

Photogrammetric Pioneers

The Texas Story

1925 and Beyond

PLINY GALE

PIONEER AND STAFF MEMBER OF SEVERAL COMPANIES RECORDED HEREIN

ABOUT 1925 or 1926, Gilard Kargl and Hal Henning, pilot, formed an aerial photography enterprise, using a Kargl-revamped World War I Folmer-Graflex camera and an Alexander Eaglerock biplane rigged for photo work. They obtained a good-sized contract from the formerly-named Humble Pipeline Company, running from West Texas to Houston, some 400 miles.

In preparation for this project, the aircraft was overhauled, including the DX-5 engine. Misfortune caused the aircraft to be washed out right after the overhaul. The accident took with it all the financial assets of the pair. That happened in 1926 or 1927.

At the time Edgar Tobin, a World War I Ace, was in business in San Antonio, selling Pierce-Arrow automobiles and Alexander Eaglerock aircraft—he had one on display in the auto showroom. Kargl and Henning approached Tobin for backing and had his help in getting started again.

Tobin became interested in the possibilities of aerial photography for oil company activities. With the contacts he had with several major oil companies, it was possible for him to convince them to use aerial photography. Kargl and Henning went to work for Tobin Aerial Surveys, thus starting that firm, which has been most successful and is still in business.

When I joined Edgar Tobin Aerial Surveys in 1929, they were using DeHaviland open biplanes, powered with 12-cylinder Liberty engines obtained through surplus at Brooks Airfield, Texas. Cameras used were still Folmer Graflex 7 by 9 inch with focal plane shutters. Laboratory equipment was mostly of home-made variety, wooden tanks lined with tar for washing, and large procelain trays for processing. The copy camera was a 24 by 24 inch back with bellows, mounted on a pipe-formed track before a lattice easel on which copy was mounted with clamps. An old studio 8 by 10 inch enlarger had been modified to accommodate the 9 inch roll film.

One project in process was tax mapping of Coahoma County, Mississippi. Enlarged photographs were mounted in sections on hardboard for handling. Scaling unrectified photos presented a problem, so the easel was connected with hinges to allow some tilt. This makeshift arrangement was awkward to use and led Kargl to build a rectifier in which both film carriage and paper pressure-plate tilted. This produced good results, as to photo-

graphic quality, but was very slow because trial-and-error fitting to control was tedious indeed. The next innovation to that rectifier was its calibration and the addition of linear scales, to set enlargement and tilt correction. This machine was made mostly of wood with internal drive screws and gears of metal. This first Kargl rectifier was lost when the Tobin plant was demolished by fire about 1937.

The company moved into more suitable quarters and replaced lost equipment with then-available modern versions.

Throughout the years, the DH aircraft had been replaced with Fairchild 71's (Figure 1a) and later, twin Beechcrafts. Cameras had been updated with Fairchild K-3B's, then Wild RC-8 and 9.

Kargl left Tobin and formed an aerial photography firm with Gerald Drought, who was also a pilot.

Drought left that association and went to work for the State of Texas at the Brazos River Conservation and Reclamation District, in about 1935, at Tempee, Texas.

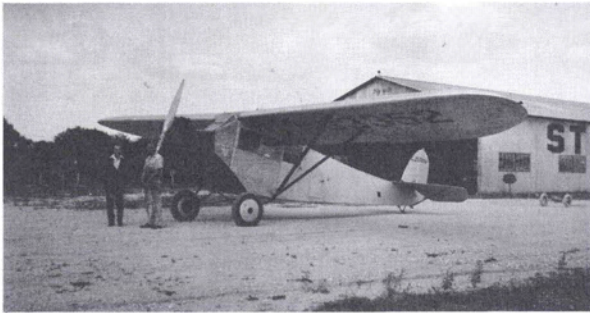
In 1936, I left Tobin Aerial Surveys and also joined the Brazos River operation as a Multiplex operator.

