

LESSENING FERTILIZER COST

Nitrogen From Air and Hydrogen From Water Combine to Make Cheap Ammonia.

Synthetic nitrogen fertilizers using ammonia as a principal ingredient, may be made at prices to compete with those using nitrogen from such natural sources as Chile saltpeter, Charles O. Brown, consulting chemist of Providence, told members of the American Institute of Chemical Engineers. The nitrogen may be derived from the air by any one of several processes; the hydrogen, which is the other component of ammonia, may be had from water.

Economy in production of hydrogen from water, which is a well-known method, may be effected, Mr. Brown said, through use of a special type of electric cell and through utilization of electricity from hydro-electric power plants at other times than that of the peak load. It is cheaper, he said, to sell such power at a low rate than to waste it, and the manufacture of hydrogen offers a profitable use for it.

Another good source of hydrogen, in the speaker's opinion, is gases of coke ovens. These are two chief sources for what he termed "by-product" hydrogen. Such secondary methods of manufacture were the most suitable of ammonia, may be had from Mr. Brown declared.

Mr. Brown predicted that hydrogen may be produced from coke ovens at the cost of 20 cents per 1,000 feet, and from water at from 25 to 33 cents, depending on the cost of the electricity used. The production cost of anhydrous ammonia, using "by-product" hydrogen, he figured as from 8.34 to 6.32 cents a pound, which would enable the production of commercial fertilizer at a lower cost than that now made from natural sources of ammonia and nitrogen.

ROTTING HURTS THE VOICE

Professor in University Says Vocal Lessons Are Useless After Big Football Game.

Discovered—the reason why schools of music never have football teams.

Vocal pupils would be hoarse as goats for half of the week following every game and the ears of the rest of the students would be way out standard due to heavy duty in the cheering section.

This is vouched for by Prof. E. G. Killen, instructor in voice at the University of Minnesota.

Professor Killen says he would never have to attend a game nor read a newspaper to know how a Minnesota football contest came out. He would be able to reconstruct the game as soon as lessons began Monday morning.

Voice students were practically 100 per cent casualties following the Minnesota-Iowa game and at the close of the Northwestern game, in which Minnesota was victorious. Voice lessons went off smoothly the week after Minnesota lost to Michigan a game so far away that relatively few were present.

Professor Killen's keenest disappointment came this week after the Iowa game. One of his pupils is an oboe player in the Minneapolis Symphony orchestra.

He expected this voice at least to be clear and accurate.

When the man tried to sing it sounded like putting the brakes on a train of heavily loaded flatcars.

Even the oboe player had been to the football game.

Liberty Bell Always on View.

The Liberty bell, treasured American relic, will be made visible to the public, day and night, summer and winter, under plans being formulated by Wilfred Jordan, curator of Independence hall, where the bell rests. Heretofore thousands of visitors have failed to see the famous old bell because the building is closed to the public during certain hours. Under the new plan it is proposed to place at the rear portals of Independence hall a Georgian grill of wrought iron work, so open in character that the bell may be clearly seen at all times. At night it will be illuminated with floodlights.

Sage Advice.

Many men are in order to be independent. They should rather seek character, the only true source of independence.

Pessimists and Optimists.

A pessimist is a man who in every opportunity sees a difficulty—an optimist, one who in every difficulty sees an opportunity.

Human Nature Unruly.

Human nature began a good many thousand years ago; and it is still unruly. Perhaps it ought to be, to be healthy.

First Meerschaum Pipe.

The first meerschaum pipe was made 200 years ago by a Hungarian shoemaker who was a clever wood-carver.

CAUGHT IN PASSING

Laugh at trouble and sometimes you can make it smile faintly. Occasionally Conscience itself is afflicted with a case of "nerves."

Bad luck always gets tired out, sooner or later.

Uncongenial as one may be, others will like him better if he laughs at their jokes.

Men invent women's fashions, but within a 12-month women have added a hundred amendments.

A plain blunt man sometimes enjoys a reputation for wisdom in his commonplaces.

Those who like the solitude of the wilds are made to feel that they ought to apologize for it.

One of the great influences for home staying at night is the highway man.

No one wants to be left out in the cold through not knowing the catch phrase of the popular song.

No one wants children to tell anything but the truth, but discretion is harder to teach them.

The man who doesn't talk has less repenting to do than the garrulous individual.

The hunter who is chased by a bear is lucky if he comes out ahead of the game.

