

*The History of Summer Surveying Camp at
The University of Michigan*

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The University of Michigan has been a pioneer in the establishment and maintenance of a camp for surveying field work. It established the very first such camp in Whitmore Lake in 1874. The camp moved from place to place within Michigan for several years all under the supervision and administration of Prof. J.B. Davis, C.E. of the class of 1868 who administered what would become Camp Davis for nearly 40 years. During these early years it was deemed necessary that a considerable expanse of open water be available at the site for triangulation which requires an unobscured vision for relatively long distances. This explains the choice of lake sites used. Lake sites utilized included: Thernapple Lake (1875), Simpson Lake (1877), Clear Lake (1879), Clam Lake (1884) and several others.

In 1908, Col and Mrs. Charles Bogardus of Pellston, Michigan offered the University a gift of about 1000 acres of land at Douglas Lake. After reviewing this site it was accepted as a permanent location for the surveying camp. This site was utilized for the surveying camp from 1909-1928. It should be noted that the University of Michigan biological station was also established on this same property along the shore line about a quarter of a mile northeast of the surveying camp. The field work of the biological station and the surveying activities were in constant conflict during the twenty years that they shared the site.

In the early days of the surveying camp the students and staff lived in tents. In the 1880's there would be with Prof. Davis three large tents which would each shelter ten students. The furnishings consisted of a sheet metal stove in the middle of the dirt floor, a pile of straw for use as mattresses, and some blankets. In 1912 Prof. Clarence T. Johnston took over administration of the camp. In 1916 the Regents of the University of Michigan recognized Prof. J.B. Davis' contribution to the University and named the surveying camp the Davis Engineering Camp but it has always been Camp Davis since then.

By 1919 the last residence tents were replaced by forty two steel buildings, a mess building, a sanitary system and concrete sidewalks. All the construction of these buildings had been performed by the teaching staff, groups of students and an occasional small working force made up of former students. With the growth in the size of the biological camp and evident fact that the location was less than an ideal site for a surveying camp it was decided to move the Surveying Camp. The dense growth of trees and brush covering this area made the clearing of lines a slow and discouraging task. There were many types of insects which caused great

difficulty and annoyance for the surveyors. Rain and other weather problems also caused concern.

Therefore in 1928 Prof. Johnston considered moving camp to the west. Good roads headed out to the prairie and mountainous areas of the west indicated camp sites in Colorado, Montana and Wyoming should be considered. The area around Yellowstone Park received close scrutiny. Prof. Clarence T. Johnston, a long time resident of Wyoming was the former State Engineer for Wyoming before becoming Professor of Engineering at the University of Michigan. In August of 1928 he, along with Wyoming Governor Frank C. Emerson, State Engineer John A. Whiting, and three other University of Michigan Engineering Professors (Professors Bouchard, Brodie and Carey) visited several possible sites in western Wyoming. It might be noted that both Governor Emerson and State Engineer Whiting were University of Michigan graduates. There was an abandoned homestead ranch on the Hoback River 20 miles south of Jackson that was available which was unanimously selected because it was deemed to ideally meet all the requirements of a summer surveying camp.

