

A GREAT MAMMOTH'S TOOTH.

BY W. FRANK M'CLURE.

Three miles south of Lake Erie, near Amboy, O., is a gravel pit which from time to time has proven rich in relics of the glacial period and of the mammalian age, despite the fact that relics of mammoths are not as a rule found below the fortieth parallel. This pit is in the midst of what was, a few years ago, a gravel bed of fifty-five acres, but which is now being exhausted by railroads depending upon it for ballast supplies. Prior to the upheavals of the early period, which caused the lay of the land to change and the water to recede, this gravel bed was undoubtedly a swamp near the lake banks, while the present site of such lake cities as Ashtabula and Conneaut were then the bottom of Lake Erie. Amboy is to-day 130 feet above the level of the lake.

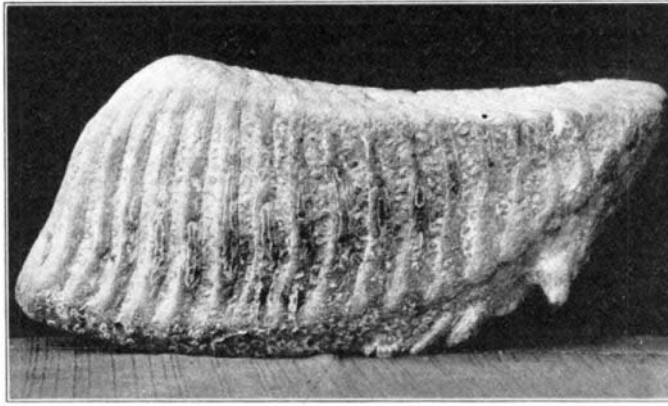
From this gravel pit, among the relics unearthed, have been found tusks eight feet in length, also a giant tooth weighing nine pounds and three ounces, having a length of one foot and a circumference of twenty-six inches. At this depth, too, have been found numerous timbers laid side by side, much resembling a corduroy road. Geologists have visited the spot from time to time, and have found much food for reflection. The tooth heretofore mentioned, and which is shown in the accompanying photograph, is a molar of the *Elephas primigenius*, commonly known as the mammoth, the most perfect specimens of which have been found in Siberia. Ten thousand years ago these animals, now extinct, roamed over Europe in herds. The tusks found at Amboy are curved instead of being comparatively straight, which would imply that they were those of a mammoth rather than the mastodon.

No unusual discoveries whatever were made at Amboy until a depth of 35 feet was attained. At 35 feet the so-called "corduroy road" was uncovered. Immediately the theory of this being the work of prehistoric man was advanced, but was given no credence by authorities, who at once pronounced it a relic of the glacial period, and in this decision is also, undoubtedly, the solution of the finding of the teeth and tusks of mammoths.

It is reasoned that, during the glacial period, huge glaciers coming from the north brought with them portions of felled forests, and lodged them in the swamp territory where is now the gravel pit. The fact that the logs were cedar rather than the wood usually found along the banks of Lake Erie lends weight to this theory. The relics of the mammoths also undoubtedly came down with these glaciers, these great animals being inhabitants of colder climates.

Another less reasonable theory, which has been advanced from time to time in connection with the finds at Amboy, is that the glaciers, on coming from the north, felled the trees in Amboy swamp. Then a change of climate causing the glaciers to melt, the quantities of gravel which they carried were deposited, thus covering the trees to a great depth. Advocates of this theory further say that the

mammoths were browsing in the swamp when the glaciers felled the trees about them. If the relics found were those of a mastodon, this would not be so improbable, for relics of mastodons have often been found south of the fortieth parallel. However, besides the difference in the tusks before mentioned, it will be noted that the big tooth is comparatively smooth, while



TOOTH OF MAMMOTH UNEARTHED AT A DEPTH OF 35 FEET.

Weight, 9 lb. 3 oz.; length, 1 ft.; circumference, 2 ft. 2 in.

the tooth of a mastodon is covered with projections.