The weight of a woman's first baking is usually twice the weight of the ingredients.

Popularity, if purchased at the expense of base condensation to vice, is a disgrace to the possessor.

What nobler employment than that of the man who instructs the rising generation!

There is nothing more difficult to find than perfection.

He takes the greatest ornament from friendship who takes modesty from it.

During the whole of our life we ought not to depart a nail's breadth from a pure conscience.

Many men recognize nothing as good unless it is also profitable.

There can be no true friendship that is not founded on virtuous principles.

When a man will not listen to the truth, even from a friend, his condition is desperate.

Perhaps Adam wanted to leave Eden because the rules wouldn't allow him to eat any of the animals.

Roman Dentists Capped

Teeth Centuries Ago

There are specimens in the museums in Italy which show that the Romans capped teeth and did bridge work of various kinds in gold, and probably also used gold wire in various ways for the fixation of loose teeth.

The Romans transplanted teeth and a slave maiden was sometimes required to give up a tooth to be implanted in her mistress's mouth, after she had lost one for any reason.

In one of the laws of the Twelve Tablets at Rome, the date of which is not later than 450 B. C., it was forbidden to bury gold with a corpse, except such gold as was fastened to the teeth.—Detroit News.

Penetration of Light.

The limit that light can penetrate the ocean is somewhere between 600 and 900 fathoms, which is 3,000 to 5,400 feet. The penetration of light rays into the depths of the ocean is measured by a photometer. Some of the light rays are reflected, others penetrate and are gradually absorbed at different depths, according to the wave length and to the clearness of the water. The dark rays are absorbed most quickly in the uppermost layers; the light rays penetrate deeper, while the blue rays penetrate deepest of all.

The Omniscient.

"The late Bishop Tuttle," said a St. Louis man, liked to drive home his statements with an anecdote.

"He told me once about a five-year-old boy prodigy who was questioned by a cardinal.

"My boy," the cardinal said, "tell me where God is and I'll give you an apple."

"I will give your eminence a barrel of apples," said the boy, "if you'll tell me where he is not."

"Augean Stables."

Augeas, king of Elis, kept a herd of three thousand oxen in his stables, which had not been cleaned for thirty years. Hercules performed the labor of cleaning them in one day by turning into them the rivers Alpheus and Peneus. This is the account given in various mythologies. The phrase is used to signify an accumulation of corruption almost beyond the power of a man to remove.

Apples Breathe Like Humans.

Scientists have found that apples breathe just as human lungs do. An apparatus has been perfected by which the taking in of oxygen is measured, the most successful experiment having been performed with the seeds of Newtown pippins. The seeds, in addition to taking in oxygen, give off carbon dioxide.

Cost of the War.

Attempts have been made by a number of statisticians and economists to compute the money cost of the World War. The results arrived at vary. According to the estimates of Professor Bogart, under the auspices of the Carnegie Endowment for International Peace, the direct costs were \$189,333,637,697, and the indirect costs \$151,612,542,500, making a grand total of \$340,876,170,637.

Fighting Fishes.

Prize-fighting fishes are very common on the coast of Japan and Siam. Their pugilistic tendencies are most pronounced, so much so that the natives make them take the place of boxers in Siam, and arrange matches in glass bowls between two of the species, heavy bets being laid on the result.

No Kissing in South Seas.

Another "close-up" finale is being attacked. The South Sea Islands are often the scene of romantic stories and scenarios, but a traveler from there has remarked on the fact that there are no customs there which include kissing among the savages.

Trees of North America.

The following are some of the most important trees that are found in their native state only in North America: Hickory, ball cypress, sequoia (both species), yellow poplar, Arizona cypress, white pine, western yellow pine and Douglas fir.

Discovery of X-Rays.

The property of X-rays to penetrate solid matter was discovered by accident through leaving a key on top of a desk beneath which photographic plates were kept. When the plates were developed the shadow of the key was seen.

Apes and Rickets.

Although mummified apes of ancient Egypt show evidence of rickets, no definite evidence of this disease has yet been found in the numerous human bodies exhumed from ancient graves of that land.

Seaweed as Remedy.

Chinese doctors have been successful in curing certain skin diseases with extracts from seaweed. Experiments in this direction are now being carried out in Paris and other European cities.

Marriage in Egypt.

