WATER VELOCIPEDE.

Apropos of the bicycle craze, it appears that the next thing in order is a machine of some kind that will be, in relation to water, what the bicycle is to land. The SCIENTIFIC AMERICAN of June 8, 1895, had an illustration of a machine called a nautical bicycle, but although it was nautical, it was not a bicycle in any sense, neither was it constructed to act on water as a bicycle does on land.

In fact, it was substantially the same device that may be seen any day in Central Park. It is generally admitted that a paddle wheel does not afford the best means of securing a leverage on the water, on a small scale.

The annexed engraving illustrates a machine which acts in relation to water as the bicycle does to a solid surface; that is to say, it gives the same opportunity for balancing, and depends on inertia for the upright position of the rider.

It consists of three hollow cylinders, with conical ends, and driving and steering mechanism. The outer cylinders are smaller than the middle one, and made of very light material, such as aluminum or paper. The middle one is made of galvanized iron or sheet copper.

The propelling device is provided with a two-bladed screw mounted on a shaft, which extends through an oblique tube, inserted watertight in the central float. The upper end of the shaft projecting above the float is provided with a friction wheel, taking motion from the large friction wheel on the short shaft, driven by a miter wheel connection with the pedal shaft.

The pedals and saddle are like those of a bicycle. The central float has a rudder beneath, with a handle bar corresponding with the handle bar of a bicycle. The small floats are connected with the main float by bars that are jointed, so that they may be raised up when the machine has acquired headway. A pair of rods connected with the bar serves to raise and lower the lateral floats, this mechanism being constructed to be operated by a pinion on the handle bar, and a rack connected with the rods and arranged to slide on the rudder post.

The rider mounts, gets under headway, then raises the lateral floats clear from the water and fastens them. After that he depends on his momentum for his upright position, as in the case of the bicycle. Should he lose his balance, the lateral floats will catch him and prevent accident.

NOVEL WATER VELOCIPEDE.

The Kodak Inside the Great Pyramid.

There have been many discussions about the object and hidden meaning of the Great Pyramid, but it now seems clear that it was erected, as were all the other pyramids in Egypt, as a tomb only, and that for one man. As obelisks, typical of life, are only found on the east side of the Nile, so the pyramids, memorials of death, are found only on the western side, entirely surrounded by countless graves, on the borders of the great desert and the cultivated valley.

The Great Pyramid was built, so we are told, about 3700 B. C., by King Khufu (in Greek, Cheops), and is the largest and perhaps the oldest of all. It is of vast size, being originally 480 feet high, with a base that would fill up Lincoln's Inn Fields, each side being about 760 feet long. Part of the top has been broken off, and also the smooth outer casing, leaving it in its present rough and step-like condition.

In the heart of this mass a small chamber was cleverly constructed, a quadruple roof of enormous granite stones preserving it from being crushed by the great weight above. A passage led to the exterior, and after the king's death he was mummied, placed in a coffin inside the sarcophagus, and dragged up into the chamber, the mouth of the passage being subsequently blocked up and concealed, so that the body should not be disturbed. The entrance was, however, broken open centuries ago, and the body destroyed long before modern times.

After stooping and climbing along for a great distance, each person helped by two Arabs, we found ourselves in the King's Chamber, one day in February, 1894.

I had taken a quantity of magnesium wire inside, and, as we were burning this, it suddenly occurred to me to try and take a photograph with my kodak. I had only brought it in with me to save it from being used as a football by the Arabs if I left it outside. There was no support and the heat in the tomb was intense, but I managed to lean, and at the same time hold the camera, against one of the walls, while an Arab burnt about one and a half feet of wire. The result fortunately is good enough to show the sarcophagus in the position it has occupied throughout all history for nearly 6,000 years. The lid and one corner are broken. It is possible to distinguish the place where the Arab lit the wire, and, at the end, dropped it, besides the names of several English tourists on the walls. It is also just possible to see one of the joints between the stones of the wall behind the sarcophagus, but it does not show very clearly, for even now, though no mortar was used, it is not possible to insert the finest blade between the stones, so perfect was the construction of this mighty tomb.—R. MacInnes, in the Kodak News.

A Remarkable Railway Accident.