ELECTRIC SLEEPING CARS.

BY GEORGE J. JONES.

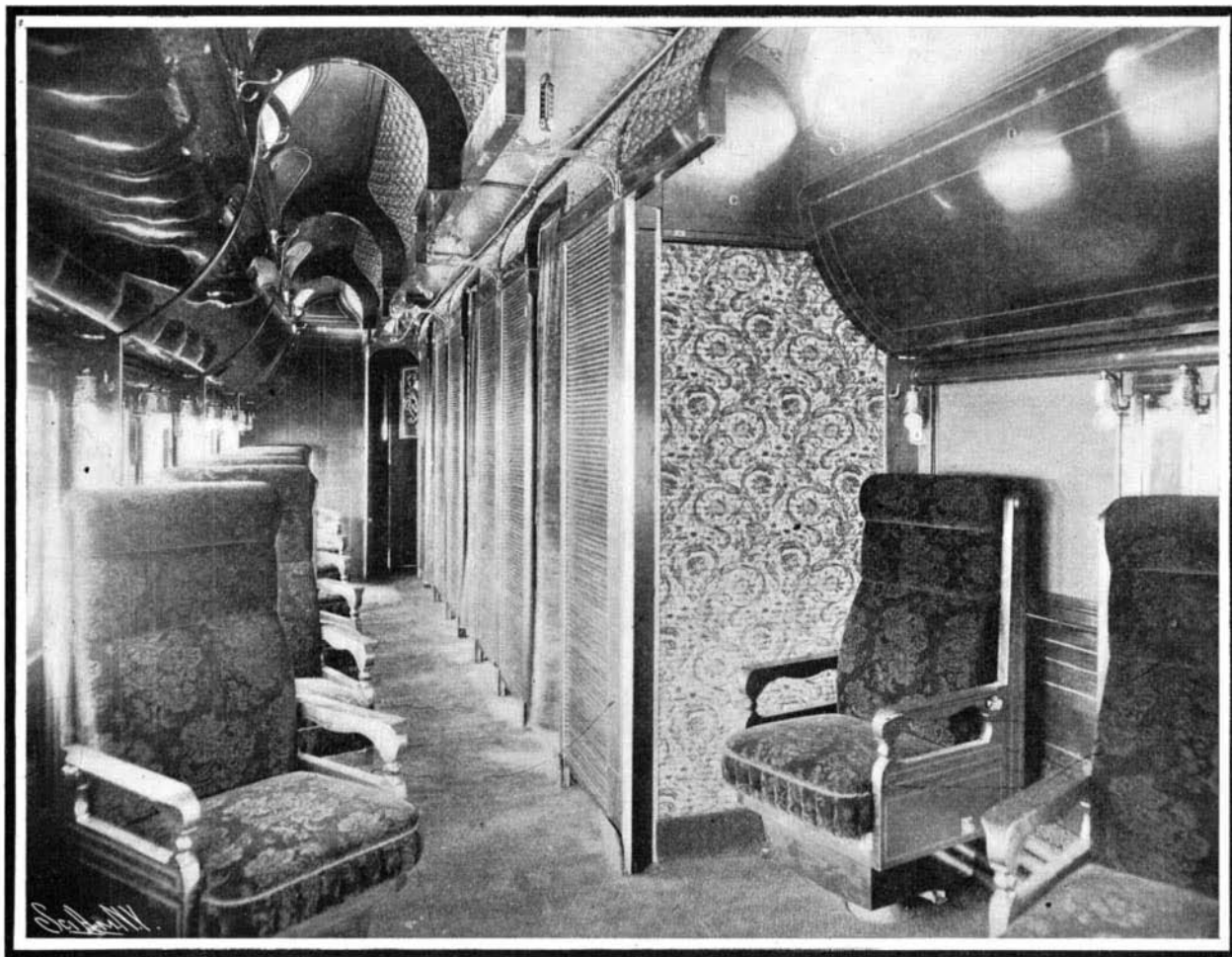
The electric sleepers which have been recently put into service between the cities of Indianapolis, Ind., and Columbus, Ohio, are similar to the sleeping cars of standard construction, and yet radically different. The most striking innovation is in the construction of the berth, which gives the passengers in each section at least the seclusion of a private room at home or in a hotel. Each section has an upper and lower berth of sufficient proportions to hold one person each, and

the two beds are entirely surrounded by a substantial partition.

