

POPULAR SCIENCE

Tea is a germicide according to a Boston physician, who claims it is an especially rank enemy of the typhoid bacillus.

Missouri led in the production of lead in the United States in 1907, pushing Idaho, the leader in 1906, back to second place.

Although the house fly lays eggs, the flesh fly, better known as the "blue bottle," produces living larvae, about fifty at a time.

A \$10,000 plant for the production of ozone by electrolysis, the largest in the world, has been completed at a Pittsburgh hospital.

A Norwegian factory receives power for six turbines from water that falls 3,287 feet through a tunnel from a lake seven miles away.

Peru has officially adopted as its standard time that of the seventy-fifth meridian, the same as "eastern" time in the United States.

The electrical equipment of the Cunard liner *Mauretania* includes over 250 miles of cables, and more than 6,000 16-candle-power lamps.

Three parts by weight of boracic acid to one of powdered borax makes a good compound for brazing steel. It should be applied as a paste with water.

On the west coast of India is found a species of oyster, *Placuna placenta*, whose shell consists of a pair of roughly circular plates about six inches in diameter, thin and white. At present these oysters are collected for the pearls which they often contain, although few are fit for the use of the jeweler. But in the early days of English rule in India the shells were employed for window-panes. Cut into little squares, they produced a very pretty effect, admitting light like frosted glass. When the Bombay cathedral was built, at the beginning of the eighteenth century, its windows were paneled with these oyster shells. In Goa they are still thus employed.

Prof. Arthur O. Lovejoy, as the result of an inquiry into the origin and meaning of "fire cults," so common among ancient nations and among modern savage and barbarous tribes suggests that many races conceived the "sacred fire," not as a practical convenience or an ancient custom or a means of frightening demons, but as a vehicle of life, or magical energy, the prosperity of the household or tribe depending in part on the perpetuity, vitality and purity of the fire. It was thought of as subject to a tendency to grow old and weak, like all natural forces—hence the custom of periodically renewing it. This conclusion is based partly upon the statements made by the Iroquois Indians and the Maoris.

Dr. Robert E. Coker, writing to Science from Lima, advocates the protection of the guano-producing birds—the "guano," a species of cormorant, and the "alcantraz," a species of pelican—in order that the Peruvian deposits of this valuable manure may be in part renewed. The great ancient deposits he says, are now almost non-existent. Only the lower grades of guano are left. But the birds annually make fresh deposits on their nesting grounds, and if they were properly protected, he believes that the annual supply of fresh deposits would be largely increased. The birds, he says, should no longer be treated as wild animals. They should be regarded as valuable domestic animals. At present they are decreasing in number, but this decrease could be checked. They are also driven from their haunts during the season when they should be allowed to remain there. When driven away by the presence of man during the nesting season, they spend a large part of their time upon water, or on small islets and cliffs, where the deposits are either lost entirely or are rendered less available.

Gathering Roses.

I've gathered roses and the like in my glad and golden June, but now, sown down the world I like my weary hands are filled with prunes. I've gathered roses o'er and o'er, and some were white and some were red, but when I took them to the store the grocer wanted eggs instead. I gathered roses long ago, in other days, in other scenes, and people said, "You ought to go and dig the weeds out of your beans." A million roses bloomed and died; a million more will die to-day. That man is wise who lets them slide and gathers up the bales of hay.—*Emporia Gazette.*

Scoping Up the Wreckage.

The owner of the racing automobile was a novice at the sport. Naturally, he felt rather mystified when the expert driver handed him the following bill on the morning after the race: Gasoline, \$60; repairs to car, \$70; cutting expenses, \$1,000.

"What the deuce," said the amateur owner, "is the meaning of this item, 'Cutting expenses?'"

"Oh, that," observed the chauffeur carelessly, "represents the surgeon's fee for renovating my mechanic."—*Judge.*

Setting It Right.

"In your paper this morning, sir, you called me a 'bum actor.' I want an explanation."

