community to develop these collaborative relations. That became something that I did more and more. Eventually, I was put in charge of all the district courts, and we would put on divorce seminars that were provided as a community service. These became model programs, and we would have these all over the County, attracting as many as 700 people at one time. We got press coverage and television shows would cover these programs. What we were doing was getting the word out about the needs of children of divorce.

Source: David Kenichi Kuroda. 2003. Oral History, interviewed by Frances Loman Feldman. California Social Welfare Archives. University of Southern California, 15–19. Courtesy of USC Libraries Special Collections. https://libraries.usc.edu/sites/default/files/kuroda_david.pdf.

STATISTICIAN

Statisticians are mathematicians who deal with the collection, organization, analysis, and interpretation of data. They are responsible for far more than just data processing; many statisticians spend their days examining how experiments are designed, surveys are conducted, or data is gathered to ensure that the quality of their ultimate results remains high and that investigators, governments, or businesses are to learn something meaningful. Statisticians might suggest changing the way questions are phrased or measures are calculated, advise companies to expand how many people are surveyed, or determine whether a distinction between two results is a significant one.

Though people have been keeping numerical records for centuries, professional statisticians were rare before the 1940s. Before then, assistants and clerks performed the statisticians' role. That is, a statistician was not considered as a professional like a doctor or lawyer but more like a mechanic or a tradesperson. Two historical changes helped establish the statisticians' profession. First, statisticians in the early twentieth century developed tests and tools that enabled them to not just describe numerical data but also help them make decisions and reach conclusions with incomplete data. For example, a statistician hired at a plant nursery in 1900 might spent the first years of his career collecting daily data that described phenomena—the average height of a certain plant and variations in that average over time—but not much else would be done with those observations. By 1950, though, a similar nursery statistician had statistical models which allowed him or her to associate the heights of the plants to hypothesize about causes of that height.

Second, as electronic computers and other technologies enabled the storage of ever-increasing quantities of numbers after the 1940s, statisticians became crucial

to the development and understanding of the vast amounts of data and experimental design that computer technology made available.

The largest employers of statisticians have traditionally been governments and state agencies. The English term "statistics" itself emerged from the German word *statistik* for the study of political facts and figures. The first statisticians helped kings and parliaments keep track of a nation's wealth and population. Even by the 1940s, most active statisticians in the United States worked in government operations and state-level record keeping, particularly in the Census Bureau and Bureau of Labor Statistics.

Agriculture is another important field in which statisticians have worked. It was in agriculture that the British statistician R. A. Fisher (1890–1962) first developed the technique of hypothesis testing—using observational and experimental data to test a potential explanation—that would eventually dominate the practice of statistics. George Snedecor (1881–1974), head of one of the first departments of statistics in the country, helped introduce Fisher's techniques into American agriculture.

Though there were fewer than five university departments of statistics in the 1940s, many new ones were created in the following years. University-based statisticians tended to spend their days working like mathematicians, inventing new techniques, refining mathematical theories, and teaching undergraduate and graduate students. Most statisticians, however, were involved in the application of these techniques. They often worked with private companies to analyze revenues and processes, or they worked for federal and state governments to calculate unemployment rates, population dynamics, or legislative efficacy.

Statisticians' skill of interpreting numbers meant they were soon needed in a wider and wider range of settings. In clinical medicine, for example, statisticians were not commonly used in the early 1900s. Physicians themselves observed their patients to determine which therapies were effective. Over the course of the twentieth century, however, hospital, universities, pharmaceutical companies, and federal agencies increasingly employed statisticians because their expertise was needed to find better and more reliable ways to test new drugs and treatments. Today, data are being used to inform decisions about the best cancer treatments, to entice people to click an ad on the internet, and to identify fraudulent banking transactions. Statisticians play crucial roles day to day in all these areas, helping companies, governments, and individuals make sense of the numbers around them.

Because statistics is a relatively new profession, it has been more open to people who had traditionally been denied places in universities and elite institutions. Jews, African Americans, and women, for example, held positions as statistical clerks and calculators early in the century and were able to move into positions

as professional statisticians more easily than in some other areas. The first African American elected to the National Academy of Sciences was David Blackwell (1919–2010), a statistician and former chair of UC Berkeley's Statistics Department. Gertrude Cox (1900–1978) not only organized and led a new Department of Experimental Statistics at North Carolina State College in the 1940s, but she edited important journals for the American Statistical Association and assumed the presidency of the association in 1956.

Because there were few graduate degrees in statistics before the 1950s, many of the leaders in the field had learned statistics on the job, opening the ranks of the profession to those without access to higher-education degrees. As late as 1974, the president of the American Statistical Association, Jerome Cornfield, possessed only a bachelor's degree in history from New York University but had acquired his statistical knowledge and reputation while employed as a statistician for the federal government.

Statisticians increasingly find themselves in demand as industries, governments, and businesses need people able to make sense of huge quantities of data. It has been one of the fastest-growing technical professions of the last century, and based on its own data, the Bureau of Labor Statistics expects the field to continue growing over the coming years—exactly the sort of predictive ability that has made statisticians essential.

Christopher J. Phillips

See also: College Professor; Scientist; *1992–2019:* Data Analyst

FURTHER READING

American Statistical Association. n.d. "Statisticians in History." https://ww2.amstat.org/about/statisticiansinhistory.

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Salsburg, David. 2001. *The Lady Tasting Tea: How Statistics Revolutionized Science in the Twentieth Century*. New York: Freeman.

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PRIMARY DOCUMENT

During the 1960s, The American Statistician, *the primary journal for professional statisticians, regularly published poetry, word games, and humorous stories written by statisticians for statisticians. The three poems below represent some of these contributions that the nonprofessional reader might find more accessible.*