

easily altered and adjusted to suit the nature of the stuff treated and the quantity of the water used. The range of adjustment should be between 1 in. to the foot to 2 in. to the foot. From careful experiments with a mixed quality of old beach-wash and its overburden, containing a fair but not large proportion of black sand, I found that $1\frac{1}{2}$ in. to the foot just reached the maximum and $1\frac{1}{4}$ in. the minimum working-fall, and adopted $1\frac{3}{8}$ in. as a good working-mean. The best fall in any particular case must depend on the lightness or strength of the gold, the nature of the wash, and especially the proportion of heavier sands, and the quantity of water available, the object always being to save the greatest possible percentage of gold and to deal with the largest possible quantity of material. With regard to the best width and length of tables, opinions differ. Narrow tables are objectionable, and widths of 4 ft. or 8 ft. are most generally used. The Waiwhero tables are 8 ft. wide, and a considerable experience of their working has disclosed no reason for altering or subdividing that width. As the table-sides induce a little scour on the saving fabric and are unfavourable to gold-deposit, it is evident that the proportion of edge to surface should be the smallest possible, and that therefore a table should be of the greatest width it is expedient to use. The evolution of the Westport district arrived at tables about 8 ft. wide, constructed longitudinally, with four panels or strakes of plain surface, each 4 ft. long, and with cross-trough ripples between the 'V' piece and the first strake and between adjacent strakes. I tried a reduction of strake-length to 3 ft., with four strakes, and found in practice the 3 ft. more than sufficient; that fully nine-tenths of the gold was deposited on the first strake, and practically the whole remainder on the second strake, with very few colours on the third, and therefore reduced subsequent tables to three strakes each. Where the gold is of the lightest quality, however, it is better to have a greater number. The length of strake can, however, be reduced to 2 ft. or less, as the gold-saving is practically confined to a length of 12 in. or 15 in. below the ripple, and any length below that merely serves to regulate the water-current before it descends into the next trough. Four strakes of 2 ft. each would make an excellent table.

"The water issuing from a trough reaches the table-plush with a downward current, bringing the gold into contact with, and bedding it in, the plush. Whenever the flow has resumed its horizontal current the gold remains in suspension, and tends to remain in its particular layer of water until a vertical disturbance carries it downwards. The usual trough-ripple is 5 in. wide in clear, $4\frac{1}{2}$ in. deep from the table-surface at the upper side, and $3\frac{1}{2}$ in. at the lower side, fitted with an adjustable dash-board or baffle-board at its centre. The trough is therefore 1 in. deeper on the upper side of the dash-board than it is on the lower side, which gives sufficient head for discharge without backing the water on the strake above. The trough is square, rectangular in section, this form having proved preferable to a curved one.

"In referring to the grade of tables, the fall given to the strakes is meant, not including the inch allowed to each trough. It is a good plan to fix the last and lowest strake with a fall of, say, $1\frac{1}{2}$ in. to the foot in excess of the others, so that cocoanut-matting or other rough material may be used to trap any floaters that may have escaped.

"The manner of laying on plush or other gold-saving covering is as follows: Immediately below each trough a strip of leather about 4 in. wide is tacked along its upper edge on to the table. This forms a long flap, under which the upper edge of the plush is snugly laid. Instead of the leather, canvas can be used, but neither handles nor lasts so well, though much cheaper. The plush for 8 ft. tables should be 52 in. wide, as this allows for shrinkage and lap. It is better cut into 26 in. widths, which are more easily handled, and laid in four overlapping widths. When the plushes are laid down under the leather apron and overlapping each other they do not require to be held in place by battens or other means, and can be quickly lifted for washing and relaid.

"Various fabrics are in use for saving the gold, but some variety of plush is almost always included. Generally, good plush or other special material is laid on the upper strakes, and some coarser and cheaper ones on the lower. Blankets made for the purpose, or of the ordinary market kind, are in use, but lose their nap and saving efficiency much sooner than plush, and require more frequent renewal. The ordinary market plush fails in the backing, and becomes useless long before the nap is worn; therefore the best of it has a comparatively short life, seldom exceeding three months. To meet this difficulty the Waiwhero Company obtained some specially manufactured fabric, called the 'water-resisting gold-saving plush,' through Mr. James Trent, of Christchurch. A large set of tables was clothed with this in February, 1901, and did not require renewal until the end of that year. It has proved an excellent gold-saver, and, its life being so much longer than that of ordinary plush, it has proved cheaper than other varieties, although greater in first cost. For some reason there remains a 20-per-cent. duty on plushes used for mining purposes, although all other similar imports for gold-saving purposes are admitted free. This tax on industry is a hardship to all dealing with fine gold, and enhances the cost of production.

"The tailings from the tables are usually discharged into boxes leading into the main tail-race, just behind the bottom end of the stone-shoot, so as to carry the hopperings forward to the tailing site or 'dump.' The boxing from the tables may be either placed in a line under the table-ends, in which case a considerable fall is required, or may be carried back under each table to a branch of the main tail-race placed under the tables. Across the head of the tables, and usually along the 'V' piece, a tramway should be laid along the whole range of tables and extending into the amalgamating-shed. The washing-tub, which runs on this tramway, is simply a strong watertight box on tram-wheels, the box being about 2 ft. deep, 1 ft. 8 in. by 2 ft. 8 in. in clear at bottom, and 3 ft. by 4 ft. at top, with sloping 6 in. shelves on the edges of one side and both ends on which the washer can place his cloths. Before lifting the plushes or blankets the table should be shut off from the sand-box, and well streamered with clean water so as to clear off any sludge or surplus sand. The cloths are then rolled up and carefully conveyed to the washing-tubs, washed, and relaid. The washing-tub is then rolled to the next table, and so on until the set is completed, after which the