

# SCIENCE TELLS US

by René Bache



## Wireless Steers New Air Bomb Toward Target

A "dirigible bomb," that can be steered toward the target by wireless after being let fall from an airplane, is the novel invention of Elmer A. Sperry of Brooklyn.

Ordinarily, when bombs are dropped from aircraft the chances of a miss are great. The speed and altitude of the plane or balloon have to be taken into account, and the wind also. Obviously it would be of utmost advantage if the path of descent of a gravity projectile could be changed at will while it was falling.

The Sperry dirigible bomb carries a parachute, which, unfolding as it starts to drop, not only slows the rate of its descent, but incidentally serves as a "drag-rudder." By tilting this drag-rudder in one direction or another the bomb's path of descent is controlled.

As the projectile starts to fall a second and very tiny parachute is liberated from the top of the bomb to support vertically a wire that serves the purpose of an antenna. It is by the help of this antenna that the man in the airplane is enabled to operate the radio apparatus carried in his machine as to alter at will the angle of the drag-rudder.

While the bomb is going down the circles about and steers it by radio. All he has to do to make the bomb turn this way or that is to turn a handle connected with his radio sender in the desired direction. Thus the bomb is made to land exactly where it will do the most good—meaning, of course, the most mischief.

## Volcanoes Toss Out Much Water

A volcano—let us say Stromboli, which just now is making a lot of trouble—ejects materials of various kinds.

One of these is water. It is the last thing we should expect a burning mountain to produce, but, as a matter of fact, volcanoes vomit enormous quantities of water, formed by the cooling and consequent condensation of gases rising through the vent pipe.

Volcanic dust, thrown high into the air during an eruption, is so finely divided that much of it will float in the upper levels of the atmosphere for years. Its particles seem mostly to be minute bubbles, hollow inside.

Together with water, volcanoes emit vast quantities of mud, which, hardening into rock, form what is called "tuff"—a friable material which in parts of our own west covers great areas to a depth of thousands of feet.

A familiar volcanic product is pumice, which is so porous, and therefore so light in weight, that it will float on water. Another is obsidian, or "volcanic glass," a substance of the same chemical composition as pumice, but extremely hard, being of high density.

Typical of the "eruptive" rocks, representing material thrown up from the depths, is granite. Such rocks are practically impervious to water, whereas the sedimentary rocks—sandstones, limestones and shales—are sufficiently porous to allow water to percolate through them. It is these sedimentary rocks that contain the so-called "pools of petroleum," usually with water underlying the oil.

## Ramie, Silk Fiber Plant, Thrives in California



use by them before the dawn of history; but among those early peoples hand labor was plentiful and cheap. It is exactly for the same reason that nowadays we get our ramie from China.

Ramie belongs to the nettle family, being sometimes called the "stinging nettle." It is also known as "China grass," having been cultivated in that country since time immemorial. Recent experiments with it in California have proved that it can be grown there in unlimited quantities, thus adding another to its agricultural achievements.

In the rich irrigated soil of the Imperial valley, in California, under an almost tropical sun, the ramie plant attains a height of 10 feet. The roots rapidly spread, so that in the second year production reaches eight or nine tons to the acre. The plants are cut like hay, with self-raking harvesters.

One finds in dry goods stores dress goods, upholstery goods, tablecloths, napkins, etc., made of ramie. They are beautiful, silklike and guaranteed to wear extraordinarily well. Unfortunately, they are very expensive.

Ramie is one of the most prolific of plants, and easily cultivated, but to separate the fibers from the stalk is a laborious task, no machine that would do the work satisfactorily having been invented up to now. That is why fabrics made of it cost so much.

The silky fiber was familiarly known to the ancient Egyptians and Babylonians and was in common

## Inquisitive Physiologists Tell Just What Happens When Body Dies

Recent study has led physiologists to the conclusion that the brain may live for 20 minutes or half an hour after a person has apparently "given up the ghost."

They have taken out of the body, will continue to beat for 24 hours a stream of oxygenated blood be kept flowing through it.

