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NATURE PROVIDES PLANTS WITH ORGANIC MATTER .-Sap is the water contained in living plants and the substances dissolved in it. All active plant cells have more or less water in their protoplasm, and when there is a surplus it is in the form of drops or masses in cavities (vacuoles) in the protoplasm. Intercellular spaces and the cavities of inactive internal cells also may contain water, holding various substances in solution. In terrestrial plants this water is absorbed by the roots from the water of the soil, and carries with it the substances dissolved in it. In the plant it is absorbed from cell to cell, suffering in each a loss of such substances as are appropriated by the protoplasm and gaining such as are soluble. It thus contains many substances, some of which are organic, as sugar, inulin, etc., and others inorganic, as salts of lime, potash, etc. By puncturing (as in the maple), crushing (as in the cane), or slicing and diffusion (as in the sugar beet), the sap is obtained in large quantities, and on each evaporation yields much sugar, with many other substances.

How Tracks of Running

Rabbit Deceive the Eye The triangle formed by the tracks of a rabbit in the snow points in the opposite direction from which the animal was running, says an article in Pathfinder magazine. When a rabbit runs it touches the ground with both small front feet close together and then strikes with the two large hind feet apart and ahead of the front feet, forming the base of the triangle with the hind feet and the apex with the front ones.

In other words, the hind feet strike the ground last and leave it last with each leap, but they strike far ahead of the front feet, consequently the two foremost and most widely separated tracks are made by the hind feet not by the front feet as so often supposed. Unless one understands the relative position of the feet while the rabbit is in motion it is sometimes hard to tell by its tracks which way it has run, because the feet are so covered with hair that often the toes do not show in the track.

How Turkey Is Modernizing

Turkey's isolated Anatolian capital has drawn nearer to Europe with the opening of the first direct rail connections between London and Angora, established by the continuation of the famous Simplon Express from its former terminus at Constantinople to Angora. Passengers from London and other European centers bound for Angora are transported across the Bosphorus by Turkish ferries, pending fruition of ambitious plans for the construction of a tunnel or a suspension bridge to link the Asiatic and European shores. This new linking of Angora with the Occident is regarded in Turkey as another feather in the new Turkey's Europeanized cap. The fact that the Simplon Express will shorten the Angora-Constantinople run by four hours is heralded as a means of tightening the bonds between the nation's former and present capitals.

How Radio Does Cooking

A bulletin of the General Electric company in describing a new highfrequency radio tube, says: "Among the stunts demonstrated with the highfrequency apparatus was radio cooking. A wire was suspended over a table at some distance from the radiating aerial and parallel to it. A sausage placed in a glass tube was hung from the end of this receiving aerial, and in a few minutes it began to steam. On being removed it was found to have been beautifully cooked by the highfrequency currents induced in it, although no flames or other visible means of heating were applied. A fryless fried egg was also prepared in the glass tube and served hot to the spectators. An apple was impaled upon the end of the receiving aerial and in a short time was thoroughly

How "Nigger" Came Into Use

The derivation of the name from the Latin "niger" meaning "black" is correct. Ethnologists refer to all darkskinned races of the world as Negroids while the name Negro is reserved for tribes found in Africa south of the Sahara and for their descendants in America. Even in Africa there are many peoples of Caucasian and mixed race.-Kansas City Times.

How Miners Are Safeguarded

Through the efforts of the United States bureau of mines more than 250,000 men in the mining, oil and gas and steel industries have been trained in first-aid and rescue work. This army safeguards approximately 2,000,000 people actively engaged in the fields in question.

How Limelight Is Formed Limelight is produced by the incandescence of a stick or ball of lime in

the flame of a combination of oxygen

and hydrogen gases and coal gas.

INDIANS REVIVE TRIBAL CUSTOM

Osages Observe Old Religious Ceremony in Naming Baby.

Pawhuska, Okla.-A child-naming ceremonial recently observed at an Osage Indian settlement near Gray Horse, Okla., was a deeply religious event, which perhaps will not be repeated many more times. There now remain less than 300 full-blooded members of a tribe that came to Oklahoma 56 years ago 4,000 strong.

