Practical Astronomy.

Last November, with the assistance of Mr. J. M. McLaren, I fixed a large concrete block in the school-yard, in a position suitable for celestial observations, and connected it with the Mount Eden meridional circuit. This place was found more convenient for purposes of instruction than my geodesical station on Mount Pleasant, at Parawai. During the months of November, December, February, and March I gave field instructions in the methods of determining and checking the time and true meridian with the 5in. transit theodolite imported from London last year. A great many observations were taken to the sun, and also to circumpolar stars, both at eastern and western greatest elongations, with the most satisfactory and accurate results. Among my students who attained good results and some proficiency with the instrument were Mr. F. B. Allen, M.A., and Mr. J. M. McLaren.

Experimental Plant.

The whole of the plant and appliances are in good working-order. In March, a much-needed ventilator was placed on the roof of the building over the furnace and stamper-battery, with the most beneficial results. A new dust-bin was also erected, and an endeavour made to patch up the stamper-box originally designed for wet-crushing, and adapt it for dry-crushing. Almost all the ores treated in the plant are dry-crushed, and it was found that the stamps made an undue amount of fine slimes, which rendered it impossible to treat the ore satisfactorily by the cyanide process. Hence the endeavour of the Council to remedy the evil, aided by a liberal donation from the Cassel Gold-extracting Company. The discharge was shifted to the front, the size of the box reduced as much as possible with lining blocks, and every device used to attain the desired object, but the results proved that, although the crushing capacity was increased, still the quantity of the slimes formed was so great as to hinder the percolation. During the months of February and March of this year sixteen tons, or 44 per cent., of the ore put through came in for treatment, and in order to get through the work I was compelled to use a twenty-four-mesh screen. With this coarse mesh a large proportion of slimes was formed, and at times the percolation was excessively slow, even with the air-pump working continuously. Besides the slimes, about 15 per cent. of very coarse sand came through the screen, and no doubt aided the filtration, but at the same time reduced the percentage of extraction, especially in the cases of ores containing its bullion contents in a very fine state of division.

The particulars of the parcels of ore treated during the year by the cyanide and Washoe processes are shown in the following tabulated statements :—