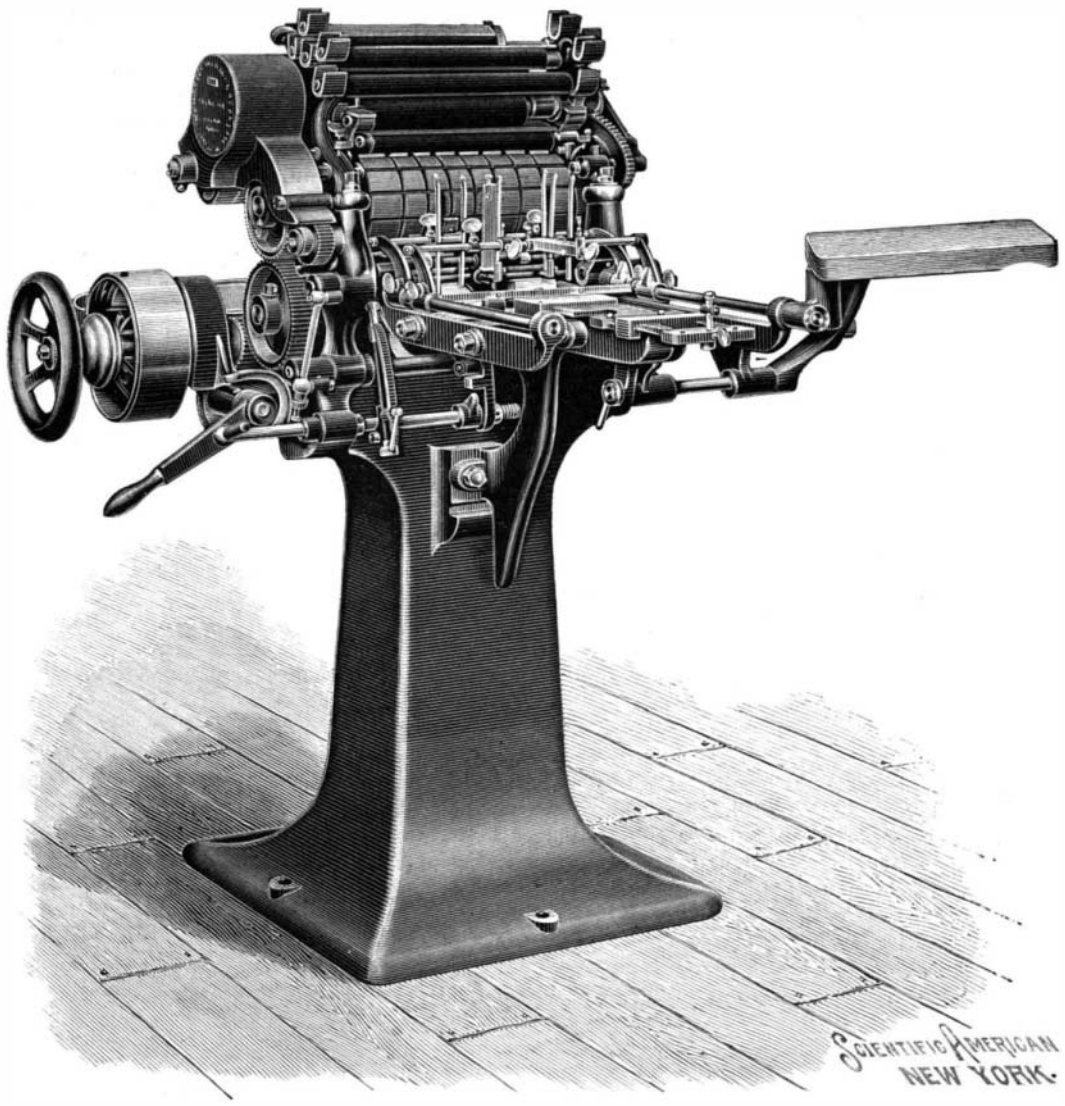
A NEW FAST JOB PRINTING PRESS.

Printers everywhere cannot fail to be interested in the fast automatic feed card and envelope press shown in the accompanying illustration, which has been recently patented in the United States and several foreign countries, and is being manufactured by the Harris Automatic Press Company, of Niles, Ohio.