It is very seldom that the eyes of a white man are permitted to view one of these symbolical affairs. The full-blooded baby came through the ceremony smiling. Its hair had been cut after a prescribed fashion, implying a permit to the Great Spirit that it should live to see old age without obstruction of any kind; in fact, the head was shaved except for a fringe around the lower edges.

The sun was traveling downward in the afternoon when the chief medicine mixer received a call from Baby Wa's copper-colored daddy that he possessed sufficient blankets for gifts to pass around the circle. At sunrise on the day following a recital of the Taking of Life Symbols was given before a large assemblage of fullblooded Indians at the home of Baby Wa's parents. The medicine chief, after chanting the symbols, proceeded to decorate himself from a paint pot with sacred colors, fastened to his scalp lock a red feather and wrapped himself in a radiant-hued blanket.

Symbolic Articles Used.

Father and mother of the child to be given a name were seated in the east end of their great frame home, the chief medicine man and his dozen or more helpers sat on the south side, and visiting clansmen were seated on the north side. When all had settled to their proper places and the center of the room was a great hollow square, symbolical articles to be used in the ceremony were passed around. These consisted of cedar fronds or branches. a bowl of mashed corn and bowl of water. The medicine men then began chanting what they termed the wigie. a translation being: "You will give heed to see what can be done. Even as these words are being spoken to the first division of heaven, the messenger verily descended, where the little ones have not yet become peo-

After this sing-song, which lasted an hour, the baby was given over to the head medicine chief, who, in turn. passed him to six lesser chiefs, and then returned him to their leader, who dipped the tips of his fingers into a bowl of water in which had been placed sacred paint and red cedar fronds.

The head chief then gently touched the lips, head, arms and body of the little one. This act was an appeal to grant health and strength that the child would grow to old age without interruption by disease.

Six Chiefs Participate. Then the baby was turned over to the head of another medicine clan, who touched the head, arms, lips and body of the child with pounded corn; an act of appeal that the child would not suffer for lack of food during life.

After each of the six chiefs of as many medicine clans had handled the child in the same manner, the head of the medicine clan brought the mother forward and placed in her hands two little willow sticks, each of which repsentented a sacred name. She was requested to take one of the names represented by the sacred sticks. She chose the name she believed to be most euphonious and religious in its significance. This closed the ceremony and Wa-shta-ge-was then was a real Indian personage, a clansman and perhaps some day he may become a chieftain.

Curious Prelate Finds What Pope Talked About

Vatican City.—Great curiosity was shown in the Vatican by the prelates and functionaries of the papal court after the visit of Sig. Turati, secretary of the Fascist party, to his holi-

The long conversation lasting an hour and a quarter provoked various comments in the Vatican.

One high Vatican prelate, unable to contain his curiosity any longer, asked what had been the subject of the conversation.

Pius XI said quietly: "Well, monsignore, if you really want to know, we talked about the fine weather we have been having, and the bad weath-

***** Builds Up Business

on Discarded Socks East St. Louis, Ill.-Socks, dirty socks, faded socks, socks with holes or any other kind of socks is the foundation upon which Mrs. Lillian Summers, sixty-five-year-old widow of this city, has built her rug manu-

facturing business. During the several years which Mrs. Summers sat in the little back room of her small cottage manipulating an oldfashioned loom she has beer producing about 300 rugs a

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SCIENCE ACCOUNTS FOR PERIODS OF HURRICANE.-Since hurricanes are formed by the interaction of heat, and atmospheric pressure, the summer months and those of early autumn, when the cumulative effects of the summer sun are still to be felt, are naturally the periods of greatest hurricane oc-

currence. Porto Rico has not experienced a hurricane in June during the last forty years, as shown by a study by the United States weather bureau. Only one or two have occurred in July. In August, September and October, however, the island has repeatedly suffered in varying degrees from these destructive storms.

