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# STANLEY SYKES

by

Henry L. Giclas

STANLEY SYKES READ HIS OWN OBITUARY in a Wickenburg cafe as he was taking his first sit-down meal three days after the dam at Walnut Grove gave way early in the morning of February 22, 1890. The resulting flood took an estimated eighty lives among those living and working along the Hassayampa River below the dam site. Stanley was reported drowned. Not many people are privileged to read their own death notices, but Stanley was an unusual person whose long and productive life included many extraordinary experiences. His brother Godfrey, author of *A Westerly Trend*, made a deeper impression on their adopted country, but Stanley's record is just as interesting. I knew him well and worked with him on many projects. He talked freely to me, and what he told me has been supplemented by Godfrey's diaries and other records. This is his story, told as well as I can tell it. But first, a look at his miraculous escape from drowning below the Walnut Grove dam.<sup>1</sup>

At this time, most of the heavy construction crew had moved twelve miles downstream to a camp two miles below Slim Jim Creek to begin construction of a smaller diversion dam. The first mile of a six-mile wood flume to carry water to the company's gold-bearing gravel beds below Fool's Gulch was completed by November, 1889.<sup>2</sup> Over 100 people were living and working at this construction site. By this date, H. S. Van Buren was general

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Born in Flagstaff, Arizona Territory, Henry Giclas received the B.S. degree from the University of Arizona, did graduate studies in astronomy at the University of California at Berkeley, and received the Honorary Doctor of Science degree from Northern Arizona University. He is retired after over fifty years as an astronomer on the staff of the Lowell Observatory, Flagstaff.



*Stanley Sykes near Flagstaff, 1896.*

superintendent and Colonel Alexander Brodie, later a Territorial governor of Arizona, was the engineer in charge. Thomas A. Brown was the upper-dam superintendent.

The winter of 1889-1890 was unusually wet. The Bradshaw Mountains and the Weaver Mountains, parts of which drain into the Hassayampa, were covered with a blanket of heavy, wet snow. The lake behind the upper dam was already full when warm rains came, sending additional quantities of water into the river above the dam. With it came brush, trees and logs, which further complicated matters. The spillway gates at the west end of the dam were made of wood and by this time were so swollen they could not be opened. The water level rose much higher than the dam was designed to take. During the afternoon of February 21, 1890, superintendent Brown became apprehensive and dispatched riders downstream to warn the people of a possible disaster. The riders never made it. Water started pouring over the top, washing out the loose fill between the rock veneer of both faces. About two o'clock on the morning of February 22nd, the dam gave way with a thunderous roar, sending a wild wall of water, logs, trees, and boulders, some as large as a house, down the canyons of the river.

Sykes and two companions, W. W. Stout and J. R. Halford, were placer mining for gold on the river three miles below the lower dam site. He described their campsite as being on the inside curve of a bend in the river, and to this fact he also attributed their escape from drowning. It was a rainy, moonless night, and they were trying to sleep in a tent a few hundred feet up the slope from the river. They heard the roar of the approaching water and in a matter of a few seconds realized what had probably happened. They burst out of the tent in their underwear and scrambled up the hillside over rocks, cactus, and bushes in their stocking feet. One of them had the presence of mind to drag the blanket he had been sleeping under along with him. The water touched them before they reached high ground; they escaped being washed away only because the water hit the outside bank of the curve first, and in the time it took to rebound on the inside of the curve, they made it to high ground.

Stanley mentioned standing exhausted in the rain above water level watching water that had a fluorescent glow, a phe-

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nomenon also noted by others who survived. The first order of business was to pick the cactus spines out of their bruised feet as best they could in the dark. They then cleared out a short path among the rocks where they could walk back and forth to keep warm in the chilly rain. They tore the blanket into strips, wrapping their sore feet and walking to keep from freezing until daylight came.

In the excitement one of Stanley's partners did not realize that he could not open one of his hands. When it became light enough to look at it, he found the hand had been closed on a cholla ball while grabbing for an assist up the canyon slope, and some thorns had gone through the hand. Stanley said he had to make this partner lie on his back and stretch out his arm; then Stanley knelt on it and pried the hand open with two sticks, extracting as much of the cactus as he could.<sup>3</sup>

When daylight came, they viewed a scene of utter destruction. They had lost all their belongings except the underwear they were sleeping in and the blanket. The view downstream was one of dead horses and human bodies lodged in trees up to the high-water line. The sides of the river canyon walls were scoured clean. The first body encountered as they picked their way downstream was that of a Chinese man wearing shoes. These were promptly removed and made use of—as were the torn overalls. Further on, a corpse with better clothing was encountered and a quick exchange was made to cover another one of the three.

About this time survivors of the flood from above the upper dam, leading and riding horses and equipped with picks and shovels, were trying to identify the dead. They were constructing makeshift coffins from what debris was available and were burying the bodies as they came to them. Soon that meagre supply of material ran out; it then became necessary to bury bodies in the sand and cover the graves with rocks. Two days later, Stanley and one of his partners reached Wickenburg. The other partner, J. Halford, had summarily disappeared and he did not choose to reappear.

It was at Wickenburg in the Magnolia Brewery and Saloon, also a restaurant, that Sykes read his own obituary. By this time, however, the partner's hand had swollen to the size of a ham. With relief money collected in Prescott and Phoenix and



given to them, they purchased some old nags and rode to Phoenix to see a doctor.

Stanley Sykes was born in South Kensington, London, England, on April 18, 1865. His father, Godfrey Glenton Sykes, born in 1842 at Malton, Yorkshire, was a well-known professional artist, designated, by command, artist to Her Majesty, Queen Victoria. Many examples of his work can be seen at the South Kensington Museum as well as at the Victoria and Albert Museum in London, where his paintings, sculptures, and art work are still on display.<sup>4</sup> Among the memorabilia in the family's possession, in addition to a few of his paintings and some hand-painted china plates, is a silver crayon holder given to Godfrey by his friend, the father of Rudyard Kipling. Stanley's father was also a great friend of Charles Dickens, both being Royal Academicians, and was often visited in his studio by Queen Victoria herself.<sup>5</sup> Unfortunately, Stanley's father and mother died before he was two years old, so he was raised by an aunt. He attended a private school in South Kensington run by a Miss Shoper and a Dr. Bell and received his mechanical training later at Finsbury Technical School in London. He then lived in Wolverhampton, Croydon, until 1884, when he and his older brother came to the United States. It was this educational background, combined with his inherited artistic ability, that enabled Stanley to become a successful instrument maker.

