

Katherine Applegate Keeler Dussaq: The First Woman Document Examiner

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This historical overview of the life of Katherine Applegate Keeler Dussaq describes the early advances of the field of Forensic Document Examination, and the development of the first Crime Laboratory.

Katherine Keeler was the first woman document examiner in the United States, yet she has remained little known mainly because her professional career and her life were both remarkably short. But if her life was short, it was all the more active and unconventional.

Katherine M. Applegate was born on March 14, 1905 in Dayton, Washington, a small farm town in the eastern part of the state. She graduated from high school in Harrington, an even smaller town nearby, and went on to spend a year at Washington State College in Pullman. Her father, Arthur M. Applegate, who was manager of a grain company in Walla Walla, had two other daughters and two sons. He was apparently well enough situated to send Katherine to Stanford University in California where she enrolled in 1924 with a major in journalism. Available records do not show whether she graduated.

While she was a student at Stanford, Kay's adventuresome personality led her and a girlfriend to stow away on a liner to Hawaii by mingling with the passengers. They were discovered and put ashore in Honolulu where they earned money for their return passage with odd jobs like flipping pancakes in a restaurant window and working in a pineapple processing plant. In Hawaii, Kay also took flying lessons in a World War I "Jennie," beginning a passion for flying that would alter the course of her life.

At Stanford, she met a young man with a temperament similar to her own, Leonarde Keeler, a pre-med student from Berkeley who was making a name for himself as a promising young follower of Dr. John Larson, a pioneer in the field of lie detection. Keeler had already invented an improved version of the original "polygraph" and

had solved actual criminal cases.

Keeler became fascinated by Kay Applegate, whom Keeler's sister Eloise, in a biography of her brother, describes as "tall and well built, with light, wavy hair and rosy cheeks" and possessing "an aloof dignity." What especially appealed to Keeler was Kay's love of adventure. The attraction turned out to be mutual, but the romance was put on hold when Keeler moved to Chicago for his first professional job, a novel research project to study juvenile offenders with the help of the lie detector. Meanwhile, Kay had returned to the Northwest to work as a secretary at the Boeing Airplane Company in Seattle. But she too left for Chicago—and a job at the very same institute where Keeler worked.

This took place in 1929, the year of the St. Valentine's Day Massacre, the gangster-era mass murder that prompted the creation of the nation's first crime laboratory. The Scientific Crime Detection Laboratory at Northwestern University's School of Law was modeled after existing European laboratories but was privately funded. "Nard," as Keeler was known to friends, became staff member for "Psychology and Deception Tests," and Kay became secretary to the Laboratory's director, Col. Calvin Goddard. The following year she and Nard were married.

Kay soon became bored with being only a secretary and housewife and wanted to get involved in the lab as a professional. When she looked over the fields of specialization, she decided that document examination would suit her best. She began reading the textbooks on questioned documents in a program of study with Herbert J. Walter, an established and well-regarded document examiner from Canada who had settled in

Chicago and was a consulting examiner for the new lab. Another contract examiner was J. Fordyce Wood, also a respected practitioner of that time period; both he and Walter were early members of the ASQDE. Kay shortly became the lab's staff document examiner because the management wanted a full-time examiner. She was then 25 years old.

During the early years at the new crime lab, Kay cultivated interests other than document examination. For example, she took fencing lessons and became quite good at this sport. She was an excellent cook and had no trouble fixing dinner for half a dozen of Nard's crime lab colleagues on short notice. When she needed new clothes but did not have enough money to buy what she wanted, she took sewing lessons and made herself an entire wardrobe. "She had a remarkable talent for making a success of whatever she undertook," according to Eloise Keeler.

Katherine Keeler was clearly an independent-minded and strongly motivated woman determined to make her own way in a man's world long before women's liberation. Quoting Eloise Keeler again, "I have never known a more outrageously daring, complicated, or intriguing woman."

The lab at Northwestern provided services for many agencies, so that Kay gained experience with a wide variety of cases, including handwriting, typewriting, fabrications, document dating, and anonymous letters. One of the latter type involved an anonymous telegram sent to Pan American Airways headquarters that three handwriting experts had identified as written by an employee, who was then fired. The man insisted on his innocence and got Leonarde Keeler to test him on the polygraph, which cleared him. Kay examined the handwriting and found repeated, small differences that eliminated the suspect. Yet the company was not satisfied and sent the handwriting for examination by "the greatest handwriting authority in the country," whose conclusion agreed with Kay's. That authority was presumably Albert S. Osborn.