The Brazos River C. & R.D. had purchased a Zeiss Multiplex instrument in 1934, which probably was one of the first such in the United States. This system utilized 8 $\frac{1}{4}$ -inch-lens photography and consisted of a printer, two standard bars and supporting tables, and nine projectors. An additional bar was made in a local machine shop and a tombstone manufacturer made a table top from granite, completing a third unit of three projectors each. These were operated around the clock in three shifts. This facility was housed in the penthouse of the Kyle Hotel.

The Brazos River C. & R.D. was set up to build dams along the Brazos River and its tributaries for flood control and water conservation. Adequate maps were not available and its mapping operation was established to provide maps for design purposes. Including several field parties for establishing control and the office staff, about 40 people were engaged in this operation. It was headed by Eric Hacquinus. (As a point of history, Hacquinus was on the staff of Colonel C. H. Birdseye's Aerotopograph Corp. of America, Washington, D.C., in the years 1929-1931).



(a)



(b)



(c)



(d)



(e)

FIG. 1. (a) Edgar Tobin Aerial Surveys crews and equipment (circa 1935). Left to right: Clair Cheney, pilot; W. I. Grieve, photographer; (unknown) pilot; Milton Pearce, photographer. (b) Tom Fortson's "Razorback" Fairchild (circa 1937). (c) Kargl Aerial Surveys Ltd. personnel, in Mississippi (circa 1938). Aircraft are Fairchild F-24 and F-71. Left to right: Vic - - - -, pilot of F-24; Milt Pearce, photographer; Pat Tibbs, pilot; Carl Hughes, pilot; Alfred Maxwell, Kargl partner; (unknown); Albert Peters, photographer; Pliny Gale. (d) Kargl personnel in Georgia (circa 1938). Left to right: Andy - - - -, pilot; Pliny Gale; Vic - - - -, pilot of F-24; Tom Fortson, photographer; (unknown), pilot for Fortson; Alfred Maxwell, Kargl partner; W. I. Grieve, photographer. P.S.: Name of dog, unknown. (e) Kargl personnel in Alabama (circa 1939). Albert Peters, photographer and Carl Hughes, pilot. Aircraft: Fairchild F-71.

Unfortunately, those responsible for the early planning were not aware of requirements and let a contract for aerial photography to Southwestern Aerial Surveys of Austin, which used a Folmer Graflex focal plane-shutter camera, with a 10-inch focal

length lens. Obviously, an excess of ground control was required to use that photography in the Multiplex. The maps produced were field checked, to insure accuracy requirements were met.

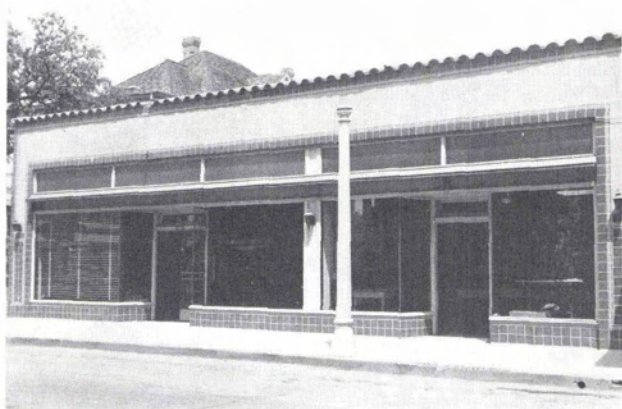
In 1936, a limited partnership was formed to take

over the Drought-Kargl operation and became the firm of Kargl Aerial Surveys, Ltd. (Figure 2). Gilard Kargl was president, Jack Ammann was Secretary-Treasurer, and F. Clay McGaughy and Alfred Maxwell were the other limited partners. In January, 1937, I joined this firm as Chief Engineer and Operations Manager. The firm had a contract with the Forest Service which was satisfactorily completed. Only photography, negatives, contact prints, and small enlargements were the products delivered; no mapping was included.

