Two of the accompanying illustrations show the condition of this portion of the driveway before construction was commenced and after the filling was completed. They are reproduced from photographs taken from exactly the same point of view, and portray, better than any pen can describe, the transformation that has been effected. In the later cut the point of view is exactly in the center of the westerly sidewalk. The broad strip of garden mould between the sidewalk and the roadway, which shows up in the photograph of a darker shade than the surrounding material, marks the location of the masonry trench for tree planting, the construction of which was explained in the previous article.

The track which is seen to the right of the picture is being used in filling in the bays of the creek which lie between the drive and the shore. This work is part of an important modification of the original plans, which will add greatly to the appearance of the finished Speedway. It was at first intended to allow such portions of the tideland as might be inclosed between the drive and the shore line to remain as they were. This would have left a series of unsightly holes which would have been a blemish upon the work and a continual eyesore. The present Park Board very wisely determined to fill in all such spaces to the grade level and give them landscape treatment. They will be planted with trees and laid out with winding walks, and will form a park-like border to the drive, which will extend over a considerable part of its length.

The total quantities for the second section of the work, as given by Mr. J. A. Lockwood, the engineer in charge, to whose courtesy we are indebted for all particulars, are as follows: The excavation, mostly solid rock, shows a total to date of 281,000 yards. There are 350,000 yards of filling, and this is held in place by no less than 3,750,000 cubic feet of cribwork. The masonry retaining walls account for 12,000 cubic yards of broken range masonry, and there are 30,000 yards of first-class masonry in the bulkheads and subways.

By the time it is opened to the public the Speedway will have cost about $2,250,000, of which $1,932,000 have been expended to date. The second section will be completed early this spring, and as about twelve months will be consumed in finishing up the work on the first section, we may look for the opening of the Speedway early in the spring of next year.

THE HARLEM RIVER SPEEDWAY—LAYING CONCRETE FOUNDATION FOR ASPHALT ON THE EASTERLY SIDEWALK.

Flowers in Sick Rooms.

After relating several anecdotes of cases where flowers have proved injurious when kept in the bedroom of invalids, The Hospital says: "It is not necessary to comment at length upon cases like these. They tell their own story, and point their own moral. The rule should be that, where flowers are kept in bedrooms, they should be changed frequently, and those which yield a heavy odor should not be preserved after the day is over. In sitting rooms the case is somewhat different; but even in them flowers should not be kept more than a few days, and the vases in which they are placed should be well washed out with hot water once or twice a week."

THE STABILITY OF THE BATTLESHIP INDIANA.

It will be remembered that the new battleship Indiana, on a trip from Hampton Roads to New York harbor last October, rolled so heavily as to break loose all the heavy guns and turrets. The enormous momentum of the great masses of metal proved too much for the clamps which prevent the turrets from rotation on their turntables, and, tearing loose, the guns began to swing to and fro across the decks with every roll of the ship. In the height of the gale the crew set to work to lash the guns temporarily in place, and the story of that never-to-be-forgotten night, as told by Capt. Evans, will bear repetition just now, when the Indiana has again had to return to port lately from fear of a similar accident.

