

VITAL STATISTICS

New People—Same Old Trends

Increase in population and migration westward are old trends still prevalent. The U. S. can feed twice its present population at the same living standards, Tove Neville reports.

► THE UNITED STATES can feed more than twice its present population at the same high standard of living.

This is the estimate of the director of the U. S. Census Bureau, Richard M. Scammon, who told SCIENCE SERVICE he believes the U. S. could, if necessary, feed a population of 400,000,000.

The 1960 census showed the total population for the 50 states to be 179,323,000, which is 28,000,000 more persons than in 1950. The total, including all outlying areas and U. S. citizens overseas, came to 183,285,009, or 29,000,000 more than in 1950.

The 1950 census already showed a trend toward population increase.

Bureau director Scammon said he believes this country can provide for its citizens if it has a will to do it and plans nationally.

This will be necessary in the U. S. in another 40 to 50 years, when the population will double itself if it continues to grow at the present rate.

In the past 60 years the country's population has more than doubled, and every ten and a half seconds of every day a "census clock" in the Commerce Department in Washington adds one more to the total. The 185,000,000 mark is expected to come in November, 1961, and citizen number 200,000,000 should arrive in 1966.

Population Growth Uneven

The population growth during the last ten years was not evenly distributed over the country. Generally the West and Southwest, and metropolitan areas (50,000 inhabitants or over), had the greatest increase in population, much of it from migration.

The historic movement westward continued. During the 1950's it gave California alone 5,000,000 new inhabitants. Rates of growth were also very high in Arizona, Nevada, Florida and Alaska. The migration to metropolitan areas, where now more than two-thirds of the country's population lives, was mostly from farms and small towns.

The decline in the farm population is believed to have created better opportunities for those who remained, but it has also ment many problems for local business and government facilities and for those engaged in educational, religious and social services.

Census results show a migration also took place to states having beaches, those bordering the Pacific and Atlantic Oceans, the Gulf of Mexico and the Great Lakes.

In 1890, two-thirds of all persons in the U.S. lived on farms and one-third in cities. By 1950, this was reversed. Now the percentage in rural areas has declined to about 30%. In 39 states the urban population

amounts to more than half of the total. Only 11 states had a majority on the farms.

New Jersey leads all the states with the largest proportion of city-dwellers, who make up 88.6% of the population. States having more than 75% of their population in cities are: California, Rhode Island, New York, Massachusetts, Illinois, Connecticut, Hawaii and Texas.

The 11 states that have a larger rural than city population are Alaska, Arkansas, Idaho, Kentucky, Mississippi, North Carolina, North Dakota, South Carolina, South Dakota, Vermont and West Virginia.

Many of the largest cities showed a decrease in inhabitants in downtown areas, among them New York, Chicago, Philadelphia and Detroit.

Director Scammon said it was mainly the white population that moved away from the centers of big cities to the suburbs.



COMPUTING THE CENSUS—
Above is the first punch card machine, used in the 1890 census. Below, an employee at the U.S. Census Bureau feeds data into a modern electronic computer, UNIVAC 1105.

Mostly Negroes from farms and the South moved to the centers of cities.

In 1790 the Negro population in the U. S. was 20% of the total. By 1860 it had dropped to 14%, and the decline continued into the 20th century, especially in periods of large immigration. In the last ten years, the Negro population has increased slightly more rapidly than the total population, now making up 10.5%.

During the last ten years the movement of Negroes from the South to the North and West has also increased. In the past decade more than 1,500,000 Negroes have moved from 13 southern states. From Mississippi alone 300,000 migrated. The states of Alabama, Arkansas, Georgia, North Carolina, South Carolina and Virginia lost more than 100,000 each.

Most of these Negro migrants were young adults.

Additional Findings

Other findings of the 1960 census include:

National population density average is now 50.5 persons per square mile as compared to 50.7 in 1950. Had Alaska and Hawaii been states in 1950, the population density then would have been 42.6 persons to the square mile.