In 1933 a handwriting problem came in from a big mail order firm that had suffered losses from a great many bad checks for merchandise shipped to post offices in the hill country of Kentucky. The company's own investigations had raised the suspicion that the postmasters in these hamlets had written the bad checks, but Kay's comparison with their exemplars cleared them. She then got the lab's permission to travel to the area in person to collect handwriting specimens and solve the mystery. She and her assistant, Jane Wilson, rented horses and ventured into the hills pretend-

ing to be genealogy researchers, since their true identities might have caused them to be shot at by people traditionally distrustful of government agents of any kind. When the locals' suspicions were finally aroused, the two document examiners promptly cleared out of the area but took with them lots of handwriting specimens to study back in Chicago. They concluded that about fifty different individuals had written the bad checks, ap-



Katherine Keeler in the darkroom at the Northwestern University lab preparing to dry enlarged prints of X-marked ballots. (Photo courtesy of Telshare Publishing Co, Inc.)

parently prompted by a ringleader who had convinced the uneducated folks that they could get fancy dresses, stoves, or electric trains (even though there was no electricity available) by simply filling out "notes" to the mail order company.

Another of Kay's early cases involved a piece of adhesive tape from a bomb that had set off a major explosion in a coal mine near Valier in southern Illinois in 1935. The whole lab staff went down to search for evidence, turning up pieces of the timing mechanism, including the fragment of tape. Kay was able to make an edge match between this piece of tape and the torn end of a roll of similar tape found in the home of a suspect. Although torn fabric edges are difficult to compare, Kay established the common source of both samples by an exact thread count of the fabric, and demonstrated the individuality of the threads on a photographic enlargement of about

40 diameters, showing matching variations in the thickness of the threads. The analysis is described in detail in Kay's paper published in the *Journal of Criminal Law, Criminology and Police Science*. Other evidence at the trial included identification of wires and cord and the reconstruction of the bomb itself. The principal actors were convicted and sent to prison, ending two years of terror and intimidation in the Illinois coal mining region. The case was a major demonstration of the crime lab's capabilities, and its effective use of scientific evidence got widespread publicity that was followed by police and prosecutors around the country.

Despite the successes of the new laboratory, the economic downturn of the Great Depression caused important changes. Burt Massee, vice president of the Colgate-Palmolive-Peet Company and member of the Chicago Crime Commission, the principal backer of the lab, suffered financial reverses and had to end his support and dissolve the laboratory corporation in 1932. This setback left the university to carry on with its own funds supplemented by fees collected for the lab's services.

The lab budget was severely cut, and in 1934 Col. Goddard had to resign because the university could no longer afford his salary. But despite cuts in budget and staff, the lab caseload increased in the mid-1930s. During this period, Kay had some of her most noteworthy cases, particularly those that involved ballot frauds. She wrote two of her three articles in Northwestern's journal on this topic. Her first report on ballot fraud (in a disputed election of municipal judges) dealt with the tally sheets used to record votes "called" to the recorders as each ballot was opened. In a very detailed and logical analysis, Kay Keeler laid out the reasons for concluding that many of the tallies were mass produced, fake additions, based on differences between the natural irregularity of true tallies and the unnatural uniformity and speed of the fake marks.

The second of these papers was devoted to mass-produced ballots with X-marks that she exposed by applying

grazing light to indentations and embossings on ballots that had been marked one on top of the other. Both of these papers are landmark contributions to the literature on questioned documents and deserve reading even sixty-odd years later.

Eventually the university had to seek public funding for the laboratory, but the offer was turned down by the University of Illinois, the U.S. Department of Justice, and by the State of Illinois Bureau of Criminal Identification and Investigation. Finally, in 1938, the lab was sold for the bargain price of \$25,000 to the Chicago Police Department. Some of the staff members stayed on, including Fred Inbau, long-time honorary member of the ASQDE. Others elected not to transfer, among them Kay and Leonarde Keeler. In Kay's place, the police department hired Ordway Hilton, who went on to become one of the leaders of the profession, a prolific writer and president of both the ASQDE and the American Academy of Forensic Sciences.

Kay did not take long to open her own practice in downtown Chicago in the summer of 1938. She had a staff consisting of herself as director, document examiner and generalist, Edna Howse, Jane Wilson, and Viola Stevens. Jane Wilson was the wife of Charles M. Wilson, who took over direction of the new police lab and later went on to head a new crime lab in Wisconsin in 1948. Viola "Olie" Stevens later joined Charlie Wilson in Madison as document examiner for many years. Regrettably, all these individuals are now deceased, so that parts of the history of the early crime labs are now lost.

