THE HOSPITAL ENGINEER

OFFICIAL JOURNAL OF
THE INSTITUTION OF HOSPITAL ENGINEERS
FOUNDED 1943.

President :
THE LORD CALVERLEY OF BRADFORD D.L., J.P.

No. 9. **October, 1948**

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Hon. Editor—R. G. ROGERS, "ELMFIELD," STONE, AYLESBURY, BUCKS.

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CONFIDENTIAL BULLETIN FOR THE USE OF MEMBERS.

EDITORIAL.

WmHE Annual General Meeting of the Institution was held at the Wm Chamber of Commerce, Birmingham on 4th September, 1948, when over 100 members of the Institution attended. The proceedings were opened by the President of the Institution, The Lord Calverley of Bradford, D.L., J.P.

The President in his address, said, "Since the last Annual Meeting there has been a revolution taking place in the public health service of this country, a revolution which is in accord with the tradition, outlook and practice of this great country—almost a silent revolution with the exception of two or three meetings of one section of the Medical Services and also, if I may say in passing, one or two turbulent speeches from the Minister of Health. But all this ripple of excitement, which instituted the coming into being of a new Hospital Administration has subsided and to-day you enter the new era in an appropriate place, the great City of Birmingham*.

We agree with the President, there has been a revolution in the Health Services, and many alterations are being made and values re-assessed. From the point of view of the Hospital Engineer—or as described by the President , "the back room boys"—this is all to the good, for during this process, and due to the untiring efforts of this Institution, the "back room boys" have become recognised by the Ministry of Health as technical officers of some standing and responsibility, and the details concerning our eventual status, conditions of service and salaries are now being worked out by the Whitley Council Machinery, Professional and Technical Staffs (B) Council, Committee "D" (Hospital Engineers) on which Committee this Institution has four representatives, who will spare no effort in their endeavours to ensure that the Hospital Engineer is accorded status, salary and conditions commensurate with his ability and the duties and responsibilities of his office.

* *The President's address in full and a report of the Annual General Meeting will be issued as a separate document later.*

* * *

Council was fully represented at a meeting at the Grand Hotel, Birmingham, held on Friday, 3rd September, 1948. 42 applications were received and considered. Of these 6 were admitted to Membership, 11 as Associate members, 18 as graduates, 2 as students, 2 were referred back to the Branch and 2 were rejected. 10 applications for transference to a higher grade of membership were received. Of these 5 were transferred to full membership, 1 to

Associate membership. In two cases it was decided no change could be made, one case was referred back to the Branch, and one case was referred back for completion of application form.

The Honorary Secretary regretted having to report the death of three members, and the Council stood in silence as a token of respect for their late colleagues.

Correspondence from the M.H.A. was read, and their Annual Report for 1947 was received. Many expressions of appreciation were voiced and the Hon. Secretary was requested to write to their former Secretary in a suitable manner.

The B.S.I. advised the Institution on the issue of their B.S.S. on Hospital equipment, and members present duly noted its reference Number.

The Report of a Sub-Committee set up by the West of England Branch to investigate certain actions by a member of the Branch was given to Council, and a statement by the member was also read. After an impartial discussion it was resolved that Rule 18 be applied and the member notified accordingly.

The Hon. Secretary read a letter from the Hon. Secretary of the Staff Side of Functional Council B, dealing with an " Appeals " clause in the Constitution of the Whitley Council. No modifications were suggested and it was duly approved in its present form, the Hon. Secretary to inform the Staff Side Secretary accordingly.

A suggestion was submitted by the Hon. Secretary that in view of the amount of duplicating work being done by the B.S.I. and their recognition of the Institution, that this Council subscribe to the funds of the B.S.I. in like manner to the M.H.A. It was duly proposed, seconded and Resolved that £3 3s. 0d. be forwarded to their Secretary as a contribution to their general funds.

Consideration was given to resolutions from various Branches and after full discussion, it was Resolved :—

A Chief E.R.A. Certificate be acceptable as an exempting qualification and in view of the wording of the resolution from the London Branch on this matter, their representatives be asked to examine the wording of their actual resolution from the London Branch, and report to the next meeting of the Council.

That no alteration be made in the Rule appertaining to apprenticeship.

That no action be taken in respect of the *News Letter*, and that all Branch Secretaries be asked to submit their contribution so that the Joint Editors can have the necessary material.

