

## SCIENTIFIC AMERICAN

ESTABLISHED 1845

MUNN &amp; CO., - - Editors and Proprietors

Published Weekly at

No. 361 Broadway, New York

## TERMS TO SUBSCRIBERS

One copy, one year for the United States, Canada, or Mexico, \$3.00  
 One copy, one year, to any foreign country, postage prepaid, \$5.00

## THE SCIENTIFIC AMERICAN PUBLICATIONS.

Scientific American (Established 1845).....\$3.00 a year  
 Scientific American Supplement (Established 1876)..... 3.00  
 Scientific American Building Monthly (Established 1885)..... 2.50  
 Scientific American Export Edition (Established 1876)..... 5.00

The combined subscription rates and rates to foreign countries will be furnished upon application.  
 Remit by postal or express money order, or by bank draft or check.  
 MUNN & CO., 361 Broadway, New York.

NEW YORK, SATURDAY, OCTOBER 8, 1904.

The Editor is always glad to receive for examination illustrated articles on subjects of timely interest. If the photographs are sharp, the articles short, and the facts authentic, the contributions will receive special attention. Accepted articles will be paid for at regular space rates.

## THAT RAMAPO SCHEME AGAIN.

The famous, or rather infamous, Ramapo scheme, by which a private corporation sought, during the Van Wyck regime, to control the sources of New York city's future water supply, was only defeated after most earnest efforts on the part of the Merchants' Association of this city, backed by the better and more enlightened element among the citizens. The scheme originated during the last Tammany administration, and received the most energetic indorsement of a large portion of the municipal administration of that time. After the Ramapo company had bought up all the sources of water supply that were contemplated in the scheme, and the options on the same were safely stowed away, the details of the plan were made public, and an effort was made to secure legislative sanction. Had the matter gone through, this great and growing city would have been subject to one of the most daring monopolies of a public necessity on record, while the sponsors of the scheme would have reaped enormous personal profits. Happily, the determined stand which was taken against the measure proved successful, and the bill authorizing the scheme was defeated. At the same time, proper steps, in the way of appointing an expert engineering commission, were promptly taken, and after a most exhaustive investigation, a comprehensive report was presented, and a scheme of future water supply, based not upon considerations of the gain of private individuals, but upon the highest regard for the necessities and future welfare of the city, was drawn up.

With the change of administration the Ramapo company saw an opportunity to set their machinery once more in motion with some considerable hope of success, and the evidence of this is seen in the recent appointment as Chief Engineer of the Water Supply Department of a man who was strongly in favor of the Ramapo scheme at the time of its first agitation. The new appointee, ignoring absolutely the careful report made by the expert commission above referred to, now announces that he has a ninety million dollar proposal for providing New York city with an adequate water supply—a proposal, by the way, which is virtually a rehabilitation of the Ramapo plans. Obviously, the better element in New York city must be prepared to fight the old battle over again. The task is, no doubt, distasteful and wearisome; but it is a public duty which is urgent upon everyone that has the best interests of the city at heart.

## THE LAUNCHING WEIGHT OF THE "CONNECTICUT."

Considering the general excellence of the accounts given in the daily press of the launching of the "Connecticut," it is surprising that, one and all, they should have fallen into the error of speaking of the battleship as weighing, when she made her initial plunge into the water, some 16,500 tons, whereas, as a matter of fact, she did not weigh within 9,500 tons of that amount. Her actual launching weight was only 6,999 tons. The oft-quoted 16,500 tons is the displacement, or actual weight, of the ship in her completed condition, with ammunition and all kinds of stores aboard, and 900 tons of coal in her bunkers. So that in point of weight, the "Connecticut" that swept down the ways on the 29th of September was a very different "Connecticut" from the one that some eighteen months from now will hoist her flag, completely equipped and ready to take her place, if need be, in line of battle. Out of the water and on the ways the battleship looked larger than she ever will again; for the spectator viewed the whole mass of the vessel from keel to superstructure deck. The 26 feet of hull that from now on will be submerged beneath the water was visible, and helped to give that predominant impression of bulk and weight, which was so much the object of remark among the thousands who witnessed the launching. The "Connecticut," however, was not by any means so heavy as she looked, being in fact but the mere shell of the ship, including the double bottom, the framing, the skin plating, and the various