In the last decade 49 counties have doubled their population while 1,537 lost inhabitants.

Age-wise, Americans dropped from 30.2 years as the average age to 29.5, the first age-drop since the original census was taken in 1790. Median age in 1800 was 16 years and 22.9 years in 1900.

The average size of families is 3.65 persons. In the northern and Pacific Coast states, the average size of families is below the national average; in the South and mountain states the average family is above the national.

Hawaii has the largest average family and Florida has the smallest. Hawaii also has the largest population of Asiatic origin, more than half of all Hawaiians.

Almost 41,000,000 babies were born in the last ten years and 15,610,000 deaths were counted. The South produced most babies and it also had the largest out-migration.

The greatest population increase took place among the youngest and the oldest citizens. The number of children under 15 increased nearly 40%, to a high degree because of the higher birth rates after World War II. Persons 65 or over increased in number by about a third.

At the same time there was a decrease among the 18- to 34-year-olds. This uneven growth is caused by the uneven annual number of births in the past. The total elementary and high school age group amounted to about 44,000,000.

Housing has improved during the decade. Out of 47,000,000 dwellings, 80% were in sound condition.

Home ownership has increased even more

than the population has. In 1960, 61.9% of all housing units were lived in by the owners. In 1950 only 55% of all housing facilities were home-owned.

The five cities having the largest land area are: Los Angeles, 454.8 square miles; Houston, 328.9; Oklahoma City, 321.5; New York City, 315.1; Hilo, Hawaii, 292.4. Of these, New York has 24,697 persons to the square mile whereas Hilo has only 89.

The five most populated cities are: New

York with 7,781,984; Chicago, 3,550,404; Los Angeles, 2,479,015; Philadelphia, 2,002,512; and Detroit, 1,670,144.

Girls and women outnumber boys and men, except in the Mountain and Pacific states and the Dakotas. In Alaska, women are outnumbered: there are 132.3 men for each 100 women. At the other extreme, Massachusetts has only 93.4 men for each 100 women.

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INVENTIONS

Patents of the Week

A rocket launching and fire control system to make interceptor attack aircraft more maneuverable, versatile has been patented. A new radiation shielding material was made.

► AN IMPROVED rocket launching and fire control system, aimed at boosting the maneuverability and tactical versatility of rocket-armed interceptor attack aircraft, has been patented by four Californians.

Rights to patent No. 2,992,423 were assigned to Hughes Aircraft Company, Culver City, Calif., by inventors George F. Floyd of Rolling Hills, Jack Howard Irving of Santa Monica, Harold R. Kaiser, Woodland Hills, and Ruben F. Mettler, Los Angeles.

The system features a computer-run fire control mechanism capable of directing attacks against bombers or other aircraft "from any direction, and from above or below the target." Split-second accuracy would enable interceptor planes to fire rockets at target craft broadside, rather than being limited to the conventional tail-zone attack course. The target would be bigger and the danger from return fire less.

Computers in the attacker craft would produce signals from tracking radar to guide the craft by the shortest possible route to a correct launching position and fire the rockets. Pilot errors and maneuvering effects would be automatically corrected by continuous recomputation.

Adding a barium sulfate aggregate to the cement, sand and water normally used in concrete mixes gives a shielding material effective against neutron radiation, according to inventor Dr. Lyle B. Borst of New York University. He won patent No. 2,992,175 for the material, described as capable of "slowing down fast neutrons as well as shielding against gamma radiations." Rights were assigned to the Atomic Energy Commission.

The use of a drug compound that reportedly controls epileptic seizures is the subject of patent No. 2,992,163, obtained by Nelson R. Easton, Indianapolis, Ind. The patent covers both the treatment process and "a solid pharmaceutical dosage form for oral administration." Rights were assigned to Eli Lilly and Company, Indianapolis drug manufacturers.

