

FROM THE CEEFA PRESIDENT



The spring technical meeting was a rousing success and the discussion of the Science/ Practice curriculum balance and ASCE's Policy 465 was lively. Thanks again to Tom Newhof and Rich Anderson for their educational presentations and sharing of their perspectives on the issues. If you haven't taken the time yet to review ASCE's Policy

465, I encourage you to do so.

One of the duties of the CEEFA President is to issue the annual appeal letter requesting donations to the CEEFA Endowment Fund. A number of you responded generously and I want to send a special thanks to all of you who directed a gift to the fund. The solicitation letter also elicited a response from an alumni (Class of '43) who indicated the solicitation letter was the first contact he'd had from his Alma Mater in 60 years. His letter summarized his successful private practice as a Professional Engineer, Land Surveyor, and Registered Architect. He also relayed that he had "no special affection for the College of Engineering" because he worked three jobs to put himself through school, was offered no support, and "paid very dearly for every credit hour". His primary message was that some students, due to heavy outside work requirements, don't achieve the grades necessary to qualify for most scholarships. With his permission, I hope to share his letter at an ASCE Student Chapter meeting during the fall launch of the mentoring program. My purpose in paraphrasing his letter here is to acknowledge that all alumni and friends of the department have a different perspective and all input is welcome.

The '03 - '04 mentoring program was a success for those students that made the effort to contact their designated alumni. Next year's ASCE student chapter president has indicated that several seniors are very interested in the program. Our process is to have students sign up, indicate their area of career interest, match them with alumni who have expressed similar interest, and have the student make the initial contact. We encourage at least an initial face-to-face meeting with follow-up discussions by phone, Internet, or in person as decided by the student and the mentor.

In closing, thanks to all who have supported the efforts of CEEFA and the department over the years. If you have any ideas you wish to share or want to add your name to the potential mentor list, please contact me at croarty@nthconsultants.com. I look forward to hearing from you.

A handwritten signature in black ink, appearing to read "Charles J. Roarty, Jr.", written in a cursive style.

Charles J. Roarty, Jr., P.E.
CEEFA President

DEPARTMENT NEWS

History of Civil Engineering Department University of Michigan

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1837-1903

The history of the Civil Engineering Department at the University of Michigan begins when the superintendent of public institutions for the State of Michigan in January 1837 presented to the Michigan legislature a comprehensive plan for public education in the state. In this plan he proposed the establishment of three new professorships at the University of Michigan, one in Rhetoric and Oration, one in Fine Arts, and one in Civil Engineering and Architecture. The Civil Engineering professorship was not filled until November 1853, when Alexander Winchell became the first Engineering faculty member at the University of Michigan, accepting an appointment as professor of Physics and Civil Engineering, arriving in Ann Arbor in January 1854.

The first engineering class was taught by Professor Winchell on January 20, 1854 and was entitled "Parker Aids", which was a sort of an engineering grammar course (named after the text he used). This marks the real beginning of engineering at the University of Michigan. The first Civil Engineering lecture was given on February 10, 1854. Professor Winchell continued to develop the engineering courses until he was transferred to the chair of Natural History in September 1855. He worked as a surveyor, became a geologist for the State of Michigan and was away from the University for four years to be president of Syracuse University and professor at Vanderbilt University. He taught at the University of Michigan for 33 years.

The first Engineering degree was awarded in 1857 to William Vanderan Snyder. This made the University of Michigan the sixth university in the country and the first public university to award a degree in Engineering.

The first description of the curriculum leading to the degree of Civil Engineer appeared in the catalogue for 1855-56. It included Mathematics, Graphics, Physics, Natural Sciences, Elements of Astronomy, Languages, Philosophy, and the engineering subjects of: Plane Geodetics, Railroad and Mining Surveying, Leveling, Nature and Strength of Materials, Theory of Construction, Architecture, Machines and Motors.

A statement in the announcement read, "The entire course can be accomplished by the industrious student in four years, but a longer time may be occupied upon it with advantage and profit."

The first engineering class to complete the new four year Civil Engineering curriculum graduated in 1860 and was made

up of two people, Frank L. Krause of Mansfield, Ohio, and William Minto of Antioch, Illinois.

Professor Winchell was succeeded by William Guy Peck, a graduate of West Point, who was appointed Professor of Physics and Civil Engineering in 1855. He continued the instruction of surveying and civil engineering until 1857 when he resigned to go to Columbia University. Professor Peck was followed by De Volson Wood who is generally given credit for the founding of engineering education at the University of Michigan. He was made Assistant Professor of Physics and Civil Engineering in 1857, Professor of Physics and Civil Engineering in 1859 when he was granted his Masters Degree from the University of Michigan, and Professor of Civil Engineering in 1860.



De Volson Wood

Wood graduated from Rensselaer Polytechnic Institute. In 1857 he started for Chicago where he was hoping to obtain teaching employment. He reached Detroit with no money to go farther, left his baggage and walked to Ann Arbor. He introduced himself to President Tappan and as Professor Peck had not returned, he was asked to substitute for a few days. When Peck did not return, Wood was appointed in his place and would continue for 15 years. He would become one of the best-known teachers in the United States.

The Department of Engineering was formally established in 1858 when the Regents adopted the following resolution:

- “1st. That an Engineering course be added to the present curriculum of the University.
- 2nd. That the degree of Civil Engineer be conferred upon those who may pursue the Engineering Course and pass an approved examination.”

Engineering instruction was begun in the scientific section of the sophomore year. Land surveying was started at the beginning of that year and lasted nine weeks. The senior class in Civil Engineering studied the theory and practice of construction of roads and railroads. Wood developed and offered courses on the resistance of materials, bridge construction, hydraulic motors, and the distribution of water in cities. The engineering classes in those days were taught in the South Wing of University Hall and were heated by wood stoves.

Most of the teaching during the 1860’s was done by Wood alone, although he had assistants and instructors to lessen the burden at times. Cleveland Abbe was Instructor in Physics and Civil Engineering in 1859-60; Elmore Horton Wells was Instructor in Engineering in 1864; and William Butler Morgan was Instructor in Mathematics and Civil Engineering in 1865-66. G.Y. Wisner was Assistant in 1865 and J. Burkitt Webb in 1871.

In his 1871 report Wood first raised the question concerning the Engineering Department as a unit separate from the Department of LS & A. President James B. Angell in his 1872 report asked for an endowment for the purpose of establishing a scientific school at Michigan. Unfortunately no one stepped forward to meet this request. The separation did not take place until 1895 and then only the engineering courses were included in the new college.

Wood resigned in 1872 to teach at Stevens Institute of Technology. Engineering instruction at Michigan was then placed in the hands of a triumvirate which guided it for 30 years. This group consisted of C.E. Greene, J.B. Davis and C.S. Denison.



Charles Ezra Greene

Charles Ezra Greene, first Dean of the College of Engineering (1895-1903), obtained his Bachelor of Science in Civil Engineering from MIT in 1868 after service in the Union Army. He worked as a professional engineer in several capacities until 1872 when he was appointed Professor of Civil Engineering at Michigan. Greene surveyed the Ann Arbor Railroad and designed and was superintendent of the construction of the Ann Arbor water works [1885] and sewerage system [1890].

