
Encyclopedia of
POPULATION

EDITED BY
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confirmed by the existence of substantial mortality differentials by Tuareg social class.

Data are even scarcer for adult mortality. Indirect estimates from 1981–1982 data based on orphanhood proportions show extremely high adult mortality for Tuareg (Mali) men and women compared to neighboring sedentary populations but with substantial differences both within and between Tuareg groups. A later restudy (2001) of the same Tuareg population suggests little improvement in adult female mortality in the interim and an estimated lifetime risk of dying from maternal causes of one in eight.

Despite limited and low-quality data, the picture of African nomad demography is one of “natural fertility” populations in which nuptiality is the main factor constraining fertility. As would be expected in isolated populations with little formal education and limited access to health services, mortality is relatively high. The substantial variation between and within nomadic populations suggests that this is not a consequence of nomadism per se, although a contributory factor is the fact that a nomadic economy in the early twenty-first century is possible only in marginal isolated zones.

See also: *Hunter-Gatherers; Indigenous Peoples.*

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SARA RANDALL

NOTESTEIN, FRANK W.

(1902–1983)

Frank Notestein was born in Alma, Michigan, the son of the Dean of Alma College. He attended Wooster College in Ohio, graduating with a degree in economics. He received a Ph.D. in social statistics from Cornell University in 1927, where he was a student of Walter Willcox, one of America’s leading demographers. After a brief stint in Europe studying occupational mortality, Notestein took a position as a research associate at the Milbank Memorial Fund in 1928. The Fund, formerly interested primarily in public health issues, was expanding its focus to general population concerns, especially fertility trends. Notestein spent his eight years at the Fund studying class differences in fertility and the role played by birth control in inducing fertility decline. He was present at the establishment of the Population Association of America in 1931, being one of its charter members. His research on birth control culminated in the publication of *Controlled Fertility* (1940), co-authored with Regine Stix, which concluded that fertility declined when the motivation to have children underwent a change. They found that an increased desire for small families stimulated the desire for more contraceptive use and better contraceptives, not the reverse.

In 1936 Frederick Osborn, convinced of the need for a formal training center in demography, persuaded Albert G. Milbank to fund the establishment of the Office of Population Research at Princeton University. Notestein became the director of this first center at a major U.S. university offering graduate training in demography. His recruitment of Irene Taeuber, Frank Lorimer, Dudley Kirk, Kingsley Davis, Ansley Coale, Wilbert Moore, John Hajnal, Robert Potter, and Charles Westoff over the early years as staff members or associates provided demography with an entree into the academy that helped establish it as an accepted academic discipline. Notestein’s initial research agenda at Prince-

ton was the study of Europe's interwar population trends, undertaken at the request of the League of Nations—later extended, at the instigation of the State Department, to Asia. In the course of projecting future European demographic trends, the Princeton demographers observed that the population dynamics of Eastern and Southern Europe were similar to those of Western and Northern Europe at an earlier time, and Notestein argued that a "vital revolution" was sweeping Europe. (Adolphe Landry had earlier used essentially the same term.) In 1945 Notestein made this revolution worldwide in his classic elaboration of transition theory, "Population: the long view." "High growth potential" populations would become "transition growth" ones as modernization began to affect their fertility. When industrialization and urbanization became commonplace fertility would reach low levels and the population would enter into the stage of "incipient decline." At the time Notestein clearly foresaw the possibility that not all "high growth potential" populations would experience the entire vital revolution, especially those under colonial domination. Many of these populations were experiencing public health advances and improved agricultural productivity that lowered their mortality, but not the urbanization and industrialization that would lower their fertility. Notestein suggested that their period of population expansion could end in catastrophes and increased mortality. He directed his scholarly and practical energies over the rest of his career to preventing such an eventuality.

Partly at Notestein's initiative, one of the early offices established by the United Nations Secretariat, in 1946, was a Population Division, and he became its first director. He set the division on the path of objective, informed documentation and analysis of demographic trends that it has subsequently followed.