The latest West Indian hurricane, like most of these midseason storms, apparently originated east of the easternmost islands of the West Indies. It struck about midway of the Lesser Antilles, causing damage in the French island of Martinique, and probably in the neighboring British island of Dominica and the French Guadeloupe. It was then reported in the Virgin islands, dependencies of the United States. Only a few hours later its full force struck San Juan at the eastern tip of Porto Rico.-National Geographic Society Bulletin.

How Lowered Flag Came

to Be Mourning Token Half-masting the national flag in token of mourning originated on the sea, as the use of the term "mast" instead of "staff" indicates. "Hoise your Sailes half mast high," said Captain Smith in his "Seaman's Grammar," published in 1627. The custom dates back several centuries and probably grew out of the earlier custom of lowering the flag on vessels at sea as a sign of submission. The flag is also lowered to half mast as a signal of distress, a practice followed by the Spanish as early as the Seventeenth century. According to flag etiquette, when a national flag is placed at half mast as a tribute of respect to the dead it is first raised to the top of the staff or flag pole and then slowly lowered to a position at or near the middle of the staff .- Pathfinder Mag-

How Currents Differ

An alternating current is defined as a succession of electric currents which rise and fall in strength and flow alternately in opposite directions at regular intervals. The currents or impulses vary in intensity from a plus maximum to a negative maximum, and they are senarated by points of zero pressure, as distinguished from a direct or continuous current. A direct current is an electric current constant! in direction, though not necessarily so in value. It travels in one direction along a conductor, and if this conductor joins the terminals of a source of energy such as dynamo, the current is said to flow from the positive pole to the machine along the conductor to the negative pole. While it is usually more economical to transmit electricity in the form of A. C., it is often more conveniently utilized in the form of D. C., and to transform the current from one form to the other a converter or transformer is employed.

How Radio Waves Spread Death Victory over one of man's most dangerous and destructive enemies, the insect, and an important new use for radio are promised as a result of interesting tests with high-frequency radio waves at the New Jersey agricultural experiment station, says Popular Mechanics Magazine. Investigators found that such waves killed cockroaches, beetles, house flies and other insects in short order. The invisible impulses, emitted on a wave-length of about 24 meters and with a frequency of nearly 12,000,000 cycles a second, developed heat of a deadly degree within the bodies of the insects, producing death in a short time.

How Tuberculosis Is Fought

There are 1,454 formally organized state and local tuberculosis associations in the United States. Each is interested in the prevention and treatment of tuberculosis. The organiations affiliated with the National Tuberculosis association spent in 1928 at least \$6,193,376.98, the major portion of which was secured through the sale of Christmas seals.

How Letter Circled Globe

A letter has just finished a tour of the world in 78 days, 1 hour and 30 minutes. It was the first letter to go all the way round the world in the open mails, and got back to Seattle two and a half months after it was mailed.-Capper's Weekly.

How Indians Are Identified Navajo Indians, lacking birth certificates, are being supplied with disks of identification similar to those worn by soldiers, which will enable the Indian at any time to establish his tribal status and protect his property rights.

How Card Game Got Name The card game bridge has nothing to do with a bridge over a river, but is a corruption of the Russian word "biritch." In different forms, bridge was played in Russia long before it was adopted in this country.

FIVE EXPEDITIONS PROBE SECRETS OF ANTARCTICA

Commander Byrd Not Alone in Delv. ing into Mysteries of South Polar Regions.

New York .- While most Americans have believed that the Byrd expedition alone has been probing the secrets of the Antarctic vastness during the past year, the fact is that no fewer than five parties, representing as many different nations, have been in the polar regions in that period, and three of them are still there.

Robert E. Garst, explaining the significance of Antarctic exploration in the Review of Reviews, brings out this scarcely recognized fact that other nations than the United States have an active interest in Antarctica, the last unexplored continent.

