

Radiovision on Air Across Country

Radiovision

The amateur radiovision enthusiast will soon have at least 21 stations broadcasting such programs, located all the way from Lexington, Mass., to Los Angeles, Calif. These are operated by eleven different broadcasters. Nine are now broadcasting, while two have their stations under construction. Several others have applied to the Federal Radio Commission for authority to enter this field, but so far have neither been granted a license to operate nor a construction permit.

Included in this number are three of the chief manufacturing firms. The Radio Corporation of America, in New York City, has three bands of 100 kilocycles width each. One is now in use, while the other two soon will be. The General Electric Company, at Schenectady, N. Y., is regularly broadcasting on three different frequencies, including 790 kilocycles, that of the WGY broadcast station. These are all on ten kilocycle widths. The Westinghouse Electric and Manufacturing Co., of Pittsburgh, Pa., has been assigned two bands of 100 kilocycles width, at wavelengths of 63 and 150 meters. The former is now in use, but on an irregular experimental schedule.

Though the Federal Radio Commission has recently issued a new order regulating radiovision broadcasting, this does not affect the present situation very greatly. One of the chief points is that it may be

done freely, though with the necessary approval by the commission, on frequencies above 1,500 kilocycles, or wavelengths below 200 meters, the lower limit of the broadcast band. Radiovision broadcasting on frequencies between 550 and 1,500 kilocycles, the present band of the broadcast stations, will be permitted, with certain limitations. One is that no band wider than 10 kilocycles may be used for the purpose. Another is that it shall not be done more than one hour each day, and that it shall not be done between 6:00 and 11:00 p. m., in order not to interfere with broadcast listeners.

All of the present radiovision broadcasters are now using the shorter wavelengths, except the broadcasting stations WGY, WRNY, WCFL and WIBO. None have bands wider than 10 kilocycles, as that is the width of all sound broadcasting bands. Of these stations, only WRNY has been broadcasting radiovision in the evening hours, so that appears to be the only station even slightly affected. However, the radio commission has announced that there will be further reallocations of the radiovision bands. It is believed that this action will be to limit all of these broadcasters to a very few bands, of 100 kilocycles each, and let them divide time on them. In view of the limited power of most of the stations, and the fact that none broadcast more than a

short time daily, the necessary time division should be worked out to the satisfaction of all.

The Radio Manufacturers Association recently adopted as standard the 48 line, 15 picture per second method, with the scanning across the frame from left to right and top to bottom, as one reads the pages of a book in English. Though some of the broadcasters have not yet adopted this, four are now using it and probably more will follow. Some of the stations are using fewer lines, or fewer pictures per second. This is done in an effort to get more varieties of light and shade in the limited bands now assigned. With the 100 kilocycle band that will be used in the future, ten times the width used by many present broadcasters, it will be possible to send considerable detail with the 48 lines, and fifteen pictures a second.

Even the highest pitched sounds ordinarily heard are below 5,000 vibrations a second, and so may be sent satisfactorily in the present broadcast band. With radiovision, however, the number of vibrations required per second may be many times as great. Hence it requires a wider band. If the number of vibrations is cut by limiting the number of lines to the picture, there is loss of detail, or if the number of pictures per second is lower, there is an objectionable flicker.

Science News-Letter, November 17, 1928

Aztec New Years

Archæology

School children of Peru are being urged to revive one of the most picturesque and important customs of the ancient inhabitants of tropical America—the celebration of the old native new year's day. Last year, young Mexicans revived the festival, which is in accordance with the archæological findings of Mrs. Zelia Nuttall, well known specialist in Mexican archæology.

Priests of the Aztecs, Peruvians, and other inhabitants of the tropics watched the skies for a sign to tell them when to record the passing of a year and when to plant their crops. Twice a year, the sun passed through the zenith, and stood directly overhead and they observed that there was a remarkable moment when a vertical object was entirely shadowless, Mrs. Nuttall states. They interpreted this as (*Turn to next page*)

Typhus Expert Honored

Pathology

Prof. Charles Nicolle, to whom the Nobel Prize in medicine for 1928 has just been awarded in recognition of his work on typhus fever, made his first discoveries about the disease in 1909. At that time he was a surgeon in the French Army, stationed at Algiers. Now he is director of the Pasteur Institute of Tunis.

Nicolle found that the body louse was more than pest and was an actual danger to life and health because it carried the germ of typhus fever. This disease had been a scourge of armies, jails, almshouses, tenements and all places where people live in close contact and without proper means for keeping clean. The louse also abounds in such places. Now, thanks to Prof. Nicolle, it is known that getting rid of the louse prevents typhus fever. (*Turn to next page*)

Seven-Inch Tail on Baby

Anatomy

A human tail of almost record-breaking length has just been discovered appended to a baby girl born at Knoxville, Tennessee, one of the states that outlaw evolution. This tail was reported to be seven inches long. The record is a nine-inch tail on a twelve-year-old boy from French Indo-China.

Only about twenty-five authentic cases of babies born with tails are known to science. However, every human being, including the late William Jennings Bryan, had a tail at an early stage of his life, stated Dr. Adolph H. Schultz, associate professor of physical anthropology at the Johns Hopkins University and research associate of the Carnegie Institution of Washington. Dr. Schultz has asked that the unique appendage be sent him for study.

