

fashion, his language glowing with Oriental imagery.

M. de Morgan's conclusions are most important. He thinks that the main Anzanite spots are the citadel and the "Royal City." At the time of Susa's destruction by the Assyrians all the monuments that could not be carried away were upset without being damaged. After Susa's capture by Alexander the Great, no important buildings seem to have been erected at Susa, and it seems to have disappeared entirely before the beginning of the Sassanian dynasty. He considers that the Archæmian ruins will hardly repay extensive investigation as they will add nothing to history. He says that he intends to concentrate his labors on the Elamite remains, their importance making this a duty. He hopes that the inscriptions will add to history the names of whole dynasties, and it is the life of a nation during 3,000 years that must be reconstructed with the aid of the monuments. During the last season he had ten small railway cars at trench No. 7 and next season he will have fifty for transporting material. He thinks that in four or five years the whole of the hill can be cleared down to the most ancient Anzanite level. He intends next year to open five trenches in the mound of the citadel. With the material at hand he expects to be able to have the whole mound reveal its secrets, possible within ten years, certainly within twenty years. The abandonment of Susa was brought about, thinks M. de Morgan, by a change in the course of the river. The ancient Anzan, or Elam, is held by many to be the cradle of the Aryan races. There was a high degree of civilization there 8,000 to 11,000 years ago. The mounds hold one of the keys of history.

M. de Morgan is now in Paris preparing for next season's work.

Automobile News.

An automobile club has been organized in Baltimore.

There are five automobile clubs in Belgium and their combined membership is 740.

An automobile race will take place in France during four days of the last week in July.

The Chicago aldermen are considering the advisability of requiring automobile owners to provide their vehicles with fenders.

An automobile cab almost demolished a coupe in Fortieth Street, near Sixth Avenue, New York city, on March 6. The vehicle was an electric one and in some unknown manner the driver lost control of it.

The Western Electrician states that an arch is soon to be erected at the extremity of the Avenue de la Grand Armee, in Paris, to the memory of Levassor as he did much to promote the interests of the automobile. The arch is to be surmounted by a reproduction of the latest type of automobile. The French do not give arches lightly so we cannot vouch for the truth of this statement. Their taste, however, can be relied upon to soften the shape of an automobile if it becomes necessary to make it a detail in a work of sculpture.

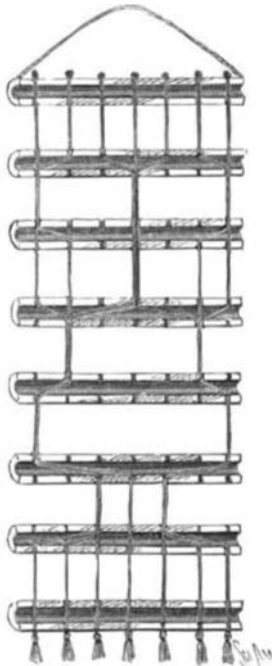
A steam automobile was left unguarded with gear reversed a few days ago in front of a theater. A mischievous boy climbed into the vehicle and opened the throttle. He jumped just in time and the carriage started backward at a high rate of speed for Broadway; the thoroughfare being crowded with pedestrians. The vehicle suddenly swerved and leaped the curb and pinned an unfortunate pedestrian against a lamp post. The driver by this time had reached the scene just in time to be arrested. The injured man was taken away to a hospital and the automobile was loaded into a wagon and taken to a repair shop. The driver was arrested on the charge of violating a city ordinance in leaving a vehicle unguarded. It is stated that there was no way to lock up the machine so malicious or inquisitive persons could not tamper with it. There have now been so many accidents of this nature that it would really seem as though no automobile should ever be left without a guardian.

A curious accident occurred in the store-rooms of an automobile company in New York city. A cleaner was inspecting machines on the cleaning and polishing floor. Orders had been given not to move the machines by motor power on the floor. The steam had been generated in the boiler over a gasoline burner for the usual tests and when it became necessary to move the vehicle, the young man jumped abroad and started the motor. The seat had been removed in order to watch the test of the boiler so that the cleaner stood upright. The carriage was run near the opening to the elevator shaft; it was then stopped and the man intended to back it into its place, but instead of moving the reverse lever he moved the throttle lever and the heavy vehicle plunged against the steel gate of the shaft. Unfortunately it gave way and both man and machine went over the edge. The man first reached the ground some 60 feet below, and the vehicle banging from side to side of the shaft fell on him and crushed his skull so that death was instantaneous.

THE CHINESE RODS AND CORDS.

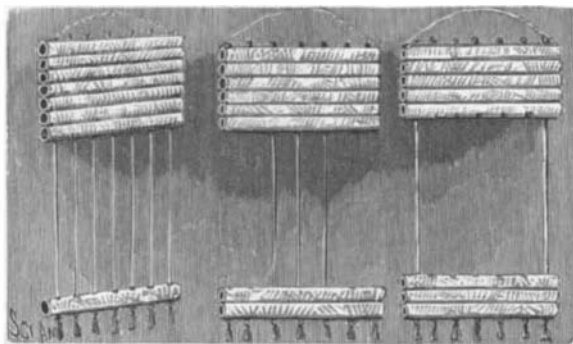
Nothing excites curiosity in the public mind more than a simple and clever puzzle, and the "Fifteen Puzzle" and "Pigs in Clover" have given enjoyment to hundreds of thousands. The Chinese rods and cords which forms the subject of our engraving is in the line of ingenious disposition and is really more in the nature of a trick than a toy.