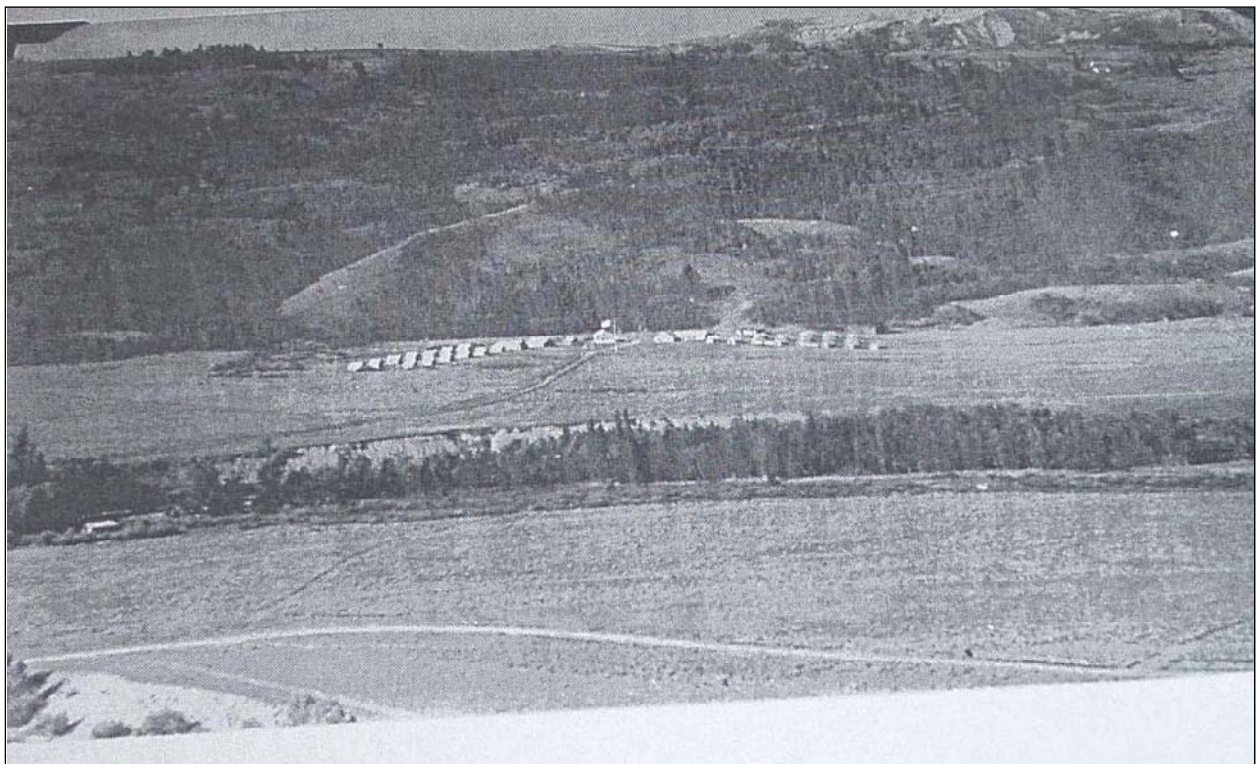


Figure 1: Camp Davis

The ranch contained 120 acres in the Hoback Valley laying within the National Forest which meant that additional land would be available for field work. It was in a sheltered valley which would protect it from excessive wind, had ideal topography in rolling terrain as well as

flat surfaces, very little vegetation, no source of insects and lots of sight distance for triangulation. A water supply for the camp was also readily available. The elevation of the site is 6113 feet which means that the summer temperatures are moderate at midday and cool at night. Access is gained by using US route 187 from Rock Springs to Jackson. In late February 1929 the Regents bought the 120 acres for \$2500 and Camp Davis was moved to Wyoming where it resides to this day.

During the discussion and decision making process a great deal of emphasis was placed in the desirability of picking a site which would allow the students to spend a summer in a country of marvelous natural beauty, with outstanding scenery and different flora and fauna. An additional benefit of the Wyoming location was the proximity of Yellowstone Park and the beautiful Teton Mountain range and the associated geological formations. All of these considerations have proven to be very true and worthwhile.

Plans were made immediately following the purchase of the site in February of 1929 to make a complete transfer of all activities relative to surveying to Wyoming. "It was decided that the new site should be occupied, that a foundation should be laid for a modern camp and that teaching work be carried on there during the summer of 1929"¹. During the spring recess of 1929 Professors Johnston, Bouchard, McFarlan and Young along with Mr. Bonin and six students went to Douglas Lake to deal with the movable equipment. This was inspected and sorted and prepared for shipment by rail to Wyoming.

Movement of equipment, staff and students from Ann Arbor to Wyoming and return received considerable discussion. To provide vehicles for this purpose two Model A Ford Sedans and two Model A Ford Trucks were obtained. It was estimated that these vehicles would convey equipment, students and staff unable to drive in private cars. It was estimated that the distance from Ann Arbor to the new camp site was about 1800 miles. It was decided that the students who rode in University vehicles should pay their board and room on route and be charged \$15.00 for the round trip. The actual experience of the first summer trip verified the estimate of 1800 miles to the camp site. The route of Lincoln Highway-US 30 was paved from Ann Arbor to a point about 40 miles west of Omaha, Nebraska, with the exception of a few short gaps in Iowa. The remainder of the road was graded and a large part surfaced and well maintained. The trip from Ann Arbor to camp required 5 ½ to 6 days. (Several cars driven by students made the trip in 4 days) Subsequent to the first summer the charge for the students to ride in University cars was increased. At the time it was purchased, the abandoned homestead had a log house and a log barn on it which had been built by the original owner, a Mr. Wilson. These buildings were utilized for housing of the individuals who did the preliminary construction of the camp.