A full report was submitted by the members of the Sub-Committee that met the B.H.A. to draw up a salary scale. The Hon. Secretary read correspondence from Mr. Wetenhall, and it appears that in order to produce these scales in advance of 5th July, Mr. Wetenhall had not adopted the accepted methods. The document was not acceptable to the Council, and the Hon. Secretary was requested to write a suitable letter to Mr. Wetenhall.

The Council gave serious consideration to HMC48/40 as issued by the M.O.H., all members previously having received a copy. Rather than submit observations direct to the Ministry, it was Resolved that the 4 Representatives from the Institution make very strong representations at the forthcoming meeting in London, and make every effort to open discussions with the Functional Council, with a view to having the entire matter reopened with the Ministry via the Functional Council.

The Hon. Secretary submitted a document from the Vice President, Mr. Sandford, setting forth his suggestions for a "Sandford Premium of the Institution of Hospital Engineers." The Council was most appreciative of these suggestions and it was resolved that the whole matter be left in the hands of the Examination Sub-Committee, and that three copies of the letter from Mr. Sandford be sent to Mr. Tomlinson and a letter of thanks be forwarded to the Vice President for his excellent suggestions.

Further consideration was given to the matter of Branch Representation in accordance with a decision agreed in September, 1947 at Newcastle. After many proposals had been considered it was resolved that no alteration take place.

Mr. Tomlinson suggested that membership fees be increased and after discussion it was resolved to recommend to the G.M. on the following day, that the following revised fees be adopted as and from January 1st, 1949 :—

	Entrance Fee.	*Annual Subscription.*
Members	£1 1s. 0d.	£3 3s. 0d.
Associate Members	£1 1s. 0d.	£2 2s. 0d.
Graduates	£1 1s. 0d.	£1 1s. 0d.
Students	nil.	10s. 6d.

The following were elected as Hon. Members of the Institution : Mr. E. C. Rogers, Mr. G. Cummings, Mr. J. B. Barton.

Mr. Tomlinson submitted the name of Mr. Swann for a Vice President, and this was approved.

It was agreed that the next Council Meeting be held at York, on the first Saturday in December, 1948.

ASSESSMENT OF A HOSPITAL LAUNDRY AND ITS VALUE.

by

WM. McALPINE, Member.

Introduction.

SOME months ago in a weak moment owing to the persuasion of my colleague I agreed to give this address and had in mind the fact that I had somewhere rough notes, which would help in the preparation of this paper.

In addressing the Institute of Hospital Engineers' I have tried to remember the fact that some of you have not had the time, or the opportunity to delve very deeply into Laundry administration as applied to Hospitals. With this in mind, I have treated the subject from a technical point of view. In doing so, I must ask the indulgence of those who are familiar with the subject and hope that they may find a few points of interest new to their experience.

I have indeed been asked : " Why bother about technical details in the Laundry. It will work more efficiently anyway." Nothing could of course be further from the real truth. Admittedly the running of a Laundry on technical lines, does not normally fall within your province, yet, you work in close contact with its designing and planning and such co-operation is likely to be made both closer and smoother. if the management of both parties have an understanding of at least the fundamentals of each others problems. Such knowledge is likely to prevent one party from making unjustifiable demands upon the others—and generally to smooth the paths of both. Moreover, Engineers by training and experience have a certain knowledge of basic principles of machinery and form, if they are to serve their hospitals to the greatest extent both in its upkeep and efficient maintenance.

If I can contribute to this end to however small an extent I shall feel my labours in preparing this paper has not been in vain—and all the time our laundry analysis must show, not so much what we may find therein, but what the laundry will do.

The equipment which I am about to describe, is installed in the Belfast City Hospital, founded in the year 1839. Originally the premises comprised some twelve acres, but at the present, the area within its boundaries is thirty-one acres. Previous to, and up to the year 1930 the whole of the Laundry work was divided amongst four separate buildings—The Central Laundry ; the Fever Hospital Laundry ; the Nurseries Laundry and the Auxiliary Infirmary Laundry. Each with its separate equipment, staff and supervision. With a view to effecting economies it was decided to amalgamate these four laundries in one, and for that purpose to enlarge and re-equip the main central Laundry.

The new premises which were completed and put into commission at the latter end of 1931, now cover an area of 13,000 square feet, or more than double the original area, and have been designed to deal with some 30,000 to 40,000 articles of clothing, etc., per week, representing a dry weight of from 12 to 15 tons.

