SCIENCE SERVICE
1701 MASSACHUSETTS AVENUE
TELEPHONE, MAIN 2615
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EDWIN E. SLOSSON, EDITOR
HOWARD D. WHEELER, MANAGER

SCIENCE NEWS BULLETIN

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BROADCASTS

Radio News of the Week

RADIO CONFERENCE WILL CONVENE FEBRUARY 27

(By Science Service)

Washington, Feb. 00.- On Feb. 27 the first active steps will be taken by a committee of government radio experts to straighten out the mix-ups in the ether that have been caused by the phenomenal growth of radio telephone broadcasting in the last few months.

At President Harding's request, Secretary Hoover has instituted this radio conference which will undoubtedly bring about a revision of the wave-lengths now used between 150 and 1000 meters.

Dr. S. W. Stratton, director of the Bureau of Standards of the Department of Commerce, will head the committee which will include radio experts from the Commerce, Navy, Post Office, War, Agriculture and other departments that are concerned with radio matters,as well as a few private radio engineers and representatives of the American Radio Relay League, the organization of amateurs.

It is expected that the committee after a consideration of technical matters will call before it representatives of the commercial organizations interested in wireless, including those engaged in broadcasting.

The conference will decide what it is necessary to do to clear up the situation, what can be done under the present laws, and what new legislation is necessary.

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EDITORS: THIS NEWS REPORT CARRIES 40 SEPARATE ITEMS, 16 OF WHICH ARE NEWS STORIES. THE WIDE RANGE OF SCIENCES COVERED INCLUDES: MEDICINE, RADIO, AGRICULTURE, EXPLORATION, ARCHEOLOGY, SEISMOLOGY, AERONAUTICS, ASTRONOMY.

PROHIBITION OF BROADCASTING
WILL NOT SPOIL RADIO CONVENTION

(By Science Service)

Washington, Feb. 00.- The recent instructions issued by the Department of Commerce temporarily discontinuing broadcasting by amateurs will not spoil the broadcasting of the radio features of the coming convention of radio amateurs to be held here Feb. 17 and 18.

Officials of the Bureau of Navigation who administer the radio laws say that the recent prohibition was not aimed at the official broadcasting of the American Radio Relay League or radio experimenters. Amateurs who have been promiscuously sending out phonograph music and interfering with radio telegraph communication transmitted by regularly licensed stations, either commercial or amateur, are those who are restricted by these instructions, which will remain in force until after the radio conference.

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CAN ALLOT MANY MORE RADIO
RIGHTS-OF-WAY WITHOUT INTERFERENCE

(By Science Service)

Washington, Feb. 00.- The coming radio conference to consider the radio broadcasting situation will be concerned chiefly with wavelengths from 150 to 1000 meters or expressed in frequencies, from 2,000,000 to 300,000 cycles per second. It must determine how the numerous uses of the radio telephone and telegraph can be accomodated to the limited number of channels of communication through the ether that lie between those limits.

Under present conditions, the wavelengths authorized for use are as follows: Amateurs have a franchise on all wavelengths under 200 meters, and 200 meters is used generally for amateur work; 300 meters is used between ships or from ships to shore; miscellaneous broadcasting, such as music, is done on 360 meters; 375 meters is used for special amateur work; 410 meters is used by colleges, particularly in the middle west for exchanging sport news and other matter; 450 meters is another ship wavelength; 485 meters carries the official governmental broadcasting of crop, market and weather reports; airplanes and ground stations talking to airplanes use 525 meters; 600 meters is another wavelength reserved for ship use; the Navy radio compass uses 800 meters; and the radio beacons of the Lighthouse Service have a monopoly of 1000 meters. All the wavelengths between 600 and 1600 meters are especially reserved for governmental use.

Theoretically, frequencies differing by one per cent. can be used at the same time without serious interference. This, however, is not the case now, because of the lack of sharpness of wavelength of both the sending and receiving apparatus now in use. It is certain, however, that even under present conditions at least twice or three times as many wavelengths can be used simultaneously as are now authorized. Future expansion of the number of usable wavelengths will come through the use of apparatus capable of sharper tuning.

Since the rise in popularity of miscellaneous broadcasting, there has been considerable interference between the general broadcasting on 360 meters and the special amateur messages on 375 meters; this has been attributed largely to instruments not being tuned exactly to the proper wavelengths.

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WIRELESS CHAIN WILL
LINK ALL BRITISH EMPIRE

(By Science Service)

London, Feb. 00.- The first link in an Imperial wireless chain that will connect all of the British empire will be in operation shortly between England and Egypt. There are two main routes of the plan which has been under discussion in England for some time. One chain of stations will run from England to South Africa by way of Egypt. Another will also begin in England, pass through Egypt, and thence go to India and Singapore and Hong Kong.