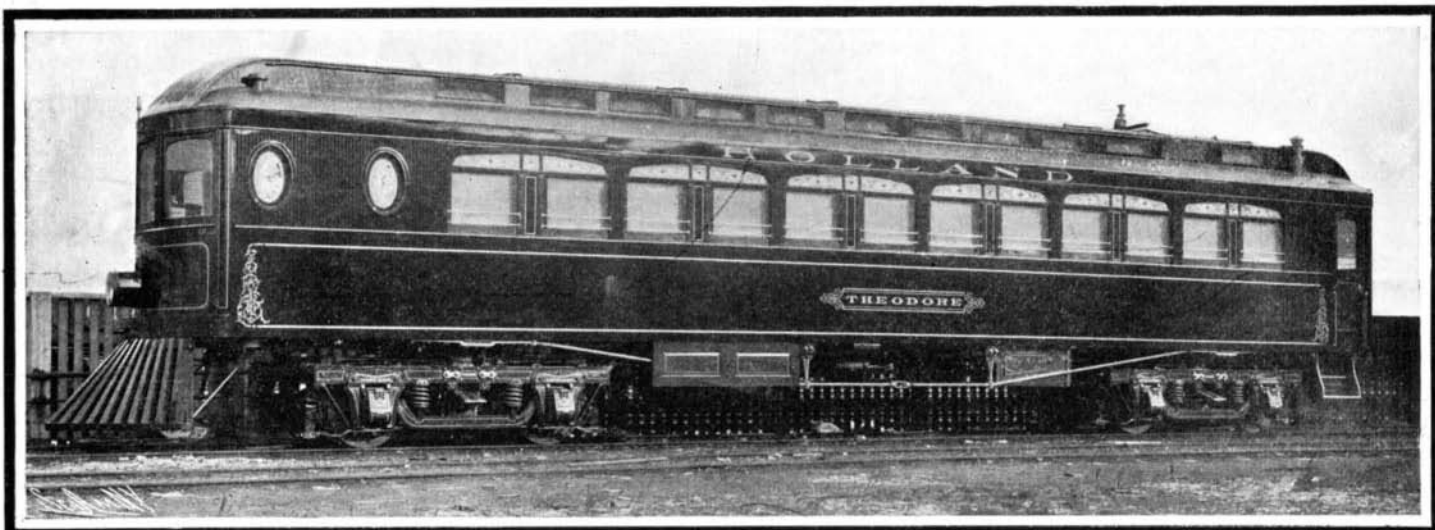
At either end of the car are smoker, wash rooms, lockers, and other comforts, conveniences, and necessities which are to be found on the standard railroad car. The main room is 34 feet 2 inches in length, and by day it has all the appearance of a chair car of the ordinary type, the seats being carried on revolving pedestals, spaced 3 feet 6 inches apart, and 16½ inches from the side of the car. It is intended that the car shall make one round trip each day between the two cities, the day trip being made as a chair car, and the return at night as a sleeper. The berth appointments are as thoroughly disposed of by day as is the case in the Pullman or Wagner car. The chairs are very comfortable, and because of the increased room, comfort and freedom enjoyed by the passengers, it is thought that the cars will be as much in demand by day as by night.

