

**A New Use for Mica.**

A recent device of the tailors is the figure of a man done on mica. This figure is about a foot high, and is set in a square of cardboard. Sometimes it is in the shape of a man wearing a sack suit, while in others he wears a cutaway outfit, and in others again a frock suit. The man himself is transparent as to body, but his face is painted on, and he wears a collar and necktie of the latest style, in paint. He serves as an illustration, and he is designed to do away with one of the banes of a tailor's life, the man who comes in to look at goods and says:

"Ah, yes; it looks very nice in the piece, but I'm not sure it would suit me so well made up. I'll wait until you cut a coat for some one else, and then I'll come around and see how I like it."

Now when a customer springs this ancient remark the tailor produces one of his mica manikins, lays him over the piece of cloth in question, and lo! he stands forth fully clothed in a wrinkleless suit of that pattern. With a cloth of uniform color or small pattern this device works very well.

**THE ICY COASTS OF NORTH AMERICA.**

Among the severest trials of mariners who navigate the northerly coasts of America during the winter season is the formation of ice upon the decks and rigging of their vessels. The past winter has been an especially trying one in this respect. Many vessels have been damaged and nearly lost by the accumulation of ice, due to the rapid congelation of the spray which beats upon the bows and other exposed parts. An example of these ice difficulties is seen in our engraving, which is from a photograph of the forward deck of steamer Barnstable as it appeared on the arrival of the ship at Boston, Mass., in February last, after a voyage from the tropical regions of Jamaica.

**The Value of Torpedo Boats in War.**

A Blue Book recently published deals with partial mobilization of the British fleet and the maneuvers of 1894, which began on July 18 and came to an end on August 7. The conclusion of the book may be quoted: "No ship was put out of action by a torpedo boat. The lightness of the nights seems to have had a twofold effect. No. 80 (Red side) in evading a 'catcher' at first missed the Blue Fleet, but managed to keep up with it and got within range of the rear ship, which was not attacked because she was supposed to belong to Group 3, a class exempted from torpedo attack by the rules. The light apparently was not sufficient to permit the real character of the ship to be ascertained. On the other hand, it is reported that the nights were never really dark enough to afford concealment to the torpedo boats. The torpedo lieutenant in command of No. 80 makes the interesting observation that, owing to the speed of the 'hostile' fleet, the boats were unable to regain their position for attack when once it had been lost. From this it seems permissible to infer that high speed will be of itself no unimportant protection to ships traversing at night narrow waters infested by torpedo boats. The torpedo boat operations were upon a too restricted scale to supply much valuable instruction; but, as far as they went, they tend to confirm the view that the most effective employment of the torpedo boat in war will be limited to sending her to attack an enemy's ship in a known position within the boat's range of action, and that the whereabouts of the enemy must be first ascertained and be communicated to the commander of the boat. The necessity of combining with torpedo boats vessels of other and larger classes to scout and discover the

enemy—where exact information as to his position cannot be obtained by other means—seems to be established, and, if so, it carries with it the obligation to consider a mere flotilla of torpedo boats by themselves as a helligrent factor of distinctly imperfect efficiency."

**The Electrical Aspects of Calcium Carbide.**

In a critical notice of Professor Lewes' Society of Arts paper upon carbide of calcium (See SCIENTIFIC AMERICAN SUPPLEMENT, No. 998), the Electrical Review discusses the electrical aspects of the proposal to manufacture the compound on the commercial scale, and the prospects of acetylene as an illuminant. It is considered that the commercial success of the calcium carbide industry depends upon cheap water power; because of all the heat produced by the coal in a boiler furnace working a steam electric plant, only about 5 per cent is recoverable by an electric furnace. Our contemporary is inclined to regard acetylene as a genuine improvement in gas as an illuminant, and one likely to aid gas in competition with the electric light. Apart altogether from its illuminating properties, it is admitted that acetylene has a much more important commercial aspect, because from it a great many hydrocarbon compounds can be made, such as benzene, hydrocyanic acid, ethylene, alcohol and many other bodies. It is not thought that, at Professor Lewes' estimate of their comparative duties in light given for

**A "Letter" Officially Defined.**

A ruling was recently made by Postmaster Coveney, at Boston, Mass., upon the question as to what constitutes a letter "in its usual and ordinary form," and it has just been confirmed, according to the Boston Transcript, by a communication from Washington. The ruling and its confirmation were the outcome of a complaint recently made to the postmaster by a gentleman who desired to send through the mails a sealed roll properly stamped and directed to the Commissioner of Patents at Ottawa.

