

ENGINEERING PHOTOGRAPHY.

By Lyman B. Jackes.

the turner and a small disc in the inside of it, the quantity of oil may be varied from a maximum to a minimum. When burning liquid fuel on this system, all brickwork is entirely removed from the furnaces and from the moment of lighting there is no smoke to be seen from the ship's funnel. The Passenger accommodation of the "Princess Alice" embodies all that the experience of the owners and the skill of the builders could devise, and the ship is, therefore, one of the most handsome on the Pacific Coast. As will be gathered from the elevation drawing and the photographs, the "Princess Alice" has a large range of superstructure and is a typical example of the most recent practice in Canadian river and coastal steamers. On the promenade deck the observation room is placed forward and the smokeroom aft, both of these rooms having large plate glass windows, which afford an uninterrupted view of the splendid scenery of the coast along which the ship passes. The observation room is handsomely panelled in mahogany, and the smokeroom in fumed oak, relieved by hammered copper panels, depicting ancient "totem" poles of the North American Indians, and also specimens of the trees, fruits and grain of Canada. The corridors between the observation and smoke rooms are of polished mahogany with inlaid panels, and they lead to a succession of comfortable deckhouse staterooms. A feature of the corridors is that they are all surmounted by a cambered roof with a clerestory, giving a feeling of height and spaciousness and ample light and ventilation. From the promenade deck, companion-ways lead down to the upper deck, which is largely occupied by a series of first-class staterooms, including several suites of bridal chambers. On this deck there are also two social halls, or music-rooms. The dining saloon, a handsome apartment panelled in beautiful Italian walnut, is on the main deck aft, and a noticeable feature of this room is the provision of specially large plate glass windows. The saloon is arranged with small tables, those at the sides being ensconced in bays. At the after end of the dining room is the pantry and behind that a galley. Under the dining-room deck is the first-class restaurant, where a la carte meals are served. The photograph showing the vessel was taken whilst she was undergoing official trials off the Tyne and burning liquid fuel, when a speed of 18 knots was easily attained, and during this time, and whilst the vessel was on her way to Victoria, British Columbia, and also for the short time she has been in commercial service, we understand, the machinery and boilers have worked to the complete satisfaction of all concerned, the owners being represented by Captain H. Mowatt, their marine superintendent. It is of interest to note that the Canadian Pacific Railway Co. has at present 15 vessels engaged in the Atlantic trade with a total gross tonnage of 125,666 tons. The largest of these steamers are the sister ships, "Empress of Britain" and "Empress of Ireland," the gross tonnage of each of which being approximately 14,500 tons. The Pacific service is maintained by four steamers, the total gross tonnage of which is 23,984 tons, three of which are the well-known vessels "Empress of China," "Empress of Japan," and "Empress of India." The British Columbia service is now being carried on by nine vessels, the total gross tonnage of which amounts to 19,977 tons. The Canadian Pacific Railway Co., has at present three steamers on the stocks in this country, two large and fast vessels for trans-Pacific service, the gross tonnage of which will be approximately 15,000 tons. The other vessel is intended for the Pacific Coast service, and will have a tonnage of about 2,000 tons for the coast service and the Canadian Pacific Railway has also acquired the 1,000-ton steamer "Queen Alexandra," which is now refitting on the Clyde and will, in due course, take her place in the coast service under the new name "Princess Patricia."

It is seldom nowadays that any structure is completed without the securing of a number of photographs. Many instances may be cited where this faithful servant has placed on record the various epochs and points of interest which are hidden when the problem or structure assumes a finished condition.

In the construction of many large buildings in United States cities, photographs are secured of all surrounding conditions to serve as infallible witnesses, should a process of law be resorted to when building operations have commenced. The writer recently saw a photograph of several persons gazing into the windows of a jewel merchant's shop on Broadway, New York; the scene also depicted one or more persons in the act of leaving and entering the premises. This photograph was secured to assist in defending the contractors engaged in erecting one of the world's largest office buildings against a damage suit entered by the above mentioned merchant, who alleged that the litter, noise and dirt, etc., of the construction work drew custom from his store.

Stripped of all technical terms and accessories, the photographic principle depends on the fact that certain salts of silver are capable of changing properties due to the action of light and that these changes may be developed from the latent condition to one of perceptibility. The silver salts are generally supported by means of gelatine on glass, celluloid or paper, the former condition being known as a "plate" and the second a "film."

Photographers are divided largely on the question of which form presents the more points of excellence, but both possess equal latent powers for negative making when properly handled. The prominent advantage claimed for films over plates is that of weight and ease in manipulation; that of plates being cheapness, (usually 50% lower than films); variety, both in make and properties, and stillness, while the disadvantages claimed for films are inflammability and lack of variety. By lack of variety is meant the selection of a certain plate, be it landscape, process, non-filter or ordinary, for a special piece of work.

In making pleasing and presentable pictures the great factor is the lens; in fact without a lens of some sort photography would be greatly handicapped, although it is possible under extreme conditions to secure passing negatives without a lens.

Lenses are divided into two great classes, single and double, these two classes branching off into many subdivisions. The photographic lens, like many other articles, is the result of many men's brains; the chief improvements, however, might include the compounding of two lenses into a "single" one, known as an achromatic; the compounding of two single lenses to correct linear distortion, known as rectilinear; and the compounding of the two former in various ways to correct stigmatism, and known as anastigmatic.

The single lens finds its chief employment in the lower priced cameras, but, unfortunately, has not the power to produce a straight line upon the plate or film. Owing to this defect, it does not commend itself for engineering photography; the rectilinear lens corrects this fault, and has the advantage of passing much more light in a given time. The anastigmatic lens may be regarded as the highest development (for general all round work) of the lens making art. This type lens is much more expensive to purchase than the former mentioned types, but a fair anastigmatic lens of British manufacture may be obtained in this country for