The operations involved in a hospital laundry differ from those carried out in a domestic laundry or Commercial laundry. A large proportion of the goods are simple—washed and dried without starching, which is confined to articles used by the staff only.

In passing the goods through the laundry special attention should be paid to continuous procedure and the departments so arranged that from the time of receiving until despatch, the goods proceed from one process to another without undue interruption.

Due care should be paid to the important question of ventilation. In this case, it is mostly natural and the atmosphere is quite pure and

free from all appearance of steam or vapour, so that work is carried out under the most perfect conditions. This result has been obtained largely by the provision of ample working spaces and liberal height of roofs which should, if at all possible, measure 17 feet from floor to tie beam.

Main Wash House.

The equipment here, comprises : four Rotary Washing Machines, each 84 in. x 42 in. diameter electrically driven and controlled, and four Hydro extractors, each 36 in. diameter—also electrically driven.

The washing machines are driven by vertical type reversing motors through machine cut gears, all bearings being of the ball or roller type. Each machine is operated by a master switch working in conjunction with a remote controller panel situated in the main switch room adjoining the wash-house. On closing the master switch the controller takes charge of the machine which commences to revolve and to reverse automatically, the outer doors being locked and impossible of access. On opening the master switch the machine stops, but by means of a slow motion push button the inner cage is brought to the unloading position, and held there. All current being cut off, and outer doors unlocked, it is impossible to apply the main current, until outer doors have again been closed. These machines should given an ouput of 300 to 320 lbs. dry weight per load. A reasonable output per day would be six loads of each machine.

Output per day in terms of dry weight
=320 x 6 x 4=7680 lbs. dry weight.

Taken at 1.25 lbs. weight per article this would represent 6144 pieces per day.

The hydro extractors are of a modern type suspended and self balancing and driven by means of vertical motors through special centrifugal action clutches arranged to allow of gradual acceleration to the full speed of 1,440 revs. per minute.

The hydros are fitted with interlocking guards to cages and spindles which must be completely closed before the machine can be started, and cannot be opened until the machine has been stopped. These machines are capable of an output of 120 to 125 lbs. dry weight per load. An efficient output would be three loads per hour.

Output 3 x 7 x 120 x 4 = 10,080 lbs. dry weight per day. It will be seen that these hydro extractors can deal comfortably with the output from the main wash house, giving up to 80 per cent moisture extraction. No bottleneck should exist here.

Staff Wash.

This section which deals exclusively with all the needs for Doctors, nurses, and indoor Officials is provided with one rotary washing machine, belt driven 72 in. x 34 in. diameter, and one 2 in. diameter electrically driven hydro extractor, and one belt driven hydro extractor 24 in. diameter.

The washing machine is capable of an output of 150 lbs. dry weight per load. Taken at six loads per day output in terms of dry weight this would be : 150 lbs. x 6 = 900 lbs. dry weight per day ; or No. of articles = 700 per day. Weight per article = 1.25 lbs.

The 42 in. diameter hydro extractor gives an output of 110 lbs. of dry weight per load, taken at 18 loads per day 110 x 18 = 1980 lbs. dry per day. Speed : 1000 r.p.m.

The 24 in. diameter is principally used for smalls and gives an output of 40 lbs. dry weight per load.

These hydro extractors can with ease cope with this section of the laundry.

Flannel Wash.

All blankets and similar woollen goods are dealt with separately by means of a special rotary washing machine with cage divided radially into three compartments. A special mixing valve is attached to this machine for automatically controlling the pre-determined temperature of the hot water—an important feature in the washing process of these goods.

The washing machine is belt driven 72 in. x 24 in. diameter gives an output of 100 lbs. dry weight per load.

Taken at six loads per day 100 x 6 =600 lbs. dry weight.

Taken at 3 lbs. per article =200 per day.

also at this section are two batteries of hand wash sinks.

Infectious Diseases Wash.

A separate and distinct wash is provided and deals exclusively with all goods which in the slightest degree may have had contact with patients who are found to be suffering from infectious diseases. The goods after initial treatment are delivered direct to this special or separate Wash House and are there properly cleansed and hydroed before being passed on to the main laundry for drying and finishing There are two belt driven rotary washing machines and two hydro extractors in this wash house.

Drying and Finishing.

In this section all goods are received from the various wash houses, and sorted before being passed on to be dried or flat finished by machinery provided for this purpose.

