The new armored cruiser Tennessee made an unofficial speed of 22.16 knots on her speed trial Feb. 12.

The steel dry dock Dewey, convoyed by the Brutus, Caesar, Glacier and Potomac, was reported at the Canary Islands Feb. 19.

Baltimore claims the distinction of having been the first city to christen a boat Alice Longworth in honor of the president's married daughter.

It is rumored that the Chicago, Milwaukee & St. Paul road will establish a fleet of steamships on the Pacific when its extension to the coast is completed.

The Barneson-Hibbard Company of San Francisco, Cal., have purchased the steamship Indiana for use upon that new steamship line between Frisco and Alaskan ports.

It is probable that the board of construction of the navy will recommend the installation of turbines on the two new battleships now under construction, the South Carolina and Michigan.

Stephen A. Farrington, sixty-nine years old, formerly engineer on the steamer Passaic Queen plying between Passaic and Newark, N. J., died at the Soldiers' Home, Kearney, N. J., Feb. 24.

The four-masted steamer Francis Hyde of New York attracted an unusual amount of interest when she steamed into Portland, Me., harbor the other day, as it is seldom that a four-masted craft is equipped with steam auxiliary.

The Fore River Ship and Engine Building Company of Quincy, Mass., has received a contract from a large trunk railroad corporation to build four coastwise steamers of the tramp style for carrying freight exclusively. The vessels will ply between a southern port and Boston.

The Tennessee-Ohio Transportation Company is the style of a new river transportation company recently organized at Decatur, Ala.

Their first steamer, White Oak, is ready for commission and will be used for service between Decatur and the principal cities on the Ohio river and some of the cities of the upper Mississippi.

THE PARAMOUNT IMPORTANCE OF THE SELECTION OF STANDARD IN PREFERENCE TO SPECIAL MACHINERY.*

BY DAVID HALL.

THE idea of this paper is to call your attention to the important advantages, to both purchaser and manufacturer, in the use of standard, in preference to special machinery. This is not a case in which the manufacturer alone is benefited; the points of advantage are mutual. The purchaser in selecting standard machinery aids the manufacturer in producing a more efficient and a more perfect machine at a lower cost.

The most successful power plants must be characterized by reliability and economy of operation. There must be machinery sufficient to meet all emergencies, and the machinery should be of as simple construction as possible, as simplicity is the key to reliability and complications insure troubles. The experimental stages of machinery of all kinds are examples of how complicated apparatus can be made, while its ultimate success depends upon the eradication and simplification of the parts so that the machine as a whole is easily understood and easily operated. With the advent of a new machine, we say "how "complicated"; when the same machine is perfected we say "how simple." It is therefore to the advantage of the purchaser that machinery become standardized. If only one machine is built from each design, and we have an infinite number of designs, the result is an infinite number of experiments, and it is only after one of these machines is thoroughly tried and perfected that we have a machine which can be called standard. However, if we assume that no two machines that are purchased are to be alike, there would be no incentive for standardization. This paper refers to "standard machinery" as machinery that is regularly listed for sale by a reputable company, such machinery having been built and standardized. The first machine of almost any description is capable of being improved upon. Sometimes the improvements suggest themselves after a very short test, while other improvements may be made only after a long period of operation. In fact, it may be said that the longer a machine of a given type is operated, the more certainly can the good points be determined and the more pronounced are the bad features that are to be overcome. Consequently, it is positive that the purchaser has everything to gain, in so far as operation is concerned, by selecting machinery that is standard and does not possess experimental features.

It is to the interest of the purchaser and operator of every machine to know that spare parts can be readily obtained, for in the operation of machinery in general there are certain to be requirements for new parts, made necessary on account of wear or accident, and it is usual that such parts are wanted on short notice. If the machine is standard, such parts are likely to be found in stock, or, at any rate, can be furnished quickly. On the other hand, if the machine is of special construction in part or throughout, there is great probability of delay, and such delay may be very expensive as well as annoying. In fact, a long delay may cost more than the machine is worth.

In the natural course of events in the operation of mills, factories and power plants, changes of help are continually taking place, and there is no machine so simple that the experienced operator cannot produce better results with it than can the inexperienced. It is therefore, of importance that machinery be of such a nature that it can be easily operated, and this point must not be overlooked in making machinery standard. The more machines there are in operation of a given kind, the more men there must be who are familiar with operating them, and, consequently, the easier it must be to obtain an experienced operator.

Delivery of machinery is usually second in importance only to price, and it is not a rare occurrence that delivery is even more important than price. That standard machinery can be delivered more quickly than special machinery needs no proof. At the same time it is not always so plain to the purchaser why a special request as to speed, exact output or detail of construction of a machine may delay its delivery three months, whereas the standard machine differing only slightly from the specifications might have been delivered immediately. At the same time the standard machine might meet the requirements and do the work as well as, or better than, the special machine. Change of designs, change of drawings, new patterns, new tools and new castings are matters that are given little thought or consideration by the purchaser, yet these are the things that keep the non-productive element of a shop busy, make prompt deliveries impossible, and keep the management searching for profit when there is only loss. Do not overlook the fact that these numerous expenses, due to changes of design, must be paid for, either by the purchaser or the manufacturer, and it is often the case that only a part of these extra expenses are paid for by the purchaser,

*Read before the National Electric Light Association at its twenty-eighth convention, held at Denver-Colorado Springs, Colo., June 6-11, 1905.