

# Science AND INVENTION

Gas poisoning from gas engines has become so common that German authorities urge that cylinders of oxygen be kept near, and that engineers be taught to apply inhalations to resuscitate victims.

Experiment has shown that an electric arc can be employed under water for fusing metal. The intense heat turns the water surrounding the arc into steam, thus forming an insulating cushion of vapor. It has been suggested that with proper apparatus the electric arc could be employed by divers for quickly cutting through large chain cables or iron plates under water.

The "axle-light" system is in use on the trains of the Atchafalpa, Topeka and Santa Fe railroad on an extensive scale. Each car has its own storage batteries supplied with electricity generated by the axles of the wheels, and the locomotive headlights derive their illumination from the same source. It is estimated that each full train, exclusive of the locomotive, develops nearly 500 candle-power light.

Within the past few years the eucalyptus has been introduced in Florida, and its kindly growth there is believed to indicate that it might be extensively cultivated in the southern parts of that State. The eucalyptus is of very rapid growth, but it cannot withstand frosts. It was planted in California from Australia many years ago, and now flourishes so abundantly on the Pacific coast that its wood is extensively employed for fuel, posts and lumber.

The production of oxygen and hydrogen on an industrial scale by the decomposition of water with electrolytic apparatus in Germany has led to the suggestion that hydrogen thus produced may find a wide field of employment as a lighting agent. It is now used for inflating military balloons. For lighting purposes it is compressed in steel cylinders. With a proper burner it is said to be a cheaper illuminant than acetylene, the relative cost for equal illuminating power being 25 for hydrogen to 50 for acetylene.

Everybody who has used a microscope has no doubt regretted the difficulty of seeing small insects, and other living objects not of mere microscopic dimensions, magnified while alive and moving freely in the field of view. A recently invented English instrument, called the vitascope, is said to supply a desideratum in this respect. It is shaped like a telescope, a foot long when closed, and an inch and a half in diameter. The lenses are so combined that an object 20 inches away may be magnified 12 diameters. At a distance of 5 inches the magnification is 60 diameters.

## BOAT HAS EXPRESS SPEED.

### Western Designers Expect Their New Craft to Beat All Records.

A craft with the speed of an express train has long been the dream of several motor-boat enthusiasts along the upper Mississippi River and several designers have been working together with the result that they have produced a boat with which they expect to shatter all the present records, says the New York World.

Frank Titus of Fountain City, Wis., formerly owned the fastest boat on the river in the famous Bat, the small craft which attained a speed of nearly twenty miles an hour with a nine-horse-power engine and for three seasons held the speed record on the upper river. The Bat has been sold to a physician at Cassville, Wis., and her engines will be used in another craft.

Until the advent of the Chief of Record, formerly owned by A. Gardner of Winona, the Bat outclassed all boats on the river, large and small, and could leave the fastest steamboats in the stern waves.

Gardner's boat, 25 feet long, with a nine-horse-power engine and 4-foot beam, was, until the middle of the season, the fastest boat in that territory. At Wabasha on July 4, in the motor-boat races, the Chief of Record outran the Bat and other boats entered and finished nearly a half-mile in the lead in a six-mile course. The Chief of Record attained a speed of twenty miles an hour and for the horse-power installed was considered the fastest boat between St. Louis and St. Paul.

Late in July the Skip, owned by Eugene P. Gleason, of LaCrosse, was launched at Red Wing and clearly outclassed other water racers. The Skip is 32 feet long, with a 4-foot beam and is equipped with a twelve-horse-power motor in three cylinders. The Skip has attained as high as twenty-two and a half miles an hour, but through failure to provide a sufficient cooling apparatus for the engine is unable to maintain this pace indefinitely.

The Skip now holds the speed record on that part of the river with the exception of a boat of the same design, which is 25 feet long and is

equipped with a sixteen-horse-power three cylinder motor. The new boat, however, has not entered into competition with the speed records, although she is said to run nearly a mile an hour faster than the Skip.

A remarkable feature of motor boating on the Mississippi is the speed attained by boats with little horse power. While the crafts on the Atlantic coast and the lakes require from fifty to seventy-five horse power before a speed of twenty miles an hour can be attained, none of the fastest boats on the river has more than sixteen horse power and few of them have over ten. Many of the engines used in the river craft are of light design, and while the horse power is small they attain a speed of from 800 to 1,000 revolutions per minute.