Death from loss of blood is attended by no pain. The ancients, appreciating this fact, commonly had resort to "opening the veins" when they sought to commit suicide.

Drowning is an easy death, described by persons who have survived the process as "like falling asleep." It is said to be more painful to resuscitate than to drown.

In the "dying hour" the sense of smell fails first; then taste, sight, touch and finally hearing.

The "death struggle" or "death agony" is an imaginary phenomenon. Convulsive movements usually occur toward the last, but they are mere nervous reactions of which the dying person is unconscious. A last illness may be painful, but death is painless.

One person in every 1,000 dies a "natural" death—that is to say, of old age. The remaining 999 die of disease.

It often happens in extreme old age that a marked weakening of the mental faculties is observable. Persons thus afflicted are said to be in their "dotage." They have to be cared for like small children. It is a trouble due to structural disintegration of the brain, which, like any other organ, is liable to wear out. As a matter of fact the brain, in these persons, wore out before their bodies.

## Now They're Expanding Universe

Very recent discoveries have convinced astronomers that the stellar universe which we call the Milky Way is far larger than was hitherto supposed—in fact, that it is more than 100,000 times as big.

It has the form of a flattened disc, like a watch (though much thinner in proportion to width), its thickness being about 4,000 light years, and its diameter 300,000 light years. A light year, be it understood, represents the distance which a ray of light, traveling 186,000 miles a second, will cover in 12 months.

Hitherto it has been believed that our sun was not far from the center of the universe of stars; but now this is declared an error. The center of gravity of the whole sidereal system appears to be in the constellation Sagittarius, so far away that a ray of light would require 60,000 years to reach us from there.

That is a region of dense "star clouds"—congeries of stars that must be numbered in billions. Nobody knows much about those star clouds, but the suns composing them must surely be of giant size. A sun the size of ours would not be telescopically visible at such a distance.

The more we learn about the wonders of the heavens, the more insignificant do we feel. Our sun is but a tiny star and the earth on which we dwell a mere particle of stardust.

Not so very long ago, when it was imagined that the earth was the hub of the universe, our companion planets were called "wandering stars," while the term "fixed stars" was applied to other heaven-

## Some Utah Rabbits Poisonous

Nobody hitherto has thought of regarding the jackrabbit as a dangerous animal. But if it happens to be bitten by a horsefly and the fly thereafter bites a human being, the latter may die.

There is trouble of this kind in Utah, and the public health service is making a painstaking study of it.

The first cause of the mischief is a bacterium. Some jackrabbits in Utah are infected with it. The horsefly, a blood sucker, and having derived the infection from a jackrabbit, it passes the germ on to man.

The sufferers are mostly farm people who work in the fields, and who are therefore exposed to horsefly bites. One bite inflicted by an infected fly will sicken and disable a man for several weeks. There is a

## As She Rests and Rocks, Churn Turns, Butter Made



THE rocking-chair has never appealed to the taste of people in Europe. Over there they call it an "American chair," and admit their failure to understand why anybody should wish to take exercise while sitting down. We, of course, could hardly get along without rockers. In every farm house one finds at least one rocking chair; and in this connection it seems worth while to call attention to the novel idea of Moses W. Carden of Opelika, Ala. He has constructed a chair which makes it practicable for the farmer's wife to churn her cream butter by the mere performance of rocking. Fastened to the side of the chair is a box-shaped churn which, for additional support, is upheld by two uprights resting upon a third and supplementary rocker. As the farmer's wife rocks the cream in the churn is agitated. The final result is butter. When the butter is made the churn can be detached.

## Vanishing Chairs for Small Flats

In these days when rents are so high people are commonly obliged to economize space as much as possible, the family kitchen may be no more than a closet ingeniously fitted with a gas range and other essentials. Couches convertible into beds and other clever contrivances useful for more than one purpose are at a premium.

The newest invention in this line, patented by Frank Gilariski of South Chicago, is an arrangement whereby chairs, when not in use, may be folded and stowed beneath a table.

Each chair, attached by a bracket to the inner side of a table leg, may be slid out on a rod to a comfortable sitting distance, a slot in the rod enabling this to be done, whereupon a thumb screw makes it fast.