CHAULMOOGRA OIL NOW USED
IN TREATING LARYNGITIS

(By Science Service)

Philadelphia, Feb. 00.- Chaulmoogra oil, which has been bringing health to many sufferers from leprosy, is now used in the treatment of tuberculous laryngitis. Dr. R. M. Lukens, of Jefferson Hospital and Henry Phipps Institute, of this city has treated patients for the past year by spraying the oil into their diseased larynges. While the treatment is not all that is to be desired, it is not unpleasant or distressing, and gives better result than cocain or other drugs previously used. Laboratory studies show that chaulmoogra oil does not kill the tubercle baccilli, but the tests on patients show a marked aid in healing diseased lesions on the organ that produces the sound when a person talks.

SCIENCE OF GROWING THINGS

AGRICULTURAL NEWS OF THE WEEK.

GROW TWO KINDS OF APPLES,
INVESTIGATORS ADVISE.

(By Science Service)

Pullman, Wash., Feb. 00.- One variety of apples grown alone, whether one tree or a whole orchard, does not produce as large a yield as when two varieties are planted side by side, according to recent investigations made by the Washington Experiment Station. This has been proven in various orchards in the Pacific Northwest, and several commercial growers have discovered it to their sorrow, because they planted whole orchards of one variety to meet market demands.

The cause for the low yield of inferior fruit is the same as inbreeding with animals and marriage of relatives. In such cases we know the offspring to be inferior physically and often mentally, while with apples there is often a total failure of the blossom to set fruit. It has been known for many years that many varieties of cultivated plants are self-sterile, that is, will not produce fruit when the flowers are fertilized with pollen of the same variety. The investigations carried on in many orchards under varying climatic conditions, show that "self-sterility is more common among varieties of apples than is self-fertility."

In this connection it is interesting and of commercial importance to note that the size, shape, quality and color of the apples are not changed by the blossoms being fertilized with pollen of other varieties. In addition, most of the common commercial varieties in the Pacific Northwest have been found to overlap in their time of blossoming, so that almost any combination of varieties may be planted in the same orchard with satisfactory results. The experiment cited gives the records on eighty different varieties grown in the same locality, so that it seems safe to assume that in other sections the most common varieties may be planted together and have cross-pollination insured. Because two varieties of apples are cross-pollinated, however, is not proof that there will be 100% of fruit set, but results show that more and better apples will be produced.

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HIGH-GRADE SWEET CORN
RAISED ON MUCK SOIL

(By Science Service)

Washington, Feb. 00.- Sweet corn for canning will probably be produced in the future to a large extent on muck or decayed peat soil. Experiments made by James H. Beattie, horticulturist of the U. S. Department of Agriculture, in cooperation with

the American Peat Society, during the last growing season, show that on the Kankakee marsh area in Indiana, Charlevoix, a yellow variety of sweet corn that cans well, gives a yield of 6.38 tons per acre, three times that of the average for the United States.

The production of sweet corn for canning is the second largest of the important canning corps in this country. In 1920, 577,464 tons of corn were canned.

"Yields of sweet corn on the areas now devoted to its growth are low and liable to become even lower," says Mr. Beattie. "The acreage value of sweet corn is not high as compared with lettuce or celery, and there is, of course, little prospect that the crop will be produced on the high-priced muck soils now devoted to these crops, but it is a possibility for production on the low value areas of Ohio, Michigan, Indiana, Minnesota and other states."

Next summer it is expected that the experiments will be placed on a commercial basis and that a small experimental cannery will be utilized.

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MINUTE SKELETONS USED
IN CLARIFYING FRUIT JUICES

(By Science Service)

Washington, Feb. 00.- The siliceous skeletons of minute animals, who lived in ancient seas ages ago, are used in clarifying fruit juices. Diatomaceous earth, or kieselguhr, formed of incalculable millions of these fossil remains that form extensive deposits in various parts of this country, has long been used in large-scale commercial filtering operations. Now Joseph S. Caldwell, plant physiologist of the Department of Agriculture here, has devised a method that shortens the labors of the kitchen experimenter with fruit juices. If the earth, after it has once been used to remove suspended matter from fruit juice, is heated red-hot, it can be used again.

NEW COMET DISCOVERED
AT CAPE OF GOOD HOPE

(By Science Service)

Harvard College Observatory, Cambridge, Mass., Feb. 00.- Information received here from the Bureau Central International at Brussels, announces the discovery of a comet on January 20 at the Cape of Good Hope Observatory. The comet is described as very faint.