steel decks. From now on as she sits in the water she will take on weight very rapidly, that is, provided the armor-plate makers deal fairly by the ship, and make no discrimination in delivery of armor plate in favor of the contract-built sister vessel at Newport News. We speak advisedly here; for shipments of armor are finding their way to the southern shipyard with much greater alacrity than they are to the yard where the government-built ship is in hand. By the time that the armor plating has been put in place along the waterline, and over the central broadside batteries, upon the turrets, casemates, and on the conning towers, some 4,000 tons of weight will have been added, bringing the total displacement of the ship up to about 11,000 tons. The other 5,500 tons will be made up of the large battery of boilers, the two main twin-screw engines, the various auxiliary engines, the thousand-and-one furnishings and fittings that enter into a ship of this size and importance, and finally the enormous amount of coal and stores that must be carried.

Long before the date of launching the "Connecticut," the naval constructors had made an accurate estimate of the rate at which she would gather headway in sliding down the ways, the speed at which she would enter the water, and the distance to which she would travel by her own momentum after she was fairly afloat. The acceleration was very rapid, much more so than the layman who witnessed the launch would suppose, for the great bulk of the vessel made her appear to be moving more slowly than she actually was. As a matter of fact, the velocity rose to about 15 knots an hour, or within 3 knots of the highest speed which the vessel is designed to make under full horse-power.

## THE MENACE OF THE PULLMAN CAR.

The frightful epidemic of railroad disasters which is upon us just now, has brought the question to the Editor's desk as to what, in the wrecked train itself, is the most fruitful cause of fatalities. After several years' careful study of this question, we do not hesitate to say that in head-on collisions, where the wrecked train is made up of light day coaches and massive Pullman cars, it is the Pullmans that are chiefly responsible for the maiming and killing. In saying this, we are not forgetful that a few months ago we commented editorially on the fact that the Pullman Company have been able to boast of an extraordinarily small list of fatalities to Pullman passengers, during a period that had been more than usually fruitful in railroad disasters; for it is the very element of weight and strength in the Pullman cars that renders them at once a protection to those who travel in them and a menace to those who do not, but take passage in the more lightly-constructed day coaches that are so frequently interposed between the engine and the Pullman cars. This remark, it must be understood, applies only to the case of head-on collisions. In the case of rear collisions, the Pullman cars are just as much a protection to the day coaches as they are a menace in head-on collisions; for in rear collisions the inertia of the Pullmans serves to absorb a large amount of the energy of the colliding train, although their enormous stiffness makes it certain that the residue of the striking energy will be transmitted in full to the day coaches ahead. The truth of these remarks was amply verified in the descriptions of the recent horrible accident on the Southern Railroad, where practically all the fatalities occurred in a train that was made up of day coaches and Pullmans, the Pullmans expending their energy in crumpling up the day coaches ahead of them, with a resulting loss of life that made this accident one of the most fatal on record. The experience on the Southern Railroad teaches nothing new. In fact, in reading the descriptions of any of the recent accidents, one is struck with the fact of their similarity in respect to the behavior of the Pullman car. The press dispatches almost invariably contain the customary note to the effect that the Pullman cars did not leave the track, and that although they were badly shaken up, the passengers received no serious injury. The only exception to this was the accident in which the Pullman cars broke away from the rest of the train, jumped the tracks, and swung over onto the opposite tracks a few moments before the passing of an overdue freight train, which struck the Pullman cars and wrecked them.

The question arises as to what is the proper way to even up the chances of safety for the railroad traveler, rendering day-coach travel less dangerous without sacrificing the security of the Pullman passenger. In answering this question, it must first be admitted that the Pullman car is unreasonably heavy. By the judicious use of steel construction, equal strength could be obtained with a considerable reduction of weight. On the other hand, the admirable steel day coaches, which have been built for the Illinois Central Railroad, prove that the strength of the passenger car can be greatly increased without adding materially to its weight. Obviously, the wisest course to adopt—we do not say the most humane, for considerations of humanity seem to have but little place in determining the problems of railroad travel—would be to build all passenger equip-

ment entirely of steel. We would then have collision-proof trains; and although the shock of collision would still be present, the disastrous telescoping with its attendant horrors would be a thing of the past, and the Pullman passenger would no longer obtain his greater security at the peril of the other passengers on the train.

