

POPULATION

England Has More Brides, But Fewer Babies

ENGLAND is having more brides, but fewer babies, according to available figures which statisticians here have been studying to see effects of total war on population.

England had the highest marriage rate in its history last year, says a statistician of the Metropolitan Life Insurance Company. The marriage rate was nearly 30% above pre-war level. The birth rate this year is continuing a downward trend, but the decline that was slight last year is now a sharp drop. In the first six months of 1941 the birth rate in England's cities fell off 20% compared with 1940.

Infant mortality this year is high in England, because communicable diseases have been prevalent. Measles was abnormally prevalent in the first half of 1941 and whooping cough, also. Diphtheria cases were increasing to a lesser extent. These conditions have improved considerably during the summer, however, aside from the whooping cough situation.

Civilian air raid deaths for all England in the first eight months of 1941 total 19,078. Deaths from bombing during all of August were 169, or less than the daily average during April and May.

Science News Letter, October 18, 1941

PHYSICS

Electron Microscope Used To Study Surfaces

BULKY materials that "blind" the powerful electron microscope can have their surfaces studied by a new technic reported to the American Academy of Arts and Sciences by Dr. V. K. Zworykin, associate director of the RCA research laboratories, Camden, N. J., in his address acknowledging the award of the prized Rumford medals for 1941.

The method consists in making thin film replicas of the surfaces and studying them under the super-microscope which makes it possible to see details and objects 20 to 50 times smaller than those which can be resolved with a light microscope.

Dr. Zworykin also reported that biological specimens are being studied by drying them by freezing quickly and then cutting thin sections which can be penetrated by the electrons.

Higher voltages applied to the electron microscope are also making possible the

study of materials of all sorts that have heretofore been opaque to the electrons.

Dr. Zworykin was given the Rumford award because of his researches upon photocells and their application, television and the electron microscope. The early American scientist, Benjamin Thomson, then Count Rumford of Bavaria, in 1796 sent \$5,000 to John Adams, president of the American Academy of Arts and Sciences at that time, with the request that its income be used to award periodically a gold and a silver medal to outstanding research workers in heat and light. Robert Hare, inventor of the oxyhydrogen blowpipe, was the first recipient in 1839 and Dr. Zworykin is the 42d scientist so honored.

Science News Letter, October 18, 1941

ZOOLOGY

Museum Rates Rodents Most Successful Mammals

PRONOUNCING rodents the most successful group of mammals on earth—except for their rather insignificant size—the Field Museum of Natural History is opening a special exhibit of rats, squirrels, and other members of the rodent family tree, past and present.

Rodents have invaded all large land masses of the earth, are by far the most numerous animals of mammal kind in individual numbers, and have adapted to life in trees, on the ground, in underground burrows, and in semi-aquatic surroundings, says Paul O. McGrew, museum staff paleontologist. So-called flying squirrels are even semi-aerial. No other order of mammals can match this variety of habitats, says Mr. McGrew.

Featured in the exhibit, because until recently little was known about the geological history of rodents, is the skull of a 7,000,000-year-old resident of the West, distinguished by very big horns on its rodent nose.

Science News Letter, October 18, 1941

RADIO

U. S. Needs Scientists Trained in Radio, Sound

UNCLE SAM is on the search for scientists who have had at least a four-year college course including major courses in physics, especially radio and sound. The Civil Service Commission has just announced that it will receive applications for \$2,000 per year positions for junior physicists. Candidates will not have to take a written examination, but will be rated on education and experience.

Science News Letter, October 18, 1941

IN SCIEN

MEDICINE

Difficult, Rare Operation Removes Bronchial Tumor

A SEVERE malady of which young women are the principal victims has been successfully controlled by a rare and difficult operation pioneered by thoracic surgeons in the University of California Medical School.

This affliction, bronchial adenoma, is caused by a tumor in one of the large bronchi, air passages which lead from the windpipe to the lungs. The condition is often mistaken for tuberculosis or cancer, and attacks young people mostly, 77% of the cases reported being under 40 years of age, and 64% of them women.

The California doctors report that twenty of these operations have been performed, every one of them successful, restoring patients to an active, normal life.

They believe the operation could be generally undertaken in such cases with a low mortality expectancy.

Science News Letter, October 18, 1941

PUBLIC HEALTH

88 Nursing Schools To Get \$1,200,000

NAMES of 88 schools of nursing selected by the U. S. Public Health Service to receive Federal aid totaling \$1,200,000, were announced by Surgeon General Thomas Parran.

The money will be used to train additional nurses to meet the shortage created by increased demands of the armed services and defense industries. Besides an increase in enrollment of student nurses, the program includes refresher courses, post-graduate study and field courses in public health nursing for graduate nurses.

Surgeon General Parran has estimated a need for 50,000 student nurses this year, and the Federal program will bring the total to about 42,000. The average yearly enrollment is slightly under 40,000. It is hoped schools able to increase their enrollment without Federal aid will meet the deficiency.