Professor Bouchard and Mr. Frank W. Kratkowski drove to the new Camp Davis site in May 1929. Upon arrival on May 25 they began work in repairing the log house and staking out the camp. Construction had also begun on the water system. Contractors from Jackson,

¹ Camp Davis Report 1929 page 5.

Wyoming were employed for this project plus the installation of the basements for the caretaker's house and the kitchen as well as the floor slabs for the student and staff buildings. Other staff and students arrived at the camp site, June 12-20th. The staff consisted of Profs. Johnston, Carey, McFarlan, Young and M. Bonin. Student Assistants J.R. Hall, L.C. VanMere and six students with experience at Douglas Lake in steel cabin construction, plus twelve other students also arrived. All these individuals lived in a room 16'x22' in the log cabin for three weeks when the first residence building was completed and they could occupy it.

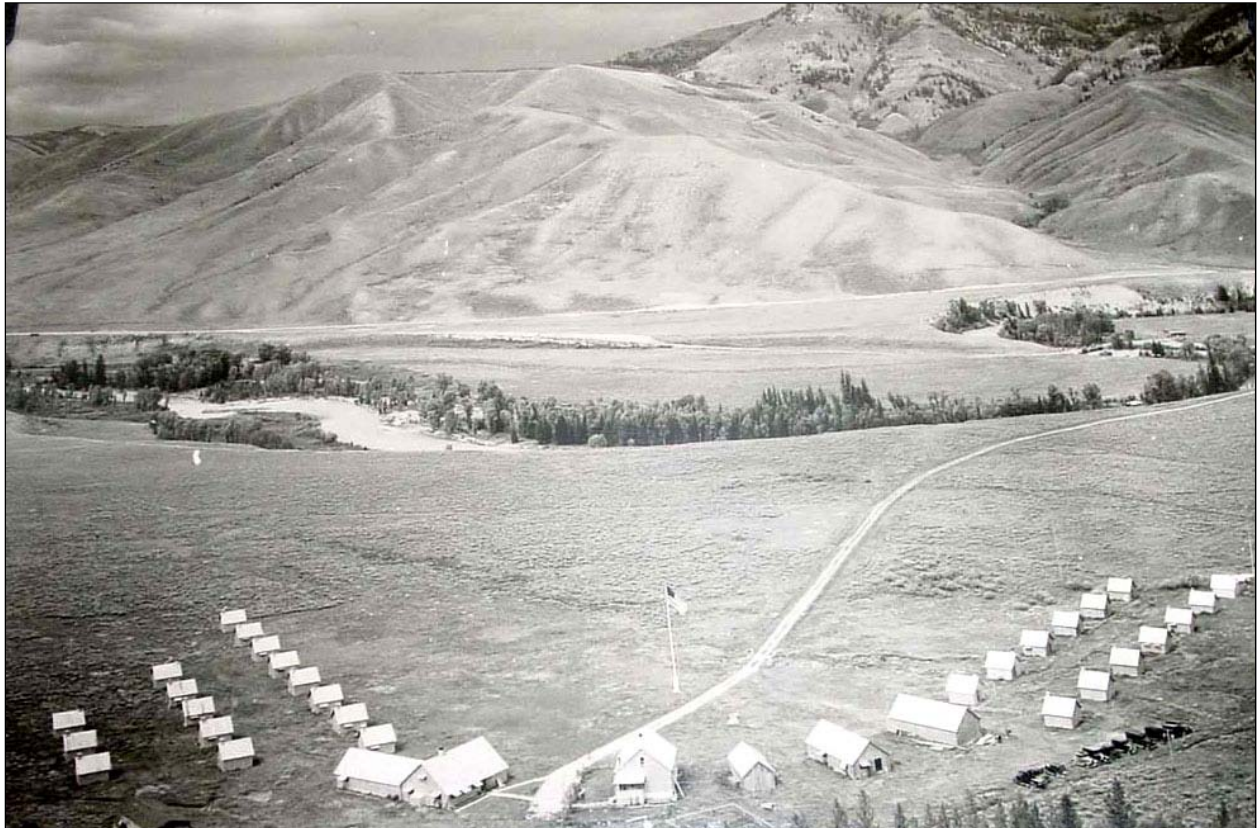


Figure 2: Camp Davis Taken From Hill South of Camp

Total construction completed in the summer of 1929 consisted of 14 residence buildings (14'x14'), a mess hall building, the caretaker's residence, an instrument room, a shop and a store house/garage, all by September first. In addition the temporary road connecting the Camp with Rt 187 was repaired, a water system, a modern sanitary system and a power plant were installed. All the erection of the buildings and installation of plumbing and power plant were done by the faculty and students of the Geodesy and Surveying Department of the University. All this was done while the course in Surveying and Geodesy was conducted during the summer.

