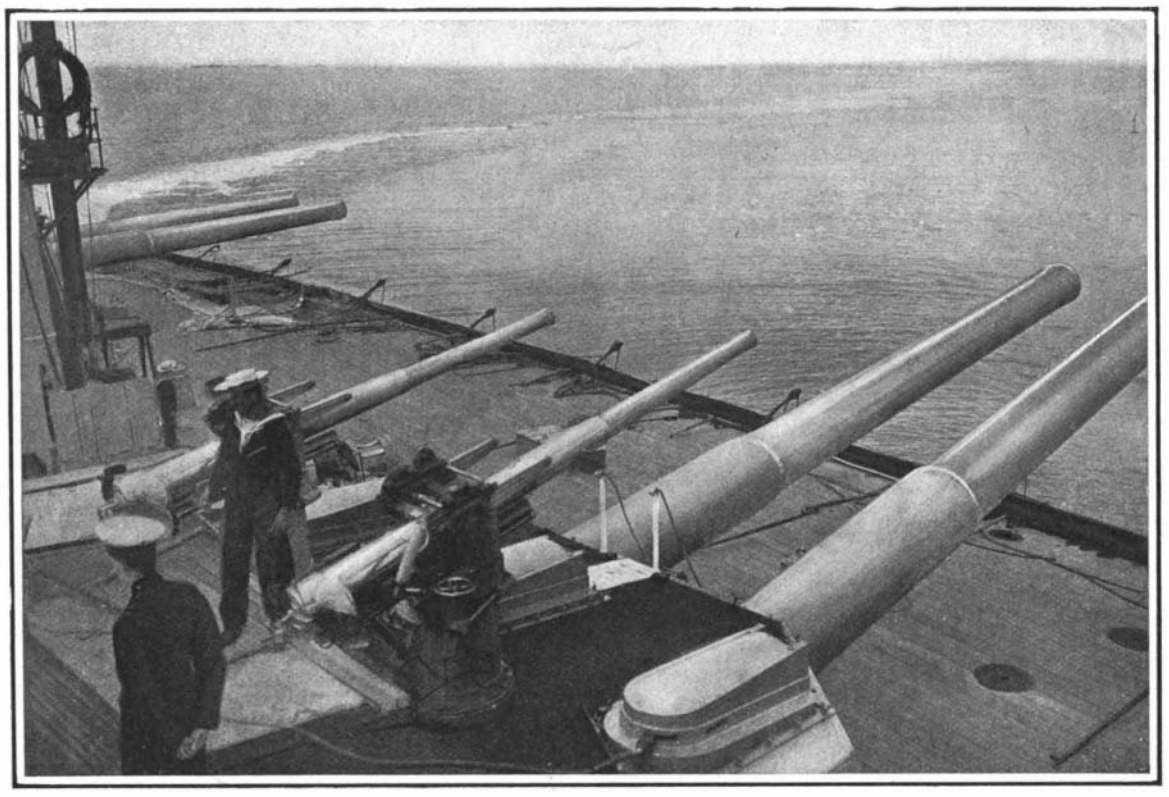
BATTLE PRACTICE IN THE BRITISH NAVY.

BY PERCIVAL HISLAM.

Many important changes in the conditions governing battle practice in the British navy come into operation this year, the aim of which is to reproduce more closely the conditions of a naval engagement. In the first place, the target, which has hitherto been moored to buoys in a fixed position, is this year to be towed at a speed of eight knots; secondly, instead of all hits being lumped together as formerly, careful note will be taken of the hits made by the various types of guns, and a larger allowance of marks will be made for bulls with heavy projectiles, the figure decreasing as the caliber of the gun diminishes. This is a much-needed reform, as it is obviously ridiculous to valuate a hit with a 6-inch shell weighing 100 pounds at the same figure as one with a 12-inch, weighing 850 pounds. Thirdly, both broadsides will be brought into play, instead of only one, as was previously the case.

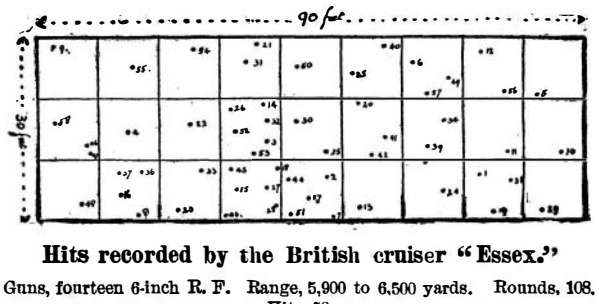


The "Dreadnought" cleared for action, showing the two after 12-inch twin turrets.