Joseph Baker Davis (68e [CE] A.M. hon ’12) was appointed Assistant Professor of Civil Engineering in 1872 and was the only teacher of engineering familiar with the work at Michigan at that time. He had spent the second semester of 1869-70 as Instructor under De Volson Wood after having worked four years as an engineer after finishing college. Davis was responsible for the work in surveying. In 1874 he organized the University camp for field work in surveying. This was the pioneer surveying camp for field work in this country (later to be known as Camp Davis). Davis, like Greene, was a successful consulting engineer as well as teacher, serving as a city engineer for Ann Arbor for 16 years. In 1891 he was appointed to the chair of Geodesy and Surveying which he held until his retirement in 1910. He served as Associate Dean from 1904-1908.



Joseph Baker Davis



Camp Davis



Camp Davis



Joseph Baker Davis

Charles Simeon Denison (Vermont '70 CE ibid '71, ScD ibid '07) was appointed Instructor in Engineering and Drawing in 1872. He also served as head of the Department of Drawing and worked as an Ann Arbor City Engineer for seven years.

By Fall 1872, the teaching staff of the Department of Engineering consisted of three appropriately trained and experienced graduate engineers, Greene, Davis and Denison. For 30 years, these three had a most friendly and productive association.

Greene's leadership in the department coincided with the beginning of President Angell's long administration. The presence of Davis and Denison allowed Greene to be relieved of the burden of teaching surveying, drawing, descriptive geometry, stereotomy, and mechanism, so that he could devote his time to structural mechanics and the theory of structures. Greene had the reputation among his students of being severe but many spoke of him in later years in praise of his excellent teaching, his perfect logic and clear exposition. He ranks as one of the greatest engineering teachers of his time. He was made the first Dean of the Engineering Department in 1895. He died suddenly in 1903. Mortimer E. Cooley who had arrived on the campus in 1881 and was serving as Professor of Mechanical Engineering was made the second Dean of Engineering in 1904.

Based on limited information, the first African-American engineering alumnus was a Civil Engineer. Fred B. Pelham graduated in 1887. The first female to receive a B.S.E. degree in engineering (Civil) was Marion Sarah Parker in 1895.

1904-1946

Gardner Stewart Williams ('89e [CE], CE '99) came from Cornell University to succeed Greene as Chair. He was appointed in June 1904 and began his duties the following semester as Professor of Civil, Hydraulic and Sanitary Engineering.

Albert Emerson Greene ('95, '96e [C.E]) was made Assistant Professor of Civil Engineering. He had been working for the Canadian Bridge Co. and returned to the University to teach in structural engineering.

Also at this time (1904-05), several other changes to the faculty were made. Clarence George Wrentmore ('93e [CE], MS '98, CE '02) was made Assistant Professor of Civil Engineering, Charles Joseph Tilden (Harvard '96e [CE] A.M. hon Yale '19) came as Instructor in Civil Engineering. George Gottlieb Stroebe (Chicago '01, Mich '07e [CE]) became Instructor in Civil Engineering in 1906.

In 1904 the West Engineering Building was opened with the Department of Civil Engineering a major occupant.

In 1907, John Howell Griffith (Wisconsin '93, M.S. ibid '98) was appointed Assistant Professor of Civil Engineering and in 1908, Charles Alton Ellis (Wesleyan '00, CE. Illinois '22) and Edward Dunbar Rich (C.E. Rensselaer Polytechnic Institute '95) were appointed Assistant Professors in Civil Engineering. Archie Burton Pierce (California '90e [CE], PhD Zurich '03) transferred to the department from Mathematics without change of rank as Assistant Professor.

Wrentmore and Stroebe left the department to accept appointments in outside practice (1909-11). Arthur James Decker ('05e [CE]) joined the staff as Instructor in 1909 and became Professor in 1918.

In July 1911, Dean Cooley presented a plan to reorganize the department to the Regents. The plan included the creation of a separate department of engineering mechanics. The Regents approved the creation of the new department and appointed Professor Tilden an additional title of Professor of Engineering Mechanics.

Professor Gardner Williams resigned as a consequence of this reorganization. Albert E. Greene was promoted to professor and made acting head of the Civil Engineering Department. At this time also Assistant Professor Griffith resigned.

Dean Cooley recruited Henry Earl Riggs (Kansas '86, C.E. Michigan '10, D. Eng. ibid '37) to become Professor of Civil Engineering and to have general charge of all branches of the subject. He began his appointment in May 1912. Professor Riggs had been in engineering practice for 26 years and had very critical concerns about the Civil Engineering curriculum, contending that the courses were awfully short of what should be expected. He proposed more courses in structural engineering and hydraulic engineering and new courses in railroad engineering. He also proposed courses in water supply, sewerage, sanitary engineering and power.

The reorganization resulted in five professorships: civil, structural, hydraulic, municipal and sanitary, and geodetic engineering. At the time that Professor Riggs became Professor of Civil Engineering, Professor Greene's title was changed from Professor of Civil Engineering to Professor of Structural Engineering, and Horace William King ('95e [CE]) was appointed Professor of Hydraulic Engineering.

Greene resigned in July 1912 in protest of the reorganization. Greene's departure meant that two of the five programs needed help. Geodetic engineering was taught by Clarence Thomas Johnston ('95e [CE], CE '99).

The two positions were filled by William Christian Hoad (Kansas '98e [CE]) Professor of Sanitary Engineering, and Lewis Merritt Gram ('01e [CE]) Professor of Structural Engineering.



William Christian Hoad

Courses in highway engineering and highway laboratory work were first given in 1912-13 under Assistant Professor Rich. In one-half of the Physical Testing Laboratory sufficient equip-

ment was installed to permit standard tests of paving brick and cement, but space was limited and the interest in the subject small. To stimulate students' interest to make the laboratory available to smaller cities and villages in the State, the Regents authorized testing work for Michigan municipalities in January 1913.

Assistant Professor Rich resigned in 1913 and John Joseph Cox (Hiram '09e [CE]) was appointed Instructor in Civil Engineering.

Provision was made in 1914 for a summer assistant in the Highway Laboratory to perform city tests. In 1915, Dean Cooley sent a communication to the Regents urging certain co-operation with the work of the State Highway Department. The Regents agreed on condition that the co-operation of the University could be had without displacing or otherwise interfering with the regular work of the University. This was the first step in the establishment of the State Highway Laboratory, which would become an important contact between the University and the State.

In July 1919 Associate Professor Cox resigned and Arthur Horace Blanchard (Brown '99e [CE] A.M. Columbia '02) Professor of Highway Engineering at Columbia University was appointed Professor of Highway Engineering. Professor Blanchard resigned in 1927. From 1921 until 1923 Herschel C. Smith ('13e [CE] MSE '21) served as Assistant Professor of Highway Engineering.

In 1919 John Henry Bateman ('15e [CE] CE '22) was put in charge of the Highway Laboratory. Bateman had been chief engineer of the State Highway Department before he was appointed Assistant Professor of Highway Engineering in the Civil Engineering Department. Before he resigned in 1924, he developed one of the finest highway laboratories in the country.

