

tion data systems, and one goal of ethical awareness is to ensure that adequate attention has been devoted to these other safeguards.

Ethical norms also help temper the zeal of those promoting and implementing action and research programs and related demographic data gathering activities. These advocates or researchers are often so convinced of the importance and beneficence of research and data gathering that the resulting risks to others are minimized or ignored. Indeed, some of the most serious ethical lapses in research can be attributed to a lack of awareness that the particular activity presented any ethical issue at all.

See also: *Anthropometry; Census; Population Registers.*

BIBLIOGRAPHY

- Annas, George J., and Grodin, Michael eds. (1992) *The Nazi Doctors and the Nuremberg Code: Human Rights in Human Experimentation*. New York: Oxford University Press.
- Kultgen, John. 1988. *Ethics and Professionalism*. Philadelphia: University of Pennsylvania Press.
- Murphy, Timothy F. and Marc A. Lappe, eds. 1994. *Justice and the Human Genome Project*. Berkeley: University of California Press.
- Reich, Warren T., ed. 1995. *Encyclopedia of Bioethics*, revised edition. New York: Macmillan-Simon.
- Seltzer, William and Margo Anderson. 2001. "The Dark Side of Numbers: The Role of Population Data Systems in Human Rights Abuses." *Social Research* 68: 2 (Summer): 481-513.
- Vanderpool, Harold Y., ed. 1996. *The Ethics of Research Involving Human Subjects: Facing the 21st Century*. Frederick, MD: University Publishing Group.

INTERNET RESOURCES.

- American Sociological Association. 1997. "Code of Ethics." <<http://www.asanet.org/members/ecoderev.html>>.
- American Statistical Association. 1999. "Ethical Guidelines for Statistical Practice." <<http://www.amstat.org/profession/ethicalstatistics.html>>.

International Statistical Institute. 1986. "Declaration of Professional Ethics for Statisticians." <<http://www.cbs.nl/isi/ethics.htm>>.

WILLIAM SELTZER

DAVIS, KINGSLEY

(1908-1997)

One of the foremost demographers of his time and one of the most eminent and influential figures in twentieth-century American social science, Kingsley Davis made major contributions to demographic theory, the sociology of the family, and especially the understanding of the world demographic transition.

In 1930 Davis received a bachelor's degree in English from the University of Texas, where he was editor of the literary magazine. In 1932 he enrolled as a graduate student in Harvard's sociology department, receiving a doctorate in 1936. At Harvard he studied under Talcott Parsons, Pitrim Sorokin, W. Lloyd Warner, and Carle Zimmerman but did not take the one course in population offered by E. B. Wilson. He received no training in formal demography until 1940-1941, when as a postdoctoral fellow at the Social Science Research Council he studied under Samuel Stouffer at the University of Chicago and at the U.S. Bureau of the Census.

Davis held academic appointments at Clark University (1936-1937), Pennsylvania State University (1937-1944), Princeton University (1942-1948), Columbia University (1948-1955), the University of California at Berkeley (1955-1977), the University of Southern California (1977-1990), and the Hoover Institution (1981-1992). He was president of the American Sociological Association in 1959 and president of the Population Association of America in 1962-1963 and received the Population Association of America's Irene B. Taueber Award for Outstanding Research in Demography in 1978. In 1965 he was the first sociologist to be elected to the U.S. National Academy of Sciences.

Davis first achieved a considerable reputation for his research on the family, but his interest in population dynamics and related policy matters was evident in his earliest writings. An article, "Repro-

ductive Institutions and the Pressure for Population," published when Davis was 28, offered an incisive analysis of the decline of the birthrate in modern industrial societies, locating the cause in the "ripening incongruity between our reproductive system (the family) and the rest of modern social organization" (1937, p. 290; 1997, p. 612). Davis rounded out the analysis with an original and provocative discussion of the policies, actual and potential, that can be used in an attempt to resolve that incongruity. The article foreshadowed not only the main topics Davis pursued throughout his long scientific career but also the distinctive and often combative style with which he explored important social phenomena.

Davis's preoccupation with demographic research proper began, however, with his appointment at Princeton University in 1942. At that university he wrote an influential article, "The World Demographic Transition" (1945), and did the major work on his opus, *The Population of India and Pakistan* (1951). In 1956, with Judith Blake, then his wife, he coauthored a path-breaking article on social structure and fertility, identifying the variables through which social factors can affect human reproduction. His 1963 presidential address to the Population Association of America, "The Theory of Change and Response in Modern Demographic History," was an important contribution to demographic transition theory. Influential works on world urbanization and international migration followed.

Davis was an engaged scholar, often writing on demographic topics and policy issues for a wide audience. His arresting and forceful critique of the inability of family planning programs to achieve population stabilization that appeared in *Science* in 1967 spawned many heated debates in academia and in Washington policy circles. Davis contended that in implying that the only requirement for fertility reduction was a perfect contraceptive device, family planners avoided discussion of the possibility that fundamental changes in social organization were necessary prerequisites.

In the last stage of his scientific career Davis continued to explore changes in the family and in sex roles and their effect on fertility. He also organized influential conferences that focused attention on the causes and consequences of below-replacement fertility levels and the relationship between resources, the environment, and population change.

Davis was a compelling teacher, and many prominent demographers trained under his stewardship. He wrote with exceptional clarity. His linguistic innovations include the terms *population explosion* and *zero population growth*. Moreover, along with his colleague Frank Notestein, he was the first to popularize the term *demographic transition*.