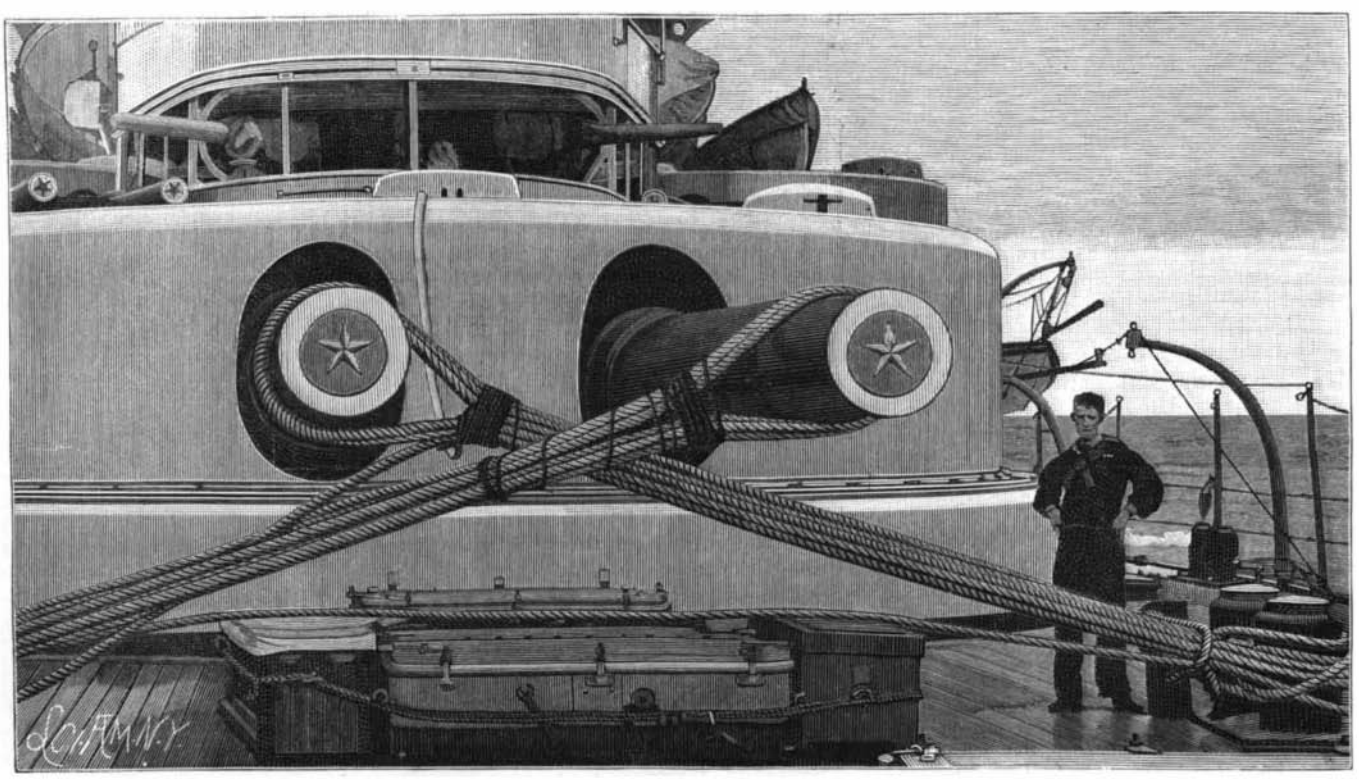
"We tied the two forward guns together by binding the guns each to the other and fastening the hawsers to the bitts, and managed the aft ones the same way. It was a very hard job. About two o'clock next morning the forward ones snapped their hawsers and got loose again. The storm was then very severe, and the ship was rolling at an angle of 36 degrees. To make matters worse, the forward 13 inch guns got loose, and those enormous guns began thrashing about in full command of the deck. We finally caught the big guns with a 13 inch hawser and tied them securely to the superstructure."

On the morning after the storm one of the electricians, with the permission of Capt. Evans, took a photograph of the aft pair of 13 inch guns, from which the accompanying engraving has been prepared.

It will be seen that the 8 inch hawser was passed around the chase of the gun, a few feet from the muzzle, and led around the bitts on the opposite side of the deck, the operation being repeated until a sufficient number of turns had been taken to hold it securely. Any one who has handled an 8 inch manila hawser can well believe Capt. Evans when he says: "It was very dangerous in that storm. I was afraid of losing two or three dozen men, and if I had not had the best crew in the world, I don't know how we would have come out."

Upon the return to the navy yard stronger clamps were put in place, such as, it was supposed, would stand any possible demands upon them. It seems, however, that the Indiana has again had to leave Admiral Bunce's squadron and put back, not this time because the turrets actually did break loose, but for fear they would. In a report given out by the Navy Department, it is stated that the return of the ship was due to the "caution" of the officers and a desire for "a further inspection and possible readjustment." The excessive rolling of the Indiana is ascribed to the fact that she is not fitted with the bilge keels which she was designed to have. These were omitted because the naval docks were not of sufficient capacity to accommodate the ship with bilge keels in place.

It is gratifying to learn that the rolling of the Indiana and her class is not, in the minds of the naval experts, due to their top hamper and the great height (26 feet) at which the four 8 inch guns and turrets are carried. When the designs were published, it was predicted in many quarters that these ships would not show sufficient stability in a beam sea, and the performance of the Oregon in Pacific waters coupled with the troubles of the Indiana might seem to verify the prediction. Against this, however, it is quite sufficient to reply that the most stable ships of foreign navies showed quite as great instability before their bilge



BATTLESHIP INDIANA—THE BIG GUNS LASHED, AFTER BREAKING LOOSE DURING A GALE.

keels were fitted. This is notably true in the case of the Resolution, a 14,150 ton ship of the British navy, which, in crossing the Bay of Biscay, rolled 47 degrees, and looked so much like "turning turtle" that she put back to Plymouth. Bilge keels were fitted, and she is now one of the steadiest ships afloat.

