THE HOSPITAL ENGINEER

THE JOURNAL OF THE INSTITUTION OF HOSPITAL ENGINEERS

Vol XIV: No 5
May 1960

Editorial

TWO or three years ago we listened to a number of papers by the experts from Harwell and elsewhere on the bombardment of atoms and the difference between fusion and fission. Some of us understood what we heard and, frankly, some of us did not. Most of us probably went away with the idea that, though this was, no doubt, all academically very interesting, there were many more urgent matters at stake. In any case, the whole subject was so obscure and far removed from any practical applications that were likely to affect us until many years after we had ceased to have any active interest in the Hospital Service. Is that, in fact, the case?

Those who attended the Southern Branch week-end school a few weeks ago heard a paper from a member of the Research team from the Radioisotope Research Centre, Wantage, which, we gather, was outstandingly enlightening. As reported elsewhere in this issue, we quite recently had an opportunity of going to Wantage to see for ourselves something of the great amount of work that is going on and much of which is going to affect us in our everyday occupations very much sooner than most of us could have expected. The savings in cost alone when some of the techniques being developed are put into everyday use will aggregate millions of pounds. Take for an example of a medical application the use of a package irradiation plant for the sterilization of hypodermic syringes *after* packaging. It is believed that it will be possible, without any precautionary measures being taken in the factory, to pack plastic syringes in sealed containers under ordinary factory conditions, pack so many to a case and finally irradiate the case for complete sterilization. Through being sealed in the plastic container the syringe would be maintained in an aseptic condition until opened and would be discarded after use at a fraction of present costs.

Another channel being explored is that of irradiating dressings for the same purpose and, though snags are being encountered such as the discolouration of cotton based goods, it is obvious that, when such difficulties are overcome, an immense amount of time, and therefore money, can be saved in the hospital, not to mention the capital and operating cost of present sterilising equipment.

We have not said very much, but enough, we hope, to convince readers that we are on the threshold of some very revolutionary developments, and applications in the engineering world are likely to be as far-reaching as the two medical examples quoted above. Any thoughts we may have had a few years ago as to the probable remoteness of the atomic age from our daily lives—except perhaps in the military sense—should be reconsidered rapidly.

Radioisotope Research and uses of large Radiation Sources

Radioisotope research is being concentrated at the Wantage Laboratories of the Atomic Energy Research Establishment. The development of the establishment is reviewed and notes are added describing some of the work being undertaken.

Introduction

WHEN given the opportunity to visit the newly established laboratories of the Atomic Energy Research Establishment, the writer gladly accepted with the knowledge that a great deal of what he would see would be highly obscure but, also, with the much mistaken conception that everything was for the far distant future and of little practical application today. This view was completely wrong and this must be stressed because, if any hospital engineer imagines that he is going to escape the side effects of the work being done at Wantage, he is going to be disillusioned long before he imagines.

Though, as yet, a great deal of the research now being undertaken is in the very early stages, very much of it is finding practical application in industry and medicine. It is for this reason that this report is given at rather greater length than seems necessary at first sight. The notes forming the latter part of this article will give some idea of the very wide range of uses already being found for isotopes.

Research is being conducted in co-operation with 58 other countries and it is conservatively estimated that industrial applications showed a saving of £3,500,000 in the year 1957–58 and that this can be increased to a figure of £70,000,000 over the next twenty years. A thickness gauge, for instance, manufactured at a cost of approximately £800, has resulted in a saving of £10,000 in its first year in use. A factor of this magnitude is considerable by any standards.

Site Development

Early in 1956, work was begun to convert the buildings at Grove Airfield, Wantage, into a laboratory site for the Isotope Division. The immediate programme was research into the uses of large radiation sources which could be expected to become available in increasing quantities as fission products from spent reactor fuel elements. The site was then known as Wantage Radiation Laboratory.

The longer term plan was to move from Harwell other groups of the Division engaged on radioisotope research and to concentrate all such research at Wantage. Though one advantage of the site was its existing buildings, these offered only limited possibilities, and a building construction programme was prepared, which is now nearing completion.

The first comers to Wantage were members of the Technological Irradiation Group who made use of such buildings as the Control Tower until their own building was ready. In its four years at Wantage, the Group has grown to almost a hundred strong and now operates a number of irradiation sources including Cobalt-60 cells, a linear accelerator, a fuel element " pond " at Harwell which makes use of the radiations available from spent reactor fuel, and the recently commissioned Package Irradiation Plant which is designed as a versatile pilot plant to give experience in commercial irradiations on a continuous basis.

The Technological Irradiation Group is concerned with radiation effects in three main fields: the initiation of chemical reactions, sterilisation and plant genetics, and within these terms of reference the Group is sub-divided into five Sections:

Biology—concerned with the effects of radiation on plants, especially with mutation and the crossing of otherwise incompatible strains, and hence leading to improved breeding strains;

Chemistry—working mainly in the fields of polymerisation, halogenation and oxidation, which give possibilities of improvements in plastics and various industrial chemical processes;

Entomology—investigating the effects of radiation in exterminating pests in stored products (e.g. weevils in grain and flour) and the control of other insects;

Food and Medical—studying the possibilities of sterilisation by radiation as applied especially to the sterilisation of surgical appliances and medical products, and long term investigations into the preservation of food;

Physics and Engineering—responsible for the operation of the Group's irradiation facilities and for the design and development of industrial irradiation units.

More recent comers to Wantage have been the Isotope School, the Physics Group and latterly the

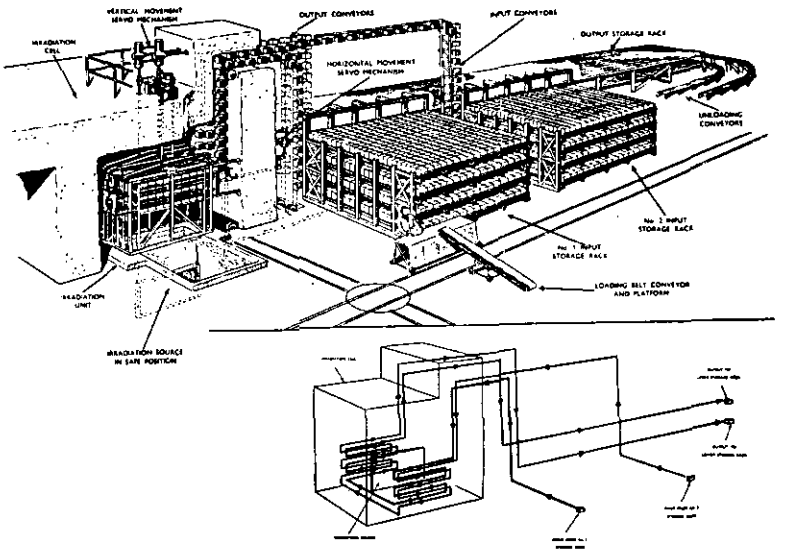


Diagram of the pilot-scale gamma irradiation processing plant for studying the commercial applications of irradiation to the sterilisation of packaged items. The plant occupies an area of about 10,000 sq. ft. including the storage area and the cell has a source of 180,000 curies of Cobalt 60 surrounded by a concrete wall 5 ft. 6 ins. thick. The plant is designed so that materials will be passing through the irradiation cell all the time and packages handled automatically. Each package will pass along the length of the source ten times (five with one side exposed and five with the other).

Chemistry Group whose arrival completes the transfer of Isotope Research Division staff from Harwell. Still remaining at Harwell is the Reactors and Measurements Group, concerned with experimental reactor irradiations and measurements of radioactivity. Its standards section is, however, located at Wantage, where it works closely with the Physics Group.

The Isotope School moved to Wantage last summer after eight years at Harwell and has continued to give basic training in the uses of radioisotopes in research, industry and medicine. Students come from all parts of the world. Besides the basic 4-weeks course, specialised courses are held on such subjects as medical applications, radiological protection and autoradiography, and there have also been courses for the non-technical directors of commercial organisations designed to show the potentialities of radioisotopes in industry. A two-day course for members of the Press was held in April, and courses are being planned for Trade Union representatives.

The Physics Group, which moved to Wantage in the autumn, carries the main load of the Isotope Division Experimental and Advisory Service which endeavours to solve by adaptations of radioisotope techniques, practical problems posed by industry, hospitals and other bodies. The main activities of the Group are in the industrial uses of radioactive tracers for gas and liquid flow investigations and such problems as the efficiencies of mixing processes; the development of instruments for the detection and measurement of radiation; the application of radiotracers to geological and allied problems such as measurement of coastal erosion, underground water movement and mineral prospecting, and, with Chemistry Group, investigations of metallurgical processes.

The Chemistry Group, still in the process of removal from Harwell, is concerned with the chemical aspects of using radioisotopes in industry and medicine, including improvements in methods of preparing radioactive compounds. In analytical Chemistry, the technique of radio-activation analysis enables minute constituent quantities to be detected and measured. In physical Chemistry, metallurgical processes such as electroplating and casting have been studied to learn what happens at the various stages. The Group collaborates with hospitals in investigating the effects and distribution of radioisotopes in animals, and a small section conducts tracer research in bacteriology.

The Isotope Research Division is completed by the newly formed Industrial Liaison Group which demonstrates by visits to industrial areas the potentialities of radioisotope applications in commercial processes, and by a well stocked Library. Ministering to the needs of the Division are a small engineering unit, a store and a canteen.

A small team of D.S.I.R. scientists is attached to the Division for purposes of liaison.