Professor Bateman was succeeded by Roger Leroy Morrison (Illinois '11 AM Columbia '14 CE Illinois '17) who was appointed Associate Professor of Highway Engineering in 1924 and became Professor of Highway Engineering and Transport in 1928. He also served as Director of the Michigan State Highway Laboratory from 1924 to 1927, and was curator of the Transportation Library after 1946.

Walter Johnson Emmons (Brown '12e [CE], A.M. Columbia '14) was appointed Associate Professor of Civil Engineering in 1927 and also was Director of the State Highway Lab until 1933. In 1944 he was appointed Secretary and Assistant Dean of the College; he became a full Professor in 1951.

James Harlan Cissel (Purdue '10e [C.E.]) was appointed Instructor in 1915. When Professor Gram became head of the department in 1928, Cissel was made Professor of Structural Engineering and head of the Structural Engineering Division within the department and served until his death in 1949. Associate Professor Glenn Leslie Alt (Kansas '16e [C.E.] C.E. ibid '51) came as Instructor in 1918 with a background in professional practice. Edward Leerdrup Eriksen (Polytechnic School, Copenhagen '10e [C.E.]) transferred from the Department of Engineering Mechanics and was made Associate Professor of Civil Engineering in 1920. He left the University in 1923 and returned in 1930 to the Engineering Mechanics Department. William Stuart Housel ('23e [C.E.], MSE '32) was appointed

Instructor in 1924 and rapidly established himself as an authority in soils and foundations. He was promoted to Professor in 1950.

Robert Henry Sherlock (Purdue '10e [C.E.]) joined the staff as Instructor in 1923 and was appointed to a professorship in Civil Engineering in 1933. He served as head of the Structural Division while Professor Cissel was on leave of absence from 1933 – 1936.

In 1922 the Regents created the chair of Transportation Engineering to bring together in one division all phases of instruction in transportation in the Department of Civil Engineering not covered by the Division of Highway Engineering. John Stephen Worley (Kansas '04, M.S. *ibid* '04 CE *ibid* '22) was appointed Professor of Transportation Engineering in 1922. Walter Clifford Sadler (Illinois '13e [C.E.], C.E. *ibid* '27, L.L.B. Michigan '30), appointed Assistant Professor of Civil Engineering in 1925, was assigned the work on railroad engineering. He became professor in 1941.

The organization of the Division of Sanitary Engineering in 1912, the establishment of a special sanitary engineering curriculum and the appointment of Professor Hoad, marked the beginning of the long period of very effective work in this field. By an arrangement with the City of Ann Arbor, the sewage treatment plant completed in 1936 was made available to the University as a laboratory for graduate student research in sewage treatment. Co-operation between the Department of Civil Engineering and the Medical School resulted in the development of courses in Public Health Engineering. The United States Public Health Service gave sufficient funds to the University to make possible an expansion in public health education. As a result, in 1936 Harry Edgar Miller ('16e [C.E.], MSPH '44) was appointed Resident Lecturer in Public Health Engineering and Sanitation in the Division of Hygiene and Public Health. This Division, which became the School of Public Health in 1941, has provided a great deal of the graduate training of engineers and others entering the public works field.

The work in hydraulic engineering under Professor Horace King was carried on, introducing courses in hydrology, hydraulics and construction of hydraulic works. Floyd August Nagler (Michigan Agricultural College '14, PhD Michigan '17) was appointed Teaching Assistant in Hydraulics in 1915; and Chester Owen Wisler ('13e [C.E.], MSE '15) was appointed Instructor in 1915, and was transferred from Engineering Mechanics to Civil Engineering in 1917. He became Professor in 1931 and retired in 1951.

Due to demands from his private practice, in 1928 Professor Riggs presented his resignation. The Regents gave him a leave of absence until 1930. Then, instead of the usual retiring title of Professor Emeritus, the title of Honorary Professor of Civil Engineering was conferred on him. It was hoped that he might continue to serve in a semi-official capacity in the interest of the University.

Professor Lewis Gram became head of the Department in 1928 and directed it through the discouraging years of the depression. There were declines in student enrollment and departmental budgets. The staff remained committed to the profession through consultation, participation in technical societies, and research activities.

During World War II the program of the Department was continually modified and graduate study largely replaced by special courses offered under the auspices of the Army and Navy programs. All of the faculty members contributed significantly in the various areas of their expertise. Professors Sherlock, Morrison, Emmons, Carey, Wisler, Brater, Housel, Alt, Hoad, Decker, and Maugh, were the faculty at that time.

Professor King had retired in 1939 and Hoad retired in 1944. Hoad's replacement was Earnest Boyce (Iowa State '17e [C.E.], C.E. *ibid* '30, MS Harvard '32), of the University of Kansas, who was appointed Professor of Municipal and Sanitary Engineering in the College of Engineering and Professor of Public Health in the School of Public Health in 1944. This dual appointment helped to increase the interaction between the two programs.

In 1946, Professor Decker retired after 36 years of teaching and service in the field of Sanitary Engineering. Professor Gram also retired that year. He had not only been serving as chairman of the Department but also as Director of Plant Extension for the University. Professor Worley also retired in 1946 with the title of Professor Emeritus of Transportation Engineering and Curator Emeritus of the Transportation Library.

In addition to his other duties, from 1945 – 1947, Dean Ivan Charles Crawford (Colorado '12e [C.E.], C.E. *ibid* '15, D. Sc. hon. *ibid* '44) carried the responsibilities of the chairman of the Civil Engineering Department.

In 1941 Geodesy and Surveying was discontinued as a separate department and the staff and activities were reunited with the Department of Civil Engineering. They had been closely related throughout the period of years since 1921 when the Department of Geodesy and Surveying was established. There were numerous required surveying courses in the Civil Engineering curriculum as well as the surveying camp activities.

Professor Johnston retired in 1941 and Harry Bouchard ('11e [C.E.]), who was appointed Instructor in 1918 and had been promoted to Professor in 1941, assumed the direction of work in Geodesy and Surveying. In 1941 he also became Director of Camp Davis, the summer surveying and geology camp in Jackson, Wyoming. Associate Professor Clifton O'Neal Carey ('06e [C.E.], C.E. '14) retired in 1945. He had been appointed Instructor in Civil Engineering in 1908 and was transferred to work in Geodesy and Surveying in 1910. He continued to serve in that department until it was reunited with the Department of Civil Engineering.

There were three other teachers in Geodesy and Surveying that should be recognized for their long years of service to the department and University. Edward Young ('21e [C.E.]) became Instructor of surveying in 1920 and Associate Professor in 1947. His special interest being in the field of photogrammetry. George Moyer Bleekman ('16e [C.E.], M.S.E. '23) was appointed Instructor of Geodesy and Surveying in 1923 and Assistant Professor in 1930. He specialized in the field of municipal surveying and land subdivision. Harold James McFarlan ('17 [C.E.]) became Instructor in Geodesy in 1920 and was promoted to Assistant Professor in 1926. In addition to teaching surveying courses he assisted with instruction in drawing and mathematics during World War II.