Motor boating on the Mississippi has taken a remarkable advance in popularity in the last season. Motor-boat clubs have been organized at all of the smaller towns along the river, as well as at the cities, and there is now a movement on between the clubs looking toward the organization of a Mississippi River motor-boat association, to include all of the smaller organizations.

Where a couple of years ago there were a dozen launches in LaCrosse waters there are now more than 150, ranging from the sixteen-foot hunting sloop to the magnificent fifty-foot cruisers of the more wealthy boatmen.

## ABOUT THE TAMALE HUSKS.

### New Industry Developed by the Demand for the "Hot Things."

"Do you know," said the tamale hater to a Kansas City Times man, "that a good part of the profit in the tamale trade goes to the farmers of Johnson County, Kansas?"

"Oh, shucks!" returned the other. "Yes, that's just it. The farmers out there supply the Kansas City market with the corn husks the tamales are wrapped in, and it would surprise you to learn the extent of the business. Any old corn husk won't do for the business, either. If you'll look at these you'll see the texture is very close, the surface smooth and that the lengths are uniform. Only the inner husk is used, the fine white covering that grows next to the ear. The proper length is about nine inches, to allow for the ends being folded over the tamale when it is steamed, as you see them now."

"Why, who'd go to all that bother for a dinky little business like this?" asked the listener incredulously.

"Bother? Dinky? Say, do you know these corn husks are shipped in here in 500-pound bales? That's quite a respectable sized industry, I take it. At any rate, the Kansas farmers have found it profitable enough to go to the expense of buying presses to bale the product and a large agricultural supply house in Kansas City finds it worth while to carry it in stock and cater to the trade of the tamale men."

"What is the particular advantage of using corn husks for this purpose?" asked the listener. "Isn't there anything else that would do?"

"Nothing that would answer as many purposes. The corn husk holds the tamale while it is cooked and at the same time imparts a flavor to it. It also holds the heat as nothing else would."

"Well, it beats me!" said the other man, as they went on. "I never gave it much thought, but always supposed the tamale men bought up all the old mattresses to get their corn husks."

## Woes of the Amateur.



Wife—I wonder why the grass doesn't come up?

Hubby—I'm sure I can't tell. You don't suppose you planted the seeds upside down, do you?

## Ha! Ha! So Funny.

"A firm uptown," said Joakley, "has got up something new to enable you to pick your teeth."

"A new sort of toothpick?" queried Coakley.

"Well, it's a catalogue showing photographs of the handsome false sets they manufacture." — Philadelphia Press.

As a man gets older, he realizes that a good deal of his youthful wit was nothing more than impudence.

Ragtime, Alonzo, isn't necessarily the time to chew the rag.

## SOMETHING FOR EVERYBODY

Andrew Carnegie's library gifts amount almost to \$50,000,000.

The total number of persons in receipt of State relief in India exceeds 1,250,000.

Louisiana has seven million acres of swamp land, which are at present totally useless.

The irrigated districts of Egypt comprise 5,340,000 acres and support 10,000,000 persons.

It is computed that the dew falling in England is equal to five inches of rain each year.

Government experts are investigating seaweed with the object of determining its economic value.

The Chinese have undertaken to nurse their forests, and the officials of the Celestial government have engaged a Japanese expert from Tokio to act as head master for the proposed school of forests at Mukden for a term of four years, with two Chinese as his assistants.

Prof. D. C. Jackson of the Massachusetts Institute of Technology, has been retained by the Massachusetts highway commission to make a report regarding the telephone situation with special reference to the practicability of a reduction in rates and a higher efficiency of service.

"Neatness is essential on the links," said H. J. Whigham, the golfer, at a dinner in Chicago. "At Shinnecock Hills one day I played behind two young and pretty girls. Overtaking them, I heard the younger say 'How many holes on this course, Alleen?' 'Nineteen, dear,' said Alleen, 'including the one in your stocking!'"

Simultaneously with the organization of a pigeon postal service in the French Congo, where the climate makes both ordinary and wireless telegraphy impossible, it is announced that the British government has replaced the pigeon post by wireless telegraphy in both the naval and the colonial service, and that this year's budget contains no appropriation for pigeons.

O'Connell had got a man off at one time for highway robbery and at another for burglary; but on the third occasion, for stealing a coasting brig, the task of hoodwinking the jury seemed too great for even his powers of cajolery. However, he made out that the crime was committed on the high seas and obtained an acquittal. The prisoner lifted up his hand and eyes to heaven and exclaimed: "May the Lord long spare you, Mr. O'Connell—to me!"

