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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 appointmen 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 equipment 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

ica, are particularly fond of cheese when inhabited by the larvæ of a very common fly. In the United States the large octopus or squid, common on the Pacific coast, offends the American palate, but the Italian, Frenchman or Portuguese eats it with avidity and considers it a delicacy. The meat is clear and white like chicken and has the flavor of crab.

The question of national tastes is an interesting one, and the contrast between those of China and America is remarkable. The objects displayed in the Chinese quarter as dainties are often repugnant to Americans. We find the Chinaman selling eggs of unknown age, especially ducks' egggs containing ducklings ready to be hatched. Shark fins—a tough, disagreeable food—are in demand, while deer horns in the velvet and lizards of various kinds are eaten. The nest of the swallow, with its embedded secretion of the mouth glands of the bird, is nearly worth its weight in gold. Trepang, the tough, impossible holothurian, is eaten, and its collection is an important industry along the Malay coast, valued at at least $100,000 per annum.

In France the sea anemone is used as food; stuffed like peppers and boiled it calls to mind crab or crayfish. The echini of various species is also used, cooked in the shell, like an egg, and eaten with a spoon. In nearly all the old countries of Europe of the type of Spain and Italy, the poor are so poor that everything in the nature of food is utilized. Absolutely nothing is wasted and meat is rare. The writer recalls the surprise of an Italian fisherman who landed in California after a trip around the Horn, and was amazed, not at the country, but with the abundance of food. He found his countrymen eating meat twice, perhaps three times a day, when he rarely had it once a month. He saw hundreds of pounds of fish wasted, and discarded merely because the people did not care for it, when in Italy even the heads would be boiled and eaten. He saw big tunnies towed out to sea and thrown away because they were tough, when in his own land every scrap of this fish was saved. America was indeed the land of plenty to the poor of other nations.

Certain Indians consider earth worms a dainty. They are dried and rolled together into a peculiar flour. In Bahama and some of the Florida keys the conch is eaten—by far the toughest food known; more like India rubber than anything else, having to be beaten and pounded before it can be masticated or even cooked.

ODDITIES IN SELF-DEFENSE.

BY ERNEST INGERSOLL.

A certain page of my notebook contains a lot of interesting memoranda on the way in which certain small and feeble creatures are guarded against their enemies, or guard themselves, by wearing overcoats of spiny, fuzzy, or rather disagreeable textures, or by having the power to throw out from the skin, or from a special reservoir, some offensive moisture or odor.

Thus extraordinary miniatures of the skunk are found in the small, brilliantly-colored ground beetles called by the French *bombardiers*. A typical species, common in Louisiana, when pursued by its special enemy, the fierce *Calosoma*, a much larger beetle, seems at first to have no chance for escape; but suddenly a popping explosion is heard, and a blue smoke, attended by a rancid smell, is seen to proceed from the hinder extremity of the body, which immediately stops the progress of its assailant. Should the calosoma recover from this and renew the pursuit, a second volley again arrests its course. The bombardier can fire its artillery twenty times, if necessary, and so protect its retreat, and in most cases make sure of an escape.

Not far removed from this, in classification, is the scorpion-fly (*Panorpa*), which, in spite of the formidable-looking forceps at the tip of the abdomen, would be quite harmless were it not that it carries a long gun—the Kentucky rifle of the insect hosts. When it is disturbed, this pretty fly darts out a slender tube, takes aim at the disturber, and lets fly a drop of yellow, malodorous fluid, which will send most, if not all, of its enemies to the right-about. Many true bugs, especially those of the aquatic group Heteroptera, emit an annoying spray, as also does the larva of the saw-fly. The vile odor of the cockroach and one or two other household pests are other too familiar examples of a long list of bugs provided with this disgusting property as a means of protection against their natural enemies, that is, enemies other than man; for here, as so often elsewhere in nature, provisions and habits and instincts, highly serviceable in all other relations, may be a source of danger and harm to an animal when it comes in contact with mankind. The brutes, large and small, are disposed to avoid bad-smelling bugs, but man often seeks them on purpose to put an end to the nuisance by killing its source. This is very different from the accidental death which many such an insect has suffered in spite of its protection, under the tread, or in the careless, browsing jaws, of some creature perhaps a thousand times as large as itself, for it is a direct turning against it of its own trusted method of defense.