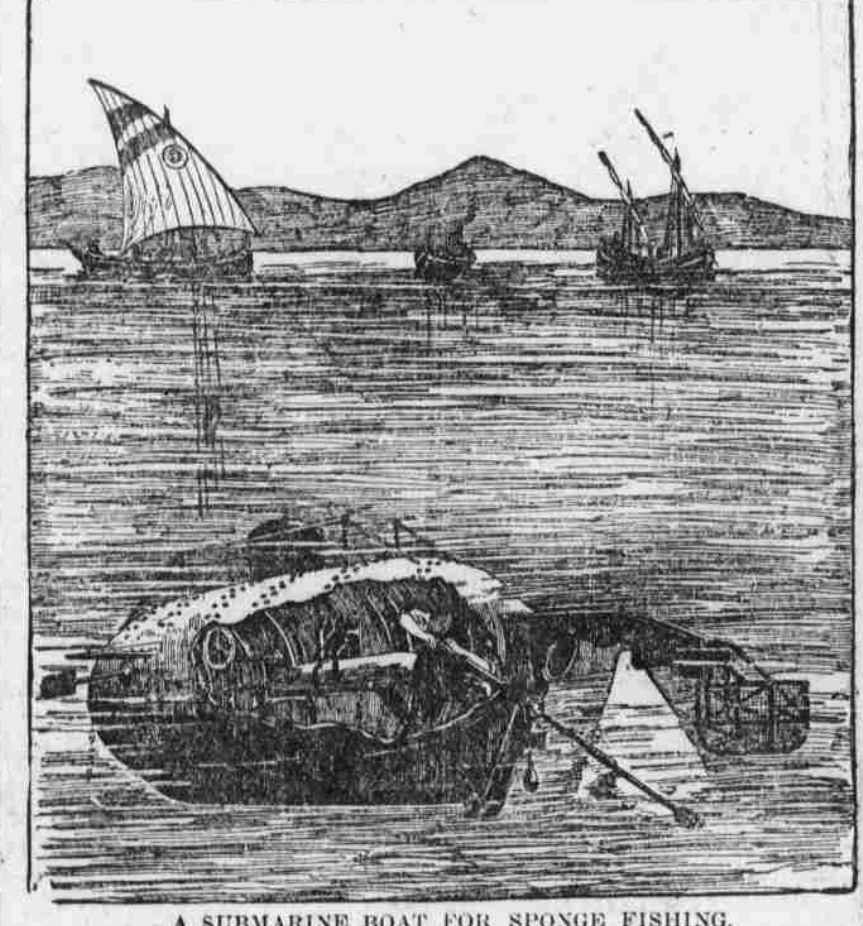
"I shall be happy to explain, young man. That word 'actor' was inserted by the proofreader, who thought I had omitted it accidentally. I shall take care that it doesn't happen again."—*Chicago Tribune.*

A turkey is never tough because he is so good he is never allowed to become old.

A Sub-Marine Boat for Sponge Fishing

Through the ingenuity of Vicar General Raoul, of Carthage, a submarine boat for sponge fishing has been perfected, and bids fair to displace the dangerous and health ruining process of sponge gathering by divers. The submarine boat of Abbe Raoul is very much smaller and simpler than its naval prototypes. It is 10½ feet long and 5¼ feet in diameter and carries two men. Its general form is that of a cylinder with rounded ends. The only opening is a man-hole at the top, which is surmounted by a turret hermetically closed by a cover that can be operated equally well from below. When the vessel is afloat, it is possible to walk on the convex top with the aid of steel handrails which extend fore and aft on each side of the turret. The vessel is caused to sink by opening three sea-cocks and thus filling as many water ballast tanks. Two of these tanks, placed amidship in the bilge, to port and starboard, have a combined capacity of 154 gallons of sea water, the weight of which balances most of the buoyancy and brings the top of the boat nearly awash. These two tanks are to be kept filled, as a rule, but they can be emptied by means of a hand pump. The third tank, which is placed between the other two, holds only seventeen gallons.