The fourteen residence buildings were arranged as follows: one at each end of camp was set aside for a combined bath and toilet, one building for the convenience of visitors, which leaves five buildings at the west side of camp for students and six buildings on the east side for faculty. By the end of the summer of 1930, fifteen more residence buildings had been added and about 7 acres of land comprising the camp grounds were cleared of sage brush. It was fortunate for the University that the attendance of students was small during the first two years 1929-30. This allowed the staff to pay more attention to the construction work since the staff was larger than would be necessary had its responsibilities been limited to teaching. Later the number of students increased and the construction kept pace.



Figure 3: Students Running Levels in the Vicinity of Camp

The camp was built by engineers of long experience and designed under the supposition that it would be administered by engineers which proved to be the case for many years. They designed and installed the water systems, sanitary systems, power plant, electric lines, drains, roads and all the other facilities needed for the housing and operation of the camp, all at a very

reasonable cost. The initial power plant consisted of two diesel driven generators. A smaller one was operated much of the day for the benefit of the kitchen and various pieces of maintenance equipment. A larger one was started up at dusk for lighting the cabins and other buildings. Lights were to be turned out at 10:00 p.m. When the Federal Rural Electrification Program extended power lines into the Hoback Valley in the late 1950's, Camp Davis was provided with constant electrical service and the generators were relegated to emergency use only.

The sanitary systems consisted of septic tanks and absorption beds for the sanitary waste while water from the showers, sinks and dish washer was directed through grease traps to seepage pits where the water was percolated down into the ground. The water system extended up Imeson Creek south of camp. An intake structure consisting of screens and some storage capacity was constructed in the creek bed to capture the necessary flow. The screen was intended to prevent leaves and other floating material from clogging the water system. As is mentioned numerous times in the annual reports maintenance of this intake was a continual problem for many years.

It should be noted that Mr. Grant Thompson and his wife were employed as the cook and helper with his daughter to be a waitress in June of 1930. This arrangement proved to be very successful. Since 1913 the camp mess was operated on a cooperative basis with each session responsible for collecting and disbursing the costs incurred during that session. The annual camp reports contained a complete financial statement relative thereto.

By 1932, due to the improvement in the U.S. Highway system, the distance from Ann Arbor to Camp Davis in Wyoming had been reduced from nearly 1800 miles to not far from 1700 miles and most of this highway was paved. The length of time needed to drive this route had shortened from 5 ½ to 4 ½ days. In the spring of 1932 Mr. Grant Thompson and family were persuaded to return to camp to take charge of the mess during the summer and to be the caretaker of the camp for the rest of the year. He continued in this capacity until his death in 1960. In 1932 the camp contained 29, 14'x14' cabins (residences for students, staff and guests) a mess hall and kitchen, a caretakers house, an instrument room, a shop with equipment and electric power plant, a garage with storage space. The original homesteader's cabin and barn were also intact.

During the winter of 1932-33 the caretaker, Mr. Grant Thompson, noted the snow fall accumulation to be about four feet, except that due to the high winds that winter, drifts within and near the camp ran to thirty or forty feet in height. The lowest temperature recorded at the camp was 52° below zero. Due to four inches of saw dust insulation placed between the studding and five inches overhead installed during the construction of the caretaker's house in 1929, it was possible to heat the house by the cook stove in the kitchen. Access to the camp during these months, January to the middle of April, was by snow shoe since the roads were blocked.

In August of 1933 there were four geography students and a geography professor who used the camp for 3 weeks for a course in geography. This was the first course of record outside of surveying held at Camp Davis in Wyoming. As an example of the costs to attend Camp Davis in Wyoming, in 1933, the University summer student fee for two courses was \$42.00, camp mess

fee was \$60.00 with a rebate of any money left over at the end of the summer. An addition had to be the costs of travel to and from Ann Arbor which varied depending on the way travel arrangements were made, but the average total cost did not exceed \$125.00.

