

## A LARGE CASTING.

At the South Brooklyn Steam Engine Works, in Brooklyn, the second immense anchor plate for the East River bridge was recently cast. Four weeks were occupied in forming the mould above. A circular excavation was first made, twenty-five feet in diameter and three feet deep, at the bottom of which was placed an iron plate. Upon this a course of brick, eight inches thick, was laid in a mortar of fine sand and fire clay, the upper surface was then leveled off and baked with charcoal. This surface served as the base of the mould, which was of loam, secured by brickwork and iron guides built in sections.

The anchor plate is of oval shape, seventeen feet six inches by sixteen feet in dimensions, with a thickness at the ribs of three feet. It weighs 17,000 pounds when cleaned, and its cost is \$3,200. About 60,000 pounds of iron were melted, transferred to a huge tank, and thence allowed to flow into the mould. The casting took place without accident and was allowed one week to cool.—*Scientific American*.

EXPERIMENTS ON THE INFLUENCE OF MANURES IN CHECKING THE GROWTH OF WEEDS.—A series of experiments has been made to determine this point, with especial reference to clover. It was found that when the land was totally unmanured, the weeds formed 57 per cent. of the entire yield. Nitrogenous manures effected but little improvement, phosphatic mixtures somewhat greater, whilst gypsum reduced the proportion of weeds to 19 per cent. only. But before any one assumes from this result that gypsum is a general antidote to weeds, and applies it accordingly on all soils and to all crops, he must remember that gypsum is a specific manure for clover, and gives it power to struggle successfully with the weeds and crowd them out. Secondly, it was evident that the soil was not naturally gypsiferous. Hence the peculiar weeds there present had an advantage over the clover. But a gypsum soil has its own assortment of weeds, which are as much at home there as clover. Hence the only legitimate conclusion is this.—Give a plant its favorite manure, and it will master weeds that do not relish such manure.

KILLING ANIMALS WITH CHLOROFORM.—Many persons would be glad to know how to kill an animal without suffering, and we venture to give the benefit of our experience. We are constantly being called upon to destroy horses, dogs and cats, and have little difficulty in doing it. For horses we use a large sponge, say six inches in diameter, thoroughly saturated with chloroform, which is dropped into a bag, large enough to be drawn over the horse's nose. It is not desirable to have the bag "air-tight," for, if so, suffocation is likely to ensue. In two or three minutes the horse is unconscious, and in eight or ten minutes dead, without suffering.

For dogs and cats, a similar process, using a small sponge and bag; or these animals, with the saturated sponge, may be put into a box admitting some air, when they soon "go to sleep." Seventy-five cents worth of chloroform will kill a horse, and twenty-five cents a dog or cat. If one saturation of the sponge does not complete the work, repeat it.—*Our Dumb Animals*.

At the recent session of the National Academy of Science at Cambridge, Massachusetts, Prof. Mayer gave some interesting information as to the effects produced by magnetism on iron. He states that he has discovered, by means of the Saxton comparator, that rods of iron suffered a permanent elongation by magnetisation of one hundred and fifty millionths of an inch. English refined iron gave the maximum of elongation, scrap-iron the minimum. Whether the current was gradually increased in intensity, or whether its full strength was developed at once, the degree of elongation was the same. With one cell, the elongation took place in six-tenths of a second; with twenty-five cells it took place in two-tenths of a second. Prof. Pierce thought that if the elongation of iron under magnetisation were invariable, it might produce an effect upon the earth in a manner which could be appreciated by an alteration in the length of the day. This could be readily detected by astronomy, for our modern instruments would readily enable us to determine a change in the day of seven-hundredths of a second.

## DOMINION.

It is proposed to establish shortly at Halifax, N. S. a School of Applied Science with special relation to mining and engineering.

The Air Line Branch of the Great Western Railway was re-opened for through business on 27th ult., with five trains a day each way.

A valuable copper mine is said to have been discovered within the last few days by Mr. Prudhomme, at Cantly, a few miles above Chelsea.

A silver works company has finally settled upon Oshawa as its place of business. Plans and specifications are being prepared for the works to be erected.

A coal seam has been discovered cropping out of the bank of Chilliwack river, British Columbia. In quality it is said to be quite equal to the best Nanaimo.

A Big Stone.—A grindstone which weighed 5,850 lbs., was recently shipped from Grindstone City, on Lake Huron, being the largest ever shipped from that place. It was got up for a firm in Akron, Ohio.

The first instalment of 800 French emigrants from Alsace, to be employed on the Glasgow and Cape Breton coal and railway works, arrived at Sydney last week. The rest of the number are expected in August.

The Quebec iron works, for the manufacture of car wheels, railway gear, steam engines and general iron work are to be established at Levis. The company starts with a capital of \$100,000 and expects to do an extensive and paying business with the various railways about to centre in Quebec and with the steam craft of the port.

A gentleman arrived on the *Prince Alfred* to examine the benches of Fraser River with a view to engaging in hydraulic mining. He represents a large company in California, who are encouraged by the liberal character of the mining laws which were forced through the House last session in spite of the opposition of the Government.—*British Colonist*.

The amount of timber of all descriptions that is now passing down the Galt railway from the upper country is very large, heavily loaded trains passing the town continually. Squared timber, lumber, ties and rails constitute the chief portion of freight on these trains. It is also said that this description of freight will be largely increased when the Southern extension is opened.

The fine bridge known as the Nanaimo Lattice bridge, built last year at a cost of about \$1,000, is reported as badly wrecked during the recent gales. The Government agent at Nanaimo has taken prompt measures to secure it, but it is still in a very precarious position, and Mr. Farwell, C. E., of the Lands and Works Department, leaves per the steamer *Sar James Douglas* this morning to superintend its repair. It is said that should the late gales recur, the bridge must inevitably be blown into the river.

From an examination of the underground works at Lingan, C. B. colliery the fire is ascertained to have been of a more serious character than previously reported. The fire is now supposed to have originated from the flues of the underground engine, which is situated about fifteen hundred feet down the main slopes and was used for pumping. It is at present confined to the south side of the slope and near the bottom. Men were engaged up to Monday of last week trying to quench the fire, but the appearance of carbonic acid gas compelled them to leave. The mines have been sealed up and it is to be hoped that within a few days the fire will be extinguished.

THE NORTH-WESTERN BOUNDARY.—During June will be completed the survey of the north-western boundary between the United States and the British possessions. The engineers of the American expedition depart from St Paul during the present week for their labors. Last year the survey was completed with the aid of the British expedition from Fort Pembina to the Lake of the Woods, and it is hoped to finish it to the Rocky Mountains during the season. The work of determining the forty-ninth parallel, which is declared by treaty to be the boundary line, has been one of great tediousness and labour, owing to its being prosecuted almost wholly in a wilderness, yet is one that must be completed to avoid entanglements between the two countries.