In all considerable job printing offices a number of presses are usually kept employed on small work, such as the printing of cards and envelopes, etc., about a thousand impressions per hour being the ordinary rate of speed, and each press requiring the close attention of a feeder. The Harris press is self-feeding, the cards and envelopes being supplied to it by the pack, and it works easily at speeds ranging from 8,000 to 10,000 impressions per hour. Working at this rate, it is about as much as one hand can do to open envelope boxes or packages of cards for feeding, and replace in the boxes or packages the printed work, but the feeding, printing and delivery are automatically performed. The press is designed to do all classes of work, from the finest half tone on glazed cards to the thinnest manila envelopes, taking sizes from the smallest envelope corner to an 11 × 13 inch plate. It prints from curved electro or stereotype plates, readily adjusted to exact position on the impression cylinder by clamps, and adapted to be "underlaid" with good results, as the plates are only three-sixteenths of an inch thick, the "making ready" of all kinds of jobs being thus greatly facilitated.

The points which will first attract the attention of the practical printer are the nicety and exactness of the feed and the connected parts. The cards or envelopes are placed in a pile within the space formed by the vertical rods or posts in front of the impression cylinder, these guards and supports being quickly adjustable for all sizes of stock, and the bottom card or envelope is automatically pushed forward by the feeding mechanism to the printing cylinders. For envelopes the flap is engaged by fingers, by which the envelope is fed forward through a gate, so nicely adjusted, according to the thickness of the paper, as to prevent the passage of more than one envelope at a time.

In printing cards, the bottom card of the pile is pushed forward by fingers which extend beneath the card, but which have on their upper face an adjustable flange or lip, to be raised just sufficiently to nearly equal the thickness of the card. In the adjustment of this lip or flange, as in that of the gage to prevent more than one card or envelope to be passed at a time to the printing cylinders, the devices are very simple, and admit of almost instantaneous adjustment for any special thickness of cards or paper. The feeders are carried on a light reciprocating frame, and, should an envelope or card fail to be fed forward, an automatic throw-off device lowers the impression cylinder and a friction clutch or brake stops the press, thus preventing the smearing of the tympan sheet and the spoiling and wasting of stock. The press gives perfect register, the stock being "overfed" against adjustable gage stops on the impression cylinder and held there by two short tapes until pressed under the types, and the adjustment of the impression is easily and accurately made when the machine is running at full speed. The printed stock is delivered on a circular tray at the back, the tray being slowly revolved and thus laying out the printed matter in such a way as to prevent offset. The ink distribution and roller adjustment and interchangeability apparently leave nothing to be desired. The company furnish with the machine, when desired, a small plate making outfit. The press occupies a floor space of 3 feet 6 inches by 5 feet, and weighs 1,100 pounds.



THE HARRIS AUTOMATIC CARD AND ENVELOPE PRESS.

THE GLACIERS OF GREENLAND.

BY PROF. RALPH S. TARR.

That great triangular area of land between northern Europe and America, by some strange reason called Greenland, is almost entirely covered by snow and ice. Its margin is that of an extremely irregular land quite like northern Europe and America, with many peninsulas projecting, and many fjords, bays and straits indenting the coast. The projecting parts of the land, the peninsulas and islands, are mainly free from glaciers, though even upon these, in the protected valleys and on the higher peaks and plateaus, there are glaciers of great or small size. However, taken as a whole, the margin of Greenland is free from ice. All the interior is ice covered and the total area of the ice is estimated to be about five hundred thousand square miles. In some parts of the interior this great ice cap attains an elevation of not far from ten thousand feet.