TECHNOLOGICAL IRRADIATION GROUP

Pilot Scale Gamma Radiation Processing Plant

Research work by UKAEA on the commercial-scale use of intense radiation for industrial purposes has now

Grown naturally, "Atle" Wheat will produce perhaps one mutation per million seed but if subjected to ionising radiations, the number of mutants will be greatly increased. These are inferior to the parent "Atle" but sometimes a particular mutant comes up with perhaps one desirable quality; short straw for instance. By cross-breeding such a mutant with the parent form it is possible to produce a new strain containing the desirable qualities of both.

are perfectly sealed. Leaks as small as 10^{-13} st. ml/sec. have been detected using ^{85}Kr, and this is several orders of magnitude smaller than can be detected using conventional methods.

The components are immersed in an atmosphere of ^{85}Kr at high pressure so that some radioactive gas enters the leaking components. After removal of the components from the high pressure container the amount of ^{85}Kr inside is determined simply by measuring the intensity of radiation emitted and this gives a quantitative indication of the size of the leak.

Coastal Tracing

A knowledge of the mechanisms of coastal erosion and siltation is of importance to harbour and sea defence authorities.

By labelling sand, shingle or silt with radioactive isotopes and by using Sc^{46} labelled glass the movement of these materials on the bed of rivers and on the sea shore may be followed.

For underwater experiments special detectors have been constructed which have enabled this type of information to be obtained.

A Transportable Apparatus for Low Level Measurement of Tritium

The use of Tritium as a tracer for water movement enables water pollution investigations, leaks in dams and canals and evaluation of underground water supplies to be made. Of particular interest is the determination of the water balance of the London Basin. For field experiments measurement of the Tritium content of the radioactive sample is required on the site. An apparatus is being developed which is transportable and consists of a unit for converting tritiated water to tritiated hydrogen gas which is counted in the gaseous state in a Geiger Counter.

Instruments using Cadmium Sulphide as a Gamma Radiation Detector

Instruments have been designed for use in medical radiotherapy to measure the dose rate from X-ray and isotope sources.

Cadmium Sulphide Single Crystals as Radiation Detectors

Compound semi-conductors such as CdS and CdSe can be used as radiation detectors. Theoretically they have a high sensitivity and also have the advantage of being small, robust and cheap. Although there is a great deal of development work still to be done they are already becoming important in applications where measurement of the radiation intensity in a small cavity is required.

The present research is aimed at a more complete understanding of the photoconducting process and an appreciation of the limitations of these devices as radiation detectors.

Development of Methods of Thickness Gauging and Analysis

Radiation Induced Transient Effects in Scintillation Counter

Rapid changes in radiation intensity incident on a scintillation counter do not produce an equally rapid change in counting rate or mean current. The delay in response increases with total energy absorbed in the crystal and is due to the presence of metastable states in the luminescent centres.

The present work, which has practical application in the use of scintillation counters in thickness gauges, is being done to determine the magnitude of the effect and its dependence on temperature.

Beta-Excited Sources of Electromagnetic Radiation

Radioactive gamma and X-ray emitting isotopes provide stable, portable and relatively cheap sources of electromagnetic radiation without the need for high voltage supplies and as such are used extensively for thickness and density measurements, X-ray fluorescence analysis, radiography and radiology. There is, however, a paucity of long-lived sources emitting radiation in the important energy region below 100 keV. and so beta-excited sources of radiation have been developed.

The radiation is produced by the same processes as in an X-ray tube when the fast electrons are stopped at the target.

These sources have been developed in conjunction with the Radiochemical Centre, Amersham, and are now available in a form suitable for industrial use.

Radioisotope X-ray Fluorescence Spectrometer

For many of the simpler applications of X-ray fluorescence spectrometry, an instrument comprising a radioactive source of electromagnetic radiation and a proportional counter detector is suitable. Convenient, long lived sources are ^{241}Am, and Tritium and ^{147}Pm Bremsstrahlung.

The most successful application is for coating thickness measurement and the instrument is used for example, for tin, zinc, copper, nickel, chromium or lacquer on steel, platinum on titanium, ink on paper and for silver plate.

Simple analysis is sometimes possible such as for example, the copper content of brass, molybdenum content of steel, the tin or lead content of solder and the copper or tin content of copper-tin alloys.

A Gamma-Backscatter Instrument for Wall Thickness Measurement

Measurement of the wall thickness of a pipe or tank is difficult when one side only is accessible. To meet this need an instrument has been developed using a 20 μc source of ^{60}Co and a scintillation counter. It is based on the principle that the intensity of radiation scattered back to the counter from the wall increases with increasing wall thickness.

An Instrument for the Determination of Soil Density and Moisture Content

In the construction of roads, airfields, buildings, earth dams, etc., many hundreds of determinations of soil density and moisture are taken. Radioisotope methods are simple, rapid and can be made *in situ*.

Density is determined with an accuracy of 1 per cent using gamma-ray absorption or backscattering. Moisture content is measured with the aid of a radioactive source of fast neutrons and a slow neutron detector; the fast neutrons are slowed down by collisions with hydrogen atoms and thus their number is dependent on water content.

Determination of the Concentration of Sulphur and the C/H mass ratio of Petroleum Products

Sulphur is a naturally occurring contaminant in petroleum products and must be reduced below prescribed concentrations before the products are marketed. Thus many hundreds of sulphur analyses are carried out daily in refineries and other analytical laboratories. Tedious, time consuming chemical analyses have now been replaced in the majority of laboratories by an X-ray absorption method.

Using a Tritium Bremsstrahlung source of X-rays an accuracy of 0·03 per cent by weight is achieved.

The accuracy of the method depends on a knowledge of the C/H mass ratio which can be determined by substituting a ^{90}Sr beta source for the X-ray source. The C/H mass ratio is measured with an accuracy of 0·2 unit.

REACTORS AND MEASUREMENTS GROUP

Radioactive Standards

Samples of radioactive material which have been accurately measured (so called "Standards") are required by the medical profession, by research workers and by users of isotopes in industry. The Standards Service of the "Isotope Division" has issued—to all parts of the world—more than 4,000 absolutely measured Standards of some 62 isotopes.

Two methods of standardisation were demonstrated:

1. β-emitters of maximum energy greater than 500 keV. are measured in a 4π *Geiger counter*. A weighed quantity of the active material is evaporated onto a thin foil and placed inside a counter. The counter is filled with gas and operated in the Geiger Region. For such β-emitters, the counter detects almost 100 per cent of the particles emitted.

2. These isotopes which emit β-particles and γ-rays in coincidence are standardised by the β-γ *coincidence method*. One counter detects β-particles, the other, γ-rays. From the counting rates in each counter and the rate of coincident pulses in the two counters, the disintegration rate of the source is determined.

Marconi 12-inch Image Amplifier

This apparatus, which is the first of its kind to be completed in this country, has been recently installed in the King Edward VII Memorial Chest Hospital of the South Warwickshire Hospital Group (No. 14). Marconi Instruments Ltd., of St. Albans, the manufacturers, have evolved a novel approach to the problem and, although presentation of the final image is somewhat different from the conventional method, the radiologist is not required to develop new techniques.

THE development of this new type of apparatus, Type OE 1280, for assisting the radiologist to carry out fluoroscopic and radiographic examinations, has resulted in a design which is highly suitable for all types of clinical application.

A valuable feature of the Image Amplifier is that it leads to a lessening of the X-ray dosage to the patient. During tests on the equipment, the abnormally low dose-rate of 2 mr/second has been used to view a thorax whilst maintaining an image of sufficient clarity for accurate diagnosis.

The system relies on the reproduction of the fluoroscopic image on a television-style monitor screen, thus permitting the monitor to be placed in the best position for comfortable viewing by the radiologist. It is also possible to have several additional and quite independent monitors operating at points remote from the examination room. This

facility is especially useful for consultations and for application in teaching hospitals. A further and perhaps even more important function of this apparatus is the provision for remote cine-radiography and serial radiography.

The cine-camera facility makes it possible, for the first time, to produce a continuous record of the large fluoroscopic image at doses tolerable to the patient.

Although presentation of the final image is somewhat different from the conventional method, the radiologist is not called upon to develop new techniques. The method of operation is not complicated in any way and the only additional controls with which he has been provided are five pushbuttons and two switches.

The pushbuttons, which are physically large and therefore easily operated when wearing lead-rubber gloves, control the sensitivity of the Image Amplifier and do not involve any alteration to X-ray output. They provide the operator with a means of selecting the best possible image available at any one X-ray technique and their preset positions can be chosen by the radiologist at the time the equipment is installed. The small remote control unit carrying these pushbuttons is also equipped with a milliammeter, giving a direct reading of X-ray tube current, and a continuously variable mA control.

