

Willow Farming.

A new industry has been established in St. Louis county near the little town of Allenton, thirty-six miles west of the city of St. Louis, on the Missouri and Pacific and St. Louis and San Francisco railroads, which, if successful, will furnish employment to thousands of unemployed laborers. The enterprise is for the cultivation, on a large scale, of willows suitable for the manufacture of willow ware.

A description of the process through which the willow goes in its various stages of cultivation, harvesting and preparation for the factory, as given by the St. Louis *Globe-Democrat*, is interesting. The willow plant is obtained by cutting up live willow twigs twelve inches long. These are sharpened at one end and planted in rows by thrusting them into the ground to the depth of six or eight inches. As soon as the plants begin to sprout, the work of weeding and cultivating should begin and be kept up until the crop is laid by, the same as in the cultivation of corn. The canes ripen in the fall, when the frost strips them of the leaves and turns the bark a glossy brown color. When ripe, the willows are, under favorable circumstances, from ten to twelve feet in length. They are then cut and tied in bundles like rye, carted to the hothouses, where they are subjected to a sweating process, which softens and bleaches the bark, which is then easily peeled off by dragging them through a little machine made for the purpose. Another process is that of steaming the willows, which is much quicker, requiring only a few hours, while the former requires a month, but is not so desirable, as the willows are discolored to some extent and thus rendered less valuable for fine work.

The willow plants last about twelve years, after which they are grubbed up and the ground replanted. The plant does not attain its full growth until the second year, as the greatest part of its energy is spent the first year in making roots.

It is estimated that under the most unfavorable circumstances an acre of properly cultivated willows during the first three years will produce from 3,000 to 5,000 pounds of peeled willows, ready for market, the price of which is ten cents per pound, wholesale.

Taking the lowest estimate of the produce of one acre, 3,000 pounds, at the lowest market price, six cents, the marketable value of the product of one acre is \$180. The cost of planting, including plants and labor, is \$40 per acre. The highest estimated cost of cutting, hauling, steaming and peeling is about \$50 per acre, making a total expense of \$90 per acre, and leaving a profit of \$90 per acre on the raw materials the first year.

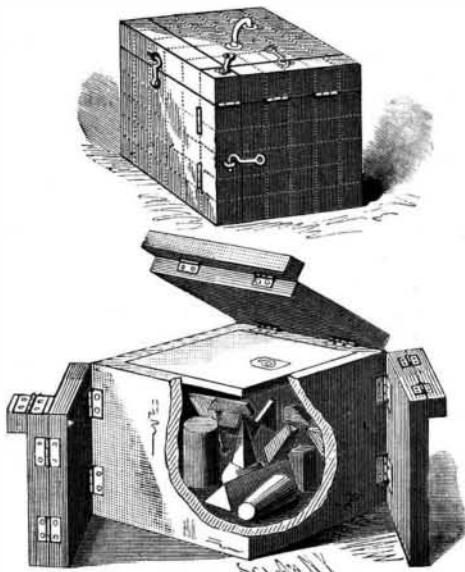
AMERICAN HISTORICAL EXPOSITION IN MADRID.

A recent number of *La Ilustracion Espanola y Americana* pictures these vases, called *huacos*, on account of having been found in the *huacas* or Peruvian sepulchers. They were found in the necropolis of Gran Chimú. The reader will discover the strange resemblance which exists between the productions of the precolumbian civilization in America and that of

oriental Asia, a resemblance that is recognized by all learned men, but has never been explained.

A GEOMETRICAL EDUCATIONAL APPLIANCE.

A device designed to facilitate the work of teachers of geometry, and which has been patented by Mr. Newton Z. Fulton, is represented in the accompanying illustration. It consists of a cubical shaped box of novel construction, and designed for use as a recepta-



FULTON'S CUBE BOXES FOR EDUCATIONAL PURPOSES.

cle for the various models of plane and solid geometric forms, such as cylinders, cones, cubes, pyramids, globes, squares, triangles, ellipses, parallelograms, etc. The top of the box proper is made to fit within its sides, so as to be flush with their upper edges, and it has a flush or non-projecting handle or pull. On the outer walls of three sides of the box are hinged sections which when folded form a perfect cube of larger size than the box, and the sides have also other hinged sections which, by being movable, may be used to illustrate the principles of square and cube root by the segregate character of the aliquot parts of a square or cube. The hinged sections are provided with locking devices, whereby all the parts are connected together and not liable to be detached and lost, and an external handle affords convenient means of carrying the box.

Further information relative to this improvement may be obtained of Mr. D. J. Splane, Crested Butte, Col.

How to Keep Cider Sweet.

Pure, sweet cider, that is arrested in the process of fermentation before it becomes acetic acid, or even alcohol, and with carbonic acid gas worked out, is one of the most delightful beverages. The following scientific method of treating cider will preserve its sweet-

ness: When the saccharine matters by fermentation are being converted into alcohol, if a bent tube be inserted air tight into the bung, with the other end in a pail of water, to allow the carbonic acid gas evolved to pass off without admitting any air into the barrel, a beverage will be obtained that is fit nectar for the gods. A handy way is to fill your cask nearly up to the wooden faucet, when the cask is rolled so the bung is down. Get a common rubber tube and slip it over the end of the plug in the faucet, with the other end in the pail. Then turn the plug so the cider can have communication with the pail. After the water ceases to bubble, bottle or store away.

How Mail Clerks Assist the Memory.

The railway postal clerks have a unique method, says a contemporary, for learning the routes on which post offices are located. Take, for example, the State of Pennsylvania, in which there are over 5,000 offices. The prospective mail distributor buys a quantity of blank cards—about the size of the ordinary visiting card—and on each of these he writes the name of an office. On the back of the card he writes the name of the route by which the office is served with its mail. Taking in hand a package of these cards—say from 50 to 100—he goes over them one after another studiously, looking at the back each time and getting the name and route clearly associated in his mind. The second time he goes through the pack he finds that he knows the half of the route by reading the name of the office. It is a dull student who upon going over a pack of cards a dozen times does not know them thoroughly. The method is so simple and such an aid to memorizing that it is adopted by all railway mail clerks. By it clerks have been known to memorize a State like Pennsylvania inside of two months.

On all large routes clerks work but half time, the other half being devoted to rest and study. The mail clerk at home, continually reminded of coming examinations, carries his cards wherever he goes, conning them over at every opportunity. One demonstrative clerk on the New York and Pittsburg R. P. O. is famed for having learned the State of Ohio in four days. As he shuffled over his cards he walked from garret to cellar, and *vice versa*, from dawn until the shades of twilight fell. On the fourth day he went to the examiner's office and separated Ohio without an error.

It is related that the wife of a postal clerk adopted the card method for increasing her vocabulary in French. On one side of the cards she wrote the French word and on the other the English equivalent to be learned. Another lady, hearing of this, used the same system successfully for learning mythology, placing the word "Mars," for instance, on one side of the card and "war" on the other. The method has so many advantages over the old and tedious way of learning from the pages of a book that it might be utilized with advantage by teachers in search of new methods of imparting instruction.



AMERICAN HISTORICAL EXPOSITION, MADRID—PERUVIAN VASES.