Stanley Sykes and his brother, named Godfrey after their father, arrived in Arizona at 2:45 p.m., October 16, 1886. (The time was recorded precisely by Godfrey.) Among the diverse items in Sykes' file at the Arizona Historical Society in Tucson is a copy of Godfrey's reply to an inquiry by his brother as to when they arrived in Arizona. The letter contains a minor saga in itself, well worth retelling, entitled "Skeleton log of a 'Voyage' from HCC Ranch, Scott County, Kansas, to the Blessed State of Arizona in the fall of 1886."

It reveals that the two brothers were inspired by reading historical fiction about the western United States. One novel in particular was Captain Mayne Reid's work entitled *The Headless Horseman*. The story was set on the rolling prairies of the Southwest, and the area became the ultimate goal of these two adventurers. After arriving in America, they spent the first year or

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so in the East doing odd building and plumbing jobs, working on the Brooklyn Bridge for a time. Eventually they made it to western Kansas. Later, through a friend for whom Godfrey and Stanley built a house in Garden City, they were asked to join in the development of a cattle ranch in the basin of the White Woman Creek, some fifty miles north of that town.<sup>6</sup> It became known as the HCC ranch. A year or so later the same real-estate salesman who had handled the sale of the HCC ranch sold land about fifty miles away from headquarters to some lady prohibitionists, much to the dismay of the two brothers, who were operating the ranch for the owner. Then some dirt farmers moved in, the prairies became semi-civilized, and the open range began to disappear. The days of the HCC camp were about to come to an end.

Fortunately, the person hired by the owner of the ranch to liquidate the holdings was a horse lover as well as a horse trader. He allowed the Sykes brothers to purchase their favorite horses from the remuda for a nominal sum. After a quick return trip to England, they renewed the search for new frontiers and the unoccupied spaces of the West.

As recorded in the "log of the voyage" to Arizona, the two brothers left the HCC camp on September 14, 1886. Godfrey described in loving detail the names and temperament of each of the four horses they purchased from the HCC—the ones they had used in the two prior years on the ranch.<sup>7</sup> On September 21 they arrived at La Junta, Colorado, where "at an indifferent restaurant doing his best at eating a tough steak," they met "a very remarkable old gentleman to whom fighting, in all of its more acute phases, had been more or less a lifetime occupation."<sup>8</sup> It was Uncle Dick Wooton. On September 25 they arrived at Raton, New Mexico, made famous by Uncle Dick's toll road, and four days later they stopped at the Las Vegas hot springs for two days of rest and recuperation. At the time these hot springs were renowned throughout the Southwest, featuring hot mud baths in wooden tubs. The brothers were impressed by the stately four-story Montezuma hotel, with a special fifth floor for VIPs, its rooms surrounding a spectacular rotunda.<sup>9</sup>

On October 4 they reached Albuquerque and spent five days at the Girard House. There they made the decision to continue on west instead of turning south to Tombstone. On October 16 they

crossed the New Mexico-Arizona line and noted in their log, "Here we are!"

The map they carried in their saddlebags showed very little detail north and west of the little town of Holbrook on the Atlantic and Pacific Railroad. It did show burning coal beds, waterfalls, volcanic craters, and a great blank area called "Indian Country" to the north. This intrigued the brothers and they spent the next few weeks exploring. They eventually drifted towards some high and attractive looking mountains to the west and finally arrived at the town of Flagstaff. As winter was approaching and they liked the area, they were anxious to find a place that would provide feed for the excellent horses they had brought with them. They found out, through local inquiry, about a place at the edge of the cedars at about 6000 feet elevation that might be developed into a cow camp. It was located at the edge of the blank space on the map and they felt it would be unclaimed, suiting their desire for privacy.

Water was always a matter of great importance in Arizona; this site contained two natural pools of water in the bottom of a narrow basaltic canyon fed by the underground drainage of a large wash. It had already been named Turkey Tanks. The brothers built a log cabin with a native-stone fireplace near the edge of the canyon. Stanley said it was the first place they had running house water—a bucket traveling down a cable on a pulley from the rim to the pool below which was pulled back up with a windlass. In keeping with the name of the place, they selected a "turkey track" as their cow-brand and "began to accumulate a breeding herd by picking up odd bunches of cattle as opportunities arose."<sup>10</sup> The brothers did purchase some breeding stock, but "picking up odd bunches of cattle" was a polite term for the practice of branding slick ears, sometimes called long ears, meaning unbranded cattle. In those days, each registered brand could also include a registered, unique ear notch or notches. This practice of ear marking was most useful when, at roundup time, it was much easier to identify each owner's cattle from ear marks than to read brands, often obscured by the growth of hair, in a packed herd. It was considered quite ethical for anyone finding an unbranded cow or calf to put his brand on it immediately, thus becoming the owner.

Life at the Turkey Tanks produced its share of memorable stories. Billy Roden, Sr., was the brothers' nearest neighbor to the