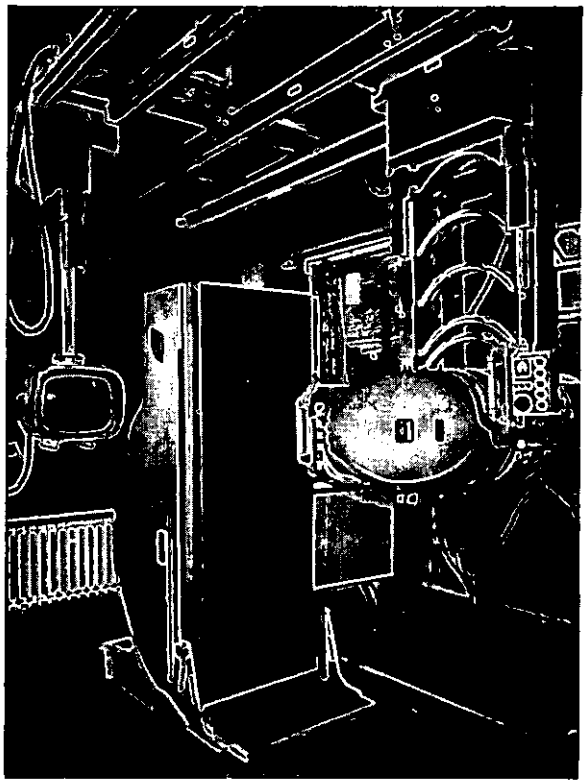


Fig. 2. The Amplifier in the vertical position. In both illustrations the television-style monitor screen is seen suspended on its own mounting from overhead rails in a similar manner to the camera unit.

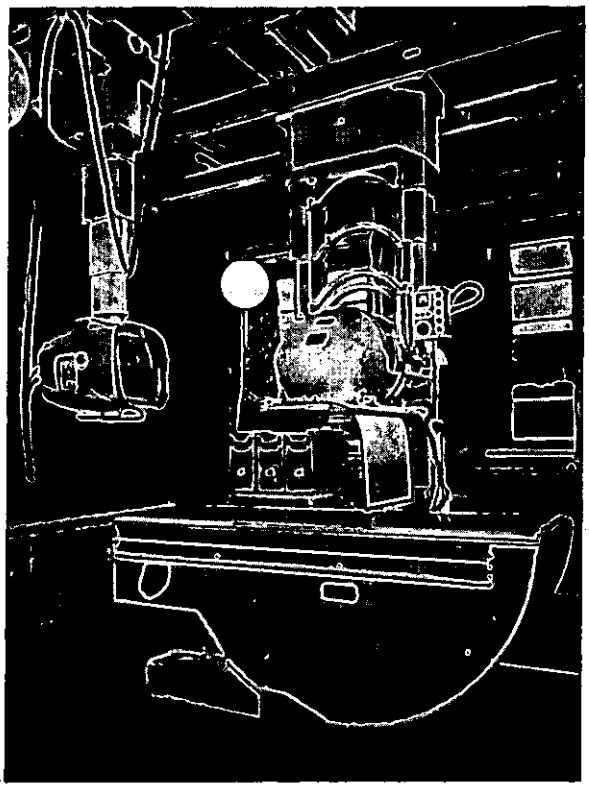


Fig. 1. The Marconi Type OE 1280 Image Amplifier shown in the horizontal position.

One of the two switches fitted to the remote control unit operates a serial film or cine-radiographic recording unit, thus permitting the radiologist to make a permanent record of any part of an examination. This procedure does not cause any interruption to the image appearing on the monitor screen and cine-radiographic techniques can now be carried out at normal screening doses.

The second switch governs the polarity of the final image. This facility is unique to the system and enables the radiologist to reproduce the image in positive or negative form at will.

Although not yet fully developed, an " add-on " unit, which will produce a reduction in patient dose of up to 25 times, will be available in the near future. This unit will provide an alternative system to the conventional fluoroscopic techniques in which the patient must be irradiated during the whole period required to assimilate the information contained in the image. By employing this unit it will only be necessary to irradiate the patient for the time actually needed to form the image; this is then held on the

viewing monitor without further radiation to the patient until the next image is required. By using a slow repetition rate, a stroboscopic view of moving body-parts is obtained.

Camera Unit

The unit is ceiling suspended and is clamped in position immediately above the table-top. By attaching the unit to the screen tower it is possible to ensure that the centre of the X-ray tube focus is in line with the centre of the fluorescent screen and that this condition is maintained at all times.

After passage through the patient, the X-ray beam impinges on a high-definition fluorescent screen contained in the base of the camera unit. The resultant image is reflected, via a mirror, into a highly efficient lens system and thence to the photo-cathode of a special type of image orthicon camera tube. Following electronic amplification the image is then reproduced on the screen of a television-style monitor.

In addition to the fluorescent screen, lens system and image orthicon camera tube, this unit also contains the low-noise head amplifier and the scanning unit. There is a gain of more than 500 times over a standard fluorescent screen.

Viewing Monitor

The final image is displayed on a rectangular cathode ray tube with a 17-inch diameter screen. The actual image occupies the central area of the screen, being 11 inches square with rounded corners 12 inches in diameter. This size is identical with the size of the original fluorescent screen contained in the camera unit so that, although the image has been increased in brightness, the physical size remains unaltered. To give the radiologist some additional control over the quality of the final image the monitor is fitted with a brilliance and a contrast control conveniently placed on one side of the case. Once these controls have been adjusted, however, it is not normally necessary to interfere with them.

The one-thousand-line triple-interlace system adopted with this equipment provides a high definition image exploiting to the full the high definition X-ray fluorescent screen used with this equipment.

The Suspension System

Both the camera unit and the viewing monitor are ceiling suspended on overhead rails. The camera unit is clamped in position immediately above the table top. The overhead carriage, from which the camera unit is suspended on telescopic arms, is mounted on overhead rails which are normally attached to the ceiling. The carriage runs freely along the entire length of the rails thereby covering the full length of the table-top. The carriage will also travel in a transverse direction between the rails to cover the width of the table-top.

The overhead carriage contains a constant-tension spring mechanism which is arranged to counterbalance the weight of the camera unit. This means that no additional weight is placed on the table and a servo-mechanical power assisted unit is incorporated to make the raising and lowering of the camera unit as effortless as possible.

When not required, the camera unit can be detached from the table, raised to the full extent of the telescopic arms and parked out of the way at one end of the overhead rails.

The viewing monitor is suspended on a single telescopic arm attached to an overhead carriage mounted on rails which run parallel to the camera unit rails. When fully extended, the monitor is low enough to be viewed comfortably by the seated radiologist and when fully retracted it can be parked at one end of the rails in a similar way to the camera unit. In use, the monitor can be rotated through 85° about the vertical axis and 20° about the horizontal axis.

The Electronic units are of the suit-case type and can be placed wherever required. Due to the use of printed circuits and, wherever practical, transistors, the size of these units has been kept comparatively small.

P. & O. " CANBERRA "

The standard of cleanliness and renewal of immaculately laundered linen on its ocean going liners is something in which the P. & O. Line takes great pride.

It has long been the practice of the P. & O. to install a full size laundry on their passenger liners. The order to supply machinery for the *Canberra* laundry has been entrusted with Messrs. Isaac Braithwaite & Son.

The number of articles to be laundered each week for over 3,000 passengers and crew produces a total which would impress any owner or manager of a commercial laundry ashore. This includes personal garments for passengers and crew and ship's linen such as bed and table linen, towels, serviettes, aprons, cooks cloths, etc.

The laundry is to be equipped throughout with the most modern machinery—washing machines, hydro extractors, flatwork ironer, drying tumblers, shirt presses, general purpose presses, garment presses, collar finishing plant, ironing and finishing equipment, all form a plant so balanced that a continuous flow of work is achieved.

In addition to the main laundry a small self-service plant will be available for those passengers who prefer to launder their own personal garments. This laundry will be equipped with suitable domestic type machines and ironing and drying facilities.

BRIGHTSIDE ENGINEERING HOLDINGS LTD.

Mr. W. S. Richards has been appointed Managing Director of Brightside Heating and Engineering Co. Ltd., of which he has been a director for some years

A Century of Ironing Machine Development

By J. R. FOULGHAM

" The History of Flatwork Ironing Machines " was the title of a film shown recently to a meeting of the Society of Hospital Laundry Managers. The theme of the film together with the replies from a subsequent discussion have been summarised here for us by Mr. Foulgham, Sales Engineer of Manlove Alliott and Co. Ltd., who gave the show.

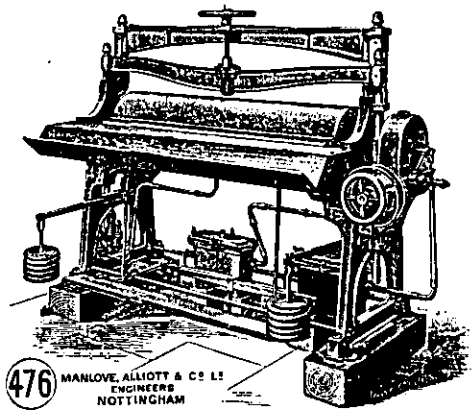
IT is not generally known that " Manloves " were the first firm to make the Decoudun Ironing Machine under licence from its inventor, a Frenchman—Monsieur Decoudun.

As the title implies the original " Decoudun machine " was made just prior to 1860 and was a small " Top Bar Ironing Machine," with a 15" dia. roller 54" long, designed to dry and give finish to flatwork, particularly to table linen.

The film commenced with shots of the oldest machines. To the surprise of some, sequences were shown of an ironing machine built around 1860 and in operation in a laundry in Britain. It was seen being used for the finishing of handkerchiefs in which this laundry took particular pride.

Another example shown was of the Top Bar type of Decoudun constructed shortly after 1860 having a roller size 24" dia. x 108" long. Some idea of the age of these machines could be gained from the fact that the gearing, including teeth, were cast, as there was no machine gear-cutting in those days. The roller speed was in the region of 18 ft. per minute, and articles passed twice through had an excellent finish.

In about 1905 the " Top Bar " design was replaced by the " G.W." type known as the " Great Western " and taking its name from the fact that the first was installed in the Great Western Infirmary, Glasgow.