When it is desired to get the chair out of the way, its back is folded down, the screw is loosened and the chair, after being slid inward along the slot, is pivoted at the bracket.

This accomplished (it takes but a moment), the chair rests on its feet beneath the table facing the opposite way. A reversal of the process brings the chair into view again.

## Fish Products Being Offered In New Forms

"Salmon loaf," a paste made by mixing salmon flesh with flour and other ingredients, is now put up in cans for market by several packers on the Pacific coast.

One leading packer is canning a "straight salmon" paste, with admixture of oil and spices.

A cannery on Chilkoot Inlet, Alaska, is putting up smoked salmon shaved to thin strips, like dried beef, and packed in oil. It is exceedingly palatable, and specially good for sandwiches.

Another canning concern at Point Roberts is packing salmon sashimi, which are prepared by grinding the fish fine, cooking and seasoning with spices. They have only to be warmed over to be ready to eat.

A Seattle firm has been experimenting with the manufacture of wienerwurst sausages from salmon and halibut. Another company, on the Columbia river, put up in cans so-called "fish pudding," made by grinding salmon flesh and mixing it with milk and eggs. It did not prove a success commercially.

A market in much of the waste of the salmon fisheries has been found with farmers and poultrymen, who are demanding great quantities of fish meal and scrap for mixing with other feed for cattle, hogs and chickens. This fish feed causes animals to take on weight rapidly.

## Pundit Tells of Planes of 500 B. C.

Now comes Dr. Isbal Ali Shah, a pundit of India, with a statement that in his country airplanes were familiarly known 24 centuries ago. Representations of them, he says, are found in rock sculptures dating back to 500 B. C. in Southern India.

Indeed (so he declares), "flying carriages" are spoken of in Brahmin books written even earlier than that.

A stirring piece of literature, written about 500 B. C., tells how Rawan, king of Southern India, was encasing arms and dropping bombs causing many casualties. Eventually, he was slain, and his "flying carriage" fell into the hands of the Hindu chieftain Ramchander, who flew in it all the way from Ceylon to his capital at Ajudhia, in Northern India.

In the Mahabharata, one of the oldest of Brahmin classics, mention is made of the gift of a flying machine by a king to a brother monarch, as a token of friendship.

The bombs spoken of in the story of Rawan are called "explosive torches," which, the tale explains, were thrown down upon the heads of the enemy.

The method of making these primitive bombs is described in other ancient books. A pastebore cylinder two feet long was filled with a mixture of charcoal, saltpeter and niter, to which nails and sharp pieces of glass were added. The fuse of cotton fiber, was ignited before the "torch" was thrown. When the flame from the fuse burned to the body of the bomb there was an explosion, terrifying to the enemy.

Motor Street Sweeper

One of the latest cleaning devices for highways is a motor-propelled vacuum street sweeper which sucks the dirt into a box, the capacity of which is two cubic yards. When the box becomes filled it automatically dumps, leaving the dirt in a neat pile.

## The Sporting Chance

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of it. It's simply got to be a habit with me.

"We've been married nearly twenty-seven years, and I've had to go to the pen six times merely as a matter of self-respect. But, as soon as I get out, I'd go back to her like a damn fool. This time I went up for life. Habitual offender, you see. But, damn it all, what do you suppose happened? The fellow that actually committed the crime I was sent up for blew into the state's attorney's office in Chicago a couple of weeks ago and confessed. Said he couldn't stand seeing an innocent man suffer in his place. And, mind you, I had pleaded guilty. Can you beat it? They turned me loose a week ago, and here I am, the same old boob—trailing her down again. Of course, she doesn't know I'm out. I didn't want her to know it till I walked in on her—and, besides, I thought I was entitled to a few days of real freedom. I've got a daughter working in Chicago—grown-up girl and as fine as they make 'em. Naturally I steer clear of her, no wishing to have people get on to the fact that her dad's a bad one—so I had a pal of mine—a lawyer—find out from her where her mother is living. That's how I happened to learn she was—What say?"

