EXPLOSIONS OF WATER-TUBE BOILERS.

The fact that explosions in this class of boilers are more frequent than they were formerly, indicates that in some of them a departure from sound mechanical principles has been made. It is not a sufficient answer that, as higher steam pressures are used, the liability to explosions has increased. This might account for leaks, or the rupture of single tubes; but the fact is, that in this type of boilers some of the accidents that have occurred have been so general in their effects upon the boilers themselves and in their destruction of adjacent life and property, that they are, and ought to be, called explosions. The *Practical Engineer* describes such an explosion on board the French ironclad "Jaureguiberry," one of the finest and latest additions to the French navy.

The steam on this vessel is furnished by twenty-four water-tube boilers of the Lagrafel-D'Allest type. The vessel had gone for a twenty four hours' trial trip off Toulon on June 9th. Up to the twentieth hour everything went on satisfactorily, and then, without any warning, an explosion occurred in one of the boilers, which blew open the furnace doors and sent a rush of steam and flame into one of the stokeholds, so severely scalding nine stokers who were in it at the time that six died within a few hours.

After the disaster it was found that one of the tubes had drawn from the front tube plate and burst, in addition to which a large number of the other tubes were drawn and bent. Why the tubes should have failed in this way is not satisfactorily explained The fact, however, that one of these water-tube boilers should have given out the first day on raising steam, with such disastrous results, reveals uncomfortable possibilities to those who have so strongly advocated water-tube boilers for use in the British navy.

This will prove a damaging blow to the commercial exploitation of the type of boiler named, which rival interests will not fail to make the most of.

It is worth while to enquire whether the safety that has been claimed for water-tube boilers has not depended much upon the conditions of their use prior to their adoption for marine purposes.

As stationary boilers on land, they are usually provided with ample space, with egress for attendants on the same level, in wide contrast to the limited room that can be allowed for them on board ship The escape of attendants is thus rendered more easy and probable, should a local rupture occur, than it ever can be on board ship, where escape from a stokehold usually means the climbing of stairways or ladders.

But the condition of the boiler above referred to shows that there was a more extensive wreck than the mere rupture of a single tube permitting a gradual efflux of steam.

The precise cause for the occurrence has not been explained; but it is evident that, if the boiler is of a character that permits the rupture of one tube to do all the mischief stated, its construction involves wrong principles, and it is an unsafe steam generator for marine service. Instead of independence, there must be some sort of mutual interdependence of the tubes that renders the rupture of one of them the cause for the effects produced upon the others, The anxiety to make the weight of water-tube boilers a minimum and to increase the rapidity of their action when fired, has, we believe, led to ignoring points essential to safety and durability, not in this particular construction alone, but in other water-tube boilers that have claimed to be superior to fire-tube boilers for use on ships.

This sort of thing is as liable to occur on a warship in action as at any other time, and it might well determine the issue of a naval encounter Clearly, we are not at the end of developments in the attempt to substitute this new system for the old one, which, though not free from faults, has a record of reliability in service that water-tube boilers, as a class, will be long in acquiring.

LITERARY NOTES.

We have just received the 20th edition of the Gas, Water and Electric Lighting Companies' Directory and Statistics, published by Hazell, Watson & Viney, Ltd. (1 Creed Lane, London, E.C). In former years the departments have been separated into two volumes, but this year we have one convenient 8vo. volume. It includes a general index of the officials of gas and water companies in all parts of the world. The various companies are ranged under the headings of the towns to which they belong, and beneath them is given the total population, the number of consumers, the conditions of capital, rate of interest paid, cost of production, estimate of output, actual capacity, officers, etc., and an asterisk indicates the limited liability companies. Manufacturers of gas, water or electric plants will no doubt find in this a useful book of reference. The price is 10s.