He said that the roll contained plans and drawings relative to a patent. He had offered this roll to the clerk at the foreign window, and following out the rules of the office, the clerk refused to receive it. When asked for reasons, he was referred to the postmaster. Col. Coveney gave a decision to the effect that the term letter is to be construed to mean and embrace sealed packages consisting of an envelope of any size, but flat, as is the usual letter. The objector did not think that this ruling and definition of a letter was correct, and gave his opinion that a letter "was a package containing personal matter of no salable value."

In the communication from Washington, N. I. Brooks, the Superintendent of Foreign Mails, says that "the Canada office and this department concur in the opinion that the term letter in its usual and ordinary

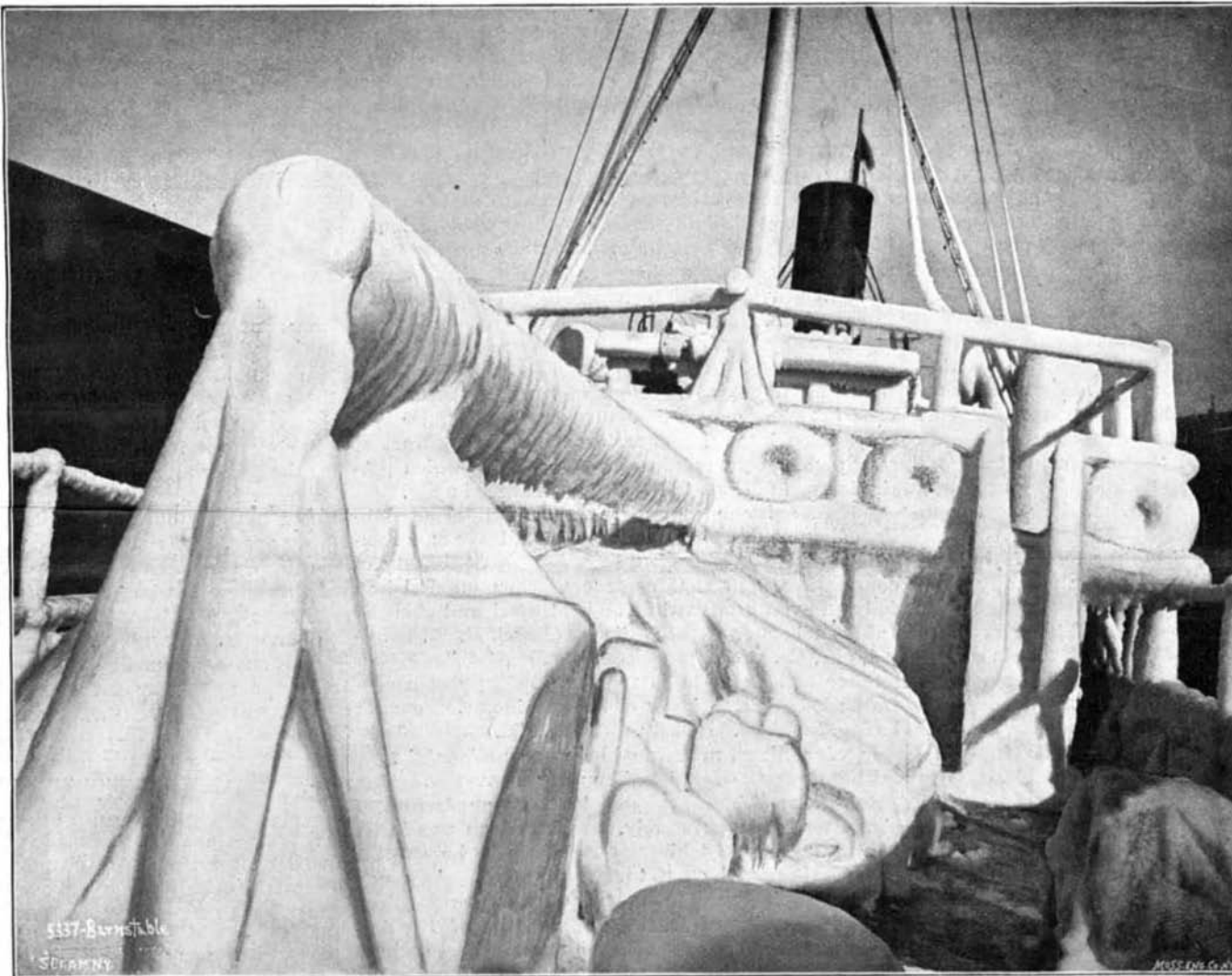
form is to be construed to embrace sealed packages consisting of an envelope of any size, but of the usual letter shape and its contents; but that rolls or a package not inclosed in an 'envelope,' as the word envelope is generally used, cannot be considered to be 'a letter in its usual and ordinary form.' A sealed package in the form of a roll is therefore not entitled to transmission in the mails exchanged between the United States and Canada, and your office was correct in declining to receive the sealed roll mentioned."

