then it is a fishing job in the muddy water of the paddock or river, and you always seem to get hold of the wrong bucket, or wrong end first, and have to overhaul the lot or a large number of them. If the accident happens in say thirty feet of water the belt, in dropping, forms itself automatically into loops and almost knots, and the excessive weight of the falling mass jams and interlocks buckets, links and pins into an almost hopeless tangle. It sometimes happens in grappling that the bite, or a portion of the end of the belt is drawn through a loop in another portion, actually forming a knot. In an ordinary 4½ ft. bucket dredge with a dredging depth of 35 ft., there are thirty-six sets of buckets, links and pins, each set weighing over eight hundredweight, or a total weight of fourteen and a half tons to drag up without any allowance for spoil that may be in the buckets themselves. With a smile or two from fortune, a good crew and suitable tackle, you might get the belt on again in twenty-four hours; but if the belt is badly tangled up it may mean several days. The Molyneux is a bad place to lose the bucket-belt in.

When the winchman notices that the belt has snapped he should stop the main engine instantly, if possible, but under no circumstances whatever should he pull out the friction, for in so doing he throws away the only possible hope he has of holding on to the end of the belt and checking it from going over the top-tumbler. In releasing the main friction he practically converts the top tumbler into a loose roller for the belt to run off on. Many a belt accident would have been averted had the winchman acted as advised here. A bucket-belt almost invariably goes on the ascending portion, so that besides being heard—for it gives a loud report—it is always within the view of the winchman. This type of accident fortunately is not a common one.

Bessemer steel of boiler quality is the material used for the bodies of the buckets and generally tire steel for the main links. Old railway rolling stock tires make excellent links.

The running speed of buckets varies from ten to fourteen buckets per minute.

The ladder, in its early stages, was constructed of wood, but wooden ladders are a thing of the past. The modern ladder is simply a very strong steel girder suspended or pivoted at one end, and free to move up and down at the other as required and is designed on very nearly identical lines. On the top side of the ladder are a number of rollers extending almost the full width of the ladder, and on these rollers the bucket-belt travels. The types of ladders used vary from the elementary channel-bar pattern, which consists of two parallel channel-bars of a deep section, with distance pieces between to retain them at the width desired for the ladder, to the elaborate braced plate-girder and box-girder patterns.

The lower end of the ladder forms a jaw which is fitted with bearings on each side. The bottom tumbler fits into the jaw and revolves, either on a stationery shaft, or is keyed to a shaft which revolves in bearings provided on either side of the jaw for it. A ladder must be an exceedingly strong and carefully designed structure.

The snapping of a ladder is not an unknown accident by any means, and when it does go, it is generally about two-thirds of the way down. Ladders also have a weakness for twisting, that must be allowed for in the design. A twisted ladder gives a lot of trouble.

To be continued.

Granby Consolidated Mining and Smelting Company.—Mr. Jay P. Graves in a recent interview says:—"With the development work accomplished and the plant in place and in transit, the Granby mines at Phœnix are capable of producing 5000 tons of ore per diem for shipment to the company's reduction works at Grand Forks. We are unable, of course, to treat anything like this tonnage with the present smelting plant, but our plans are to inaugurate a program of extensive additions that will increase the capacity of the works, and eventually bring it up to the same standard that has been reached at the mines. An appropriation of approximately $250,000 will be required to accomplish this end, and considerable time will be required to work out all the plans in contemplation. We will undoubtedly make a start at a comparatively early date, however, and keep at the proposition until the end in view is attained."

Mica Production in the United States.

In the advance sheets of that excellent publication of Dr. David T. Day's, "The Mineral Resources of the United States," published by the United States Government, some very interesting figures are given of production of mica across the border. From this article it would appear that the total plate mica produced in the United States during the year 1901 was 360,000 pounds, valued at $98,859 as compared with 456,283 pounds, valued at $92,758, in 1900. During the past two years there has been a large increase in the amount of mica produced, with, however, but a slight increase in value, a condition which is undoubtedly due to the very large amount of small-sized mica disc and rectangular sheets that have been cut for electrical purposes, and that has in former years been used as scrap mica. Some of this plate mica has been obtained from old mica dumps. There was a large falling off in the amount of scrap mica produced in 1901, which has been estimated as 2,171 short tons, valued at $19,719, as compared with 5,497 tons, valued at $55,502, in 1900. This falling off in the production of scrap mica is undoubtedly due to the exhaustion of the large piles of scrap that had accumulated during the last quarter of a century, when there was a market only for plate mica.

The relatively small production of mica can be accounted for by the low prices maintained for plate mica, by the uncertainty of the occurrence of the mica in the veins, and by the large number of small producers who are entirely dependent upon one small mine, and who, when the mica in this begins to give out or is poor, have not the means to carry on much dead work, and have no other deposit to help fill out this deficiency. The consolidation of a number of the mica mines in different sections might be profitable. The importation of mica from Canada and India at a low valuation tends also to curtail the production of mica in the United States. This is especially true of the mica imported from India, which can be mined and landed in this country at a lower price than, in some cases, it can be mined in the United States.

The production of mica during 1900 and 1901, by States, is given in the following tables:

Production of mica in 1900, by States.

State.	Sheet mica.	Scrap mica.
	Pounds.	Short tons.
New Hampshire	191,118	645
North Carolina	107,255	4,450
South Dakota	*a* 123,090	80
New Mexico	9,620	258
Virginia	16,000	....
Other States *b*	9,200	64
Total	456,283	5,497

a Sold in rough or unmanufactured condition. *b* Idaho, Maine, Nevada and Rhode Island.

Production of mica in 1901, by States.

State.	Sheet mica.	Scrap mica.
	Pounds.	Short tons
New Hampshire	65,800	250
New Mexico	3,100	146
North Carolina	266,160	1,775
South Dakota	25,000	....
Total	360,060	2,171

As is seen from the above tables, Idaho, Maine, Nevada, Rhode Island, and Virginia, which were producers of mica in 1900, had no production during 1901, and there was a very noticeable falling off in the production of the other States, with the exception of North Carolina. In North Carolina there was a decided increase in the production of plate mica, but a large falling off in the production of scrap mica.