Kay Keeler's private crime lab got enthusiastic write-ups in the Chicago papers, which is not surprising since this new crime-fighting organization



Katherine Keeler (right) and associates in her private questioned documents/polygraph lab in Chicago. From left: Jane Wilson, Edna Howse, Viola Stevens. (Photo courtesy of Telshare Publishing Co., Inc.)

was not only unique in itself but was also made up of all women. One of the papers printed a two-page spread of pictures with the heading "Girl Detective" showing Kay at various tasks, including one where she points a revolver right at the camera, referring to her as "a crack shot."

The new lab became very successful, and Kay was able to buy her own airplane, a Piper Cub that she kept at a private field west of Chicago. At the same time she and Nard were growing apart. This was perhaps predictable, considering that both were exceptional individuals, pioneers in their respective fields and, in a sense, rivals. Around this time Kay also met a young Argentinean, René Dussaq, a man "more daring than Nard had ever been...a flyer, a deep-sea diver, and, for several years, a Hollywood stuntman" who had also "fought in two Latin American revolutions, in two duels (one with swords, one with guns), and knew six languages," according to Eloise Keeler. In April of 1940 Kay and Nard separated, and they were divorced the following year.

In June of 1941, after the divorce, Kay closed her office and a short time later married Dussaq. Available sources give no reason for this abrupt ending to the private crime lab. All that is known of Kay's activities during the early years of World War II is that she and her new husband moved to Washington, DC. Sometime during that period Kay joined the WASP, the Women Airforce Service Pilots, beginning the last phase of her adventurous life.

The WASP corps was created to meet the urgent need for military pilots during the war. One of its leaders was Jaqueline Cochran, the pioneer "aviatrix" who had inspired many young women of that era, Kay included. These women flyers would serve as ferry pilots, test pilots, trainers and other non-combat assignments within the United States. They were civilian employees of the U.S. Army Air Corps and had no military standing. Twenty-five thousand women applied in a spirit of adventure and patriotism; 1,803 were accepted for training, but only 1,074 won their wings.

Kay Dussaq started her training in Sweetwater, Texas, in August of 1943, the oldest and presumably most experienced flyer in her class. She and the other trainees had to adjust to spartan living conditions, stifling heat and unfamiliar regimentation, yet they seem to have maintained good



Katherine Dussaq (center) with two of her classmates newly graduated as pilots, on their first assignment in Sioux Falls, SD, 1944. (Photo courtesy of Marjorie Ellfeldt Rees, right in photo.)

morale and a high level of enthusiasm. One of her roommates at Avenger Field remembers her as more mature than most of the young women, who often were just out of college. Kay was known as a perfectionist who was always neatly dressed and always knew what to do; her year-book picture caption reads, "I like efficiency." But if she was somewhat separate from the rest of the class due to her age (38), she was agreeable and well liked.

After graduating from training ("Class 44-W-1"), Kay was assigned to Sioux Falls, South Dakota, where she trained others in radio procedure and also gave fencing lessons during off-duty hours. She became a staff pilot at Randolph Field, Texas, which assignment she liked "a lot," according to a postcard she sent to her former in-laws in April of 1944. She was later transferred to Army Air Forces Training Command Headquarters in Fort Worth, Texas. She was one of the founders of "The Order of the Fifinella," created to keep track of WASPs and to help them find jobs after the war. ("Fifinella" was the female counterpart of the "Gremlin," the imaginary troublemaker for aviators during World War II.)

Kay was in Washington, DC to discuss Civil Aviation Authority certification for WASPs when she got permission for a solo cross-country tour to survey the re-employment possibilities for the women pilots in peacetime. She was cleared for an instrument flight from Washington to Cincinnati on the evening of November 26, 1944, piloting an AT-6 advanced trainer. In bad weather near New Carlisle, Ohio, she crashed and was killed—

just days before the WASP program was deactivated.

Kay was buried in the family plot in Dayton, Washington, with her brothers and one sister in attendance, along with her parents and her husband, Lt. René Dussaq, a paratroop officer on duty in Italy who happened to be en route to the United States on leave at the time of the accident.

Kay Dussaq is memorialized in a small book published by Texas Woman's University Press devoted to the 38 women pilots killed in the service during World War II. The booklet contains a tribute given by Gen. Henry H. "Hap" Arnold, Commanding General, Army Air Forces, on December 7, 1944, which ends: "The Air Forces will long remember their service and their final sacrifice."

This brief biographic sketch has also been intended to memorialize Katherine Keeler as a pioneer document examiner, flyer, and exceptional individual.

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