NOTES ON SHIP MAINTENANCE

Superheater Supporting Hooks

During the progress of refitting the superheaters of *King George V*, eight superheater support plates were removed for re-conditioning.

Of the 16 supporting hooks (two per supporting plate) six had old fractures and one was broken during removal. In each case the fracture occurred across the hook, through the top hole for the relevant securing bolt. In no case have both hooks broken on any of these support plates.

This experience indicates that, owing to the brittleness of the material of the support plates, the bolts generally should be an easy fit.

Steam Driven Extraction Pump

The turbine shaft of an extraction pump in a Fleet Carrier recently broke inside the coupling ; this failure was caused by fatigue due to misalignment of the pump and turbine bearings. The other extraction pumps in the ship were also found to be out of line and the natural tendency was to blame the makers, but from the fact that this ship had steamed satisfactorily for many tens of thousands of miles it seems more reasonable to put these defects down to " fair wear and tear " : the possibility of slight distortion developing in fabricated bed plates of this and similar machines should not be overlooked and alignment should be checked occasionally when opportunity permits.

Refrigerating Plant

It has been suggested that the adoption of Freon gas for the main refrigerating plants in H.M. ships, " would be a great advance and would save maintenance staffs a large amount of time and an even larger amount of worry " on account of the low pressures involved.

The use of Freon machinery, however, will increase, not decrease, the necessity for careful maintenance, but in view of the many advantages of Freon gas over

CO_2, the recommendation is concurred in, and is, in fact, already being implemented. Unfortunately, Freon is not yet manufactured in U.K. and the United States is reluctant to export such supplies as they have ; the shortage is likely to be embarrassing.

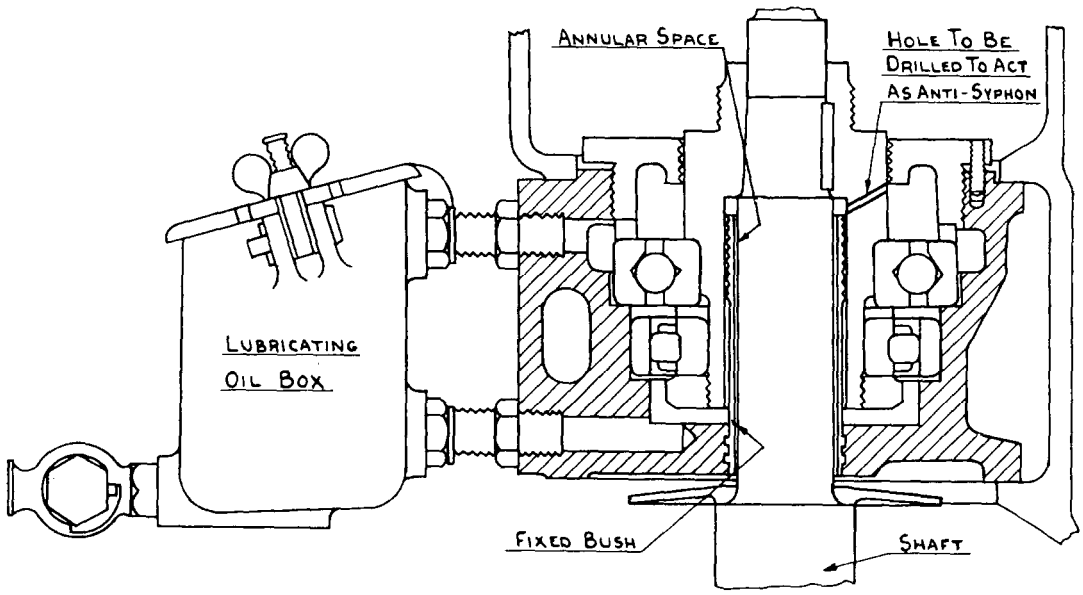

FIG. 1

Weir's Vertical Turbines—Oil Box Leakage

Trouble has been experienced in H.M.S. *Vanguard* due to oil leakage from the oil boxes of certain turbine-driven extraction pumps, fire and bilge pumps, and oil fuel service pumps. The loss of oil amounted to half a box full per hour per pump, the oil seeping away via the annular space between the shaft and the adjacent fixed bush. This effect is believed to be due to syphonic action, the oil being drawn over the top of the bush into the annular space.

The remedy being tried is illustrated in Fig. 1 and consists merely of drilling a hole continuous to the top of the bush, with the upper end as high as practicable, to act as an anti-syphonic device.

This hole was originally provided in Messrs. Weir's earlier designs but was discontinued later, as certain units were found from experience not to need such measures.

It would be of interest to learn if any similar troubles have been experienced in other ships.