

Our New Industrial Television Camera in Action

LOOKING INTO THE FURNACE

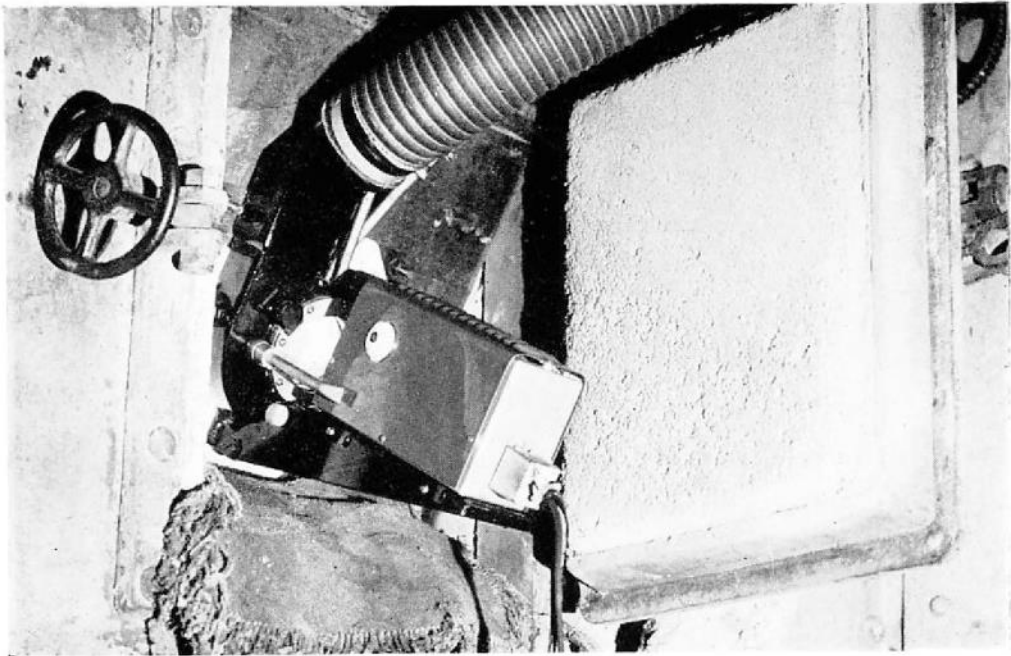
FOR MANY YEARS past, two major problems have confronted boiler-room engineers; one was the virtual impossibility of knowing exactly what was going on inside the furnace itself; the other, how best to effect a constant supervision of the boiler water-level. Many devices have been tested to overcome these difficulties, and now, after exhaustive trials, our engineers have introduced an industrial television equipment which should prove a great asset to the combustion engineer. The British Electricity Authority have

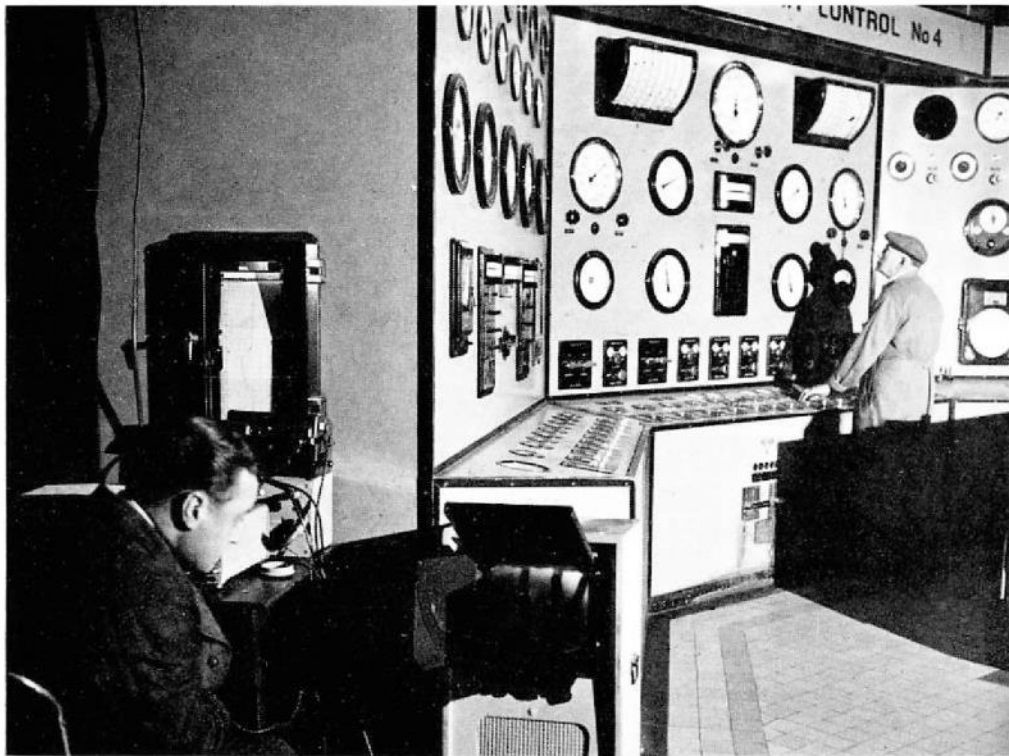
ordered eight of these equipments, to be installed at their new power station, Willington "A" in Derbyshire.