The bilge keels are continuous, narrow, plate steel, V-shaped keels, about three feet deep, that extend at the turn of the bilges for the greater part of the length of the ship. Their broad surface, by its resistance, prevents the rolling of the ship, hence their other name of rolling keels.

A Convenient Metric Conversion Table.

The following metric conversion table has been compiled by Mr. C. W. Hunt, M. Am. Soc. M.E., president of the C. W. Hunt Company, of New York City, and is most convenient in dealing with metric weights and measures:

Millimeters × 0·03937 = inches.
Millimeters ÷ 25·4 = inches.
Centimeters × 0·3937 = inches.
Centimeters ÷ 2·54 = inches.
Meters × 39·37 = inches. (Act of Congress.)
Meters × 3·281 = feet.
Meters × 1·094 = yards.
Kilometers × 0·621 = miles.
Kilometers ÷ 1·6093 = miles.
Kilometers × 3280·7 = feet.
Square millimeters × 0·0155 = square inches.
Square millimeters ÷ 645·1 = square inches.
Square centimeters × 0·155 = square inches.
Square centimeters ÷ 6·451 = square inches.
Square meters × 10·764 = square feet.
Square kilometers × 247·1 = acres.
Hectares × 2·471 = acres.
Cubic centimeters ÷ 16·383 = cubic inches.
Cubic centimeters ÷ 3·69 = fluid drachms. (U. S. P.)
Cubic centimeters ÷ 29·57 = fluid ounce. (U. S. P.)
Cubic meters × 35·315 = cubic feet.
Cubic meters × 1·308 = cubic yards.
Cubic meters × 264·2 = gallons (231 cubic inches).
Liters × 61·022 = cubic inches. (Act of Congress.)
Liters × 33·84 = fluid ounces. (U. S. P.)
Liters × 0·2642 = gallons (231 cubic inches).
Liters ÷ 3·78 = gallons (231 cubic inches).
Liters ÷ 28·316 = cubic feet.
Hectoliters × 3·531 = cubic feet.
Hectoliters × 2·84 = bushels (2150·42 cubic inches).
Hectoliters × 0·131 = cubic yards.
Hectoliters ÷ 26·42 = gallons (231 cubic inches).
Grammes × 15·432 = grains. (Act of Congress.)
Grammes × 981 = dynes.
Grammes (water) ÷ 29·57 = fluid ounces.
Grammes ÷ 28·35 = ounces avoirdupois.
Grammes per cubic centimeter ÷ 27·7 = pounds per cubic inch.
Joule × 0·7373 = foot pounds.
Kilogrammes × 2·2046 = pounds.
Kilogrammes × 35·3 = ounces avoirdupois.
Kilogrammes ÷ 1102·3 = tons (2,000 pounds).
Kilogrammes per square centimeter × 14·223 = pounds per square inch.
Kilogrammeters × 7·233 = foot pounds.
Kilogrammes per meter × 0·672 = pounds per square foot.
Kilogrammes per cubic meter × 0·062 = pounds per cubic foot.
Kilogrammes per cheval vapeur × 2·235 = pounds per horse power.
Kilowatts × 1·34 = horse power.
Watts ÷ 746 = horse power.
Watts ÷ 0·7373 = foot pounds per second.
Calorie × 3·968 = B. T. U.
Cheval vapeur × 0·9863 = horse power.
(Centigrade × 1·8) + 32 = degrees Fahrenheit.
Francs × 0·193 = dollars.
Gravity, Paris = 980·94 centimeters per second.

Rise and Decline of Strikes.

