

## Underneath the Hudson.

All that can be seen of the North River Tunnel thus far is a tremendous well, smoothly lined with brick, sixty feet deep, and wide enough to admit an ordinary dwelling house. This well is covered by a clumsy wooden shanty, high enough to admit a derrick, and big enough to hold the two engines and three boilers, the coal heap, brick pile, clothes closets and office for the workmen and the company's officers. This shanty is at the foot of Fifteenth Street, three-quarters of the way from the Pennsylvania ferry to the Hoboken line. It is close to the river's edge, two blocks distant from Provost Street, the thoroughfare nearest the river bank. The river originally flowed where the shanty is, and underneath the filling is the original silt. The great well beneath the shanty is not to be a terminus of the tunnel. It is merely a starting point which the tunnel shaft is to pierce, and it was sunk because that was deemed the better way to begin the great work. The tunnel will be worked back beneath the city more than half a mile, breaking through the surface beyond Erie Street, and having its absolute terminus and depot in Jersey Avenue. Eventually this well may or may not be closed up, but in either event the tunnel will pass along through it as it passes any other point in its course. The tunnel, when completed will be two miles long, and three-quarters of a mile of its length will be directly beneath the bed of the river. As the river channel is nearest the New York bank, and there is a wide stretch of shoal water on the Jersey side, there will be a continuous slant from the Jersey shore nearly across the river, when a short incline upward will bring the tunnel to the surface in this city. At its lowest point the top of the tunnel will be one hundred and two feet below the surface of the river and about twenty feet beneath the river bed. The New York terminus will be in the neighborhood of Washington Square, and work in this city will be begun near the foot of Leroy Street, which is almost exactly opposite Fifteenth Street in Jersey City.

By ordinary means it would have been next to impossible to excavate a tunnel through the silt that was encountered at the outset, and must be fought the greater part of the way. President Haskins devised the plan of sustaining the earth above the excavation by a pressure of air. A powerful pumping engine supplies the force. For safety's sake there is a duplicate engine, and there are three boilers, because an accident that removed the pressure of air in the shaft would bring about certain disaster and possible loss of life. The original plan was to bore one shaft sufficiently wide for a double railroad track and high enough to admit of the passage of railroad cars. It was found necessary, however, to alter this, and now the tunnel is composed of two shafts, side by side like the barrels of a fowling-piece, and strengthened as well as separated by a central partition. These tunnels will each contain a single railroad track, and will be twenty-one feet in diameter, which gives room for a Director's palace coach, the tallest of railroad vehicles.

A visitor to the edge of the great brick well sees what looks like a large boiler protruding from the well on the river side, and extending sixteen feet toward the center. There is a platform of boards around it, and there are many tubes and pipes, heaps of bricks and one steam-pump upon the platform. Beneath the platform, which appears to be at the bottom of the well, which is really only half way down, there is a sheet of muddy water covering the slit that has been thrown from the tunnel. The protruding boiler is what is known as the air-lock, by which the egress and entrance of the workmen to the tunnel is accomplished without destroying the even pressure of air in the shaft. The Sun reporter saw six men enter the tunnel yesterday to go to work in it, and presently he saw four leave it. The six men were lowered into a wooden bucket, which was swung over a pit from the arm of a derrick. The door of the boiler-like air-lock was open; but there is an inner door that was shut, and beyond it, in the tunnel, the pressure of twenty pounds of air to the square inch was maintained. The men entered the air-lock and closed the outer door. The engines equalized the air-pressure in the lock with that in the tunnel, and then the inner door was

opened and the workmen passed into the tunnel. It took ten minutes to do this. Men with heart or lung diseases could not work under these conditions, but healthy young men are said to experience no harm from them. When the work progresses further this pressure will have to be doubled. The four men who desired to come out stepped into the air-lock, closed the door behind them, and signaled the engineer. The compressed air was allowed to escape with a deafening roar, like the escape of steam from a thousand locomotive safety valves, and presently the door opened. A dense cloud of brown smoke rolled out from the lock, and as it thinned out the forms of the workmen passing through were distinguishable. The reporter was informed that this was the smoke of the candles, by the light of which the men work in the shaft. Fifteen or eighteen pounds of candles are consumed by them in a day, and the smoke they create is a great hindrance to the work, although only the very best adamantine coach lights are used. The electric lights, which emit neither smoke nor heat, will soon be used in the place of candles. One light over the well and one in the shaft will supply all the illumination that is needed. Work in the tunnel never ceases. It is prosecuted by three gangs, each gang working eight hours. Sometimes the men eat their meals in the shaft, but as often they come out and spend half an hour on the earth's surface. There is not dainty work. The earth that they dig out is mixed with water in the bottom of the shaft, and when it has reached a certain depth and consistency it is blown out into the great brick well by the air pressure in the shaft through pipes that lie at the bottom of the excavation, and that are built out to follow the workmen as they extend the shaft. Whenever it is necessary, this mud is bailed out of the bottom of the well to make way for more. As the tunnel is now it has the shape of a gigantic bottle, the air-lock taking the place of a cork in the bottle's neck. The neck of the bottle is formed by the narrow bore that was gradually widened until the permanent diameter of twenty-one feet was reached. As the excavators work they are closely followed by men who line the shaft with plates of riveted iron, and these in turn are followed by masons who construct the arch brick-work that forms the tunnel wall. Nearly 100 feet of the permanent tunnel has been completed. No date is set for the beginning of the work on the New York side of the river.—N. Y. Sun.

