Scientific. &c.,

COPPER MINING.

The present spread of knowledge, and the power of knowledge on the world, has its disadvantages. It deranges the course of production in mining by opening up sources hitherto inaccessible. The most serious effect of this kind has been the declension of copper mining in Cornwall, consequent on the formation of railways to the mineral districtin Chili. This threatens to extinguish, not only the deep mines in Cornwall, but the majority of copper mines in all other parts of the world, owing to the prodigious extent and richness of the Chilian copper-bearing strata. We are told that along the whole range of the coast of Chili, Bolivia and Peru may be be seen the indications of copper with the naked eye in many places, as well as numerous smeltingworks on the shore. From Valparaiso north we find many copper harbours or beaches - Tongoy Bay, Coquimbo, Copiago, Caldera, Chaneral, Cobija, Tacna. Iquique, with Tarapaca in its rear: between them lies the desert of Atacama. But the most famous mines are those of Tamaya, for which Tongoy and Coquimbo are the shipping ports. They are situated near the summit of a mountain beyond the Limari valley over 4,000 feet high. This mountain is intersected by a vain or lode running north and south cropping out on the eastern side of the mountain about 500 feet below the summit, and dipping to the west at an angle of 52 degrees, being from 7 to 21 feet thick, and filled with ore varying from 25 to 50 per cent, in richness.

Ten thousand people live here above the clouds, engaged in mining. Women and boys pick over the ores coming out of the mine, which are in some cases, crushed and washed, the refuse being still preserved as available in the future, but with the establishment of furnaces most of the ores are now carried to the nearest smelting-works. The railroads have changed the whole economy of the copper production of Chili, for not only do they bring the ore from the mines, but they can transport coal, as well as food, to the mines. As the rate of wages in those countries is "elastic" that is, the laborer need only fall back upon the three or four days out of the week that he chooses to spend in pleasure, when his wages are lowered-the question of transportation was the only one of paramount influence on the production, the mining itself being incomparably fruitful. Now, the cost of transportation, not only on the coast, but, in some cases, from near the mines, being reduced by railroad trains as against the mule trains, and the bulk to be carried absolutely by three-fourths where ores are smelted, it follows that the margin for a decline in the price of the copper obtained must have been immense, when compared with the situation of the business as it formerly existed. The ratio of future production will keep up with the steady march of improvements that are being pushed forward in this rising country, the cost of producing must continually diminish in a region like this, where the miner can choose the rich lodes, and can afford to leave the poor ones alone, where the poorer ores can be had for the trouble of picking over the mountain sides without any mining, it being understood that what are called poor ores there would be almost considered rich in other parts of the world. As already stated, the production of the west coast has more than doubled in fourteen years in quantity, and, no doubt, in value, as far as the profit of the parties engaged in the copper business there are concerned; and the development is still going on vigorously. This is good news for Chili, and may be good for all copper consumers, but it carries dismay to the Cornish mines.

A CALIFORNIAN STEAM DITCHER .-The Scientific Press gives the following sketch of a steam ditching machine now on exhibition in San Francisco: "On a frame 41 feet long and 12 feet wide, mounted on four wooden wheels, are placed a 23 horse power steam engine, the cutting apparatus, and the belts for raising and discharging the earth. There are four revolving knives for pulverizing the ground, two feet in width, and having on each side a blade for turning the sloping edge of the ditch. These be can raised or lowered as desired. The earth is thrown from them upon a gutta percha apron or belt, which elevates it to the rear of the machine, whence it is thrown off

to the side of the ditch by a horizontal belt. The machine is claimed to be able to cut daily from one to two miles of ditch 41 feet deep, 4 feet wide at the top, and 28 inches wide at the bottom, Last Quarter, "13th, 6h. 5m. afternoon. three workmen and an engineer being New Moon, "20th, 11h. 46m. afternoon. required to run it. The entire weight is about eight tons."

THE LARGEST GUN IN THE WORLD.

of destruction is a thirty-five tun gun, just completed at the Royal Arsenal, in England. This monstrous creation was made upon the coil principle, with two strips of wrought iron, which, before they were wrapped round the core, were about 150 feet in length. On its way to the practice ground, it crushed its own carriage and the tramway upon which it was traveling, but it was coaxed into moving again, and the aponsors of the interesting infant fired it with half a proof charge, and 21 Tu. 6 56 10 6 45 A. 37 6 29 its own shot weighing 700 lbs., and measuring a foot in diameter and two and a half feet in length. With this. load, the monster recoiled nearly nine feet up an inclined trail of seven de-29 W. . 5 50 6 20 11 1 6 42 1 32 30 Th. 5 48 6 21 11 58 7 34 2 23 31 F. . 5 46 6 22 A. 59 8 25 3 10 grees, but was otherwise unaffected. when it has cut its teeth with larger charges, it is to burn, as a regular dose, 120 lbs. of pebble powder, the shot being the 700 pounder mentioned, with brass studs to fit the riffling of the bore. In firing it, a wire was attached to the vent, the bell was rung, and all present hastened under cover. In one of the proof houses a gunner in a canvas suit stood before a magnetic battery and at the word " fire," touched a stud, when there was a loud report, and the gun was seen smoking prodigiously. It will be tested with a charge of 150 lbs. powder, the regular service charge being 120 lbs.

