

DEMOGRAPHY

U.S.S.R. Needs Men

Russia is suffering a severe manpower shortage which has resulted in the widespread use of women in many varied occupations.

FAR GREATER than hitherto believed, World War II casualties have resulted in a severe manpower shortage in the U.S.S.R., as revealed in the 1959 Soviet census.

For every 55 females in Russia there are 45 males. The entire disparity lies in the 32-and-over age group, in which there are nearly two women for every man. Numerically, the female advantage is more than 20,000,000 out of a total population of nearly 210,000,000.

Soviet war losses previously accepted by the West totaled about 7,000,000. But, according to the Population Reference Bureau, which published a translation of the census, losses of two to three times that number of males "is closer to the actual tragic fact."

Robert C. Cook, bureau president, estimates in the *Population Bulletin* (July) that Russia might now have up to 40,000,000 more people had it not been for the casualties and a lower birth rate during the war.

"For ten years after World War II," he says, "the U.S.S.R. was almost pathologically secretive about population data. . . . The postwar crisis in manpower might be the key to this secretiveness, because the U.S.S.R. certainly was aware that the demographic (population study) facts would reveal a serious, inherent weakness greatly impairing her bargaining position, a weakness from which she could not quickly recover."

Mr. Cook regards the manpower situation as possibly being partly responsible for Russia's "bellicose behavior in postwar years as well as her forceful enslavement of satellite countries . . ."

The widespread use of women in all kinds of labor, from street cleaning to medicine, Mr. Cook suggests, came as much from necessity as it did from the desire to "emancipate" women.

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galaxy containing billions of stars. He assumed that stars are born at a rate proportional to the amount of gas in the volume of space containing them.

Dr. Salpeter's analysis showed a large fraction of the material originally present in the Milky Way galaxy was converted into stars in less than a billion years. He also found the mass of gas now present is decreasing only very slowly with time.

White dwarfs, the very dense stars believed to be the final stages of a dying star, make up somewhat less than two percent of the total present number of stars, Dr. Salpeter found. His studies of star formation are also reported in the *Astrophysical Journal* (May).

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ASTRONOMY

Find Supernova in Pegasus

A supernova in the galaxy known as NGC 7331, in the constellation of Pegasus, has been observed. Studies of the galaxies and space are being made.

A SUPERNOVA in another galaxy has been spotted by Dr. M. L. Humason, Mt. Wilson and Palomar Observatories.

A supernova is a "new star" that suddenly blazes forth to several million times its previous brightness. Supernovae sometimes shine with considerable fractions of the total brightness of the galaxies in which they appear. They are believed to occur at the average rate of one in each galaxy every 300 or 400 years.

The last to appear in the Milky Way galaxy in which the sun and its planets are located was in 1604.

The supernova Dr. Humason found is in a galaxy known only by its astronomical catalogue number, NGC 7331. This object is located in the constellation of Pegasus, the winged horse, which can now be seen low in the northeast sky soon after dark.

Brilliant as the supernova is, its brightness as seen from earth measures only 12 on the astronomer's magnitude scale, so a fairly large telescope, such as those at Mt. Wilson and Palomar, is needed to see it.

News of Dr. Humason's discovery, made on June 28, was sent to astronomers in the Western Hemisphere by Harvard College Observatory.

A SEARCH for neutral hydrogen gas in the vast spaces between galaxies has shown that the gas, if present at all, must be very sparse.

Dr. George B. Field of Princeton University Observatory looked for neutral hydrogen in intergalactic space using the radio telescope of Harvard College Observatory.

He checked to see if the hydrogen affected the radio waves sent out by the radio source known as Cygnus A, which is located in a galaxy far from the Milky Way group in which the sun is only one of billions of stars.

His failure to find any effect means that neutral hydrogen occurs very rarely in intergalactic space. Dr. Field reports his negative results and a theoretical discussion of them in the *Astrophysical Journal* (May), published by the University of Chicago.

MOST OF the stars in the Milky Way galaxy to which the sun and its planets belong were formed in less than a billion years.

So concludes Dr. Edwin E. Salpeter of Cornell University, Ithaca, N.Y., from a study of the rate of star formation in a