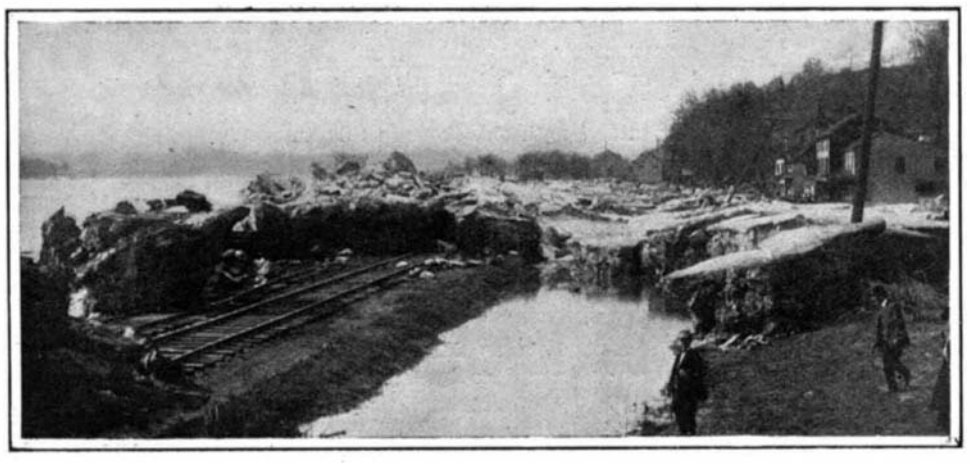
A GREAT ICE JAM ON THE SUSQUEHANNA RIVER.

It is difficult to believe that the accompanying illustrations, showing the devastation wrought by great ice masses in the Susquehanna River, are from photographs taken in Maryland, a State which is seldom associated with rigors of winter such as these. Nevertheless, such is the case, for the photographs were taken at Port Deposit, Maryland, a short time ago. The huge masses of ice shown formed part of a great ice gorge which became jammed in the Susquehanna River, and backed up the flow of water from the freshets, causing extensive inundations. Considerable damage was done by the flood water and the large masses of ice, which were forced into the streets of the town and up on the railroad tracks, causing a temporary suspension of all traffic. In some places the ice was left piled on the railroad right of way when the waters receded to a height of 12 or 15 feet, and in places on the shore of the river, and even in the town itself, particularly at the upper end, to a height of 30 feet.



Part of the Ice Gorge Forced up on the Railroad Tracks.

The Story of the Brick.

BY PROF. EDGAR J. BANKS, FIELD DIRECTOR OF THE UNIVERSITY OF CHICAGO'S BABYLONIAN EXPEDITION.

The building brick is such a common thing that one may be excused for supposing that it always existed, and so simple that it needed no discoverer, yet there was a time when it did not exist. It was "necessity, the mother of invention" which called it, like many other things, into being. The recent Babylonian expedition of the University of Chicago, while excavating at Bismya, discovered that the brick was first employed in Mesopotamia nearly ten thousand years ago. In that level alluvial plain, absolutely without stones for building material, but with an abundance of clay, primitive man, when he wished for a house more substantial than one of reeds, constructed its walls of the common clay soil of the ground. Experience taught him that if the clay were molded and dried in the sun, it would be more durable. When he laid a chunk of moist clay in the sun to dry, he made the first brick.

In the lowest strata of the ruins of the exceedingly ancient city of Bismya, walls of these shapeless bricks were discovered; it was at a very early period that the Babylonians began to form the clay in a rectangular mold, as the modern Arabs of the desert still continue to do. During all of the period of Babylonian history sun-dried bricks, resembling the Mexican adobe, were employed, not only in the houses of the common people, but as filling in the interior of the walls of the temples and royal palaces.

The man who first discovered that bricks could be burned was that half-naked Babylonian of about 4500 B. C. who, while poking among the ashes of his old camp-fire, saw that the once moist clay beneath it had become hard and red. The first bricks which he burned were exceedingly crude in shape, flat on the bottom where the moist clay had rested upon the ground to dry, and rounded upon the top. Although the form was suggestive of the rectangular, the bulging sides gave it a somewhat circular appearance, as soft mud, if placed upon the ground to dry, would assume. These early bricks were small and thin, measuring about 20 centimeters in length and 5 in thickness, yet as time progressed they rapidly grew to about twice that size.

The modern manufacturer who stamps his name upon the bricks from his kiln, is but imitating the brick maker of six thousand years ago. The earliest known mark which appears upon the surface of the ancient brick was made by pressing the end of the thumb or of a round stick into the soft clay. As the bricks became larger, an interesting system of markings was adopted by the royal builders. The first mark of the series consisted of but a straight line drawn lengthwise along the surface of the brick; the next generation varied the mark by drawing a line diagonally, and the third added a diagonal line forming a Saint Andrew's cross. The fourth generation drew two parallel lines lengthwise upon the surface of the brick; the fifth drew them diagonally, and thus the series continued with three, four, and five lines until the dynasty came to an end.