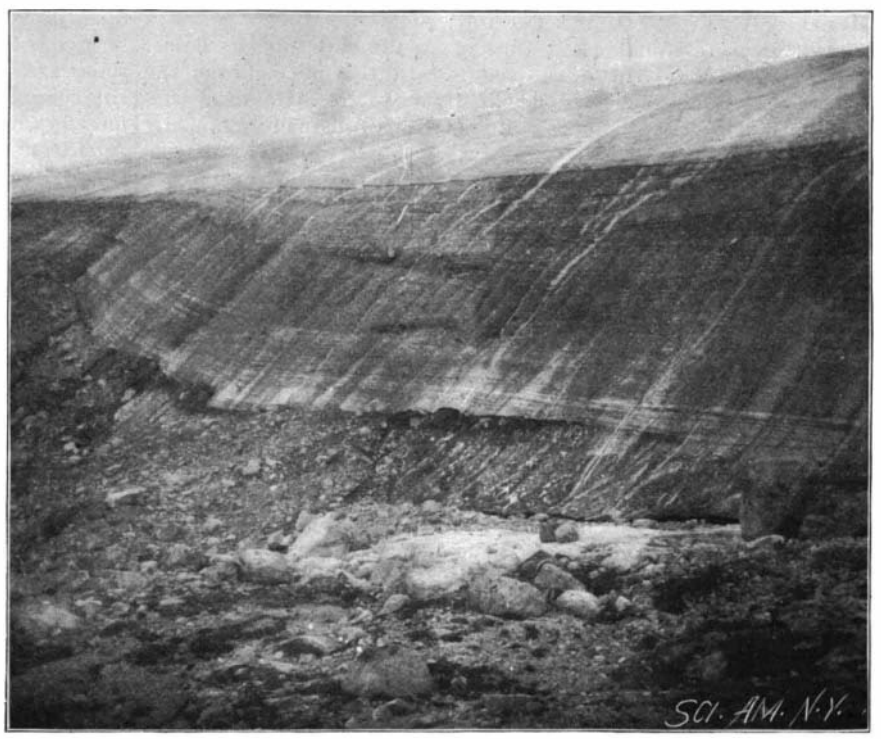


Fig. 1.—LAND MARGIN OF CORNELL GLACIER.

After passing the land margin of Greenland one comes to an ice wall, sometimes very precipitous, but more often sloping so that it can be ascended. This wall rises one or two hundred feet above the base, and then the ascent becomes more gradual. Here the surface of the ice is generally smooth and easily traversed, though if by chance the ascent is made on a part of the glacier that is rapidly moving, the surface is so rough that traveling across it is impossible. Within a few miles of the margin, the elevation of the ice is one or two thousand feet above the sea level, and looking onward toward the interior of Greenland, there is a great plateau or mountainous expanse of snow and ice. It looks like a plain, but as one traverses it the barometer shows that the elevation is constantly increasing. Near the margin, where the elevation is slight, the summer sun has melted the surface, so that it is solid and hard and firm under foot. Its surface is pitted by circular depressions caused by melting, and the walls of these wells are seen to be made of pure ice. If the journey chances to be made during the autumn, it is possible that the form of precipitation may be that of snow: but it is very much more likely to be in the form of rain. However, as the high interior is approached, the climate becomes colder and colder, and even in summer rain does not fall, nor does the surface of the ice cap melt and show the solid ice of the glacier. It is then a snow-covered glacier, sometimes with hard surface, at other times enveloped in soft and drifted snow. According to the description of Peary, the summer climate in the interior of Greenland is one of the most disagreeable of any that have so far been found in the world.

This constant fall of snow, with almost no loss by melting, has completely buried the interior of Greenland. Whatever the land condition beneath the ice may be, it is so effectually buried that even the great irregularities appear to produce no effect upon the surface of the ice cap. Judging by the margin of Greenland, this interior must be a highland of mountains and irregular topography, but it is entirely smoothed over by the ice. The fall of snow in summer and winter has not only obscured the topography of the land, but has raised the level of Greenland far above the normal. It is impossible to say how much this snow fall amounts to in the course of a year, but it can hardly be less than ten feet. Practically none of this melts and but a portion of it is blown away to regions where melting can occur. Hence, if no means of escape could be found, the elevation would continue to increase practically indefinitely. A thousand years at this rate would increase the elevation ten thousand feet.

It happens that the ice find means of escape other than that of wind action and melting. As the snow accumulates, the pressure of the crystals against one another, under the burden of the snow above, causes an increased compactness, and eventually a change from the loose condition of snow to that of solid ice, as one may change a snowball to ice by pressure. There is a question in the minds of some whether ice is a viscous body or not, and hence it may be well not to speak of it here as a viscous substance. In any event, it cannot be denied that ice moves and behaves like a viscous body. If we should pile a mass of wax upon a table and subject it to pressure, it would spread outward from the center of pressure in all directions, because the wax is a viscous body. The same is true of ice, which, although apparently brittle, will flow when subjected to a strong but slowly applied pressure. The weight of the accumulation of snow in the interior of Greenland squeezes this ice that has been formed and causes it to move outward from the center of greatest elevation. It is possible also that this movement is aided somewhat by gravity, for it may be that the land base in the interior of Greenland is higher than the land margin, and that there is, therefore, a gradual slope from inland to the sea.

No means of determining the rate of this ice movement are at hand. The studies of the Greenland ice