SEPTEMBER, 1900.

The usual monthly meeting of the Royal Society of Tasmania was held on Monday at the Museum, Argyle-street. The Administrator of the Government, Sir John Dodds, presided.

LIGHT RAILWAYS FOR TASMANIA.

A discussion took place on a paper previously read by Mr. G. E. Moore, M.I.C.E., on "A system of light railways for Tasmania."

Hon. C. H. Grant, M.L.C., said he did not quite agree with all Mr. Moore's views. With regard to his classification, he thought it was somewhat artificial. He thought the classification ought to be one of railways, irrespective of the gauge, and that the term "standard" should not be used. In Spain, the gauge, was 9ft. 9in., and in Canada it was 5ft. 6in., and these were the standards in those countries; 3ft. 6in. was the gauge in South Africa, and in several of the Australian colonies, including Tasmania. There was a 3ft. 3in. gauge prevalent on the Continent of Europe, and it was also in use in India. The term "standard" was only applicable to localities. Steam tramways, he thought, ought to be dealt with apart from railways. There were several steam tramways on the West Coast, though Mr. Moore seemed to say there were none in this colony. Light railways could be made important feeders of main lines, and he preferred them to steam tramways (which were not much cheaper) because they saved break of gauge. Mr. Moore surprised him by his estimate of the cost of transhipment. In France it was 4d. a ton, and here it would be 6d. or 7d. Light railways recommended themselves if managers were not afraid to manage them. The gradients and curves, of course, ought to fit the nature of the country, and they ought to be worked with light engines, and at low speed. The maintenance ought to be in proportion to its capital cost. He should very much prefer to see the railway system of this colony extended by light railways, and these improved as time went on, and necessity arose. Engineers had acted on this principle, but the managers, influenced by the public, made the lines do more work than the engineers had intended. Mr. Moore spoke of people being rated along the line. That was tried in the Western railway, but no politician would revert to such a system. He preferred private to State ownership of railways. In other countries private enterprise had done more for the community in the matter of railways than the State. Tramways should be devoted to special objects, and the North-East Dundas "tramway" he regarded as a railway. He urged that special attention should be paid to surveys, and thus months of construction might be saved.

Mr. J. Fincham agreed with much that Mr. Grant had said. The term "light" railway was one of relative significance. He did not like the word "light," because it suggested flimsiness. "Light traffic railway" would, perhaps, be more accurate. The total cost of the Tasmanian railways compared favourably with the cost of the railways on the mainland of a corresponding character. To Mr. Nicholas Brown was due the credit of having first suggested the making of light railways in Tasmania. But the system was opposed by managers and others, and railways of a normal character were made. He spoke disapprovingly of over-building for a limited traffic, and warmly advocated the making of light pioneer and feeder lines (not suckers) at a minimum cost. He spoke of the conditions under which a break of gauge might be made, and suggested how expense on stations might be reduced. He estimated the light lines, such as he advocated, could be made at half the cost of normal lines. All future developments of the railway system here ought to be made with single goods lines, such as he had spoken of.

Mr. C. B. Target said there was the question of making a railway by Government agency, instead of by a company, involving a saving in directors' fees and in the superior staff; also a Government could obtain money at a lower rate than a company, and by employing small contractors, who would be paid only for what they did, the speculative profits, on risks, of a large contractor would be eliminated. He gave examples of the cost of companies' work compared with Government work in India.

Mr. G. E. Moore replied to some of the comments made. He said he was glad that, in the main, the speakers

agreed with him, and therefore what he said in reply was wholly as to details.

The Chairman said he thought the present system of setting off the increased value of land against the claim made by the owner for compensation was an equitable and intelligible one.

The discussion was then closed.

RESERVOIRS.

Mr. C. B. Target read a paper on "Reservoirs—Irrigation in India, and Deductions with special reference to the Hobart Reservoirs," illustrated by lantern views. Speaking of waste weirs, he said that "one of the important subsidiary works is the waste weir. I give sections, showing the growth of what was finally adopted as the best. These weirs were originally a piece of ground levelled at the end of the dam; this was found to wear away, then stone pitching was used, afterwards a wall was put to preserve the level, and avoid leakage between the stones, then a wall at the bottom to prevent the stones from slipping. You will find this idea adopted by Mr. Thwaites at the upper reservoirs. Now, although these aprons were carefully made, hardly any answered; there was always settlement, so the upper wall had to be made strong enough to stand unsupported by the apron; so I first tried rows of slabstone to bind the work together, and localise settlement; the success was partial only, as extra scour was created under the slabstones, so concrete was put under 2ft. deep. This, although an improvement, was not sufficient; so I built walls above the concrete to a level with the apron, the wall being coped with slabstones, the horizontal distance of these walls being the thickness of the apron multiplied by the slope. This system has proved thoroughly successful, and the flow of water being intercepted by these walls, the result is that the space above gets grouted in with silt, making the work stronger year by year." Speaking of the trouble at the Hobart upper reservoir and Mr. Thwaites's proposals, he said: "The Director of Waterworks very properly objects to building a retaining wall on a bad foundation, and proposes to go down to firm ground for the foundation, but with piers only; one of the objections to this is, letting the water further into the dam to destroy its stability. I consider there is no danger from filling this reservoir in the state it was in before the repairs were commenced, provided there has been no percolation, of which I am doubtful, and that the water be not suddenly lowered to allow a large quantity of soil in a half-sodden condition to slide down above water-level; but should it be assumed that there is danger on the water side, the way to prevent it is by not allowing the water to alter the angle of repose; this is not done by the proposals of Mr. Thwaites, who increases the danger by letting the water further into the dam, and increases the weight on the wet soil, so as to force out the toe or overturn the proposed retaining walls. To keep out the water, I would cut into the dam at the toe till fairly good stuff is found, and relay the soil taken out, mixed with good stuff to an extra width of say 30ft., in 3in. layers, well rammed with iron rammers, weighing not less than 18lb., and not more than 6in. in diameter; at one foot in height cut in again for another step one foot thick, and so on. The opportunity of the pitching being removed may be taken to increase the capacity of the reservoir, as we have seen that there would be an element of danger in putting the extra soil behind."

Discussion on the paper was postponed till next monthly meeting.

Votes of thanks were passed to Mr. Moore and Mr. Target for their papers.

The proceedings then terminated.