



# THE HOSPITAL ENGINEER

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*President :*

H. A. SANDFORD, Esq., M.A., F.G.S., M.I.Mech.E.,  
M.I.E.E., M.I.H.V.E., M.Cons.E.

No. 23

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WARREN, DAWLISH, DEVON.

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*Hon. General Secretary*—H. S. CLARKE, 14 THE VILLAS, ST. MARY'S  
HOSPITAL, STANNINGTON, MORPETH, NORTHUMBERLAND.

## THE INSTITUTION OF HOSPITAL ENGINEERS

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### **Minutes of Council Meeting held at the Great Northern Hotel, King's Cross, London, on Saturday, 1st December, 1951.**

Present : Mr. J. Tomlinson (Chairman), Mr. J. Forsyth (Vice-Chairman), Messrs. G. Jones (Treasurer), R. E. Rogers, J. H. Hargreaves, H. A. Adams, J. Richardson, E. Heald, C. W. Oliver, A. J. Templeman, H. F. H. Dolling, J. W. Brodie, L. Hunt, G. B. Metcalfe, A. M. Bain, J. G. Houghton, G. A. Hunter, R. H. Chesney, A. Macgregor, J. D. Lewis, E. D. Yates, F. J. Chance, H. Wright, J. Strachan, H. S. Clarke (Hon. General Secretary).

The Meeting was opened at 10.10 a.m. by the Chairman who, on extending a welcome to the members, made special reference to the bereavement sustained by Mr. J. H. Hargreaves and Mr. J. W. Brodie, on the death of their dear wives, and expressed the sympathy of all members to them in their grief.

Apologies of absence were received from Mr. R. H. Smith and Mr. M. Gray. The Chairman welcomed Mr. G. B. Metcalfe, Mr. J. G. Houghton and Mr. F. J. Chance.

The minutes of the Meeting held at Bournemouth on the 13th August, 1951, were approved and signed.

Arising out of the minutes, the Hon. Secretary reported on a visit to Northern Ireland on the 15th and 16th November, when, accompanied by the Chairman, he attended a meeting with the Secretary of the Ulster Public Officers Association, and offered the advice that no benefits would be obtained by joining up with the U.P.O.A. The Association have no negotiating machinery with the Northern Ireland Hospital Authority, and it was felt that any further means of impress upon a body who has opened its doors to us would only complicate and undermine the work already done on behalf of our Northern Ireland members.

The Chairman reported on the meeting with the Northern Ireland Hospitals Authority, and expressed his confidence, following the presentation of our case for the implementation of P.T.B.3, that our representation would be blessed by success. The Hon. Secretary supported the Chairman and spoke of the cordial manner in which we were received, and of the patience shown by both sides in our negotiations.

Arising from correspondence, the Chairman informed the meeting of the illness of Lord Calverley and said he had written him expressing the wishes of our members for a speedy recovery to good health.

The Hon. Secretary reported the death of Mr. S. Bell, No. 134, of Leicester, and Mr. A. Ormston, No. 696, of Drifffield, Yorks, and the members stood in silence as a token of respect.

Correspondence from our New Zealand members was read, and the Hon. Secretary informed the meeting that a cablegram had been sent wishing all success to the Auckland Hospital Engineers Association at their Annual Conference. The Auckland H.E.A. were to table a resolution, asking that the examination as prescribed by the I.H.E. would be acceptable to their Health Department, and recognised as a qualification, and that examinations would be held in the Dominion.

Notification of the resignation of Mr. J. Green, of Saxondale Hospital, from the Notts and Derby branch secretaryship, owing to ill-health, and Mr. F. H. Mills from the Midland branch secretaryship were reported. Both members were wished health and happiness and thanked for their sterling work.

Applications for membership and upgrading were approved as follows :—

Members	.....	9
Associate members	.....	7
Graduates	.....	3
Students	.....	2

Mr. E. E. Harries, No. 535, admitted as a member in 1947, but who never honoured his acceptance, made application for reinstatement. Resolved that he be requested to pay up his arrears of subscriptions within a reasonable time before consideration of his re-acceptance be confirmed.

The application of Mr. H. Stacey was held in abeyance pending incorporation.

Mr. H. A. Adams, Chairman of the Examination and Education Sub-Committee, reported on the activities of the Committee's work and gave the next examination dates as the 25th, 26th, 27th and 28th March, 1952.

The financial report was presented by Mr. G. Jones, Treasurer, a spot balance sheet being issued to each member.

Mr. J. H. Hargreaves notified the meeting that he would be resigning his seat on the Finance Sub-Committee at the end of the year, and also he would not seek re-election as Branch representative on Council.

Arising out of the financial report, great alarm was shown in the rising cost of administration and Council meetings, including the Annual General Meeting held at Bournemouth. Many members voiced their disapproval of the high cost, and many questions relating to the A.G.M. when the Treasurer read out individual expenses and costs. Branches honoured to arrange the Quarterly Meetings of Council were thanked for their great kindness and hospitality extended to the members, but were sincerely requested that in the interests of economy and fairness to one another, that they could reasonably be dispensed with.

Questions as to the calling of meetings, "Whitley Council," "British Standards," "Examination Sub-Committee," were answered by the Chairman, and he assured the meeting that great care is always taken to co-ordinate sub-committee meetings.

The Hon. Secretary reported on outstanding subscriptions and informed the meeting that all in default had been notified.

Mr. C. W. Oliver, Secretary/Treasurer of the Benevolent Fund, reported on subscriptions outstanding, and also informed the meeting that the sum of £10 0s. 0d. had been granted to a deserving member. It was resolved that the member be informed that the money is not expected to be refunded, and that he be thanked for his offer to refund.

After a discussion on the interest from "Defence Bonds" being transferred to the General Funds, as against the Benevolent Fund, it was resolved that no change be made.

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### **Resolutions from the Branches.**

#### *Glasgow Branch :*

1. That Hospital Maintenance Engineers be invited to join the I.H.E. as Associates so that they can take part in the lectures during the winter session.  
Referred to Education Sub-Committee.
2. That we recommend to Council that an examination syllabus be worked out with the B.I.E.T. to encourage potential members to study, and also as a means of advertising our Institution.  
Referred to Education Sub-Committee.

3. This branch strongly resents the time wasted by the Council in their dealing with the appeals of our members.  
While appreciating the fact that our officials are unpaid, we feel that the question of appeals has been very unsatisfactorily handled. We hope for the co-operation of Council in treating this matter with urgency.  
Cases ready for presentation, only a small amount of detail work to complete.

*Cheshire and Staffordshire Branch :*

1. That the I.H.E. Council be requested to put in a claim for overtime rates on behalf of Assistant Engineers in Charge, and for Engineers in Charge, who by virtue of their position are on call 168 hours per week, an additional 10% on their salaries.  
Referred to Whitley Council Chairman.

*East Midlands (Notts and Derby Branch) :*

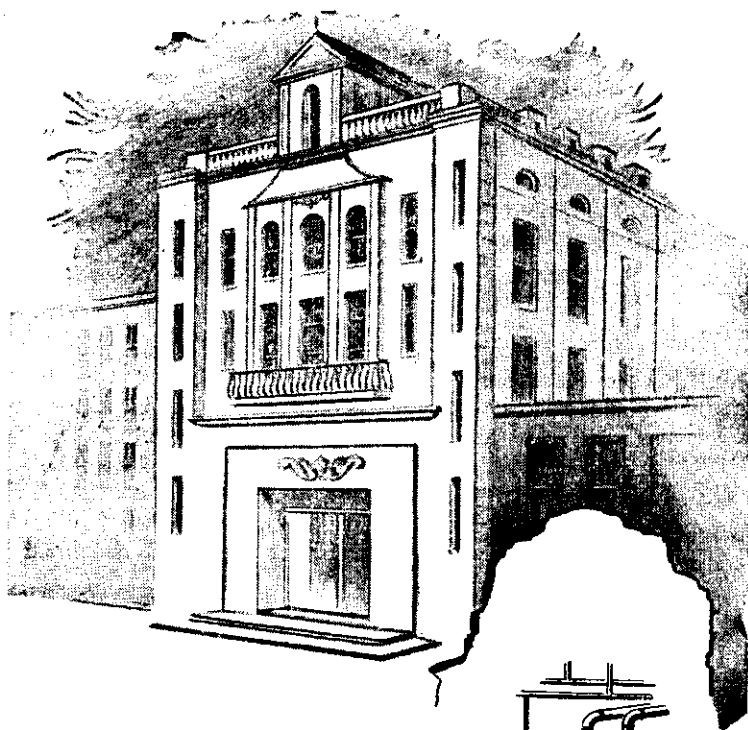
1. In order to curtail expenses that One Member from each Branch (no matter how large) attend Council Meetings.  
Received.
2. The Branch is not satisfied with information received from Council regarding progress made with the Whitley Council in view of progress of other sections of the Health Services.  
Referred to Whitley Council.

*South-Western Branch :*

1. The Whitley Council members be asked to give careful consideration to the status and salary of Engineers in the smaller hospitals under 200 beds.  
Referred to Whitley Council Chairman.
2. This Branch wishes further information regarding Whitley Council business, and that negotiations be accelerated with regard to Engineers' conditions and salaries.  
Referred to Whitley Council Chairman.

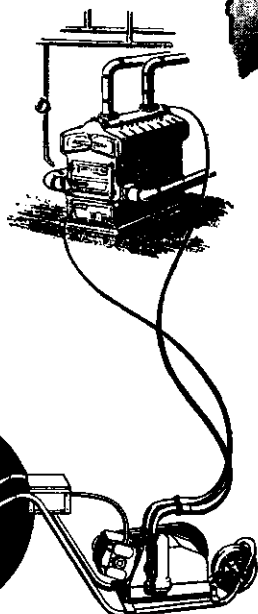
*South Wales Branch :*

1. That this Branch recommends to the Council that there should be an increase in the amount of the Annual Subscription. Such increase to be carefully applied by the Council with due regard to the lower salaried members, i.e., that such an increase be in proportion to the scale of salary of the member.  
A question for the A.G.M. 1952.



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2. That the Council press for the 8% extra duty allowance for all members.  
Referred to Whitley Council Chairman.
3. That all members be notified through the Journal that all subscriptions be paid to the Branch Secretary.  
Agreed to accept the resolution and that a special paragraph be inserted in the *Hospital Engineer* asking all members to pay all fees and subscriptions through the "Branch Secretary."