1947-1959

Professor Earnest Boyce was appointed Chairman of the Department in 1947. With the movement of the Department of Electrical Engineering to the new addition to East Engineering Building, space in the West Engineering Building was released for use by the Civil Engineering Department. Laboratory facilities for hydraulics, structures (including structural models), and sanitary engineering, were provided. This greatly increased departmental resources for teaching and research in both undergraduate and graduate work.

Structural engineering was under the direction of Professor Cissel until his sudden death in January 1949 when Professor Sherlock was given that responsibility. Also in the structural area was Lawrence Carnahan Maugh ('21e [C.E.], Ph.D. '34) who was appointed Instructor in 1925 and promoted to Professor in 1948. Leo Max Legatski ('31e [C.E.], Sc.D. '37) who was made Assistant Professor in 1947 and promoted to Associate Professor in 1951 was in the structural area along with Robert Blynn Harris (Colorado '40e [Arch.E.], M.S.E. California Institute of Technology '47) who was appointed Instructor in Structural Engineering in 1947 and promoted to Assistant Professor in 1949. Bruce Gilbert Johnston (Illinois '30e [C.E.], Ph.D. Columbia '38) came to the University as Professor of Structural Engineering in 1950 from Lehigh University where he had been Professor of Civil Engineering and director of the Fritz Laboratory (Structural Research).

In the field of hydraulics, Professor King retired in 1939 followed by Professor Wisler in 1951. Ernest Frederick Brater ('34e [C.E.], Ph.D. '30) who was first appointed Instructor in 1937, thus became Senior Professor in Hydraulic Engineering. Vladas Merkys (Ecole Nationale Des Ponts et Chaussees '28, D. Eng. Technische Hochschule [Karlsruhe] '46) was appointed Resident Lecturer in Hydraulics in 1950. The development of a Lakes Laboratory at Willow Run and the construction of the hydraulics laboratory in the West Engineering Building by Professor Brater greatly improved the teaching and research capability in this field.

The areas of transportation and highway engineering were carried forward by Professors Worley and W.C. Sadler who became Professor in 1941. With his training in law and his background of engineering experience, Professor Sadler developed special courses in specifications, contracts and engineering law.

The post war programs in highway construction and traffic engineering were under the supervision of Professor Morrison until his death in 1952. John Clayton Kohl ('29e [C.E.]) who was appointed Assistant Professor in 1946 to teach in both highway and railroad engineering, was made Associate Professor in 1949. In 1952 his active interest culminated in the establishment of the Transportation Institute within the College and he became its first director.

All during this period the State Highway Laboratory had been very active. In 1949 Edwin Boyd terminated a period of 35 years of service as Instructor in Highway Laboratory Practice (one-half time shared with the State Laboratory). The vacancy was filled by the part-time appointment of Frank Evariste Legg ('33 M.S. '34) as Assistant Professor of Engineering Materials. From 1946 to 1951 Gerald Oscar Kerkhoff (Michigan College

of Mining and Technology '31, E.M. ibid '31) held a one-half time appointment as Assistant Professor in Soil Mechanics.

In September 1951, Robert Oscar Goetz ('49e [C.E.], M.S.E. '50) was appointed Instructor in Soil Mechanics. Following the death of Professor Morrison, Donald Nathan Cortright (Illinois '39e [C.E.], M.S.E. Michigan '51) was appointed Assistant Professor of Highway Engineering.

The Michigan Highway Conferences, founded in the 1920's, continued annually with the transportation and highway faculty of the department serving on the executive committee. To save energy following the oil crisis in the fall of 1972, it was determined that the meeting would be cancelled for the next spring. No additional conferences were held with University of Michigan participation.

The post war program in Sanitary Engineering was stimulated by the world-wide need for engineers qualified in this field and by co-ordination with the School of Public Health. With his dual appointment, in 1944 Professor Boyce introduced several changes based on co-ordination of instruction with the School of Public Health. This led to the establishment of the degree of Master of Science in Engineering (Sanitary Engineering) in 1945.

Upon the retirement of Professor Decker in 1946, Richard King (Texas A. and M. '38e [C.E.], M.S.E. Illinois Institute of Technology '40) was appointed Assistant Professor of Sanitary Engineering.

With the development of the sanitary engineering laboratory and increased interest in the field, additional staff members were needed. Assistant Professor Jack Adolph Borchardt (Illinois '40e [C.E.], M.S.E. Carnegie Institute of Technology '41, Ph.D. Wisconsin '48) was added to the faculty in 1948. Professor King resigned in the summer of 1950 to accept an appointment as Associate professor of Sanitary Engineering at Georgia Institute of Technology and Eugene Andrus Glysson (Vermont '49e [C.E.], M.S.E. Michigan '51) was appointed Instructor in Sanitary Engineering in 1951.

The State Highway Testing Laboratory continued to play an important role in the Civil Engineering program providing the means for testing materials for highways and bridges. The Soil Mechanics Laboratory had a very important part as well in the testing of soils and various treatment methods. All of the facilities were located in the East Engineering Building.

In 1948 the Hydraulics Laboratory, located in the West Engineering Building, had pumps, sumps, pipes, channels, flumes, and weighing and measuring devices necessary for undergraduate teaching and general research activities.

In 1948 the Lakes Hydraulics Laboratory at Willow Run was equipped with a large wave tank, wave making machines, and instruments needed for study of problems arising along shorelines of large bodies of water. This laboratory was used for sponsored and basic research.

In 1948 Sanitary Engineering facilities were also available in the West Engineering Building for the analysis of water and sewage and industrial wastes. There was special equipment available for laboratory studies including a complete water filtration plant which enabled research on industrial and domestic waste. Portable equipment was available for studies under field conditions. As a result of Professor Borchardt's interest in the trans-

fer of new technology to the active water and waste water professionals in the mid-west area, he established a conference centered on the newest innovations in the field. This conference was first offered in 1950 and has been co-sponsored by the Civil and Environmental Engineering Department and the Michigan Department of Public Health ever since. It is conducted every two or three years. It is now named the Borchardt Conference and is held on the University of Michigan Campus. The 20th conference will be held in 2005.

The undergraduate option in Construction Engineering was adopted in 1948.

In 1949 the Structural Engineering Laboratory had a 400,000 pound capacity universal testing machine, a loading frame for testing large assemblies, deformer gages loading frames for testing models, electric strain gage equipment, and a well equipped shop for making models and test assemblies. These facilities allowed the testing of full-scale structural members and small scale models. The laboratory provided for class demonstrations, graduate study and research.

In 1949 the Michigan Chapter of Chi Epsilon was established with Professor Jack A. Borchardt as advisor.