The water flows in directly from the sea and is forced out by connecting the tank with two reservoirs which contain air at a pressure of 150 atmospheres.



A SUBMARINE BOAT FOR SPONGE FISHING.

Small movements of ascent and descent can be made and controlled readily by manipulating the compressed air valve. In case of accident a lead weight of 1,500 pounds, which forms the amidship section of the keel, can be instantly detached, causing the lightened vessel to rise rapidly to the surface.

The boat is propelled by means of two steel oars, with feathering blades. The oars pass through the hull in water-tight spherical joints which give freedom of motion in every direction. Similar joints are used on the torpedo tubes of warships.

Attached to the forward fixed section of the keel is a wheel on which Abbe Raoul expects his unique vessel to travel over the level bottom of hard sand on which the sponges are found. By regulating the supply of compressed air to the small ballast tanks the pressure of the wheel on the sea bottom can be made as small as is desired, and there is no apparent reason why the vessel should not be propelled over the bottom by the oars—for it has no other motor. The purpose of this device is to evade the necessity of rising from the sea bottom, and consequently drawing on the supply of compressed air in moving from place to place in search of sponges. Raoul's first boat had a similar wheel, which worked very well.

The sponge fishing apparatus consists of a movable arm which projects from the lower part of the curved bow, through a water-tight spherical joint, and carries cutting pliers at its extremity. By means of this device, operated by a man inside the hull, the sponge is cut loose and deposited in a large iron basket suspended from the end of a fixed tubular arm of sheet iron, which occupies nearly the place of the bowsprit of a ship. To the middle of this fixed arm are attached electric lamps and a reflector for the purpose of illuminating the sea bottom, which can be observed through a bull's eye in the bow of the boat. These lamps, as well as those which light the interior of the vessel, are supplied with current by a small battery of accumulators. A ball of lead attached to a steel wire can be raised and lowered by means of a winch inside the tubular arm, and thus serves the purpose of an anchor. The winch is operated by gearing terminating in a shaft which passes through a stuffing box into the interior of the boat and which bears a crank handle at its inner end. Provision is

also made for telephonic communication between the submerged boat and a floating vessel.—*Montreal Star.*

LION INVADES THE CAMP.

African Traveler Tells of an Exciting Adventure in Thorn Inclosure.