When it is desired to make up a section, a catch at the side of the chair releases the back and it is allowed to fall into a horizontal position, the two chairs forming the bed of the lower berth and lying end to end parallel with and against the side of the car. The arm next to the wall is dropped into a horizontal position and plays a part in the support of the bedding. The other arm is removed entirely and laid aside until it is wanted again when the chair is needed. The headroll of the seat is dropped forward to form a pocket for the clothing of the passenger. The upper berth is exactly the same as that of the ordinary Pullman, and carries the bed clothing for both beds. In completing the making up of the section, after the beds have been prepared, several removable posts are brought from a locker at one end of the car and placed in suitable receptacles in the floor, their tops being locked in the bottom part of an ornamental grill work which extends the entire length of the car. These posts are suitably grooved for the accommodation of a flexible wooden wall which forms the three sides of the little room. These partitions are made on the principle of the roll of the roll-top desk, but work on a spring so that when out of use they are stored between the false and real floor of the car. There is one of these disappearing walls at each end of the berth and two are required to form the partition at the side toward the aisle. This is in order to permit of the formation of an opening which answers the purpose of a door in the center of the little room. The recesses which hold these curtains or partitions are hidden by a metal plate during the day time, and this is removed by the porter when he wishes to pull up the curtains. When the section is in use, the door is shielded by a piece of drapery. When the compartment is ready for occupancy, there is a space clear of the berth, 15 inches wide by approximately 6 feet 9 inches long, which gives ample room to put on and remove clothing.

This curtain affords some ventilation, and this is further provided for by four-inch openings at the bottom of the parti-



INTERIOR VIEW SHOWING SECTIONS MADE UP.



NEW ELECTRIC SLEEPING CAR FOR SERVICE BETWEEN INDIANAPOLIS AND COLUMBUS, OHIO.

tions; thus a constant current of air can flow through the section, entering the bottom and passing out through the grill work at the top.

The exterior of the car has very much the appearance of the standard railroad coach, except that it is much shorter. It has deck lights, broad double windows and extended vestibules. The dimensions of the car are as follows: Length of car over all, 56 feet 4 inches; height from rail, 13 feet 4 5/8 inches; clear head-room inside, 6 feet 5 1/4 inches. There are six longitudinal wood sills, 7 x 7 inches in section, in the floor made in two pieces with a half-inch steel plate sandwiched between.

The construction of the trucks is much the same as that for regular railroad service. They have four wheels each, and each axle is supplied with a 150-horsepower motor built for a speed of 60 to 70 miles an hour. The details of the construction of the electric sleeping car were worked out by M. F. Holland, and the cars built by the Harlan & Hollingsworth Company, of Wilmington, Del.

A SIMPLE LABORATORY BLOWPIPE APPARATUS.

The following article is a description of a simple and inexpensive vaporizer for laboratories without the convenience of a gas supply; its chief advantages being its even operation and the ease with which the pressure can be varied. One of the size given is suitable for almost all laboratory work.

The foot bellows is 15 inches long by 11 inches wide, and is expanded by a coiled spring within. The inlet valve is of the clapper type, and takes air from the underside. The outlet valve is of the same class, and exhausts the air into a small tin dome, from where it is conducted by tubing to the gasometer or holder.

The entire gasometer is built of galvanized iron. The outer cylinder or water tank is 12 inches high by 14 inches in diameter. The inlet pipe extends from the outside half way toward the center of the tank upon the bottom, where it is bent at a right angle and reaches perpendicularly to a level with the top of the tank. The outlet pipe is a counterpart of the inlet, with the exception that it has an upright branch outside of the tank which leads to the vaporizer, the other branch leading to the air blast of the blowpipe. The inner inverted cylinder or gasometer is 12 inches in diameter by 14 inches high. At diametrically opposite points at both top and bottom are affixed guide wheels with concave faces.

The wheels upon each side, being perpendicularly in line, run upon guide rods extending along the sides from the base of the outer cylinder or tank to a height of 14 inches above it. The guide rods are made separable from the tank to facilitate removal of the gasometer. The latter must rise and fall freely without hitching, otherwise the supply of gas and air to the blowpipe will be jerky. When in use, the

outer cylinder is filled with water to within an inch of the top.