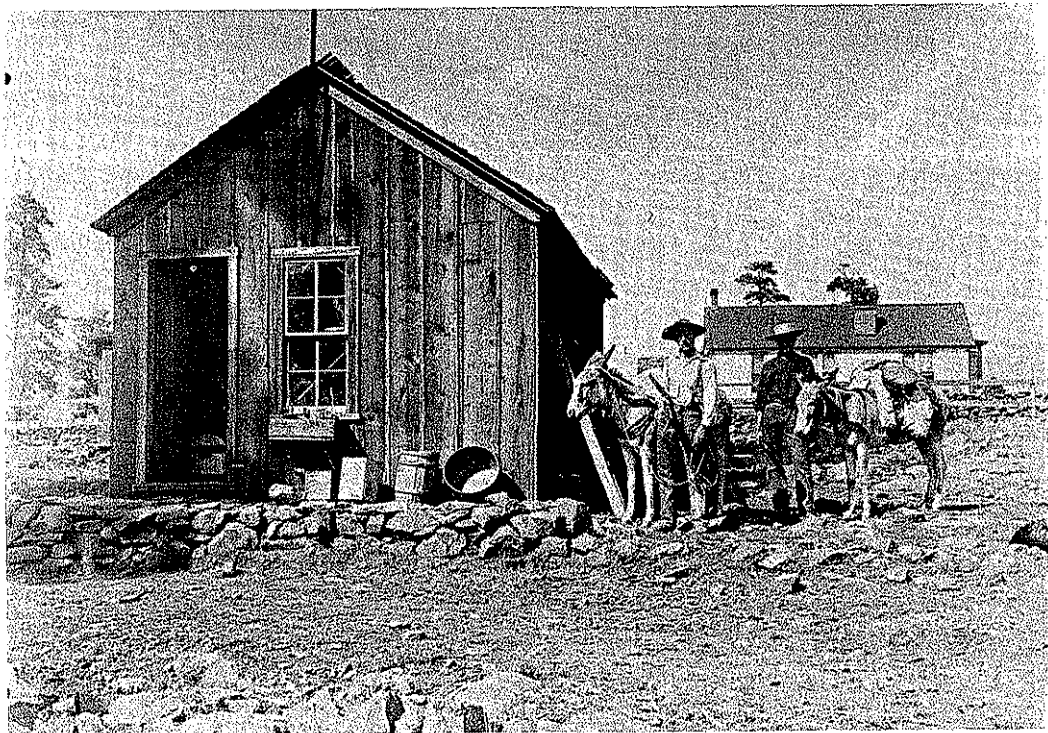
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north. Billy Roden came originally from Indiana. In 1883 he picked up a herd of longhorns in Texas and drove them to the Grand Falls area, where he settled. On one occasion Roden stopped by to pass the time of day; they were all sitting out on the porch when a flock of turkeys came by. Stanley reached for his six gun, aimed, and blew the head off one turkey a considerable distance away. It was one of those one-in-a-thousand lucky shots. Roden said he was impressed, to which Stanley, with complete nonchalance, replied, "I always shoot them in the head: it doesn't tear up so much of the meat." Sykes said he carefully avoided any further demonstration of his shooting ability in Roden's presence.

In 1891 a dirty, bedraggled-looking man carrying a lot of strange-looking gear walked into the camp one afternoon. When he spoke it was evident he was no ordinary wanderer or hobo. It turned out to be D. T. MacDougal, the assistant director of the New York Botanical Garden. His half-breed guide had made off with his horses and most of the food several days before, leaving him stranded on foot. This meeting led to a lasting friendship. After MacDougal founded the Desert Botanical Laboratory at Tucson, Godfrey joined him as an associate and they worked together the remainder of their lives.

The following year, the brothers built a one-room town house on the back of some lots at Dale and Humphreys streets in Flagstaff. It served as a place to stay whenever either of them was in town. Stanley said they would hobble the horses in the yard, but invariably the animals would get away. As it was considered a disgrace to walk, the men would often spend much more time finding the horses than it would have taken to walk the few blocks to town. This one-room town house later became Stanley's workshop behind the house he lived in for over fifty years. The old foot pedal lathe, hand-operated drill press, and other memorabilia of his "Fix and Mend" shop were stored there until Stanley's death.

About the beginning of the 1890s, the cattle market was so depressed that the Sykeses decided to try other things. They left a trusty cowhand in charge of the camp and began to concentrate on their engineering abilities. They set up first a bicycle repair shop in Flagstaff on Aspen Avenue just east of the present-day Monte Vista Hotel. Then they branched out as "Makers and Menders of Anything." It was through this connection a few years later that



*Stanley (left) and Godfrey Sykes before their "townhouse."*

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they met Percival Lowell when he had the first eighteen-inch refracting telescope erected on Mars Hill in 1894.

The Sykes brothers were interested in anything new and had a way of attracting scientific people by being good listeners. They never treated them as eccentrics; one result of this was that what scientific people there were around Flagstaff in those early days met at the Bicycle Shop. They sat around the shop watching and marveling at the mechanical parts the brothers could turn out on the foot pedal lathe, the hand operated drill press and the forge. This informal group called itself "The Busy Bees." When the brothers were caught up on their work, they would engage in some mild competitive games like pitching pennies or bicycle racing.

Among the regulars of the Busy Bees was A. E. Douglass, at that time of Lowell Observatory (he later developed the science of dendrochronology at the University of Arizona), Dr. MacDougal, postmaster Charlie Stemmer, Balzer Hock, and the Babbitt brothers. There were also itinerant geologists, ethnologists, and anthropologists.

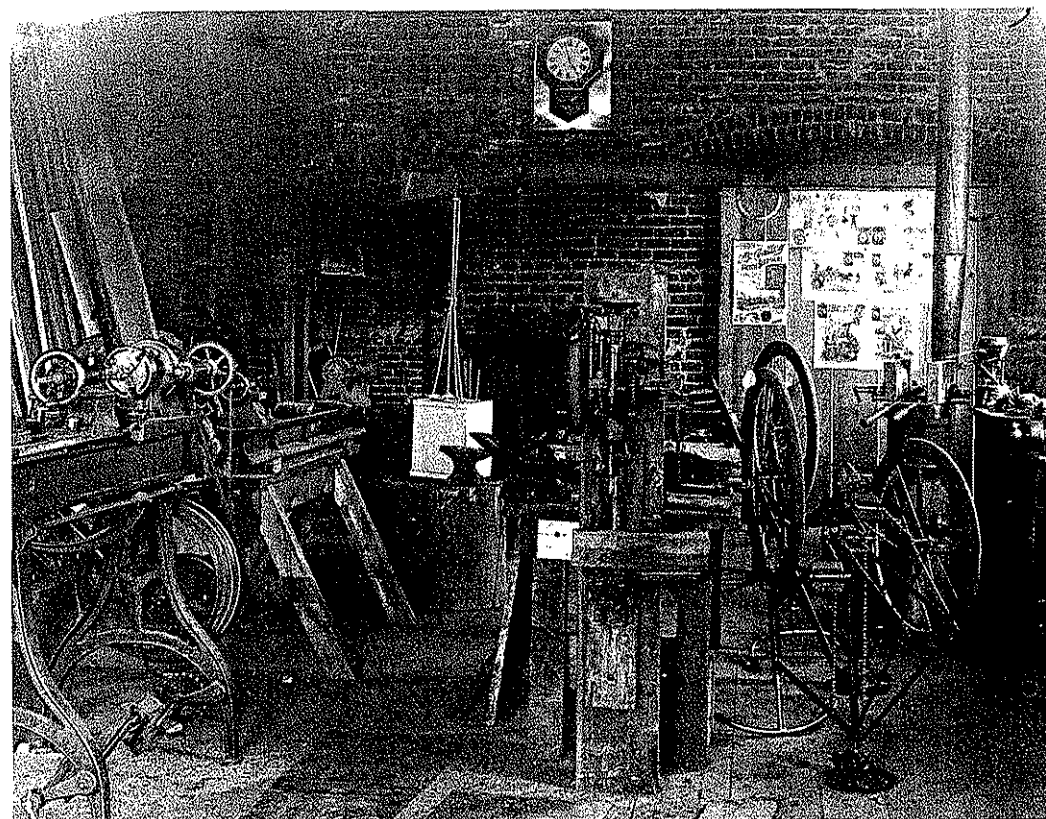
One of the many horseplay stories I heard concerned bicycle races around the block. Stanley and his brother looked very much alike; they would get up a two-bit or fifty-cent bet with a newcomer that they could beat him around the main block on a bicycle. The racers would start off together, but then the brother would purposely fall behind. The challenged was sure he had it won. The other brother in the meantime would proceed up through the alley and as the newcomer rode by would pop out with a burst of fresh speed and win the race. In the meantime, the first brother had returned to the shop and would compliment the winner on his great ability to overtake such a fast-pedaling opponent!