In 1948 John D. Rockefeller 3rd invited Notestein to be part of a four-person team to travel to six East Asian countries and appraise their population problems. The team reported that birth rates were "resistant to change" and were producing a situation where the gains in production were being consumed by increasing numbers. Although the political sensitivities surrounding the birth control issue prevented the conservative Rockefeller Foundation from acting on this report at the time, it induced Rockefeller to sponsor a conference on population problems in 1952 that resulted in the

establishment of the Population Council. Notestein was one of the original four trustees of this unique non-profit organization focused on population issues, and became its third president in 1959. Under Notestein's leadership the Council conducted biomedical and demographic research and sponsored graduate training in these fields; it also became the key organization offering technical assistance to developing countries wishing to establish family planning programs well before the United States and the United Nations began offering such assistance. He retired in 1968.

A bibliography of Notestein's writings appears in *Population Index*, 49 (Spring 1983), pp. 7-12.

See also: *Demographic Transition; Demography, History of; Population Thought, Contemporary.*

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DENNIS HODGSON

NUPTIALITY

See *Marriage*

NUTRITION AND CALORIE CONSUMPTION

Net nutrition (diet in relation to claims made on food intake by basal metabolism, physical activity, and disease) is an important influence on overall health. Poor nourishment impairs child growth and development, which in turn increases the risk of mortality, raises morbidity, and reduces physical capacity. These consequences are not limited to the growing years, and adversely affect adults who had poor nutritional experiences as children. Numerous debates and controversies surround the study of nutrition. These controversies historically have been fed by a lack of scientific knowledge, by varying goals and methods for studying nutritional needs, and by the confusion arising from simplifying complex material for a wide audience.

Dietary Standards

A brief history of the evolution of approaches to calibrating requirements for human nutrition can illuminate some of the central issues around dietary standards. The nutritional values of certain foods—such as limes in combating scurvy—have been known for over two centuries, but it was food shortages associated with World War I that established the need for dietary standards in planning food shipments. In the 1930s the League of Nations issued a series of reports on nutrient needs according to age, sex, and activity patterns; these were later drawn on in responding to the food crises created by World War II. Beginning in the late 1940s the United Na-

tions, the League's successor, coordinated a program of nutritional requirement reports produced by individual countries. These reports were often local adaptations of Food and Agriculture Organization/World Health Organization recommendations, but they varied widely on some components.

Research on dietary standards began with tabulations of average intakes of nutrients thought essential to life among "healthy" people. Over time this list expanded from items such as energy and carbon to include protein, iron, zinc, and a host of other ingredients. Scientific studies that varied or observed these intakes across people, looking for readily observable effects on health (such as growth failure or specific signs of disease), found both systematic patterns and also considerable differences in individual needs. Biochemical markers later provided a means to identify subclinical deficiencies.

An important question to ask of dietary recommendations is how they are to be used. The standards may differ widely depending on whether they are used to implement a program of organizing food shipments to address a crisis; to protect against obvious deficiency diseases in the vast majority of a population that is relatively sedentary; or to insure against any subclinical deficiencies for all people in a physically active group.

Assessment Strategies

Another area of concern in the field of nutrition is assessment, or measuring dietary intake in relation to dietary standards. Several approaches historically have been used, but each has limitations. Under the "disappearance" method, human consumption is a residual calculated as the supply of food (production, plus beginning stocks, plus imports) minus utilization (the sum of exports, ending stocks, nonfood uses, feed, spoilage, and seed). This method ignores the unequal distribution of food across regions, families, and individuals, and so malnutrition may exist even though per capita amounts are adequate. In addition, methods of preservation and cooking affect food's nutritional value. These changes are not acknowledged by the disappearance method of nutritional assessment.

Surveys are another method of assessment. While much has been learned through dietary surveys, one may question their accuracy as they are affected by the limited window of time during which