An illustration of the original Decoudun ironing machine.

The speed of this machine was approximately 24 ft. per minute twice through, the increase in speed resulting from a higher bed steam pressure.

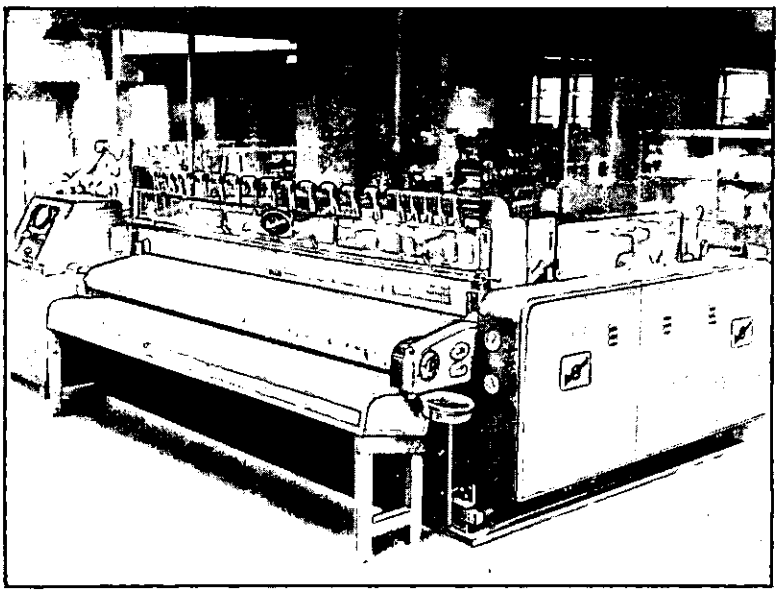
The 1910 period saw the introduction of the W.R. or Wire Rope design of Decoudun Ironer and here it was seen from the film that the gearing had been guarded. It was still fitted with a lip feed bar, treadle operated, but could boast of being one of the very first having a four speed gearbox.

About this period Manloves commenced production of the " L " Decoudun, being again the first of the big single ironers. It had a roller 42" in diameter and was unique inasmuch as it was the first " once through " ironing machine. With a bed pressure of the order of 60 p.s.i., a speed of approximately 30 ft. per minute was obtainable. A further feature of this machine was the coil clutch enabling the machine to be instantly stopped and re-started from any position along the length of the finger guard.

The big single roll was later superseded by the Manlove " Vac " Ironer, many of which are still giving excellent service in this country. It was especially noted on the screen that the mechanical design had greatly improved and the lip feed bar had been replaced by a Riband Feed.

1924 saw the first of the Super G.W. Mark I Decoudun ironers which was unique in many respects. Although only having a 24" dia. roller, drying speed was in the region of 40 ft. per min. twice through, with a bed pressure of only 60 p.s.i. The improvement was mainly due to the ventilated roller, the first ever to be invented, and called the Finspeed. Further the machine had a built-in gearbox with the gears running in oil. It was also the machine that gave Manloves the idea of coupling two or even three of these together to make one to produce a really high speed. So it came about that the Mark II super ironer was designed, the first-ever machine of unit construction.

The Mark II went into production about 1926/7 and made it possible to extend at a later date from a single roll to a Tri Super Ironer, available in widths of 120" and 160". Other developments followed, notably the " Superflex " Spring Padded Roller and, later, the now famous " Gap Piece,"



The current model of Manlove's Bi-Super Gap Suction Ironer.

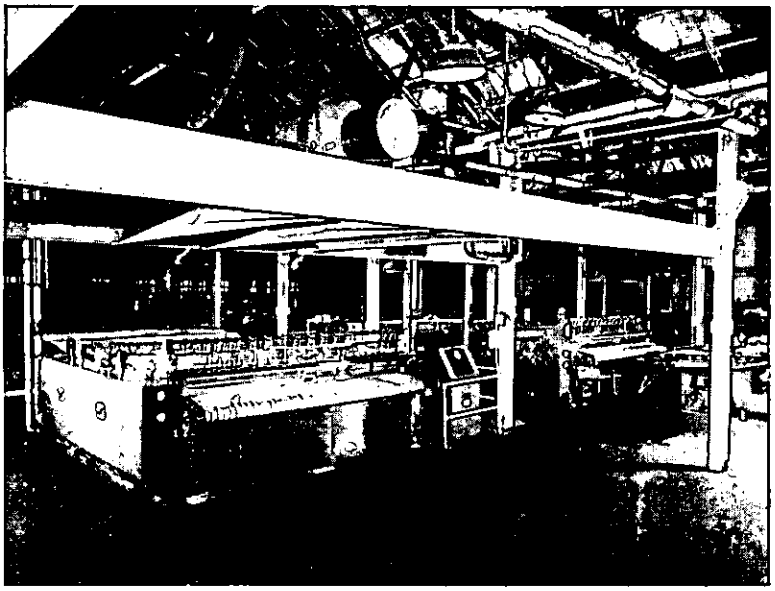
the latter giving up to 25% increase in drying capacity.

The first Gap Piece was fitted to a machine prior to 1939 but it was not until the end of hostilities that Manloves really got down to work on the "Super Gap" range of ironing machines. Also during this time considerable study and attention had been given to improving the design of the bed to enhance even further the performance and finish.

The introduction of the Mark VII Super Gap Ironer at the 1950 Laundry Exhibition preceded a remarkable run of success and, in addition to the hundreds that were being installed up and down the country, a large number were also exported to various parts of the world, particularly the American continent.

This success was repeated at the 1958 Exhibition when the Mark VIII Super Gap Ironer with full roller suction was shown for the first time, and the film ended with shots of two Tri-Super Gap Suction Ironers installed in the Una Star Laundry, Southampton.

Apart from this unique historical record the film also gave the viewers an opportunity of seeing something of the set-up that has led to the Company's success in this field.



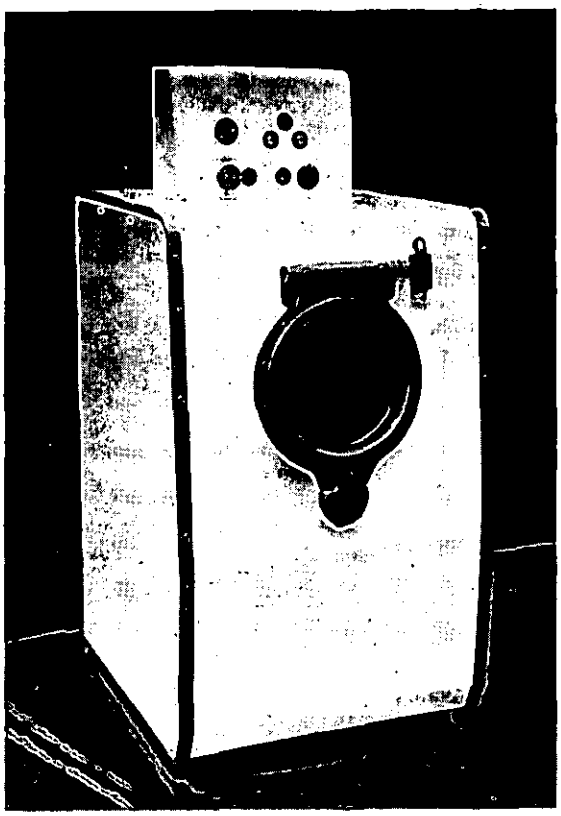
A recent installation of two Tri-Super Gap Suction Ironers in the Una Star Laundry, Southampton.

The Little Plumstead Mechanical Sluicer

By N. KENNEY (Member)

In our January issue it was suggested that sluicing machines had not yet reached a stage of development that would ensure satisfactory treatment of fouled linen. Mr. Kenny disagrees with this view and describes the machine developed at Little Plumstead Hospital of which he is Superintendent Engineer.

A DESCRIPTION of this machine, designed to sluice badly soiled linen before sending it to the laundry, was given by Dr. J. V. Morris, Medical Superintendent, Little Plumstead Hospital, near Norwich, in the *Lancet* of the 24th November, 1956, and in the *Nursing Mirror* of the 10th May, 1957. The value of this machine has now been universally recognised and increasing numbers are being fitted in special hospitals. A belief that hospital engineers will undoubtedly be requested to install and maintain this machine has prompted the writing of this article. Correct initial installation and operation are essential for satisfactory results and it is hoped hereby to explain to the hospital engineer the true function of the machine and also assist him in its installation and correct operation.



A front view of the Little Plumstead Sluicer.

The correct function of the machine is the sluicing of badly fouled linen at ward level before transportation to the central laundry in order to minimise the risk of cross infection. The unanimous opinion of all nursing staff at Little Plumstead Hospital is that a nauseating and an extremely distasteful task has been eliminated, and that one of the major causes of cross infection has been considerably reduced by the machine. The only operations required are loading and unloading, by a ward orderly or nursing assistant, the machine being capable of receiving fouled linen direct from the bed and processing it automatically.

The machine is similar to an end loading type washing machine, and is arranged to sluice the linen three times, at the same time syphoning out all foul matter automatically, and to change over to fast speed for five minutes for extraction in order to leave the linen in a drip free condition. This final drip free condition is most important, as it has been found in practice that linen is normally stored overnight and at week-ends in the laundry or ward. Too dry a condition can give rise to spontaneous combustion or mildewing, and the final drip free condition achieved by the machine obviates this danger. Water temperature should be approximately 85°F., although the machines have been run fairly satisfactorily entirely upon cold water. A temperature of 85° F., however, ensures a reasonably satisfactory washing action which cannot be guaranteed with entirely cold water. At the same time it also ensures that no stain setting takes place, which can happen in the case of excessively hot water.