The introduction of these new conditions has necessitated the design of a new target, the old pattern being quite unsuited for towing. The first of the new pattern has recently been launched, and is illustrated in the accompanying photographs. In general appearance the structure resembles the hull of a ship with a huge oblong framework erected on it. This hull is constructed of steel, ballasted heavily with concrete, in order to give sufficient stability to enable the target to be towed. Its total length is 140 feet, and its depth, from keel to the level of the deck, 20 feet. Its beam amidships for the length of the target is 5 feet; but for a distance of 25 feet from either end a raised deck is built (that at the fore end having the lines of a small gunboat), and these ends are 9 feet wide.

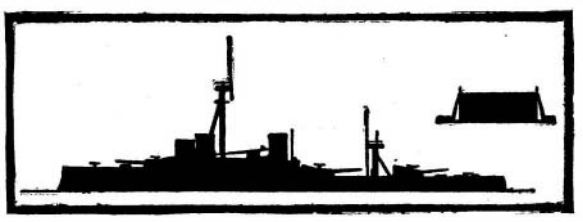
In its completed state the target is submerged to a depth of 20 feet, leaving 31 feet exposed above the water. Over the gridiron framework, which is built throughout of 12 x 12-inch timbers, is stretched a canvas 90 feet long and 30 feet high, which forms the actual target, and which is of the same size as in previous years. The weight of the whole structure is 170 tons; the cost, $2,500; and the time required for building, six weeks. The targets are built and launched on their side, and afterward righted.

A few words as to the general conditions under which battle practice in the British navy is carried out may not be without interest. Just before the time for firing, the ship proceeds to a sheltered harbor in order to calibrate her guns, which means the adjustment of the sights to the wear of the barrel. This, especially in the heavier weapons, becomes considerably scored by the corrosion of the powder and the passage of projectiles along it—so much so, indeed, that after eighty or a hundred rounds have been fired from a 12-inch gun, it is necessary to reline the barrel. In calibrating, the guns are trained on a known range and fired, the fall of the shot being noted by officers stationed near the target, the gun sights themselves having an error of only 5 yards in 3,000. A number of rounds are fired, the mean of the errors taken, and the sights altered to correct the error of the gun barrel.



Hits recorded by the British cruiser "Essex."

Guns, fourteen 6-inch R. F. Range, 5,900 to 6,500 yards. Rounds, 108. Hits, 58.



Comparative sizes of H. M. S. "Dreadnought" and battle practice target.

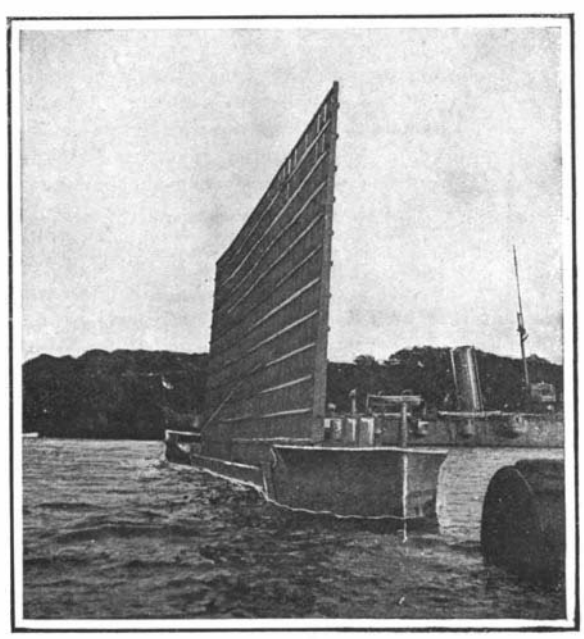
The ship then proceeds to the battle-practice range with the chief umpire on board. In the possession of the navigating officer is an envelope containing a sketch of the course to be followed. This course is laid down by the umpire, and no one in the ship is acquainted with it, so that the crew are in complete ignorance both as to the range at which the firing will open and the broadside which will first be brought into action. The range varies actually between five and seven thousand yards; and as the ship approaches it on a zigzag course, each broadside is brought into action alternately. The firing lasts for fifteen minutes.