All woollen and flannel garments are dealt with by two automatic clip conveyor drying machines. In passing the articles through they are subjected to a profuse and strong blast of hot air, previously heated by passing over steam coils, means being provided for ranging the speed of travel according to the weight and class of goods being dealt with. The heated air being re-circulated continuously in the machines, preserves a certain amount of humidity, the result being a soft finish akin to natural open air drying which is so important in the case of blankets and woollen goods.

The conveyors and air blowers are driven by individual electrical motors, the former being arranged for variable speeds ranging from four to twelve feet per minute of travel on conveyor bands.

Each of these machines gives an output of 120 lbs. of dry weight per hour. An average working day of seven hours—120 x 7 x 2 =1680 lbs. of dry weight per day =627 blankets per day.

The remainder of the plain goods which are to receive a flat finish are dealt with by two multiple roller ironing machines. The multiple machines are of the eight roller type with padded rollers 120 in. wide by 12 in' diameter and steam heated beds. The goods are fed in by a ribbon feed, and on leaving the last roller are picked up by a travelling band and returned to the feed end of the machine in contact with the underside of heated bed, afterwards being conveyed back to delivery end by a second band close to the heated bed, but not in actual contact.

The rollers are of the floating spring type, the pressure is applied on all rollers equally and is variable as necessary for the different classes of goods. The machines are driven by belt and travel from 25 to 80 feet per minute.

An average output from each machine could be 450 lbs. dry weight per hour.

Output per day =450 x 7 x 2 =6300 lbs. dry weight per day. One decondrier exists of the single roller type, having 24 in. diamteer rollers by 108 in. wide bed both being steam heated and giving an output of 100 to 120 lbs. dry weight per hour.

Output in terms of dry weight per day, 100 x 7 =700 lbs. dry weight per day, or 875 articles per day of seven hours.

Three garment presses steam heated and pneumatically operated are included in the equipment, together with the usual small machinery for dealing with staff work such as collars, cuffs, etc.

Each steam heated press gives an output =40 lbs. dry weight per hour =20 dresses per hour.

An average day's output of seven hours = 40 x 7 x 3 =840 lbs. dry weight or 420 garments.

One Collar and Cuff machine gives an output of 100 articles per hour =6 lbs. dry weight per hour.

At a seven hour day =6 x 7 =42 lbs. dry weight per day, or 700 articles per day.

Four hand smoothers each capable of six garments per hour =6 lbs. dry weight per hour.

At a seven hour day =6 x 7 x 4 =168 lbs. dry weight per day or 168 garments.

Water Services.

All condense drains from steam traps are led to a catchment tank from which the hot water is pumped to the main boiler station for re-use.

One of the most important adjuncts to the efficient working of a laundry is a plentiful supply of hot and cold water.

The water is taken from the public supply by a special main and meter, is treated in a Zero water softening plant of 4000 gallons per hour capacity and is stored in a covered overhead tank holding approximately 12,000 gallons so that in case of any interruption to the supply there would be a reasonable storage to call upon.

The softened water is used for all washing purposes, especially in the treatment of woollen fabrics.

Hot water is provided by means of two Royle's steam calorifiers coupled to a storage tank, and a ring circulating main with a flow temperature up to 180° F. is available at any point throughout the laundry as may be required. All water service mains are of Copper with brass flanges brazed on, both hot and cold pipes are covered with magnesia sections, canvassed over and painted.

Lighting.

Electric flood lighting is adopted with large units widely spaced and a reasonable height which effectually eleminates glare to the workers' eyes and at the same time avoids all shadows.

As indicated the whole of the machinery is driven by electricity which is taken from the public supply of the Belfast Corporation and as the price per unit is exceptionally low the running costs have been reduced to a minimum.

This modern laundry and its processes which I have described has been in operation since the latter part of 1931 with an average weekly output of 36,000 pieces representing a dry weight of 16 tons.

The water consumption is 27,000 to 30,000 gallons per day. The soap consumption being 15 to 16 lbs. per 1,000 articles. The Coal consumption with fuel between 13,500 to 14,000 B.T.U.s =11 tons, 8 cwts. per week—Winter period.

Summer consumption =10 tons, 3 cwts. per week.

Electricity consumption =1,600 units per week.

Finish.

All the time our laundry analysis must show not so much what we may find therein, but what the laundry will do.

I will now conclude by saying : Like Macbeth—I dreamt last night of the three weird sisters :- To you they have show'd some truth.

HOSPITAL AND INSTITUTION GENERATING PLANT.