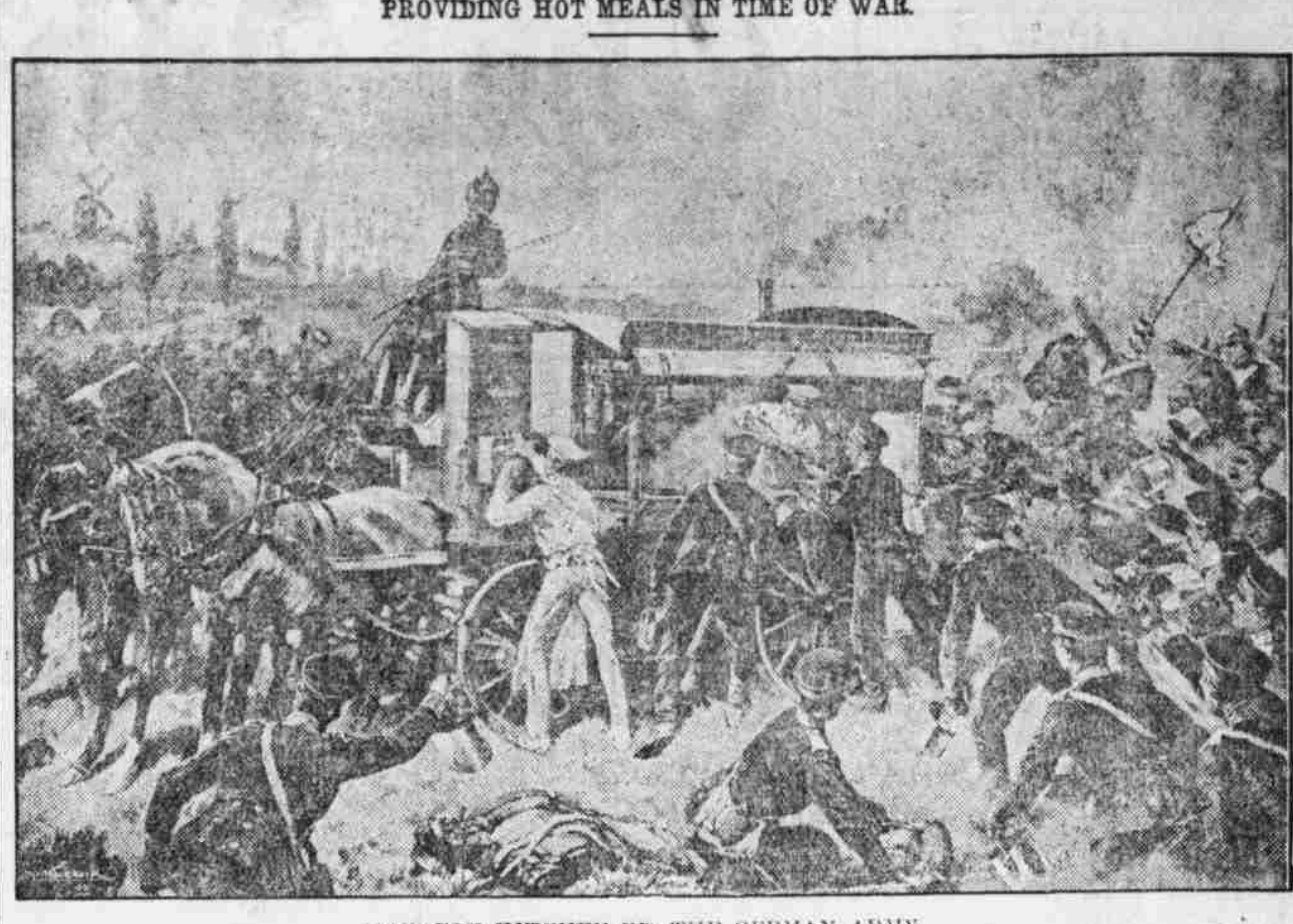
"When in Somaliland, Africa, I had an exciting adventure with a black maned lion," writes a correspondent "I had intended to reach a village one night, but it was getting dark, and we were a couple of hours' march off; so finding an old zereba, or thorn inclosure, we went into it. This zereba covered half an acre. It was only about four feet high and four feet thick, the thorny branches composing it having sunk down and fallen apart.

"We repaired about 100 yards of it pitched our tent, and the cook got his fire lighted, gave me some dinner, and I turned in. Our nineteen camels are squatted in a circle to the right of the tent, our horses were tethered near to them and our twenty-one men lighted three or four fires, cooked their food and lay down to sleep around the camels. We also had five donkeys tethered to two or three saplings, which were growing about two paces in front of the tent, and, therefore, toward the center of the zereba.

"About 2 o'clock in the morning I was awakened by two feeble brays, followed by a third. Lighting a candle, I tumbled out in my pajamas and got hold of my rifle and a couple of cartridges, to meet the Somali hunters showing their woolly heads through the tent door, saying, 'Waraba!' (hyena). Deep growls were going on, and I at once felt sure that it was no hyena, but a lion, in the zereba. Fortunately, the camels did not stampede.

"It was pitch dark, but I saw that one of the five donkeys tethered in front of the tent was gazing intently toward the left and center. The other four

one who understands as you understand!"



MOVABLE KITCHEN OF THE GERMAN ARMY.

The statement that an army marches on its stomach is recognized by the German military authorities as containing much truth, and thus have come into being the portable field kitchens of the type illustrated. Meals can be cooked in these kitchens while the kitchens themselves

are being driven from place to place at full speed, and each kitchen can provide three hot meals a day for 300 men. The contrivance was tested during the recent maneuvers with much success, and was inspected by the Kaiser, who tasted some of the food cooked in it and pronounced it excellent.—*London Illustrated News.*

OCTOBER.