A cablegram from Kobe, Japan, dated July 28, reports a most unusual railroad disaster, by which 140 Japanese soldiers lost their lives. A train of 23 cars was conveying 400 Japanese soldiers, who were returning from China, where they had taken part in the military operations. A heavy storm was raging and as the train was running along the sea wall on which the tracks approaching the city named are laid, an immense wave leaped over the wall, separating the train and derailing the engine and eleven cars, which plunged off the wall into the bay. Most of the men in the cars were drowned. The accident occurred at about 1 o'clock A. M., and the night was pitch dark. The sea was running so high that it was impossible to render any assistance to the men in the cars that had gone overboard, even had means been at hand to do so. Some of the men who managed to get out of the cars while they were in the water were dashed to death against the wall.

Portable Buildings.

La Revue Industrielle describes a sort of portable construction which, although, as we believe, it originated in this country, has nearly gone out of use here, while it is becoming popular abroad. This construction consists simply in suitable assemblages of iron pipes and connections, and has the great advantage that the pieces are light and portable, while the work is very readily put together with the simplest tools. France is now extending so rapidly its colonial possessions that these portable barracks, warehouses, hospitals, and dwellings are greatly in demand, and it seems to us that we, who can make iron pipe, and cast connections, at least as cheaply and skillfully as our friends across the Atlantic, might find such buildings useful and the materials for them very salable. No architect needs to be told how to combine iron tubes and connections so as to make a cheap and strong roof; but in the new French structures the system is applied to the floors, which can easily be trussed to sufficient stiffness. With covering and sides, and perhaps floors, of corrugated metal, such buildings answer well for temporary purposes; and to substitute expanded metal, covered with plaster or cement, for the corrugated sheets, is to make them much more comfortable and permanent, at a small additional expense. —American Architect.

Car Windows and Blinds.

Car windows that stick fast are a discredit to the builder and an aggravation to the traveler. The instances are rare where the design of cars contemplates that the windows shall remain closed. Generally they are put in with the evident intention that they shall be under the control of passengers. In warm weather it is customary for passengers to desire and have the windows open in order to get the benefit of the refreshing inrush of air. The landscape is generally seen also to better advantage through an open window.

These conditions will probably not be changed materially for some years to come, and certainly not until means are employed to artificially cool cars for the summer as carefully as we now warm them in winter. When one enters a car in summer that is uncomfortably warm and is balked in his efforts to raise a window, he at once feels that he has a grievance against the railroad. This does not help earnings along any, but tends to the contrary. All objectionable features that travelers meet with tend to reduce earnings on the lines tolerating them, either by diverting patronage to other lines or by making trips less frequent. For these reasons special attention should be given to the construction of car details to insure that they will remain in condition to properly meet their intended purpose. Windows when designed to be opened or closed at the will of those who sit by them should be made to do this easily, and there should be enough of clearance provided between the movable sash and the frame to prevent sticking in wet weather.

The old wooden blinds for car windows that raise and lower like the windows have many friends and are still in wide use on numerous roads. The roller shade is fast supplating them, however, and properly so. In the long run shades of proper material and fixtures may cost more than blinds, but they have numerous advantages that are of money value to any railroad, the chief among these being the ease with which they may be raised or lowered to the desired position, and the improved appearance they give to both the interior and exterior of cars. Wooden blinds frequently stick fast, and are obstinate in their movements on nearly all occasions. They are trappy and inconvenient. Roads that are giving increased attention to the refinement of details that affect the comfort of their patrons are getting rid of them.

Another point in the construction of car windows is the height to which the sash should rise with reference to the vision of passengers seated by them. Frequently this receives no consideration, and the result is that the lower piece of the sash frame comes directly in line with the eyes of a seated passenger when the sash is up. To see out when seated beside such a window one needs the neck of a giraffe so that his head can be easily raised or lowered to see above or below the obtruding piece of wood. Windows that are amply large, that move easily, and that rise to a good liberal height and are spaced to conform with the spacing of the seats are the only kind that ought to be used.—Nat. Car Builder.

Malleable Iron.

Prices of both malleable iron and steel have fallen very much in the last few years, and the manufacturer of malleable castings can duplicate almost any cast iron work about a car, in malleable iron, at 50 per cent of the weight of the gray iron. This enables him to offer to railroad companies malleable castings to take the place of gray iron, at a cost to them somewhat less than that of the gray iron castings. The weight of the gray iron castings cannot be reduced without danger of breakage, and so the car owner finds it to his interest to use a material which, though costing more per pound, costs less per casting. Steel comes into play where a greater strength is required than can be obtained with either of the other two metals.—Iron Trade Review.

By act of the Legislature of the State of Ohio a clay-workers' school has been established at the Ohio State University, where the chemistry, mechanism, and manual work of everything connected with clay industries is taught. Prof. Orton is the director of this school.