In Egypt the ordinary marriage takes place at a very early age. Many of the brides are little more than ten years of age, and few have passed fifteen on their wedding day.

"Scribes" Used to Be Fighters.

A scribe was a name used among the Jews originally to indicate a military officer, but later the cognomen was given to those who copied the books of the law.

Afraid of Leather.

Mohammedans always look on leather with suspicion as pig's skin. The Koran, therefore, according to the most orthodox directions, is bound in cloth.

New the Clock's O. K. Again.

Clocks do not run faster during the night than the daytime, claims one astronomer, who has a six-inch transit circle with which he tells the accuracy of time.

Her Busy Day.

The Supervisor—"Why did you give that party the busy signal? There was no one on the line." The Operator—"I was busy—doing my nails."

Easy for Her.

It isn't necessary for a woman to be an expert mathematician in order to calculate how much her husband would save in a year if he quit smoking.

Placability.

Nothing is more praiseworthy, nothing more suited to a great and illustrious man than placability, and a merciful disposition.

Cruel and Unusual.

Every alien should be required to live here ten years before boasting of his ancestors who came over on the Mayflower.

What Others Observe.

Without your knowledge, the eyes and ears of many will see and watch you, as they have done already.—Cicero.

Success.

Success consists in good fortune, allied to good design—if the latter be wanting success is altogether impossible.

Sounds Like an Old Saw.

Nostrils, mouth and small teeth of the sawfish are on the under surface of the head near the base of the saw.

Greatness a Bother.

A few who would like greatness, do not wish it to be a bother to them; but it always is a bother.

BILL BOOSTER SAYS

I AM A BOOSTER! I AM FOR EVERYTHING THAT IS FOR THE GOOD OF THE TOWN! I AM FOR GOOD ROADS, BRASS BANDS, PUBLIC LIBRARIES, PAVED STREETS, SCHOOLS, CHAUTAUQUIS, COMMERCIAL CLUBS, NEWSPAPERS, TOWN CELEBRATIONS AND SO ON! I AM A BOOSTER!



WILD TURKEY LIKES TO SAIL

Uses Wings More Than is Supposed—Volcanoes Down Mountain Slopes at Express Train Speed.

Wild turkeys use their wings more than is supposed; for going to and coming from the roost; when disturbed; often to come together from considerable distances; when changing their feeding grounds, and sometimes they will fly into tall trees apparently just to spy out the land. In mountainous country turkeys do a good deal of sailing down long slopes. This wild flying is a most beautiful and impressive sight downward and the rush of the wind through these makes a sound like a howling shrapnel. The speed is terrific, and it is checked by the birds gracefully swerving to one side ere they come to ground. On several occasions I have attempted to time such flight, having the birds in full view and knowing approximately the distance covered. Unless my estimate was wholly wrong, turkeys can volplane down a two-mile mountain slope in a shade over a minute and a half. Another fly of about three miles, including a dip to a distant ridge, seemed to be made in three minutes flat. But such speed, under the circumstances, is not extraordinary when we remember that a green-winged teal, along a straight river reach, has been timed at 130 miles an hour. The speed of wild things is at least one insurance policy they carry against extermination.

The case of the wild turkey is exciting in its promise. Here is a great bird for long in many states on the verge of extinction, now coming back in all his regal stateliness. Not in the mere killing of him the only sport that his return affords. His presence once more in our forests invests them with the spirit of primeval wilderness that no man wishes this country ever wholly to lose.—Archibald Tuttle, in the New York Independent.

Care of Hides.

Only sound hides free from cuts on the flesh side, well taken off, of regular even pattern, properly salted and cured, can command a high price and make good leather. Greater care must be taken in summer than in winter in salting, curing and marketing hides, especially by the farmer or the country butcher who has only an occasional hide to cure. Partly decayed hides are practically useless.

Made Bald by Collars.

A French hair specialist says that starched collars are the chief cause of men's baldness. Women are not bald at forty as men are because they do not wear tight or stiff collars that press on veins and blood-vessels and thus prevent healthy blood circulation.

Water Bags of Indian Army.

The water is carried in goatskin bags in the Indian army because the religion of the various soldiers interferes with the use of any other kind. The Mohammedans cannot drink from a bag made of pigskin, and the Hindus cannot drink from one of calfskin.

A Prisoner's Observation.

Bald-Headed Magistrate—"If half of what the witnesses have said against you is true, your conscience must be as black as your hair." Prisoner—"If you judge a man's conscience by his hair, you cannot have a conscience at all."