CATTLE SUFFER FROM ONE
OF WORLD'S SMALLEST THINGS

(By Science Service)

Washington, Feb. 00- The serious epidemic of foot-and-mouth disease of cattle that Great Britain is now experiencing is due to one of the smallest living things that is known to man. The tiny infective bodies can be seen only under the ultra-microscope and would probably never have been discovered but for their effects.

The foot-and-mouth disease is an acute, highly contagious fever particularly of cloven-footed animals, but it may affect other animals such as cats and dogs which serve to spread infection widely and to render eradication extremely difficult. The malady is sometimes contracted by farm or stockyard attendants and by those drinking milk from infected udders, but among humans it is comparatively rare and usually takes a mild course.

The infecting virus is borne in the watery fluid found in the vesicles or pustules which develop about the mouth and feet and on the udders of affected dairy cattle. In this as in other so-called "filterable virus" diseases such as rabies and small pox, and in the fifty or more infectious, chlorotic or "yellowing" diseases among plants, the causative agents or "germs" are at some stages of their growth too small to be visible under the ordinary high power microscope. Furthermore, they pass readily through the porcelain filters commonly used in filtering out ordinary germs or bacteria.

The United States saw a widespread outbreak of foot-and-mouth disease in the fall of 1914 and five less serious epidemics between 1870 and 1908, but the disease has never gained a lasting foothold in the United States, due to rigid quarantine and to drastic measures used in stamping it out. Foot-and-mouth disease has ravaged Continental Europe practically ever since the different diseases of domestic animals have been recognized as separate entities and it is always more or less prevalent there and in South America.

ANOTHER SCIENTIFIC MAN
SLATED FOR CABINET

(By Science Service)

Washington, Feb. 00.- The Cabinet will have the services of two technically or scientifically trained men, if, as seems probable, Dr. Hubert Work, now first assistant post master general, is named postmaster general to succeed Will H. Hays, who has resigned. Dr. Work is president of the American Medical Association. Herbert Hoover, secretary of commerce, is a mining engineer and at the time of his appointment to the Cabinet was the first president of the Federated American Engineering Societies.

NEWS OF THE STARS

Astronomers Asked to Study Mars.

By Isabel M. Lewis,
of the U. S. Naval Observatory.
(Science Service)

Amateur and professional astronomers in the southern hemisphere are now being urged by Prof. W. H. Pickering, well-known Martian observer, to make a series of drawings of the planet Mars at its coming apparition in June. Mars will be nearer to the earth in June than it has been at any time since 1909, though not as close as it will be in 1924, the year of its nearest approach which occurs once in every fifteen or seventeen years. At the coming opposition in June, however, the planet is in the southern part of its orbit and so is more favorably situated for observation in the southern hemisphere than in northern latitudes.

The planet can be observed to the best advantage between May 10 and July 20 or for about a month preceding and following its date of opposition on June 10. Its nearest approach to the earth for this apparition will occur on June 18 at which time it will be about 42,000,000 miles away. It will be necessary to make only six drawings of the planet between the dates mentioned requiring only one hour each. Prof. Pickering hopes that professional astronomers at the large observatories in South Africa, South America and Australia will be willing to devote this much time to a study of the planet. Detailed information regarding the dates and hours for making the drawings are given in the Report of Mars No. 15 and all results are to be forwarded for the Report of Associated Observers to Prof. W. H. Pickering at Mandeville, Jamaica.

The canals of Mars are visible in greatest numbers and are most conspicuous immediately following the date of the planet's summer solstice which occured the last of December, 1921. They will not be particularly noticeable in June and attention will be given principally to the shape and color of the so-called "seas" of Mars which are probably stretches of vegetation rather than bodies of water. It is expected that the green color of the southern Martian "seas" will be very noticeable this year in contrast to their earlier greyish tint.

Prof. Pickering has recently been making some interesting observations of the appearance of lakes, seas and stretches of vegetation on the surface of our earth as viewed from aeroplanes at considerable elevations with the hope that some information may be obtained that will shed light on the cause of the various color changes that take place on Mars. Aviation may thus aid astronomers.

It has been found that certain forms of vegetation appear black or grey when viewed from high altitudes and that fresh water lakes appear decidedly black under certain conditions. Salt water, on the other hand, is extremely blue in tropical regions but in high latitudes is a dark greyish-green. There are many exceptions to these rules depending upon the depth of the water and the nature of the bottom upon which it rests.

