NOTES ON SCIENCE

Novel Folding Boat.

One of the necessities of a vacation spent on an inland lake or stream is a good boat, which is light enough to be transported about without hiring a dray every time the camping place is changed, and yet strong enough not to collapse when in actual use. The canvas covered boat is, of course, the one to be preferred for light work, but the majority of people seem to feel that, owing to their extreme lightness and skeleton framework, they are hardly to be relied upon. It would add not a little to the feeling of safety were the strengthening devices shown in the illustration made use of in the construction of boats of this class. The arrangement consists of a pair of central members, to each end of which are hinged curved arm. The pointed ends of the latter are fitted with sleeve openings, in which are in-

Device to Prevent a Collapse.

serted the spring ribs attached to the stem and stern of the boat. The picture shows the operation of inserting these ribs in the sleeves and springing one of the braces down into the bottom of the boat. When once in place they not only stiffen the craft from stem to stern, but also offer considerable pressure on the ribs which bear the cross-strain when the boat is in the water. To fold the boat it is necessary to exert considerable pressure on the central sections, which must be elevated and the motion reversed to withdraw the end ribs from their places in the sleeves.

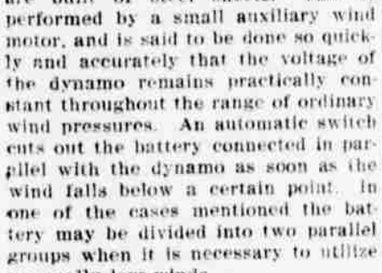
The inventor is Ira G. Perring of Kalamazoo, Mich.

Wind Driven Generators.

For more than two years two small factories, one near Leipsic, the other near Hamburg, have been satisfactorily driven by windmills, which are also used as a means for generating electricity for lighting purposes. Elektrotechnischer Anzeiger states that the windmills have a diameter of five meters and five and one-half meters, respectively, and are mounted on the roof of the works. To insure reliability, the wind wheel itself has no moving parts, the speed regulation being obtained by turning the windmill so as to vary the angle under which the wind impinges upon the sails, which are built of steel sheets. This is performed by a small auxiliary wind motor, and is said to be done so quickly and accurately that the voltage of the dynamo remains practically constant throughout the range of ordinary wind pressures. An automatic switch cuts out the battery connected in parallel with the dynamo as soon as the wind falls below a certain point. In one of the cases mentioned the battery may be divided into two parallel groups when it is necessary to utilize unusually low winds.

New Game Apparatus.

With the nearing of the winter season, when outdoor sports must be abandoned, aside from skating, tobogganing and kindred amusements, the search for new games to occupy the long evenings has begun. In the picture we show a new adaptation of a game which would have been popular many years ago had it not been for the high price of the implements with which it is played. It is unnecessary to refer to the actual cost of the tables, cues and balls which go to make up the pool and billiard outfit, as these are well known, but recently substitutes for these high priced implements have been introduced at a lower cost. The apparatus here shown does not even require a special table, but can be played on the dining table, with the aid of a cushion of webbing stretched around the edges by means of corner brackets. The pockets for



Adaptation of Billiards and Pool.

the pool game consist of pyramidal blocks, which rest on the table and have each apex bored out to a depth sufficient to contain the ball. The latter must be struck with a cue and driven up the inclined surface of the pyramid with sufficient force to drop it into the pocket at the top. It would seem that no small degree of skill will be necessary in order to lodge the ball in the pocket, neither overshooting nor falling short in the attempt.

Jonathan E. Clark of Denver, Col., is the inventor.

Electricity in Egypt.

Nearly every city in the interior of Egypt is now lighted by electricity. The telephone systems of the larger cities are being extended, and electrically propelled boats are soon to ply the Nile. The system of electric railway lines is also being greatly extended, until now a visit to the land of the Pharaohs no longer necessitates journeys on camels across stretches of barren waste dangerous for man and beast.

FARM ACCESSORIES

LITTLE MATTERS OF INTEREST TO THE AGRICULTURIST.

Concrete Wall That Will Render a Well Perfectly Water-Tight—Bacteria for the Soil to Be Furnished to Farmers from Washington.