"I said, is she a manicurist?" repeated Mr. Crumley, seizing the rail for support. His brain was spinning.

"She is, and a blamed good one, if I do say it myself. See here, what do you know about my girl?"

"Never mind," murmured Mr. Crumley, tightening his grip on the rail. Things seemed to be going round a little faster. "Excuse me, you were saying?"

"That's how I found out she had settled in this burg. You won't believe me, I suppose, but at least five times on the way down here from Chicago, I took the most desperate chances on being killed, and every track I came through all right. I let a brakeman kick me off a freighter last night—a little guy no bigger than you—and I was unconscious for God knows how long, lying smack across the rails on the north-bound track. The northbound flyer bit an automobile at a crossing not more than half a mile from where I was lying, killing three people, and never even got to me. No, sir, it was written that I had to come back to her, and here I am, hating myself like poison—but doing it."

"What is her name?" oozed thickly from Mr. Crumley's lips.

"I don't know. She changes it every time I get sent up. Good policy, you understand. She's one of the slickest little business women going. Now, mind you, I shan't be able to stick it out with her for more than a week—it's absolutely impossible for me to live with her longer than that. But—"

"What is her business? Hurry up! Don't take all night. What's her business?"

"Why the excitement? Don't pinch my arm like that or I'll biffl you one over the—"

"Is she a milliner?"

"She is."

"Got two children? Boy and girl?"

"Right! By gosh, I see you know her."

"You bet I know her," barked Mr. Crumley. He was on the point of adding, "She's my wife!" but thought better of it. Now that freedom and happiness and the joy of living opened up a beautiful vista

## FIRE! Disastrous Blazes in Omaha

(Continued From Page One M.)

would not let me do. I did not realize I was so seriously injured. And I was afraid that if they carried me home the wife and family would be frightened. I finally agreed to be taken to a hospital, where I remained three months."

John Coyle, battalion chief on the South Side, was captain of engine house No. 2 on Thanksgiving morning, November 26, 1920, when four of his men were killed at Allen Bros. wholesale grocery house. When the fire

department arrived the middle section of the first floor of the five-story building was a roaring furnace. Lieutenant Burmeister of Hose company No. 2, with three of his men, Leroy Lester, H. C. Goldborough and William Barrett, carried a line of hose into the middle section of the building, which was burning fiercely. They had gone about 15 feet into the building when the floor gave way with a crash and the four men were thrown into the midst of the burning mass.