On the moon as well as on Mars there are many varied shades and tints of color to be seen; greens and blues, browns, yellows and reddish-browns, as well as blacks whites and greys. A study of the color effects produced by our own vegetation and vast seas when viewed from great elevations may aid in an interpretation of the splatches of color that are easily observable on Mars and the moon.

MACMILLAN NOW IN WINTER QUARTERS IN BAFFIN LAND

(By Science Service)

Washington, Feb. 00.- Dr. D. B. MacMillan and his expedition are wintering at a place called Nauwatta about eighty miles north of Cape Dorset, Baffin Land. This information has been received by the Department of Terrestrial Magnetism of the Carnegie Institution of Washington, which is cooperating with the MacMillan expedition. In November this news started south from the Hudsons Bay post manager at Amadjuak, and it has reached the United States through the Customs Service of Canada.

Nauwatta is considerably south and east of Fury and Necla Straits where Dr. MacMillan orginally intended to spend the winter, but the chosen location, farther from the magnetic pole, is declared to be better for the carrying out of the magnetic, atmospheric-electric, and auroral observations that are planned.

Dr. MacMillan is in the land of mysterious polar lights, whose shooting rays dance in rhythm with the quivering magnetic needle. Special photographic instruments ... were carried into the polar regions by him for the first time. These will undoubtedly give data which will determine whether the aurora borealis comes close to the earth or whether it penetrates no deeper than sixty miles into the earth's atmosphere as Norwegian tests seem to indicate.

Dr. MacMillan plans to make an exploring sledge trip into the interior of Baffin Land to map and investigate the hitherto unexplored lakes of Nettilling and Amadjuak. His winter station is well located for this trip.

After Dr. MacMillan obtains a supply of gasoline from the Hudsons Bay Co. this coming summer, he intends to return to the United States.

GLACIAL MAN MAY BE
FOUND IN KENTUCKY CAVES

(By Science Service)

Lexington, Kentucky, Feb. 00.- Among the enormous number of animal and human bones that lie in the numerous caves of the Ohio Valley awaiting discovery by archeologists and geologists, there may be discovered evidences that glacial age man existed here in America. This is the belief of Arthur M. Miller, professor of geology in the University of Kentucky, who has been investigating and excavating new finds of ancient bones that have been made near Lexington.

The caves of Kentucky are similarly situated to those of France, in which the skulls and bones of pre-historic man in Europe have been found. Like the French caves, these of Kentucky are on the southern margin of the Pleistocene ice sheet, and if man existed in America as far back as the great ice age, these caves may have served as a final resting place from which ancient man may now be excavated. No accepted evidences of glacial man have yet been found in America.

In two caves near the city, Prof. Miller found bones identified as belonging to Indian man, raccoon, ground-hog, gray fox, deer, buffalo, and bear. The bear skeleton, partly fossilized, is supposed to be the remains of a polar bear who lived in the great ice age before the present geologic era.

One of these caves was first explored by three young women, and the other was first entered by a boy of fifteen.

"The animal remains belong chiefly to those that were trapped in sinks or that were dragged into the caves by predaceous animals", says Prof. Miller. "The human beings whose remains are found in the caves were either buried there or they sought shelter at the entrances."

Thomas Jefferson, president of the United States and General William Henry Harrison were among the prominent men who excavated mammalian remains at Big Bone Lick in the early years of the last century. Interest in the entombed bones was more intense then than it has been now because caves were discovered often during the mining of nitrous earth when the saltpeter industry flourished in that part of the country.

After the war of 1812 the saltpeter industry declined and with it the archeological excavations. Recently, however, when lead mining operations in Scott County, Kentucky, brought new caves to light, the remains of a tapir, an extinct horse and deer, all apparently Pleistocene in age, were found.

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333 EARTHQUAKE RECORDING STATIONS IN THE WORLD.

(By Science Service)

Washington, Feb. 00.- There are 333 stations in various parts of the world where recording instruments are always alert to the least tremor of the earth's crust.

Dr. Harry O. Wood, secretary of the American Geophysical Union, in cooperation with the National Reserach Council, has compiled a list of them for the use of the scientists who spend their times studying earthquakes.

Japan, one of the two great earthquake areas of the world, has 56 seismologic stations, nearly twice as many as the whole of the United States, in which 32 are located. Italy, the other country frequently visited by earthquakes, has 42 stations.

Both Florence and Naples, Italy, can boast of three stations, and the cities that have two seismographs are: New York; Washington; Siena, Italy; Beirut, Asia Minor; Kyoto, Japan; Tokyo, Japan; Sydney, Australia; and Honolulu.