## Did They Talk Together?

A few years ago there was on a Texas cattle ranch a large and valuable imported Brahma bull, the acknowledged champion of the range. Two graded bulls seemed to be the especial objects of his dislike, and he never missed an opportunity for felling them to the ground.

These two bulls were also never seen to meet each other on friendly terms. One morning, however, the herdsmen observed them standing with their horns locked, and their noses almost touching the grass, yet there was nothing in their actions that indicated an unfriendly spirit. They appeared to be communing about something.

This attitude continued for a few minutes, when one of the bulls started off in a heavy trot, uttering an angry, subdued bellow, and lashing his tail. The other followed a short distance behind.

On they went to where the Brahma bull was grazing. The meeting, as usual, resulted in the Brahma promptly knocking over the first bull that approached, but just as he was in the act, the other ran up and drove his horns into his side. The Brahma staggered a few steps, fell and soon died.

The two graded bulls then quietly walked off in different directions, and, although they remained in the herd long afterward, they were never again seen fighting.—Cor. Youth's Companion.

THE Florida orange crop, this year, promises to be much larger than ever before, the data from counties easily accessible indicating about 440,000 boxes. The yield in Putnam County alone, last year, was nearly 5,500,000 oranges, but with the large number of trees coming into bearing, this year, the crop is expected to be 25,000,000. The transportation of this amount will require a train of 10 cars each day for 90 days.

## Postage Stamps.

The question of a correspondent who wishes to know when postage stamps first came into use in the United States, recalls recollections of one of the most hotly contested battles for public welfare and convenience ever fought in the United States. In Great Britain the entire change in the rates of postage, and delivery of letters, proposed by Rowland Hill, went into operation in 1840. Penny postage across the Atlantic stood at once in strong contrast with the rates charged in the United States, where it cost six and a quarter cents to send a single letter not over thirty miles, between thirty to eighty miles, ten cents; between eighty and one hundred and fifty miles, twelve and a half cents, over one hundred and fifty and less than four hundred miles, eighteen and three-quarter cents, and over five hundred miles, twenty-five cents. These rates were for a single piece of paper. Each additional piece added one rate, and a letter that weighed one ounce was made to pay four rates.

Every year when Congress met its table was loaded with petitions for cheap postage. State Legislatures were induced to pass resolutions after resolution in favor of a reduction, and a partial reform was effected in 1845, against the earnest opposition of many who held that as the Post-office Department was not self-sustaining at these high rates, a reduction would result in its becoming a heavy charge upon the Government.

The partial measures of 1845 only whetted the desire of the people for a wholesale reduction, and the agitation continued until March, 1851, when a law was passed by Congress reducing the rates to three cents on letters weighing not more than half an ounce, and carried not more than 3,000 miles, if the postage was prepaid. If not prepaid the rate was five cents for a half ounce; and these rates were to be increased according to the weight, as at present.

To facilitate the prepayment of this postage, the Postmaster-General was directed to prepare and furnish Deputy Postmasters for sale to the public, "suitable stamps of the denomination of three cents." It was left optional to use a stamp, or to pay the three cents at the Post-office, and, as a further facility for such prepayment, the same bill provided for the coinage of a three cent piece—the forerunner of a long series of "fish-scale" money. The three-cent piece came into favor at first, however, being voted "decidedly neat and tasty," which, perhaps, it was compared with the broad and cumbersome copper cents, for which in a measure it furnished a convenient substitute.

The three cent pieces and the three cent stamps were ready for delivery by the time the new law took effect on July 1st, 1851.