Bacteria for the Farm.

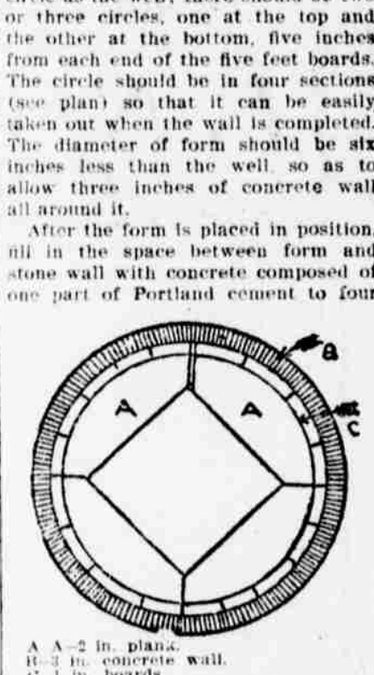
For the past hundred years agricultural chemists have been asking the question whether it were possible to utilize the free nitrogen of the atmosphere as the food of plants, and they all seem to have come to the conclusion that the nitrogen of the air is not assimilated by plants. But it was discovered that certain leguminous crops (peas, beans, etc.) had an excess of nitrogen over that which could be accounted for as coming from the rain water and from the manures supplied to the land. Experiments subsequently proved that this assimilation of nitrogen depends upon the presence of certain bacteria which cause swellings on the roots of the plants, and that each particular leguminous plant can be identified with a certain microorganism which thus beneficially affects its growth. Photographs have been published showing how plants which have been inoculated with suitable bacteria have benefited by the operation. The agricultural department of the United States has for a long time been in the habit of distributing rare seeds gratuitously to farmers; now it is announced that it is prepared in like manner to place at the disposal of agriculturists bacteria for enriching the soil.

Cementing a Well.

W. C.—I have a well three feet wide and five feet deep, stoned up, that is supplied by a good spring, but the water runs away through the lower tier of rock; can the well be cemented so that the water will be retaintd?

I take it that you want the well perfectly water-tight, that it is filled by springs from the top, but runs out through the rock at the bottom. To make the well perfectly water-tight, there should be a three-inch concrete wall built inside of the stone wall. To do this take inch boards five feet long nailed to 2-inch planks, cut the same circle as the well; there should be two or three circles, one at the top and the other at the bottom, five inches from each end of the five feet boards. The circle should be in four sections (see plan) so that it can be easily taken out when the wall is completed. The diameter of form should be six inches less than the well so as to allow three inches of concrete wall all around it.

After the form is placed in position, fill in the space between form and stone wall with concrete composed of one part of Portland cement to four



A A—2 in. plank.
B—3 in. concrete wall.
C—1 in. boards.

of fine gravel (not sand). Never put in over four inches of concrete at once until it is well rammed down. After the walls are built and left to stand two or three days, the form can be taken out and the bottom put in. The walls and bottom can be built even if the well is full of water, as the concrete will set under the water; but in putting in the concrete it should be lowered in the water and dumped out at the bottom and not shoveled in from the top, as the cement and gravel should not be allowed to separate, or it would not be as good a job. If the well is full of water the concrete should not be rammed, and the least handling it gets the better it will be. It would require about one and one-half barrels Portland cement and one yard gravel for the work.—N. B. H., in Montreal Herald.

A Concrete Cold Storage.

E. E. R.—Would you kindly explain how to build a concrete cold storage for fruit and fresh meat. I would like it large enough to hold two thousand pounds of meat. I have a hillside about twenty feet high, would it be advantageous to build the cold storage building into the hill?

I have never seen a cold storage built of concrete, but I am sure such a structure would prove satisfactory. Most of ice is stored in the upper story and around the floor of the ice chamber is a space of 18 inches to allow the cold air to fall and the warm air to rise. There are also galvanized iron cylinders extending from the floor of the storage to the floor of the ice room above. These are kept filled with pulverized ice. Each of the cylinders has a trough at the bottom to carry off the water which runs through a trap outlet. Provided the walls are built according to the above description, using cement instead of stone, the insulation would not be improved by building into a hill, but if the hill were used as suggested the ice room would be more easily filled than if the building stood on the level.

