

TR2-122-123

GEOLOGICAL FACTORS AT SITES OF PROPOSED BRIDGES OVER THE MERSEY AND FORTH RIVERS

by **TERENCE D. HUGHES**

It is proposed to renew the bridges which take the Bass Highway over the Mersey and Forth Rivers. The Public Works Department intends to request the Bureau of Mineral Resources to conduct Geophysical Surveys at these sites. The following geological notes are provided for the guidance of the geophysicist.

The Mersey has been flowing in its present channel since the Pliocene. Its previous channel in the vicinity of what is now Thirlstane and Sassafras was at a lower elevation and the river was blocked by large outpourings of basalt. When diverted to its present course the river cut down easily through the Permian sediments near Latrobe, but south of Devonport it encountered solid dolerite so its cutting rate was slow. Thus it is expected that there will be no great accumulation of alluvium at the proposed bridge site and its thickness should be of the order of 20-30 feet. Beneath the rather unsorted Recent river alluvium are the beds of larger boulders collected during the Pleistocene and referred to by the Public Works Department as "shingle". This shingle was reported in holes at an average depth of 12 feet.

Below all this alluvium should be flat bedded unfolded Permian rocks. The commonest Permian rock is a mudstone or siltstone, although beds of shale, sandstone and conglomerate do occur in the Permian succession in this locality. Small faults, such as have been noted in the Oil-Shale deposits a mile or so south of this locality, may occur. Half a mile to the north, the Permian rocks are intruded by Jurassic dolerite.

At the Forth River site, the geological structure is entirely different. Beneath the river alluvium, bedrock is probably a Precambrian quartz mica schist. These rocks are extremely tightly folded and the average dip of the beds is 70° to the west. Holes have already been put down along the bridge centre-line showing river alluvium up to 34 feet in thickness, but usually much thinner. In these holes have been encountered what have been described as both soft fissured rock and hard rock. Some of the schists, due to excess mica are relatively soft when weathered and some of these Proterozoic rocks, as can be seen in the west side of the Wilmot Road opposite the Forth school, are pure silica and therefore very hard. It seems possible then that the hard rock is a quartzite and the soft one an interbedded micaceous schist. The main thing to remember is that these beds are practically on end and that beneath the alluvium the bedrock will be very irregular in contour. Samples of these rocks may be seen at the Mines Department.