#### *Midland Branch :*

1. That the Agenda for future Annual General Meetings should be printed, and a copy sent to each member in sufficient time to allow branches to hold meetings to discuss resolutions that may be on the Agenda before the A.G.M. is held.  
Agreed that Agendas for the A.G.M. be posted to each Branch Secretary one month before the date of meeting.
2. The members of the Midland Branch deplore the slow inexcusable way the Membership Certificates are being issued, and insist that action is taken immediately to see that there is no further delay in issuing all outstanding certificates.  
Owing to the illness of Lord Calverley, certificates were held up. The Chairman promised to look into the question. Certificates up to Membership number 500 were in hand.

#### *Southern Branch :*

1. "King Edward Fund College." Council should be asked to investigate the possibility of a summer school for Engineers, organised from this Fund.  
Referred to the Education Sub-Committee.

### **Whitley Council Report.**

Arising out of a case of Appeal held in Glasgow, it was resolved that Mr. J. Richardson take the place of Mr. R. H. Smith on Whitley Council.

Mr. R. E. Rogers gave a lengthy report on Whitley Council work. It was reported that agreement had been reached on P.T.B. Salary Scales and that they would be issued to all H.C.'s in the near future, that Local Authority Hospital scales had been brought forward and that it was hoped confirmation would be issued at an early date.



That Engineers who had opted to retain their existing scales and conditions would be receiving early final consideration.

That Teaching Hospital negotiations were in the hands of the Ministry, who were making special investigations.

The question of 8% E.D.A. had been the subject of an appeal and that where it had already been paid, no refund was held to be in order.

That at the moment no change in Motor Car Allowances was known.

Photographs taken at the Annual General Meeting, Bournemouth, 1951, were shown to the members and ordered by them as required. The Chairman moved that two photographs of Lord Calverley and his Lady be ordered and presented to them as a mark of our esteem and affection—the meeting unanimously agreed.

Arising out of the resolutions submitted to the Annual General Meeting, "that in the interests of economy, membership of Council should be reduced," a very long discussion took place *re* the methods to be adopted in carrying out these wishes.

It was agreed by all present that it was the unanimous desire of the members assembled at the Annual General Meeting that the numbers of Council should be reduced. The question of branch representation and the numbers of Council members was freely voiced. Many members claimed that every branch should have representation, whilst others claimed that we should appoint the twelve best members possible.

Resolutions were put to the Chair and opposed in succession, and as there was no firm resolution accepted by the meeting, the matter was left adjourned. Members were asked by the Chairman to bring the matter to the urgent notice of their respective branches and notify the Hon. Secretary of the representative at the earliest possible date.

Mr. C. W. Oliver reported that it had been found impracticable to make arrangements for the Annual General Meeting, 1952, to be held at Morecambe Bay. His branch committee had visited Blackpool, where they found that the Local Authorities were more than willing to make all arrangements possible. It was resolved that the action of the Lancashire Branch be commended and that the Annual General Meeting, 1952, be held at Blackpool on the date decided.

Arising out of discussion on the expense of the Annual General Meeting, it was resolved that members of Council be asked to pay their own travelling expenses to and from the Annual General Meeting, as a gesture of principle in cutting down expenses.

On a question of the "Paid Secretary," Mr. Hargreaves and Mr. Wright spoke of a discussion with representatives of *Health and Hospital*, and suggested that we should explore the question of them taking over the printing of our *Hospital Engineer*. It was resolved that Mr. Wright arrange to meet the representatives of *Health and Hospital* and report to the next meeting of Council.

A letter from Neil McLean, Solicitors, re our application of Incorporation, informed the meeting that progress was being made, but that the Board of Trade were very thorough in their examinations, and time is only a factor in the acceptance of our claim. Hopes were entertained of an early acceptance.

The date of the next meeting of Council is 1st March, 1952, at York.

Mr. J. Strachan informed the meeting that he was leaving the country early in the New Year and was to take up an appointment in Australia. Expressions of good will were accorded to him by many of the members, and the Chairman expressed our great appreciation of the good work accomplished by Mr. Strachan, and on behalf of all the members wished him *bon voyage* and all success to him in his appointment.

The meeting terminated at 9.0 p.m.

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### **Minutes of Council Meeting held at the National Hospital, Queens Square, London, on Saturday, 22nd March, 1952.**

Present : Mr. J. Tomlinson (Chairman, Mr. M. J. Forsyth (Vice-Chairman), Messrs. G. Jones (Treasurer), R. E. Rogers, H. Wright, H. G. Adams, A. Bain, V. Riley, J. D. Lewis, L. Hunt, R. H. Chesney, A. McGregor, W. Bullivant, G. B. Metcalfe, H. S. Clarke (Hon. General Secretary).

The Meeting was opened at 10.30 a.m., when the Chairman, Mr. J. Tomlinson, welcomed members of Council.

Apology of absence was received from Mr. M. Gray, of Northern Ireland.

The minutes of the meeting held on the 1st December, 1951, were confirmed, after Mr. R. E. Rogers had called attention to a Resolution at the meeting and which should have read "That the question of Branch Representatives to Council be referred back to the Branches for further consideration."

Mr. H. Wright called attention to "Economy," which should have been more clearly stated.

The Minutes were signed by the Chairman.

The Minutes of the Extraordinary Meeting of Council held at the Great Northern Hotel, London, on the 1st March, 1952, were approved and signed by the Chairman.

Arising out of the Minutes, questions were asked for clarification on Scottish Appeals, Salaries and Education.

### **Election of Chairman and Vice-Chairman.**

This being the first meeting of Council in 1952, the meeting proceeded to elect its Chairman. Mr. G. Jones, Treasurer, occupied the Chair when Mr. J. Tomlinson and Mr. J. D. Lewis were proposed and seconded. On the result of a ballot, Mr. J. Tomlinson was re-elected Chairman for the ensuing year, and re-occupied the Chair. He thanked the members for the vote of confidence and the honour conferred. Mr. J. D. Lewis also suitably replied and thanked those who had supported his nomination.

The question of eligibility of ex-officio and co-opted members voting was fully discussed, and on a casting vote by the Chairman it was resolved that ex-officio members be not qualified to vote.

Mr. J. Forsyth was proposed and seconded and unanimously re-elected Vice-Chairman, and on rising thanked the members for their continued support.

### **Correspondence.**

The Chairman informed the meeting of his receipt of a letter from the Northern Ireland Hospital Authority, relative to his visit to Northern Ireland when, accompanied by the Hon. General Secretary, consultations were held on behalf of our Northern Ireland members. Early confirmation is expected of a successful decision to our claims. The letter stated that our application had been approved by the N.I.H.A.

Mr. W. Bullivant having handed back the Vacancies Register on his resignation from the post, it was agreed that the Register be

forwarded to Mr. R. G. Rogers, who has so willingly consented to act as the Vacancies Secretary in his retirement.

Mr. R. E. Rogers having reported on the worn-out condition of the old "Oliver" typewriting machine, it was resolved that he be empowered to purchase a suitable new machine, trading in the old one.

The Hon. General Secretary reported notification from the Glasgow Branch of the resignation of Mr. R. H. Smith, Secretary, and spoke of the sterling work accomplished by him in the formation of the branch, and the great amount of excellent work carried out by him during the years, and it was agreed that the thanks and appreciation of Council be recorded.

Mr. J. Crawford, No. 1426, London Road, Glasgow, E.1, has succeeded Mr. Smith as Secretary.

The Hon. General Secretary reported on a visit to Glasgow in support of Messrs. D. Watson and J. Ure, and attended a meeting of their H.M.C., when a case was made out and presented on their behalf.

The resignations of Messrs. S. B. Hirschfield, No. 154, and J. Stoneman, No. 132, due to retire from the service, both of the London Branch, were received; they were accorded Honorary Membership with the wish that they be blessed with good health and many years in which to enjoy their well-earned rest.

Mr. E. W. Smith, also of the London Branch, tendered his resignation on personal grounds, and it was hoped that he would come and rejoin us when circumstances permit.

Messrs. E. Hodge, A. M. Benjamin and A. Tonks tendered their resignations.

Correspondence from the Royal Sanitary Institution relating to the letting of accommodation for meetings was received.

The annual appeal from the "Cancer Relief" was once again acknowledged by Council, and the Treasurer was empowered to forward a cheque for £5 0s. 0d.

On an application from a wholesale newsagent for copies of the *Hospital Engineer* to sell on the book stalls to the general public, it was resolved that no action be taken at present. Council are of the opinion that the time has not yet arrived when our private business should be published and open to the general public, but hopes are entertained for the future.

# Wandsworth

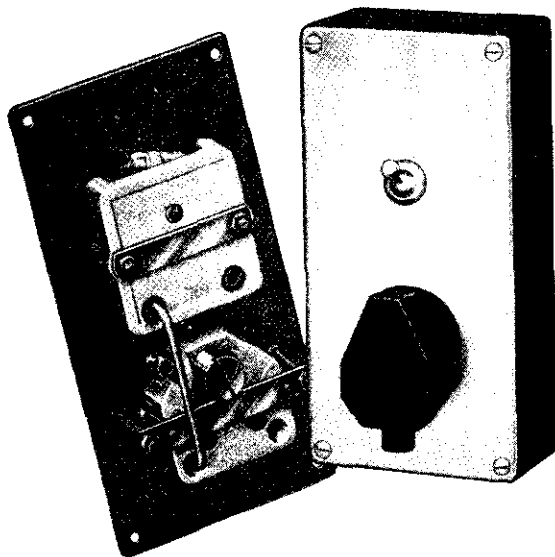
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A member having attained the age of 60 years, but still in employment, made application for Honorary Membership. Council wish to clarify this point, which has previously been raised and say that so long as a member is in employment he should continue to pay subscriptions, and only on retirement can an application be granted.

Branch Secretaries are especially requested that when forwarding correspondence to the Hon. General Secretary, they should endeavour to keep subject matter separate, particularly with reference to resolutions. One Letter—One Subject.

### **Financial Report.**

Mr. G. Jones (Treasurer) reported on the financial accounts, and it was resolved that £250 be transferred to the Deposit Account. The audited accounts will be presented at the next meeting.

It was resolved that certain members in arrears who have been notified receive a final notice, and failing a reply and payment of their outstanding subscriptions, that their names be removed from the Registers.

Entrance fee and first annual subscriptions should accompany application for membership, and Branch Secretaries are asked to see that this is done.

The General Secretary was requested to obtain quotations for an Insurance Premium to cover members' travelling on Institutional business.

It was resolved that where the President or Vice-President, is in the employ of Hospital Management Committees, Boards of Management, or the Health Service, subscriptions should be paid.

