although not as strong as gelatine, is a quicker explosive, and, therefore, more local in its effects. It breaks up the quartz near the mouth of the bore-hole, and allows the greater ballistic (throwing) power of the gelatine to take effect. In slate, gelatine alone did more work than dynamite. Ammonite was more effective in slate and in stoping than either gelatine or dynamite, but not of so much use in hard quartz or pinched holes. In holes occurring in the angles of the shaft, double the above charges were used; in the side holes, an increase of 50 per cent. on the normal charge. The centre holes were first fired, then the side holes, and finally the corner holes.

Method of Blasting.

In sinking shaft, 12½ ft. by 6 ft., fifteen holes were drilled. 1, 2, and 3 were first fired (not by electricity), and the *débris* cleared out before the second blasting, consisting of 4, 5, 6, 7, 8, 9, 10, and 11, or such of them as were left after the first blast, as it oftened happened that some of these holes were broken out by the effects of the first firing. The shaping or angle holes at 12, 13, 14, and 15 were last blasted. Progress, about 1 ft. a day in slate, and ½ ft. a day in quartz.

Remarks.

The above method of firing, and charges of explosives, was arrived at after numerous experiments with larger and smaller charges, with each explosive by itself and with mixtures, and with holes fired in various order. It frequently happened that unexploded cartridges of gelatine were recovered from the *débris* hauled out of the mine. This never happened with ammonite or dynamite. Experience proved that this was due to a little sand or clay getting in between the plugs of gelatine. In wet holes at the bottom of the shaft it was difficult to prevent dirt getting into the holes after the rammer was withdrawn to put in another cartridge. This slight packing between two cartridges deadened the detonation and prevented the explosion of the lower cartridges. Sextuple detonators (caps) were used with dynamite and gelatine. Special caps, extra strong, were supplied by the Miners' Safety Explosive Company with their ammonite, as this explosive cannot be fired with ordinary caps. A small supply of gelignite was obtained, but its use was given up, as this explosive was found to rapidly deteriorate in the hot, damp climate of Chota Nagpur. Felted fuse was used, and found to answer admirably.

The following are details of cost, &c., of sinking shaft from the 50 ft. level to a depth of 150 ft.:—

	£ s. d.	£ s. d.
Size of shaft, 12½ ft. by 6 ft.; country-rock, slate and quartz, cost per foot of sinking		2 2 9
Explosives	1 6 6	
Labour and superintendence	0 16 3	
	2 2 9	
Number of shots		22
Explosives		7½ lb.
Fuse		3 coils.
Caps		20
Ground removed		5 tons.
Water		15,000 gallons.

A NEW CURRENT MOTOR.

The term "current motor" is applied to a mechanism that utilises the power of the stream or current of a river in such a way that it can be applied to run machinery.

A current motor, it is claimed, can be used without a dam in any location in a river where the water is deep enough to admit it. There is almost no limit, the manufacturers claim, to the use to which the power generated by a current motor can be applied. For example, it may be used for generating electricity for electric-lighting purposes; but its chief use will be in connection with irrigation and mining.

The motor herewith illustrated has been experimented with and tested, and its practicability is fully believed in by its makers, the F. C. Austin Manufacturing Company, of Chicago, who claim that the only limit to its power and amount of water that can be pumped is the dimensions of the paddles, the number of them, and the force of the current. The machine, which is represented as anchored in the river, consists of a pontoon carrying two endless chains, to which are pivotally attached at suitable distances reversible paddles, having floats at their upper ends that buoy them up in their course through the water. These paddles enter and leave the water in such a way as not to detract from the efficiency of the machinery, but calculated to rather add to it. To the wheels put in motion by these cables is attached an elevator carrying large buckets, which, when entering the water to fill themselves, it is claimed, add to the generation of power, and are so arranged that when they reach the top of the elevator they discharge their contents with little friction into a trough, there to be conveyed to the shore, where a reservoir has been constructed to collect the water and distribute it through canals and lateral ditches.