The fuel used for heating the boilers is pulverised coal, which is jet-injected into the furnace with the air stream and is ignited by pilot oil-burners, the latter being extinguished as soon as full combustion has taken place. In such an operation, it is vital to ascertain that the fuel has fully ignited, as a firing failure, if unobserved, could result in a serious explosion.

Hitherto, observation has had to be

The industrial television camera, under a foot long, in a water-and-air-cooled mounting, watches the flame of a boiler furnace. By this means engineers determine fuel combustion





The combined boiler and turbine control panel. In the foreground is the monitor showing conditions inside the furnace, and, left, Ron Swinden, Project Engineer, Broadcasting Division. Below is a view off the screen of the furnace on load; from this the supply and ignition of the fuel—pulverised coal forced through high pressure jets—can be regulated

maintained through inspection ports in the wall of the furnace, a procedure which makes supervision difficult in modern stations where control is exercised from a point which may not be immediately adjacent to the boiler. Experiments were carried out with a Marconi Industrial TV Camera, fitted with a special air-and-water-cooled lens, and installed in the explosion door aperture at the base of the boiler. The I.T.V. Control Unit and Monitors were placed at a convenient point alongside the combined boiler and turbine control panel.

The experiment was successful, the B.E.A. engineers being able to follow, at the control panel, all phases of the boiler ignition procedure and to detect conditions of imperfect combustion within the area under observation.

The second experiment concerned the relatively straightforward operation of monitoring the boiler water-level gauge. For mechanical reasons, this gauge is normally located high up, near the top



of the boiler, but in spite of this a constant watch has to be maintained upon it, as a lowering of the water-level beyond a critical point would have serious consequences to the boiler, and might well result in its being out of commission for months.

The camera, for the experiment, was fixed at a strategic point, televising the image of the water-gauge to the monitors at the boiler and turbine control panel.

One particularly admirable feature of this application of industrial TV is that, unlike all previous electrical alarm devices which have been tried, the TV equipment monitors itself for faults. The presence of the picture on the

monitor is absolute proof that the equipment is working, in contrast to conventional alarm devices, where the absence of a warning is not in itself wholly conclusive evidence that all is well; it could easily be that some part of the alarm equipment is out of action.

Hitherto, the high cost, physical size and complexity of operation has limited the use of television for industrial purposes. Now, the new equipment, with its camera weighing only 4½ lb., its simplicity of operation—no more difficult than that of a television receiver—and its low cost (basically in the region of £500) has provided for the first time a sound economic proposition for use in office and industry.

TV for "Our" Hospitals

TWENTY-ONE English Electric television receivers have been given to hospitals in the areas serving the various Works in the Group. Sir George Nelson, our Chairman, made these gifts in response to an appeal by the National Television Fund, and as a mark of

appreciation of the unstinted care given by the local hospitals to the Companies' people in times of ill-health.

The case put forward by the National TV Fund for this form of practical assistance to hospitals throughout Great Britain showed a widespread need, and made the choice of recipient hospitals a very difficult one. The final choice was made after taking into consideration the number of beds, especially those for children, and the number of sets already installed in the public wards.

The receivers are the English Electric 16in. cathode ray tube table models with wide screen viewing, so that patients can "look in" together in comfort. In Chelmsford, both St. John's and the Chelmsford and Essex Hospital have received sets, and at St. Albans the City Hospital and the Mid-Herts have them.



In St. John's Hospital, Chelmsford, some of the older patients see television on the new receivers with the Sister-in-charge