Resolved that when members are four years in arrears their names should be removed from the Registers and names published in the Journal. Branch Secretaries to forward final notices.

### **Education Examination Report.**

Mr. A. Adams, Chairman, reported on the work of the Committee and gave the next examination date as October, dates are to be arranged when candidates will be notified.

The "Sandford Premium" closing date is 31st July, and all particulars can be had from the Sub-Committee Secretary (see election of Sub-Committee members).

The Committee gave its ruling on a Resolution from the Glasgow Branch No. 1 in the minutes of the previous meeting, and advised that where Hospital Maintenance Engineers wish to take part in lectures arranged by the Branch, they should be enrolled as "Graduate Members."

The Chairman and Vice-Chairman agreed to investigate the possibilities of a Summer School for Engineers with the managers of the "King Edward" Hospital Fund.

### Applications.

Applications for membership and upgrading were approved as follows :—

Members	.....	6
Associate Members	.....	8
Graduates	.....	7

Mr. R. Drakard, No. 774, was upgraded from Associate Member to Member.

Mr. F. Pottage, No. 686,	..	..	..	..
Mr. W. R. Hill, No. 647,	..	..	..	..
Mr. H. F. Pickering, No. 568, ..	,	..	..	..
Mr. T. Chick, No. 890,	..	..	..	..

Ten applicants were not granted pending further information.

Resolutions from many Branches were read, and as these are of a private nature and most of them were concerned with matters dealt with at the Extraordinary Meeting, it is not proposed to record them in these Minutes. Others were all concerned with Whitley Council matters and were dealt with by Mr. R. E. Rogers in his report.

Arising out of our Application for Incorporation, correspondence was received from the solicitors acting on our behalf informing us that objection has been raised to our Benevolent Fund, in so much that the Fund is solely for the benefit of our own members. We are advised that in order to go forward with our application, it will be necessary to delete certain paragraphs (4 and 5) from our Rules of Incorporation, and it was resolved that from this date henceforth, the funds of the "Benevolent Fund" as at present constituted are frozen, that in future, and until other arrangements are made, donations cannot be accepted from the members for the purposes as outlined by the "Benevolent Fund Sub-Committee." That no payments from the "Benevolent Fund" can be made to any of the



members of the Institution, and from this date onwards the "Benevolent Fund" must be considered completely dissociated from the affairs of the Institution.

### **Health and Hospital.**

Mr. H. Wright submitted a report and gave a *resume* of his investigations into the question of Incorporation with Health and Hospital Management. The financial aspect, as also the work and benefits were fully discussed, and it was resolved that the report be received. Mr. Wright was warmly thanked for his work in the matter.

The question of improving our own *Hospital Engineer* was raised, and it was agreed that Branches should discuss the ways and means of doing this. Particular stress was made of the front page, and all Branches are asked to discuss and submit to Council designs for an improved front page.

### **Whitley Council.**

Mr. R. E. Rogers gave a long report on the work accomplished and that being in progress. Matters receiving special attention were P.T.B. 12, Group Engineers, Teaching Hospitals, Single Unit Hospitals. The Chairman reported that he was preparing a questionnaire which is to be sent out to all Group Engineers, in order that a statement for submission to the Ministry could be prepared. Approved.

### **British Standards Institution.**

Mr. J. Forsyth reported on the work in progress and gave members an insight into the valuable work and the high regard in which we members are held on the various committees.

### **Election of Sub-Committees.**

*Whitley Council* : Messrs. R. E. Rogers, J. Tomlinson, J. Forsyth, H. S. Clarke and H. Wright.

*Examination Sub-Committee* : Messrs. H. A. Adams, J. Tomlinson, J. C. Chynoweth, J. D. Lewis, W. Bullivant and H. Wright.

*Finance Sub-Committee* : The Chairman, Vice-Chairman, Treasurer, Secretary and H. Wright.

*British Standards* : Messrs. J. Tomlinson, J. Forsyth, H. A. Adams, G. Jones, H. Wright and R. H. Chesney.

Mr. H. Wright was appointed Secretary of the Examination Sub-Committee and all communications relating to Examination and Sandford Premiums should be addressed to him at Engineers House, Whipps Cross Hospital, Leytonstone, London, E.11.

To facilitate the prompt payment of expenses claims, will all members please post forms to Mr. H. Wright, who would in turn pass them on to the other members of the Finance Sub-Committee.

### **Paid Secretary.**

Members of Council are asked to seriously consider the urgent appointment and come to the next meeting with suggestions. It was agreed that the sub-committee should meet before the next meeting.

### **Any Other Business.**

Appreciations were voiced of our late Council members who have by necessity been forced to relinquish office by virtue of our Resolution, and it was agreed that the Institution's great thanks for their great work should be recorded.

Mr. J. Forsyth gave notice that at the next meeting he would propose that another Class of Membership, i.e. "Fellow," be instituted within the Institution.

Copies of previous Examination Papers can be had from the Sub-Committee's Secretary at a charge of 7/6.

The next Council Meeting is to be held at York on the first Saturday in June.

A vote of thanks was proposed to Mr. E. Ewart Mitchell, Secretary of the National Hospital.

The Meeting closed at 7 p.m.

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## **THE ORIGIN AND DEVELOPMENT OF THE OIL ENGINE**

*A Paper given by*

C. F. WHITE, ESQ.,

B.SC., M.INST.B.E., M.I.H.E., F.INST.BC.E., A.M.TECH.INST.GT.BTN.  
*to the Yorkshire Branch of The Institution of Hospital Engineers*

The development of the Oil Engine during the past 50 years has been twofold : first—economic in performance, and second—

neater in appearance, with a reduction in weight for greater horse-powers ; and much of this we owe to the great pioneers of the Internal Combustion Engine, before the days of the Oil Engine. And one cannot discourse on such a subject as this without summarizing the events which took place before its inception.

It was as far back as 1680 that Huyghens made an unsuccessful attempt to build an internal combustion engine, using gunpowder as fuel, after which we have a lapse of 100 years before any useful invention came, and this was from the Reverend W. Cecili experimenting at Cambridge in 1820 with an engine made by him to run on hydrogen. We then pass on to those great engineers, Leniori Otto's Silent Engine of 1878, Dugald Clerk with his Two-stroke Engine, to be followed by Priestman and Herner Stuart-Ackroyd. It was, however, the Scottish engineer, J. Young, who discovered oil of a paraffin nature dripping from the seams of the Derbyshire coal pits, and later started the shale oil industry in Scotland in the year 1842, and worked with Professor Playfair developing shale oils. It was Priestman who made the first use of this new fuel in his engines in 1888, in which the oil was pumped into the combustion chamber space by means of a mechanical pump, and ignited by a blow-lamp, although Crossley Brothers were the first to manufacture on the Otto principle in 1884, and later in 1890 when Otto's Patent had expired.

This again was followed by Herbert Stuart-Ackroyd with his revolutionary design in combustion chambers, which was the invention of the new cycle with airless injection in 1890. Yet I venture to suggest that Spiel may have been before him in this, as it is recorded that in May, 1890, Spiel took out a patent for the prevention of pre-ignition by utilising a separate combustion chamber connected to the main cylinder by a narrow passage, which was similar to the Ackroyd patent.

It is well known that Ackroyd's engines, when marketed, followed the standard practices of that time. As a point of illustration, the compressing of the combustible mixture was being tried at that time, and he applied it to his engines, and in this it is doubtful whether these engineers ever gave much thought to this because they did not like departing from the constant pressure to constant volume cycle, as were Ackroyd's earlier engines.

However, in 1891 Ackroyd's patents were taken over by Hornsbys, who manufactured and sold many thousands of the Hornsby-Ackroyd engines. Still Ackroyd continued with his inventions and with improving his designs, and in 1897 produced

an engine which did away with a great many of the complications of the Priestman engine. He obtained better atomization of the fuel into the combustion chamber ; he increased his speeds, thereby producing a more stable engine. He abandoned the idea of increasing piston pressures, which is of such immense importance in our engines of to-day, and against the better judgment of his friend Gibbons, who then worked for Hornsbys, whose engines were working with a compression pressure of 46 lbs. sq. in. and working pressure of 167 lbs. sq. in. Ruston & Hornsby at a later date did, however, carry out this idea and piston pressures of 490 lbs. were reached with mechanical injection through an atomizer at maximum point of compression. This engine had an over-all efficiency of 32%, the remaining 68% being carried away by frictional losses and heat carried away with cooling water.

In 1900 Dr. Rudolph Diesel built an engine of entirely new design, using compressed air for blasting his fuel into the cylinder at pressures varying with the load. He hoped to do away with cooling water in this engine, but was unsuccessful, as the engine only ran for a few minutes before seizing up. Yet this was the dawn of further development as in the past the great difficulty was bad atomization, and here Dr. Diesel showed us a new way out of our trouble, as in Paris in 1900 he exhibited an engine that would run satisfactorily on coal oil and vegetable oils.

One can illustrate the effects of bad atomization by taking a handful of flour and trying to throw it across the room, and then repeating the experiment with a handful of pebbles. You will notice, on the one hand, the flour is too fine to reach its object, and, on the other hand, the pebbles would get there but would be far too coarse ; and this is just the trouble these engineers experienced with atomizing fuel oil, as a coarse spray would not raise the temperature in the cylinder at the right moment.

I now pass on, remembering what cumbersome looking engines these were, to the great day of real development when the engineers, metallurgists and chemists got together and discussed their problems in a spirit of co-operation ; this was about 1912. As it was in that year that Rustons first solved the problem of producing their successful Airless Injection Cold Starting Engine (on which many later engines have been designed) it follows that the name " Diesel " cannot be rightly applied to these engines, as is so often done these days, as the development came from the Ackroyd patent, which was definitely British. It was about this time that Vickers manufactured their airless injection engines for use in submarines with success.

The help of the metallurgist is particularly noticeable since 1920, especially in relation to cast iron. As Mr. A. Campion said in his lecture to the Institute of Engineers and Shipbuilders in 1926, the essential properties of cast iron for oil engines should be high strength (which is retained at maximum temperatures), high resistance to wear, retention of size and form, immunity from cracking, and suggested the following as a good composition for oil engine parts :

total percentage of carbon	....	2.8%
the combined carbon being	....	0.70-0.85%
silica	....	1.2% for liners and pistons
and in any case not to exceed	....	1.5%
manganese	....	1.0%-1.75%.

