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Robert Hitchings Kingsley

Memorial Address*

This Memorial Address is about Robert Hitchings Kingsley—a man who was an active participant in the application of photogrammetry from its early beginnings. Throughout his career he brought an enthusiasm and an intentness of purpose to his work in photogrammetry, which led to many innovative applications.

Primarily, he was a man who gained great satisfaction in working with people, who in turn gave him a full measure of their admiration and affection. Robert Kingsley was an engineer, a mathematician of considerable ability, and organizer and leader who attracted great loyalty. He was an optimist and visionary, who had great faith in the willingness of man to do the right thing.

Robert Kingsley was born on 21 February 1915 in Onondaga County in upstate New York. His father was William Scott Kingsley and his mother, Gladys Hitchings Kingsley (Figure 1).

Robert grew up on his father's dairy farm which, together with farms and orchards owned by other members of the Kingsley and Hitchings families, gave young Robert many acres to roam over (Figure 2). Topographic maps identify this area as "Kingsley's Hill" with good reason. At a tender age, Robert was introduced to the techniques of manually extracting milk from cows, and spreading organic fertilizer over the fields in neat patterns. These pre-dawn activities probably account for the fact that he was never late for an eight o'clock class during all his college years.

A fellow college classmate and Emeritus Member (as well as Charter Member) of the ASPRS, Mr. R. Tilroe Hedden, relates the following memories from an old friend, Marjorie (Kehrer) Reed:

"As a boy, Bob, an only child, lived on a farm near Otisco, New York, and attended elementary school there. Since there was no high school in Otisco, no consolidated school nearby, and no busing at that time, he went to Tully to attend high school. For the full four years Bob and a friend, Wilson Abbott, had a room in the home of Marge Reed. She explained that the boys brought a basket of food from the farm to eat during the week and her mom would help them with their cooking on occasion. Some townspeople assumed that Bob and Marge were cousins, but no—the families were just good friends. In high school Bob was vice-president of the class his Freshman year. Bob graduated from Tully High School in 1931."

After completing primary education, Robert matriculated at Syracuse University, College of Applied Science, and was graduated with a B.S. degree in Civil Engineering with the class of 1936 (Figure 3). It was during this period that he joined a small

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Robert Hitchings Kingsley
1915–1980

group studying elective courses in photogrammetry being offered under Professor Earl Church. Studying photogrammetry under Earl Church proved to be a stimulating and challenging experience for Robert, whose respect and admiration for this great teacher lasted a lifetime.

Another college classmate and lifelong friend of Bob's was Al Quinn, an Honorary Member and 19th President of the ASPRS, and Al remembers this event:

"I recall in college that we both were guilty of goofing off in an important six-hour credit Structures class. The professor, a solid, no nonsense type of guy, got us together and told us that we both had a lot of talent that we were wasting. Furthermore, we both were about to flunk a most important subject, if we didn't get off our ____! To restore our interests and to develop our 'hidden' talent, he promised to call upon each of us every day and 'heaven help you, if you don't know your stuff.' Bob and I decided to work together in order to catch up with the class. The prof did call on us and we did mend our ways. I'm happy to report that we both got As in the course."

The joy of the graduation exercises and the awarding of the Bachelor of Science degree in Civil Engineering was made more complete for Robert, and a few others in his class, by the receipt of a telegram from the Tennessee Valley Authority (TVA) a few days prior to graduation, offering employment in the Maps and Surveys Division as a topographic draftsman. Considering that the year was 1936, and the country just beginning recovery from the great economic depression, no time was lost in accepting this offer of employment.

While Robert had many talents, some innate and some acquired, there was one skill that he never succeeded in conquering. A topographic draftsman, and a master of the flexible contour pen, he was not. This soon became apparent and resulted in a most fateful change, when he was assigned to work with a small unit headed by Ralph O. Anderson. Among other



FIG. 1. Robert at one to one-and-one-half years of age.



FIG. 2. Bob as a youngster of about 10 years.

photogrammetric problems, this unit was concerned with developing a simplified solution for scale and tilt of the aerial photograph—a problem which they eventually solved by the application of the scale point theory.

