

A Novel Conversion

From Brewery to Film Apparatus Factory

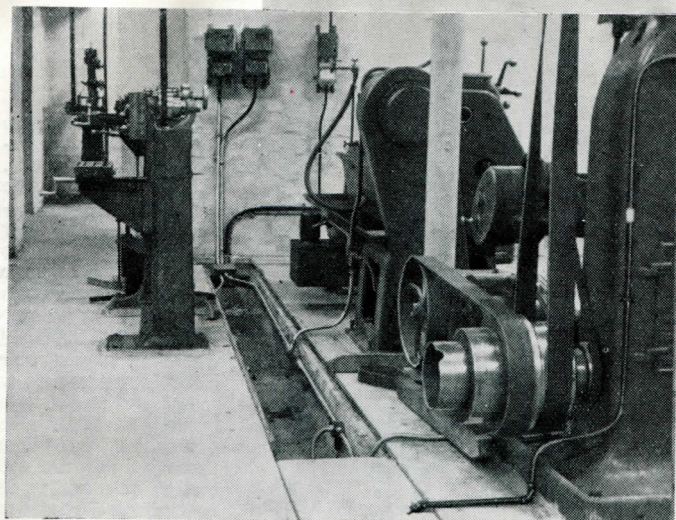
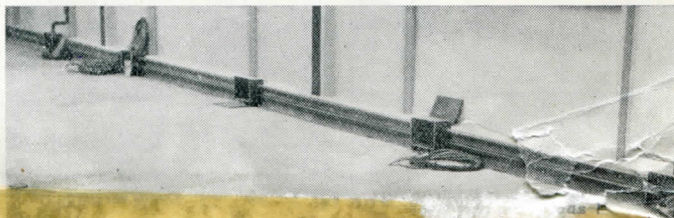
A FACTORY which British Acoustic Films, Ltd., has just established in the West of England to produce components for cinematograph sound film, amplifier, 16-mm. sub-standard sound projectors, and similar apparatus, is of interest electrically for two reasons, first the ingenuity shown in overcoming installation difficulties, and secondly the elaborate scheme of fluorescent lighting.

Until twelve months ago the building was a brewery, out of commission for the preceding ten years, but still fully equipped with all its plant. The dismantling and removal of this plant and the conversion of the various departments to their new uses presented the company with a pretty problem. In most cases the reconstruction of the whole

In equipping the building for its new use many difficulties were encountered. How these were overcome and a flexible electrical installation provided is described in the accompanying article

in cinema installations undertook the work unaided.

Recently we were shown over the factory by Mr. R.A. Tones, the works manager, and Mr. A. H. Richardson, who was responsible for the electrical layout, and were able to appreciate some of the difficulties from the electrical point of view. The greatest of these was probably the difference in floor levels. In the capstan section of the machine shop, for instance, the headroom is almost unlimited and

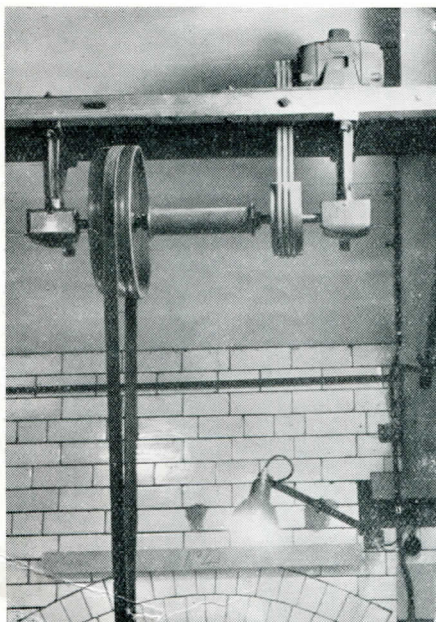


The wiring arrangements in the new factory: note the connecting points in the floor.

Left: Ducts have been left in the floor of the machine shop to facilitate the installation or the rearrangement of plant

of the concrete flooring. That it was possible to commence production after only three months, speaks well for the skill and diligence of the company's engineering department, which with its many years of experience

had only 8 ft. headroom, making it necessary to lower the floor a foot to provide the necessary clearance for the motors mounted above. To be exact, the floor was dropped 18 in., and 6 in. of concrete was laid to give a rigid

