BUILDING OF A DREADNOUGHT WHY IT COSTS \$10,000,000

Are Engaged in the Work.-

[London Daily Mail.] Long before a Dreadnought is actually laid down at least 100 great firms there is generally a picturesque little in all parts of the country have been ceremony connected with this official spurred into unusual activty. Thirty start. or forty distinct trades are engaged in

men are employed. Eight Dreadnoughts, if under con- water. struction simultaneously, would mean Right from the water to the head period of construction.

gathered together into one large town, begun. we should find among them men of be carpenters, cabinetmakers, polishers, chines is deafening. plumbers, glaziers, upholsterers, gildevery substance known to man. They

Now, let us see how all these work-

a series of tests in an experimental

the speed the completed vessel will in by a pneumatic machine. be able to attain, as well as many other matters.

work are allowed to enter the build- pleted as far as the upper deck.

ings are made, which are equivalent to an architect's plans. The prepto an architect's plans. The prep- when that ceremony has been accomaration of these drawings alone is an immense task.

The next scene is laid in an enorous building known as a "mold tt." Here wooden models of varfous portions of the ship are put to-Laying the Keel.

If you could get a glimpse into one of the great mold lofts of a royal dockyard you would see the floor of the building marked out with sections of the new ship for the guidance of the shipwrights who will act-

Advertiser Patterns

Measurement: Bust

Age (if child's or misses' pattern) ...

CAUTION .- Be careful to inclose above illustration and send size of pattern wanted. When the pattern is for the sake of convenience.) bust measure, you need only mark 32, 34, or whatever it may be. When in length measure. When misses' or child's pattern, write only the figure representing the age. It is not read the cost of the cost of the hull proper amounts. representing the age. It is not necessary to write "inches" or "years." Patterns cannot reach you in less

LONDON ADVERTISER.

Thirty or Forty Distinct Trades ually put the vessel together.
Work in these departments goes on for months before the actual build-

ing is begun. Officially the building of a commences from the time the keel is laid, and the time occupied in construction is always calculated from

Nowadays every naval leviathan is the work; five or perhaps six thousand constructed on a slip—that is a sloping way that leads direct to the

employment for about 48,000 men, of the slip runs a row of huge counting the families of the workers blocks. On one side of the slip is on a low estimate, it is fairly safe to placed the keel-plate of the new levisay that a community of nearly 200,000 athan. A lady-usually the wife of an persons-about the population of Brad- admiral-touches an electric button, ford-could be supported by the wages and the keel slides slowly into its paid to Dreadnought builders during place on the blocks amid the cheers of the assembled workmen. The keel If we could imagine all the workers is "laid" and the building of the ship

From this time until the day nearly every trade. Besides the steel launching the place is a scene of in-workers, the builders of enormously powerful machinery, and of appar- men swarm all over the slowly growatus put together with the refined delign monster, and the noise of the turning white during the week of upon the opportunity to participate in the suspense in which he awaited the re-

workers, optical workers, painters, before it is fixed, and every pound is not, however, unique; indeed, there to live upon what he has; the American of material built into the ship is are so many authenticated cases that lives upon what he thinks he deserves, ers, ropemakers, workers who deal carefully weighed, an official, termed with cork, indiarubber, and almost "Recorder of Weights," being appoint- for the views they now hold respected for this purpose. would all find work in Dreadnought

ing bolted together, the task of affix- acle. The case of Marie Antoinette. ing the ribs begins, and at this who was "whitened by affliction," is a the other results in an attitude of exers actually build one of these great period in her growth the battleship familiar incident in history, but even looks strikingly like the skeleton of more singular was that of the Duke The first step is the construction of a huge whale, for the bare ribs arch of Brunswick, whose hair and beard a small model. This model is made over just beneath the protection silvered in 24 hours after he had of paraffin wax, and is subjected to deck. The ribs, however, do not long re-

It is drawn through the water at various speeds, and by the most minother and fixed along the vessel's rors of the French revolution, was ute calculations of the resistance it side. Roughly bolted into position at captured and imprisoned. She entered offers the designers discover data first, they are quickly sewn together the jail one night, and by dawn next the more alert position of the two, and which enables them to determine by thousands of steel rivets punched morning her grief and anxiety had been Water-tight compartments,

bunkers, magazine So much importance is attached to many other apartments into which these trials, which take place in the the interior of a warship is divided experimental tanks at Haslar, that come quickly into being, and within only experts actually engaged in the about six months the hull is com-By the time about 6,000 tons

> plished the new warship is far from being completed. Her armor-plating has now to be "mold put on, and this is an immense task,

> > Born Amid Thunder.

are busy fitting the engines and boilof moving m

month after month. A warship is born amid thunder. steel shafts are swung high up into

rooms and stokeholds. Anyone who has not seen it would carrying their destructive work gradubarely credit the enormous quantity ally towards root and end until all the of material that goes into the propelling and other machinery of a their voracity. warship. Besides all this, there are the miles and miles of wires to be Then the huge funnels, masts are stepped, the guns are put in, and the new Dreadnought is ready ery trials.

pounds have been reduced to dollars There are many who cannot conceive how a Dreadnought can cost as much as \$10,000,000, but when one figit may be. If a skirt, give waist and west out the cost of the component

to approximately \$4,030,000, and the armor used to protect the hull costs in the neighborhood of \$2,500,000. The than one week from the date of order.
The price of each pattern is ten cents for cash or in postage stamps.