Before birth, when man is in the embryo stage of (*Turn to next page*)

WHAT TO SEE BY RADIO

Science Service Radiovision Broadcasting Schedule

(Revised to November 8, 1928)

- BEACON, N. Y.: 2XBU, H. E. Smith, 100 watts, 4,500-4,600 kilocycles or 66 meters. Standard scanning (see note). Station now nearing completion.
- CHICAGO, ILL.: WCFL, Chicago Federation of Labor, 1,500 watts, 615-625 kilocycles or 484 meters. Standard scanning. Irregular broadcasts in morning hours.
- 9XAA, Chicago Federation of Labor, 500 watts, 4,555-4,565 kilocycles or 66 meters. Standard scanning. 1 to 2 p. m., Central Standard Time, daily except Sunday.
- WIBO, WIBO Broadcasters, Inc., 5,000 watts, 1,475-1,485 kilocycles or 203 meters. 45 lines per frame, 15 frames per second. Use special scanning disc with three sets of 15 lines each forming complete picture. 1 to 1:30 a. m., Central Standard Time, except Saturday, Sunday and Monday.
- LEXINGTON, MASS.: 1XAY, Donald R. Laffin, 300 watts, 4,800-4,900 kilocycles or 62 meters. Standard scanning. 3 to 4 p. m. Eastern Standard Time, daily and irregularly with WLEX for voice.
- LOS ANGELES, CAL.: 6XC, Pacific Engineering Laboratory Co., 500 watts, 4,500-4,600 kilocycles or 66 meters. 36 lines per frame, 18 frames per second. 10:30-11:30 p. m. Pacific Standard Time.
- MEMPHIS, TENN.: 4XA, WREC, Inc., 5,000 watts, 2,400-2,500 kilocycles or 122 meters. 24 lines per frame, 15 frames per second. Irregular broadcasts.
- NEW YORK, N. Y.: 2XBW, Radio Corporation of America, 5,000 watts, 15,100-15,200 kilocycles or 20 meters. Irregular experimental broadcasts with various scanning methods. The Corporation has also been granted construction permits by the Radio Commission for 2XBV, 4,500-4,600 kilocycles or 66 meters, and for 2XBS, 4,600-4,700 kilocycles or 64 meters.
- WRNY, Experimenter Publishing Co., 250 watts, 914-924 kilocycles or 416 meters. 48 lines, 7½ frames per second. First five minutes each hour while on air. New schedule pending to conform with G. O. 50, of the Federal Radio Commission, limiting radiovision broadcast on broadcast bands to non-evening hours.
- 2XAL, Experimenter Publishing Co., 250 watts, 9,695-9,705 kilocycles or 31 meters. Scanning and schedule same as WRNY above.
- PITTSBURGH, PA.: 8XAV, Westinghouse Electric and Manufacturing Co., 2,000 watts, 4,700-4,800 kilocycles or 63 meters and 15,100-15,200 kilocycles or 20 meters. 60 lines per frame, 16 frames per second. Irregular experimental schedule.
- SCHENECTADY, N. Y.: WGY, General Electric Co., 50,000 watts, 785-795 kilocycles or 380 meters. 24 lines per frame, 20 frames per second. New schedule pending to conform with Federal Radio Commission, G. O. 50.
- 2XAF, 2XAD or 2XO, General Electric Co., 40,000 or 25,000 watts. Under these experimental licenses, frequencies of from 5,996 to 29,982 kilocycles or 50 to 10 meters may be used. At present radiovision broadcasts on one or more of these stations are on 13,655-13,665 kilocycles or 22 meters and on 9,545-9,555 kilocycles or 31 meters. New schedule pending.
- WASHINGTON, D.C.: 3XK, C. Francis Jenkins, 250 watts, 6,415-6,425 kilocycles or 47 meters and 1,600 to 1,610 kilocycles or 187 meters. Standard scanning. 8 to 9 p. m., Eastern Standard Time, Monday, Wednesday and Friday. Radio-movies. Equipment now under construction for radiovision and radiomovie broadcasting on 4,900-5,000 kilocycles or 61 meters at 5,000 watts.
- NOTE: Standard scanning refers to the standard as adopted by the Radio Manufacturers Association. This uses 48 lines per frame, 15 frames per second, with scanning consecutive, from left to right and top to bottom, as one reads the pages of a book.

Seven Inch Tail—Cont'd

his life, he has a tail one-sixth the length of his body. Generally this tail disappears before birth, though the rudiments of the vertebrae in it may be found in man's spinal column, where they are known as the small bones of the coccyx at the end of the spine.

Man's evolutionary relatives, the higher apes, have even less of a tail than man himself, Dr. Schultz said. In the orang-outan the embryonic tail disappears more completely, leaving only two or three rudimentary tail vertebrae. In man there are four or five of these and sometimes six at the base of the spine.

When the tail persists externally, it never has any bones but is made up of nerves, blood vessels and muscles. In man and apes it is evidence of evolution from a tailed ancestor.

Science News-Letter, November 17, 1928

Typhus Expert—Cont'd

Prof. Nicolle experimented with monkeys and apes. First he injected blood from a typhus fever patient into chimpanzees. These apes got the disease. From the chimpanzee he transferred the disease, in the same way, to another kind of monkey. Finally he transmitted typhus from monkey to monkey by the bite of the body louse. This proved to be the way in which the disease is carried from man to man.

Nicolle's work has since been substantiated by other workers. This discovery formed the basis of typhus fever prevention in the armies during the World War. Delousing to check and prevent typhus is now a regular public health procedure like vaccination for the prevention of smallpox.

Science News-Letter, November 17, 1928

Aztec New Years—Cont'd

the descent of the Sun-God, and knew that it meant the coming of the rains and that crops must be planted.

Mrs. Nuttall, who is now in New York, states that revival of the celebration as a national festival of school children in Peru is advocated by the Geographical Society of Lima.

Science News-Letter, November 17, 1928

Christmas Cards

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