Many insects smell decidedly of certain herbs, and sometimes this is pleasant to our nostrils, though evidently disagreeable to others, just as mosquitoes disagree with us in respect to the aromatic pennyroyal. Insect odors are the product of essential oils; and the secretion exudes so plentifully from the joints in the family of oil-beetles, and is so corrosive, that it can be used in medicine as a substitute for the evil-smelling cantharides in making blistering preparations. Is it not fair to suppose that when an animal detects the odor of these corrosive insects, it avoids them for fear of their burning taste and that thus many oil-beetles are saved from an accidental as well as from intentional destruction? And as a further measure of safety, most of them are conspicuously colored, as though for the express purpose of advertising their harmfulness, just as we hoist a red or yellow flag over the door of a house where there is contagious disease.

This endowment is widely distributed and powerful among insects. The ladybird, for instance, has been recommended for the toothache, because its secretion furnishes a powerful counter-irritant; and in colonial times in New Orleans, says Von Reizenstein, the disgusting darkling beetle (*Blaps*) was in vogue as "an old woman's remedy" for chronic ulcers, when applied with cypress oil.

Here, as elsewhere, the kind of foes against which insects guard themselves must be considered, and, as has been said, man must be left out of account. The principal enemies of insects are other insects, birds, and some small mammals. A whole order of mammals, the Insectivores, subsists altogether upon them, and these seem irresistible; but the higher mammals will often refuse certain kinds. On the other hand, dogs seem furious to put to death certain evil-smelling ones, as cockroaches, without wanting to eat them, so here the odor defensive against most foes excites the destructive enmity of a few highly powerful ones.

Turning to the other extreme, the various fuzzy or malodorous exudations of caterpillars and other larvæ are often meant to repel parasites, such as ichneumons, etc.—a matter of the highest importance in insect life.

Birds destroy a vast number of insects, but it is unquestionable that large numbers are quite uneatable by birds, and safe from them, though highly colored and slow of flight, because of the nauseous odors or fluids that impregnate their bodies. The very common frittilaries are good examples among conspicuous butterflies; and more than a thousand species of three tropical families, Heliconids, Danaids, and Acræids, are thus protected, as also are millipeds and many other forms.

Speaking of this matter, Alfred Russell Wallace says that specimens of heliconid butterflies captured in South America by himself and Mr. Bates were less subject to vermin than those of other families, and were not attacked by insect-eating birds or dragon-flies. Although they swarmed in the forests, flying slowly and gaudily, the birds passed them in a chase after far swifter insects.

Thomas Belt's tame monkey in Nicaragua, which would greedily munch up other butterflies, would not eat heliconids. Similar testimony comes from India; and a series of experiments in an aviary, and with frogs and lizards, showed a numerous list of caterpillars that none of these animals would devour, spitting them out with every sign of disgust and of smarting when one was forced into the mouth.

An important reason why certain noxious "worms" (foliage-eating larvæ of moths) are so difficult to subdue is that most of them are covered with bristly hairs, and are not liked by most birds, apparently on that account. It is true that the list of birds which will eat the hairy caterpillars of the tent-worm, the gypsy-moth, and other like pests, has been increased by closer observation of late (though some will eat nothing but the soft inner parts), yet as a rule birds avoid these for the smooth sorts, that have no hairs to prick their throats and irritate their digestive organs. The spiny protection enjoyed by many fishes and shellfish gives material for another essay.

Nearly under this head comes the exudation of slime with which some of the lower animals cover themselves. Snails appear to have no other means of repelling an enemy that may catch them out of hiding, and the naked slugs in particular exude a white mucus over their whole skin, the viscid consistency of which, clinging to a bird's beak or a hairy animal's lips, would seem to be disagreeable enough, apart from any bad taste, to make everything leave the creature alone; as a matter of fact, slugs are eaten mainly by carnivorous members of their own race, and by some reptiles. They are safe, as a rule, from birds and mammals.

A gigantic galley-worm, or myriapod of the tropics (*Peripatus*), offers a remarkable example of this repulsive armament; for when annoyed it ejects from gland openings near the mouth quantities of a sticky, tenacious fluid that forms into a network of threads about its head. An animal whose feathers or whiskers had once become entangled by this natural bird-lime would be very careful to avoid a second experience. That it takes a very small amount of such experience to teach young animals to recognize and let alone things they have found distasteful, is known to everybody who has watched young chicks or ducklings in a farmyard; the careful studies of Prof. Lloyd Morgan in this direction, as given in his valuable book, "Habit and Instinct," are well worth reading.