In those days the wooden sidewalk in front of the shop was about two feet above the ground. A favorite prank was to drop a half dollar or more through the cracks in the boards and then tell one of the "Bees" of losing the money under the sidewalk. Invariably one of them would crawl under the walk to retrieve the money, at which instant one of the brothers found it necessary to empty a pail of water on the sidewalk just in front of the door.

Even though Stanley possessed a rather frail physique, he participated fully in the life of early Flagstaff. He was not very tall, and probably never weighed over 130 pounds at most. For this reason his nickname was "Shorty." He played in Flagstaff's first



*The "Busy Bees": (from left) A.E. Douglass, Balzer Hawk, Godfrey Sykes, and George Babbitt, Sr. Below, the bicycle shop in Flagstaff, where the "Makers and Menders of Anything" operated.*



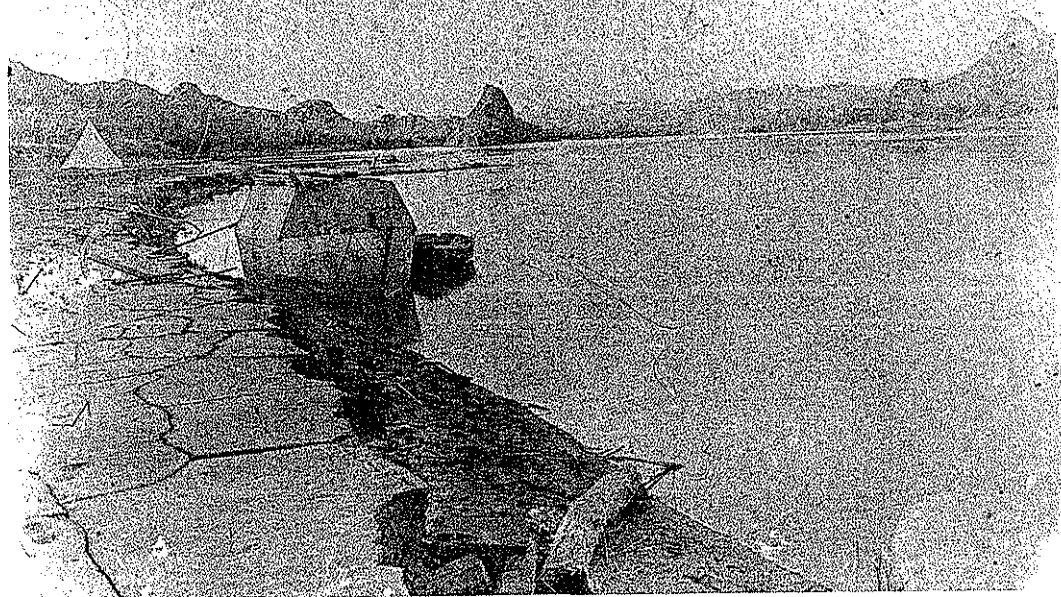
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brass band and mentioned that the only compensation was in the form of liquid refreshments furnished in barrels by the sponsors. He, like most of the able bodied townsmen, was also a member of the volunteer fire department. Sandy Donahue, the genial saloon-keeper on Front Street, was the fire chief. The first fire equipment was a hand pumper, and, as in the case of the band, Sandy always saw to it that there was plenty of whiskey on hand to "prime the pumps," as he called it.

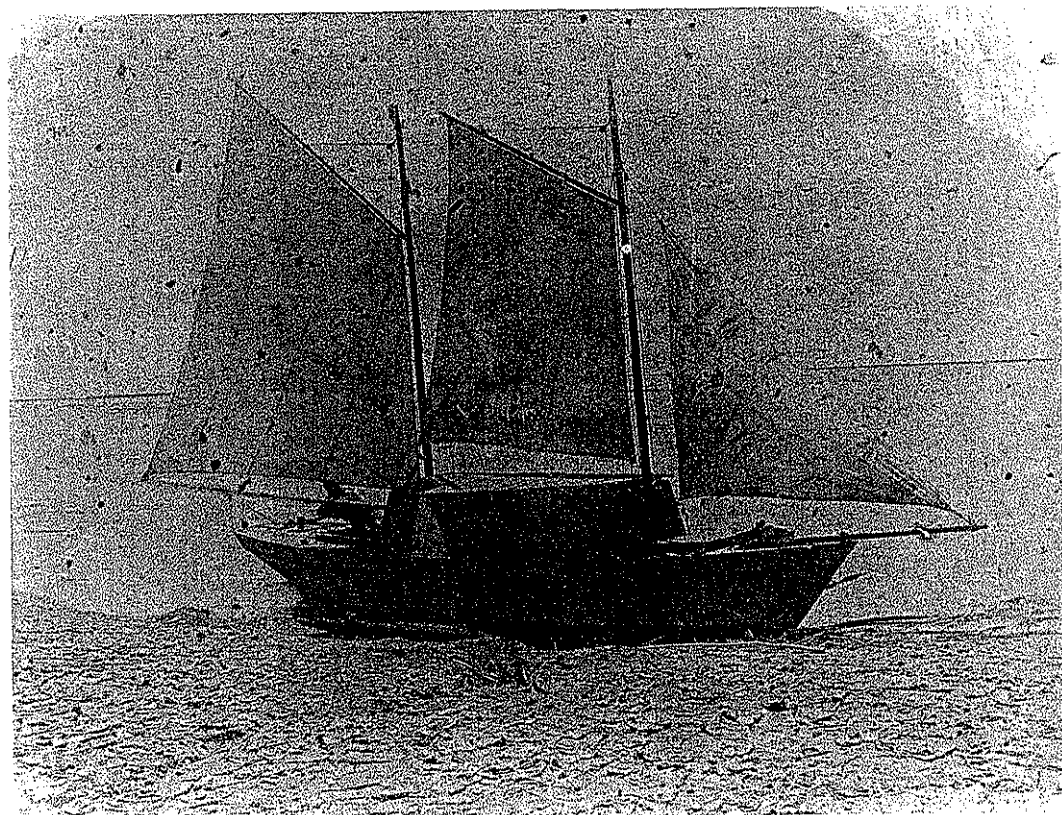
The mending business was never too pressing, especially during the winter months when the whole town just hibernated. This pleased Stanley because he was interested in exploring the rest of Arizona. It was what prompted him to go panning for gold on the Hassayampa in the winter of 1889-1890, the venture that almost ended his life. The same winter his brother built a boat that he launched on the Colorado River near the Needles and floated down to the Gulf of California. Tragedy almost befell him also as the boat burned 140 miles below the mouth of the river, but he and his companion, Charlie McClain, survived the walk back to Yuma.