Have Your Gold Scale Tested.

Standard fineness of all gold and silver coins is 900, but a variation of three one-thousandths is allowed for silver coins, while a deviation of but one one-thousandth for the gold coin is not permitted.

USE BREAD TO CLEAN WATCH

Dough Free Small Parts of Timepiece of Oil, Chips of Metal and Other Things.

Although the custom is very old, few people realize that bread is extensively used in the making of watches. From very early times it has been the practice of watchmakers to employ a dough made by kneading fresh bread with water to remove foreign matters from the parts of timekeepers.

Curiously enough, there is no known substance which will so completely free the small parts of a watch from oil and chips of metal as bread dough. After rubbing with the dough, the metal is absolutely clean. Every other substance which has been tried tends to leave some of its own fragments on the metal. One of the world's largest factories uses 50 loaves of bread a day for this sole purpose.

To the astronomer, the threads which certain kinds of spiders weave are of the utmost value. They are used for bisecting the screw of the micrometer used for determining the positions and movements of the stars, and no substitute for them has yet been found.

The minute strands of this spider's thread are remarkably fine, not exceeding one-fifth to one-seventh of a thousandth of an inch in diameter. In comparison, the thread of a silkworm is thick and clumsy. It is not only the fineness of the spider's thread which makes it so useful, for, in addition, it is amazingly durable. Spider threads can endure great variations in temperature without undergoing any change. In measuring sunspots, when the heat is so great that the lenses are cracked, the spider thread will be uninjured.—S. Lechard Bastin in St. Nicholas Magazine.

BELLS WERE SPOILS OF WAR

Great Prize Taken by the Belgians and Cities of Holland in Their Carillons.

From the sixteenth to the seventeenth centuries carillons (sets of bells played by machinery or by finger keys) were often treated as spoils of war in the low countries, and special havoc was wrought at the end of that period when the French invaders suppressed the abbeys in Belgium. Bells captured in war were sometimes recast into cannon or carried away as trophies, or, again, they were ransomed as a town's most prized possession.

When a city bought a carillon it was formally welcomed on its arrival by city officials and people, and amid rejoicings the bells were consecrated with elaborate ceremony. Men and women of noble rank stood sponsors. Carillons then were, in fact, esteemed an essential part of the useful equipment as well as the artistic adornment of a progressive Netherlandish city.

Their care, their proper playing, their enlargement, were constantly under discussion. Even the referendum was employed to decide questions relating to them. Towns were rivals for pre-eminence in the carillon art, and bell masters and bell makers were esteemed citizens of great consequence.—Detroit News.

Chance for a Comeback.

It may be true that the old home ain't what it used to be, as the song says, but some of its glory could be recovered if the girls would learn how to make real pie.—Wabash Times-Star.

Gold at Bottom of Sea.

It is estimated that a total of \$6,000,000,000 in gold went to the bottom of the seas during the four years of the World War, sent there by torpedoes and other disasters.

What They Think.

At the marriage altar they take each other for better or for worse. A little later, he thinks it couldn't have been worse and she thinks she might have done better.

Man's Horsepower.

Compared with other motors, a laboring man has been rated by French investigators as having about one-seventh horsepower and an efficiency of 30 per cent.

Sin Not Against Own Soul.

Never let a man imagine that he can pursue a good end by evil means, without sinning against his own soul. The evil effect on himself is certain.—Southey.

Medieval Tiles Beautifully Made.

Tiles made in Cairo and Damascus in medieval times are of such beauty that squares of nine or sixteen are often sold for hundreds of dollars.

Old Mineral Records.

The earliest records of mineralogy are lists of minerals with descriptions that were compiled by Theophrastus four centuries before Christ.

Have Patience.

There are many dirty roads to be crossed in life, but with a little patience you will always be able to find a clean crossing.

SHORT SMILES

The Gift.
"What brand o' bacca are ye smokin', Jock?"
"I diana ask him!"

All State.
"Why don't you write some problem novels?"
"I can't think of any novel problems."

Lays It on Thicker.
"Agnes is looking as young as ever."
"Yes, but she says it costs her more every year."

Not Far Removed.
"Irate Individual"—It seems to me, sir, that you are not far removed from an idiot.
The Other—Only about a yard.

So to Speak.
"What is this study of cosmetics?"
"An' applied science, I believe."