Besides the Byrd expedition, that of Sir George H. Wilkins, the Englishman, who flew over 80,000 square miles of polar whiteness, has received some attention in America. But three other expeditions which are still within the Antarctic circle have passed

unnoticed. Douglas Mawson, veteran of the Shackleton explorations, heading an Australian party, is exploring the coast of Antarctica to the south of Australia. A Norwegian party headed by Riiser-Larsen is surveying by plane the region lying directly south of the tip of South America. A fifth party, sent out by Argentina, is now at South Georgia island.

In spite of this activity of the past year and that of a score of expeditions that have invaded the Far South in the past century, only a small fraction, possibly one-twentieth, of Antarctica has been seen by modern man. But, unlike the wastes of frozen sea that surround the North Pole, it has been proven that the region is a great continent at least half again as large

as the United States. The urge that drives men on into this vastness of ice covered mountains and plains is similar to that that engages a detective story reader, the Review of Reviews article explains. For besides studying the conditions that create much of our weather, they expect in time to solve what is perhaps the world's greatest mysterythe existence of extensive vegetation on the vast uplands near the South Pole thousands of years ago. Shackleton brought back sufficient geological evidence to prove that at one time Antarctica was warm enough at least to support a rich vegetable life. What secrets of the early life of the world the continent will reveal when thoroughly explored remains for specula

Unearth Secrets of Nature in Old "Rip's" Home

Cobleskill, N. Y .-- If Rip Van Win-Hudson highlands lately, instead of during the Revolution, he would have had real occasion to rub his eyes on awakening.

Man has lately been prodding at nature in Mynherr Van Winkle's old neighborhood, unearthing secrets at which Rip could only make superstitious guesses.

What would Rip think, for instance, of electric elevators, descending through a concrete shaft, 156 feet into the earth, into underground chambers where a myriad of electric lights play on the miles of stalactites and stalagmites?

This is the engineering feat recent ly completed for the pleasure of motor tourists at Howe caverns here. Howe caverns remained unexplored until recently, because of the extreme inaccessibility. Increase of motor travel in the neighborhood has led to the construction of roads which

place the entrance to the caverns on the main highway, forty miles west of Albany and thirty miles southwest of Schenectady.

Sweden's First Talkie Scores Huge Success

Stockholm.—Sweden's first talking picture, "Say It With Music," has just been sold to France and Belgium. It was recently shown at Oslo, Norway, and will soon be presented in Denmark and Finland. It has proved an enormous success in Stockholm, where it is now in its third month.

The picture was produced by the Swedish Film Industry company, largest organization of its kind in the country, and many scenes were shot at Raasunda, near Stockholm, which has been called "Sweden's Hollywood."

The lead is played by Miss Elizabeth Frisk, who also starred in "People from the Northland." The young actress, who is perhaps the most popular screen star in Sweden today, has just signed a new contract with the Film Industry company.

Dog Obeys Voices of Two Who Claim Him

Butte, Mont.-The only one who could settle the burning question either couldn't or wouldn't. He was a gigantic police dog, ownership of which both Mrs. Angela Sarta and Fred Burgman vigorously claimed. "Lie down, Laddie," ordered Burg-

Laddie obediently reclined. A few minutes later: "Lie down Rintin," commanded Mrs. Sarta. And Rintin immediately sprawled

on the floor. Rintin and Laddie were one and tue same and the question remained unsettled

FARMER, faced with his spring plowing, was in need of an additional team of horses. He inspected a number of animals offered for sale without finding what he wanted. A neighbor, however, telephoned him to say that he knew of a city coal dealer who wished to dispose of several horses. The farmer then called up the coal man and was able to buy a pair of horses at a most satisfactory price.



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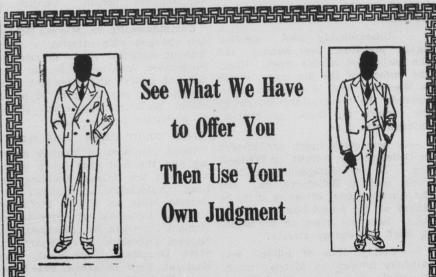
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