Beneath the tender autumn sky
Silent the hills and woodways lie,
Half folded in their robes of mist;
And o'er the mass of turning green,
Beyond the hyaline, serene
The clouds in tint of amethyst.

The crickets sing about our feet,
And there's a gleam of winter wheat
Far down the hill, in mellow beams;
In fields, and dells, and steepy woods—
A very heaven of stillness broods—
Till life seems on a sea of dreams.
—*Woman's Home Companion.*

The One and Only

"Are you quite sure?" asked Adela. "Absolutely sure!" answered Dick. He leaned over the back of the chair in which he sat, and let his long thin hands frame her face, with the fingers locked beneath her chin.

"Absolutely sure!" he repeated. His tone convinced himself, but left Adela a little doubtful still. The careless, almost furtive, kiss with which he had brushed her lips a moment ago, was not the kiss of which she had dreamed—had dreamed through times of tens and twenties up to and beyond her last, her thirtieth birthday. For he was, and always had been the only man for her; though she, for him, had remained just one of the many women to whom, under various disguises, discreet, restrained, but always artistic, love could, at pleasant intervals, be made.

"And are you happy, dear?" she wondered.

"Of course!" he fervently told her, without pausing to analyze his emotions.

And his hands caressed the brown smoothness of her hair.

Then, in the quiet half-light of the February evening, his thoughts ran away with him and gave the silent lie to his words. They carried him back to the dance at the concert hall three months ago, when he had quarreled, irrevocably quarreled, with Kathleen Steele. He had not seen her since—dear, fluffy little person that she was, with big blue eyes which he used to think foolish before they learned to sparkle for him. She, conquered as all his captives were more by the intense sympathy which he exhaled than by any physical or facial charm, had promised to marry him as soon as he could save enough to furnish the little house and studio somewhere near Regent's Park. And now he was here in this big, proper, many-hand-maiden suburban villa, engaged to Adela—Adela Wint, to whom he had come for consolation in that trouble, just as he had come to her for consolation ever since he put on his first dress-coat.

And he realized that he wasn't happy at all—and half a hundred other things besides.

"Tell me," said Adela, "tell me you love me, Dick!"

"You know I love you, dear!" he said, knowing that he lied.

"Why do you ask?" he went on.

"I wondered," she explained. "I just wondered whether it wasn't the need for sympathy that made you ask me to marry you! And that you thought you were in love with me because we were beautifully in tune together and because I was able to console you!"

She was right; as always, so wonderfully right. They had been, as she put it, so beautifully in tune together, and he had got carried away by his confounded temperament and the necessity for putting an artistic finish to the episode.

For the moment he paused in conflict with himself. Honor and honestly warred with indecision and weakness. Then honor and honesty lost the day, betrayed by the too-noticeable absence of calm which spoiled his face.

"There's no one quite like you, Adela!" he truthfully assured her. "No

one who understands as you understand!"

"Ah!" she happily smiled. "But I, you see, have made a life-long study of you! And if I didn't understand, who in the world should?"

The picture of Kathleen flashed across his mind; Kathleen in a blue frock which matched her eyes, Kathleen with the bluish rose cheeks and laughing lips that challenged and provoked his frequent kiss. Not even Kathleen understood as Adela did, but then—well, Kathleen was just everything that Adela could never be!

But he put the picture out of sight, turned its face, as it were, to the wall.

"Have you, then, made an exhaustive study of your servant?" he questioned, searching her heart with feigned humility.

"Always! Always!" she answered. The sincerity, the look, the self-abandon that underlay every word which she spoke killed the last germ of computation in him. To-day was to-day; to-day with its great moments, such as he loved. They should live the present hour, at any rate. To-morrow he would write what he could not bring himself to speak.

So for the next half-hour he made love to her out of the ripe fullness of his own experience. And his philosophy was as the Spaniard's. To-morrow, to-morrow, always to-morrow—which means the completest plucking of to-day.