Complaints of the kind made by the gentleman who wished to forward the sealed roll have been numerous, but this is the first time in the history of the department that it has been called upon to decide

what constituted a letter. By this decision no sealed packages nor rolls will be taken at the Boston Post Office for transportation to Canada, as the regulations of the Postal Convention say that "sealed packages other than letters in the usual and ordinary form are not allowed to be dispatched to Canada, even if postage has been prepaid in full at letter rates." This is no new law or regulation, as it was enacted about ten years ago, and has always been enforced more or less.

**Wood Stains.**

A solution of 50 parts of commercial alizarin in 1,000 parts of water, to which a solution of ammonia has been added drop by drop until a perceptible ammonia odor is developed, will give to fir and oak a yellow-brown color and to maple a red-brown. If the wood is then treated with a 1 per cent aqueous barium chloride solution, the first named become brown and the latter a dark brown. If calcium chloride be used instead of barium chloride, the fir becomes brown, the oak red-brown, and the maple a dark brown. If a 2 per cent aqueous solution of magnesium sulphate be used, the fir and oak become dark brown and the maple a dark violet-brown. Alum and aluminum sulphate produce on the fir a high red and on oak and maple a blood red. Chrome alum colors maple and fir reddish brown, and oak Havana brown. Finally, manganese sulphate renders fir and maple a beautiful dark violet-brown and oak a dark walnut-brown.



STEAMSHIP BARNSTABLE—ICE FORMATIONS UPON FORWARD DECK AND BRIDGE.

power consumed, steam-generated carbide of calcium and acetylene can compete with incandescent electric light.

Professor Lewes put the comparison thus: Acetylene, 44; electric, 28. But it is held that the difference is not quite so great; for with incandescent lamps at 4 watts per candle it comes out as 40:50 very nearly. With electric lights working at 3.25 watts per candle, power for power, the two light sources are equal. With arc lamps the superiority is reversed; the figures coming out at 80 for the electric arc, as against 50 for the acetylene light. It is admitted that the question is not altogether one of power, although this consideration is of interest as settling whether carbide of calcium can be profitably made with existing steam power plants. If water power can be obtained at the American estimate of cost, which is 50 cents per hour for 180 horse power, the acetylene will cost as little as its advocates claim, or 6s. 4½d. per 1,000 cubic feet. Although this is about double the average price of ordinary coal gas in England, acetylene gives 15 times the light or 7½ times the candle power for the same money. Now, to compare its cost, light for light, with incandescent electric light, 6s. 4½d. will buy 13 units of electricity, which, at 4 watts per candle power, works out to 3,250 candles gross; while 1,000 cubic feet of acetylene give 28,000 candle power for the same money. Meanwhile, the inquiry is made as to what is the cost of large water power.