For several years, coal used to heat the cabins, hot water in the showers and for cooking in the mess hall was obtained from a coal mine located on Granite Creek east of camp. This coal was brought into camp by the trucks assigned for use by the camp during the summer and later by others. Work had to be done on the water intake in the small spring fed stream (Imeson Creek) which provided water by gravity to the camp about every year due to low flows or other reasons. It always proved adequate but required continual attention. The water rights to this source were obtained from the National Forest Service.

For a number of years in the early thirties, Mr. W. O. Owens of Jackson was invited to camp to address the faculty and students in attendance. He related his experiences while making the very first ascension of the Grand Teton with three other men in August 1898. This presentation was received with great interest by all who heard it. Several of the students attending camp in subsequent years would make this climb themselves.

Some of the early engineering students who became well known to the Civil Engineering Department at the University of Michigan were Leo M. Legatski, there in 1930, and Victor L. Streeter, there in 1931. Both of these attendees would become Professors of Civil Engineering at the University.

As an aside it should be noted that the Hoback River is an outstanding trout stream and has provided many hours of exciting recreation for the fisherman who have been at camp as well as delightful supplements for the mess hall. As many as 100 trout have been caught by one fisherman during the summer. A 5 ¼ pound trout was caught in August of 1933. It was not uncommon for an individual to bring in 15 or 20 trout to camp in the evening.

Former students of Camp Davis are practically unanimous in saying that the work and experience at the camp were the most outstanding and memorable features of their college careers. This evaluation is based on the many attributes related to the camp which include interesting travel, outstanding scenic features found in and around the camp, the wonderful mountainous terrain, pleasant weather, fine working conditions and student associations.

Throughout the early years of camp operation, the U.S. Mail addressed to Camp Davis had to be picked up at the U.S. Post Office in Jackson, which is 20 miles from the camp. This required a daily trip to Jackson for this purpose. In 1936 for the first time U.S. Mail was delivered to a box on US. Rt 187 at the junction of the camp access road. Outgoing mail would also be left in this box for pick up by the mail service.

It should be noted that every year a considerable amount of the staff's time has been spent looking after the water intake in Imeson Creek to assure that the water supply was uninterrupted. This included cleaning the screen and improving the stream bed, etc. Later on in the 1960's much improvement to the water supply would be made.

Mr. W. O. Owen who had been coming to camp each year to give a talk on his experiences while making the very first ascent to the top of the Grand Teton in August 1898 lost his sight in the spring of 1937. Miss Peterson of Jackson, the daughter of Mr. Frank Peterson who accompanied Mr. Owen on the climb came to camp in his place.

In 1938, with Prof. Ed Young as Acting Director, the Geology Camp Group which had been located at State Bridge, Colorado, arrived at Camp Davis for the last three and one half weeks of the session. There were 22 students and 3 faculty in the group. This was the first time that a geology group had been at camp. The bath and toilet facilities at Camp Davis were not satisfactory for this. Prior to 1938, only two women students had taken the surveying course at Camp Davis. With four women enrolled in geology for the summer of 1938 it was deemed necessary to erect a women's facility. The new building was erected on the faculty side next to the men's building so as to share the septic tank constructed for the men's facility in 1929. A standard 14'x14' steel building was used. Four toilets and two showers were provided. The drain for the two showers was led to a dry well west of the building preventing these flows from entering the septic tank. A coal fired hot water heater was located in one corner separated by a partition, entrance being made from the outside. In 1925 the requirement to attend the summer surveying camp became optional. Nevertheless this resulted in approximately 80% of all four-year civil engineering students attending the camp anyway.



Figure 4: Kitchen and Mess Hall

It should be noted that in 1937 a situation developed whereby the summer session administration caused some disruption in the operation of Camp Davis. This resulted in the retirement of Prof. C.T. Johnston and the appointment of Assoc. Prof. Bouchard to act as Director for the summer of 1938. The summer session administration was using, as the rule for determining the cost of a particular program, the total appropriation divided by the number of students. The camp director, Prof. Johnston, had complained about the inappropriateness of this approach to Camp Davis due to the low salaries paid to the staff and the great amount of voluntary time donated by them during the summer for construction and maintenance. Practically no money had been available since 1930 for maintenance, for replacement of automotive equipment and so on.