A few winters later Stanley went placer mining again on the Hassayampa. This time he was with Charlie McClain. It got so cold there that even their dog was uncomfortable. They decided to go farther south to Phoenix.<sup>11</sup> It was still cold there, so they decided to go on to Yuma. The obvious way to get there was to float down the Salt River to the Gila River and continue on to Yuma. They proceeded to build a boat at Five Points in Phoenix and began a float trip down the Salt. It never occurred to them to investigate the amount of water in the Salt River before launching the boat. They very soon ran out of water when the river went underground. Undeterred, they found a farmer with a team and wagon to portage their boat to the next navigable outcrop of water and continued on. At times there was so little water they had to pull the boat with ropes while walking in the meagre stream. Occasionally they encountered a crude dam at the head of an irrigation ditch; they would use the ditch until it ran into a farm field. There was a little more water in the Gila; in fact, at one place there was a rapid that upset the boat. The greatest mishap on the voyage was that all the tea got wet. After it was dried out in the sun, its volume increased by several fold and Stanley complained that thereafter it took two double handfuls to brew an acceptable pot of tea.





*The Sykes brothers' boat at the Needles during construction. Below, rigged and ready for the float from the Needles to the Gulf of California.*



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Stanley said they ate very well, since game and waterfowl were plentiful. They would tie up where a game trail came through the heavy brush to the water's edge. With his ten-gauge shotgun, Stanley waited until a covey of quail came down the trail, then, with one shot, he would have enough meat for a sumptuous meal.

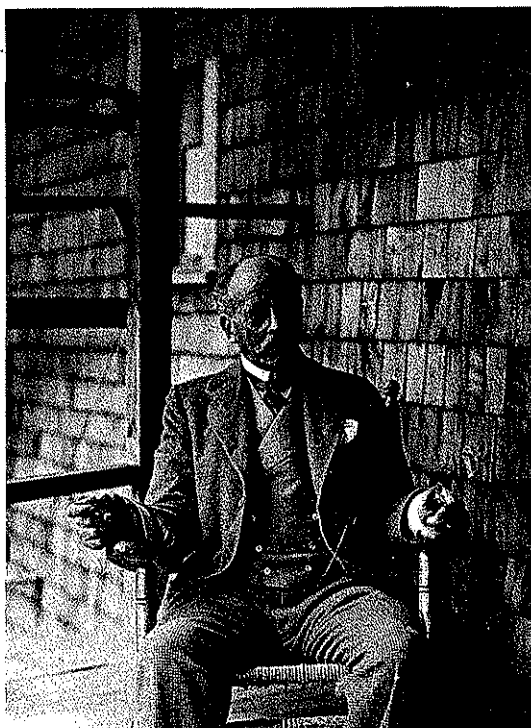
By the time they got to the outskirts of Yuma, their clothes were so tattered from going through the greasewood and catclaw that neither one was presentable enough to go into town. They decided that between them they could cover one person acceptably enough, but the other one had to hide in a state of undress until clothes could be bought in Yuma and delivered back to him.

Once back in northern Arizona, Stanley decided to use his mechanical talents in the sawmill business. He took a job at Dennis' mill at Maine (a railroad siding near present-day Parks, about seventeen miles west of Flagstaff). It was there in 1895 that he took his young bride, Beatrice Belle Switzer, the daughter of a pioneer family that came to Flagstaff in 1883. Beatrice Belle was born in Paris, Kentucky, February 28, 1872. Her parents, then with three children, left for San Francisco in 1874. In 1883 W. A. Switzer brought his family by train to Williams, Arizona. They had to lay over in Needles, California, for a few days until the railroad bridge across the Colorado River was completed. As there were only tent houses available in Williams when they arrived, Switzer moved his family to Flagstaff, where a house was available. Eventually there were eight children in the family, four boys and four girls. The youngest, Walter Switzer, born in Flagstaff and now retired in California, founded the fashionable ladies' ready-to-wear store, Switzer's of Phoenix.

The Sykes' first son, Harold Stanley, was born in Flagstaff on July 23, 1896.<sup>12</sup> The same year Percival Lowell engaged the Sykes brothers to build a forty-foot dome to house the twenty-four-inch refracting telescope just being completed by Alvan Clark and Sons. The telescope was tested at Flagstaff and then shipped to Tacubaya, Mexico, for the opposition of Mars later that year. There were no detailed plans for the dome, only the diameter was given by Lowell. It was up to the ingenious Sykeses to do the rest. The structure was erected on their "townhouse" lot in Flagstaff. The telescope and dome were then loaded on flatcars and shipped to Mexico. When the observations were completed, the telescope was



*Stanley Sykes, about 1947.*



*Percival Lowell*

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returned to Flagstaff, where the Sykes brothers re-erected the dome on the original site on Mars Hill.

In later years it fell to my lot to assist Stanley in the maintenance of this dome. It was kept circular with steel bands that had turnbuckles that could be tightened as adjustment was needed to keep the dome rotating properly. When it would get out of round, Stanley would always complain bitterly that "in Mexico [they] took our dome apart with axes—no wonder it will never stay round." Since 1966 the dome and telescope have been a Registered National Historical Landmark and are still being used regularly for planetary observations.