A record of strikes in the United States for 1881–86, from the United States Bureau of Labor Statistics, has been supplemented by a report bringing the record down to 1894. The former record showed a great increase of strikes, culminating in 1886 with the riots and Haymarket massacre at Chicago. The following totals for the period covered by both reports are tabulated and commented upon by the Springfield Republican:

	Strikes.	Establishments.	Number thrown out of work.	Per cent which failed.
1881	471	2,928	129,521	31·63
1882	454	2,105	154,671	38·24
1883	478	2,759	149,763	25·74
1884	443	2,367	147,054	44·61
1885	645	2,284	242,705	37·70
1886	1,432	10,053	508,044	46·58
1887	1,436	6,589	379,676	47·17
1888	906	3,506	147,704	42·30
1889	1,075	3,786	249,559	34·60
1890	1,833	9,424	351,944	37·34
1891	1,717	3,116	298,939	53·83
1892	1,298	5,540	206,671	51·99
1893	1,305	4,555	265,914	38·79
1894 (6 months)	896	5,154	482,066	60·51

"It will be observed that, after 1886, strikes, taking the number of establishments involved, decreased in prevalence until 1890, when there was a sudden increase to almost the extent of 1886 over 1885, and another decline followed by the widespread disturbances of 1894 which culminated, as in 1886, in the Chicago railway riots. The two years of 1886 and 1894 stand out above all the others, both in the number of establishments involved and the number of workmen thrown out of employment; but the causes were different. The former year witnessed a revival of business activity from the depression of 1884 and the strikes were generally for increase in wages. In 1894, however, we had very hard times and strikes against wage reductions.

"But the most instructive and significant figures of the table are those exhibiting the proportion of establishments involved in which the strikes failed altogether. There is a gain on the whole in the percentage of failures which is too marked to escape notice. During the earlier part of the period represented, about two-thirds of the strikes as respects establishments involved wholly or partially succeeded. But more recently the proportion has declined, until in the last four years the failures have exceeded on the average the whole and partial successes. As a weapon against capital, therefore, the strike is losing its force. Labor has been unable to keep pace with capital in forming powerful combinations. United labor, it is demonstrated, cannot equal in power united capital, and labor seems to be realizing the fact. Evidences are not wanting that labor is beginning to lay more stress upon political action than upon mere unionism."

To South Polar Lands.

After an interval of fifty years the scientific world has taken up again the matter of Antarctic exploration, and it seems likely that during the coming year much important information will be obtained regarding a region of the earth's surface of which we as yet know hardly anything, whose area covers not less than 4,500,000 square miles—about once and a half that of the United States, and equal to that of the great Chinese empire. It was with good reason that at the last International Geographical Congress, held in London in the summer of 1895, says the New York Sun, the first general resolution of recommendations embodied the statement that the greatest piece of geographical work that was left for the future, and one that should be taken up immediately in the present, was the exploration of this terra or aqua incognita. Not since the days of Sir James Clark Ross and Capt. (afterward Commodore) Wilkes, of the United States navy, or the years 1840–42, has any systematic research been conducted in this great expanse of southern ice and water, the ice barriers of which have for one reason or another been assumed to render access to its deeper parts impossible. Yet, strange though it may appear, all this supposition of inaccessibility was based upon the experiences of gallant seamen whose highest resource was the sailing vessel, and to whom the modern methods of polar research, as they have been developed within the last quarter of a century, and particularly in the last decade—the period which compasses the remarkable work of Peary and Nansen—were practically unknown. Whether in the Arctic or in the Antarctic tracts, the work that was accomplished was done with the assistance of a heavy equipment, inefficient clothing, and a source of food supply which knew little or nothing of canned materials and that proper association of sweetmeats and vegetables which have done so much to banish scurvy from the sailor's Arctic dreams.

At the present time three expeditions are being planned or actually being placed in commission for the important work of discovery in the south polar regions. At the head of one of these will be the Norwegian, Borchgrevink, who, in association with his commander, Capt. Kristensen, in 1894–95, while on a whale catching cruise, reached Ross's trail latitude 74° south, and made the first landing on what is commonly designated the Antarctic continent, if in reality such a continental mass exists. Borchgrevink's fitness for this command seems eminently established, and the lucid, graphic, and wholly unpretentious account of his late experiences has placed to his credit a confidence similar to that which has been reposed in the still more illustrious sire of Norwegian soil, Fridtjof Nansen. To him scientific men owe the first discovery of vegetable forms as part of the product of the southern lands. Up to the year 1895, when fragments of what appear to be true lichens were picked up off the bleak and forbidding rocks of Cape Adarl, on Victoria Land, and the offlying Possession Island, it had been assumed that not a trace, type, or form of vegetation of any kind belonged to this inhospitable tract of the south—a tract of land or ice as destitute of terrestrial fauna as it was assumed to be of a covering or partially covering vegetation. Strangely contrasting is the discovery made by Capt. Larsen in 1893 on Seymour Island, a patch of Antarctic land lying almost due south of Patagonia, of an abundance of fossilized plant remains—remains not indicative of a low type of vegetable organization, but of the noble structure of the South American pine or Araucaria. However meager or absent may be vegetation of the far south to-day, the evidence is conclusive that at a former period of the earth's history, and one that is quite recent when measured by geological standards—perhaps extending no further back than 150,000 years, or even considerably less—a goodly vegetation of forest trees, and with it, doubtless, a multitude of herbaceous plants of various kinds, gave life, color, and freshness to the landscape of Antarctica, the landscape which to-day sees hardly more than giant glaciers, walls of ice hundreds of miles in length and as many feet in height, undulating mountain slopes buried beneath perhaps thousands of feet thickness of snow, and a few grandly smoking volcanic cones, like Erebus, sending skyward the products of the internal destruction of the earth.