A special disinfectant injection unit is obtainable as a separate accessory to the machine. This feeds disinfectant to the water inlet in pre-determined quantities via an adjustable metering valve and a solenoid controller.

The action of the machine is to give, automatically, three continuous rinses in ten minutes and one spin dry of seven minutes. Both the water inlet and drain outlet valves are operated manually by means of a handle fitted to the side of the machine, this handle being electrically interlocked with the starting

mechanism which ensures that it must be operated in order to start the machine. The handle is also held in place by a solenoid arranged so that, upon completion of the sluicing cycle, it is de-energised, thus releasing the handle which closes the water inlet and opens the drain outlet prior to the spin drying cycle. The time clock merely operates the reversing action for ten minutes and, as the three sluices are controlled by syphonic action only, the rate of flow of water into the machine is very critical. This must be initially regulated by means of an externally fitted control valve to the water inlet, preferably of the lock shield type to prevent unauthorised tampering, to 30 gallons per ten minutes or three gallons per minute. The head of water available must be capable of supplying a rate of flow of three gallons per minute through the ¾ in. inlet valve which is fitted to the machine. The setting of the disinfectant injection valve is also very critical and it should also be of the lock shield type to prevent tampering. Two types of disinfectant tank are available, one type having the pumping unit fitted externally and the other with the pumping unit fitted internally. The opinion at this hospital is that the internally fitted type is desirable. A smooth, easy clean, hygienic exterior is then provided, the whole of the mechanical parts being covered and only adjustable by the maintenance staff.

It is emphasised that the machine must be fed from a separate feed tank fitted with a ball valve, and that the water main should never be connected direct to the machine. This tank should be of a capacity of 50 gallons, which is sufficient for one complete sluicing cycle using 30 gallons.

Several methods of achieving the desired water temperature of 85° F. have been tried. One method is to feed the tank via a mixing valve which, however, has the disadvantage of not attaining the required temperature until at least one complete cycle has been completed. When the machine is in continuous use this is reasonably acceptable, but for occasional use it is most unsuitable. By experience and experiment it has been found that by far the best method of obtaining the 85° F. required is to install a normal type of electric immersion heater in the feed tank together with a thermostatic control, the main switch for this being situated in the sluice room and fed from an illuminated switch plug. This could, of course, well be changed to a thermostatically controlled steam or, even, hot water coil, placed in the feed tank. The range of the thermostat should be between 60° and 190° F. (standard range).

A three-phase electrical supply is advisable as, although single-phase models are made, it will be appreciated that the reversing action required by the machine is more readily obtainable from three-phase current.

Special holding down bolts are supplied with the machine and these must be fitted as, during the spin drying cycle, some vibration is apparent.

The machine does meet all recommendations contained in the report of the Committee appointed by the Central Health Services Council to meet a request by the Minister for an investigation and report on hospital laundry arrangements with particular regard to the avoidance of infection in the handling of fouled and infected linen (see H.M. (60) 1).

In this connection and in order to satisfy these requirements the Medical Superintendent at Little Plumstead Hospital would never consider the use of a Little Plumstead Mechanical Sluicer without a disinfectant infection tank, properly controlled and maintained. To obtain full efficiency these machines must be maintained by the engineering staff and should be frequently inspected to ensure that ward and other staff fully understand their operation and purpose.

AMALGAMATIONS IN THE BOTTLING TRADE

New Demand for Bigger Machines

" The increased number of amalgamations in the bottling trade will have an important effect on the sales of machinery manufacturers in 1960," said Mr. Thomas P. Hill, managing director of The Thomas Hill Engineering Co. (Hull) Ltd., recently.

Six entirely new machines had been added to Hills range late in 1959. These included several air cleaning units. In addition to these another new fully-automatic machine—Hills " Airline "—would soon be available for cleaning all sizes of new bottles by air process cleaning.

SMOKELESS COAL IS BEST!

Prior to 1958 the Warley Hospital at Brentwood, Essex, had tried three different grades of house coal (Trebles, Wollaton D.S. Nuts and Woodside Large) but in that year their suppliers, William Cory & Son Ltd., recommended them to try Rexco Large smokeless coal.

In a joint statement, Mr. A. G. Whiteley, the hospital's Superintendent Engineer and Mr. W. G. Wallis, the Supplies Officer said: " The new fuel has given more heat, eliminated fumes, considerably reduced downdraft smoke and ash and has provided an all round better fire requiring less attention."

" We have found," continues the statement, " that we are using less bulk of Rexco and according to our calculations this has more than compensated us for the extra cost of this fuel over ordinary coal. The additional heat, less ash content and less smoke and dirt are its clear advantages."

SGB CHANGE TITLE

A change of title has been announced by the Hire and Sales Division of Scaffolding (Great Britain) Ltd. It is now known as SGB Building Equipment Division, a name more aptly describing the ever-widening range of equipment this Division offers which includes Shuttering Equipment, Timber Plant, Mechanical Plant, Sundry Equipment and Weather Clothing, as well as the comprehensive range of SGB Scaffolding Equipment.

Distribution of all SGB Equipment is made through the Company's 36 branches on a hire, sale or hire purchase basis. The Division's head office and works are at Mitcham, Surrey.

other dimensions with the object of preventing the swinging plank from injuring children who have strayed inside the boundary of the apparatus.

The following further section of Part 3 will be published in due course: 3B, Plane swings; 3C, Plank swings; 3D, Ordinary swings; 3E, Rocking boats; 3F, Rocking horses.

TWO STANDARDS FOR HOSPITAL EQUIPMENT

B.S. 1938 : 1960 " Instrument tables for use in hospital operating theatres "

B.S. 3236 : 1960 " Dressings trolleys "

Quicker reference to subject matter, access to data that have been brought thoroughly up-to-date—these advantages will accrue to purchasers and suppliers of hospital equipment now that B.S.I. has issued separately 3 specifications that were originally contained in one volume.

The standard that has been revised and " split into three " is B.S. 1938, " Instrument tables and anaesthetists' trolleys for use in hospital operating theatres, and dressings trolleys for use in wards." Its subject matter is now available in the following British Standards:

Instrument tables ... B.S. 1938 } now available and
Dressings trolleys ... B.S. 3236 } synopsized below.
General purpose trolleys for anaesthetists' use ... B.S. 3112 (published 1959)

All three revised publications are based on the recommendations of the Hospital Equipment Standards Advisory Committee.

B.S. 1938, " Instrument tables for use in hospital operating theatres " provides for tables of two shapes: rectangular (4 sizes) and curved (2 sizes). It takes account of present-day requirements for finishes, design of framework, and electrical resistance of the tyres. The castor tyres are required to be of anti-static rubber tested in accordance with B.S. 2050. The range of materials permissible for the shelves has been extended to allow for the use of plastics.

The standard contains an appendix listing information which should accompany a purchaser's order or request for a quotation. The publication concludes with 8 line diagrams of various types of trolley.

B.S. 3236, " Dressings trolleys " also reflects contemporary requirements for finish, general design, manufacture, and electrical safety. It provides for trolleys with shelf lengths rising in six-inch steps from 18 inches up to 24 inches.

The framework of the trolleys is of tubular steel; and plastics is one of several materials from which the shelves may be made.

The trolleys are suitable for use in either operating theatres or wards.

STRETCHERS AND STRETCHER CARRIERS

Part 1 : Dimensions (B.S. 896 : 1960)

Experts from B.S.I. were among those from fifteen other countries which helped to prepare this revised standard—a publication whose terms will make a major contribution to international first-aid.

The specification provides the essential dimensions for stretchers and stretcher carriers in ambulance and aircraft, to ensure interchangeability on a wide international basis.

B.S. 896 in full accord with the (draft) " Recommendation for dimensions of stretchers and stretcher carriers " now agreed by the International Organization for Standardization (ISO). In practical terms this means that a patient being carried on one of these standard stretchers need not be transferred to another stretcher when passing national boundaries—thus considerably easing the pain and suffering which such a transfer might impose.

The countries which have now accepted the provisions of the ISO Recommendation for stretchers are:

Burma	India	The Netherlands
Chile	Ireland	New Zealand
France	Israel	Portugal
Germany	Japan	Spain
Greece	Jugoslavia	United Kingdom
Italy		

The division of the standard into two parts (Part 1, " Dimensions " published now, and Part 2, " Materials and performance " for publication in the future) has been made so as not to withhold the benefits arising from the draft ISO Recommendation. Work on Part 2 is still experimental, but it may be expected to reach a more conclusive stage later this year.

Correspondence

7th May, 1960

The Editor.

DEAR SIR,

With reference to the Industrial Court Award of salary scales to Hospital Engineers, is it possible to learn, please, through the columns of our journal, why it has been decided that Superintendent Engineers are not classed as valuable to the Health Service as some of their counterparts, viz.: Deputy Group Secretaries, Finance Officers, Deputy Finance Officers, Supplies Officers and, in some cases, Officers of the Senior Administrative Grade?

Likewise, of course, why Senior Engineers are not considered to be on a par with officers of the General Administrative Grade?

Yours faithfully,

V. A. T. WADE,

Superintendent Engineer.

Farnham Hospital,
Hale Road,
Farnham,
Surrey.