In 1952 the Transportation Institute was established with Professor John C. Kohl as Director. The college announcement in 1953-54 lists the faculty and staff as of 1952 as follows: Earnest Boyce, Professor of Municipal and Sanitary Engineering, Chairman of Civil Engineering Department and Professor of Public Health Engineering in the School of Public Health; Robert H. Sherlock, Professor of Civil Engineering (Structures); Harry Bouchard, Professor of Geodesy and Surveying and Director of Camp Davis; Walter C. Sadler, Professor of Civil Engineering; Lawrence C. Maugh, Professor of Civil Engineering (Structures); William S. Housel, Professor of Civil Engineering (Soil Mechanics); Bruce G. Johnston, Professor of Structural Engineering; Ernest F. Brater, Professor of Hydraulic Engineering; Walter J. Emmons, Professor of Highway Engineering and Assistant Dean and Secretary of the College of Engineering; Glenn L. Alt, Associate Professor of Civil Engineering (Construction); Edward Young, Associate Professor of Geodesy and Surveying; John C. Kohl, Associate Professor of Civil Engineering (Transportation) and Director of the Transportation Institute; Leo M. Legatski, Associate Professor of Civil Engineering (Structures); Arnold J. McFarlan, Assistant Professor of Geodesy and Surveying; George M. Bleekman, Assistant Professor of Geodesy and Surveying; Jack A. Borchardt, Assistant Professor of Civil Engineering (Sanitary Engineering); Robert B. Harris, Assistant Professor of Civil Engineering (Construction); Frank E. Legg, Assistant Professor of Engineering Materials; Donald N. Cortright, Assistant Professor of Civil Engineering (Highway Engineering); Robert O. Goetz, Instructor in Civil Engineering (Soil Mechanics); Eugene A. Glysson, Instructor in Civil Engineering (Sanitary Engineering); Vadas D. Merkys, Resident Lecturer in Civil Engineering (Hydraulics); Wadi S. Rumman, Instructor in Civil Engineering (Structures).

In addition to the above were technicians George Geisendorfer in charge of the structures, hydraulics and sanitary laboratories, and Lorenzo Plumpton who was responsible for the geodetic and surveying equipment.

An indication of the number of Civil Engineering degrees granted over the years up to 1952 follows:

Bachelors Degrees in Civil Engineering

1857-79	1880-99	1900-19	1920-39	1940-52	Total
177	232	922	1,163	710	3,195

Graduate Degrees in Civil Engineering (believed to be low)

1857-79	1880-99	1900-19	1920-39	1940-52	Total
4	19	49	330	354	756

Source: "A Century of Engineering Education," U of M Press 1954, pg 1177.

In 1951-52 the College Announcement indicated there were 238 undergraduates in Civil Engineering.

In 1953 Professor Harry Bouchard died and Professor Bleekman assumed the Directorship of Camp Davis. Mr. Glenn O. Lease was appointed Instructor of Civil Engineering (Structures) and Professor E. Wendell Hanson was appointed Professor of Meteorology.

The program in Meteorology had been assigned to the Department of Civil Engineering to provide a location to present its course work and conduct its research until it could become established. Several other faculty members would be added in the next few years, namely, A. Nelson Dingle, Lecturer in Meteorology in 1954 and Gerald C. Gill, Lecturer in Civil Engineering (Meteorology) in 1956.

In 1958 the Meteorology area included Frank R. Bellaire, George W. Reynolds, Donald J. Portman, David L. Jones, and Floyd C. Elder. All were Lecturers in Meteorology at that time. The Meteorology group was transferred to the Engineering Mechanics Department in February 1961.

In 1953 Clinton L. Heimbach was appointed Assistant Professor of Railroad Engineering. In 1954 Ward K. Parr was made Associate Professor of Highway Engineering, and Ralph M. Berry, Professor of Geodesy and Surveying. The graduate program in Construction Engineering was established in 1954 by Professor Robert Harris.

In 1955 Victor L. Streeter was appointed Professor of Hydraulics, and in 1956 Glen V. Berg was appointed Lecturer in Civil Engineering (Structures). Berg would become Chairman of the Department in 1969.

The development on North Campus to eventually allow the movement of the College of Engineering to this location had proceeded in 1957 to the completion of the Automotive Laboratory which was to provide space for the Civil Engineering surveying classes and instrument room. The Mortimer Cooley Laboratory had been completed in 1955 along with the Phoenix Memorial Laboratory. This construction was followed by the completion of the Fluids Engineering Building in 1958 which provided laboratory facilities and space for all engineering departments with fluid dynamics interests. This provided the hydraulics laboratory for the Civil Engineering Department. The Fluids Laboratory would be later renamed the G. G. Brown Building.

In 1958 Harold J. Welch joined the faculty as Instructor of Geodesy and Surveying, and Bruce D. Greenshields as Lecturer in Transportation Engineering and Engineering Mechanics and Assistant Director of the Transportation Institute.

In 1959 Ulrich W. Stoll was made Instructor in Civil Engineering (Soil Mechanics) and Clinton L. Heimbach was appointed Lecturer in Civil Engineering. Professor Walter Sadler died in October of that year.

1960-1979

In 1960 Lloyd L. Kempe was appointed Professor of Sanitary Engineering and Chemical Engineering to teach classes and conduct research in both departments. He was also to become associated with the Medical School. He provided courses in Microbiology for the Sanitary Engineering students for several years. Joe E. O'Neal was named Lecturer in Civil Engineering to teach surveying and legal aspects of engineering.

In 1961 Chairman Earnest Boyce retired and Professor Lawrence C. Maugh served as interim chairman of the department for 1961-62. During this interval the department established its own curriculum committee to revise and update the curriculum and to evaluate any new courses proposed. This provided for complete investigation of course proposals before being acted upon by the departmental faculty.

Professor Frank E. Richart, Jr. (Geotechnical Engineering) of the University of Florida was appointed Chairman of the Civil Engineering Department in 1962. New emphasis was placed on the quality of teaching and research. The soil mechanics laboratories were relocated to the new addition to the G. G. Brown Laboratory and expanded in 1963, with new emphasis on research in soil dynamics. The addition to the G. G. Brown Laboratory also provided space for increased research in structural dynamics and for the relocation of the Lakes Hydraulics Laboratory from Willow Run. This resulted in greatly increased activity and has brought world-wide recognition to the Department.

In 1962 the College of Engineering dropped its mentor system for undergraduate student counseling and established a system of program advising in each department. Professor Robert B. Harris was appointed the first program advisor for the Civil Engineering Department.

New faculty in 1962 were Clifford McKechnie, Lecturer in Surveying; Joseph Price and Alfred M. Beeton, Lecturers in Sanitary Engineering; and John Lysmer, Lecturer in Soil Mechanics.

In 1963 there were two new faculty members, John R. Hall (Geotechnical) and Walter J. Weber, Jr. (Environmental) appointed as Assistant Professors of Civil Engineering.

In 1964 the new faculty members were Wayne F. Echelberger, Instructor in Civil Engineering (Environmental); E. Benjamin Wylie, Instructor in Civil Engineering (Hydraulics) who later would become Professor of Civil Engineering and then Chairman of the Department in 1984; Robert V. Galbreath, Assistant Professor of Civil Engineering (Construction); and Larry L. Kole, Lecturer in Civil Engineering (Transportation). In that year also, the requirement to attend Camp Davis was dropped from the Civil Engineering curriculum and after the summer session that year the camp was turned over to the Geology Department for use by that department for the continued teaching of geology. The Transportation Library was moved from the

East Engineering Building to the third floor of the new Undergraduate Library.