Al Quinn also recalls: "Our work together at the TVA was both rewarding and challenging. Both Ralph Anderson and Ben Lane provided the spark and challenge to make the transition from Prof. Earl Church's theory to practical applications."

Another Charter and Emeritus Member of the ASPRS, Mr. Harry Tubis remembers:

"Bob Kingsley was an admired and respected friend. I had the privilege of meeting him as one of 'Earl Church's boys' of Syracuse University. He, along with Al Quinn, Sid Tischler, and George Gouinlock, came to the Tennessee Valley Authority (TVA), Knoxville Division, in 1936. We all worked in the Engineering Service Division, Maps and Surveys Branch. Section chiefs at the time were Harry P. McKean and George D. Whitmore, late Chief Topographic Engineer of the U.S. Geological Survey and 18th President of the American Society of Photogrammetry (now ASPRS)."

The period of time spent by Robert with the TVA was relatively short—just over one year. But it was a time of great joy, challenge, and satisfaction. There were many friendships made during this time which became important to his career and which lasted a lifetime.

In 1937, a decision by the Agricultural Adjustment Administration (AAA) of the U.S. Department of Agriculture was made to utilize aerial photography as a means of determining crop acreages for the farm support programs. Under the leadership of Harry Tubis, who left his position with the TVA, a large organization, including both office and field survey personnel, was quickly assembled and, with the usual growing pains, soon made crop measurements from aerial photographs a reality.

Harry Tubis also says: "I recall Bob's exceptional character, professional competence, and friendly demeanor. His manner inspired warm personal relationships. Articulate and positive in discussion, he inspired instant admiration in those who knew him."

The key to the crop measurement program, after the acquisition of the photography which was a major program in itself, was the photo scale and tilt solutions that Robert had helped develop with Ralph Anderson at the TVA.

Robert was one of the first of many TVA personnel that transferred to the Department of Agriculture, attracted by the opportunities and challenges of a large aerial photography program. Robert was given the responsibility for training people in the technique of determining the scale and tilt of each photograph, through use of the scale point theory. Robert and his blue Mercury became a familiar sight at each state office of the East Central and Northeast regions of the Department of Agriculture, as he made his rounds on the training circuit.

Al Quinn also recalls:

"Bob left the TVA to join the Department of Agriculture program in the South. I joined him for short assignments in Raleigh, North Carolina, and Nashville, Tennessee. We always kept in general touch with each other through meetings of ASP and chance get-togethers in St. Louis, Washington, or Syracuse football games. We usually exchanged greetings by calling each other 'Father.' I never found out where or how this term of endearment started, but it lasted."

Mr. Thomas C. Finnie, a Member Emeritus of the ASPRS, and former Deputy Director for Management and Technology of the Defense Mapping Agency, remembers:

"He (Bob) recruited me for my first job in the photogrammetry field in 1937, while I was between the 2nd and 3rd year in civil engineering school. He was a source of inspiration as well as a close friend and colleague up until his death.

Between 1937 and 1941, Bob and I worked together on numerous occasions. He was a great teacher, patient and brilliant. His work with the U.S. Department of Agriculture then involved being Regional Engineer, from Washington, D.C., over seven states including Kentucky and North Carolina, where I worked with Agriculture."

He also set the pattern for the training and use of young men and women in each county office of each state, where the actual measurement of crop acreages on scaled enlargements was performed.



FIG. 3. Bob at graduation from Syracuse, 1936.

The response and enthusiasm generated by Robert in these young people was immense. The procedures were sufficiently technical to provide a challenge, but not so difficult as to create a feeling of frustration. Robert Kingsley, teaching basic photogrammetry to young men and women in the county offices, or explaining Ralph O. Anderson's rigorous analysis of the scale point theory to the more technically advanced people of the state offices, was a common sight. It is probable that the great rapport between these young people and Robert resulted from his ability to understand and appreciate the concerns and interests of these Future Farmers of America. This phase of Robert's career ended on 7 December 1941 with the attack on Pearl Harbor.