In the fall of 1898 the two brothers planned a float trip to the Gulf together. This time, however, they took their wives and baby boys along. The procedure, as usual, was to ship all the material for the boat, the camping gear, and a large stock of provisions, via railroad, to the Needles. By this time the railroad bridge, after washing out at its original site at Mellen three times, had been moved to Red Rock—present day Topock.<sup>13</sup> They camped at the river's edge until the boat was completed and then began to make the distance from the boat-building camp to Yuma. They saw only a few Indians and perhaps three or four white families during the whole trip. The white people were those at the old military post at Ehrenberg, where there was a store of sorts built by James M. Barney and later run by a man named Fisher.

It was on the return trip from the Gulf that Stanley decided to take the job of operating the pumping station near Yuma for the Imperial Irrigation Canal. He and his family made their home there for two years before returning to Flagstaff and the headquarters ranch at Turkey Tanks. Their second son, Guy Switzer, was born there on January 20, 1899, and grew up in Flagstaff.<sup>14</sup>

In 1904 the brothers sold the livestock carrying the Turkey Track brand. Their close association of many years ended, and each went his separate way, Stanley remaining in the area of Flagstaff. Because of his established reputation as a mechanic and instrument maker, he worked a good deal of the time for Lowell Observatory installing new equipment or repairing old.

Early in March, 1905, Dr. MacDougal organized another botanical collection trip to southern Arizona, and he asked Stanley Sykes to accompany him. Stanley went to Mellen, Arizona, to build

a boat. MacDougal and G. G. Capp, an associate of MacDougal's, arrived there on March 13, 1905, at midnight when the train stopped and unloaded all their gear, including a canvas boat. Stanley met them with a coal-oil lantern and escorted them down the bluff to the river. The next day they started their float trip down to Yuma some 300 miles to the south. Godfrey and a friend joined the party there.<sup>15</sup>

By mid-April they had abandoned the boats temporarily south of Yuma and had rented horses and a wagon to haul supplies and equipment overland. The party visited hot pools and bubbling mud pots used by the Cocopah Indians for centuries for medicinal purposes. Stanley did not tell me just where they were, but he did tell me about his discovery of fish living in this very hot water. The exploring party had left the hot springs after a stop for lunch. Stanley for some reason was delayed in departing and had gone back to look at the springs. He thought he saw a fish. He watched the pool for a while and, sure enough, he did see several fish. The water was so hot it hurt his hand. When he caught up to the rest of the party, he told them about seeing fish and they would not believe him. MacDougal was certain no fish could live in water of that temperature. They thought it was a joke and decided to move on. Stanley said he would go back and catch one to show them he was right. He did go back to his companions for the second time with a fish. They were all so amazed that MacDougal turned the expedition around and all went back.

By 1906 Godfrey had become an entrenched employee of the Desert Botanical Laboratory at Tucson, a branch of the Carnegie Institution of Washington. In that year another department of the Institution needed his services to build an access road up the south slope of the Sierra Madre mountains near Los Angeles to the soon-to-be-expanded Mt. Wilson Observatory. There were plans to erect a sixty-inch reflector on the mountain. Two trails led to the summit: the first was the old Indian trail leading up the canyon of the Little Santa Anita stream; the second was the trail beginning at the mouth of Eaton's Canyon in Altadena and zigzagging up the southern face, averaging two feet in width. Any piece of equipment had to be less than eight feet in length and no heavier than a burro or mule could pack.

Dr. MacDougal of the early day "Busy Bees" of Flagstaff was

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behind the recommendation that Godfrey and his brother were the logical persons to engineer the road up the mountain. Stanley moved his family to Pasadena for that year. He told many stories of the problems they encountered. Not a small one was the issue of patronage, probably unknowingly supported by the management of the Observatory. G. W. Ritchey, who later became the famous and competent optician who ground the mirror and designed the sixty-inch telescope, succeeded in having one of his friends designated to furnish the hay for the mules and burros used to build the road and pack supplies to the construction camps. It turned out that the hay was a very poor grade of straw and weeds, each bale heavily salted with rocks and boulders to make it weigh more. Many years later Dr. W. S. Adams, later a director of the Mt. Wilson Observatory, commented: "In personal relations, Ritchey was somewhat difficult."<sup>16</sup>

They hired several dozen Japanese farm laborers who were good at hoeing row crops in a soft field of dirt but were hardly capable of coping with the sheer rock faces of the mountain. The Japanese knew nothing about hard rock blasting or the use of explosives, and they did not speak English. To warn them about the dangers proved impossible. Stanley said they were like kids with firecrackers on the Fourth of July; they never took cover when the charges were set off and stood cheering as the debris fell all around and sometimes on them.

Another problem was presented by a remarkable type of truck purchased especially to haul heavy equipment up the new road. Only three others of this model were ever built. The power plant consisted of a gasoline engine which operated a generator, which in turn furnished electric current to motors installed in each of the four wheels.<sup>17</sup> It would pull itself on a reasonable hill, but not up a steep grade. They finally ended up pulling the truck with a span of mules on the steepest slopes of the road.

