



William Dow

Born: September 30, 1895

Wife's Name: Katherine Dow

MSPE History:

Joined MSPE in
December 1960

Active in the Ann Arbor
chapter

Other Organizations:

Fellow:

- Institute of Electronic and Electrical Engineering
- American Association for the Advancement of Science

Member:

- American Institute of Aeronautics and Astronautics
- American Geophysical Union
- New York Academy of Science
- American Welding Society
- American Astronautics Society

Other Accomplishments:

- U of M Instructor since 1926
- Professor Emeritus of Electrical Engineering and Computer Science

Secret to a long, successful life:

1. Select the right grandparents
2. Don't let the armchair get you (stay active - both mind and body)
3. Have a good family life
4. Learn to deal with the medical profession

Nearly 100 and Still on the Go

By Dawn Wondero and Benjamin C. ZumBrunnen

The world changed in 1912, the S.S. Titanic sank, Niels Bohr applied theory to subatomic particles, and William Dow, P.E. entered the University of Minnesota to study Electrical Engineering.

Dow, who is best known as the father of trochoidal fusion, and the man who brought rocket research to the University of Michigan, will be turning 100 years old in September. Still active, Dow goes into his office at the Environmental Research Center of Michigan on Mondays and Wednesdays, and spends his Tuesdays and Fridays at his retirement office in Nuclear Engineering at U of M.

Dow's interests in electrical engineering were kindled by his older brother, a successful electrical engineer. While Dow was in school, he worked for his brother who was in charge of Rainbow Falls Hydro Plant in Great Falls, Montana. In addition to his brother's influence, Dow says he chose electrical engineering instead of mining engineering or civil engineering, because he wanted to establish a "lifelong place to live." At the time, E.E. was the only field to offer this, and an assured income.

Dow graduated from the University of Minnesota in 1917 with a B.S.E. and a B.S. in Electrical Engineering. In 1920, at his brother's suggestion Dow attended Western Electric sales school and decided to try his hand in the marketing business. "Marketing was not my game," Dow says. After 6 years in Marketing, he went back to school to retrain for engineering. In the summer of 1926, after receiving offers from four of the 50 universities he had sent letters to, Dow moved into teaching.

Dow chose the University of Michigan instead of the other 3 schools (Illinois, Maine and Lafayette College) for several reasons. It had a superior program for faculty to participate in research with grad students, he says. Also, each month you had a number of hours of paid research. The money for this originated outside of the college, but the paychecks came from

U of M. Also, the Dean of the University of Minnesota, a University of Michigan graduate, told Dow that Michigan was the right place to go. Dow says he was better off in two years at U of M, than all the years at Western Electric.

In his 30s, Dow's career slowed because of poor health. In 1941, however, he began his ascent into government contracts and a productive research career.

In 1941, before Pearl Harbor was bombed, Dow negotiated a contract with the GM division of Fisher Body to develop means of welding in higher acoustic range (20 MHz). With GM money, Dow built a 100kW, MHz power oscillator to experiment on auto body manufacturing by induction welding of steel. By 1942, the United States entered WWII. GM used the oscillator on aircraft it produced for the war, until the government decided to end production of the planes.

After the project at GM ended, Dow traveled east to see what he could do for the war effort. The Radio Research Lab at Harvard, financed by the National Defense Resource Committee, hired Dow in 1943 to work on radar jamming equipment.

Dow's connections with the U.S. Military and his familiarity of their goals led him to negotiate research contracts between U of M and the Military. This allowed the university to get forward looking projects for research, and to train graduate students.

The first negotiations between U of M and the military began in January, 1946. Dow was heavily involved in these negotiations centered on antiballistic missile research.

Through his connections, Dow also obtained a contract from the United States Air Force to review a V2 rocket. This was in exchange for representing the USAF as an expert in vacuums, at the next military conference on telemetering and rocket research. This first project measured electron temperatures of the upper atmosphere.

Dow was able to hire graduate students to work with him.

In March, 1946 Dow wrote the task statement on flying vehicles (missile interceptors) being proposed to the air force. This statement went to Wright field, the WIZARD project, and was activated July 1, 1946. Dow was now involved in both programs.

Also in 1946, Dow worked on obtaining contracts from the civilian sector. After eating lunch with chief scientists from Ebban's Signal Lab at a Princeton conference, Dow started negotiating. Originally, he asked for a contract for preamps and microwave frequency vacuum tubes from Signal Corps. Signal Corps, however, asked Dow about rocket research. Dow felt that U of M professor Nichols would be able to help with the rocket research. Both projects arrived in the mail at U of M on the same day, allowing Dow to take credit for bringing rocket research to U of M. Dow turned out to be good at marketing after all.

Dow continued building the military and

NASA funded research program at U of M until he retired. He considers this his most important contribution to the university.

In 1958, Dow was named chair of the Electrical Engineering department at U of M. He retired as chair in 1964, but continued on as Senior Research Engineer with the Space Physics Research Lab until 1971. Dow also served on the board of trustees of the non-profit Environmental Research Center of Michigan from 1972-1989. In 1989, he resigned to become Emeritus Trustee.

Dow has also been a member of the Michigan Society of Professional Engineers since 1960. He has never taken the Professional Engineer exam- he says he became a professional engineer under the grandfather clause.

In addition to his teaching and research, Dow has written and published two editions of an electrical engineering book, and he has been granted 5 patents on the use of trochoidal movement of charged particles to produce nuclear fusion.

Looking forward, Dow sees the developments of the 21st century dwarfing those he and his colleagues have produced in the 20th century. In a letter to the editor of the Ann Arbor News, Dow expressed his predictions:

"...It is my belief, a nuclear thrust engine can be built for a 747. I will predict, that someday, we will get into a vehicle that will take off in the normal manner to 50 - 65,000 feet, turn on the fusion engine, and in 10 minutes, in orbit, reverse thrust, be in Sydney, Australia in an hour. A two and a half G flight, the maximum humans may withstand for an extended period of time...."

It is my belief, as told by an expert in nuclear fusion, by 2000, the researchers will have reached engineering break-even -- energy produced will equal energy consumed. At least 20 years later, we will have extended use of fusion, and without the use of my invention."

Once again, the world will change.