By February 1942, Robert had transferred to a position in Headquarters Army Air Force, Directorate of Photography, where a small group of military and civilian personnel had been assigned the task of evaluating the availability of aeronautical charts and related navigational materials, which would be suitable for supporting global operations of the Army Air Forces. It did not take long to determine that the existing materials were inade-

quate in style, content, and coverage, and that a major effort would be required to remedy the situation.

In a matter of weeks the Maps and Charts Division was established at Bolling Field under Col. Earnest Swanson. Robert was appointed to head those activities involving a photogrammetric effort. His initial staff consisted of four men who had followed his lead (and suggestion) and had transferred from the Department of Agriculture. The equipment consisted of writing paper, pencils, and large erasers. However, within a few days everyone had made the transition from previous duties to the preparation of a variety of specifications covering photo compiled manuscripts, to aerial photography testing the adequacy of camouflage.

From the very beginning of this effort, a strong and highly competent organization within the U.S. Geological Survey, under Jack I. Davidson, provided photo compiled manuscripts from the Trimetrogon camera system, under a contract arrangement with the Map-Chart Division. Air Force aerial photo squadrons using this camera system were soon furnishing quality photography of priority areas from Alaska to Africa, and a large backlog of photography soon accumulated.

A requirement for additional cartographic production and lithographic printing became equally obvious if the Army Air Force requirements were to be met. Long conferences involving Col. Earnest Swanson, Loren Bloom, the senior civilian in the organization, and Robert Kingsley resulted in a recommendation to the Air Force Director of Photography to establish an Army Air Force production facility, with St. Louis, Missouri as the preferred location. Approval of this plan, not without opposition, was soon forthcoming and a new component to the nation's cartographic production capacity came into being.

About the time Robert was planning his participation in organizing a new photogrammetric production facility in St. Louis, and how this could be combined with matrimonial plans, he received a commission as a 1st Lieutenant in the Army Air Forces, and in April 1943 was ordered to the Air Force Officer Training School at Miami Beach, Florida.



FIG. 4. Col. Arnold Karo and Bob Kingsley presenting awards at the Aeronautical Chart Plant in St. Louis, 1944.

While Robert was well aware of the great importance given by the military to the difference between the right foot and the left foot, he never become completely reconciled to this situation. In fact, after a session of close order drill, he would argue fluently that since most people were right-handed, it made sense to begin marching movements off the right foot. Even after many demonstrations he did not succeed in convincing the "TAC" (Tactical Air Command) officers to adopt the Kingsley system of close order drill.

Robert also took a somewhat casual attitude towards "P.T." (physical training) in the hot Florida weather. Fortunately, "P.T."

was followed by softball, with the various flights competing for the squadron championship. It soon became apparent that Robert's languid effort in "P.T." was a calculated plan to save his energy for the production of home runs, which he hit with great regularity, becoming the unofficial squadron batting champion.

After completing Officer Training School, Robert's orders assigned him to the Aeronautical Chart Plant at St. Louis, which was rapidly evolving into a full scope cartographic production facility. Col. Gerald Fitzgerald on leave from the U.S. Geological Survey (USGS), was the Aeronautical Chart Service (ACS) Commander in Washington, D.C., and Col. Arnold Karo, on leave from the U.S. Coast & Geodetic Survey (USC&GS), was the Plant Commander in St. Louis. 1st Lt. Kingsley was assigned as the assistant to the Chief of the Plant Photogrammetry Division, Major Robert O. Davis, also on leave from the USGS. Robert (Kingsley) was in charge of the final compilation section (Figure 4).



FIG. 5. The newlyweds, in January 1944 in Colorado Springs, Colorado.

If Robert had difficulty concentrating on his work during the first few weeks of his assignment, it was because the most important event of his life occurred on 28 July 1943 when he and Anne Ramsdell of Gaithersburg, Maryland were married in that city (Figure 5).

Throughout Robert's lifetime, Anne and their children were foremost in his love and concern. Robert is survived by four children—Ellen, Scott, and Joan, who are married and furnishing an adequate number of Kingsley grandchildren, and the youngest, Douglas, who is currently attending Harvard University.