PRICE REDUCTION—PHILIPS LOW-LEVEL BETA COUNTING ARRANGEMENT

Research and Control Instruments Ltd., sole distributors in the U.K., announce that the price of the Philips Low-Level Beta Counting Arrangement (PW.4127/02) has been reduced from £625 to £575.

This instrument is designed to measure low specific activities of radioactive materials and has an extremely low background count of 1·5 per minute.

It is suitable for many applications, including C14 dating, tracer work, measurement of effluments, milk foodstuffs, etc., and many other situations in the health physics and biological fields.

Complete technical data is available from Research and Control Instruments Ltd., Instrument House, 207, Kings Cross Road, London, W.C.1.

On the Market

A Review of new equipment and materials and their development

THUNE PATIENT BATH LIFT

The bathing of aged, disabled, incapacitated and sick patients has proved to be a serious and difficult problem for a very long time.

In addition to the ever present danger of strain, accident and fatigue to nursing staff, the shortage of ward personnel accentuates the difficulty of bathing patients, especially as under existing conditions three or four nurses are necessary to perform this duty.

The Thune Patient Bath Lift is designed to solve, ease and simplify all existing methods of patient handling. Of Norwegian design and widely used in the Scandinavian countries, this apparatus is now offered by **Capecraft Ltd.**, of The Cape, Warwick.

A complete installation consists of a hydraulic lift, a trolley, a detachable stretcher, a Control Unit and a stainless steel bath. The bath can be rectangular in shape or of the Hubbard (Keyhole) tank type for physiotherapy treatment. The lift can also be used in conjunction with swimming or treatment pools.

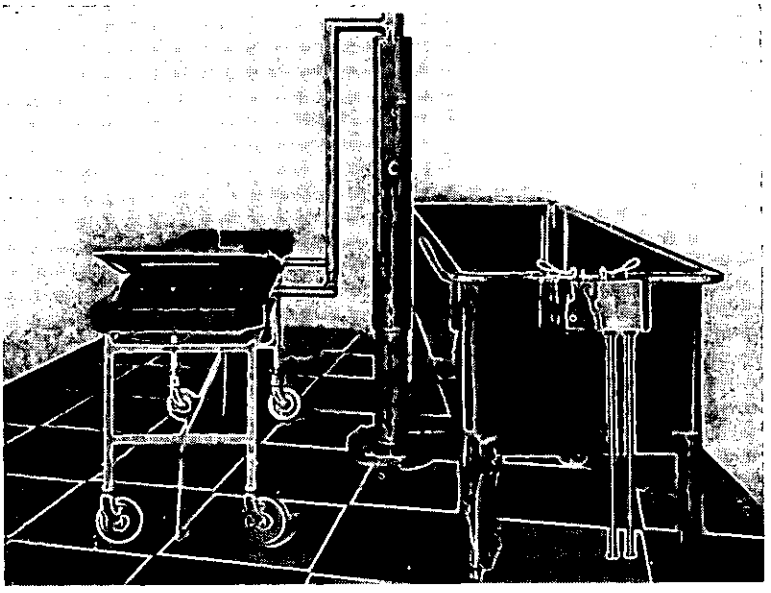
Installation is extremely simple. The lift is secured to the floor by four ½" Rawl bolts. Water from the mains is fed into the lift by means of ½" pipe and this causes the lift arm to rise. The lift is lowered by draining the water from the ram.

A detachable stretcher forms part of the installation, and on this the patient lies securely and comfortably during transport from the ward. The stretcher and patient are slid from the trolley on to the lifting fork. The lifting fork prongs locate into recesses underneath the stretcher in a positive manner and there is no danger of it tipping or moving during lifting or lowering. The stretcher is fitted with an adjustable backrest and is perforated to allow the water to drain away quickly and enable the patient to be dried whilst lying thereon.

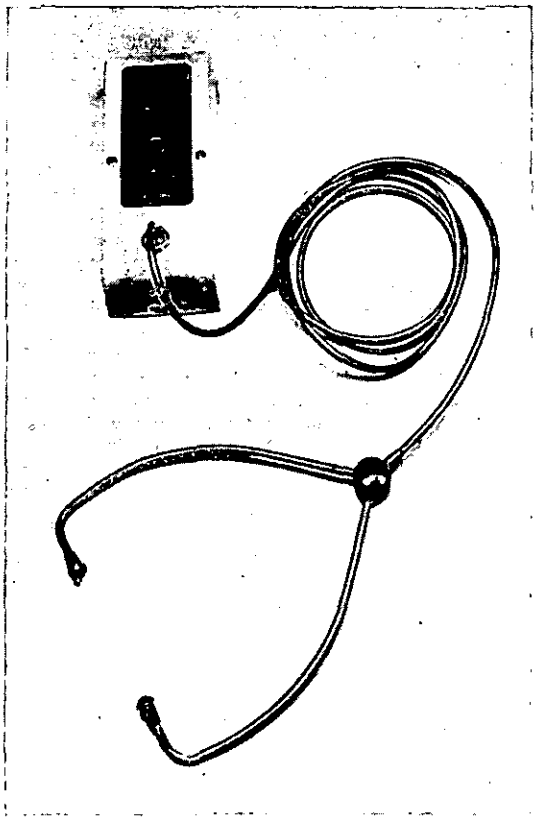
Developed by Capecraft, the Control Box is designed to facilitate the lifting and lowering action of the lift by the movement of two levers only. The stretcher is rotatable *only* when the lift is in the top position and it can be lowered *only* in the proper positions, i.e. over the trolley and over the bath.

No electrical installation is necessary. Manual movement of the patient is necessary only when the patient is slid from the bed to trolley and vice versa.

The lift can be stopped in any position, thus allowing the patient to be thoroughly soaped at the most convenient working height. Only one nurse is needed for the operation of the lift and the bathing or treatment of the patient. The arms of the lift can be turned upwards to save space when the lift is not in use.



The Capecraft Hydraulic Bathlift examples of which have been installed in the Physiotherapy Departments at Frenchay Hospital, Bristol and Scotton Banks Hospital, Knaresborough. Other installations are in hand.



The new Hadley " Stethoscope " Headset.

" STETHOSCOPE " HEADPHONE FOR WARD RADIO

A new type of ultra-lightweight radio headphone, designed primarily for use in hospitals, has been introduced by **Hadley Telephone & Sound Systems, Ltd.**, of Smethwick, Staffs.

In appearance the new headpiece closely resembles a doctor's stethoscope and weighs only 1½ ozs. compared with the 9 ozs. of the average traditional type headset. The stethoscope headphone has been designed with the object of giving greater comfort to the wearer and eliminating the heavy and continuing maintenance costs which hospital authorities face as the result of the high rate of breakages of the normal type of headphones. It is almost impervious to damage, whilst giving very much better reproduction than standard headphones.

Adaptation to any standard jack socket in existing bedhead control units is simple, involving only the fitting of a miniature driving unit mounted within the control box in place of the jack socket.

A complete unit for use with the stethoscope headphone consists of the Hadley standard five-way control unit giving the choice of four programmes (for example, Home and Light Programme radio and sound for both B.B.C. and Independent Television), with a central " Off " position and fully variable volume control, adapted as described.

RE-DESIGNED COMBINED STEAM AND GREASE TRAP

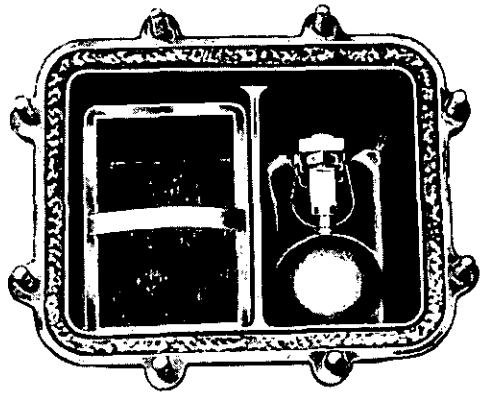
The efficient draining of vegetable steaming ovens and similar cooking apparatus presents some difficulty due to the possibility of solid matter being carried over with the condensate. This would choke the usual forms of steam trap, whilst the liquid fat, solidifying when the trap was cold, could also prevent it from functioning correctly on re-starting.

The completely re-designed Combined Steam and Grease Trap, Series 2—a product of **Royles Ltd.**, Irlam—overcomes these difficulties.

The inlet end is provided with up to three tappings to receive the condensate from one or more compartments in the oven. An easily removeable perforated copper strainer cage is fitted to retain all solid matter and any grease entering will float to the top and be retained. A bib cock is provided to allow this grease to be drawn off.

The steam trap compartment is equipped with a stainless steel discharge valve and float, and in operation the float will take up a position where the valve is just sufficiently open to pass the water without loss of steam. A cock is provided on the cover to allow for the discharge of air on starting up.

Appreciably reduced in price, this new model Combined Steam and Grease Trap is lighter and more compact than its predecessor. The straining cage area in the inlet compartment has been increased by 50%. Designed to operate on a maximum operating pressure of 7½ p.s.i. two sizes are available, one for ovens of 15 cu. ft. capacity, and a larger model for ovens of 35 cu. ft. capacity.



The Series 2 Trap by Royles with the cover removed to show the internal construction.

HOSPITAL COMFORT

The Government's campaign to improve conditions in hospitals is covering heating equipment as well as other amenities.

Specially tailored panel hot water radiators have been developed by **Hurseal Ltd.** (a member of the Powell Duffryn Group).