The Brute Again.

Wife (who is always ailing)—"You will bury me by the side of my first husband, won't you dear?"

Husband—"With pleasure, my dear."

ENGLAND'S QUEEN HAS NARROW ESCAPE FROM DEATH IN FIRE

QUEEN ALEXANDRA.

From a painting made at the time of the coronation ceremonies at London. The queen is represented in her robes of state.

ENGLAND'S QUEEN IN DANGER.

Has Narrow Escape from Death in Fire in Royal Residence.

The life of Queen Alexandra was imperiled by a fire which broke out Dec. 10 in the royal palace at Sandringham in a room adjoining that in which the Queen was sleeping. Only by a fortunate circumstance was the fire discovered and her majesty aroused in time to prevent a calamity. As it was Queen Alexandra had an extremely narrow escape, being forced to flee through the smoke from her room in a dressing gown.

The queen's secretary, Miss Knollys, in whose bedroom the fire started, just succeeded in awaking her before the smoke and flames became too thick to form a barrier to their escape.

The queen had barely escaped from her apartment when the floor of the room collapsed, carrying with it her bed.

The fire started in Miss Knollys' bedroom in the chimney flue, where a beam is supposed to have been smoldering for some days. It spread rapidly to the queen's bedroom.

Miss Knollys, awakened by the smoke, rushed at once to Queen Alexandra's bedroom. Groping her way through the smoke and flames which already filled the room, she awakened the queen. Hastily throwing her own dressing gown over her royal mistress she guided her from the room.

The two women had just reached the broad corridor outside when the floor of the queen's room collapsed. Five minutes' delay would have meant almost certain death for both.

Following the fire the greatest excitement prevailed in the house, where a big house party is staying.

The fire was confined to the two bedrooms.

The Hon. Charlotte Knollys, lady in waiting to Queen Alexandra and the

HON. CHARLOTTE KNOLLYS

queen's closest friend, undoubtedly saved the queen's life by her presence of mind during the fire. Miss Knollys' connection with the queen's household began twenty years ago. She is highly esteemed by every member of the royal family, and recently it was reported the king contemplated making her a peeress in her own right.

Mayor Jones Pawned Watch.

Mayor Sam Jones of Toledo was on his way home from a trip to Texas recently and found on arriving at Chattanooga that he was out of cash. He had his check book in his pocket, but with characteristic eccentricity he pawned his watch for $5 and proceeded on his way, arriving in Toledo with about half a dollar left. The story became public when he received his watch from Chattanooga in exchange for a check which he might just as well have used there.

THINKS AMERICAN WAYS GOOD

English Wageworker Praises System in Vogue in This Country.

An English wageworker, who has been working in an American factory writes to an English magazine and gives a description of American workers as compared with those in his own country. He says:

"The men were on a higher level than the English workmen, but they worked harder and longer. Sixty hours a week after the English fifty-four, seemed very hard, although I was getting nearly double English wages. It seemed remarkable, too, that, although the day was so long, and made worse still by dividing it into two long spells with only a more or less brief interval for dinner, the work should be pursued diligently from the moment of starting until stopping time.

"In methods of working also each man is allowed to follow his own devices to a great extent, anything unusual being noted with interest and without the least prejudice. There is always more readiness to adopt anything new than to stand by an old method. One noticeable thing in American shops is the importance attached to ideas even of the most trivial nature."

Goldwin Smith in Old Age.

A familiar figure in Toronto is Goldwin Smith. Every fine day he takes his carriage drive and one sees a shrunken old man, as thin as he is tall, silent and grave of demeanor, preoccupied, it would seem, with his own thoughts. "One might make the mistake of supposing," said an observer, "that the aged citizen—he has celebrated his 80th birthday—was a dyspeptic pessimist, that life had lost its charm for him and that time had forgotten him in its merciless march toward a future that is never overtaken." Such is one picture of the old professor—a mental snapshot taken from a curbstone.

Congressmen with "Doubles."