It is conceivable that no true photogrammetrist exists who does not also carry a "fast draw" personal camera which he uses to record the important, and not so important, events occurring around him. Robert's activity in personal photography,



FIG. 6. Shown left to right are Scott, Joan, Ellen, Anne, young Douglas, and Bob.

carried on throughout his lifetime, resulted in a record of over five thousand well organized Kodachrome exposures, which served as a source of evening entertainment for his family and friends on many an occasion, and which he hoped would serve some future historian of the Kingsley family.

During the next few years, Robert supervised the continuing development of the photogrammetric work force at the Chart Plant. In many ways it was a repetition of his early days with the "triple A." While the supervisory group included personnel of varied experience in photogrammetry, mapping, and field surveys, none had significant experience in the use of the Trimetrogon photography system for aeronautical charting. The operating work force could only be described as starting from scratch, most of whom had absolutely no experience or training in mapping work. But the desire to learn, optimism, enthusiasm, and leadership carried the day, and charting projects of large scope and importance were soon being delivered.



FIG. 7. Bob at his desk as Technical Director of ACIC in 1961.

Robert's next change in assignment returned him to the Aeronautical Chart Service Headquarters in Washington, D.C., as the military chief of the Photogrammetry Division. After his release from military service in 1946, he maintained the same position. At the close of World War II, major changes occurred as personnel returned to prior World War II employment. The need for continued production of aeronautical charting in a separate production facility was being questioned. While many key personnel became uncertain as to their future in aeronautical charting, Robert's optimism and perception of the future needs soon dominated the scene, and few personnel left. With the establishment of the U.S. Air Force under the Armed Services Unification Act of July 1947, together with the established need for a large and specialized target materials program, continuance of a separate Air Force cartographic facility became as-



FIG. 8. The 5 January 1959 cartographer school graduation class where Bob Kingsley spoke at the ceremony and presented the certificates.

sured. The pathway for Robert's future career was firmly established. In 1948, Robert was promoted to the Chief of Operations at the Headquarters Aeronautical Charting Service.

Even though Bob had heavy work commitments during this period of time, he also felt the need to be involved in the American Society of Photogrammetry, or ASP as it was then known. He served as an ASP Director in 1948-49 and also chaired the Publications Committee.

In March 1951, Robert was recalled to active duty and served with the U.S. Air Forces in Europe. He was assigned to the Air Targets Branch of the Air Intelligence Division, Hq. USAF in Germany, as the planning and programming officer. His experience in the Target Materials Program made him a valuable addition to the group involved in establishing requirements and implementing production for coverage of tactical targets in Eastern Europe.

In 1953, Lt. Col. Kingsley had finished his tour of duty in Europe and returned to the civilian position of Technical Director at the Headquarters of the Aeronautical Chart and Information Center (ACIC), which had been relocated from Washington, D.C. to St. Louis. It was coincidental that the St. Louis Center now occupied extensive U.S. Air Force-owned facilities conveniently located opposite the famous Budweiser (Anheuser-Busch) brewery. As the Technical Director, Robert conducted many briefings for visitors to the Center. Robert always appreciated the effectiveness of "improving the odds," so it was not out of character for him to accept the occasional suggestion that a late afternoon visit to the Budweiser Guest Room could enhance appreciation by visiting personnel of the briefings which had been previously presented.

The years between 1953 and 1962 were a time of great growth at the Aeronautical Chart and Information Center. As Technical Director, Robert was a creative force and source of inspiration and encouragement. His office was a forum where anyone could enter and receive Robert's full attention (Figure 7). No person with an idea to present ever left Robert without feeling that he had his support, in one fashion or another. Robert never heard a bad idea—only good ideas and those that needed improvement (Figure 8).



FIG. 9. A reunion of some former Syracuse students of Professor Earl Church, held at the 1963 Semi-Annual Meeting of the American Society of Photogrammetry. Bob Kingsley is second from the left.

A co-worker at ACIC, Mr. Cliff Terry, recalls:

"I remember Bob Kingsley as extremely friendly to everyone he knew (even slightly), very sincere in both business and private, and very competent on technical matters. As ACIC's first Technical Director, he was highly respected by virtually everyone with whom he had contact. He always displayed a friendly, yet firm, approach in his dealings."