But of course some might say that is a matter of opinion and that those figures are arbitrary, nevertheless it is a step in the right direction of progress. I believe it was Rustons, of Lincoln, who solved these principles in the form of cast iron known under its trade name of Perlite. One of the secrets of manufacture was to heat the core to 600° Fahrenheit before pouring the metal, and I must say this makes a very good casting free from blow holes. It is with regret I mention a very bad practice of the past that has since been stopped, that of plugging blow holes with brass plugs, and it is done so neatly that one can only find them when you happen to have a cracked casting. In almost every case you will notice that the crack will start from the plug, brought about by the unequal expansion of two dissimilar metals.

I had two such cases to investigate on this point : one on a multi-cylinder semi-diesel engine, and one on a solid fuel airless injection engine. In each case the cylinder head was cracked and water had got into the cylinder when the engine was idle and cold ; then, on starting up, the few revs. caused the piston rod to bend S-shaped, for, as the piston could not compress the water, something had to give way. I was told that this practice of plugging was to assist the fitters in clearing water passages, and the taking out of the core, and general cleaning before the casting left the foundry. I have not, however, heard of a case of this nature for the past eight years.

I will now mention another interesting point to do with castings. It happened soon after the Great War that two German U-boats were being dismantled in this country and the diesel engines were bought by an Electricity Undertaking in Surrey for Peak load Standby Sets. I saw these engines being overhauled by the Power Station staff before erection, and you can imagine our surprise when

we found that the crankshaft had been running in cast-iron bearings using a white kind of grease under pressure as a lubricant. Another triumph for the metallurgist, I thought !

Now to pass on to recent development. We have in Great Britain alone over forty makes of stationary and marine oil engines of first class rank, and in fact the best in the world ; and there are many others, not included in the above figure, that are making engines for locomotives of diesel type, and also road transport engines, all following the principle of the utilisation of generated heat in a cylinder instead of employing an intermediate (such as a boiler) as is the case with the steam engine.

As a matter of fact several attempts have been made, with considerable success, to generate steam from the waste heat of exhaust gases and cooling water in order to drive a double-acting engine, the top half being a true oil engine and the bottom half steam. These were made by Messrs. Plenty Still and Scot Still Ltd., and were successfully used to propel a ship from the Clydeside to Japan and back without difficulty, and the economics compared favourably with other types of prime mover. In this was the efficiency on a I.H.P. basis of 40.9% or 36.9% on a B.H.P. basis with a fuel consumption of 0.354 lbs. per B.H.P. at full load of 1,250 B.H.P. at 120 R.P.M.

This was further progress, as up to now (1929) the best known efficiency was 32%. I wonder if Clerk was right as he said we should not be able to make an oil engine with a thermal efficiency of more than 40%.

I must now pass on to more recent developments, which I am sure the practical engineer will appreciate, and I put them under four headings :

1. The Flexibility of the Modern Oil Engine.
2. Lower Fuel Consumption.
3. Reduction in Size and Weight.
4. Increased Power.

As regards flexibility of modern engines, I think that governing has become much more reliable, brought about by the improved designs in fuel pumps and atomizers and higher piston pressures. And one very well-known firm, Ruston & Hornsby Ltd., introduced a fuel oil distributor for multi-cylinder engines using only one fuel pump, and this had great advantages over the older method of a separate pump per cylinder, because once the piston pressures had been adjusted, one setting of the fuel pump was all that was needed to

complete combustion adjustments, that is providing the air and exhaust valves had been set properly. This, as you will see, did away with a lot of tinkering with fuel pumps, and better governing obtained.

I remember testing a 600 B.H.P. engine running at 300 R.P.M. a little while ago, and from no load to full load, put on instantaneously, there was only a momentary drop in speed of 12 revs., in fact it was a surprise to me.

Then we have the external means of adjusting fuel injection, either in advancing or retarding, according to the specific gravity of fuel in use at the time. This used to be an awful inconvenience with the old type engines, as one had to stop the engine and make an adjustment several times before the engine was running satisfactorily. I would point out that in many well-known makes of oil engines advancing fuel pump 1/16th inch will increase working stroke pressures by 50 lbs.; this, as you will see, enabled the engineer to take the best results from the engine without shutting down. No doubt this is an asset to marine engineers.

Another point as regards flexibility in development is the standardization of sizes and parts, especially if one is equipped with several engines of the same make, you will find that all parts are interchangeable, whether from stock or from another engine of the same H.P. Better crankcase ventilation to dissipate blow-by gases.

Better lubrication of all working parts is largely responsible for better maintenance, as wear and tear has reduced considerably, because not only lack of oil but over-doing it sometimes caused no end of trouble, due to the formation of carbon, and this in turn got into piston rings and liners and wear began to take place and piston pressures began to fall.

Now, as regards my second point, lower fuel consumption: there has been a great deal of activity in the designing of oil engines, which show a very much lower fuel consumption per unit generated; and although this is particularly noticeable in the modern engines, I quote figures of engines 14 years old which show a startling reduction, due, no doubt, to better adjustments and handling of these engines:

In station No. 1	in 1924	we have	.892 lbs. per unit gen.
" "	" 1 "	1938 "	" .681 " " "
" "	" 2 "	1924 "	" .712 " " "
" "	" 2 "	1938 "	" .665 " " "
" "	" 3 "	1924 "	" .653 " " "
" "	" 3 "	1938 "	" .646 " " "

These figures are averages over a year's working.

Then, taking a more modernly equipped station, we have figures as low as 0.560 lbs. per unit generated or 0.35 lbs. per B.H.P. In studying these figures I would point out that the practice of centrifuging of fuel oil has helped a great deal, as the removing of any solids, grit, etc., all made for better atomization, and of course this was a development that was much needed as most fuel oils have a fair amount of sediment and sand when delivered in bulk. It is most interesting to note Harold Moore's research in fuel oils as he has found over many thousands of experiments that the most suitable oils for diesel and other oil engines should contain the following :

Specific gravity 0.85-0.925 at 15° Centigrade.

Close flash point 150°-250° Fahrenheit.

Water content 0 to 2%.

Coke value less than 5%.

Soft asphaltum less than 8%.

Ash content less than .05%.

with a

Gross calorific value of about 19,400 B.T.U.'s per lb.

and     Nett     "     "     "     "     18,200 B.T.U.'s per lb.

and having these requirements has given the designer impetus in his development of fuel pumps, atomizers and fuel distribution to the engine in general.

We now come to point 3 : the reduction in the size and weight of oil engine parts has been very marked during the past twenty years. Castings are much lighter than they were and yet as strong, thanks to the metallurgist, who, as I mentioned earlier, has been of immense importance in the development of the oil engine. One recalls the difference in the weight of flywheels, even on very large engines, and crankshafts and cylinder heads, which are all very much lighter, and this reduction has been brought about by a better study of the stresses and strains thrown on the various parts of the engine. Higher piston pressures mean better balancing and smaller flywheels ; in fact, I have known of engines that have an overall reduction in weight in their modern types of as much as 8 to 10 cwts. as against the old types of 30 years ago. And this is all to the good for the transporting of engines from place to place. I am thinking particularly of an engine I saw working out in the Libyan Desert, 20 miles from a railway, and no road but a hard sand track. This engine was carried piecemeal on camel pack. I would also point out that the oil engine being available for easy transit has developed our foreign trade, and one can see our British oil engines in every corner of the world doing work on sugar and tea plantations, flour milling and water pumping and the like, tasks which hitherto were



performed by manual labour. I have seen engines from 4 B.H.P. to 4,000 B.H.P. doing this work.

This leads me to my fourth point—increased power. We are building in this country engines as main prime movers for power and lighting of our towns and villages, and for propelling our ships up to sizes of about 25,000 B.H.P. total. What a development and an increase in power compared with only a few years ago! I doubt very much whether you could have got a manufacturer to build engines of half that horse power 25 years ago. Some might say, "Well, times have changed," with other engines, steam and gas engines, for instance; but I think I am right in saying that there is not another prime mover in existence that has made such advancement in developing its horse power in the last 50 years as the oil engine, unless it is the jet engine. The Cathode-ray indicator has helped in this development, with observations of cylinder pressures, variations in fuel injection pressures, and working parts of needle valve of fuel injector; this has brought about better fuel distribution in the cylinder and control of ignition lag.

Now I turn to the things which are in some minds more petty, but to me are of vital importance, and much attention has been given to them by the designers. Think of the many small developments that have taken place to reduce frictional losses, and utilisation of waste heat to name only two. Our attention is drawn to lubrication systems, forced lubrication with continuous oil filtering as part of the engine's equipment; the stream-line filter in which every drop of oil is cleaned before passing on under pressure to the working of parts, whereas before carbon and all kinds of impurities mixed with the oil in the sump and was the cause of untold wear and tear to the engine. Then we have air filtering as another asset, as sand and grit used to get drawn in through the air intake, especially abroad where sand storms are frequent; and score liners and pistons and valve seats, to say nothing of extra losses in power due to this friction.

I suppose you will have been wondering when I shall stop talking of what appears to concern mainly land engines, but I can assure all marine engineers that what I have said earlier is their concern as much as works engineers on land, as it is every oil engineer's business to assist the designers in developing the oil engine by passing on any information regarding difficulties experienced by the plant under their care, especially as kid-glove testing is not always the practical engineer's method of locating trouble; this has been proved time and time again, and in many instances manufacturers have acknowledged remedies discovered by practical

men and not by laboratory research assistants. I mention one case in which a difficulty was solved by practical men—the modern marine engine with piston made in two pieces so that it can be removed through the crankcase door without having to take the cylinder head off—this idea has saved many hours of labour.

I now pass on to the very recent development of the pressure charged diesel engines, which I feel will be the engines of the future, as several well-known manufacturers have adopted the "Buchi" pressure charging to their engines, and make claim to 40% more power than without pressure charging, as the exhaust gases are utilised for driving the turbo-blower, the amount of air supplied to the engine is regulated by the power developed, thereby effecting great economy in fuel, and considerable reduction in lubricating oil, due to the cooling off of piston crown. Even at Bertchesgadin it had been thought wise to use Buchi pressure charging on a new engine and raised a 350 H.P. engine to 490 H.P. with absolute minimum vibration.

Now to sum up : I started by talking of Ackroyd inventions in cylinder head design, and I close on that note, as to-day we find the closest attention being paid by designers to cylinder head and piston construction, and they go so far as to make special heads, which enables them to record the various temperatures to which these parts are subjected. The ultimate result of all this development is that Great Britain has produced the largest passenger motor-driven vessel afloat, *The Dominion Monarch*, a ship of 27,000 tons, built by Swan, Hunter & Wigham Richardson, to accommodate over 500 passengers. The interesting point to note here is the reliability placed in British oil engine development as no less than three or four different makes of engines are used in this ship, including the well-known Doxford engines, with scavenge pump between Nos. 3 and 4 cylinders, there are four of these 8,000 B.H.P. each, an Allen, 900 B.H.P. four-stroke single-acting six-cylinder and a Ruston 150 B.H.P. for generating lighting and power. This is indeed a triumph of oil engine development both of the two-cycle super-scavenged engines and of the four-cycle engine, pressure charged.