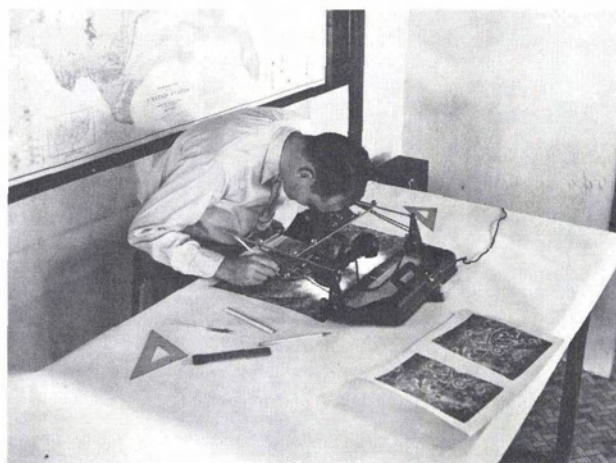
At the time (1937) the firm had one Fairchild 71 and a K-3B camera with 8 $\frac{1}{4}$ -inch lens. Laboratory

equipment was mostly U.S. Army surplus, made up of Eastman contact printers and an in-house built copy camera suspended on street car-type springs to dampen the vibration from passing traffic, a Saltzman enlarger, and Fairchild-Smith developing kits for aerial film processing. Large motor driven reels were used to air-dry the aerial film.

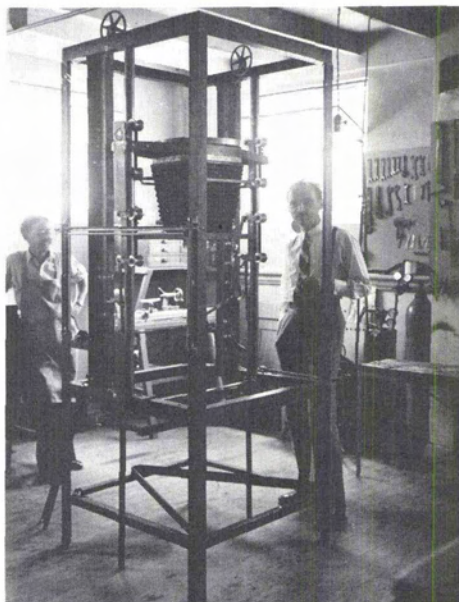
Bidding on Soil Conservation Service and Agricultural Adjustment Administration contracts for aerial photography was successful and the firm expanded, acquiring more aircraft, cameras, personnel, and lab equipment. Most of these were Air Force Surplus. However, included in the expanded



(a)



(b)



(c)

FIG. 2. (a) 829 N. St. Mary's Street, San Antonio, Texas, home of Kargl Aerial Surveys, Ltd., 1936-1952. (b) Jack Ammann using a Kargl-built stereoscope (circa 1938). (c) Gilard Kargl and machinist with Kargl's first correctly designed rectifier, the first of many such instruments built by Kargl Instrument Co. (circa 1937). (All photographs from personal files of Pliny Gale.)

camera equipment were several Park and Mark Hurd cameras. Shutter failure caused these cameras to be returned frequently for repair at their factories. The aircraft included additional Fairchild 71's and a Fairchild 42, which was bought separately as a fuselage and engine. The engine installed was a Pratt & Whitney 450 hp, which required special FAA approval because the craft was originally designed for 300 hp engines. This gave that craft excellent performance for that time. A "razorback" Fairchild 21 (Figure 1b) was obtained with a crew, from Thomas F. Fortson of Ft. Worth (he was the photographer). A small Fairchild 24 with a 145 hp Warner engine was obtained and equipped for low level photography projects. It was also used for travel as needed.

In late 1939 or early 1940, the Limited Partnership was dissolved and the operation of the firm continued under Jack Ammann and me. By agreement, we could and did continue to use the name "Kargl Aerial Surveys." In 1940, a contract with the Army War College was obtained which was classified as a training program to qualify us for military mapping in support of later Army Map Service programs.

At this time we purchased the Zeiss Multiplex equipment from the Brazos River C. & R. D., which had concluded its mapping program. With this Multiplex, we qualified for photogrammetric mapping projects. During World War II Kargl Aerial Surveys was very active in war-effort mapping for AMS, to which organization we had been assigned. Additionally, mapping for oil companies was continued.