Not far from 3800 B. C. the Semites invaded Babylonia, and Sargon, the king of about that date, modified the brick to a square shape, a form which has continued in the Orient to the present time. He also discarded the ancient system of brick marks to adopt a stamped impression of his name and titles. His son, Naram Sin, finding the large bricks of Sargon, which measured 42 centimeters square and 9 in thickness, too cumbersome, reduced them to about 32 centimeters square. A thousand years later, or about 2,800 B. C., the size had been reduced to about 30 centimeters, with the thickness of 6 centimeters. Thus they remained to the end of the Babylonian empire, and the palaces of Nebuchadnezzar at Babylon were entirely constructed of them.

The brick inscription, which first appeared in 3800 B. C., sometimes engraved but more frequently stamped, was not placed upon every brick of a structure. Naram Sin marked a few of his bricks with the brief legend, "Naram Sin, the Builder of the Temple of Ishtar." Of later kings the inscriptions, which were longer, appeared upon a greater number of bricks. I found in the Bismya temple about one of every twenty bricks of Dungi of 2750 B. C. inscribed with nine lines. Nebuchadnezzar stamped nearly every brick in his numerous vast constructions with a shorter inscription which read:

"Nebuchadnezzar, king of Babylon,
The restorer of the temples Esagil and Ezida,
The first born son of Nabopolassar, king of Babylon."

The mason of about 2800 B. C., while laying the square brick, found that to end the courses evenly, it was necessary to break a brick into halves. The manufacture of half bricks then began, and thus arose a brick of the shape and approximately the size of those employed in our own country and in Europe. Together with the half brick, as architecture became more complicated, the Babylonians employed other forms for binding the corners of walls, building columns and wells, and for ornamentation. Some were circular or semi-circular; some were wedge shape with a rounded base, or with the point missing; some were square, with one or more edges concave or convex, and of others a square from one corner had been omitted.

In laying the bricks those of a plano-convex shape, which were employed about 4500 B. C., were set in the wall upon one edge, and held in place with bitumen, the black pitch which comes from the hot springs at Hit upon the Euphrates, or more frequently with mud. While the use of both bitumen and mud continued, lime from the edge of the Arabian plateau was employed before Nebuchadnezzar's time. It is now the common cement of Mesopotamia.

Thus the brick and the brick stamp arose. Several thousands of years were required for its evolution from the lump of clay to the form which the Babylonians regarded as perfect. In durability and in the variety of shapes the skill of the early brick maker has never been surpassed. At Bismya we found bricks from 4500 B. C., as perfect as upon the day they were made, and our large desert house was constructed mostly of them. Our desert well was walled up with bricks five thousand years old, and they will still be perfect long after the ordinary brick from the modern American kiln shall have crumbled to dust. In the latter days of Babylon, after the process of glazing had been discovered, huge designs of animals in various colors were represented in relief upon the brick walls, and so perfect was the design that each brick was molded as carefully as the sculptor now shapes the various stones which are fitted together to form a richly carved monument.

To the archæologist this discovery of the origin and development of the brick and their stamps is of more than usual interest. It not only increases his knowledge of the life of early man, but what is more valuable, it presents him with a clue by which he may determine at a glance the comparative, if not the absolute age, of the ruins of the many buried Babylonian cities if only the fragment of a brick remains.

Ice Left in the Streets of Port Deposit, Md., by the Receding Waters.

A GREAT ICE JAM ON THE SUSQUEHANNA RIVER.

Cotton Baling and Car Shortage.

English purchasers of American cotton have long protested against what they regard as the inefficient and wasteful methods employed by American ginners in baling cotton, and are now pointing out that this is one of the causes for the shortage of freight cars in this country. There is certainly no excuse for the failure of American ginners to protect the baled cotton more thoroughly, especially in view of the fact that bagging is bought by the planter or ginner in the roll at a price lower than he gets for it on the bale—it then being weighed as cotton—yet they insist on not covering the sides of the bale. Egyptian and East Indian cotton is completely wrapped in heavy canvas.

As to the assertion that the American cotton bale could be reduced to the "compressed" size at the gin, it must be taken into consideration that most of the cotton is ginned in the country, by plants having limited power, power hardly capable of pressing the staple to a degree of density greater than at present employed in the planter's bale. If this could be done, it would certainly leave free for other commerce a large number of freight cars, as fifty bales could then be carried by one car, while at present but twenty-five can be hauled. With presses capable of baling cotton to a density of 35 pounds to the cubic foot, and shaping the bale in accordance with box-car measurements, 100 bales could be carried. The same remarks apply to cotton-carrying steamers, which, for instance, would be able to transport 12,000 bales, instead of 8,000 "compressed" bales as at present. The saving in the number of freight cars required to move the cotton can be appreciated when it is remembered that the usual crop is about 11,000,000 bales, which are constantly shifted from point to point. East Indian cotton is at present shipped to England in bales compressed to a density of 54 pounds per cubic foot; Egyptian cotton, 37 pounds; and American cotton, 23 pounds.

Walter Wellman is spending a few days in this country preparatory to setting out on his second airship expedition in search of the North Pole. During the winter he has had his airship reconstructed at Paris. It has been fitted with new motors, and its lifting capacity has been increased to 19,500 pounds. The airship will be shipped *via* Tromsöe, Norway, to Spitzbergen, where it will arrive about June 1. It will be put together and tested there, and if the tests are satisfactory, the flight to the pole will be made early in August.