See also: Blake, Judith; *Demographic Transition; Demography, History of; Fertility, Proximate Determinants of; Population Thought, Contemporary.*

BIBLIOGRAPHY

SELECTED WORKS BY KINGSLEY DAVIS.

- Davis, Kingsley. 1937. "Reproductive Institutions and the Pressure for Population." *Sociological Review*, July, pp. 289-366. Reprinted in *Population and Development Review* 23: 611-624 (1997).
- . 1945. "The World Demographic Transition." *Annals of the American Academy of Political and Social Science* 237: 1-11.
- . 1949. *Human Society*. New York: Macmillan.
- . 1951. *The Population of India and Pakistan*. Princeton, NJ: Princeton University Press.
- . 1963. "The Theory of Change and Response in Modern Demographic History." *Population Index* 29: 345-366.
- . 1967. "Population Policy: Will Current Programs Succeed?" *Science* 158: 730-739.
- . 1969/1972. *World Urbanization 1950-1970*. Berkeley, CA: Institute of International Studies.
- . 1973. *Cities: Their Origin, Growth and Human Impact*. San Francisco: W. H. Freeman.
- . 1984. "Wives and Work: The Sex Role Revolution and Its Consequences." *Population and Development Review* 10(3): 397-417.
- Davis, Kingsley, and Judith Blake. 1956. "Social Structure and Fertility: An Analytic Framework." *Economic Development and Cultural Change* 4: 211-235.
- Davis, Kingsley, ed., with M. S. Bernstam. 1991. *Resources, Environment, and Population: Present Knowledge, Future Options*. New York: Oxford University Press. Supplement to Vol. 16 of *Population and Development Review*.

Davis, Kingsley, ed., with M. S. Bernstam and R. R. Campbell. 1987. *Below-Replacement Fertility in Industrial Societies: Causes, Consequences, Policies*. New York: Cambridge University Press. Supplement to Vol. 12 of *Population and Development Review*.

SELECTED WORKS ABOUT KINGSLEY DAVIS.

Petersen, William. 1979. "Davis, Kingsley." In *International Encyclopedia of the Social Sciences*, ed. David L. Sills. Vol. 18: *Biographical Supplement*. New York: Free Press.

DAVID M. HEER

DEATH RATE

See *Mortality Measurement*

DEFORESTATION

Unlike the mere harvesting of trees for timber, deforestation changes a forest of growing trees into a different type of land cover. In France from 800 to 1300 C.E., the forests shrank by half, and in the United States from 1800 to 1920, the forests shrank by fully one-third. The replacement of forests, which ancient people might have seen as removing the lair of bandits and supernatural evil, in the twenty-first century seems a major transformation of the earth for the worse and hence an environmental threat.

Current Deforestation

During the 1990s the Food and Agriculture Organization (FAO) of the United Nations mounted a global survey to monitor changing forest areas. For the period from 1990 to 2000 FAO estimated that global deforestation was occurring at the average rate of 0.22 percent per year. Global forests shrank about 9 million hectares (ha) during the decade, an area roughly the size of Portugal or Hungary, or the state of Indiana. The global rates, however, cloak large regional differences, from 0.78 percent per year for deforestation in Africa, to its opposite, 0.08 percent per year afforestation in Europe. Among nations with more than one million ha of forest, the

rates ranged widely—from deforestation at 3 percent or more per year in Niger, Ivory Coast, and Nicaragua to afforestation at 1 percent or more per year in seven nations as diverse as Belarus, China, Cuba, and Portugal.

Changes in land cover, including deforestation, are dynamic. The shrinkage of the earth's tropical forests from 1980 to 1990 was studied in a 1997 FAO survey of 3 billion ha of land (an area the size of Africa, or more than three times the land area of the United States) with several types of land cover. The forest with closed canopy in 1980 covered roughly half the surveyed area and is represented in Figure 1 as 100 percent. A decade later 93.3 percent of the 1980 forest was still closed; two percent of the 1980 forest had become open (i.e., open and fragmented forest plus long fallow); 1.8 percent had become shrub and short fallow; and 0.3 percent had been converted to plantations of trees. The largest conversion, 2.7 percent, was to other land cover, a category that includes permanent agriculture, cattle ranching, and water reservoirs, among others. Small conversions from open-canopied forest, and even smaller ones from the other classes of cover, to closed-canopy forest added a fraction of one percent to the 1990 closed forest. The small conversions to closed forest leave the impression that deforestation tends to be permanent.

Figure 2 describes forest change over almost the same decade (1982 to 1992) for a developed nation (the United States) that had earlier lost one-third of its forest. Fully 96.4 percent of non-federally-owned forest remained and conversions from other covers to forest slightly more than offset the lost 3.6 percent, expanding forest cover a little during the decade. Figures 1 and 2 exemplify the dynamic nature of changing land use, regional differences, and, instead of only deforestation, the possibility of afforestation.

The complexity of land cover change and differences in the definition of what a forest is make for uncertain estimates of the rate of deforestation. For example, the 0.5 percent change of forest to federal ownership shown in Figure 2 does not necessarily entail deforestation. Nor does the change from closed to plantation forest seen in Figure 1. FAO is attempting to generate consistent estimates of change using a uniform definition of forest area and applying remote-sensing techniques. In the end, while there is no doubt that deforestation is proceed-