In the neighborhood of \$2,500,000. The land machinery, developing a speed of pattern is ten cents between 19 and 20 knots an hour cost pet your money back if not satisfied. 60c, at all speed of pattern DEPARTMENT,

PATTERN DEPARTMENT,

In the neighborhood of \$2,500,000. The land protruding and protruding a speed of pet your neighbors about it. You can use it and between 19 and 20 knots an hour cost get your money back if not satisfied. 60c, at all dealers or EDMANSON, BATES & CO., Toronto. bettes, for the forward and aft decks,

costs \$1,000,000. The cost of the 13 searchlights and the necessary electrical fittings totals \$250,000. The trical fittings totals \$250,000. numerous small 12-pound guns cost \$1,800 each, while the cost of the small motor and steam boats is \$40,000. Five submerged torpedo tubes cost \$15,000

Cost of Operation.

But it is not only the cost of construction which is stupendous. cost of maintaining this, floating fortress is almost appalling. Each tor pedo costs \$3,000. The cost of firing one shell from the 12-inch guns is \$750. The prodigious furnaces consume every hour 171/2 tons of coal, The cost of every shell fired from the 12-pound guns is \$30. Truly, a Dreadnought

considerable bill of expense, for the very wealthiest of nations.

Cells Which Absorb Any Pigmentary Substance With Which They Come

in Contact

WHY THE HAIR

The recent case of a man's hair often lives upon his capital and looks sult of the coroner's inquiry aroused his country as a more or less assured in-Every part is marked for position considerable interest. The occurrence come. The Englishman prosaically tries ing a change that in earlier years would tling of life. The one results in calm, in Within a few days of the keel be- have been regarded as akin to a mirlearned that his father had fallen five years of future have done; the Engmortally wounded in the Battle of lishman is surrounded, on the contrary, main exposed. By means of derricks Auerstadt. The Duchess of Luxem-

> sufficient to "blanch at once the hair," as Scott once said. Alleged Causes.

The change has been attributed by some authorities to a violent disturbance of the heart, whether caused by sudden joy or sorrow. Immediately the heart is disturbed the blood capillaries supplying the hair are affected, with the result that the hair turns white. This only half explains the case, for why should white ensue as the effect of a mental and circulatory disturbance more than any other color? Another theory would have it that the hair becomes dry with age, and that the air, penetrating through the sheath into the interior, destroys the pigordinary tools will make no impression ment. Others have attributed the disdisappearance of the coloring matter to a chemical substance which eats it They are put on in strakes (i.e., away, as acid eats iron. Professor tiers) by one set of men, while others Metchnikoff has put forward a more reasonable explanation of the phenomenon. According to this eminent scien-The eternal clang, clang, clang of tist, hair is not dull, dead matter, but hammers, the roar of forges, and the a living substance composed of living cells, and nourished like any other tissue of the body. the hair are provided with prolonga To place the boilers and engines tions ("protoplasmic appendages") into position a huge pair of "sheer-legs" is used, and truckload after mentary coloring) substance with truckload of engine parts, tubes, and which they come in contact. These truckload of engine parts, tubes, and "chromophagic" cells absorb pigment. the air and lowered into the engine so to speak, and flourish on it, beginning about the middle of each hair and

coloring matter has been sacrificed to

Science and Fashion. What happens in the case of sudden nstalled for electric lighting and tele-grief or sudden joy is that the "chromophagic" cells are unduly excited through which a coach and four might begin an immediate attack on the pigeasily drive, are hoisted aboard, the ment. Some of the pigment, however, escapes to the root, and after the excitement of the cells is over it may and after the great deal to go to sea for her gun and machin- be induced to mount again by the application of heat. The "chromophagic" What a Dreadnought Costs.

(In the concluding paragraphs or the familiar curling-tongs at a prepare and temperature of 140 degrees F. is fatal to their existence. Thus, do science and fashion go hand in hand; thus has woman, by instinct, reached the goal where the laboratory-led professor has

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AND THE ENGLISH

A Magazine Writer Describes Their Different Characteristics.