We take this opportunity to reply to the question that has frequently been asked by correspondents, as to what is the safest part of the train for a passenger. In answer we have to say that for any kind of collision or derailment, the Pullman passenger is least exposed to injury; but in trains made up of homogeneous day coaches, such as are in use in suburban service, in a head-on collision, the last car is, of course, the least exposed to injury, and in rear collisions the first car. A consideration of the average accidents of railroad travel, therefore, will suggest that the passenger who is anxious for the safety of his person will run the least risk of injury if he seats himself a little forward of the center of the train.

## CURIOUS FOODS.

Among civilized nations the variety of tastes attracts but little attention. The vegetarians and the meat eaters each have their followers, and a recent school advocates less food and fewer meals, while there are countless fads for the delectation of the hungry.

That civilized man has missed some of the most toothsome dainties goes without saying, and it is evident that prejudice enters very largely into this. Thus, in California, the best fish it is said is the sculpin, but in the East this fish goes begging on account of its disagreeable appearance. In Arizona Indian children may be seen catching ants and eating them; and in Mexico the honey ant is eagerly sought after by the natives, who eat the well-rounded, currant-like abdomen. In South America the large lizard, the iguana, is a delicacy, not to speak of the larger snakes which in taste are like chicken. The ordinary rattle-snake, it is said, is very good eating if one can overcome the inborn prejudice.

Americans are inclined to regard the Chinese as a race of rat eaters and denounce the animal as unclean, at the same time consuming tons yearly of the most loathsome of all animals—the hog. The rat is careful of its toilet, cleaning itself constantly; but the hog is the only animal of so-called intelligence that revels in filth and prefers it to cleanliness. The common skunk, owing to its peculiar and offensive glands, will never be popular as food, yet its flesh is not only good, but delicious, according to various connoisseurs who have eaten it.

That insects do not enter more into the food supplies of nations is due to prejudice. Grasshoppers are eaten by some Western tribes. Ground up, they make a meal that is said to be both nourishing and agreeable. Many a white man has pressed through a country, believing himself nearly starving as large game was not to be had, when worms and various insects were at hand. During the flight of locusts Indians sometimes collect them in bags, wash them, and cook them for a meal.

The most singular food, in all probability, is the larvæ of a fly, common in certain portions of California and known as *Ephydra*. This insect is found in such vast quantities in Lake Mono, California, that it is washed upon the shores in vast windrows and can be collected by bushels. The water of Mono is very singular, seemingly very heavy and smooth like oil; so much so that it resists ordinary wind and refuses to become ruffled. When the larvæ begin to appear, the Indians gather from far and near and scrape them up, place the worm-like creatures on cloths and racks in the sun and dry them, when they are beaten up and husked, looking then like rice. The Indians call the food koo-chah-bee, and many bushels are collected at this time; that larvæ is nutritious is shown by the condition of the Indians, who soon grow fat on the rich diet. Many birds are attracted by the larvæ and gorge themselves with the singular food.

On Lake Texcoco in Mexico a curious fly is found which also is eaten by the natives and known as *ahuatl*; the eggs of the insect, which are deposited on sedges, are also collected and eaten for food. On Lake Chalco a certain sedge is cultivated on which the eggs of a species of fly are deposited. Bundles are made of these and placed in Lake Texcoco for the purpose, and, when covered, the sedge is beaten over pieces of cloth and the eggs secured. These are collected and ground into a meal, also called *ahuatl*, and are in great demand on fast days when fish is required, the insects or eggs not being considered flesh as they come from the water. The food is made into small cakes and tastes not unlike caviare. Not only the eggs, but the larvæ, themselves a disagreeable-looking worm, are used as food under the name of *puxi*.

The civilized man perhaps turns from such food with disgust, but it is well to remember that epicures in many countries, and especially in England and Amer-