Evidence.
"Do pupils really love teacher?"
"Well, they frequently marry him."

No Hog.
"Passenger"—I'd give you a tip, only I've nothing but a \$10 bill.
Porter—Oh, that'll be enough, sir.

Mean Inference.
"My husband declares he married for beauty and brains."
"Oh, then you're not his first wife?"

Turned Down.
He—I'm a man of the old school.
She—Well, I dismissed that class some time ago.

New Standards.
Ad in Exchange—"For rent: Six-room modern cottage. No pets, piano or children. Only respectable people wanted."

Modern Science Discovers

Secret of Making Violins

Modern science at last appears to have rediscovered the secret of making superviolins—a secret that was understood by Stradivari and other old masters of the seventeenth century, and that was buried with them.

Analysis of the thin wood sections of the violins of the old masters has been made by a European chemist, who has discovered that the secret of their tone lay in imparting an artificial uniformity to the wood, an effect produced by an oil treatment, combined with months of sun-drying and a special varnish.

Violins constructed according to the methods which the laboratory revealed are said to match the old master instruments in tone.—Popular Science Monthly.

Let Them Have Their Way.

Some ladies presented a small symbolic statue to their community. Space was allotted in the courthouse grounds, but when the figure was set up it did not face the courthouse. The lawyers declared the statue should be turned around. The ladies said they had no objection to its facing the courthouse, but announced firmly that it would not be turned around. Whereupon the question was put up to the mayor.

"Whatever the ladies want they shall have," decreed that worthy. "We'll just move the courthouse."

Generous.

The two men went into a country inn in order to obtain some refreshments. The drinks were about to be paid for by one when the other broke in. "Look here," he exclaimed, "I've been staying at your house three months. You've looked after me very well. You've taken me to theaters and you have always paid. Fair play. You mustn't pay for this drink."

"But—" began the other.
"No, no," said the second man, "we'll toss for it."

That Question of Age.

A pretty sixteen-year-old flapper attended a dance the other night and while taking lunch afterward at a cafe saw one of the leading citizens of the town in the café. "I never was so shocked in my life," she said in recounting the experience, "as when I went into the restaurant and saw him there. Why, he's forty if he's a day. Think of him being there at one o'clock in the morning!"—Great Bend Tribune.

Social Complication.

"What makes Mrs. Flimlight's butler so extremely surly?"
"He has to be," replied Miss Cayenne. "There is a report that he is a nobleman forced to earn his living. He has to keep his distance for fear they'll try to treat him like one of the family."

Isle of Ceylon Crowded.

The area of the island of Ceylon is about the same as that of West Virginia and on it live more people than there are in Texas.

Sticking to His Story.

Jenkins told his wife he was going fishing, but instead went to a football match. On his way he entered a fish-monger's and told them to send some fish home at a certain time.

But fish was scarce that day, and some cods' heads were sent instead.

"Well," exclaimed Jenkins when he arrived home, "did you get the fish I sent?"

"I got a lot of cods' heads," replied the wife.

"That's right," said Jenkins, cheerily. "The fish were that strong that before I could land 'em I had to pull their heads off."

Electric Chair First Used in 1890.

The electric chair was not, strictly speaking, invented. It was known that electric current would kill, and experiments in killing animals by this means had been made. A New York commission was appointed to investigate humane ways of inflicting the death penalty. This commission reported in 1888, and in that report suggested the construction of a chair in which the criminal could be placed for electrocution. Such a chair was devised by the state electrician for New York, E. F. Davis, and appears to have been first used in 1890.

Highly Flattered.

The vicar of a parish in the west of England fell ill one Saturday afternoon and a certain famous canon who happened to be staying in the neighborhood consented to conduct the services on Sunday.

At the close of evening service the church warden assembled in the vestry to thank him.

"It's very kind of you, we're sure, sir," said one of them. "A much worse man than you would have done for us, but we couldn't find one."

Very Likely.

A girl seldom has occasion to cry for help when a young man kisses her—probably because he is able to help himself.

Woman and Her Secret.

A woman may be able to do her own housework, but she always has to get some other woman to help her keep a secret.

Timber in Mines.

The consumption of timber in the mines of the United States has practically doubled within the last twenty years.

Yams Not Sweet Potatoes.

True yams are entirely distinct from sweet potatoes and are much like the Irish potato in composition and food value.

PROFESSIONAL CARDS