

wire rope will gradually pull through the socket if a substantial swell is not made on the rope end. Unless the socket is of great length a thin ring or tube of babbitt generally comes with the wire, showing that the shearing strength of the alloy is not sufficient to withstand the load.

Break downs to the machinery and other gear are frequent, due probably as much to the prevalence of the double shift system as to the over straining or mishandling of the machines. However, on account of our short season and the large amount of work to be done, day and night crews are obligatory, even though they certainly are not satisfactory from a maintenance point of view.

In the case of a dredging fleet, where to a great extent one machine works in conjunction with another, and a breakdown to the one will in all probability delay the other, it is absolutely necessary to have means whereby quick and efficient repairs can be made. To effect quick repairs, material and spares must be in readiness, and when possible parts of machines should be made to templates so that no time will be lost in fitting them to their places. By efficient repairs are meant repairs that will stay repaired or done in as perfect a manner as circumstances will permit. Good workmen, and good workmen only, should be employed, for a cheap man is generally a dear man when time, mistakes and poor workmanship are reckoned up. A few cents an hour more in an employee's pay are insignificant when a dredge and its derrick are waiting on a tug which is out of business with, say, a broken piston ring. Hire good men, give them good tools and material best suited to the job in hand and the time lost will be a minimum.

The Harbour Commissioners, until a couple of years ago, maintained a floating shop, the hull of which had long done service as an elevator dredge. Now, however, a fairly equipped machine shop on the Mackay Pier attends to all repairs.

Frequently the person in charge of a dredging fleet has to decide as to whether or not a certain repair is absolutely necessary, and before giving his decision he must consider the probable effect if repairs are not made. Will there be danger to life or limb if complete breakdown should occur? Will the trouble extend or cause other apparatus to carry undue stresses? Are the conditions at the time favourable for stopping a machine or would a short delay prove more advantageous? It is often a nice point to render a decision upon, but it is best to err on the safe side. First, consider the safety of the men; second, the machine; and, last of all, the work.

The cause of a breakdown should always be investigated, and, if possible, means taken to prevent a repetition of the failure. At this point it may be mentioned that due regard should be paid to the

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