As far as Hospitals are concerned, great possibilities are open to the industrious engineer who is willing to install oil engines for the purpose of emergency lighting which should be part and parcel of hospital equipment, as many rely on the safety lighting system of batteries, but should there be a complete disorganization of power supplies the batteries could not be charged. Further, a very advanced view could be made out for the possible installation of oil

engines to generate the whole of the electricity of any hospital on such an economical basis that the whole of the hot water and sterilizing equipment could be made available through waste heat from exhaust gases in conjunction with electrode boilers, thereby dispensing with the cumbersome coal or coke fired boilers which would ultimately lead to a much cleaner atmosphere and do away with smoky chimneys.

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## BRANCH NEWS

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### WEST OF ENGLAND BRANCH

**Minutes of the Branch Meeting held at Frenchay Hospital, Bristol, on Saturday, 8th December, 1951, at 3 p.m.**

*Chairman : Mr. H. E. Clutterbuck.*

*Present : F. J. Davis, T. L. Sixt, F. W. Ilett, D. Cummins, W. Clarke, D. Bunt, J. H. White, C. G. Hodges, R. J. Fry, W. Whiteley, W. L. Williams, D. W. Eades, R. Francis, R. Welby, S. Copping, L. Coles, A. Griffin, F. H. Stacey, B. Walker, T. G. Salter, A. H. Horler, G. Rose, A. T. Maynard, J. A. Stutt, R. Harris, A. L. Smith, J. G. Houghton, H. Partington, C. Stephens, S. Bryant, C. Palmer, S. Oaks, F. J. Moore, G. Hetherington, H. A. Adams.*

**Minutes.** Minutes of the last meeting held at Royal Devon and Exeter Hospital, having been circulated, were taken as read, confirmed and signed by the Chairman.

**Election of Branch Officers for 1952.** The Chairman, Mr. H. E. Clutterbuck, expressed the wish of not standing this year for Chairman owing to ill health.

Mr. J. G. Houghton was proposed and seconded, and there being no other nominations, was unanimously elected.

Mr. J. G. Houghton then occupied the Chair.

The new Chairman then expressed the thanks of the Branch to the retiring Chairman, Mr. H. B. Clutterbuck, for the work done on behalf of the Institution, this was seconded by the Branch Secretary.

**Election of Vice-Chairman.** Mr. F. J. Davis being proposed and seconded, and there being no other nominations, was duly elected.

**Secretary.** Mr. H. A. Adams and Mr. W. L. Williams were proposed and seconded, and on a ballot being taken Mr. H. A. Adams was elected.

**Representation to Council.** Mr. J. G. Houghton, Mr. H. A. Adams and Mr. W. L. Williams were proposed and seconded, and on a show of hands Mr. J. G. Houghton and Mr. H. A. Adams were elected.

**Applications for Membership.** Mr. G. Hetherington, Deputy Engineer and Clerk of Works, Roundway Hospital, Devizes, was duly proposed and seconded. The Branch recommendation to Council is that Mr. G. Hetherington be elected as a Graduate Member.

**Council Meeting.** The Secretary gave a report on the Council Meeting. Questions were answered by the Chairman and Secretary.

**Improved Salary Scales.** The Secretary read a letter received from the General Secretary giving the details of the improved salary scales for Engineers under P.T.B.3. Also the agreement reached for Engineers in Local Authority Hospitals. Engineers in Teaching Hospitals—no decision has been reached.

**Constitution of Inner Council.** After a long discussion the Branch agreed the inner Council should consist of 12 members elected by the Council from members of Council. That there should be two full Council Meetings every year.

**Lectures for Hospital Engineers.** The Secretary reported on progress made, and read out the list of proposed lectures to be held at the Dental Hospital, Bristol, commencing on Friday, 11th January, 1952, as arranged by the South-Western Regional Hospital Board and the Institution of Hospital Engineers.

**Membership Certificates.** Membership Certificates were distributed by the Chairman.

**Venue and Date of next Meeting.** It was proposed and seconded the next Branch Meeting be held at Southmead Hospital, Bristol, on 26th January, 1952.

A vote of thanks was proposed to Mr. H. E. Clutterbuck for having arranged the meeting, and the Secretary was instructed to write to the Secretary of the Group and express the thanks of the Branch for the use of the room and the very generous hospitality extended.

There being no other business, the meeting closed at 7.15 p.m.

**Minutes of the Branch Meeting held at Southmead Hospital,  
Bristol, on Saturday, 9th February, 1952, at 3 p.m.**

*Chairman* : Mr. J. G. Houghton.

*Present* : F. J. Davis (Vice-Chairman), R. H. Gerrish, E. H. Houlden, E. S. Horler, H. Partington, A. L. Smith, R. Harris, L. Coles, S. Copping, J. H. White, R. Welby, R. Francis, D. W. Eades, W. L. Williams, C. Stephens, W. Whiteley, R. G. Fry, A. T. Maynard, R. L. Hanks, T. L. Sixt, J. A. Stutt, C. G. Hodges, C. Palmer, S. Bryant, T. Evans, H. A. Adams (Secretary).

The Chairman referred to the recent death of His Late Majesty King George VI, the members stood in silence as a token of respect.

The Chairman referred to the tragic death of our late Chairman of the Institution, Mr. Jim Hargreaves ; the members stood in silence as a token of respect.

**Minutes.** Minutes of the last Branch Meeting were taken as read, confirmed and signed by the Chairman.

**Application for Membership.** Mr. T. F. A. Evans, Fitter and Electrician at the Royal United Hospital, Bath. It was duly proposed and seconded that the Branch forward Mr. Evans' application to Council, with the recommendation of Graduate Member.

**Discussion on Improved Salary Scales, P.T.B. Circular 12.** After a long and full discussion on this circular the following resolutions were resolved, having been duly proposed and seconded, to be forwarded to Council.

*Resolution 1.* This Branch of the I.H.E. view with serious concern the recent P.T.B. Circular 12. They consider the award to all grades as completely inadequate, bearing no relation whatsoever to the cost of living index, or the duties performed by these officers. Neither does it take into account the disturbing fact that transferred officers who applied to retain their former conditions have received no increase for three and a half years.

*Resolution 2.* The concern which this Branch feels regarding P.T.B. Circular 12 leads us to suggest the formation of "D" Committee is in need of overhaul and that it is time proportional representation should be the aim. To accomplish this we feel it may be necessary to challenge the right of other organisations to seats on that Committee.

*Resolution 3.* That negotiations commence immediately for the salaries of Group Engineers to be brought within the range of those

paid to other Group Officers (as outlined in H.M.C. 48/2). Taking into consideration all duties performed extraneous to the normal maintenance of the Hospitals, and that Engineers in Charge, and Assistant Engineers in Charge be raised proportionately.

**Lectures of Hospital Engineers.** The Chairman gave a report on the series of lectures being given by members of this Branch and others to Hospital Engineers and their staff at Bristol Dental Hospital. It was gratifying to note the numbers attending and he hoped this would continue.

To consider cases of where extra duties were being performed, a long discussion ensued resulting in an average of 8 to 12 hours extra duty being performed by Hospital Engineers every week.

**Date and Venue of next Meeting.** It was resolved to hold the next Branch Meeting at Bath Royal United Hospital, on Saturday, 15th March, 1952, at 3 p.m.

**Any Other Business.** Mr. Partington and Mr. Adams gave a *resumé* of the excellent work carried out by our late Chairman of the Institution, Mr. Jim Hargreaves, and moved and seconded the following resolution :

"That it is the unanimous opinion of this Branch that something should be founded or devised to perpetuate the memory of the late Mr. Jim Hargreaves, to whose unsparing and unselfish efforts we owe so much and which contributed largely to the successful foundation of this Institution."

**Car allowance H.M.C. 52/12.** After some discussion the following resolution was moved and seconded :

"This Branch protest against the H.M.C. 52/12 Car Allowance, and we press the appropriate functional committee to reconsider this with the view to obtaining an all-round increase in mileage rates."

The Secretary read a letter received from the Regional Architect of the South-Western Regional Hospital Board relating to lectures and training, etc. It was resolved the Sub-Committee now dealing with the course of lectures being held at Bristol Dental Hospital go into this and report their findings to the Regional Architect.

**Ministry H.M.C. (52) 7.** After dealing with the various forms and having discussed them at length, it was resolved to forward the following resolution to the Regional Architect :

"This Branch welcomes the opportunity of recording the information required by the Ministry of H.M.C. (52) 7, and we

assume in order to obtain the requisite degree all boiler houses not so equipped will be provided with boiler house instruments forthwith. Further that all hospital engineers are at present working to their utmost capacity, and are in fact in many cases forced to work overtime in order to carry out satisfactorily their present duties. It is assumed the necessary authority will be forthcoming for the employment of additional technical assistants."

A vote of thanks was proposed and seconded to Mr. W. L. Williams for arranging the meeting at Southmead Hospital, and also for the very excellent hospitality extended to us.

There being no other business the meeting closed at 7.20 p.m.

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## LONDON BRANCH

### Meeting held at Westminster Hospital, 16th February, 1952.

The Chairman asked the meeting to stand in loyal respect for His Late Majesty.

The meeting opened at 2.40 p.m. Members Present 51.  
*Chairman, H. Wright, Esq.*

**Item 1.** The Chairman invited Mr. Freeborn to read his paper entitled "The Electrical pre-treatment of Hard Water to Prevent Scale."

Mr. Freeborn gave full examination to the problem of scale formation and electrical methods for its prevention. He described with clarity as the "Aquastat" system, and with the aid of lantern slides explained the process which this system employed in preventing salts and solids in solution in raw water from forming scale in steam boilers, hot water boilers, sterilizers and other similar vessels.

Many examples were quoted where complete success with this system had been achieved.

Members expressed some scepticism in the reliability of this process, but Mr. Freeborn was able to assure members that he had personally been associated with each of many thousands of installations but in no case to his knowledge had the method under consideration been anything but completely successful providing adequate maintenance had been applied.

The Chairman proposed a hearty vote of thanks to Mr. Freeborn for his most interesting paper and this was carried with acclamation.