In 1965, Donald E. Cleveland was made Professor of Civil Engineering (Transportation) and Joe O'Neal was made Adjunct Professor of Contracts and Specifications. The Sanitary Engineering Laboratory was remodeled to add a Solid Wastes Laboratory to accompany the new scholarship program funded by the U.S. Public Health Service in Solid Waste Engineering and Management. This program would continue until 1973. Professor Jack Borchardt stepped down from being faculty advisor for the Chi Epsilon Chapter and Professor Eugene Glysson took his place.

In 1966 the new faculty members consisted of Donald H. Gray, Assistant Professor of Civil Engineering (Geotechnical); Robert D. Hanson, Assistant Professor of Civil Engineering (Structures); and Gilbert T. Satterly, Jr., Associate Professor of Civil Engineering (Transportation).

It was in 1966 that the County Road Association of Michigan with the cooperation of Professor Donald Cortright began a series of annual meetings under the name of County Road Workshop. These meetings continued for many years under the guidance of Professor Egon Tons.

In 1967, Charles P. Powers, Assistant Professor of Sanitary Engineering; Richard D. Woods, Assistant Professor of Civil Engineering (Geotechnical); and John M. Armstrong, Instructor in Civil Engineering (Environmental) joined the department. Professor Robert Harris was appointed the first Associate Chairman of the Department.

Historically the undergraduate semester hour requirement for graduation at the Bachelors level had been set at 120 hours until 1897 when it was raised to 130 hours. In 1904 this requirement was raised from 130 to 140 semester hours. With the institution of the requirement that trigonometry be required as an entrance requirement this was reduced to 138 hours for graduation. This requirement was in effect until 1967 when the undergraduate degree requirement was reduced to 128 hours and the Department underwent complete curriculum review with respect to content and currentness.

In 1968 the engineering Graphics Department was added to the Civil Engineering Department which meant that Professor Herbert T. Jenkins, Professor of Engineering Graphics, and Professor Alfred W. Lipphart, Professor of Engineering Graphics and Assistant Dean of the College of Engineering, were added to the faculty of the Department. Jonathan W. Bulkley, Assistant Professor of Civil and Water Resources Engineering, joined the Department along with Raymond P. Canale, Assistant Professor of Civil Engineering (Environmental); Subhash C. Goel, Assistant Professor of Civil Engineering (Structural); Allen R. Cook, Instructor of Civil Engineering (Transportation); and John E. Schenk, Instructor of Civil Engineering (Environmental).

In 1969 Professor Glen V. Berg became Chairman of the Civil Engineering Department following the completion of the term of Professor Frank E. Richart who remained on the faculty of the Department. New faculty consisted of Egon Tons, Associate Professor of Civil Engineering (Highway Materials); Robert L. Pretty, Lecturer in Civil Engineering (Transportation); and Edwin L. Bidwell, Associate Professor of Civil Engineering (Construction). Government funding greatly aided the Department's

efforts in research in the areas of earthquake engineering, hydraulics, soil dynamics, and sanitary and water resources engineering. This increased activity demanded additional space and plans were set in motion to construct new laboratories for sanitary and water resources, replacing the over taxed facilities in the West Engineering Building. Building I-A on the North Campus was started in 1973 and occupied by this division in 1975. This building was to become known as the Environmental and Water Resources Engineering (EWRE) Building.

In 1970, Movses J. Kaldjian was appointed Assistant Professor of Civil Engineering (Structures), and Sidney E. Shorter was made Adjunct Associate Professor of Civil Engineering (Structures).

In 1972 it is interesting to note that the question was raised by the students at that time concerning the use of small electronic calculators during examinations instead of slide rules. (Initially they were banned, but after a couple years it was determined that they could be used if they were not programmable.)

In 1973 the faculty was joined by Guillermo Ponce-Campos, Adjunct Assistant Professor of Civil Engineering (Construction) and James K. Wight, Assistant Professor of Civil Engineering (Structures). A rule was established by the University that there should be no smoking in classrooms by either students or faculty.

In 1974, the new faculty were: Robert J. Jagow, Adjunct Professor of Civil Engineering (Surveying); Charles J. Hurbis, Adjunct Professor of Civil Engineering (Legal Aspects); John E. Robbins, Adjunct Lecturer in Civil Engineering (Transportation); and Robert L. Henry, Adjunct Professor of Civil Engineering (Legal Aspects). Professor Eugene Glysson became the second Program Advisor, replacing Professor Robert Harris who had become Associate Chairman of the Department. There were 263 undergraduate students and 109 graduate students in attendance.

In 1975, Professor Robert B. Harris served as Acting Chairman while Professor Glen V. Berg was on sabbatical leave. New faculty were Richard H. Shackson, Adjunct Professor of Civil Engineering (Transportation) and Gary R. Elling, Lecturer in Civil Engineering (Construction). As was mentioned earlier all the laboratories, classrooms and offices in Building I-A were occupied for the first time. There were 262 undergraduates (14 women). A 3 year – 2 year program with Hope College was adopted leading to a Bachelor of Science degree from Hope College and an M.S.E. degree from Michigan. This program joined one already in place of the same sort with Calvin College. This latter program was in effect from the early 1930's until 1985. There was a very cordial transfer relationship between the schools for many years with a number of outstanding graduates from the program.

It is of interest to note that the students at the University were required to register by the Computer Registration Involving Student Participation (CRISP) procedure for the first time in March 1975. Use of this procedure continued until the year 2000. The Department recommended the dissolution of the Transportation Institute in October of 1975.

In 1976 Professor Robert D. Hanson became Chairman of the Department. New faculty were William E. Bodley, visit-

ing Associate Professor of Civil Engineering (Hydraulics); Constantine N. Papadakis, Adjunct Assistant Professor of Civil Engineering (Hydraulics) (he would later become President of Drexel University); and Charles H. Gould, Lecturer in Civil Engineering (Construction).

In May 1976, the Department hosted the first U.S. National Conference on Earthquake Engineering in the Rackham Auditorium. Professor Robert Hanson was Chairman of the organizing committee and served as the host for the conference. Professors Berg, Goel and Wight were all members of the organizing committee and served critical roles in planning and hosting the conference.

In 1977 Amin M. Almuti was appointed Adjunct Assistant Professor of Civil Engineering (Structures); Thomas M. Heidtke, Adjunct Assistant Professor of Civil Engineering (Environmental); Lidia P. Kostyniuk, Assistant Professor of Civil Engineering (Transportation); and Steven J. Wright, Assistant Professor of Civil Engineering (Hydraulics). The State Highway Testing Laboratory, which had for many years been located in the East Engineering Building, was moved into a new building in Lansing, terminating a long relationship of over sixty-two years with the Civil Engineering Department. The Department maintained a materials testing laboratory in that space until the laboratory was moved to the G. G. Brown Building on North Campus in 1980 where it was named the William S. Housel Laboratory. In the early 1970's, Professor Harris was heavily involved with the design and arrangement of the buildings on North Campus to be utilized by the Civil Engineering Department (Building I-A and G. G. Brown). He also was involved with the relocation of space in the East Engineering Building due to its reorganization. A committee of alumni and friends had been organized to assist in raising funds for the required equipment to be utilized in this laboratory. In April 1983 the Civil Engineering Alumni and Friends Association was formed. There were 315 undergraduates enrolled in the Department that year which made the Civil Engineering Department the third largest in the College of Engineering.