Then he met Kathleen Steele at a dinner party.

Kathleen was there, not fortuitously, but by design. For she had found out

how much she cared for him, and, incapable of hiding her emotions, had worn her heart quite openly upon her sleeve. So people were trying to bring them together again, and the dinner party was a ballon d'essai.

As he went into the drawing room she was the first person who caught his eye. His heart hammered at his ribs and a swift desire to take her, then and there, in his arms came upon him. He shook hands with his hostess in a dream, looking over her shoulder to where Kathleen sat with half-averted head; and, the barest civilities exchanged, he walked straight across to where she sat. She was talking to another man—but that didn't matter to him.

"Kathleen!" he said.

She put out her hand. He took it with a new surprise at its comparative limpness, which he never remembered having noticed before.

"How d'ye do, Dick!" she began with ill-acted coldness. "It's ages since I've seen you!"

Somehow her voice jarred upon him. There was a curious quality in it—but what that quality was he couldn't quite detect.

even against Kathleen herself—came into his heart.

So it was all a put-up job, was it, he thought. A reconciliation over the soup and declaration of eternal affection after dessert. He would see himself somewhere first. If they came together again they should come together in his own way and not at the time and place dictated by well-meaning friends!

Then they went down to dinner. And, though she was as beautiful as ever, she failed, in some intangible, elusive, indefinable way, wholly to please his critical eye. But how she failed he was utterly at a loss to discover.

Then, hating Kathleen's voice, he tried to lose himself in the contemplation of her beauty, to watch the pleasant lights in her blue eyes, eyes which were, it seemed, always gay. They were too gay, he thought. Adela's eyes could be gay; but then he loved their sadness best. But, of course, though in a way he was very fond of Adela, he could never love her as he had loved—and could still love Kathleen.

Still at 10 o'clock next day he went to see Adela.

She saw him come up the short drive as she sat writing letters at the study window, and she, herself, opened the door to him.

"Is anything the matter?" she asked a little anxiously.

How soft her voice sounded—and how different from Kathleen's!

"Quite a lot!" he answered. But he smiled.

She turned towards the study with a gesture. As he followed her the quiet neatness of her dress and hair gave him a sense of perfect taste. Everything about her was, he felt, just right, impossible to better.

Inside the study she shut the door.

"Now," she said, courageously but with fear cold at her heart, "tell me all about it!"

For answer he walked up to her and took her in his arms, and kissed her passionately upon the lips.

"You never kissed me like that before!" she marveled, as he held her away from him to look into her eyes.

"Perhaps not, dear!" he admitted. "But now!"

And he caught her in his arms again.

"What is it that you have to ask?" she presently ventured.

"Then, since the crowning wisdom was come to him he answered gravely: 'I want you to marry me immediately!'"

And for once, perhaps for the first time in his life, he knew his own mind.



IS ANYTHING THE MATTER?

A Lemon Instead.

"Do you know," a pretty bride of three months said to a friend the other day, "I think all these jokes about young wives having so much trouble with butchers and grocers and being cheated and all that is just too foolish."

"Then I presume you are getting on all right with yours, dear?" her friend inquired.

"Why, of course I am! Anybody would if they would just deal at a reliable place." The young wife declared.

"Now there is my grocer," she continued, "he is just as obliging and thoughtful as can be. The other day I ordered a dozen oranges, and when they came I found there were but eleven in the bag, so I went to the store again and told him so."

"Why, yes, ma'am," he said. "I know there were. I had put in a dozen, but I noticed that one of them was spoiled, and, of course, I wouldn't send you any but the best goods, so I took it out."

"Now, don't you think that was nice in him to be so thoughtful and honest?" she concluded.—*Harper's Weekly.*

Otherwise Impossible. Calvert, Jr.—Tolstoy must use white ink. Balty Moore—How so? Calvert, Jr.—He is said to have been "writing on the Russian government," and dark ink wouldn't show on a black surface.—*Baltimore American.*

A woman gets more enjoyment out of a good cry than a man does out of a hearty laugh.