Immediately following World War II a large topographic mapping contract was obtained from AMS and the Zeiss equipment was retired in favor of some eight or nine complete Bausch and Lomb USGS-type multiplex units. Following the successful completion of the AMS contract, the firm continued to expand and the name was changed to Jack Ammann Photogrammetric Engineers, and later shortened to Jack Ammann, Inc. Jack Ammann was Chief Executive Officer and I was President of the Company. Later activities are well known and will not be included here.

Southwestern Aerial Surveys of Austin was established some time in the early 1930's by Robert Coltharp and backed by John D. Miller of Miller Blue Print Co. Coltharp was the pilot and operator of the firm. Mel Coltharp, Bob's brother, served as aerial photographer and laboratory chief. This firm did only aerial photography and its photographic by-products but no mapping. Coltharp was one of the best photo-pilots in the industry, and at the beginning of World War II he became an instructor in an Air Force Squadron. After his wartime service Coltharp returned to Austin, but did not reopen the aerial survey business. He did work with the Ammann Co. as a pilot and then was assigned as our Project Engineer to organize and obtain equipment for a large mapping project we had in Libya. Coltharp later accepted a teaching assignment with the

University of Texas at El Paso where he lived until his death.

Thomas F. Fortson had been in the commercial photography business in Ft. Worth. He became interested in aerial photography and acquired a Fairchild 21 (Razorback). He operated as a subcontractor with himself as aerial photographer and a pilot whom he employed as needed. Fortson did some photographic work for his own account around Ft. Worth. He worked under contract to Kargl Aerial Surveys for aerial photo services on numerous AAA projects. I have no knowledge of his operations in more recent years.

Other aerial survey companies which were in Texas at one time or another, mostly after 1940, were

- Muldrow Aerial Surveys—Midland. Kargl joined Robert Muldrow III to form this firm after he left the Kargl Aerial Surveys of San Antonio. This firm used modified P-38's and did mostly higher altitude work.
- Buce & Gunn operated in the Dallas area. "Hap" Buce had been both a pilot and commercial photographer and provided the aircraft to the firm. Bill Gunn was a surveyor, and together they performed aerial photography and some topographic mapping. Gunn withdrew from that association and formed:
- Metropolitan Aerial Surveys of Ft. Worth.
- International Aerial Surveys, now one of the most successful firms in the mapping business, was derived from a firm formed after World War II by Virgil Beavers, an engineer and surveyor who, with Olaf Lodal, had many war contracts for surveying under Army jurisdiction.
- Beavers formed World Aerial Surveys which was purchased by "Boss" Peterson, an automobile dealer and entrepreneur in Fredericksburg. The name was changed to International Aerial Surveys when the company was taken over by the Cincinnati engineering firm Vogt-Ivers. Ed Sokolowski of that firm was sent to San Antonio to manage the mapping firm. This he did very successfully and now is President and majority owner.
- Williams-Stackhouse was formed by "Blue" Williams, a stereo operator who left the Ammann Co. and joined with Stackhouse, an engineer. This firm still operates in San Antonio.
- United Aerial Mapping, also now operating in San Antonio and in Houston, was originated by two ex-Ammann people, Bennie Lyon and Doyle Horton. Several years ago this firm was acquired by Stewart Title Co. of Houston and they put Andy Martin in as President and Chief Operating Officer.
- Wallace Aerial Surveys moved from Tulsa, Oklahoma to Houston about 1965. After the death of Hurshel Wallace the firm was taken over by one of the pilots and now operates as Adams Aerial Surveys.
- Utility Data Corporation of Houston originated in Kansas City in serve utility companies in mapping and computer-controlled data processing.

The chief financial backer of U. D. C. is a Houston man, and he moved the firm to Houston some ten years ago. They have used 3½-inch photography as the basis for photogrammetric-computer mapping.

- There are a few other small and one-man operations, all started since World War II.