Another co-worker, friend and fellow golfer, Mr. Bob Karleskint, reminisces: "He was a very thoughtful person of the other guy's feeling. He was gentle, never cursed or lost his temper and was one who would get involved in many ventures. He was an organizer and a leader."

As in earlier years, Bob again felt the need to be more involved with the Society that represented those of the mapping and charting industry involved with photogrammetry and its related disciplines. He once again served as a Director for the ASP from 1957 through 1959 (Figure 9).

Recollections of Robert Kingsley's career would not be complete without an acknowledgement of his leadership in establishing an environment in ACIC for positive and uncompromising support of the United State's activities in Space.

Beginning with the support of the Air Force Cambridge Research Laboratory in 1957, which led to the publication of the *USAF Lunar Atlas* in 1960, to the publication of the Lunar Astronautical Chart Series and many other special charts and mosaics, Robert was the motivator. He was able, with minimum disruption to on-going work, to bring to bear the highly skilled photogrammetric and cartographic resources which were essential to this unique work.

Probably Robert Kingsley's most important and successful decisions were in the selection of the people to head this work. Robert W. Carder was given the staff supervision of the lunar mapping program, and became an internationally recognized authority in lunar mapping. Howard Holmes, who had contributed enormously to the cartographic development of ACIC from its very beginning, was selected to head the lunar mapping production work. He, in turn, was supported by a group of experts in cartography and photogrammetry, who literally made a dream come true—man could now walk on the moon, and not become lost!

Robert remained at the ACIC in St. Louis until 1962. Establishment of the Defense Intelligence Agency (DIA), and the subsequent plan to consolidate operational control of military mapping and charting under this Agency of the Department of Defense, led to the next major phase in the career of Robert Kingsley.



FIG. 10. Bob Kingsley and others receiving 30-year service awards from Col. Rall of the DIA.

In January of 1962, Robert and Col. Robert Herndon, the ACIC Commander at the time, both departed St. Louis for new assignments with the Defense Intelligence Agency (DIA) in Washington, D.C. Col. Frederick O. Diercks was assigned responsibility for the mapping, charting, and geodesy activities, with Robert Kingsley of ACIC and Charles Andregg of the Army Map Service (AMS) as his assistants. Col. Herndon was the deputy to Gen. Glass, to whom they reported. Considering the potential for misunderstandings which could have developed under such a far-reaching reorganization of military mapping, an admirable and effective job was performed by Col. Herndon, Col. Diercks,

Robert Kingsley, and Charles Andregg in establishing workable relationships with the production centers.

The next years of Robert Kingsley's career were devoted to the emerging science and technology for the utilization of images acquired with space vehicles. While appreciated and understood by many in our profession, but unfortunate for the purposes of this memorial address, his work remains largely isolated from peer evaluation by the very essential security systems which do not permit disclosure outside the system. Robert, therefore, became one of the many in our profession who have contributed brilliantly and with dedication in applying the technologies of photogrammetry and remote sensing to critical needs of our country, but can be given only ambiguous and passing recognition (Figure 10).

Mr. Finnie recalls:

"He retired from the Government when that Agency [the DIA Directorate of Mapping, Charting & Geodesy] was incorporated into the Defense Mapping Agency (DMA) in 1972. However, Bob agreed to work part time for DMA for several years in writing a unique history involving special defense MC&G activities from the late 1950's through 1972."



FIG. 11. This photo, from a 1955 St. Louis golf outing, shows some more of Bob's golfing associates.

Mr. Finnie continues, "During all of his years he was a great leader in:

- Technology
- Management
- Human Relations
- Inspirational Leadership."

Robert's deep involvement in his work, whatever it happened to be at the time, was always balanced by other activity. During his college years he found time to perform with distinction as a flutist with the Syracuse University Orchestra and with the marching band. His ability to perform as a baritone singer made him a welcome addition to his church choir. Most of all, he enjoyed sports. Golf and bowling served him well throughout his lifetime, as a needed recreation.