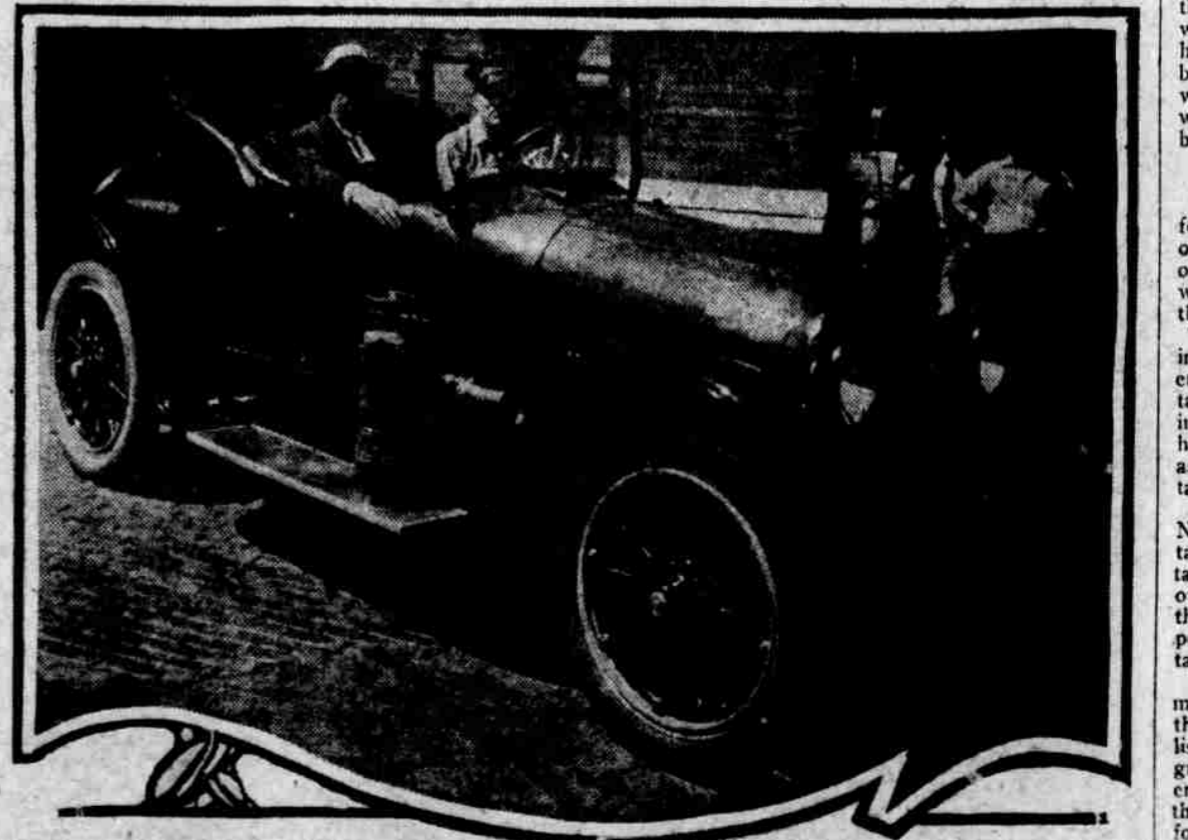
Series of Groans

"I called to the boys just before the floor caved in to come out, but it was too late. Their only answer was a series of groans which I will never forget," said the battalion chief.

The alarm for this fire was sent in at 3 a. m. In a rear room of the engine house on Tenth street a table had been set for Thanksgiving breakfast. Four men of this house did not return to join their associates at the Thanksgiving table.

Capt. Charles R. Fleming of No. 16, Patrick H. Dempsey, captain of No. 14, Fred Verweka, captain of No. 9, Thomas Tobin and others of the old guard have been through all sorts of thrilling experiences and they all seem to take it as part of the day's work.

There are many other brave firemen, some of whom are still in the service, others on the retired list and some who have made the great sacrifice. These fire fighters are reticent about relating their combats with the destructive force of combustion. Through intense heat and blinding smoke they rush at their own peril to save the lives of others.



Chief Charles Salter, 25 years with the fire department. He joined when it was a volunteer organization.

"Oh, come on! Be a sport. I feel like throwing money away."

"I am going to see my wife—damn her!—and say, are you taking me to her?"

"I am," said Mr. Crumley.

The stranger stopped suddenly.

"Hold on a second. I've got a favor to ask of you before we go any farther. I know I'm going to regret this thing tomorrow. Inside my three or four days I'm going to wish I was in jail—Aha! You thought I was going to say hell, didn't you?—and I want you to promise me one thing. I stood by you tonight, and I want you to stand by me tomorrow or day after tomorrow at the outside. I want you to positively identify me as the man who held you up and robbed you tonight—and gave you that rap on the head. I did as much for you tonight, old chap. I worked out that sporting chance for you, and if you've got a grain of decency in you, you'll see that I get the same sort of a chance. Of course, I realize that luck was against you, but that wasn't my fault. You can easily get me five years by pointing me out to a cop as the man who knocked you down and robbed you—Oh, you needn't worry! I'll give you the signal when you're to do it, old man. All I ask of you is not to fail me. What do you say, pardner?"

"You may depend on me," said Mr. Crumley, solemnly, as they turned into Fourth street. "I'll do anything—anything, to help you out, old fellow."

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Bread Sells at 2 Cents

A Loaf at South Bend

South Bend, Ind., Sept. 17.—Bread is being sold at the cheapest price ever offered here—2 cents a loaf.

It has dropped from 15 cents to 5 1-2 cents and 2 cents per loaf, according to size, as a result of the price-slashing war.