The vaporizer is a galvanized iron vessel 6 inches in diameter by 10 inches high, which is half filled with gasoline when in use. The inlet pipe extends from the outside through the top to within a quarter of an inch of the bottom. The outlet pipe extends just

serviceable with any blowpipe, and is useful for other purposes where a supply of gas is necessary.

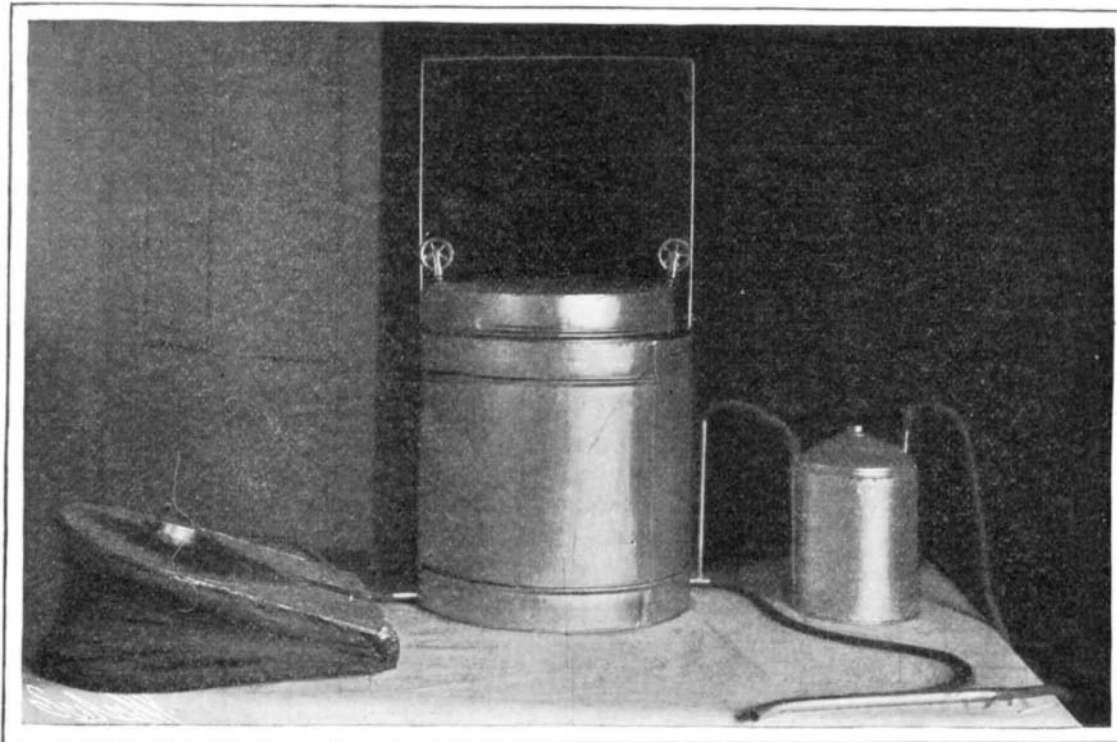
NEW JAPANESE ARMORED CRUISERS "KASAGA" AND "NIASIN."

The recent agreement of Chile and Argentina to reduce their armaments has resulted in a very important accession to two of the leading navies of the world, those of Great Britain and Japan. At the time when the more pacific relations were established between the two South American republics, there were building for Chile two very fine warships of 11,800 tons displacement, the "Constitucion" at the Armstrongs', and the "Libertad" at the Vickers' yard, while two equally efficient and up-to-date armored cruisers of 7,700 tons displacement were under construction for Argentina at Ansaldo, Italy. When it became known that these four formidable vessels were on the market, the agents of the Russian government commenced negotiations for their purchase. These negotiations progressed so favorably that it seemed pretty certain that Russia was about to make an addition to its navy of four first-class fighting ships. This would have been more than suffi-

cient to turn the balance of naval power in the Far East completely in her favor in the struggle that now looks to be so imminent between her and Japan. At the eleventh hour, however, agents representing the British and Japanese governments made such extremely liberal offers for the four vessels that the deal was closed, and the two battleships hoisted the British flag, and the two cruisers the flag of her possible ally, Japan.