William S. Housel Concrete Pavement Laboratory

In 1978 Mohamed Elgaaly was appointed Adjunct Associate Professor of Civil Engineering (Structures); Garrett H. Evans, Adjunct Assistant Professor (Geotechnical); and Robert K. St. Claire, Adjunct Assistant Professor (Structures). Robert Carr was appointed Professor of Civil Engineering (Construc-

tion). The Transportation Institute was discontinued that year and the University of Michigan Transportation Research Institute was formed. This was to become a very important research facility for highway and transportation issues. Geodesy and Surveying were discontinued as an area of concentration within the Civil Engineering Department. The basic surveying course was retained as a required course and one other as a technical elective.

In 1979 Andrzej S. Nowak joined the faculty as Assistant Professor of Civil Engineering (Structural) and John E. Schenk as Adjunct Associate Professor of Civil Engineering (Environmental).

Mr. George Geisendorfer retired at the end of the academic year in June of 1979. He had been the principle laboratory technician for 35 years. Mention was made earlier of him and Mr. Lorenzo Plumpton. It is appropriate to mention several other technicians who have made really significant contributions to the success of the various laboratory and academic activities of the Department over the years. These men are: Mr. Waldemar B. Buss (1962-77), Mr. Harold (Bud) Chalmers (20 years), Mr. Rick Burch (20 years), Mr. Kevin Schmidt (24 years), and Mr. Tom Yavaraski (15 years). Recognition should also be given to the contributions made by the secretarial staff who have served the Department over the years. A few who gave a great many years are: Miss Pauline Bentley (25 years); Miss Reta Teachout (50 years); and Mrs. Genny Singleton (26 years).

In 1979, the US National Science Foundation initiated a long-term cooperative agreement with its Japanese equivalent for research on earthquake engineering. Professor Robert Hanson was the initial US Chairman of the technical organization committee. The first major tests were conducted during 1980-81 on a full-scale seven story reinforced concrete building. The structure was tested at the Building Research Institute in Japan and Professor James Wight was selected to be the US representative for the construction, instrumentation and pseudo-dynamic testing of the structure. The second major structure in this research program was a five story steel structure. The testing of that structure also took place in Japan and Professor Subhash Goel served as the US representative for those tests.

1980-2004

In 1980 the William S. Housel Materials Laboratory was opened in the G. G. Brown Building as was referred to earlier.

In 1981 Nikolaos D. Katopodes joined the faculty as Assistant Professor of Civil Engineering (Hydrology); he would eventually become Chairman of the Department. Also joining the faculty were, William F. Maloney as Assistant Professor of Civil Engineering (Construction) and Rajendra K. Aggarwala, Lecturer in Civil Engineering (Surveying) to teach the surveying courses. The Hydraulics and Hydrology group was relocated to Building I-A in the summer of 1983.

In 1982 the new faculty members were Richard B. Kapuscinski, Assistant Professor of Civil Engineering (Environmental) and Will Hansen, Lecturer in Civil Engineering (Materials). Professor Jack Borchardt became Professor Emeritus upon his retirement that year. The Civil Engineering Department Alumni Friends Association was formed to encourage interaction between the Department and its graduates. The Master of Science degrees in Sanitary and Water Resources Engi-

neering were integrated into the Master of Science degree in Environmental Engineering from that time on.

In 1983 Antoine E. Naaman was appointed Professor of Civil Engineering (Materials). In July 1984 Professor E. Benjamin Wylie was made Chairman of the Civil Engineering Department, Linda M. Abriola was appointed Assistant Professor of Civil Engineering (Hydrology) as was Photios G. Ioannou (Construction), and Will Hansen was promoted to Assistant Professor of Civil Engineering. The Victor L. Streeter Computational Laboratory was dedicated that year.

In 1985 Roman D. Hryciw was made Assistant Professor of Civil Engineering (Geotechnical). In the fall of that year the entire Civil Engineering Department (that portion that had not already moved) was relocated in the G. G. Brown Building on North Campus and the faculty utilized the remodeled offices and classrooms for the first time. During this time period, the structural engineering laboratory was designed and constructed within the G. G. Brown Building. Professor James Wight was the structural designer for the strong floor and strong walls that composed the laboratory, and the overhead crane system. At the time of construction this was a unique laboratory for simulated earthquake testing in the US, and was a smaller version of the large reaction wall testing facilities in Japan. After its construction, Professors Wight, Goel, and Hanson, were able to obtain a grant from the National Science Foundation for equipping the laboratory with hydraulic actuators and data acquisition systems. The Frank E. Richart, Jr. Soils Dynamics Laboratory was dedicated in the G. G. Brown Building.



Structural Engineering Laboratory

In 1986 the department was saddened by the deaths of Emeritus Professor Earnest Boyce and in the spring of 1987 of Emeritus Professor Jack A. Borchardt, both of whom had made great contributions to the department over the years.

In 1987 Kim F. Hayes was appointed Assistant Professor of Civil Engineering (Environmental) along with Ralf Peek as Assistant Professor of Civil Engineering (Structures). All the materials laboratories in the Department were remodeled and modernized in the years 1987-88 with a National Science Foundation grant. In 1987 Professor Robert Harris stepped down as Associate Chairman and was replaced by Professor Richard Woods. When Professor Harris retired he had been on the faculty for 40 years. The surveying laboratory was moved from the Automobile Laboratory to the G. G. Brown Building in 1987.

In 1988 Professor Timothy Vogel, Assistant Professor of Civil Engineering (Environmental); Avery H. Demond, Assistant Professor of Civil Engineering (Environmental); Iris D. Tommelein, Assistant Professor of Civil Engineering (Construction) were added to the faculty; and Professor Donald Cleveland retired. This was the year that the Transportation Program offered by the Department was discontinued as well.

During the late 1980's much more developmental work was done in the G.G. Brown Building Materials Laboratory. Several new laboratories were constructed to allow for use of new construction materials and technology.

In 1989 Victor C. Li joined the Department as Associate Professor of Civil Engineering (Materials) and in 1990 the name of the Department was changed to the Department of Civil and Environmental Engineering. In 1990 John G. Everett joined the faculty as Assistant Professor of Civil Engineering (Construction) and in 1991 Peter Adriaens was appointed Assistant Professor of Civil Engineering (Environmental).



Environmental and Water Resources Analytical Laboratory

During the period of 1989 to 2002 the Great Lakes and Mid-Atlantic Center for Hazardous Substances Research was formed with the cooperation between the University of Michigan, Michigan State University, Howard University and Georgia Tech to conduct research. Also during this time, 1994-2000, the Wurtsmith National Center for Integrated Bioremedial Research and Development was established at the closed Wurtsmith Air Force Base near Oscoda, Michigan. Active research on remediation of contaminated soils was conducted at this site.