It is the largest piece of ordnance in | rising next morning the world, not excepting those ancient Titans-the Beejapore gun, called the "King of the Plain," the huge stone ball canon of the Dardanelles, and "Mons. Meg." If an invading enemy will only be kind enough to come near enough to this triumph of belligerent art, we think there might be a chance of slaughter on both sided. But what a telescope might have been made for the money, and what different sort, of "victories" might have been obtained with that sort of weapon! The reflection is, we know, ridiculous: "Guns, drums, and wounds" absord the world. -Scientific American.

COMPARATIVE VALUE OF CATTLE FOODS.

Per cen-| Per cen-| 10th age of tage of autri fat for- flesh for- ment per KINDS OF FOOD, mers in mers in cent in 100 lbs. | 100 lbs. | 100 lbs. Potatoes Sugar Beet Mangel Wurtzel. 8.2 7.2 6.2 4.2 49.8 Parsnips Carrots.... 1.0 Swedish Turnip ... White Turnip.... Be-t English Hay. 13.5 12.7 18.7 22.5 50.7 58.7 41.2 77.7 70 1 78.1 70 8 Lucerne Hay Whi:e Clover.... Red Clover..... 11.0 14 3 22.1 22.2 18 0 Indian Corn.....

Rye Meal....

Lirs ed Cike, Eng

Ditto, American...

Oatmeal.....

Barley

Peas

Beans....

Buckwheat

TO KEEP THE CREAM.

52.0

69.1

65.0

13.0

23.1

24.0

Stone jugs are sweeter for cream, in our estimation than tin ones. When the first skimming of cream is deposited, add one tea-spoonful of salt and one heaping tea-spoonful of saltpetre. At every fresh skimming, mix the whole contents of the jar thoroughly, taking care that no particles shall collect around the edges. A clean cloth should be used every morning to wipe the inside perfectly dry down to the cream. Half of the cream is spoiled before it is made into butter by neglecting this precaution. The saltpetre prevents any tendency to mould or bitterness. We consulted the highest chemical authority in the State as to its properties, and were assured that a tea-spoonful in six quarts of cream could not be in the least degree injurious. It makes no difference in the taste of the buttermilk, which is used for many culinary purposes and drank by several members of the family, but it does improve the sweetness and purity of the butter. Small stone jars are preferable to large ones. They can be kept in the ice-house when filled, and if one skimming fill a jar, we should think it better to use a small one. When the jar is cleaned, a teaspoonful of saleratus is added to the warm suds, and sweetens it perfectly. A cheesy smell about milk utensils is utterly fatal to sweet butter .- Am. Agriculturist.

MESSENGER ALMANACK.

MARCH, 1871.

Fuil Moon, March 6th, 11h 21m. altern on.

First Quarter, " 29th, 2h, 30m, morning High Tide Wk Rise |Sets Rises |South | Sets at Halifax. The latest born offspring of the art of destruction is a thirty-five tun gun, ast completed at the Royal Arsenal, England. This monstrous creation as made upon the coil principle, with the street of wrought iron, which, the street of the st Sa. 6 23 5 57 11 50 8 44 8 52 SU. 6 22 5 58 morn 4 38 9 26 M. 3 29 6 0 1 3 5 35 10 7 14 Tu. 6 18 6 1 2 13 6 34 10 55 15 W. 6 16 6 2 3 14 7 32 11 50 16 1h 6 14 6 3 4 6 8 30 A. 54

> THE TIDES .- The column of the Moon's Southing gives the time of high water at Pairsboro', Cornwallis, Horton, Hantsport, Windsor, Newpo t, and Truro.

High water at Pictou and Cape Tormentine, 2 hours and 11 minutes later than at Halifax. At Annapolis, St John, N. B., and Portland Maine, 8 hours and 25 minutes later, and at St. John's, Newfoundland, 20 minutes earlier, than at Halifax. At Charlottetown, 2 hours 56 minutes later. At Westport, 2 hours 54 minutes later. At Yarmouth, 2 hours 20 min-

FOR THE LENGTH OF THE DAY .- Add 12 hours to the time of the sun's setting, and from the sum subtract the time of rising.

FOR THE LENGTH OF THE NIGHT -Subtract the time of the sun's setting from 12 hours, and to the remainder add the time of

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