In the early years of the present century, many hospitals and institutions were equipped with Steam Generating Plant which was a model of economy. For an institution having a total of about 1000 patients and staff, there were often two sets of 50 kw. capacity or three sets of 30 kw. working in conjunction with a battery. The boilers were of the Lancashire type, and the whole set-up was extremely simple. One set was generally sufficient to provide the power required while the exhaust steam was utilized fully for space heating, domestic hot water and for cooking. These sets had an excellent record from the point of view of reliability and continuity of operation. Over long periods of years they showed 100% continuity of service.

At the time they were installed there was a nice balance between steam for power and steam for heating, and with coal at a very low price these institutions obtained their power, lighting and heating at extremely low cost.

Gradually the situation has changed with the desire for increased amenities, which has usually meant adding to the electrical load without any corresponding increment to the exhaust steam requirements. Close consideration has had to be given to provide the increased services to the best advantage. By various means it has been possible to improve the balance between the power and heating. In at least one case considerable assistance to this end was obtained by electric bread baking and charging electric battery vehicles carried out by night, thus spreading the load. The ovens were operated by electricity from steam driven Generating Sets, the exhaust steam from which was absorbed by heating and domestic calorifiers.

Other alternatives have involved linking up with the public supply or the provision of Diesel Engine Generators for parallel operation.

Before the war large scale experiments were made at institutions with electric boilers. Low operating cost was suggested due to high efficiency and comparatively low capital outlay as compared with coal fired boilers due to saving in installation work, but with a very low price for electric current usually around 0.25 or 0.3d. per unit.

At the time electrical engineers were anxious to encourage such loads but no doubt their reaction today would be different. Even with this low price of electricity the costs per head which were mentioned and covered only space heating and domestic hot water were higher than with steam driven generators and inclusive not only of heating and domestic hotwater but also power, lighting and in many instances a good proportion of cooking expenses.

It is difficult to obtain an exact comparison. A set of published figures for electric heating gave a figure of £8.2 per head for space heating and domestic hot water for cost of current only and exclusive of capital charges. A number of contemporary pre-war costs for combined power and heating schemes at institutions covering space heating and domestic hot water also power and lighting and in some cases cooking, varied from £2.8 to £4.12 per head.

With the nationalization of electricity services, the way has perhaps become easier for operation in parallel with the public supply. In earlier times public supply engineers did not look favourably on giving a partial supply, nor were they keen on a supply to institutions which were isolated and situated a considerable distance from the main power lines. The necessity now for the utmost economy in coal consumption has helped to alter the picture, and it is clear that institutions should generate as much power as their heating and other requirements will allow, and that in many cases any deficit should be made good from the public supply.

Institution power plant usually has a long life. When the time comes to consider re-organization, it is desirable that advantage should be taken of steam pressure and temperature in line with present day practice. It may be desirable in many cases to adhere to Lancashire type boilers, but even so this will permit steam pressures at the prime mover of something over 200 lbs. per sq. inch. The question of superheat is affected by the type of plant. If of the Turbine type, there is no reason why a total temperature of 600 deg. F. should not be adopted. If, on the other hand, the plant is of the Reciprocating type, use of superheat will affect the possibility of exhausting clean steam from unlubricated cylinders. It is generally reckoned that engines can be operated without cylinder lubrication only if the steam is initially unsuperheated. On the other hand there are sufficient examples available of exhaust steam being used from engines working on a moderate degree of superheat, and where the exhaust steam has been used in direct contact with delicate fabrics such as white artificial silk, where the slightest trace of oil would immediately become apparent. It is therefore clear that under certain circumstances it is possible to separate out the oil in steam which has been initially superheated.

An increase in initial steam pressure and temperature allows a greater output from a given quantity of steam, and is thus a useful contribution towards improving the balance where it is found necessary to extend the electrical services.

It should be remembered that the benefit by increasing the initial steam pressure is much less than that brought about by an equal decrease of pressure at the exhaust end. In general, however, the back pressure adopted in hospitals and institutions is already down to the minimum and is based on the lowest pressure necessary to provide the required services.

For best efficiency it is desirable to operate either engines or turbines at or near the conditions for which they are designed. This applies especially when exhausting against back pressure and the efficiency falls off under these conditions more rapidly at light load than under condensing conditions.

Where the power varies considerably over the twenty-four hours and during night and day it may be worthwhile dividing the plant into units of varying size. In this connection it is useful to remember that the steam necessary to run a set at full load will only suffice to turn round a set of double the capacity at no load.