Stations in the United States are located at: Northfield, Point Loma, Reno, Ann Arbor, Baltimore, Berkeley, Cambridge, Cheltenham, Chicago, Cleveland, Denver, St. Louis, Salt Lake City, San Jose, Santa Clara, Seattle, Sitka, Spokane, Ithaca Lawrence, Milwaukee, Mount Hamilton, New Haven, New Orleans, New York, Spring Hill, Swarthmore, Tucson, Washington, Worcester.

PURE ETHER STARTS MOTOR AT 37 BELOW

(By Science Service)

Ottawa, Canada, Feb. 00.- Temperature, minus 37 degrees. Problem, start an airplane motor.

Most of us would have a tendency to ski home if we had to spend the night away from base with an airplane in very cold weather.

Prof. Robb at Edmonton was given this problem to solve by the Air Board so that members of the air force will have the best method of procedure in case they have to spend the cold nights out.

At minus 37 degrees, he finds that warm ether must be used to dope a motor before successful starting. Various mixtures of ether and gasoline are recommended for higher temperatures, until at 20 degrees Farhenheit above zero, pure gasoline can be used.

TWO PAGES OF FILLERS OR A DAILY FEATURE

DO YOU KNOW THAT -

The cost of highway improvement for the entire country during 1921 amounted to $4.40 per individual, or a little more than a cent a day.

Recent studies show that the poor keeping qualities of corn meal are due to a number of bacteria and fungi which grow in it if the moisture content exceeds 13 per cent.

A concrete chimney in Japan 570 feet high has been found to sway less than an inch in a fifty mile per hour wind. With a seventy-eight mile wind, it vibrated a little over seven inches.

Gas pipes filled with concrete were recently used in the construction of a small trestle in British Columbia.

DO YOU KNOW THAT -

A prize of 100,000 francs is being competed for in France with the object of discovering a practical and economical motor fuel with alcohol as the basis of its composition.

The city of Des Moines, Iowa, now has a municipal astronomical observatory. The grounds were donated by the municipality, and the funds for the building raised by popular subscription. The equipment is supplied from the department of astronomy of Drake University.

The huge South American tortoise, one of the largest of living reptiles, is no larger than a silver dollar when it hatches from the egg.

Blue tissue paper wrapped around garments keep white ones from yellowing and delicately colored ones from fading.

DO YOU KNOW THAT -

Alterations in ancient Greek manuscripts were so common and so easily made that Democrates composed his book of medicaments in metrical form so that there might be no change made in numbers or words.

The dandelion, the English sparrow, the gipsy moth, and a number of other weeds and pests that try our patience in this country, are of European origin.

A great many valuable food fishes are destroyed every year by oil discharged into the water from gas plants, petroleum distilleries, tankers, oil-burning vessels, motor-boats, and also by the washings of oil and tar from roads.

The Chinese make a kind of noodles out of pea flour. They resemble fiddle-strings in appearance, both in their dry state and after they are boiled, being very tough and slippery, and much more difficult to manage than spaghetti.

DO YOU KNOW THAT -

Foot-and-mouth disease of cattle was recognized in England as early as 1839.

A ton of forest leaves or a ton of broomstraw is worth as much from a fertilizer standpoint as a ton of manure.

Canada ranks next to the United States in water-power development, with 2,418,000 horsepower, or over 10 per cent of the world's total.

An area in Nevada is covered by sand dunes fully seventy-five feet deep travelling eastward. Telegraph poles have been buried so deep that they had to be spliced.

DO YOU KNOW THAT -

The loss to this generation from diminished longevity is estimated to be $26,000,000,000.

It is estimated that the wood wasted annually in sawmills as sawdust and rejected portions would produce 300,000,000 gallons of fuel alcohol.

If a few rows of squashes are planted in cucumber and cantaloupe fields, the moths that lay the pickle-worm eggs will attack the squashes and not the other fruits.

The space that should be allowed for the storage of a ton of coal is about forty cubic feet for a ton of 2000 pounds and forty-five cubic feet for a ton of 2240 pounds.

DO YOU KNOW THAT -

It has been found that silage produced in tight barrels compares favorably with that produced in ordinary silos.

Blotting-paper is a superfluity in desert countries. The evaporation capacity of the air is so high that ink dries as fast as it flows from the pen.

There were 450,000 students in attendance at the universities, colleges and professional schools of this country last year, a gain of 36 per cent over the attendance in the war years of 1917-18.

The Eiffel tower is designed to stand a wind pressure of 61½ pounds per square foot, assuming the lattice work as full surfaces. If a wind of this power should sweep over Paris little would be left standing there except the tower.