The "Rivadavia" and "Moreno," as the two cruisers were known, have been rechristened the "Niasin" and "Kasaga," have hoisted the Japanese flag, and, with full crews aboard, are now making all speed by way of the Suez Canal for far eastern waters. The new cruisers are of the same general type as that most efficient vessel, the "Cristobal Colon," whose wreck still lies on the southern coast of Cuba, where she was headed off and driven ashore by the guns of Admiral Schley's flagship, the "Brooklyn," and the battleship "Oregon." The "Kasaga" and "Niasin" are identical in every respect but one; the one difference being that the main battery of the "Niasin" consists of one 10-inch gun and two 8-inch guns, while that of the "Kasaga" consists of four 8-inch guns. The accompanying very striking photograph of the "Kasaga" was taken when that vessel was on her trial trip, in which she averaged a

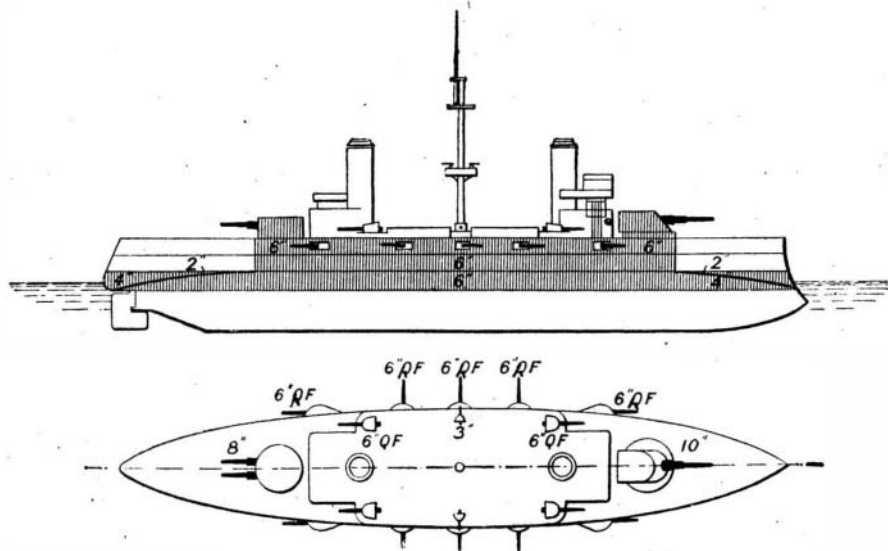
speed of 20.2 knots, over a course 12 miles in length. While the speed is not a high one as speeds go in armored cruisers to-day, it is very creditable if we bear in mind the heavy armament and excellent protection that are secured on the limited displacement of 7,700 tons. The "Moreno" is 357 feet in length, 61 1/2 feet in breadth, and draws 23 feet of water. She is driven by two sets of triple - expan-



A SIMPLE LABORATORY BLOWPIPE APPARATUS.