Perhaps the main, the fundamental difference, between the two is after all that the English, being less imaginative, and with fewer opportunities, and hence with less incentive to change their social or financial status, seem to the American to be more contented, more peaceable and calm-the unsympathetic American might phrase it as duller, less enterprising. These country town people are seemingly striving to live as did their fathers and grandfathers; in America the restlessness is the result of the strife on the part of most people to have a portion of the wealth, the good fortune, the opportunities, of their grandchildren. The Englishman looks back for his standard, and makes tradition and precedent serve as guide; the American looks forward, scans eagerly the far horizon of the future, rebels aginst old customs, against the ways of the grandfathers, scoffs at caution, and lives as much as he can in the future. The Englishman lives upon his

income knowing how hard it is to inenormous increase of natural wealth of upon what he expects. One can readily see how this fashions differently the setcontentment, or, at any rate, a forced contentment which imitates the reality; pectancy, of constant striving and rest-The American even in a country town is surrounded on all sides by the evidences of what twentyon all sides by what hundreds of years of past have done. The American natur ally enough leans forward; the Englishmen leans back. We all know which is which is the more restful. The one is trying to keep what he has, the other is trying to wring what he can from the

future. The one plays with what he has, the other gambles for what he wants. The one tries to make himself comfortable in last year's nest; the other is looking for the best place to build himself | First-Class Round Trip another nest, better and bigger than the SPECIAL DAY EXCURSIONS old one.-From "England and the English," in Scribner's Magazine.

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TRAVELERS'GUIDE GRAND TRUNK RAILWAY.

SARNIA TUNNEL TO SUSPENSION
BRIDGE AND TORONTO.
Corrected to January 10, 1999.
Arrive from the east—*3:48 a.m., 10:59
a.m., *11:12 a.m., *11:28 a.m., *6:30 p.m. a.m., *11:12 a.m., *11:25 *8:00 p.m., 10:10 p.m. Arrive from the west—*12:09 a.m., *3:35 a.m., *11:28 a.m., 1:10 p.m., *4:10 p.m., 6:25 a.m., *11:28 a.m., 1:10 p.m., *4:10 p.m., 6:25 p.m.

Depart for the east—*12:14 a.m., *3:40 a.m., 7:30 a.m., 9:90 a.m., *11:38 a.m., 2:95 p.m., *6:53 p.m.

Depart for the west—*3:50 a.m., 7:40 a.m., *11:18 a.m., *11:43 a.m., 1:40 p.m., *8:18 p.m.

LONDON AND WINDSOR.

Arrive—10:25 a.m., 4:00 p.m. *6:50 p.m., 11:00 p.m.

Depart—6:35 a.m., *11:35 a.m., 2:20 p.m., *8:10 p.m.

STRATFORD BRANCH.

Arrive—*3:25 a.m., 11:15 a.m., 1:33 p.m.,

STRATFORD BRANCH.

Arrive—*3:25 a.m., 11:15 a.m., 1:33 p.m.,
6:45 p.m., 11:25 p.m.

Depart—6:00 a.m., 10:26 a.m., 2.43 p.m.,
4:55 p.m.

LONDON, HURON AND BRUCE. Arrive-10:10 a.m., 6:10 p.m. Depart—8:30 a.m., 4:50 p.m. Trains marked * un daily. Those not narked daily, except Sunday.

PERE MARQUETTE RAILWAY. Depart—5:40 a.m., *7:10 a.m., 9:43 a.m., 2:30 p.m., *3:40 p.m. Arrive—8:45 a.m., *12:20 p.m., 1:50 p.m., 4:40 p.m., *9:20 p.m. 1:50 p.m., *To and from Walkerville, without change. Trains not "starred" to Port Stanley. MICHIGAN CENTRAL RAILWAY. Depart-7:15 a.m., 2:20 p.m., e:35 p.m., CANADIAN PACIFIC RAILWAY.

Arrive from the east—*11:30 a.m., 8:00 p.m., *19:52 p.m. From the west—*4:39 a.m., †8:35 a.m., *5:20 p.m. Depart for the east—*4:40 a.m., 8:43 a.m., *5:28 p.m. For the west—*11:38 a.m., ‡8:10 p.m. *11:60 p.m. *5:28 p.m. For the west—*11:38 a.m., \$8:10 p.m., *11:00 p.m.

Trains marked * run daily. Those not marked, daily, except Sunday, †From Chatham only. ‡To Chatham only.

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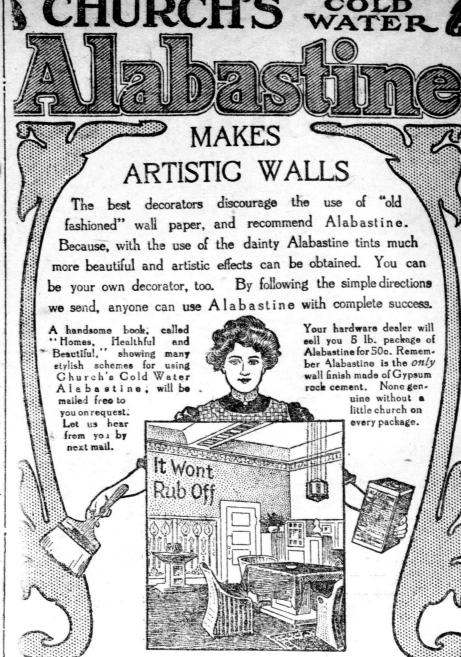
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