After the firing is concluded the results are carefully noted by the umpire, who forwards them to the Admiralty. There they are worked out with the aid of a confidential formula—the actual number of rounds and hits being kept secret—and the results published as points. It is known, however, that the average of hits to rounds fired throughout the fleet runs to between 35 and 40 per cent, the best ships putting in about 65 per cent. A good target—that fired at last year by the armored cruiser "Essex"—is illustrated here.

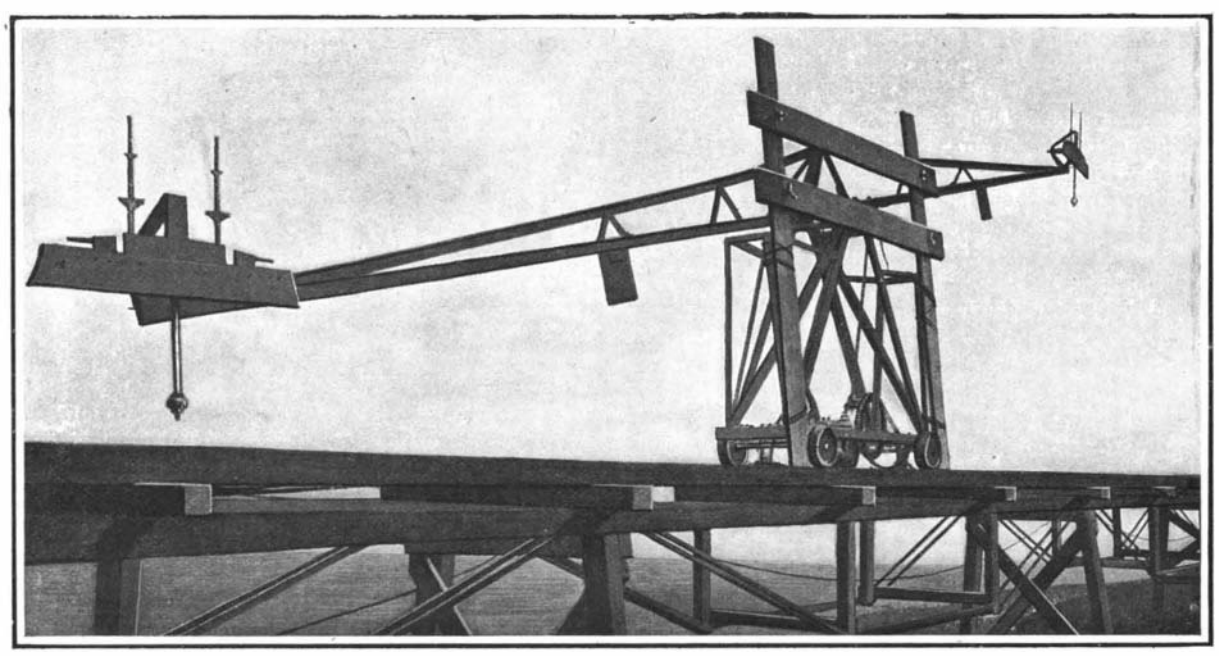
It is important that battle practice should not be confounded with the gunlayers' tests. The latter are carried out at ranges of 1,500 to 2,000 yards at a target 10 feet by 8, and the full details are published by the Admiralty. Eighty per cent of hits is now a common score in these tests, the best shooting so far having been made by a gunner of the cruiser "Argonaut" named Sparshott, who succeeded in getting off eleven rounds and scoring eleven hits in one minute with a 6-inch 100-pounder rapid-fire gun.

The question of fire control has been receiving a good deal of the British Admiralty's attention lately. In the gunnery trials against the old battleship "Hero" last November, the fire-control communications were shot away in the first half dozen rounds by a fragment of shell which went clean through the ship's mast, while later on a shell burst in the control top, setting fire to the dummy men which had been placed in it. Some time ago experiments were carried out with a new control system which could be installed behind armor near the waterline, but it was not successful, height being a *sine quâ non* of the control officer, who must note the fall of the shot with reference to the target. It is understood that experiments will shortly be made with a skeleton mast, similar to that which was built for the same purpose on the United States monitor "Florida."

In conclusion, it may be stated that the energy developed by a ship such as the "Dreadnought," with a broadside fire of eight 12-inch guns, in one broadside, is 400,000 foot-tons—sufficient to raise twenty ships of her size a foot in the air. Speaking at a dinner recently, Rear Admiral Sir Percy Scott, who is known as the "Father of modern gunnery," stated that the



The target afloat. Note the ship-like build of the bow.