The director of the summer session at that time made a statement to the Standing Committee of the College of Engineering in November 1937 that Camp Davis was too expensive and that no appropriation would be made until something was done. Students who would be attending the camp in 1938 could not be talked to in the fall or winter that year because no appropriation had been made.

The director of the summer session issued an ultimatum that no funds would be provided unless the geologists were permitted to share the camp with the engineers. It was a choice of no camp or a camp housing engineers and geologists and possibly others. As a result of this situation Prof. Johnston felt it necessary for him to resign as Director of Camp Davis. Due to the illness of Prof. Bouchard in the summer of 1938 Asst. Prof. Edward Young was made Acting Director for the summer of 1938. In the summer of 1938, the camp was attended by both engineers and geologists.

It might be mentioned in passing that a camp store was maintained each summer which provided various items for purchase plus it acted as a bank and post office for all. This operation was self supporting at no cost to the University. The mess operation was also always self supported by the persons at the camp. The 1940 session was attended by engineers, geologists, and for the first time by botanists. Two new buildings were erected that year. A new residence building (14'x14') for women students at the east end of camp and a combined laboratory, drafting room and club house (28'x40') were built on the side hill above the old log cabin. (To become known as Johnston Hall)

The 1941 session was the first time that Mr. Lorenzo (Butch) Plumpton served as Instrument man at Camp. In 1942 the sessions started with the engineering students arriving on June 15th (4 students), and geology students on June 21st (24 students). The intervening week being spent on the trip out to Wyoming by the geologists studying geological formations on the way. This was the schedule that was followed since the geologists had been coming to camp. Construction this year consisted of adding a sun room (10'x24') to the south end of the caretaker's house.



Figure 5: Spray Painting Johnston Hall

In 1941, the Geodesy and Surveying Department was absorbed by the Civil Engineering Department and the administration of its courses provided by the Civil Engineering Department. The camp surveying faculty continued to be made up primarily of the former Geodesy and Surveying staff with Prof. Harry Bouchard as Director. In the 1942 College of Engineering Announcement, the course in surveying at summer camp was listed as a major elective, required for the geodesy and surveying option.

By further study of College of Engineering Announcements, it appears that it became required that all the Civil Engineering students take Surveying, CE 3, and Geology II at Camp Davis for the first time in 1948-49. Prior to that time Surveying, CE3, had been required of those students in the surveying option and elective for any other option. These two courses, CE 3 and Geology II, were assigned four semester hours each at that time.

It was in 1953 that for the first time, a program sponsored by the Michigan Road Builders Association provided support for 30 pre-qualified students in highway surveying. These were all high school graduates who upon completion of the eight weeks of prescribed work at Camp Davis were equipped to be Engineering Aides for the Michigan State Highway Department. This program continued through the summer of 1958 and was very successful. In the summer of 1953 there were 73 students in camp, 30 in the highway program and 43 in the college program. Professors Donald Cortright and Eugene Glysson were the instructors for the highway program that summer. Prof. Cortright was in charge of the highway program throughout its conduct at Camp Davis.

This program gave qualified applicants an opportunity to attend the camp for eight weeks and upon satisfactory completion of the surveying course a student could go to work for the Michigan Highway Department as an Engineering Aide B and could be admitted to the University of Michigan with advanced credit for elementary surveying. As it turned out students were also admitted to several other colleges subsequent to completion of this program. In the six years that the program was offered, a total of 266 students had completed the course. The program was canceled in 1959 due to the success in the previous years in supplying the need for Engineering Aides for the Michigan State Highway Department. In 1954 there were 116 in attendance at the camp which included total staff and students.

In 1955 Prof. Donald Cortright was appointed Acting Director of Camp Davis and Prof. Victor Streeter taught at the camp for the first time. Advanced Surveying, CE 3, was being taught and Geology 98, Geology for Engineers, both were required as part of the Civil Engineering curriculum, each for four hours credit. Mr. Glenn Lease taught at the camp with the Highway Group. In 1956 Prof. Cortright was made Director of Camp and Mr. Glenn Lease assisted with the Highway Group. Following that summer, the Civil Engineering Civil Engineering curriculum was changed to make the first course in surveying to be taught at Camp Davis following the freshman year. This was to be accompanied by Engineering Geology (Geol 98) for a full summer session. The reason for the change was in part due to the success with the highway program with high school grads being taught at Camp.