Robert's good friend, Bob Karleskint, reminisces:

"I met him on a Saturday afternoon in Kirkwood, Missouri and, realizing that we had seen each other at work, we talked golf, which he loved, and we then began to play each evening after work as relaxation. He was not very good at first but as years passed and he played more he could beat most of those he played with in the early days.

Karleskint continues about Bob's later years;

"This all leads to a story. He also was an avid bowler and sponsored a bowling team there in Maryland. He was very proud of the team as all members were averaging about 190 each. Feeling certain that I would want to see his team bowl — when I was there visiting — he asked me if I would want to go with him to see the team or go with his wife to choir practice. I answered 'choir practice' and he almost choked when I did go to the church.

The next day there he asked me to play golf with him. When I said that I had no shoes, clothes, or clubs, he gave me the following:

- (1) An old pair of sneakers he had worn out.
- (2) An old pair of his trousers which were perhaps 4" too big in the waist.
- (3) An old worn out sweat shirt with an "S" on it of his alma mater Syracuse,
- (4) His son's golf clubs — a set of two woods and three irons, all with the old hickory wood shaft.

THEN HE TOOK MY PICTURE!

At the golf course, he paraded me right into the dining room of the exclusive country club to which he belonged. He had a sense of humor!" (Figures 11 and 12)



FIG. 12. This photo, from the same 1955 golf tournament, shows the well-dressed golfer Ken Sime on the left, the very concerned golfer Ed Bay-singer on the right, and the very comfortable, but intent!", Bob Kingsley putting to the cup.

However, baseball was his primary sporting interest. He followed the activity of the major league teams in great detail, and became a virtual encyclopedia of baseball statistics. He originated and collected data on which he was able to base a theory for determining the offensive capability of a team in any given ball park. His theory is based, in part, on extensive weather data for each ball park, and included the effects of temperature and humidity on the resilience of the baseball. During one period of time, Robert's Saturday morning work at the office consisted of photographing the rebound characteristics of a baseball, when dropped from the roof of the six-story Schauer Building in St. Louis, under varying conditions of temperature and humidity. Much of his work was published, and he became a recognized authority. He was consulted by many of the major league baseball teams for determining the optimum placement of the outfield fences at their home parks.

Bob Karleskint recalls:

"Out of this work, the 'KINGSLEY BASEBALL SERVICE' developed and through that he designated the left field wall in the Los Angeles Coliseum when the Dodgers first moved there. After that, he corrected the outfield fences at San Francisco, and wall distances in new parks at Pittsburgh, Cincinnati, and St. Louis!"

While the St. Louis Cardinals lost the '87 World Series, they succeeded in winning all games played in the favorable envi-

ronment of Busch Stadium—a confirming tribute to Robert's baseball theories.

Al Quinn also worked with Robert on the baseball project and recalls:

"Bob was a fun loving, energetic, and hard working friend. His love for baseball and his unique system for predicting home runs was a real contribution. I helped him measure a couple of ball parks — one from aerial photos. He was well liked and highly respected. I have missed him!"

Robert's retirement from government service in June 1972 allowed him to enjoy a new life of comparative leisure, fully occupied with his continuing research into the mysteries of baseball, the deeper and more profound mysteries of golf, his photography, and frequent trips to visit old friends for a game of golf. Unfortunately, all these activities came to an end when Robert died of leukemia on 22 December 1980.

Mr. Thomas Finnie again remembers:

"Bob was a truly great man, an outstanding professional, and one of the early pioneers in photogrammetry." Tom continues, "I know of no man who has done more for his profession, for his wonderful family, his friends or his fellowmen!"

This memorial address was prepared as a tribute to a man who was neither a prolific inventor, nor a scientist of great stature. He was a man of great professional competence, one who had a sympathetic understanding and a great affection for people. With their help, he was able to do all that was asked of him—and more (Figure 13).



FIG. 13. Bob Kingsley.

My thanks are extended to all who contributed their memories of Robert. My very special thanks go to a man who was a college classmate, close personal friend, and professional colleague of Roberts; and, a man who contributed a great deal to this story — ASPRS Emeritus Member Mr. Sidney E. Tischler.