The offices of The Colliery Engineer Company, proprietors of *The Colliery Engineer and Metal Miner*, *Home Study*, and The International Correspondence Schools, in the Coal Exchange Building, Scranton, Pa., were partially destroyed by fire on Sunday morning, August 30th, 1896. Fortunately the printing plant was in another building, and they had reserves of all instruction and question papers, drawing plates and other supplies and stationery used in the schools in still another building, so that the business will not be seriously interfered with. *The Colliery Engineer* and *Metal Miner* and *Home Study* were out within a few days of the usual time, and they are conducting the instruction in the schools as usual Quarters have been secured on the three upper floors of the new Mears Building, corner of Washington Avenue and Spruce Street, Scranton.

The *National Builder* (Chicago, $2 a year) for this month sustains its character for appearance and general interest. It announces various new features, and one is that the original plans and perspective views of new houses will be printed in several colors. Every month is published a sheet containing all the plans necessary for building a residence, with a careful estimate of cost, and it also generally contains some useful articles on interior decoration and the means of securing beauty and comfort on almost "nothing a year." Its instructions are in the plainest language, and it shows a handy man how to do much for himself.

CANADIAN ASSOCIATION OF STATIONARY ENGINEERS.

C.A.S.E., No. 15, Brockville, Ont, has held a number of most interesting and instructive meetings since the convention in Kingston. The meetings take place on Monday and Friday in each week. President Franklin is not able to be present regularly owing to his duties at the waterworks, and in his absence his duties are ably performed by Past-President Chapman.

At a regular meeting of the Kingston Branch C.A.S.E., on Sept. 15th, the annual installation of officers took place, as follows: Past-president, S. Donnelly; president, F. Simmons; vice-president, J. Taudvin; treasurer, C. Selby; secretary, A. Macdonald; doorkeeper, R McDonald; conductor, R. Bajus; trustee, John L. Orr and S Donnelly A number of congratulations were received from delegates who attended the recent convention, on the excellent manner in which the delegates were received and entertained while here. After paying all expenses in connection with the convention the local lodge has a handsome surplus left in the treasury. It cost the city lodge over $400 to entertain the delegates.

THE LATE H. G. C. KETCHUM, C.E.

On September 9th H. G. C. Ketchum, C.E., who is widely known through his connection with the Chignecto Ship Railway, and other works, died suddenly at Amherst, N.S. He was born at Fredericton, N.B., in 1840, and was a grandson of Col. Ketchum, of Woodstock, N.B. Mr. Ketchum was educated at Old Kings College, which is now the University of New Brunswick, and entered upon the study of civil engineering. His first engagement was as draughtsman on the old European and North American Railway, which ran from St. John to Shediac. After remaining here for some time he went to Brazil, and for a number of years was engaged in railway building. Here he was engaged in running the grades on the San Paulo Railway from the coast to the tablelands of San Paulo, a work which brought his full professional powers into play. He returned to Canada and was engaged during the construction of the Intercolonial Railway in running the road from Painsec to the Missiquash River. In 1875, he first suggested the idea of a ship railway across the Isthmus of Chignecto, and since that date has been a constant promoter of the enterprise. Mr. Ketchum married in 1866, Sarah, daughter of the late Christopher Milner, Esq., of Sackville, who survives him.

W R Tiffin, of the G.T.R. staff, at London, Ont., goes to Montreal to act as assistant to Mr. McGuigan.

Wm. Smith, engineer, was terribly scalded by the blowing out of a steam valve in the G.T.R. workshops in Montreal recently.

James Boylan, of Sharbot Lake, Ont., who was disabled by blindness, has received the sum of $3,000 from the Brotherhood of Locomotive Engineers, of which he was a member.

D. C. Phillips and J. C Phillips, brothers, who run the Woodstock Wire Mattress Company, Woodstock, Ont., recently pleaded guilty to the charge of giving cheques on the Molsons Bank and Bank of Commerce, knowing that they had no funds. The Police Magistrate allowed them to go, as they were held in gaol for ten days.