Moving models for gunners under training at the Whale Island gunnery school.

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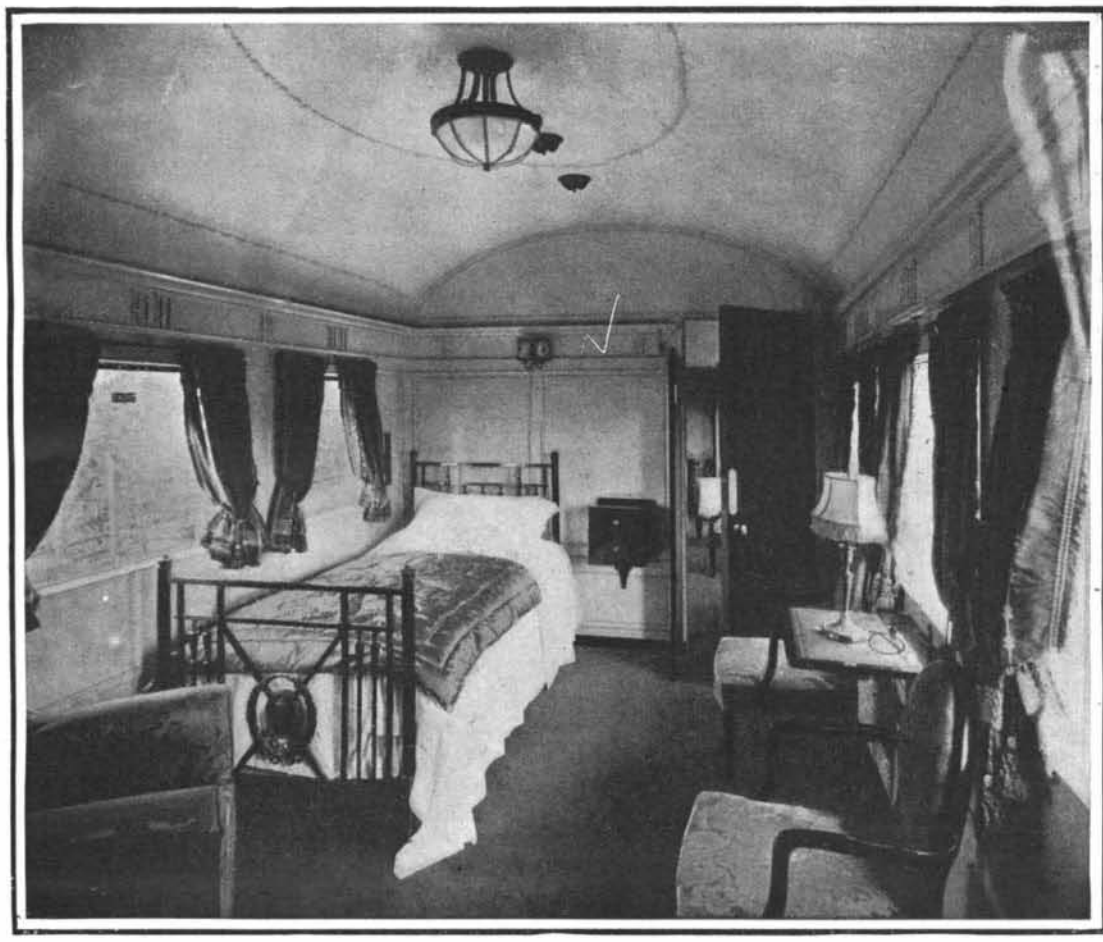
"Dreadnought" could fire her guns over a distance of 15 miles (26,400 yards), and that in firing over such a range, the trajectory of the shell would reach a height of 16,500 feet—more than 2,000 feet higher than Pike's Peak in the Rocky Mountains. Among the illustrations will be found one of the "Dreadnought" cleared for action aft, showing two pairs of 12-inch guns trained over the port broadside. There are also shown the model ships at which gunners under training are taught to fire, the models traveling on a railway, and rising and falling like a ship at sea.

