

*Notes as to the Discussion on the Geelong and Sandhurst
Water Supplies.*

(Minutes of Proceedings, vol. lvi.)

MR. G. GORDON has communicated, through the Secretary, the following remarks, which would have been made at the time had he been able to be present. As the designer of the concrete dam at the Stony Creek reservoir of the Geelong waterworks, he would observe, that the curved form was adopted, not for the sake of additional strength—for in his opinion the dam could not practically be made lighter, on account of being built to a curve of so large a radius, 300 feet—but in order that the ends might abut better on the rock of the hills on each side. It was calculated as if it were straight, and the limit of pressure was only 8,000 lbs. per square foot, as the sandstone of which the concrete was made was not very hard. The drainage area had been doubled by the construction of this dam. It now measured 8 square miles, and the storage capacity of the two reservoirs was (160,000,000 gallons in the old, and 115,000,000 gallons in the new reservoir) 275,000,000 gallons, or a year's supply of water at the rate of 750,000 gallons per day, which the pipes could deliver, being at the rate of 34 gallons per head of the population per day—not 12 gallons, as stated by Mr. Moriarty. He did not know any town in Victoria where the allowance was less than 30 gallons per head; generally much more water was allowed. Both at Geelong and at Sandhurst the water was used profusely for street watering, flushing gutters, watering verandah and house roofs, &c. Since Mr. Dobson left Geelong, two settling ponds had been constructed, and the water—which in its natural state had an unsightly yellow or brown tint, arising from exceedingly fine particles of clay, which could not be filtered out, even with filtering paper—was, after the clay had been precipitated by lime, perfectly clear. The lime was all, or nearly all, precipitated with the clay, so that, according to analyses, from 0 to 2 grains only per gallon remained in solution. The Geelong water contained 1 part per million parts of free and albumenoid ammonia. The Sandhurst water was very similar. Both were surface waters, as was also the Yan Yean supplying Melbourne. The latter was not artificially purified, but got clearer in the reservoir than when drawn from the river Plenty. Recent

comparative analyses had shown the Yan Yean water to be purer than rainwater collected from roofs into iron tanks in the suburbs of Melbourne. From the drainage area of the Sandhurst water-works, which, before being supplied from the Coliban, comprised about 4,000 acres, the water collected bore the following proportions to the rainfall, none being wasted. In summer, 0·033 to 0·08; in winter, 0·11 to 0·18; for the whole year, 0·08 to 0·16; average of three years, 0·11. The Coliban also supplied Castlemaine, Taradale, and the mining districts of Fryerstown, Forest Creek, and others. The main reservoir was at Malmsbury, and down to that point the drainage area of the Coliban was 100 square miles. The reservoir was either deficient in capacity, or its bywashes were insufficient to prevent sudden floods overtopping the embankment; and the reservoir could only be kept half full. In all but very unfavourable years it would be capable of supplying 15,000,000 gallons of water per day to the above-named districts.

Mr. JOSEPH BRADY likewise communicated, through the Secretary, the following additional notes relative to the Sandhurst water supply: So far from there being no provision for street watering and manufacturing purposes, an ample quantity had always been available since the completion of the works. At the date of the Paper the number of domestic services amounted to only about one-third of the number of dwelling houses (there being no compulsory Act then in force); many of the dwellings were, however, in non-reticulated streets. Wherever the water was laid on it was used, as a rule, in a lavish manner, for baths and for garden irrigation as well as for domestic purposes. Sixty-three mining engines were supplied for steam purposes; also the railway department and several large breweries. In every 1,000 gallons delivered, the distribution was nearly as follows:

| | Gallons. |
|--|----------|
| Domestic use | 560 |
| Hospital, asylum, and gaol | 16 |
| Locomotive engines, railway department | 50 |
| Street watering, public baths, and gardens | 50 |
| Breweries | 27 |
| Foundries | 14 |
| Sixty-three mining districts | 286 |
| | <hr/> |
| | 1,000 |
| | <hr/> |

The daily consumption varied from 400,000 gallons in winter, to 900,000 gallons in summer.

The following was an analysis of the water, which was bright and sparkling :

| | Grains per gallon. |
|---|--------------------|
| Chloride of sodium | 4·55 |
| Carbonate of lime and magnesia. | 1·75 |
| Vegetable organic matter. | 1·75 |
| | <hr/> |
| Total | 8·05 |
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