There are a number of doubles in the national house of representatives and many amusing mistakes arise as a consequence. Here are some of the Dromios: Croft of South Carolina and Badger of Ohio, Thayer of Massachusetts and Butler of Pennsylvania, Robertson of Arkansas and Watson of Indiana, Smith of Texas and Hopkins of Kentucky, Lewis of Georgia and Miller of Kansas. Payne of New York, who has shaved off his whiskers, is often taken for ex-Speaker Henderson, although the latter has not been in Washington since the fifty-seventh congress adjourned.

Ship Unloads in Thirty Hours.

A freight ship that can unload in a day and a quarter, instead of in fourteen days, has just been launched in Rotterdam. Instead of having only two derricks this ship has twenty-four, and there are twenty-four separate compartments in the hold.

The ship is built to carry 10,300 tons. It will run between the Baltic and Rotterdam, carrying iron ore. She is 440 feet long, with fourteen masts. By this new arrangement of a derrick to every compartment twenty-five days are saved in every trip in the unloading and loading.

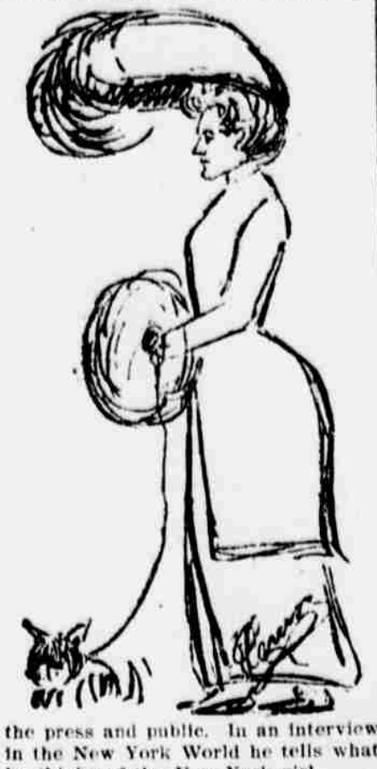
Speaker Resented Interruption.

Dr. Frederick Manley, a young instructor from Harvard university, was addressing the Teachers' institute of Middlesex county, New Jersey, and had consumed forty-five minutes, the time allowed to each speaker. On being so informed by the presiding officer, Dr. Manley, being quite indignant, said in angry tones: "I hope to be able to finsh my address to you some other time under different auspices: I am from Harvard university, where our addresses are not limited like the rounds of a boxing bout."

ADMIRES THE AMERICAN GIRL.

Famous Tenor Likes the New York Damsel, But Wait Till He Comes West.

Enrico Caruso, not yet thirty years of age, is the tenor of the year—the one person whom all the lovers of grand opera want to see and to hear. From the moment of his appearance at New York he has been idolized by



the press and public. In an interview in the New York World he tells what he thinks of the New York girl.

"I admire them," he said, "because they are so different from the European type; they look so healthy, beautiful and independent, and not afraid of anything. They look you straight in the eyes like men. They seem to be a race apart."

"But what struck you most forcibly in their makeup?"

"Well"—and here he laughed as he looked at Mme. Caruso—"I ride very often in a carriage with my wife and every moment I point out to her some woman with a remarkable hat.

"I think the American women have a great deal of imagination and they exercise it particularly in the choice of their hats. Most of them are very tasteful. Others are the exagerated type of certain fashions. But they wear them with dash and carry them as if challenging the world to do the same.

Half Lion, Half Tiger.

A hybrid that has attracted the attention of zoologists is the lion and tiger cross, a number of which may now be seen at Hamburg. The oldest is four years of age, and is a fine animal called Prince.

When only three years of age he weighed 500 pounds and measured ten feet from the tip of his tail to the tip

of his nose, and stood four feet high to the top of the shoulder.

The peculiarity of this beast is that he has a tiger's body and a lion's head, the stripes, of course, not being so distinct as in the common tiger. Prince's father was a Senegal lion and his mother a Bengal tiger. "The first successful experiment I made in the crossing of animals," said his owner, "was about seven years ago, when I crossed a leopard and a puma. I am now busy endeavoring to obtain a new variety of sheep by crossing the giant sheep of central Asia with our common domestic animal."—Scientific American.