It is of Chinese origin and the example shown in our engraving was purchased in Chinatown, San Francisco, Cal. The puzzle consists of eight pieces of bamboo or hollow ivory tubes, each containing seven holes spaced equidistantly. Through these holes are seen to pass seven silken cords, each with a bead at the top and a tassel at the bottom. The toy is held by the loop at



THE ILLUSION EXPLAINED.

the top, which serves to hold the upper rod. When it is first picked up, its condition is shown in our second engraving at the left. There are seven of the rods at the top, and one at the bottom. Now the lower bar of the upper set is moved down to the bar at the bottom, the two lower bars will appear to be supported by three cords at the center, as shown in our engraving, four of the cords having vanished. If the next bar is brought down, another change is observed, only the two outer cords being seen. This is shown to the right of our engraving. If the next bar is brought down, the end cords have approached the center, and five of the seven cords have vanished. The next rod brought down brings five cords into view, the two end ones and the center one being visible. When the next bar is pulled down, the center and the outer cords only remain, so that if all the bars between the top and bottom bars are brought together, the seven cords appear to pass entirely through them. Our first engraving gives a clew to the mystery. The rods are all hollow, and each contains seven holes, and our engraving shows the course of the silk cords. It will be noticed that where a number of cords pass through a single hole the strand which is formed is much thicker than are the single cords; as they are of different colors, the



THE CHINESE RODS AND CORDS.

effect is most pleasing. It will be observed that the strings go clear through the top bar, but in the next bar, although they enter the seven holes at the top, they emerge from three holes at the bottom; three of the strands going through the center hole and two through each of the end holes, and so on throughout the entire number of bars, the strings changing their course, as is clearly shown in our engraving, thus causing the increase and decrease in their number.

A Memorial of the Centuries.

Colossal crosses are to be erected this year on nineteen mountain peaks of Italy to commemorate the nineteenth century of the Christian era. A religious society will have charge of the matter. The crosses will be cut from granite, marble, or whatever stone characterizes each region, and will bear an inscription.

Correspondence.

Foreign Trade Marks.

To the Editor of the SCIENTIFIC AMERICAN:

Your notice addressed to American merchants in the SCIENTIFIC AMERICAN reminding them that some merchants do not understand that in foreign countries the first registrant of a trade mark becomes the legal owner thereof is most timely.

We are continually receiving evidences of the truth of your remarks. Great hardships frequently arise to foreign merchants simply because local traders have applied for and have been granted trade marks which are identical or somewhat similar to those of foreign manufacturers. These latter at a subsequent date have applied for and then found to their cost that they were out of court.

An instance occurred just recently where it cost an English manufacturer several hundred dollars to have the register rectified by the removal of the mark of which he was the first and true inventor. Had he only applied, without unnecessary delay for the mark, he could have done it practically speaking for a few dollars. His loss, therefore, was great. And fortunate was he that it was not greater.

Trusting that the merchants of America will be quick to realize the dangers that are incurred in not applying within reasonable time for their trade marks we would remain yours faithfully,

EDWIN PHILLIPS,

Melbourne, Australia, January 30, 1900.

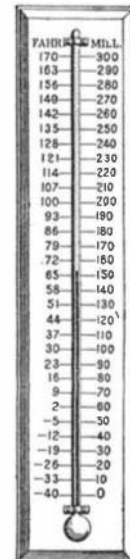
A MILLIGRADE THERMOMETER.

To the Editor of the SCIENTIFIC AMERICAN:

I have devised the new milligrade thermometer, the only perfect thermometer in all the world. True to name, it has in its scale 1,000 degrees. As mercury is the substance in general use, the 1,000 degrees shows the full tenacity of mercury, for a thermometer should be graded according to its tenacity. In milligrade mercury freezes at zero and boils at 1,000. This scale is to Fahrenheit as 10 to 7. The French centigrade is really a three hundred and eighty-niner, while Fahrenheit is a seven hundreder (660 + 40). In a true centigrade thermometer, not enough would be implied in a degree, so we minify the degrees ten times and use milligrade—the only perfect scale that will ever be devised. It will register in all minutiae. Decimals will not be needed. No below zero temperatures as long as mercury has power. Everybody knows positive and negative characters are a nuisance in computation, and milligrade ought to be international. It is worth striving for. Water boils at 360 degrees—the number of degrees in a circle. The point of aqueous congelation is just above a hundred (102°). The first hundred is the winter hundred of our northern latitudes. The second hundred is our summer hundred, and the hundred figure is easy writing and easy adding. 200 milligrade = 100 Fahr. It seems to me the simplicity of this scale should be its chief recommendation.

ARTHUR BETTS.

U. S. Vol. Observer, Ridgeway, Iowa.



A Dynamometer Car.

A new dynamometer car is being built in the shops of the Illinois Central Railroad, and will be operated by the railway company and the Department of Railway Engineering of the University of Illinois. It will be equipped with apparatus and instruments for road tests of locomotives, air-brake tests, and line inspection. The dynamometer recording apparatus will have three tandem cylinders, 3, 6 and 9 inches in diameter. By combinations of these, the apparatus can be tested with any weight of train. The apparatus for track inspection will automatically record deviations from gage and level of rails, the superelevations of rails, curves, the time, distance, etc. The motions are transmitted from an independent pair of wheels under the car to small cylinders in the car, transmission being effected by means of oils.

The pistons in these cylinders transmit the motions of the wheels below and their piston rods carry the pens by which the records are marked on a moving sheet of paper.

A Pipe Line for Sugar Juice.

At Springfield, Utah, there is a plant for slicing sugar beets and extracting the sugar laden juice by diffusion, and this, with its impurities is then pumped through a pipe line to a beet sugar factory at Lehi, where it is treated and refined by the usual processes. It is learned, says Cassier's Magazine, that the same system of piping sugar juices are also in use in France and Germany, and in the latter country also pipe lines have been used in potteries to carry much thinned clay paste from one department to another.