

The New South Wales Government have eleven diamond drills, besides five Tiffin augurs, which have been employed very successfully in boring for coal and water. Nine of these were purchased from the Australian Diamond Drill Company, and were manufactured by the Mort's Dock Company in Sydney; the other two were purchased from America. The two latter machines are constructed on quite a new principle, and are adapted for both surface and underground work. The engines that work these drills are compound, having feed-gear that can be altered as the boring is going on. The rods are coupled so that by half a turn of the wrench they can be disconnected, and a register is connected with the thrust, so that the pressure on the diamonds can be indicated on the surface. Mr. W. B. Henderson, the Superintendent of Drills in New South Wales, in a long conversation I had with him on the subject, while speaking highly of the colonial-manufactured drills, states that the American drills are superior in many respects; and in his report to the Government on the improvements of these drills, with regard to the self-registering apparatus he says: "This is an improvement of the greatest importance in work, and cannot fail to decrease the cost of boring, as by means of this register it is believed that the loss of diamonds will be much reduced. I anticipate that these improvements will enable boring to be carried out in the underground workings of the inland mines at such reduced rates as to cause a keen demand for the use of these machines."

The cost of boring per foot in New South Wales, which has been principally through sandstone, conglomerate, chert, and shale, has been a little under 13s. per foot, including all expenses connected with shifting the drills and boring. This corresponds with the cost in Victoria whilst the drills were employed in boring through similar strata, the cost given in Mr. Langtree's report being 10s. per foot for sandstone and 14s. per foot for basaltic rock. The American drills were manufactured by Mr. C. Bullock, 31 and 33 South Canal Street, Chicago, Illinois, and cost about the same as those manufactured in the colony. In visiting Mort's Dock Company's Works, to see the drills they were manufacturing and likewise the La Monte smelting-furnace, Mr. Mort, the managing director of the company, kindly supplied me, at Mr. Kahlo's request, with plans of the smelting-furnace, and likewise gave me the prices that those drills could be supplied in Sydney for, which are as follows:—

	£	s.	d.
A machine capable of boring a 2½in. hole 2,000ft. to 2,500ft. ...	850	0	0
A similar machine boring 1,500ft.	800	0	0
One boring 1,000ft.	712	0	0
Boiler mounted on carriage complete (plan attached) ...	340	0	0

This would make the total of price of a machine to bore 2,000ft. £1,190; but it must be borne in mind that this price only includes 200ft. of rods. The items included in this sum are 200ft. of rods, 3 blank diamond bits, 1 core-lifter, 1 core-barrel 10ft. long, 1 water-joint hose, 1 safety clamp, 1 lifting-shackle, donkey-pump and drill with boiler mounted on carriage (but exclusive of carbons). Rods with couplings will be charged extra at the rate of 5s. per foot for 2½in. and 4s. per foot for 1½in. rods.

The New South Wales Government do not grant any subsidy for the working of the diamond drills, but simply lend them out to any one requiring them, charging the actual cost of working expenses, whereas the Victorian Government pay one-half of the cost of working whilst employed in prospecting for gold, and two-thirds the cost in prospecting for coal.

The following are the regulations in force in New South Wales for the use of diamond drills, issued 30th November, 1883:—

"1. Applications for the use of diamond drills must be in writing, addressed to the Under-Secretary for mines, accompanied by a deposit of £2 2s. towards the cost of inspection. If an application be refused without inspection having been made, the deposit will be refunded.

"2. Each applicant must state the mineral to be bored for, the probable depth to be bored, and whether the work is to be confined to one or more holdings owned or occupied by the applicant, or to be spread over a tract of country for prospecting purposes; and in either case a plan or sketch, or description, defining the holding or tract of country to be operated upon must accompany the application. Upon receipt of any such application and deposit, the Minister for Mines may direct an inspection and report to be made, or he may refuse the application without inspection or report.

"3. Applications approved of will be dealt with in the order of priority.

"4. Before commencing operations the Minister may require the applicant to deposit a sum of money as security that the conditions will be observed and the payments duly made.

"5. The person to whom the use of the drill is granted must (a) defray the cost of removing the drill and all necessary appliances from the place where standing to the site of operations, and placing it in position thereon; (b) supply or defray the cost of all necessary fuel and water for working the drill; (c) pay the cost of any tubes that may be damaged or destroyed, or cannot be withdrawn from the bore; (d) pay £10 per week to cover the cost of diamonds, and wear and tear of machinery; (e) pay the actual wages of the foreman and labourers working the drill.

"6. Payments shall be made on demand or within fourteen days thereafter, and upon failure to do so the drill may be withdrawn, and the money deposited applied to payment of amount due.

"7. Persons preferring to pay for the work by the foot instead of the foregoing rates may, on application, state that fact, and the Minister may, if the site be considered suitable, cause a price per foot to be fixed for various depths, such price to include the cost of all labour, diamonds, wear and tear of machinery and all material except tubing, and shall be inclusive or exclusive of cost of fuel and water according to agreement."

COAL-MINING.

The only coal-mines that I have seen in New Zealand resembling in character and nature of the coal in the Newcastle district are the mines on the west coast of the Middle Island; but even these are different in some respects. The dip or inclination at which the seams or beds