Nobbs was supervising LIONSHEART.

Charles Taylor-Nobbs stated that he was willing to act as, say, technical editor or, indeed, write it if the Secretary could arrange publication.

The Chairman thanked those attending and declared the meeting closed.

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The photograph on page 8 shows the Jodrell Arms from the road side. This view is taken from the L.N.W.R. station footbridge.



by Mr. E F Clark

The following is a summary of the report given to the Seventh A.G.M.

Samples of the tyre removed from LION at Dinting were taken to Teesside Polytechnic for analysis. These tyres were wrought and the problem is that the material is non-homogeneous and sampling is difficult. Bigger samples are required, as was practice in the old days. BS 24:1942 was used in steam locomotive building and this specifies a test sample of 0.564 inches diameter, conveniently giving a cross sectional area of 1/4 square inch. Nowadays, 5mm or 8.2mm diameter samples are used. The problem is to get a big bit which is properly representative of the material and, ideally, two samples taken at right angles. Getting the sheer volume is a problem. Nine samples have been processed, without obtaining tensile results.

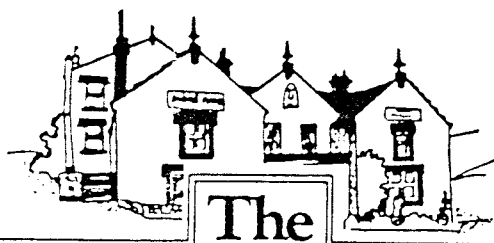
Professor Rankine's tables for 'malleable iron' give figures of 22 tons/square inch for plates and 26 to 31 tons/square inch for bars. By comparison, Part 2 of BS 24 shows 3 classes, C: 50 to 56 tons/square inch, D: 56 to 62 tons/square inch and E

(locomotives for rack working): 63 to 69 tons/square inch. These figures indicate that wrought iron is expected to be about 1/3 as strong as modern materials.

Elongation as a percentage of length is covered by BS 24, which gives C: 13 to 11%, D: 11 to 9%, E: 10 to 8%. Tests on LION's tyre give a figure of 19 to 22%, that is the material is very ductile. This is consistent with Steve Allsop's experience when removing the tyre. It was not a 'shrink-fit' and hence you need to bolt-on this type of tyre.

Hardness is a measure which is proportional to tensile strength. BS 24 gives Vickers Numbers for the various classes as C: 240 to 270, D: 270 to 300 and E: 300 to 330. The measured figure for the LION material is 107; once again about 1/3 that of modern materials.

A proportion of the LION tyre has a flaw or discontinuity of magnetite parallel to the surface away from the tyre. There is spalling on the tread. This shows how difficult it was to build locomotives at all for our forefathers.



# JODRELL ARMS

## Hotel & Restaurant

OLCO ANNUAL DINNER 1991

Following the AGM, the Annual Dinner was held at the Jodrell Arms Hotel. The menu was as follows:-

Grapefruit cocktail  
Mushroom Soup  
Roast Lamb with Mint Sauce  
New and Roast Potatoes  
Brussel Sprouts and Carrots  
Apple Pie and Cream  
Coffee and Mints

Our thanks to proprietors Alison and Michael Ratcliffe, who went to great trouble to ensure a thoroughly enjoyable evening.

## LION'S HISTORY

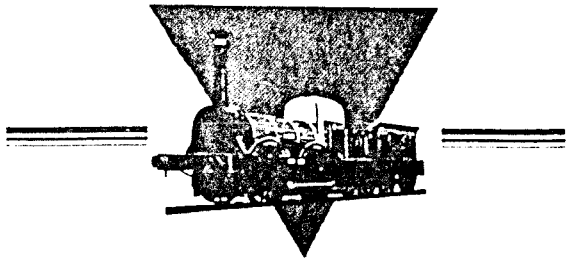
by Dr. S J Kennett

Members may be interested in the circumstances which led to 'Lion' passing into the possession of the Transport Department of the City of Liverpool Museums.

'Lion' was acquired and restored twice by the initiative of members of the Liverpool Engineering Society. However, although membership was well sustained, attendance at meetings became very small; members increasingly concentrating their interest upon the sectional societies (Civil, Electrical, etc.).

Accordingly, just short of the centenary year, it was decided to wind-up the Society and offer 'Lion' to the then newly-formed Transport Section of the Museums. I, as the last President, made the presentation in the museum. I was asked to stand on the footplate, with hand on regulator, and a very realistic tape of the loco starting up was played.

A very detailed account of the acquisition and restoration of 'Lion' was deposited, with the rest of the Society's Archive, in the City Library.



### MEMBERSHIP RENEWAL

by Jan Ford (Secretary)

The OLCO membership year runs from April to March. Membership for 1991-1992 became due earlier this year. Many thanks to all of you who have already renewed. Reminders were sent out in September with the Notice of AGM. If you've not already renewed, please do so now. We hope that there will be developments to report over the coming months and, at at some stage, our membership list will have to be 'pruned'. So please make sure that LIONSHEART is not cut-off by making sure that your membership is current. A slip enclosed with this issue confirms your status on our records. If you have any queries, please contact:-

The Secretary  
Old Locomotive Committee  
Brewood Hall  
Brewood  
Stafford ST19 9DB

Tel: 0902 850095 (evening)



### RE-ENACTMENT PLAQUE

by Mike Parrott

Back in 1989, OLCO and the North Wales Model Engineering Society got together to re-enact, in miniature, the filming of 'Lion' with the two 'Coronations' by the LMS (see LIONSHEART No. 18, Summer 1989 for full report). Bob Stark of North Wales MES has kindly produced some miniature plaques to commemorate the event for those who took part.

As far as we can tell, David Neish, Keith Taylor-Nobbs, Mike Parrott and Jim Mercer took their LIONS to Llandudno. If anyone else took a LION and would like a plaque, could they please contact either Mike Parrott or the Secretary as soon as possible.

LIONSHEART is published by OLCO

Editor: Peter Servis  
Technical Editor: Charles Taylor-Nobbs  
Production Assistant: Jan Ford

The Editor welcomes your letters, photographs or articles for publication in LIONSHEART. Please send them:-

c/o The Secretary  
Old Locomotive Committee  
Brewood Hall  
Brewood  
Stafford ST19 9DB

### THE EDITOR WRITES...

Although I was at Whaley Bridge on the 5th October and able to talk to some OLCO members, indisposition forced my early departure before the AGM.

The AGM decided that the Editor's job need not be a committee appointment and I think that this is a good development. It allows the Editor to identify more closely with the needs of individual members and to be critical, where appropriate, of the committee's efforts.

I'm pleased to announce that Charles Taylor-Nobbs, the original editor of LIONSHEART, has agreed to assist as Technical Editor and Jan Ford is continuing as Production Assistant.

We're all looking forward to an eventful year with, hopefully, a number of developments of interest to members. Please help the committee to plan future activities by making LIONSHEART a forum for your ideas.

Whilst gratefully acknowledging the help received in the past from a number of people in collecting information and getting out LIONSHEART, I'd like to make another appeal for support in the future from the general membership. Even if you're not keen on tackling an article, a letter with anecdotes, historical fact or anything broadly LION-related will be of interest to our members.

If you've photographs, old or new, or newspaper cuttings, we'll treat them with great care and return them after copying. We've some splendid photographers in OLCO, but this is the third issue in which I've had to rely largely on submissions from OLCO Secretary Jan Ford. Since she normally uses colour print stock, reproduction in black and white is not ideal but, I hope you'll agree, much better than nothing. So come on, everyone, let's see what we can do!