In 1991, Professor James Wight was selected to serve a six-year term as the Chairman of the American Concrete Institute Building Code Committee. This committee writes the code that is used for concrete buildings throughout the US and in several other countries around the world.

In 1992 one of the topics of conversation was ethics and where it was being included in the curriculum. ABET accreditation was in the horizon and there was concern as to how that would proceed. In 1993 to address the ethics/professionalism content of the Civil and Environmental Engineering curriculum a new course CEE 401(1) Professional Issues in Civil and Environmental Engineering was introduced in the fall semester.



Department Chairs (left to right) Frank E. Richart, Jr., Earnest Boyce, Glen V. Berg and Robert D. Hanson



Department Chairs (left to right) Richard Woods, E. Benjamin Wylie and Robert D. Hanson

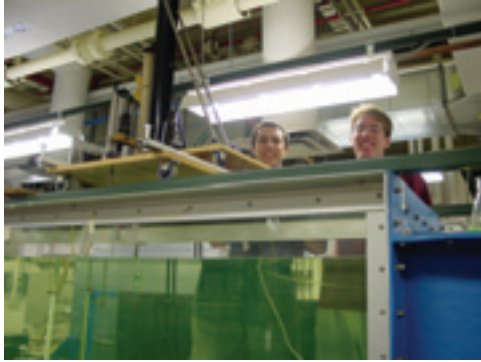
In 1994 Professor Richard Woods was appointed Interim Chairman of the Department; he was to become Chairman in January 1996. Professor Nikolaos Katopodes was Associate Chairman from 1996-2001. Professor Donald Gray was made Program Advisor, replacing Professor Eugene Glysson who was on retirement furlough. ABET approved the curriculum for the BSE (CEE) for six more years. On September 23, 1994, the first Camp Davis Reunion was held to bring together students who had attended the Camp in Jackson, Wyoming.

In 1995 the new faculty members were Jeremy D. Semrau, Assistant Professor of Civil Engineering (Environmental); Michael J. Barcelona as Professor of Civil Engineering (Environmental), he had been on the staff as a Research Associate; Kevin R. Collins, Assistant Professor of Civil Engineering (Structures); and Bozidar Stojadinovic, Assistant Professor of Civil Engineering (Structures). Professor E. Benjamin Wylie was named Program Advisor.

In 1997 Pierre Goovaerts was made Assistant Professor of Civil Engineering (Environmental).

In 1998 the new faculty consisted of Garrett H. Evans, Adjunct Professor of Civil Engineering and Program Advisor; Richard C. Nolen-Hoeksema, Associate Research Scientist and

Lecturer (Geotechnical); and Gerald J. Keeler, Associate Director, Institute for Environmental Science, Engineering and Technology (IESET) now held positions in the Department. That year a 1,000,000 pound testing machine for strong concrete was installed in the Materials Laboratory. This was to replace the old 400,000 pound machine in West Engineering. There was also a major remodeling of the Hydraulics Laboratory to relocate the tilting flume and other equipment in that laboratory. Also in 1998-99 there was space made available in the Institute for Sciences and Technology Building for Environmental Engineering research laboratories and some offices.



Fluid Mechanics Laboratory

In 1999 Aline J. Cotel joined the faculty as Assistant Professor of Civil Engineering (Hydraulics) along with Radoslaw L. Michalowski as Professor of Civil Engineering (Geotechnical).

In February 1999 the Michigan Chapter of Chi Epsilon hosted a Great Lakes District Conclave in celebration of its 50th Year Anniversary as a Chapter. There were representatives from seven universities in attendance. As of 1999 there were four student organizations in the Civil and Environmental Engineering Department: American Society of Civil Engineers (ASCE); Chi Epsilon; Earthquake Engineering Research Institute (EERI) established at UofM in 1995; and the newest put in place in 1999, the Graduate Environmental Engineering Network of Professionals, Educators and Students (GrEENPEAS).

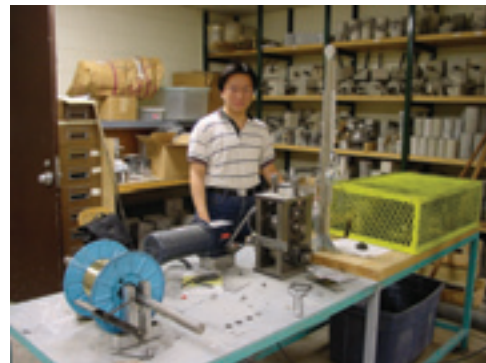
In 2000 Gustavo Parra-Montesinos joined the faculty as an Assistant Professor of Civil Engineering (Structural) and Terese M. Olson as Associate Professor of Civil Engineering (Environmental). Plans were being made for the ABET accreditation to be made in 2000. The ABET accreditation visit raised the question of the lack of comprehensive engineering design.

In 2001 Professor Nikolaos Katopodes was made Chairman of the Department, Russell A. Green was made Assistant Professor of Civil Engineering (Geotechnical) and Christian M. Lastoskie was made Associate Professor of Civil Engineering (Environmental). That year saw the discontinuation of all the surveying classes offered by the Department as well as the program itself. A major initiative in 2001 for the Civil and Environmental Engineering Department was the Sustainability Infrastructure Systems (SIS) program adopted by the Department in May of that year.

In 2002 James R. Barber who was a Professor of Mechanical Engineering was also appointed Professor of Civil Engineering. Professor John P. Boyd also held a joint appointment with Atmospheric and Oceanic and Space Sciences and Civil Engineering. Associate Professor Marc Perlin of the Department of Naval Architecture and Marine Engineering was given a joint appointment as Associate Professor of Civil and Environmental Engineering. Vineet R. Kamat was appointed Assistant Professor of Civil Engineering (Construction).

In 2003 both Professor Robert Harris and Professor Ernest Brater passed away. They had been lifetime members of the Department and will be sorely missed.

The U of M student chapter of the American Society of Civil Engineers (ASCE) has been active in the Department for many years. Over the years, starting at about 1968-71 with Professor Richard Woods as Faculty Advisor, the first of many concrete canoes were made. In 1975 or there about, with Professor James Wight as ASCE Faculty Advisor, another generation of canoes was constructed. These canoes were entered into competition with other universities to see who could build the lightest, fastest and most attractive model. The first one in the late 60's was a joint effort of the Civil Engineering Department and the Department of Naval Architecture. Later models were designed and built by the Civil Engineering students alone. These competitions still continue with schools competing in districts and then the district winner going to National finals.



Fiber Reinforced Concrete Laboratory

The competition was expanded to include a steel bridge which is judged by its load carrying capacity, lightest weight and speed of assembly. The bridge has to meet certain rules concerning the span, etc., and is designed and fabricated by the students themselves. With Professor Kevin Collins serving as Faculty Advisor between 1995 and 2002, the bridge team achieved its best performance and placed fourth in the National Competition in 2002. They were the National Champions in 2003 with Professor Gustavo Parra-Montesinos as Faculty Advisor. They won the National Competition against 44 schools out of about 180 teams that participated in regional competitions including teams from the US, Canada, Mexico and Japan.