The second expedition is planned under the direction of Lieut. Gerlache, a young Belgian, and it receives, in addition to the warm support of the town, Antwerp, from which it is expected to take its departure, the official patronage of the Belgian government in the shape of a timely financial backing; presumably, therefore, a possible failure on its part will not be due to the absence of those "sinews of war" which are so eminently necessary for this far-off exploration. It is gratifying to learn that the scientific men of America are fully awake to the importance of the explorations that are planned, and to the discoveries that await the successful investigator of Antarctica. At the last annual meeting of the American Society of Naturalists a committee was appointed to examine into the practicability and the ways and means of furthering an American Antarctic expedition. Profs. Angelo Heilprin and E. D. Cope, of Philadelphia, are members of this committee, and it is known that they strongly favor the immediate (so far as it may be possible) equipment of such an expedition. It is thought that $50,000 will cover an important reconnaissance, if not deep penetration, with one or more steam whalers from the Newfoundland or Norwegian fleet.

It seems likely that the points of attack for all expeditions will be the region of Graham Land, south of Patagonia, which lies nearer the base of operations than the Victoria Land of Ross, and offers additional advantages to exploration which are not found in the track lying south of Australia. It holds out, moreover, hopes of important scientific results even with the failure of the objective aim of any expedition—i. e., high penetration southward. It was in this track that Larsen obtained his fossil plant remains, and also a number of marine fossils, identical with those found by Darwin sixty years earlier in Patagonia, which so strongly point to a former connection with the South American continent. Somewhat eastward of this region Weddell, in 1823, penetrated to latitude 74° 15' south, and the same year Capt. Benjamin Morrell, sailing from New York, and pretty much in Weddell's track, reached 70° 14', reporting a moderately high temperature and a sea practically devoid of ice. How far beyond these points the assumed "impenetrable" barrier would be met, if met at all, only an effort at penetration can determine, as the inconstancy of the ice in this region is such as to throw its front edge to positions, depending upon the year, fully a thousand miles apart from each other. At all events, a chance is here presented.

Of the substance of our knowledge of Antarctica it must be said that most of it is bound up with the researches of Ross about Victoria Land, and with the less important ones that have been made in the region of Graham Land. Concerning the other land, island, or ice masses that have been designated Clarie Land, Sabrina Land, Enderby Land, Alexander Land, etc.—in fact, of the whole Wilkes Land—our information is confessedly scant, and surely not sufficient to build up the great Antarctic continent which has been made a restoration by many geographers. Of the meteorology of the region, and of tides, currents, etc., we know equally little, and manifestly still much less of the geology, zoology, and botany. The commonly accepted notion of the extreme severity of the south polar climate is not founded on fact, any more than was the supposition of the shallowness of the Arctic basin, which, among his many other discoveries, Nansen has now so completely dissipated. In fact, it is all but certain that the winter rigors are far less pronounced in the region about the South Pole than they are in the region of the far north. and that there is nothing there which approaches the —94° F. which is found at two or more tracts along the Lena River in Siberia, or even the almost annual —75° of Yakutsk. Again, the summer temperature, while there is seemingly much less of it, partakes in a measure of the balm of Greenland, the thermometer frequently marking as high as 40° and 45° F. above in the shade. The great ice masses are the disturbers of travel in the far south, but up to the present time they have not been brought face to face with vessels carrying steam, or those that are fitted for the exploration. The coming year will throw new and important light upon this as yet "darkest" tract of the earth's surface.

THE cost of Harveyized single forged nickel steel armor plate is about $170 per ton.