The same sort of defense is secured in various insects, especially in the Hemiptera, an order of true bugs, by the secretion of a cottony or scaly covering, as in the case of the bark lice and related forms so troublesome to fruit growers; and still others, as the frog hoppers, or froth flies, conceal their sap-sucking larvæ in the grass, or upon a leaf, beneath a frothy exudation, called by the country people "cuckoo spit" or "frog spittle." The pear and vine "slugs" are additional instances. These coverings not only hide and disguise the insects, but make them distasteful to many insectivorous animals.

One might carry this review very widely through the animal kingdom, but enough has been said to give a hint of the importance this sort of self-defense has among otherwise feeble folk.

AUTOMOBILE NOTES.

The recent automobile events of the Brescia Circuit, which were among the most successful ever held in Italy, have resulted in the founding of a new challenge cup by the Chevalier Florio, a well-known millionaire of that country and an ardent chauffeur. After having engaged two Panhard and two Mercedes cars in the Brescia Circuit, he now offers for next year's events a cup having the value of $20,000. It is to be competed for over the same circuit as before. This offer, as might be expected, has made quite a sensation in automobile circles; it will also give an added impulse to the question of races in Italy, where the movement has already taken a good start. Chevalier Florio has also offered the sum of $1,000 for the construction of a special automobile track in the Montechiari region. This route will be four kilometers (2.4 miles) long in a straight line and is to be "westrumited" throughout. It is intended exclusively for the kilometer and mile tests with high-speed racing cars.

The annual hill-climbing contest up Mount Ventoux, in France, which took place recently, resulted in some extraordinary performances. The course is 21.6 kilometers (13.4 miles) in length, and the total vertical rise is within 39 feet of one mile, or 5,241 feet. Rougier, on a 45-horse-power Gordon-Bennett Turcat-Méry racer, covered this distance in 21 minutes, 12 2-5 seconds, which broke the record, previously made by himself, by 3 minutes, 37 3-5 seconds. His average speed was about 40 miles an hour, which means that his machine rose vertically 4.11 feet every second, or 247 feet a minute, which is somewhat more than half the speed of the fastest passenger elevators. The average gradient of the Mount Ventoux course is eight per cent, which is considerably less than that of Mount Washington in this country, where, it will be recalled, Mr. Harry Harkness made last July on a 60-horse-power Mercedes, the remarkable time of 24 minutes 37 3-5 seconds on the 7½-mile road leading to the summit through a vertical rise of 4,600 feet. The Stanley steam car also made a record of 28 minutes, 19 3-5 seconds in the Mount Washington climb. In that at Mount Ventoux this year, two Darracq machines gained second and third places in 21: 41 and 22: 26 respectively, while a Hotchkiss car came in fourth in 22: 49 4-5. The second Darracq car broke the previous record for lightweight cars by 2 minutes, 59 seconds, while a Darracq voiturette broke the existing record for cars of its class by 14 minutes, 10 2-5 seconds, reducing it to 29: 25. A Griffon motorcycle covered the distance in 32 minutes, 20 seconds.

Probably the most scientific long-distance test of an automobile that has ever been made was that of a Packard touring car on the Grosse Point mile race track at Detroit, when the machine was driven around the oval 1,000 times without stopping the motor, in 29 hours, 53 minutes, and 37 3-5 seconds, or at an average speed of 33½ miles an hour inclusive of stops for replenishment of fuel, lighting of lamps, and changing of tires. Exclusive of these stops, the speed figures out over 35 miles an hour. The great uniformity of running is shown by the fact that out of 35 consecutive miles run at an average time of 1: 46, the time of but four of these miles was as much as 1 second away from the average. This certainly is as fine a showing as any foreign car could make. That the present model Packard car performs equally well upon the road has lately been demonstrated by some San Francisco men, who drove such a machine from that city to Los Angeles in 53 hours and 40 minutes, crossing the coast range of mountains five times and fording many rivers, without the use of a single spare part, and with the renewal of but two inner tubes of their tires. No mechanic was taken along or found necessary; and, although one of the inner hub brakes gave out, thus making it necessary to use the motor as a brake in descending the steep grades, the great strain thus put upon it and the transmission did not damage either.