The Chairman adjourned the meeting at 4.30 p.m. for tea and explained that a very important matter had arisen, and he proposed to deal with this at the resumption of the meeting.

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The Chairman asked members to stand in memory of the late J. Hargreaves, Esq.

In resuming the meeting the Chairman referred to the pleasure it occasioned him in welcoming members from the Southern Branch.

He introduced to the Branch Messrs. Harrison, Conway, Jones, Chynoweth and Sayer.

He also welcomed Mr. Hearnden, of New Cross, who had rejoined the London Branch.

The Chairman thought that Mr. Tomlinson and Mr. Forsyth required no introduction, but he felt it to be a special privilege to have the Chairman and Vice-Chairman of the Institution with the London Branch on this occasion.

In view of the special circumstances surrounding the visit of these members the Chairman proposed to introduce a special item on the agenda at this point.

He explained that the Southern Branch in common with the London Branch was not satisfied with the position regarding the delay which appeared to have occurred by Council not implementing the Conference resolution to reduce Council members to 12.

The Chairman then read a letter he had received from Mr. Forsyth which suggested that a joint meeting be held between the Southern and London Branches to discuss a proposed joint resolution for the calling of an Extraordinary General Meeting of the Institution.

The Chairman then read out the London Branch resolution dated 15th December, 1951, and invited Mr. Chynoweth, Chairman of the Southern Branch, to address the meeting.

Mr. Chynoweth explained that his branch supported the London Branch in their determination that Council should implement the resolution to reduce their numbers. They were in fact even more concerned that this action had not yet been carried out having regard to the fact that as far as he could see the next full Council meeting would consist of the usual 29 members and would cost about £200.



He thought it was necessary therefore to take some action which would force the Council to act in this matter.

The Chairman invited Mr. Forsyth as Council member for the Southern Branch to speak.

Mr. Forsyth referred to his previous visit to the London Branch at which the resolution referred to was adopted. Upon reflection however he felt that the calling of an Extraordinary General Meeting would be ill advised and outlined a method which Council might adopt in reducing its numbers.

The Chairman thought that some members might not be fully aware of events which had led up to the present position and recapitulated, explaining that the Council at their meeting in December had been unable to arrive at a satisfactory formula for reducing their numbers, and asked Mr. Tomlinson to speak to the meeting.

Mr. Tomlinson thanked the Chairman and members for their welcome and referred to the resolution put to the Bournemouth Conference by Mr. Strachan.

He assured the members that he was equally concerned with the finances of the Institution, but it was to be realised that the constitution of Council had stood the test of many years and that the required alteration was one which required time to implement.

As Chairman of the Institution, he was concerned not only with the interests of Council but with every single individual member and it was of the utmost importance to ensure that the confidence of members was not impaired by any action which might reduce members' confidence in the Institution as a body.

Council would carry out members' instructions, but methods were often of considerable importance and required very careful examination.

He and the Deputy Chairman had, however, reached a decision on the method to be adopted in reducing membership of Council, but to do so it would be necessary to ask for the support and confidence of the members and he hoped that such assurances would be given.

He was proposing therefore that the 12 members of Council be elected by Ballot from the 29 members who had been nominated and ballot papers would be distributed to each of the 29. The result would decide the Council who would meet at York on 1st March next.

Mr. Tomlinson touched upon the work of Whitley Council Committee "D" and stated that he had made it clear to that Committee in no uncertain terms of his disgust at the Salary Scales at present applicable to Hospital Engineers.

He would go so far as to disclose that a Special Sub-Committee of Committee "D" was being formed to investigate the position.

Mr. Chynoweth thanked Mr. Tomlinson for his statement and in the light of this proposed that on behalf of the Southern Branch he would withdraw his resolution in favour of the procedure propounded by Mr. Tomlinson.

This proposition was seconded by Mr. Sayer.

Mr. Jones thought that the procedure would not permit of time before the next Council Meeting.

Mr. Wright pointed out with respect to the Institution Chairman that the action proposed was merely belated action on a proposition made earlier by Mr. Strachan and himself.

Mr. Tomlinson did not agree with Mr. Jones.

Mr. Quenet proposed and Mr. Roxburgh seconded that the ballot papers be adjudicated by the auditors, but the Institution Chairman drew attention to the construction that might be placed upon such a resolution from a branch.

Mr. Layers suggested that twelve members for Council might be selected in rotation.

Mr. Lamb wondered what would happen if ballot papers were not returned.

Mr. Tomlinson asked that the handling of ballot papers be left to the Vice-Chairman and himself with the confidence of the members.

Mr. Wright, on behalf of the London Branch, endorsed Mr. Tomlinson's proposal.

Mr. Quenet withdrew his proposal.

Mr. Wright asked that a resolution be recorded.

Mr. E. V. Jones proposed and Mr. Roxburgh seconded that no action on the part of the branches concerned be taken in this matter.

**Item 2.** The Minutes of the meeting held at Westminster Hospital on 19th January, 1952, were signed by the Chairman as a correct record.

**Item 3.** Arising from the Minutes, the Hon. Secretary reported that difficulties had arisen over the collection of subscriptions but members thought that this was a matter best dealt with between him and the Hon. General Secretary.

The Hon. Secretary reported that the Special Sub-Committee would meet next Saturday, 23rd February, at Westminster Hospital and that this would be their second meeting.

**Item 4.** Applications for membership, transfer to a higher grade of membership and retirements were read to the members. The applications were not in order and were referred back for further information.

The following resignations and retirements were referred to Council for consideration :

E. W. Smith, resignation on financial grounds.

S. B. Hinchfield, resignation on retirement on pension.

F. Stoneman, resignation on retirement on pension.

**Item 5.** The Hon. Secretary read letters and his replies as follows :

Mrs. E. M. Boyes—death of her husband on 25th December, 1951—suitable condolences.

Notice of a meeting of A.S.S.E.T. on 23rd February. The Hon. Secretary informed members that he had not replied to this but could not attend due to the Special Sub-Committee meeting on the same day. Members decided to take no official action on this except to instruct the Secretary to send the notice to the Institution Chairman.

The Hon. Secretary referred to a letter by a member published in the *Hospital and Social Services Journal* and asked if members required any official action taken.

The Chairman read the letter in full and members heartily endorsed its contents.

They agreed that no official action be taken, however.

The Chairman read a letter that he had received from Mr. Strachan which contained Mr. Strachan's resignation from the Institution.

**Item 6.** The Hon. Social Secretary reported on the very enjoyable visit of members to the works of Messrs. Dewrance &

Co. on January 30th, 1952. The Chairman expressed satisfaction on behalf of the members.

The offer of a paper by this firm was accepted for inclusion in a future meeting.

The London Branch Annual Dinner was fixed for 17th May next.

**Item 7.** Mr. Quenet reported on progress made by the Special Sub-Committee.

He as Chairman of that Committee read the draft proposals for Conditions of Service which forms the first part of the work of this Committee.

It was hoped to complete the Appendix and Salary Scales in time for inclusion at the March meeting.

**Item 8.** The Hon. Secretary reported that unofficial approaches had been made to him by members of the Nuffield Trust with a view to co-operating on hospital research. He asked for the views of members upon the question of the Institutions policy in this direction.

It was unanimously agreed that a letter be sent inviting the Nuffield Trust to approach the Chairman of the Institution direct on this subject.

The Meeting closed, there being no other business, at 7.45 p.m.

(Signed) H. WRIGHT, Chairman.

15th March, 1952.

## YORKSHIRE BRANCH

**Meeting held at St. Thomas's Hospital, Foreshore Road, Scarborough, on Saturday, 22nd September, 1951, at 3 p.m.**

Present : Messrs. Brodie (Branch Chairman), Tomlinson, White, Cooke, Cracknell, O'Rourke, Hirst, Peart, Sellers, Tennant, Thorpe, Stead, Kirby, Ormton, Holmes, Gough, Pearson, Frost, Milnes, Shaw, Rowe, Lawson, Simpson, Forsyth, McPhail, Smithson and the Secretary.

**Minutes.** The Chairman opened the meeting by saying how pleased he was to be once again with the Yorkshire Branch members at Scarborough, and particularly to see such a good number attending.

The Minutes of the last Branch Meeting held at Cookridge Hospital were then read and approved.

One member complained of not having received notice of the above meeting, but the Secretary pointed out that his notice had definitely been posted along with the other 64, and it was regretted that he had not received it.

**Correspondence.** A letter from Mr. T. S. Ormston, of Hull, was read requesting certain information and this was given to him pending instructions being received by him from his H.M.C.

**Social Sub-Committee.** The Report of this Committee was accepted, together with their advice regarding one particular item, with instructions to the Secretary to circulate the Branch accordingly.

They were also instructed to make arrangements for the Branch Annual Dinner to be held in Leeds on 16th December, 1951.

The Chairman then reported fully on the Council Meeting held in Bournemouth on 1st September, 1951. The Chairman then adjourned the meeting for tea. Prior to resuming the discussion on the Report, 12 members were presented with their Membership Certificates. Four other members who had been notified and were not present have had them posted on to them. One to be returned for rewriting.

Arising out of the Report there was much discussion, relative to the Institution appointing a paid Secretary, which in turn would mean a reduction in Council representation, and after careful consideration the following resolution was tabled to forward to Council. Moved Mr. White, seconded Mr. Pearson.

"This branch recommend that the composition of Council shall consist of *one* representative from each Branch and that the National Chairman and Secretary shall be *ex-officio* members."

The Chairman then gave a *resumé* of the Dinner and Conference held in Bournemouth on the 2nd September. He said this was of a high standard and that the Southern Branch, and in particular Mr. Tivey, were to be complimented on the excellent arrangements made for the members' comfort, etc. Many items of interest were conveyed to the listeners and points of special note were the Sandford Premium and the retirement from the office of President of Lord Calverley and the acceptance of this office by Mr. Sandford.

After discussion the Reports were adopted, one resolution being tabled as follows. Proposed Mr. White, seconded Mr. Cooke.

"The Branch are of the opinion that in addition to the Sandford Premium, members should be encouraged to read

papers to their respective Branches and that a prize should be given for the best effort of the year."

The usual vote of thanks was voiced by the Chairman and especially to Mr. Gough for the splendid arrangements made on our behalf. The meeting terminated at 7 p.m.

J. W. BRODIE, Chairman,

20th October, 1951.

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**Branch Meeting held at James' Hospital, Leeds, on 20th October, 1951, at 2.30 p.m.**

Present : 25 members, 1 visitor, 8 I.H.A. members.

