

into account, it would appear that the impurity load is now twice that which was allowed for in 1931 for the first stage of the Motukorea scheme. Taking into account the probable population increase during the next fifty years and assuming that all trade wastes are received by the Board's sewers, the result is that if the effect of the trade wastes is considered in terms of population the Board may be required by the year 1965 to deal with sewage equivalent to that from a city without industries of approximately 700,000, and by the year 2,000 the "equivalent population" may be over 1,000,000. As the ultimate population allowed for in Mr. Watkin's original proposals was 550,000 and as no special provision was made in these proposals for trade wastes, the influence of the trade-wastes factor in the location, number, and extent of the treatment-works required will be obvious. It should be mentioned that this aspect of the problem would appear to have received little consideration on the part of the Drainage League and its technical advisers.

(8) We should explain that it was contended before us on behalf of certain of the industrial undertakings concerned that the order of reference did not empower us to consider or make any recommendations with respect to trade wastes problems. This contention was put forward rather faintly, and as we have come to the clear opinion that trade-waste matters are within the scope of the order of reference, we have considered them and have come to certain conclusions in regard to them.

(9) We have mentioned that doubts have been expressed as to whether the Drainage Act imposes an obligation to discharge trade wastes to the Board's sewerage system. We consider that it is essential that there should be compulsion, although we consider, notwithstanding the views expressed by the 1937 Drainage Commission, that in certain circumstances exemptions should be allowed. The Health Department and the Harbour Board and other authorities favour compulsion, and, in general, the industrial undertakings themselves agree. They claim, however, that they should not be put to any expense other than the expense of a certain amount of treatment on their own premises, and the fertilizer undertakings claim, in addition, that as the wastes from their works have a very low degree of impurity they should be permitted to discharge their wastes into the waters of the Manukau Harbour as they now do. The evidence with regard to the wastes from the fertilizer-works indicates that under proper control it may be quite safe for their wastes to be discharged into the harbour, but it is essential that there should be effective control.

The conclusion to which we have come is that the discharge of all "trade wastes" (to be defined in the Act) into the sewers of the Drainage Board should be compulsory, but that with the approval of the Harbour Board exemption from this obligation should be permitted to be made by the Drainage Board on such conditions as may be prescribed by the Board and approved by the Harbour Board. We consider that an undertaking should have a right of appeal against a refusal of its application for exemption and also against any of the conditions of exemption that may be prescribed by the Drainage Board, and we recommend that the Drainage Act should be amended by a provision conferring this right of appeal and applying the provisions of section 61 of the Act. We also consider that section 34 (4) of the Act should be amended so as to make it clear that it applies to trade wastes, and that section 32 (1) and its proviso should be similarly amended.

(10) Trade wastes differ considerably in their volume and in the degree of their noxiousness. In some cases no harm to the Drainage Board's operations would be caused by their being received by the Board's sewers without being previously treated so as to reduce their noxiousness. In other cases, pretreatment to a greater or less degree would be necessary, the degree being regulated by the necessity of assuring that damage to the main sewers will not be caused and that the costs of operation and maintenance per unit volume will not be unduly increased. There are also cases in which, while pretreatment would not be absolutely necessary, in default of it, extra expense would be caused