The reason why the stomach and intestines do not digest themselves was once thought by Weiland, a German experimenter, to be that they defend themselves by anti-enzymes, or anti-ferments. Dr. Nandor Kling of Budapest now reports these anti-ferments not to be found, but that the mucus present in the inner half of the gastric mucous membrane resists the digestive action of the trypsin and the gastric juice. The digestive organs, therefore, protect themselves by the mucus they secrete.

The population of Japan to-day is just about 50,000,000. The exact figures for 1907 are not yet available, but the estimates just published are based on the average growth of the last thirty years and may be taken as fairly accurate. In each of the five-year periods for which figures are shown, over the past twenty-five years, the population has increased, roughly speaking, by 2,000,000. To-day the estimate is that there are 49,267,744 native-born Japanese in the territory ruled over by the Mikado. — Fall Mail Gazette.

When the members of the British Institution of Electrical Engineers paid a visit of inspection to northern Italy lately, they were interested in a device used to protect the overhead transmission lines of an electric traction system from lightning discharges. The device consists of jets of water, which form a permanent "earth" at the Monbegno generating station on the Valtellina line. The electric resistance of the jets was said to be sufficient to prevent a serious loss of current, while not too great to enable them to serve for protection against lightning.

It is said that "moon blindness" in a horse is caused by "wolf teeth"—two small surplus teeth just in front of the first upper pre-molars, one on each side of the upper jaw. An authority says: "The 'wolf teeth' do not cause eye disease or any other harm, and usually are not discovered until the eye disease appears. The eye trouble is 'periodic ophthalmia' (moon blindness), which is hereditary and incurable. Thousands upon thousands of horses suffer from this eye disease, yet have not a 'wolf tooth' in their heads. The important matter to remember in connection with periodic ophthalmia is not the significance of the 'wolf teeth,' but the necessity and importance of rejecting from breeding operations all afflicted with periodic ophthalmia, or cataract, which results from repeated attacks."



## Farm Labor.

One of the greatest problems confronting agriculture is competent farm help that can be secured at a compensation proportionate to the net earnings for the farmer. Manufacturers, mining and railroads furnish employment to a vast number of workers who are under trained foremen and their wages are graduated according to the amount of product they can turn out. Manufacturers and transportation corporations are capitalized and the investment is required to earn a fixed dividend for the stockholders. The earnings are expected to exceed the dividends operating expenses and fixed charges to create a surplus fund to conduct affairs in emergencies and during panics without stopping dividends.

The farmer is compelled to compete in the open market for help to conduct his agricultural operations. While the farmer is delighted if his investment returns a reasonable profit, he has no recourse if the season's results are conducted at a loss. The manufacturer in times of financial stringency to protect stockholders discharges a part of his force, reduces their wages or runs his plant on shorter hours. The farmer can only protect himself from exorbitant wages by the purchase of costly labor-saving machinery.

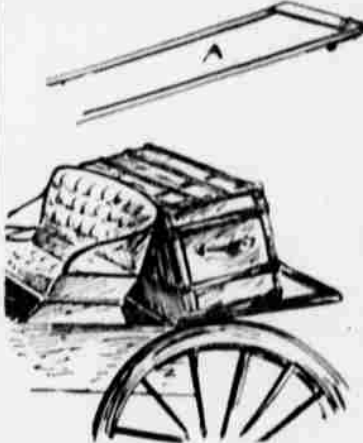
The world moves forward and the higher cost of living, the increase in value of farm lands and the higher prices of agricultural products will not soon revert to old low standards. The farmer will not find cheap labor offered in the market except by inefficient employees.

Agriculture is annually becoming more of a business proposition and the standard of labor advanced on the farm. The farm laborer must understand modern agricultural machinery and how to operate it to obtain employment. Machinery is too expensive to be trusted with inexperienced operators, and the man who can skillfully handle modern farm implements is in demand on the farm at a wage scale that will compare favorably with the employee in industrial enterprises.

Farmers are now practical business men and the majority of them keep books on farm operations and know the amount of their profit and loss annually. Farming as a profession is becoming more attractive and diversified and labor needs to be more skilled to meet new conditions of agriculture. The inducements are potential for young men to qualify as farm laborers and the field offers as brilliant prospects as any other profession. The farmer is not so much in quest of cheap labor as efficient help and is willing to pay a wage scale proportionate to the ability and proficiency of the laborer as an up-to-date farm hand. — Goodall's Farmer.