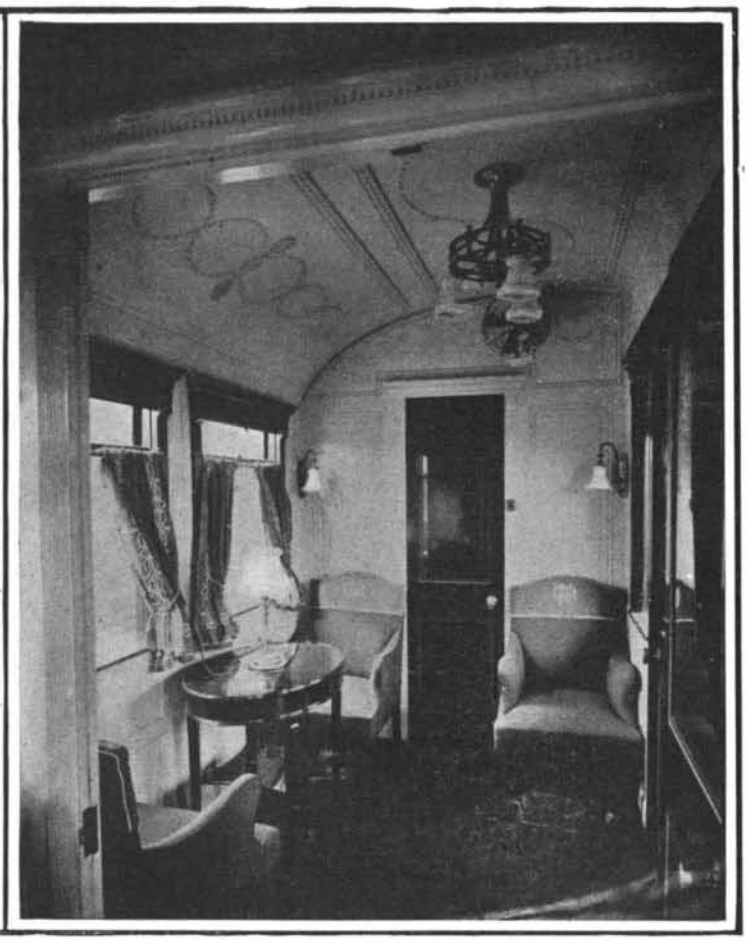
HOW ENGLISH ROYALTY TRAVELS.

BY F. C. COLEMAN.