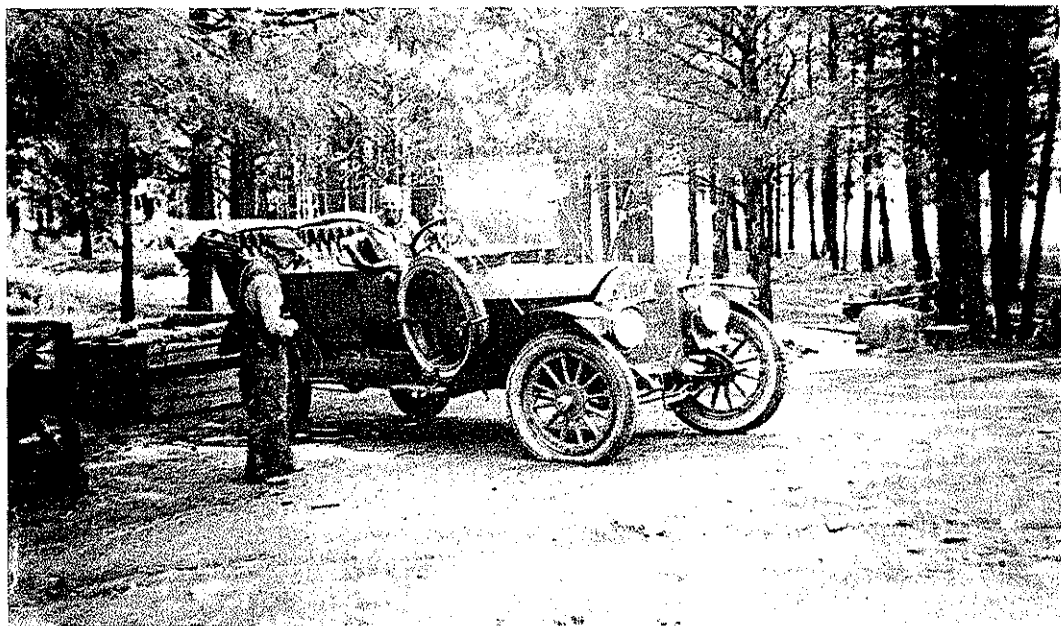
The instrument shop at the Lowell Observatory during Sykes' tenure consisted of a thirteen-inch swing-radius thread-cutting lathe (already well worn eccentrically in 1910), a drill press, and a shaper. Precision milling machines, flat grinders, and the modern instrument-shop machine tools were unheard of at the time. It was with these crude tools, his mechanical training at Finsbury Tech, and the creative ability of an artist that Stanley

produced some of the most sophisticated, high-precision, state-of-the-art instruments used by the astronomers at the Observatory in their research over the many years. Early in his career he made the famous fast ratio spectrographic cameras that V. M. Slipher used to determine the high recessional velocities of the spiral nebulae (the first observational evidence of the expanding universe). These lenses had an F-ratio of 1:1, which meant the cone of light converged to a focus at a ninety degree angle that had to be found and maintained within a few thousandths of an inch. At the other end of the scale, Stanley, from his sawmilling experience, could set a huge Corless steam engine. This versatility and willingness to undertake any mechanical problem made him an indispensable team member of the observatory staff.

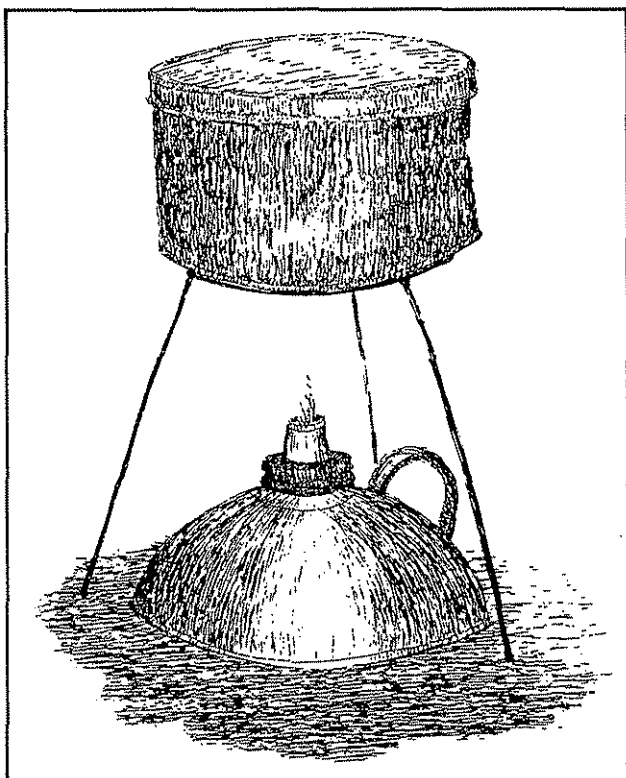
In 1928 Roger L. Putnam, the observatory trustee, donated a four-and-a-half-inch swing-radius precision tool room lathe made by his Package Machine Company of East Longmeadow, Massachusetts. It was a fine gift, but it was not equipped to cut a screw. Stanley produced precision drive screws needed for various instruments nonetheless. The screw-cutting lathe was not capable of cutting a period-free screw, but Stanley manufactured many of them. He cut the best screw possible with one cutting, then, from an indicator, shifted to compensate for the eccentricity of the lathe, and took a final cut. Then he would cast a lead nut on an extra length of the screw, split the nut and use it with abrasive powder, to lap in a perfect screw. Moving slides and steel driveways were hand scraped to a perfect fit, a laborious technique learned at Finsbury Tech.

One indispensable item in the shop was the tobacco dryer. Stanley smoked Mail Pouch tobacco in his pipe. It was always too wet to burn properly as it came from the package. The dryer consisted of an old oil can from which part of the spout had been cut. A wick was inserted in it. Alcohol was used as a fuel to heat the tobacco emptied into a tin can held on a specially made stand. Stanley always enjoyed opening a new pouch of tobacco. He said it was just like opening a box of Cracker Jacks to look for the prize inside. He always maintained that they never shut down the shredding machine when one of the employees fell into it. In one package he found a human thumb, nail intact. Other times he found buttons, pieces of overalls, and bits of burlap. There was no

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*Stanley Sykes and his son Harold Sykes (behind the wheel), about 1939, in Percival Lowell's 1911 Stevens Duryea "6." At right, a sketch of the tobacco dryer.*





telling what might be found in the next package.

Percival Lowell always had great respect for Sykes. Stanley told me that when Dr. Lowell would come to the shop, he would always knock on the door and wait to be admitted. If the machines were running, he would wait until they stopped before he would knock, and then would always remove his hat when he entered. They were close personal friends. Lowell often asked Sykes to accompany him on exploring trips. Stanley designed and built three telescopes for the Observatory: a fifteen-inch reflector housed in a roll-off roof dome, a twelve-inch reflector for the mountain station on Shultz Peak, and the famous thirteen-inch photographic telescope with which the outermost planet, Pluto, was found in 1930. He built the equipment for and participated in two solar eclipse expeditions: one in Kansas on June 8, 1918, and one on September 10, 1923, at Ensenada, Baja California. He built the night-sky spectrographs that went with the Byrd expedition to Antarctica. In 1936 he made the Wadsworth infrared prism spectrometer for Dr. A. Adel with which the latter discovered nitrous oxide and deuterium in the earth's atmosphere. The base for this instrument was made from an old Ford motor flywheel. The history-making spectrometer is now on display at the Lowell Observatory visitor center.