The compound bears the technical name 4-chloro-1,2-pyrazole. Its anticonvulsant action has been successfully tested with adult epileptic patients given daily doses varying

from 50 milligrams to two grams, the inventor reported.

A mechanical chicken plucker capable of defeathering the birds in batches of 12 or more was given patent No. 2,991,497. Inventors Robert W. McKinley and Joseph Howard Ernstes, Greensburg, Ind., assigned rights to the Ashley Machine Company, a Greensburg firm. The concept is not new, but a previously patented feather picking machine handled only one bird at a time, with the operator required to hold the bird. The McKinley-Ernstes device provides for an automatic operation with the birds "confined loosely in batch formation."

Freshly scalded poultry is dropped into a stationary chamber containing a rotating drum, its surface sloped so that small birds fall to the bottom and larger birds stay near the top. Both the inner surface of the chamber and the outer surface of the drum are covered with flexible rubber "fingers." When the drum starts spinning, its fingers remove the feathers through rubbing or stripping action. At the same time, the fixed fingers on the chamber wall slow the speed of the birds but keep the entire batch in a state of agitation.

The machine is adaptable to ducks, turkeys and other fowl, its inventors claim.

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SPACE

Pilots Learn to "Fly" Rings Around Moon

► PILOTS HAVE LEARNED to "fly" rings around the moon.

This was done while "flying" a space craft simulator in an attempt to find out if a pilot could change his flight path as he approached the moon from earth.

The paths of the simulated space ship "shot toward the moon" were set to miss the moon surface by 40 to 80 miles at speeds of from 8,200 to 8,700 feet per second at closest approach.

The pilot was given control of the thrust and torques about all three axes of the craft. The pilot saw a graph of the vehicle rate of descent and circumferential velocity, an altimeter, and vehicle attitude and rate meters.

The pilots soon became adept at "flying around the moon" and learned to establish orbits within a range of 10 to 90 miles above the lunar surface. M. J. Queijo and Donald R. Riley of Langley Research Center, Langley Field, Va., reported to the National Aeronautics and Space Administration.

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TECHNOLOGY

"Flash Evaporator" Produces Fresh Water

See Front Cover

► A NATIVE in Kuwait drinks fresh water produced from sea water by a "flash evaporator" seen in the background of the cover of this week's SCIENCE NEWS LETTER.

A new distillation plant ordered from Westinghouse Electric Corporation, Pittsburgh, Pa., for the Arabian Oil Company will produce 500,000 gallons daily and bring the capacity of the desalting units in the Kuwait area to 5,230,000 gallons a day—the largest concentration of sea water units in the world.

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PUBLIC SAFETY

Urges Making Autos Safe for Accidents

► ENGINEERS should try to design an automobile "safe to have accidents in" under normal conditions of daily use, an accident causation expert with the New York State Department of Health said.

If automobile occupants "were properly packaged, instead of riding like a teacup in an empty barrel," deaths and injuries would be substantially reduced, Dr. William Haddon Jr. of Albany, N. Y., said.

He pointed out that design modifications could eliminate such injury-causing protrusions inside automobiles as knobs, screws and sharply hooded projections above instrument panels. He also quoted a medical textbook citing the fronts of some modern autos as close approaches to an ideal design for "a pedestrian-injuring mechanism."

Dr. Haddon said four percent of all vehicles manufactured strike and injure pedestrians during their period of use, and between one-fourth and two-thirds of all vehicles are involved in accidents in which their occupants are injured or killed.

Safety measures have to be devised that depend on "passive acceptance" by the public, rather than "any degree of continued, active cooperation," he believes. The advance engineering approach is more effective than safety education, just as putting fluoride into public water supplies to prevent tooth decay is more effective than trying to get parents to give their children fluoride pills daily.

"The claims made for highway safety activities are being found to be very largely based on inadequately documented opinion and not on even reasonably scientific evidence," he told the Society of Automotive Engineers in New York.

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