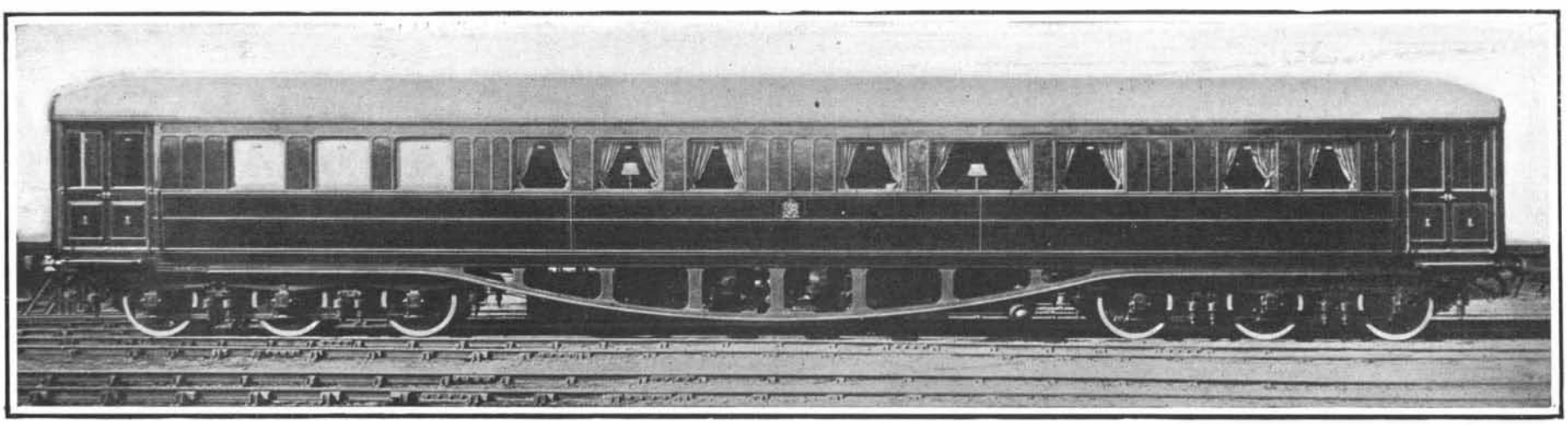
The three railway corporations (Great Northern, North-Eastern, and North British) controlling the East Coast route between London and Scotland, have just recently completed a new and luxuriously fitted royal train for the exclusive use of their Majesties King Edward VII. and Queen Alexandra and other members of the British royal family. Hitherto, when the royal family have traveled over portions of the East Coast route, the train built some years ago at the London and North-Western Company's works at Wolverton has been utilized; but now the East Coast companies are in possession of their own special train. Her Majesty's saloon has been constructed at the York Carriage Works of the North-Eastern Railway Company, while his Majesty's carriage and all the other vehicles forming the royal train have been constructed at the Great Northern Railway Company's works at Doncaster. The King's saloon, exterior and interior views of which are given herewith, is 67 feet in length over the body, 9 feet wide, and 12 feet 11 inches high from rail level to top of roof. It is constructed of teak, with a steel underframe, and is carried on two six-wheeled bogies. Entrance is obtained from double doors, opening inward at each end; the moldings round the panels and windows are of gilt brass, and the center of the bottom panels is ornamented with his Majesty's cipher. On each side of the doors are gilt grip handles, extending from the cornice to the floor. The outside panels are of specially selected figured teak, and the center panel bears his Majesty's coat of arms. The roof is elliptical, and the outside appearance of the coach conforms generally to the standard type of the Great Northern and East Coast joint stock. The windows are of beveled plate glass, and are balanced so that they can very easily be lowered or raised. Commencing at one end, the saloon is divided as follows: Entrance balcony; smoke room; day saloon; bedroom or dining room; dressing room; attendant's compartment. The balcony is paneled with richly figured teak and has a white paneled ceiling. The smoking room is 10 feet long and decorated in Jacobean style; the walls are of oak inlaid with boxwood and dark pollard oak. The furniture consists of two armchairs and a large settee, upholstered in reindeer plush hide. The fittings are of oxidized silver. The day saloon, which is 17½ feet long, is in Louis XVI. style, and the walls are of highly polished sycamore inlaid with trellis lines of pewter and light mahogany. The furniture, which is of light French mahogany inlaid with pewter and box, upholstered with silk brocade, consists of two armchairs, a large settee, and four smaller chairs. There is also a writing table, which is fitted with adjustable shaded electric lights. The use of pewter is a revival of an old French method, which has a very pretty effect in conjunction with mahogany. Both the day and smoking rooms are lighted by rows of tubular electric lamps, concealed behind the cornices on each side, giving a very soft and restful light. There are also corner brackets in the smoking room, and handsome gilt wall brackets in the day compartment, the lights in the latter being shaded with hand-painted silk screens. The bedroom, or dining room, is 14 feet long, and the walls are paneled and enameled white; the furniture being in mahogany inlaid with kingwood, and covered with fine old rose-colored silk damask with green silk embroidered cushions. When used for day journeys, the bed is taken out and the compartment is converted into a dining room. The dressing room, which is 8 feet long, is paneled and enameled white. Next to the dressing room is the lavatory, the floor of which is covered with inlaid cork parquet flooring, and the walls are of fine Italian Cipolino marble cross-banded with white statuary marble. The attendant's compartment is fitted up with electrically heated kettles, urns, etc., and a switchboard for controlling the lighting and heating of the carriage. In order to give uniformity of effect, the whole of these rooms, with the exception of the attendant's compartment, are carpeted alike with a fine plain Saxony pile old rose carpet, and all curtains and blinds are of soft green silk with white silk embroidery. In addition to electric radiators, the saloon is heated by means of warmed air, which is delivered into the various compartments through ducts from electric blowers situated in the attendant's compartment. Ventilation is also afforded in the same way, and the air from the roof ventilators is extracted by means of electric exhausters. The decoration and furnishing have been carried out by Messrs. Waring & Gillow, and Messrs. J. Stone & Co.'s system of lighting and ventilation has been fitted. In addition to the saloon for his Majesty the King, two special saloons have been constructed for his Majesty's suite and friends, which are vestibuled on to the royal saloon. These saloons are carried on four-wheeled bogies of special design with 10-foot wheel base. The vehicles are 58 feet 6 inches long, and are fitted with easy chairs and couches upholstered in green tapestry. The partitions are so arranged that each of the saloons can be made into four bedrooms. The walls are enameled white, and the doors are of richly-figured mahogany. All the electric fittings, electroliers, etc., are of tasteful design, and gilt, with white silk shades,



The King's bedroom on the royal car.



A corner of the special saloon for the royal suite and guests.



The royal car is 67 feet long, 9 feet wide, and 12 feet 11 inches high from rail level to roof. The strong steel underframe adds to the car's collision-resisting ability.

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