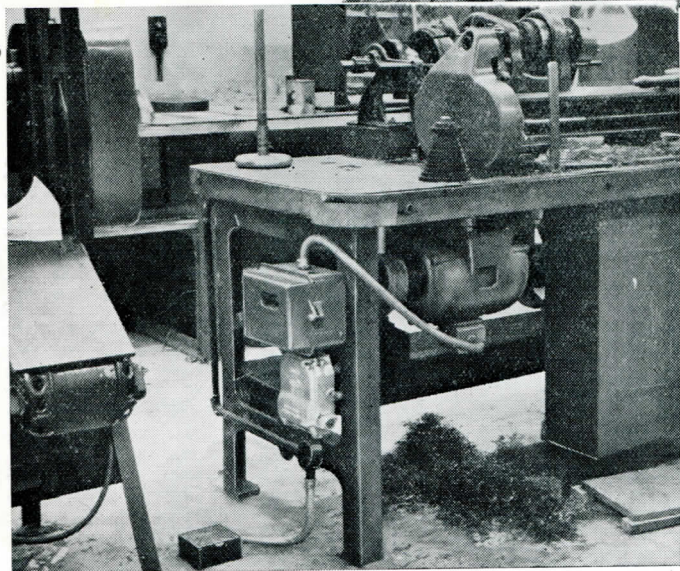
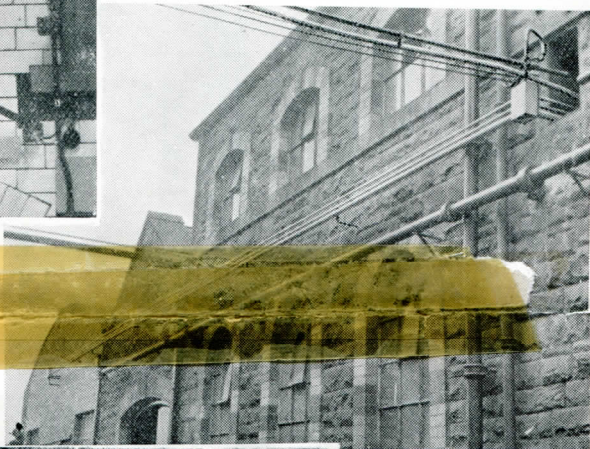


Above: Motors are generally mounted above the machines out of the way of operators, extending the necessity of belt drive.

Right: Conduit taken outside the building to overcome the difficulty of negotiating thick walls and hot-water pipes. Below: Under-bench mounting of motor.

foundation for the mounting of the machinery.

In the re-laying of this floor provision was made for any possible arrangement or rearrangement of the machines by leaving ducts with readily removable covers at intervals all across the shop. Similar foresight aiming at facilitating plant alterations is evident in a new single-storey building which has been erected close to the original works. Here, however, instead of covered ducts, metal conduits are set 6 ft. apart in the concrete floor to connect up with boxes mounted along the walls at skirting level. The wall connecting boxes themselves are fed by $1\frac{1}{2}$ -in. conduits mounted on the surface of the walls, which, being constructed of "Thermocoust" (2-in. boards of plaster and wood shavings cemented over each



side and claimed to have the same insulating properties as 9 in. of brick) are unsuitable for recessing work. Access to standard circular conduit boxes in the floor is obtainable every 6 ft. through $2\frac{1}{2}$ -in. diameter holes.

When it is decided where any particular piece of machinery is to go, it is a simple matter to draw the necessary wiring through the desired section of conduit and no matter where a machine is required there is thus a supply available within 3 ft. The conduit boxes in the floor are built up of

biscuit rings to just under floor level so that if they are not needed it is possible to fit a standard cover flush with the level of the concrete.

In the main building, the fact that the walls

Despite the unpromising nature of the building the lighting installation is one of the best we have ever seen. In all the most important situations "Osram" 5-ft., 80-W fluorescent tubes have been employed to give



A portion of the new section of the factory indicating the extensive use of fluorescent lighting

in some cases are 2 or 3 ft. thick and that there is a large number of hot-water pipes set in them at inconvenient places, has added another problem of wiring and in some cases the conduit is taken outside the building, and carried back through the walls at the required points. All the trunking and busbar chambers employed in the installation have been constructed by the company, and we were interested to see how the main and sub-switchboards housing G.E.C. and "Glasgow Rex" metal-clad switch-fuse gear were made up of its standard amplifier rack units. The main oil circuit-breaker is a 400-A, G.E.C. unit. A 6.6-kV supply is stepped down to the factory pressure of 400 V by means of a 400-kVA Bonar Long transformer, controlled on the high-voltage side by a triple-pole air-break switch supplied by Electric Transmission, Ltd., and on the low-voltage side by English Electric h.r.c. switchgear.

In the mounting of the motors, some of the difficulties of which we have already mentioned, positions have been carefully chosen out of the way of the operators, generally above the machines, but sometimes where more convenient, underneath. With very few exceptions, individual drive has been adopted everywhere and extensive use has been made of V-belt drive. The motors, each with their direct-on-line contactor starters, are all of B.T.H. construction.

a high intensity and well diffused illumination of about 20 ft.-candles all over the working plane.

Actually this source of illumination was almost the only one possible in the machine shop with its low ceiling and complete lack of daylight. Apart from the shallowness of the fittings housing the tubes, the heat generated by any other source of illumination giving an equal intensity of light would have made the atmosphere unbearable for the machine operators.

Especially striking is the use of this form of lighting in the new building where no fewer than eighty-seven tubes are utilised to illuminate a production area of approximately 6,000 sq. ft. The quality as well as the intensity of the light produced leaves little doubt of the future in store for this form of illumination.

For lighting other departments where the somewhat higher initial cost of the fluorescent tubes has not been considered justified a generous installation of Benjamin "Glassteel" pendants containing 200-W incandescent lamps has been provided, supplemented in the drawing office by Mek-Elek adjustable desk units. Whichever source of lighting is used it is, however, evident that the company has learnt to respect good illumination as a means of securing maximum output under the best possible conditions.