The introductory course in surveying was to be followed by Route Surveying and Advanced Surveying on campus. In 1957 Prof. Robert Harris and Mr. Joe O'Neal along with Prof. Cortright and Mr. John Iverson taught at Camp. The Engineering Geology course during these years was taught under the management of Prof. E. William (Abe) Heinrich of the Minerology Department.

1958 was the last year of the Highway Engineering Aide program. Prof. Cortright and Prof. Glysson taught it that summer. In 1959 Prof. Eugene Glysson was made Acting Director, Prof. Ralph M. Berry, Prof. Robert Harris were the Engineering faculty, Mr. Ralph Green was in charge of maintenance, Mr. Grant Thompson was the caretaker and cook. Prof. E.W. Henrich taught the Geology course. That summer students from several other colleges came to Camp Davis to take surveying. There were 40 students in camp for the first course and 36 for the second. Among them Mr. Thomas Newhof of Grand Rapids. In 1960 Prof. Glysson was made Director of the Camp and he would serve in that capacity until 1964. The classes offered were the same as usual that year. In an attempt to determine whether ground water could be obtained as a source for drinking water for the camp an exploratory well 125 feet deep was drilled to evaluate the ground water available. This well operation was not successful. Therefore improvements in the manner which was used to collect water from the source of Imeson Creek were investigated.

It should be noted that the very highly regarded cook and caretaker of many years Mr. Grant Thompson died on November 12, 1960. He had become a tradition at Camp Davis. In

1961 Mr. Wilbur (Bill) Greene was hired as caretaker and Mrs. Lucy Upshaw was retained as the new cook. It was deemed necessary to build a new water tank and to extend the water pipe serving the camp to the spring which was the source of Imeson Creek in order to avoid contamination of the camp's water supply. Permission was granted by the U.S. Forest Service to enclose the spring and to extend the pipe to that point. A 5000 gallon cypress water tank was to be installed to maintain uniform pressure on the water system during fluctuating demand by the uses at camp.

The Civil Engineering Department decided to shift the elementary surveying class back to campus and replace it at Camp with the advanced surveying class again. The engineering geology class remained at camp. These courses were now numbered CE 362 (4) and Geol 218 (4) both being required. This shift resulted in lower enrollment for the summer of 1961. There were however six Sudanese engineering students who were taught both beginning and advanced surveying at camp that summer. Among the engineering students that summer was Mr. David Wiggert who would become a Professor of Civil Engineering at Michigan State University. In 1962 Wilbur Greene died on January 14th in Jackson, Wyoming which meant hiring a new caretaker. Mr. Ralph Green took the caretaker's job and Mrs. Upshaw agreed to be the cook again for the summer. She continued in that capacity for several more years. Plans were completed and work began on enclosing the spring and extending the water supply line to improve the water supply for camp.

Years earlier, Prof. Eardley of the Geology Department had built a log cabin close by the camp where he had lived when teaching during the summer. That cabin had become available for purchase and we looked into the University buying it for use by the camp. In 1963 the Eardley cabin was purchased and turned over to us on June 2, 1963. It was left furnished with several very interesting artifacts such as large bear skin rugs and rawhide furniture. The Director, Prof. Glysson, and his family lived in that cabin that summer. Ralph Green was the caretaker that year. Work was completed on the water supply resulting in complete protection from cattle and wild life at the spring and a 5000 gallon storage reservoir in the system.

In 1964, Prof. Ralph M. Berry was put in charge of the camp for the last summer session devoted to Surveying and Engineering Geology in Wyoming. Surveying, CE 362 at Camp Davis would no longer be required in 1965. The Civil Engineering Department changed the degree requirements to CE 262 and CE 263 with no summer classes required. Geology 218, Geology for Engineers, was required but was taught on campus. In the 1965 College Announcement, Camp Davis was no longer listed as a Civil Engineering operation, it having been turned over to the Geology Department. Thus concluded the tradition of field operations for the Civil Engineers in Wyoming. Those of us who were involved still consider the overall experience as one of the most memorable times of our lives.

Since 1965, the Camp has been operated by the Geology Department for the teaching of the field courses in that department. I am sure that these students and faculty who have attended camp have benefited from this experience in the same ways as the engineers did before them.

Acknowledgement

The information, data, and all the photographs found in this article are from the Camp Davis Annual Reports and other files from 1928 thru 1964 located in the Bentley Historical Library of the University of Michigan and the College of Engineering Announcements 1928-1965 from the Civil Engineering Department.