

METEOROLOGY

Cold Wave Broke Records

► THE BRUTAL cold wave sweeping most of the country the past weeks has broken many low temperature records, not only for the date, the month and the season, but also for all-time.

The reason the severe winter weather swept so far south was a very deep trough in the world-circling band of winds known as the planetary wave. This trough was centered over the Mississippi Valley. To the west of it, an extremely high ridge in the planetary wave acted like a funnel to pour cold Arctic air down into the trough.

The planetary wave is a meandering river of winds some 30,000 feet above the earth's surface. The way in which it meanders, which changes slowly and gradually, is a major factor in determining earth's surface weather.

The ridge in these upper atmosphere winds during early January extended from eastern Alaska southward and a little eastward. It was what weathermen term an extremely strong ridge, and its pattern did not change as fast as weaker ridges.

The pattern of ridges and troughs in the planetary wave was such that there was also a trough over western Russia, and colder than normal air was also predominant there at the same time.

A similar weather pattern occurred in

January, 1948, but has also occurred more recently in other winter months. Weathermen consider December, January and February as the months of winter.

The three places where new all-time record low temperatures were established are El Paso, Texas, with eight degrees below zero, Raleigh, N. C., with five degrees, and Roanoke, Va., with two degrees. All-time lows mean the lowest temperatures recorded since records were kept, starting mostly in the 1870's.

In New Orleans, the 14-degree temperature recorded on Jan. 11 set a new low for the month, based on records kept since 1874. However, a low of seven degrees was reached there in February, 1899.

Other places where record lows for the month of January were established include: Mobile, Ala., eight degrees; Baton Rouge, La., ten degrees; Evansville, Ind., ten degrees below zero, the coldest since a minus nine degrees was hit in 1919; Midland, Texas, minus six degrees; Albuquerque, N. Mex., minus six degrees; and Galveston, Texas, 17 degrees, equalling the all-time low.

However, the record for lowest temperature ever within the contiguous 48 states still stands as 70 degrees below zero at Rogers Pass, in Lewis and Clark County, Montana.

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EDUCATION

USSR Selective Education

► THE AVERAGE Soviet youth has half as much chance of going to college as his American counterpart. But although higher education in Communist Russia is limited to a chosen few, the number of Soviet graduates in science and technology each year is more than double that resulting from the broader-based democratic educational system of the United States.

With only half as many higher education graduates as the United States, the Soviet Union produces 190,000 engineering, science and applied science professionals annually compared to 90,000 similar U.S. graduates. During the decade of the 1960's, it is estimated that the Soviet rate will reach 250,000 annually, more than twice the anticipated rate for the United States.

In producing this large quantity of professional graduates, the Russians have not sacrificed quality, Nicholas De Witt of the Russian Research Center of Harvard University reported on the basis of a recently completed three-year study under a grant administered by the National Academy of Sciences-National Research Council. His findings are outlined in a detailed 900-page volume, *Education and Professional Employment in the U.S.S.R.*

"Soviet professional higher education in most scientific and engineering fields is at least equivalent to, and sometimes more

extensive than in United States or West European institutions of higher learning," Mr. De Witt emphasized at a news conference in Washington, D. C.

Other observers who have visited the Soviet Union and observed its institutions of learning and research, including Dr. Jerome B. Wiesner, Science Advisor to the President, have said that at the graduate school level, the teaching and institutions in the United States on the whole are superior to those in the U.S.S.R.

Mr. De Witt's report underscores the fact that early exposure to the sciences and mathematics in Soviet secondary schools is mandatory and credits Russian success in developing and selecting students of high competence for professional training to this early exposure. One-third of the curriculum in U.S.S.R. secondary schools is devoted to science and mathematics.

The selective system by which the Russians choose those who will go to college is based primarily on early evidence of ability and competence. There are no quotas based on sex, for example. More than one-half of all Soviet higher education graduates are women who also comprise one-third of all engineering field professionals, as compared with one percent in the U. S.

Educational reforms in the Soviet primary and secondary curricula have increased the

time devoted to academic subjects, but the Soviet Union has no equivalent to the liberal arts program in American universities. The support of education is stronger in the Soviet Union than in the United States, Mr. De Witt noted. Five percent of the gross national product in the U.S.S.R. is spent on education, compared to 3.6% in the United States.

In order to direct educational development to serve the purposes of the collectivist state, the Soviet Government legislates educational reforms in accordance with the preferences of the ruling powers and prescribes all administrative practices and educational policies.

Any attempts at Federal control of education in the United States would meet with almost universal opposition.

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MEDICINE

Brain Disease Seen Caused by "Mono"

► A DISEASE commonly acquired by college students through kissing has been blamed for causing inflammation of the brain (encephalitis).

Encephalitis was attributed to infectious mononucleosis, commonly called "mono" by college students, in four surviving patients, two adults and two children. The cases are reported in the *American Journal of Diseases of Children*, 103:72, 1962.

Drs. W. W. Nichols and B. Athreya of the Camden (N. J.) Municipal Hospital state central nervous system involvement in infectious mononucleosis is uncommon and the diagnosis is difficult.

Less than one percent of "mono" patients die, but when central nervous system complications are present, 11% die. Either antibody response or a direct virus invasion is believed to cause the complications.

All four of the patients had sore throats and prolonged fever. Three of them went into a deep coma and then gradually returned to normal.

The researchers said that while the cases they describe "cannot be dogmatically classified as infectious mononucleosis, this is the category in which they fit best at the present time."

Their research was supported in part by The National Foundation of New York and the National Institutes of Health, Bethesda, Md.

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EDUCATION

Teachers Train by Aiding In Scientific Research

► SCIENCE RESEARCH will be strengthened by 720 college and high school teachers who will participate during summer vacations in basic scientific investigations.

The National Science Foundation has given \$1,600,000 in grants to 95 educational institutions for that purpose.

The idea is not only that research will be aided but that teachers will be better teachers as a result.

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