## Carrying a Trunk in a Buggy.

To carry a trunk or any bulky article in a small buggy, make a frame out of two pieces of one and one-half by two-inch scantlings eight feet long. Nail a board across the ends as shown.



HOW TO CARRY THE TRUNK

In A of the accompanying illustration, place the free ends beneath the seat and under the foot rest in front, letting the frame extend behind the buggy. The trunk or box, explains Prairie Farmer, can then be placed on the end of the frame behind the seat of the buggy. It should be tied on.

## Eggs Various Preserved.

Eggs are preserved in many other ways besides cold storage. Often the preservative is effected by excluding the air by coating, covering or immersing the eggs, some material or solution being used which may or may not be a germicide. An old domestic method is to pack the eggs in oats, bran or salt; another consists in covering the eggs with lime water, which may or may not contain salt. In Germany sterilization is effected by placing in boiling water from twelve to fifteen seconds. Sometimes they are treated to a

solution of alum or salicylic acid, or methods consist in varnishing with a solution of permanganate of potassium with colloidal or packing in peat dust, powdered wood ashes, treating with a solution of boric acid and water glass, varnishing with vasoline, preserving in kerosene, preserving in a solution of glass. The last three methods proved most successful. Inferior will keep much better than berries by any manner of preservation.

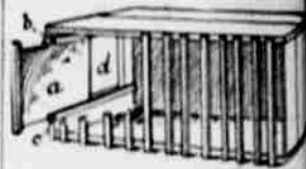
## New Farm Product.

Alfalfa was an unknown crop a few years ago. Now it is one of the reliable and profitable of Texas. It has not been long since the alfalfa was produced only in a few states for family use. Now the alfalfa is one of Texas' best advertisements. Effort to raise for the medicinal plants began with one of the prizing citizens of Grayson County a few years ago. Now this alfalfa is taken up and will be carried all it is worth. The list is longer, and the prices of many other farm products are being offered to be, and the alfalfa is growing more independent. Sugar beet is now being tested. Radio holds first place in the production of beet sugar in the United States with 422,732,530 pounds of sugar, 138,390,560 acres, while Michigan, California are closely matched in production, producing 165,000,000 and 164,000,000 pounds, respectively. Sugar beet crop in this country year brought \$4,500,000.

The present year will be a tant season for experiments with sugar beet in Texas. Let the alfalfa be made under as good conditions as possible. There is really no doubt the results in localities where it is of the right density and quality. Lands that produce fine crops of the ordinary variety or the "turnips in the world" are quite a break a few records in sugar beet given a fair test. — Galveston News.

## Improved Chicken Coop.

The diagram shows a convenient to make a coop for the poultry of which the special feature is the Procure a box of the right dimensions and saw a hole, d, in one end. Strengthen the box with narrow strips of wood, b c, on each side of the



HINGELESS DOOR FOR A COOP

b c. This acts as a groove for the door, a, to slide in. Thus you have a sliding door, which opens and closes with the greatest ease. The front of the coop is enclosed with 2 1/2 inch strips, placed 2 1/2 to 3 inches apart. The top should be covered with a good grade of roofing paper to make it waterproof. A coop of this size should be 2 to 2 1/2 feet long, 16 inches deep and not less than 20 inches high while 2 feet would be better. — H. B. Moneure, in Farm and Home.

## Farm Hints.

The horse is man's best friend, therefore he is deserving of a friend's treatment.

Don't forget that the barnyard manure is the best all-round fertilizer you can obtain.

Pasture makes the cheapest hog lot on the farm and clover makes the best hog pasture.

Don't let money act as a pallor to your heart and shut in all the kindness and happiness.

The animal that has a full, bright eye is apt to be healthy. And a moist nose is another indication of health.

Talk over with the good housewife all the undertakings of the farm. She will have some good advice to offer.

The burning of straw and stalks, except in special cases, is a wasteful practice and has no place in judicious farming.

Every farm should have a pair of scales. It is the only way for the farmer to know exactly where he stands in his buying and selling.

Farm machinery put in repair before the busy season opens means money in the pocket. When it is put away in the fall is a better time for repairing.

The man who keeps his troubles to himself is better thought of than he who burdens his neighbors with them. The neighbors have their own troubles to think about.

Little things on the farm amount to as much in the end as they do in any other business, yet the farmer as a rule does not pay as much attention to details as does the city business man.