When the first reduction was passed in 1845, the pieces of mail matter annually handled in the United States numbered about twenty-nine millions; the beneficial effect of the many reforms of which it was the harbinger may be imagined from the fact that thirty years afterwards the number of letters and pieces of transient matter handled in Boston alone was thirty-nine millions, or one-third more than the whole postal business of the country a generation earlier.

Now, in the free delivery cities alone, eighty-eight in number, more than eight hundred and ten millions of pieces of mail matter are handled annually, while the postal-car clerks handle nearly three billions of pieces of mail matter in the course of a year. In New York City, in a single week, 7,193,290 pieces passed through the hands of the post-office people, and the Government in 1879 paid for the carriage of more than thirty millions of pounds of mail matter by railroad. These figures give some idea, but by no means a full one, of the results which have flowed from the revolution begun when postage-stamps came into existence in this country.—Occident Leader.

## Turkeys.

Of all the good new things that Europeans gained through the discovery of this continent the turkey stands one of the foremost. He is, in fact, the king of birds, when his size, adaptability to all climates, plumage, and delicacy of flesh are considered. He certainly would have made a better national emblem than the thievish bald eagle, which

steals from the fish hawk; and better than the golden eagle would have been, as that is a native of both continents. There are several varieties of turkeys, the magnificent Honduras, our American wild ones, and in the domesticated kinds, we have the bronze, black, white, buff, and other colors. There is but little doubt that all domestic varieties originated from the wild turkey of the United States, and of these varieties, the bronze are nearest to the wild birds in color and size. They are the heaviest and are probably the hardiest. In every way the bronze is the turkey.

I can not lay too much stress on the importance of size in breeding turkeys. Nothing is gained by breeding from the youngest or smallest birds. As turkeys are not at maturity until three years old, it is much the plan for those who want fine, large birds to breed from those that are fully matured. What would a farmer gain by breeding together for a number of generations half-grown cattle, or pigs, or any other stock? He would certainly expect their size to be materially lessened; it must be so, too, in any stock. Selling all the biggest turkeys because they weigh and sell for a little more than the smaller ones, is a poor policy. Suppose you sell at 18 cents a pound five large birds weighing, say 25 pounds, and keep five weighing five pounds less, you get \$4.50 more for the larger birds. Now, should you raise 20 young birds the next year from the small ones, they would weigh less at a given time (say about November) than they would have done if larger or raised from five matured or larger birds. Up to that time of year they get most of their food in the fields, so that the less they weigh the less profitable they are. If the 20 young birds each weigh five pounds less, you have 100 pounds' weight less, worth, at eighteen cents per pound, eighteen dollars. Deducting the \$4.50 taken for the extra size of the five birds sold and perhaps a dollar saved on a little less food than the five larger birds would have eaten, the loss amounts to \$12.50 by breeding from the smaller birds; for the larger birds are of no more trouble to look after than the smaller ones.

The best way is to have a gobler not related to the hens, of as fine matured stock as can be procured, with good large two-year-old hens, which are better than one-year-old birds, if extra size is wanted. One gobler is enough for six or eight hens; but some prefer not to allow him more than four or five. The hens delight to lay in quiet places where they are least likely to be disturbed; it is best to watch them a little, and if they take a fancy to any out-building, sometimes a nest-box put up in it will keep them from laying astray; but should they lay astray, they should be watched, that the nest may be looked after, as they generally lay more eggs than they can properly cover, some of which may be set under a hen or otherwise disposed of, but it is most important to find a sitting turkey's nest to see that it is kept clean, as sitting birds often break eggs and foul the nest, destroying the whole brood. The nest can be cleaned while the turkey hen is off feeding.

Many people labor under an impression that a hen or turkey will hatch and raise more young ones when left to a stray nest without interference, thinking that as such habit is a nearer approach to nature, it must be the correct way. But what does nature do as to increasing numbers? In a state of nature the whole feathered tribes about hold their own in numbers from one year to another. This will not satisfy the breeder of domesticated birds and animals. If a farmer has five hen turkeys, he must raise more than that number to pay him for his trouble, and here is where the secret of success comes in—care.

Your turkeys are very dainty and require frequent changes of food; when first hatched, chopped hard-boiled eggs and bread-crumbs are best. Curd, chopped meat, lettuce, and onions (wild, green onions will do), corn meal, wheat middlings, buckwheat, are all good. The birds soon get tired of any one food and must be watched to see that they keep eating, for they sometimes starve with one kind of food only before them. Put the mother in a roomy coop, set a few boards around to make a yard in which the young ones can get their luxuries without running into danger, and in about three weeks, when they can get over a ten-inch board, they may have their liberty in fine, dry weather.—Rural New Yorker.