Vigor Restored by Water.

John Ferguson, residing in Kilmelford, England, overheated himself while in pursuit of cattle on the hills. While in this condition he drank excessively of cold water from a stream near. Almost immediately he fell fast asleep on the bank and did not waken for twenty-four hours. He was then in a high fever, and from that time was unable to retain any nourishment.

The proprietor of the estate on which the man's father was a tenant had Ferguson removed to his own house and shut him up in a room for twenty days, during which time he was supplied with nothing except water, and precautions were taken to prevent any one supplying the patient with food, yet at the end of that time the man was restored to perfect health and had lost none of his former vigor.

He Always Gets It.

I envy the devil, in spite
Of the chains he has to wear,
And notwithstanding the hate
Men have for him everywhere.

For this advantage is his:
He needn't fret or feel blue
Because any man is ever
Unwilling to give him his due.

MADE HASH FOR THE COURT.

Cook Demonstrated Her Ability and Got a Judgment.

Cora Johnson, a cook in the employ of Mrs. Margaret Cox of Mont Clair, N. J., was discharged a few days ago. When her mistress refused to pay her a month's wages the girl brought suit to recover the amount in Justice Darlington's court. At the trial Mrs. Cox declared in court that the girl could not make corned beef hash. The girl replied that she could beat the world in making that dish.

"Well, Cora," said Justice Darlington, "I would like to see you prove your case."

A constable was sent out for the necessary ingredients and cooking utensils. Cora rolled up her sleeves and quickly turned out a dish that the judge pronounced "fit for a king." Cora got a verdict for $25.

BOTH BRAVE AND MODEST.

Schoolgirl Makes Light of Saving Life of Companion.

Annie Silverman, the pretty fourteen-year-old schoolgirl who saved a little child from being run down by an express train on the Jersey Central railroad, is hailed as a heroine in Lakewood, says the New York World.

Annie Silverman works on Saturdays in a Lakewood dry goods store where she said:

"I don't see why everybody is talking about what I did. It wasn't anything to boast of. Anybody who had been there would have done just as I did. I was going home from school and just after crossing the tracks I heard a scream. I looked back and saw the little girl trying to draw her foot from between one of the rails and a crossing plank. As I ran to her I heard the whistle of a train which was coming right toward us.

"The little girl wore a red hat and

ANNIE SILVERMAN

my first thought was to take it off and wave it as a signal. But by this time the train was on a trestle about two blocks away and I saw that the engineer could not stop in time. I reached down and after twisting the child's foot around a few times got it out. Then I just dragged her across the track. I wasn't a quarter of a second too soon either, for the train just whizzed past as I got her safe. It just made my heart stop beating for a few seconds and I nearly fainted. I saw the child to-day and she ran to me and said that she had told her mamma that I had saved her life."

Broken Neck Bones Knit.

Success has attended the efforts of physicians to save the life of John Cunning, who had his neck broken in a runaway accident at New Castle, Pa. The neck was incased in a plaster cast, and for nearly three weeks the patient lay motionless. The plaster cast was removed on Tuesday, and it was found that the broken bones had knit perfectly. The case is considered a remarkable one.—Pittsburg (Pa.) Times.

African Chieftain.

The Suk warriors are not hampered in their movements by extra raiment, their principal garment being the cape peculiar to their tribe.

Tame Deer a Nuisance.

Eight deer have been roaming around Oakdale, Mass., for the past few months. Forage becoming scarce, they have taken to invading the gardens of the farmers, and have done a great amount of damage. They are fastidious beasts, eating only the heart and tenderest parts of the cabbages, leaving the rest intact. They have become quite tame and will stand and gaze at a man for some time without getting frightened.

Amusing Theater Program.

A curious theater program of 1730 is in the Stadt museum at Brunswick. In the quaintest of German the following conditions are set forth: "In order for the convenience of the audience it is requested that the first row doth lie, the second kneel, the third sit, the fourth stand; thus can all see. Laughing is forbidden, because that it is a tragedy."