Innovation was one of Sykes' great attributes. In the early 1930s Ford was the first automobile to feature an aluminum alloy cylinder head. Since the melting point of this alloy was well below that of iron, Stanley conceived the idea of casting small parts by melting these cylinder heads in a steel plumber's ladle heated in the shop forge. It also required casting sand with just enough clay to be porous and yet hold its molded shape. To find the sand was a great excuse for Sunday expeditions, first along the bank of Oak Creek, then to the Little Colorado River just above Grand Falls where, after a couple of tries, he found just the right combination. A damp handful of this sand squeezed tight would retain its shape. Many lens cells and eyepieces for auxiliary instruments were fabricated from these castings long before aluminum extrusions could be ordered so conveniently from a Reynolds Metal catalog.

The spirit of adventure was always with Stanley. In the spring of 1925 he spent a month camping at old familiar places on the Gulf of California. Later in May of that year he accom-

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panied the senior members of the Observatory staff and the H. N. Russell family of Princeton on a trip to the Indian reservation. In April of 1927 he and his wife left Flagstaff in a Model-T Ford coupe headed for England. They arrived in New York twenty days later, boarded a steamship for Liverpool and visited relatives and old haunts near London.

There were shorter junkets to interesting places on which I was privileged to accompany him, such as a trip to the junction of the Colorado and Little Colorado Rivers in the Grand Canyon in May of 1936.

It was always a delight to visit in the Sykes' home. There were many shelves of well-read western history books that Stanley always shared generously with his friends. Often, to illustrate a point of conversation, he would break out reciting a Bab Ballad or favorite Gilbert stanza from memory. It was small wonder that the early Flagstaff intellectuals of the "Busy Bee" group enjoyed gathering at the Fix and Mend shop. This carried over to the Observatory shop, too, where most staff members would bring their technical troubles and enjoy Stanley's advice and a bit of his dry English humor. I remember particularly one recently graduated, overbearing fellow who was giving Stanley a bad time about some of the obsolete equipment about the place. After listening to this for a while, he replied very simply, "Young man, I was at least twice your age before I thought I knew everything." In later years he was often asked to what he attributed his long, useful life. He always maintained that it was the result of smoking Mail Pouch tobacco and drinking a bottle of beer every day. He often jokingly suggested that the Observatory charge an admission for the daily visitor hour—a bottle of beer each; as collector, he would be entitled to the first one.

In the old Lowell Observatory business records are pay checks to Stanley Sykes covering over sixty years, but the regular monthly full-time salary checks did not begin until August, 1910. They continued for the next forty-six years, until his death in April, 1956, at the age of ninety-one. He was still working several days a week in the instrument shop only two weeks before his death. It was on a short vacation to visit his wife's sister in San Diego that he contracted pneumonia and died there.

Colleagues at the Observatory considered themselves fortunate

## Stanley Sykes

to have been a friend and associate of Stanley Sykes. He was a kind, helpful person, and certainly influenced for the better the lives of those who knew him.

### NOTES

<sup>1</sup>February 25, 1890. Stanley for years carried this small clipping from the paper in his wallet to prove the story of his purported demise. The *Prescott Courier* of March 5, 1890, however, retracted his obituary with a column headed "Saved— Those who were fortunate enough to escape with their lives." His brother Godfrey, upon his return to Yuma after his boat burned in the Gulf of California, was handed the newspaper relating his brother's death. In his book *A Westerly Trend*, Godfrey comments: "I was, of course, greatly distressed at the news; but I was quickly relieved by receiving a letter from him in which he stated that although his drowning had undoubtedly taken place, the condition had only been temporary, and that he was drying out satisfactorily and was helping to bury other victims of the flood who had been less fortunate." Godfrey Sykes, *A Westerly Trend* (Tucson: Arizona Pioneers Historical Society, 1944), p. 224.

<sup>2</sup>*Prescott Miner*, November 13, 1889; Walnut Grove file, Sharlot Hall Museum, Prescott, Arizona, p. 33.

<sup>3</sup>Communication from Glenton G. Sykes, a nephew, Tucson, Arizona, June 22, 1983.

<sup>4</sup>*Malton Messenger*, March 10, 1866, Malton, Yorkshire, United Kingdom.

<sup>5</sup>*Cornhill Magazine*, April 1912, No. 190, New Series, London.

<sup>6</sup>Sykes, *A Westerly Trend*, p. 119.

<sup>7</sup>*Ibid.*, p. 149.

<sup>8</sup>*Ibid.*, p. 113.

<sup>9</sup>*Harper's Weekly*, June 28, 1890, p. 496.

<sup>10</sup>Sykes, *A Westerly Trend*, p. 163.

<sup>11</sup>Stanley Sykes, "Boating Across the Desert," *Arizona Wildlife & Sportsman*, July, 1945.

<sup>12</sup>Interview with Robert S. Sykes and Maureen S. Sykes, Sedona, July 24, 1984. Harold served in World War I, undergoing officer's training at Camp Kearny. After service, he became the operator of radio station KGAR at Tucson and was an aviation enthusiast who made many parachute jumps from the wings of the old biplanes. In 1928 he married Jean Perkins at Tucson, also a member of an early Arizona family, and in the early 1940s returned to live in Flagstaff. After serving on the City Council for two years, he became the first native mayor of Flagstaff in 1946. He fathered three children, Stanley Eidson, a Commander in the U. S. Navy, from a first marriage, a daughter, Jacklyn, who married Antonio Gabaldon, and a son Robert S. of Sedona, who during his ten-year residence in England traced the family roots back to the 12th century. Among the family members still remaining in England is Sir Tatton Sykes, the lord of Sledmere Castle near Malton, Yorkshire, the birthplace of Stanley's father. Robert married a Yorkshire girl, Maureen Smith, who lived just fifteen miles from Malton.

<sup>13</sup>*Santa Fe Railroad Magazine*, March, 1945.

<sup>14</sup>Guy worked as a mechanic for Joe Waldhaus, who owned the Studebaker garage, then went into the car repair business for himself. He married Josephine Inman on November 20, 1925. They moved to Seligman, Arizona, in 1932 where Guy, with Jim Lamport, Jr., owned and operated the Standard Oil distributorship. He was also a partner in the Seligman Garage with Tom Cook. They had two children, a son, Phillip, who died before he was eight years old, and a daughter, Mrs. Marilyn Jo Champagne of Yuma. Guy died January 25, 1967.