**I.H.E. Members :** Messrs. Richardson, Frost, Herrett, Cooke, Pearson, Slade, Gough, O'Rourke, Milnes, Holland, Chynoweth (Cliffe visitor), Shaw, Ormston, Thorpe, Tennant, Peart, Forsyth, Deacon, Pollard, Daniel, Kirby, Tomlinson, Cracknell, Brodie and the Secretary.

**2.30 p.m.** The meeting opened by the Chairman giving a report on the activities of the Social Committee's efforts to arrange a Christmas Dinner and Meeting ; it was agreed to make further enquiries regarding this with an alternative venue.

**3.0 p.m.** The main Joint I.H.E. and I.H.A. Meeting was opened by the Branch Chairman introducing Alderman David Beevers, Chairman of the Leeds "A" Group H.M.C., who gave the visitors to St. James's Hospital a very cordial welcome in a short speech. A vote of thanks for his kindness in coming along was moved and seconded prior to him leaving the meeting after which Mr. Tomlinson, Group Engineer to Leeds "A" Group H.M.C., was called upon to read a paper on "Electrostatics," with particular reference to the safety precautions against anaesthetic explosions in Operating Theatres.

Mr. Tomlinson put this over with his usual clarity and with various technical gear to assist him the paper proved most interesting to those not so conversant with the subject as the lecturer.

After a break for tea, the Chairman put the speaker at the mercy of the meeting, and the questions put to him were answered with confidence.

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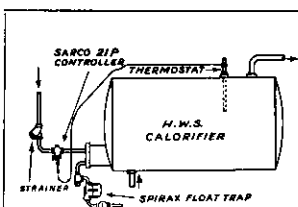


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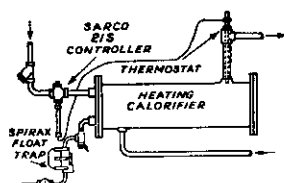
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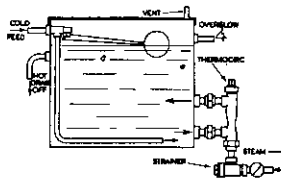
Sarco Temperature Controller giving on/off control on a hot-water storage calorifier.

1



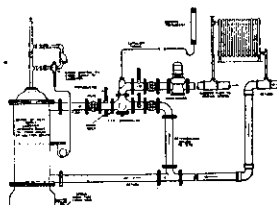
Sarco Temperature Controller giving gradual control on a non-storage heating calorifier.

2



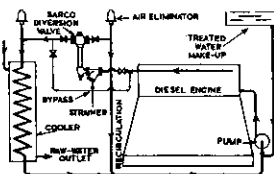
Sarco "Thermocirc" water-heater/temperature-regulator on small hot-water storage tank.

3



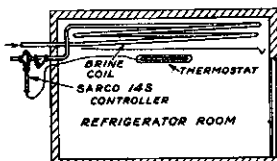
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Mr. Tomlinson was thanked for the able way he had dealt with the subject both by the members of the I.H.E. and I.H.A. who were present.

After this the I.H.A. visitors left the meeting and the ordinary business of the Branch was begun. This included the Minutes of the Branch Meeting held at Scarborough in September last.

Arising out of this meeting, Mr. Ormston, of Hull, gave further details of his position and received certain comments on them.

Further subjects received consideration and to conclude the Chairman expressed thanks to Mr. Tomlinson for his paper and for arranging the meeting at St. James's. The Secretary has written the Group Secretary thanking him for his assistance also.

The meeting terminated at 7.15 p.m.

J. W. BRODIE, Chairman,

17th November, 1951.

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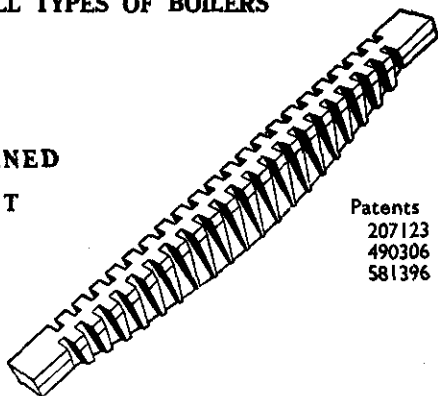
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**Branch Meeting held at Bradford Royal Infirmary on  
Saturday, 17th November, 1951, at 3 p.m.**

Present : Messrs. Brodie (Chairman), White, Kirby, Frost, Carroll, Herrett, Deacon, Hirst, O'Rourke, Peart, Forsyth, Slade, Pearson, Clayton, Gough, and the Secretary.

The Minutes of the last Branch Meeting were read and approved.

Correspondence included a letter from Mr. T. S. Ormston, of Hull, notifying the Branch of the death of his brother, Mr. A. Ormston, of Driffield, who was a Graduate Member of the Institution, and members stood in silence as a token of respect. The Chairman said it would be the wish of the Branch to write expressing our sympathy to Mrs. Ormston at the passing of her husband.

A letter was read from Mr. Brearley, of Menston-in-Wharfedale, enquiring about Rent and Rates, etc., of houses belonging to the Minister and occupied by employees of the H.M.C. This was discussed at some length, after which it was decided to refer this item to the next meeting, when it was suggested further evidence would be forthcoming.

**Proposal Forms.** Two proposal forms were presented for the Branch's perusal, one from Mr. W. H. Shelton, of Grassington Hospital, and the other from Mr. Batty, of Seacroft Hospital. Mr. Batty was recommended for Graduate Membership. That of Mr. Shelton is held pending certain details relative to his training.

The next item was a talk on Oil Firing given by Mr. J. W. Brodie, our Branch Chairman, and this was indeed very interesting, and the discussion which followed more so. Several types of makes received comments, both good and indifferent, but nevertheless the subject proved most interesting and enlightening.

Mr. Brodie was thanked for his excellent paper, and Mr. Kirby for his efforts on our behalf for making possible the visit to the B.R. The Secretary was asked to write and thank the Assistant Secretary at the Hospital for the facilities placed at our disposal.

J. W. BRODIE, Chairman,

15th December, 1951.

**Branch Meeting held at Scalebor Park Hospital, Burley-in-Wharfedale, on 15th December, 1951, at 3 p.m.**

Present : Messrs. Brodie, White, Tomlinson, Richardson, Slade, Tennant, Forsyth, Deacon, O'Rourke, Peart, Cracknell, Thompson, Pearson, Carroll, Herrett, Cooke, Frost, Kirby and the Secretary.

The Meeting opened with the Chairman (Mr. Brodie) introducing the Medical Superintendent of the Hospital (Dr. J. Valentine) to the visiting members. Dr. Valentine in his remarks said how pleased he was to have the pleasure of welcoming to Scalebor Park such a body, as he was sure that such meetings resulted in nothing but good. He then gave a brief history of the hospital, which proved to be very interesting, and then gave several suggestions which he thought might be of guiding help to the Institution.

Mr. Tomlinson suitably replied, after which the business of the meeting proper commenced.

The Minutes of the Meeting held at the B.R.I. on 17th November, 1951, were read and approved.

There being no business arising therefrom (owing to the non-attendance of Mr. Brearley, who had written for certain information), the next item on the Agenda was taken.

**Correspondence.** This included a letter from the Hon. Secretary indicating that agreement on salary increases had been reached in certain cases and would be officially released in about one week's time. The letter was dated 27th November, and members commented that it was now the 15th December and no circular had been issued relative to the matter to date. (Mr. Brearley, H.M.C. 50/42.)

Mr. White informed the Secretary of his recent success in being awarded the Silver Gilt Medal by the Institute of Executive Engineers and Officers for his paper on "The Origin and Development of the Oil Engine." He was congratulated by the Branch on his achievement, and members will recollect that we had the pleasure of hearing Mr. White give this paper to us at Dewsbury Hospital just a year ago.

A further letter enclosed from Mr. White indicated that he had made arrangements for our January (1952) Meeting to be held at Dewsbury Hospital and that he would give a lecture on Television.

Mr. Brodie gave a full report of the Council Meeting held in London on 1st December, 1951. Many points were discussed,

much stress being put on the question of Branch Representation to Council, and it was left to our Representative to voice those comments at the next meeting of Council.

Next was the Election of Officers for 1952. All previous Officers were re-elected, with one addition, Mr. O'Rourke being elected as Vice-Chairman—a position, he said, he was proud to hold. The meetings and venues for 1952 were next arranged, and it is hoped to issue every member with a complete programme in due course.

A very enjoyable tea was served during the meeting, and it was regretted that the tour of the Hospital could not take place as arranged, owing to pressure of business, but this pleasure we hope to enjoy on our visit to Scalebor in June next.

Thanks to those concerned with our visit were voiced and especially to Mr. Cracknell, who arranged the visit at short notice. The Chairman expressed good wishes and compliments of the season to all present and the meeting closed at 7.30 p.m.

J. W. BRODIE, Chairman,

19th January, 1952.

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**Branch Meeting held at Dewsbury General Hospital on  
Saturday, 16th January, 1952, at 3 p.m.**

19 members were present.

The Chairman opened the meeting by expressing his pleasure and that of the members present at once again being able to visit the General Hospital at Dewsbury, and this time it was especially so, as Mr. White, the Dewsbury H.M.C. Group Engineer, was going to talk to us on the modern subject of television, and it was now his pleasure to hand over the meeting to Mr. White.

Mr. White, at the outset of his talk, pointed out that he could only touch on the most elementary matters relative to the subject, however he would do his best to keep the talk interesting.

This proved to be the case, as all present were attentive and interested listeners. Many questions were asked, and ably answered by Mr. White, who, incidentally, is a former B.B.C. engineer.

Mr. Tomlinson moved, and Mr. Kirby seconded, a vote of thanks to Mr. White for his very interesting paper, and his supporting drawings of technical equipment were eagerly scrutinised.

During the tea which followed it was the Chairman's pleasure to introduce to the meeting the Chairman of the Dewsbury H.M.C. (Mr. Watkinson), who spoke to those present on various subjects with which they have to deal with daily. His talk was most enjoyable but not without criticism, as Mr. Tomlinson was able to explain later, when he moved a vote of thanks to Mr. Watkinson, which was seconded by Mr. Milnes, of Huddersfield.

The rest of the meeting was taken up with official business. There were regrets from many present that the Ministry had not issued the Circular relative to the salary increases which were intimated two months previous.

Correspondence read included a letter from Mr. Gilmore, of the East Midlands Branch, inviting the Yorkshire Branch to pay them a visit. This was discussed and it was decided that seeing this Branch was visiting Sheffield Royal Infirmary on February 23rd next, to invite them to come along to Sheffield, thus sharing the amount of travelling each Branch would have to do. The Secretary was asked to contact Mr. Gilmore and make the necessary arrangements.