These panel radiators are designed to run the full length of a ward and are fitted with rubbing strakes so that beds can be pushed up against the heating system without fear of damaging the equipment.

In addition, individual towel rail attachments are provided which clip on to the panel radiator alongside each bed.

These continuous panel radiators have the virtue of being exceedingly easy to keep clean and they provide their heat largely in the form of radiation, which means that the occupants of the ward can feel comfortable at a slightly lower air temperature.

The radiators are very slim and project only a couple of inches from the wall. This means that the beds can be re-arranged at will and in addition the comfort standard is the same in any part of the ward.

Hurseal manufacture these radiators in almost any length and angled or curved form.

NEW NON-SKID FLOORING

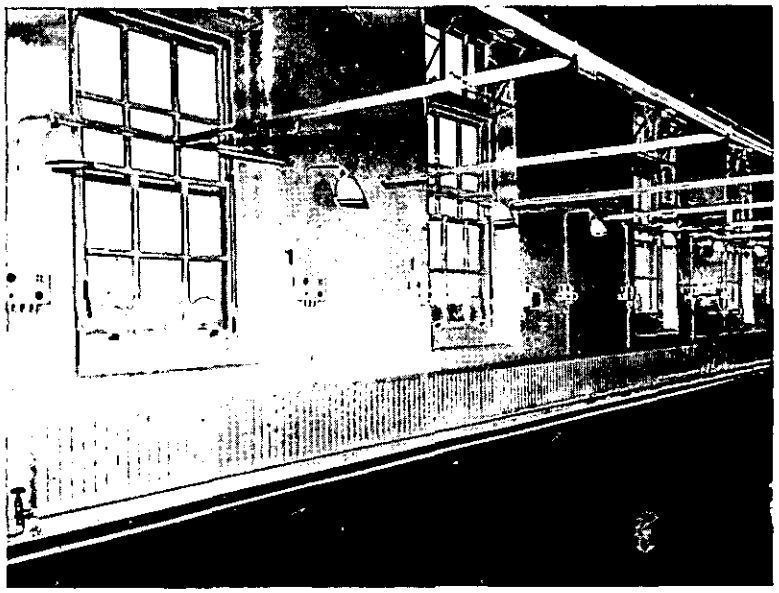
Bakelite Ltd. has developed a new type of non-skid flooring composition based on Bakelite epoxide resins. The material is suitable for use in locations such as stairs, steps, ramps, loading bays and even on road surfaces.

Epoxide resins, when cured, have good chemical resistance, are resistant to abrasion (particularly when used with appropriate fillers) and have good adhesion to many types of surface. Two methods of making non-skid flooring have been developed—the first utilising a heavily filled résin/hardener mix and the other entailing application of a resin/hardener mix, followed by an aggregate filler.

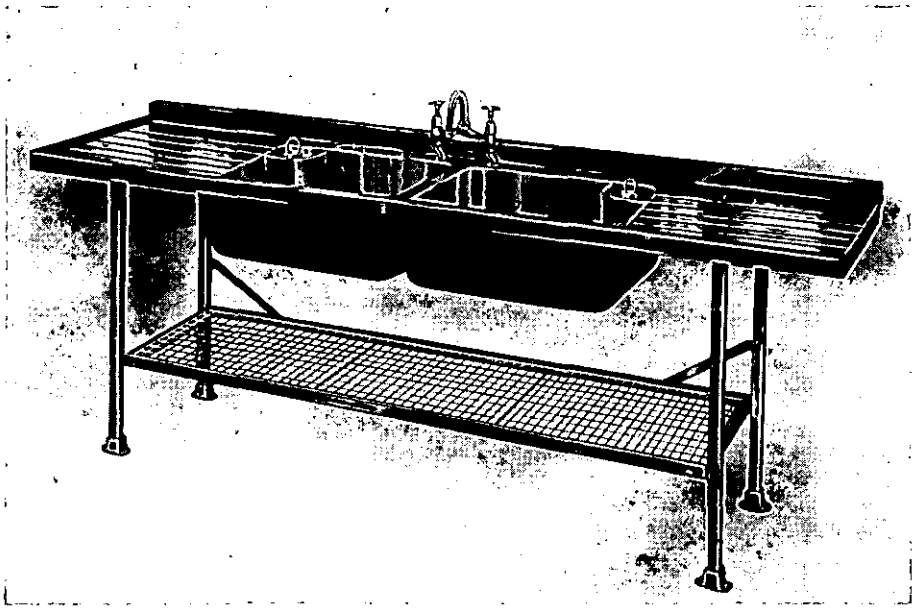
In the first technique, the components are thoroughly mixed in a specified order and the composition trowelled on to the surface which can be either concrete, metal or wood. With the latter method, the component parts of the mix (except the aggregate) are thoroughly mixed and the coating applied to the surface to be treated. The aggregate filler is scattered over the coating until it is completely covered, and the composition consolidated by rolling. The coating is allowed to harden (24—28 hours at normal ambient temperatures) and any excess of aggregate swept away from the surface.

Epoxide resins are relatively high cost materials, but with the recent introduction by Bakelite Ltd. of a series of low cost hardeners which, together with the fillers, form a high percentage of the mix, the cost of the epoxide composition is considerably reduced. A further important advantage of these hardeners is that they will cure under adverse conditions and do not need the warm, dry conditions necessary for curing with conventional hardeners.

Full details of recommended mixes, including formulations for making chemically resistant flooring are contained in Advance Information Sheet E.38,



The Hurseal tailored panel hot water radiators developed especially for installation in hospitals.



A typical model from the new Sissons range of stainless sink units. This one has two centre bowls and two drainers.

just published. Copies of this leaflet upon application to Bakelite Ltd., 12–18 Grosvenor Gardens, London, S.W.1.

STANDARD RANGE OF STAINLESS SINKS

W. and G. Sissons Ltd. of St. Mary's Road, Sheffield, have for long supplied stainless steel sinks to hospitals made to user's specification but custom-built jobs are inevitably costly. The Company have therefore carried out a survey of the types ordered over the last fifteen years and upon this information have designed a standard range of stainless sinks suitable for wide coverage of all types of catering establishment.

This new range was introduced at the recent Catering Exhibition where it was seen and approved by many experienced caterers and hospital engineers. The range is so designed that, the Company claim, almost every requirement can be suited without recourse to " Tailor-making."

By adopting a simple design which permits one piece sink bowl pressings and by manufacturing in batches as standards, it is believed that they are being offered at very competitive prices. These vary from £40 8s. 9d. for a 6 ft. by 2 ft. sink with one centre bowl to £82 16s. 0d. for 10 ft. by 2 ft. unit with two centre bowls. Trade discounts are available to hospital groups.

Our illustration shows a typical model having two drainers and two centre bowls and is complete with tubular understructure.

COMBUSTION ADDITIVES FOR THE TREATMENT OF BOILERS

Amber SSR 117

A new powder additive in a soot stick form for the treatment of boilers is being produced by **The Amber Chemical Company Ltd.,** 11a Albemarle Street, London, W.1.

Amber SSR 117 can be used for the treatment of all types of marine or industrial boilers, using liquid or solid fuels. It is claimed that it enables boilers to be operated at maximum efficiency, reducing the frequency of tube-cleaning, with a resultant saving in maintenance time and labour costs.

Amber SSR 117 is claimed effectively to reduce the soot and carbon deposits on the heating surfaces of boilers. Slag formation is also reduced and sulphur corrosion is appreciably lessened by a reduction in the formation of SO_3. Economies in fuel costs can be made as a result of the improved combustion the additive provides.

The problems and nuisances caused by heavy stack emission are partially reduced by the use of this combustion additive. Two further of its functions are to protect furnace refractories and to achieve a reduction in exit gas temperature.

The tubular injector cartons, each containing ½ lb. additive, are thrust through the inspection ports of the boiler for good distribution over the fire-bed. Application is more effective when the boiler is on low load, as long as the furnace temperature is sufficiently high, since the passage of the gases evolved from the combustion additive will be controlled by the velocity of the combustion gases.

Notes for Members

News of I.H.E. activities, etc., and items of interest from Branches

PROCEEDINGS OF THE INSTITUTION

At a meeting of the Institution held at 45, Great Russell Street, London, W.C.1, the following elections were approved:—

Member

H. R. H. Ward, Welsh Branch.

Associate Member

Ronald Bennett, East Midlands Branch.

Overseas, Associate Member

L. J. Gilbert, Salisbury, Rhodesia.

MR. H. E. MITCHELL

A Memorial Service for the late Harold Ewart Mitchell was held on April 21st in the Chapel of the National Hospital, Queen Square, London.

The Secretary attended on behalf of the Institution.

YORKSHIRE BRANCH

The Yorkshire Branch held a meeting at the General Hospital, Dewsbury, on March 12th.

Mr. C. F. White gave a paper entitled " Planning Group Building and Engineering Maintenance."

The April meeting of the Branch was postponed until the 23rd, in order not to clash with the Sandford Premium Lecture, and was held at Whixley Hospital, Green Hammerton, near York.

Mr. G. A. Kirby, Senior Engineer at Bradford Royal Infirmary gave a paper " Maintenance Plus."

This was the first occasion on which the Branch had visited Whixley Hospital and the visiting members were very impressed with all that they saw. The beauty of the place was enhanced by a lovely day.

Mr. Kirby paid particular attention to the kind of problem with which hospital engineers were faced in order to maintain continuity of service, and gave instances from his own hospital by way of example. In the subsequent discussion other members quoted examples from their experience.