It has been thought that it is unsatisfactory to operate X-Ray services from a small independent generating plant where the operation of such things as lift motors might have a considerable momentary disturbance on the voltage. In some instances as a result of special attention having been given to governing performances and characteristics of the alternator, oscillographs have shown that even when full load was suddenly removed from the plant, there was not sufficient disturbance to preclude the satisfactory operation of X-Ray photography.

Surprise has been sometimes expressed that comparatively small generating sets are still being installed in view of the facilities available from the public supply net work. Recent events have shown how valuable these small sets are and there seems little doubt that national policy will be to continue their installation in every case where, as in hospital and institution services they can be operated at a very high efficiency in conjunction with heating or process steam.

ANON.

OBITUARY.

It is with the deepest regret that we record the passing of three of our colleagues.

MR. RODDA of London.

MR. GREEN of Oxford, and

MR. SINCLAIR of Gateshead.

We offer our heartfelt sympathy to their wives and families and all who mourn their loss.

R. I. P.

YORKSHIRE BRANCH.

The above Branch held their monthly meeting at Meadwood Park Colony on 8th May, 1948 at 3 p.m.

The Members were welcomed by the Medical Superintendent, Dr. A. H. Wilson, who explained that the Hospital Engineer would play a most important part in the New Health Services.

After the Meeting the Members were invited to tea and then made a tour of the Engineering Services of the Hospital.

Benevolent and Social Committee.

The above Committee has been formed at the Yorkshire Branch with Mr. J. H. Slade as Chairman and A. S. Handall, Hon. Secretary.

CHESHIRE AND STAFFORD BRANCH.

On Saturday, June 19th, the Cheshire and Staffordshire Branch met at the Crewe Arms Hotel, Crewe. A film with the title " Steam " had been secured on loan from Messrs. Babcock and Wilcox, and a very enjoyable and interesting afternoon was spent watching the manufacturing of giant boilers, coal conveyors, etc., from the raw materials, to the finished product at work.

A general and free discussion took place on matters of interest to our Institution, between our members and our guests, ten members of the Lancashire Branch, with their Secretary, Mr. C. W. Oliver. We are indebted to Messrs. Babcock and Wilcox for their kindness and also to a friend, Mr. Forshaw, who brought along his projector and sound apparatus, to give us a very enjoyable show. The whole was made possible by the co-operation of two of our members, Messrs. L. A. Van Hove and Mr. H. Dean.

A. SHAWCROSS, *Branch Sec.*

GLASGOW BRANCH.

It was with great pleasure that I met some of the members in the North and North East of Scotland for the first time at a meeting in Dundee on Saturday, 26th June.

Following a talk on the work of the I.H.E. to date, many questions were asked, and after an informal discussion we adjourned for tea.

I would like to thank Mr. Taylor ,Chief Engineer of the Dundee Royal Infirmary for the arrangements. and I trust that this meeting will be the forerunner of many more and that all the members in Scotland will arrange to meet socially at least once each year, and I would be grateful for suggestions to this end.

R. H. SMITH, *Branch Secretary.*

EDITORIAL NOTICE.—I am often being asked to include more domestic news in the *Newsletter*. I am not able to do this unless the news is sent to me from the various branches. I can only repeat what I have written in previous issues "You tell me and I'll tell the rest."—EDITOR.

HEALTH SERVICE "BACK-ROOMERS"

Key Men in the Hospitals.

More than a 100 members of the Institution of Hospital Engineers described by their president, Lord Calverley, as the "Back-room boys of the health services," held their annual meeting at the Chamber of Commerce, Birmingham, to-day.

At the meeting, attended by members from every type of hospital in Great Britain, Lord Calverley referred to the revolution which had taken place in the public health services.

"Most people do not even know of your existence in our hospitals—until something goes wrong. When that happens you are no longer the back-room boys," he added.

Mr. J. H. Hargreaves, chairman of the Institution, presided.

At a luncheon the Deputy Mayor (Ald. A. F. Bradbeer), vice-chairman of the Regional Hospital Board, said that the average man in the street had no conception at all of how the amenities they accepted without thought depended on services which were hidden. In hospitals, with the ever increasing use of machinery, mainly electrical, such services would more and more depend on the engineers.

He appealed to them to bring into use as much machinery as possible which would relieve nurses so that they might devote their time to the vital job—looking after the patient.

FREER AND HAYTER : PRINTERS : HIGH WYCOMBE