Science News Letter, October 18, 1941

CE FIELDS

GENERAL SCIENCE

Nine Leading Scientists To Administer Awards

NAMES of nine eminent research scientists who will have charge of nine Fellowships of the 1942-43 Series of Lalor Research Awards have been announced.

Each scientist will nominate one scientific applicant for a year of research and will act as administrator for that Fellowship. The awards carry \$2,000, and are open to men and women residents of the United States and Canada, who have a Ph.D. degree or its equivalent. In charge of applications is C. Lalor Burdick, The Lalor Foundation, Wilmington, Del., who will receive applications until December 31, 1941.

The scientific administrators for the year are: Dr. Edward A. Doisy of St. Louis University School of Medicine, Dr. Harold C. Urey of Columbia University, Dr. H. B. Vickery of Connecticut Agricultural Experiment Station, Dr. Detlev W. Bronk of the University of Pennsylvania, Dr. E. J. Cohn of Harvard Medical School, Dr. A. Baird Hastings of Harvard Medical School, Dr. Roger J. Williams of the University of Texas, Dr. Carl S. Marvel of the University of Illinois, Dr. W. F. Glauque of the University of California.

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ECONOMICS

Family Auto Gets Most of Family Dough

THE FAMILY auto gets the family dough. That isn't the way Government statisticians put it, but their latest figures on how Americans get around show that the average farm, village, or small-city family of good income now spends more on automobile transportation than on any other item except food and housing.

The wisecrack that an American would rather give up his home than his car is still a bit of an exaggeration, but the investigation reveals that families are willing to give up other things to make a place for the important automobile.

Nine families in ten in American cities and towns of all sizes own a car, if they have an income above \$2,500, the survey shows. Farm families have become so automobile-minded that relatively more such families own cars than families living in villages and small towns.

Leading items in American family budgets in villages and small cities used to be food, housing, household operation, and clothing. Now, the family in good circumstances tends to spend as much or more on the car than on clothing—if the family lives in a village or small city.

Automobile ownership increases with ability to pay, but the used car market has extended car ownership, especially at lower income levels. While used cars are more commonly bought by low income families, in families as high as the \$3,000 to \$4,000 income class one-third of farm autoists drive used cars, and one-fourth to one-fifth of the village and small-city drivers are used car owners.

The survey, intended to provide comprehensive facts about the income and consumption habits of American families, was made by the U. S. Department of Agriculture in cooperation with the WPA, and results just compiled form a Government booklet, "Family Expenditures for Automobile and Other Transportation."

Science News Letter, October 18, 1941

CHEMISTRY

One of Earth's Rarest Elements Detected In Sun

Possible existence in the atmosphere of the sun of thulium has been obtained by Dr. Arthur S. King, working in the Astrophysical Laboratory of the Mt. Wilson Observatory. Thulium is one of the rarest elements known on earth.

Light from a small sample of the chemical was examined in the electric furnace where the temperature is about the same as that in the atmosphere of a cool star. Nine radiations emitted by thulium were found to check with unidentified radiations from the sun.

Dr. King stated that positive identification could not be announced until additional study has been made of the thulium atom.

Thulium has an atomic weight of 169.4, an atomic number of 69, and its chemical symbol is Tm. It was discovered by Per T. Cleve, a Swedish chemist, in 1879.

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PSYCHOLOGY

Rats and Cats Show Altruism and Cooperation

CATS CAN cooperate and cats behave altruistically with animals of their own kind, psychologists have learned in two researches, carried on independently.

A difficult job of cooperation was required of rats in an experiment by Dr. William J. Daniel of the University of North Carolina. One of a pair had to run to a platform while the other fed. Unless one rat had his weight on the platform, both rats would receive a mild electric shock and neither could feed.

In order for both to feed and avoid shock, the rats learned to take turns on the platform. They would change positions about 75 times a day and 90 per cent of the shifts were made without shock.

You might expect a cat fight when two cats do the work of pushing levers and receive as a reward just one piece of food between them. But Dr. Charles Nelson Winslow, of Brooklyn College, reports that he found they more frequently share the food peacefully.

He found personality difference between the cats he studied. Some would fight to get to the string by which they could pull in food or would battle for the food pulled in by another cat, but other cats would stand aside and let their companions get the food without interference.

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PHYSIOLOGY

Body "Gets Used" To Oxygen Lack

WHEN man flies or climbs too high altitudes his body "gets used" to the lack of oxygen in the upper atmosphere by a complex mechanism which keeps the blood from becoming too alkaline. The mechanism was explained by Major David B. Dill, U. S. Army Air Corps, at the meeting of the American Association for the Advancement of Science.

Lack of oxygen in the arterial blood stimulates the carotid body, a nerve center near the carotid artery in the neck. This speeds up breathing, which raises the oxygen content of the blood. The resulting rise in alkalinity would ordinarily depress the brain's breathing center. But a buffering action by body proteins absorbs the alkalinity and keeps the blood chemical balance normal.

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