Mr. White was asked to convey to those responsible for our reception at the General Hospital our heartfelt thanks for the facilities placed at our disposal, and this he promised to do.

The meeting terminated at 7.45 p.m.

J. W. BRODIE, Chairman,

23rd February, 1952.

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**Branch Meeting held jointly with the East Midlands Branch  
at The Royal Infirmary, Sheffield, on 23rd February, 1952,  
at 3 p.m.**

23 Yorkshire Branch members and 12 East Midlands Branch members were present.

The meeting was opened by our Chairman extending a very hearty welcome to all the visitors from the East Midlands Branch to the Yorkshire area and in particular to this very fine hospital, which

it was our privilege and pleasure to be able once more to visit. We did so this time to see further very fine improvements carried out by Mr. Barker, the Sheffield Teaching Hospitals Group Engineer, and, incidentally, our host this afternoon.

Mr. Gilmore, Chairman of the East Midlands Branch, then spoke on behalf of all his branch members present, saying how pleased they were to be invited here this afternoon, but that serious business lay ahead as well as pleasure! They were, he said, very concerned about branch representation—for they were indeed afraid of losing theirs altogether if what he understood was true. It was regretted that Mr. Tomlinson was not present—he thought he would have been on this joint occasion, but other I.H.E. business had intervened, and then perhaps something could have been thrashed out.

However, our own Branch Chairman as usual was there to answer criticism as far as possible, and he read passages from a letter he had received from Mr. Tomlinson that week which did throw some light on the subject under discussion, which was rather lengthy, ending in the following resolution being drafted, that—

“ This joint Branch Meeting regrets that it should have been necessary for the Chairman and Branch Chairman to take the step they have done. We feel it is NOT in the best interests of the Institution. Also in the opinion of this meeting we feel and insist that whatever the result of the ballot a Representative from *each* Branch should be present at York for the next Council Meeting.”

Mr. Brodie then introduced Mr. Barker, who gave a brief talk on the subject chosen for the afternoon's technical paper, *i.e.* “ The Modernisation of an Old Operating Theatre,” which only made one more keen to actually see the final product.

The meeting adjourned for tea, after which Mr. Barker invited everyone to visit the Operating Theatre, and this proved to be a truly magnificent job of work—well done.

Many were the questions asked of Mr. Barker, and these were fully explained in his answers.

There was one regret most of us had ; that was that the time was too short.

Mr. Brodie thanked Mr. Barker for his excellent paper, and for being able to support it with this visit, also to convey to those

responsible our gratitude and thanks for all the facilities placed at our disposal, and this he promised to do.

The meeting terminated at 7 p.m.

J. W. BRODIE, Chairman,

15th March, 1952.

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**Branch Meeting held at Oulton Hall Hospital, Oulton,  
Nr. Leeds, on Saturday, 15th March, 1952, at 3 p.m.**

Present : J. W. Brodie (Branch Chairman), J. Tomlinson, D. H. Cooke, W. Chynoweth, B. W. Cliffe, Gough, Slade, Richardson, O'Rourke, Brearley, Forsyth, Deacon, Tennant, Pottage, Hirst, Batty, Frost, Kirby, Carroll, Herrett, and the Branch Secretary.

The meeting opened with the Chairman introducing Dr. O'Loughlin, the Medical Superintendent of Oulton Hall, to the visitors, also expressing his delight at the very pleasant surroundings and the lovely day nature had bestowed on us for the visit. In reply Dr. O'Loughlin said it was his great pleasure to welcome us to his domain and in so doing he was sure that he was welcoming some very important people of the hospital world—for who was more important these days than the Engineer in the hospital?—next to the Medical Superintendent (laughter). He continued with a brief outline and history of Oulton Hall facade, etc., and stressed the idea of using prefabricated steel buildings for hospital construction so that, he said, these would be cheap and could be scrapped at the end of 50 years' service and new ones built.

The Chairman pointed out that this meeting had been called together a week earlier than originally planned in order to discuss a resolution which had been passed at the Extraordinary Meeting of Council held in London on Saturday, 1st March, 1952, and which we felt might affect our Branch Representation to Council in future. He gave a *resumé* of the above-mentioned meeting, and many questions were put to him and Mr. Tomlinson before members were convinced that Council's decision was the right one.

After a delightful tea served personally by the Matron, Mr. Tomlinson was elected the Yorkshire Branch Representative, and the following resolution was passed for forwarding to Council :

“That in the event of the Chairman Elect being a member of the Yorkshire Branch, we feel that he should be *ex-officio*,

and a further Representative from this Branch be accepted on Council."

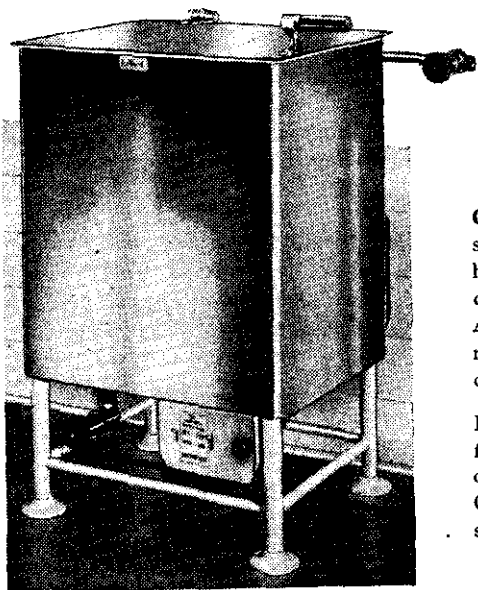
A Proposal Form from Mr. F. Pottage, of Harrogate, who is applying for up-grading to Full Membership, was discussed and approved for forwarding to Council. A letter read from the Secretary of the Welsh Branch appertaining to voting powers of Branches received the following reply: "That this Branch is distinctly against the suggestion."

That concluded the main business of the meeting, the Chairman expressing his thanks and that of the Branch for the use of the room to Mr. Cooke, the Group Engineer, for arranging this meeting place, and he was asked to convey to Dr. O'Loughlin our heartfelt thanks.

The meeting terminated at 7 p.m.

J. W. BRODIE, Chairman,

19th April, 1952.



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## CHESHIRE AND STAFFORDSHIRE BRANCH

At a meeting held at Crewe, tribute was paid to Mr. J. Shaw (Member) upon his retirement, having completed 45 years in the engineering service in hospitals.

He spent 13 years at Leicester, followed by 32 years at Stockport.

A gentleman greatly esteemed by his colleagues in the I.H.E., we extend to him and his wife our very best wishes for a long and happy retirement.

W. F. GRAHAM.

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## NORTHERN BRANCH

The members held a very enjoyable meeting at the South Shields General Hospital on Saturday, 26th April, 1952.

Mr. O. Ritchie, Group Engineer to the South Shields Hospital Management Committee, presided.

Mr. R. Chesney gave a very interesting talk on a recent Council Meeting he had attended. There was a lively discussion on many items of interest and Mr. Chesney was thanked for his report.

The following officials were elected for the ensuing year :—

*Chairman*, Mr. O. Ritchie ; *Vice-Chairman*, Mr. R. Hood ; *Hon. Secretary*, Mr. J. Wolfe ; *Hon. Treasurer*, Mr. W. Candlish ; *Hon. Press Secretary*, Mr. C. Black ; *Committee*, Messrs. Chesney, Grey, Elliott, Sincock and Smith ; *Hon. Auditors*, Messrs. Heddle and Wood ; *Council Member*, Mr. R. Chesney.

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## CHANGE OF ADDRESS

### GLASGOW BRANCH

The Hon. Secretary of the above Branch is now

MR. JAMES CRAWFORD,

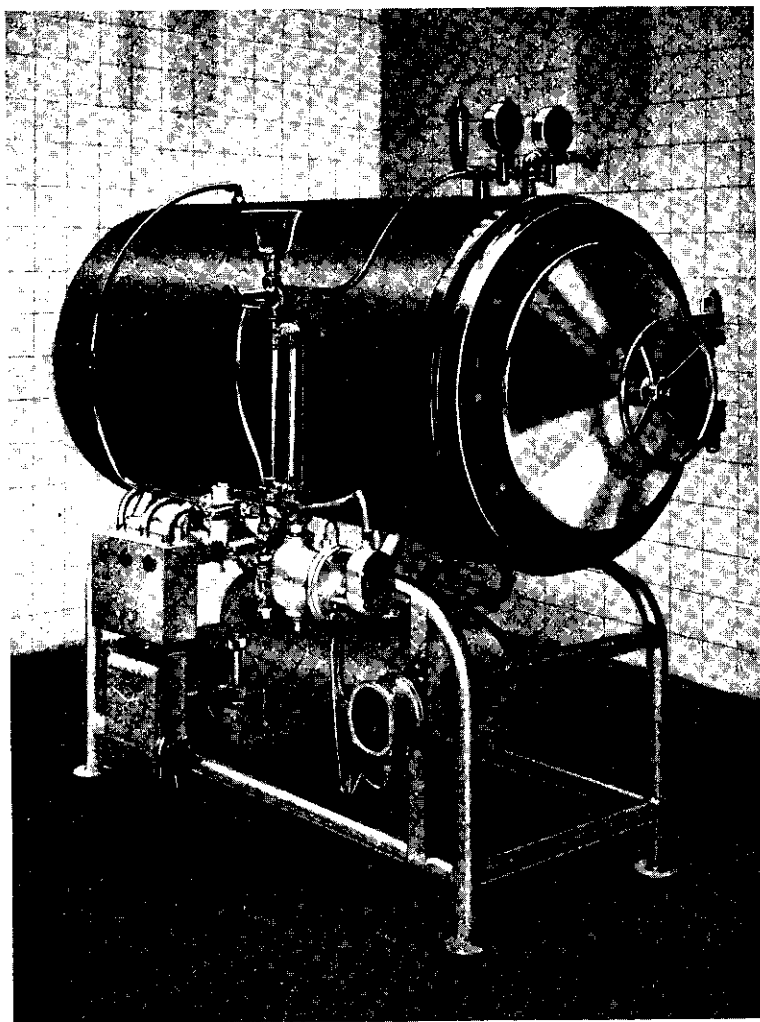
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who has succeeded Mr. R. H. Smith, who recently resigned the office.

## NOTICE

Will all members please note that in future all subscriptions are to be sent to the respective **Branch Secretaries** as soon as they become due, and **not** to the **Hon. General Secretary**, as formerly.

EDITOR.



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