LANCASHIRE BRANCH

A meeting of the Lancashire Branch was held at Brockhall Hospital near Blackburn on April 9th.

Arising from the Minutes of the previous meeting, comments were made upon the Whitley Council Report and it was decided to hold a discussion on the manner in which the negotiations had been conducted. Strong dissatisfaction was expressed at the inadequate claim made which, it was thought, should have been much more substantial. Members considered that they had been misled by the Institution's representatives as, at various times, an optimistic picture had been presented which had not been borne out by the results.

The Meeting resolved that the Institution would be better served if future negotiations were conducted by a body more suitably equipped for the purpose and made this recommendation to Council.

Amongst correspondence, the Hon. Secretary had been sent an interesting news sheet giving information regarding the engineering services and activities of the Burnley Group which can be made available to members upon request.

The procedure and nature of questions to be dealt with in a Technical Forum which the Branch propose to instigate were discussed. It was decided that a brief session of this kind should take place at every meeting. The questions already to hand for the purpose were considered. Discussion followed on the operation of general purpose incinerators and the use of graphite for feed pump lubrication. The Hon. Secretary had found a very satisfactory method of application of the latter at a modest operating cost.

Members made a tour of the main Boiler House, the main Control Room, Laundry and kitchens.

MIDLAND BRANCH

The Branch met at Lea Hospital, Bromsgove, on March 26th.

Mr. K. Rawlings, of Philips Electrical, kept members engrossed for over two hours with his paper " Modern Trends in Medical X-Ray Equipment." He also showed a film. A useful discussion centred around the new techniques referred to by Mr. Rawlings.

Among items discussed under subsequent business items were certain serious arrears of subscription within the Branch membership, the representation of the Institution on Whitley Council and the training of student engineers for the Hospital Service.

The April meeting of the Branch was held on the 23rd at Summerfield Hospital, Birmingham. The proceedings were solely concerned with business matters.

There was some concern regarding the proposed appointment of administrative and engineering assistants to Group Secretaries in certain Groups and the effect that these might have upon the responsibilities of Superintendent Engineers, and it was decided to refer these to Council.

The proposed visit to the Drayton Regulator Company's works on July 8th was also discussed as was the question of running a Week-end School in conjunction with the annual Four-branch meeting at Oxford.

PERSONAL

We learn that Mr. H. L. Kleverlaan was appointed Superintendent Engineer to the Northampton H.M.C. in December last. He had held a similar post with Carmarthen Mental H.M.C. since 1954 and was previously Engineer-in-Charge at St. Olave's Hospital, London.

Mr. C. M. Thomas, who was previously a Senior Engineer with the Cheltenham Group H.M.C., was in March appointed Senior Engineer at Morriston Hospital, Swansea, in the Glantawe H.M.C.

Mr. T. Hardacre has been appointed a Senior Engineer with the Derby No. 3 H.M.C. He was formerly in a similar post with St. James's Hospital, Portsmouth.

Mr. R. H. Lloyd, formerly Senior Engineer at St. Mathew's Hospital, London, N.1, has been appointed Senior Engineer at Hackney Hospital.

Mr. W. Howarth has been appointed Senior Engineer at Newchurch Hospital, Culceth, by the Winwick and Newchurch H.M.C. He was previously Assistant Maintenance Engineer with Bootle Corporation and had served at sea with Messrs. Alfred Holt for a number of years.

Mr. O. Ritchie, who retired in April as Superintendant Engineer after twenty years' service at South Shields General Hospital, was presented with a coffee percolator and standard lamp by Dr. N. Strang on behalf of the Hospital.

Mr. J. Morgan, Senior Engineer at the Hospital, presented him with a table lighter on behalf of the engineering staff.

SEPARATE ENGINEERING ESTABLISHMENTS

It was decided in April by the Ministers of Health and Housing and Local Government that each Ministry should have its own engineering establishment. The staff concerned have been transferred to the Ministry of Health as from April 1st and Mr. D. A. Hughes, M.I.Mech.E., has been appointed Chief Engineer.

The Welsh Office of the Ministry of Housing and Local Government will continue its service to the Welsh Board of Health for the time being.

WHITLEY COUNCIL MEETING

A meeting of the Full General Council was held on Monday, 25th April, 1960, at 14, Russell Square, London, W.C.1.

The following two matters were subject of preliminary consideration on reference from the Administrative and Clerical Staffs Council:—

Excess Travelling Expenses

The basis of the reference was a proposal in general terms put forward by the Staff Side of the Administrative and Clerical Staffs Council that provision should be made for the reimbursement of any additional travelling expenses which officers necessarily incurred as a result of compulsory transfer within the service. The Staff Side of the General Council having undertaken to bring forward more specific proposals, it was agreed that if those proposals were available before the next meeting of the Council, they could be discussed by a committee of the two sides.

Meal Allowances

Consideration of the reference on meal allowances for officers above the salary level for payment of overtime was deferred until the next meeting.

Staff Side Meeting

More important matters discussed at the Staff Side meeting included the following:—

Disciplinary Procedure

A memorandum embodying suggestions for improvements in the code of disciplinary procedure was approved for communication to the Management Side as a basis of discussion.

Recovery of Overpayments of Salaries and Wages and other Cash Losses

Representations made to the Ministry on the terms of an impending circular were approved as was a suggestion that at the appropriate time the Staff Side Secretary should communicate with all Staff Side organizations suggesting that they advise members not to admit liability for overpayments of salary or wages in circumstances which will be more fully explained in the Secretary's letter. In such circumstances the Staff Side organization of which the officer is in membership should be consulted.

National Health Service Superannuation Scheme Amending Regulations.

The Staff Side noted with satisfaction that, so far as existing staff were concerned, the right to receive interest on returned contributions would be maintained.

Removal Expenses

Discussion of the position on removal expenses was also continued in light of views expressed by Functional Council Staff Sides and it was agreed that, as a matter of policy, any scheme for payment of removal expenses on promotion should extend to all grades.

THE HOSPITAL ENGINEER

PUBLISHED MONTHLY
AT 45, GREAT RUSSELL STREET,
HOLBORN, W.C.1.
Telephone: MUSeum 0131/2

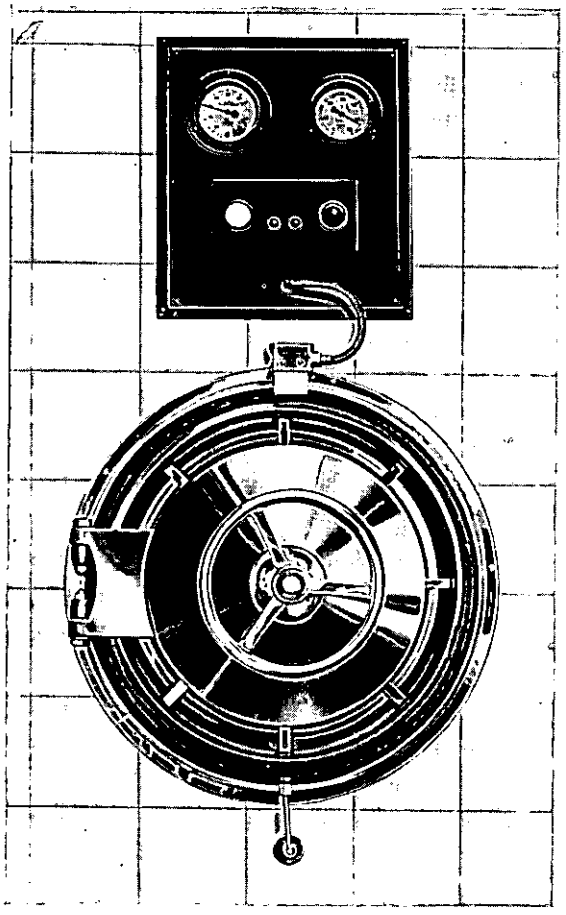
Available to non-members by subscription at 32s. 6d. per annum post free in the U.K. Single copies 2s. 6d., postage 6d. extra.

CONTENTS

	Page
Editorial	121
The Practical Aspects of the High Pressure, High Vacuum Sterilizers used in Hospitals	122
Molybdenum Disulphide as a Lubricant Additive	127
Kuwait's new Hospital	131
National Hospital Centenary Celebrations	135
Abstract of Reports	132
Laundry Managers visit Broadbents ...	144
B.S.I. News	136
The 1960 Annual Dinner	133
Notes for Members	141
On the Market	138
Classified Advertisements	143
Index to Advertisers	A.32

Saves theatre time
ensures sterile instruments
the *NEW* 'Protector'
HIGH SPEED INSTRUMENT

AUTOCLAVE



This HIGH SPEED AUTOCLAVE is an accepted advance in instrument sterilizing technique. Its rapid action not only saves time in the sterile area, it also makes possible an appreciable reduction in instrument inventories. Emergency operations may be undertaken at short notice with complete confidence.

The neat installation depicted leaves floor working area clear and most important—there is a complete absence of vapour.

STATISTICS

Complete Sterilizing Cycle:
Start from cold — 12½ minutes
or—when warm — 5¼ minutes
Internal Chamber—diameter 17 ins.
—depth 36 ins.

ANOTHER PRODUCT OF THE D & H RANGE

DENT & HELLYER LIMITED

The Specialists in Hospital Sterilizing Equipment

4 GOLDEN SQUARE, LONDON, W.1.

Telephone : GERRARD 7966. *Telegrams : "ANOSMIA, PICCY, LONDON"*