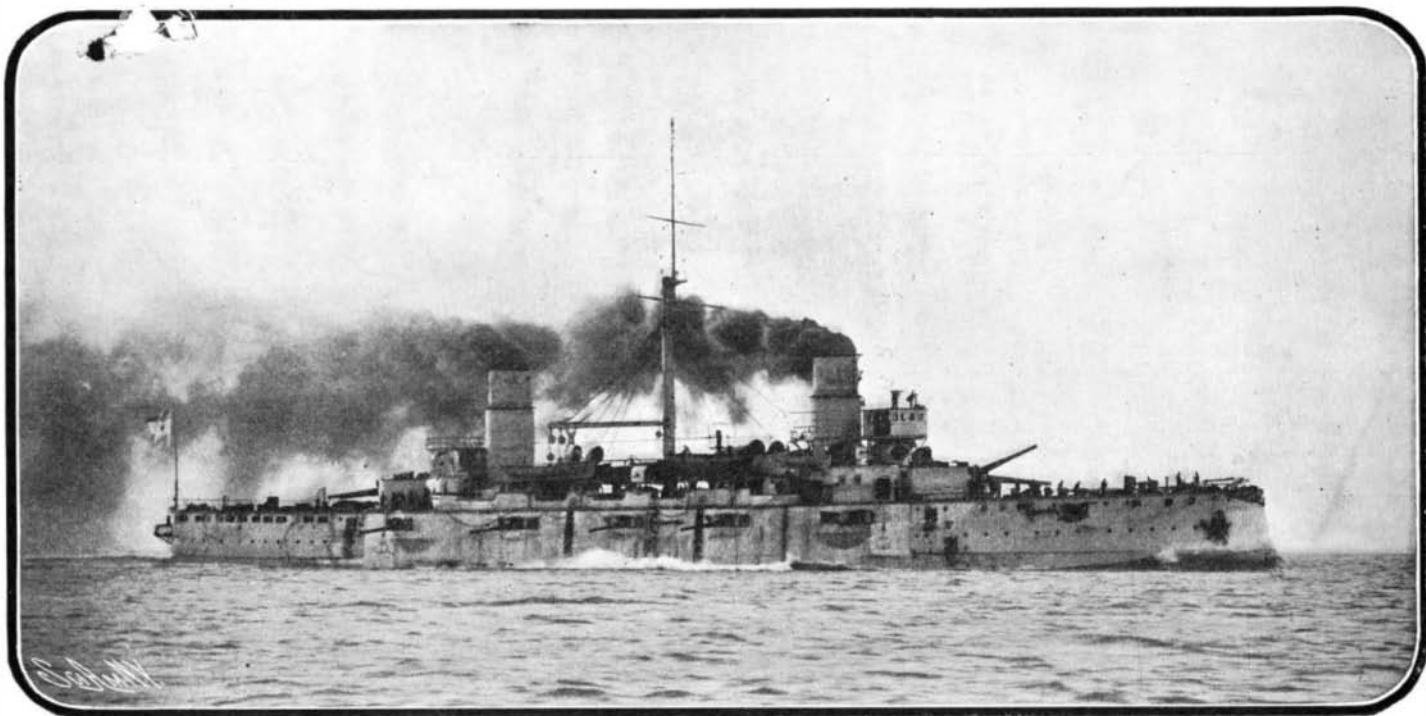
within the dome. The inlet should be marked to prevent mistake in coupling up.

Each downward stroke of the bellows raises the gasometer, which feeds air to the vaporizer and air blast. The quantity of air or gas is regulated in the usual way by stopcocks at the blowpipe. The machine gives a steady, even pressure, which can be increased at will by placing weights upon the gasometer. It is



"Kasaga" has two 8 in. in place of one 10 in. gun forward.

GUN AND ARMOR DIAGRAM OF THE "KASAGA" AND "NIASIN."



Displacement, 7,700 tons. Speed, 20.2 knots. Bunker capacity, 1,100 tons. Armor: Side, 6 in. to 4 1/2 in.; turrets, 5 1/2 in.; battery protection, 6 in.; two armored decks, 1 1/4 in. and 3/4 in. Armament: Four 8 in.; fourteen 6 in.; ten 3 in.; four small guns. Torpedo tubes: Four above water and behind 6 in. armor. Complement, 625.

NEW JAPANESE ARMORED CRUISER "KASAGA"; ALSO SISTER SHIP "NIASIN."