

Texas A&M University

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***Former Student Spotlight
Oliver Osborn, Class of 1938***

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FORMER STUDENT SPOTLIGHT

Lifetime Achievement

From a “greenhorn” at Texas A&M University to a roughneck in the isolated oil fields of West Texas to director of research for The Dow Chemical Co., 93-year-old Oliver Osborn has accumulated a lifetime of unique experiences. Relying on a combination of unconventional thinking and dogged perseverance throughout his 36-year career at Dow, the 1938 chemical engineering graduate of Texas A&M never failed to demonstrate himself as a man well ahead of his time, earning 17 patents as a testament to his innovativeness.

While at Dow, Osborn’s accomplishments included pioneering the use of radar for hurricane detection and helping to develop processes using bacteria to digest contaminants in chemical streams. In addition, he served as chief Dow recruiter at Texas A&M for more than 25 years.

Avid supporters of Texas A&M, Osborn and his wife, Emily, have established endowed scholarships in the J.D. Lindsay Scholars Program and the C.D. Holland Scholars Program for high-achieving chemical engineering students. They also have established the college-wide Fred Benson Memorial Scholarship in Engineering and a chemical engineering faculty fellowship to be provided through their estate.

Osborn’s service to Texas A&M includes roles as trustee, councilor and chairman of the board of the Texas A&M Research Foundation. He also has helped establish the chemical engineering Lindsay Lecture Series at the university. In 1999, Osborn was named Outstanding Alumnus by Texas A&M’s Dwight Look College of Engineering, and the following year he was named Distinguished Alumnus by the Artie McFerrin Department of Chemical Engineering.

Osborn recently took the time to reflect on his distinguished career and chemical engineering roots at Texas A&M.

When did you know that you wanted to become a chemical engineer?

When I was a little boy, about eight or nine years old, my mother and father gave me a chemistry set, and I was fascinated with it. I had decided that maybe I wanted to be a geologist because we had a family friend with a major sulfur company who was a geologist who traveled all over the world. So this friend came to visit us one time, and I told him I was thinking about becoming

a geologist. He said, ‘Well, let me give you a suggestion. There’s a new profession that’s coming along called chemical engineering, and I think you would like it.’ The field really had not developed yet, but he saw it coming. That conversation changed my mind, and I decided to be a chemical engineer from the time I was about 10 years old.

You attended Texas A&M beginning in 1935. That was before chemical engineering was recognized as its own department. What was the university like at that time?

I got on a train to go there. I didn’t know where I was going

to go, where I was going to stay, where I was going to register. I was just really a greenhorn, but there were a lot of greenhorns there with me. The train stopped at the station, and we all got our luggage off. I remember there was an old wagon that you pulled by hand, and we all put our luggage on that thing and pulled it into campus.

I kept a ledger with me through my first year at A&M in 1935, and I still have it today. My uniform was \$6.40, my algebra book was \$2.00, my English book was 80 cents, my drawing board was a dollar, my t-square was a dollar-and-a-half, my shirt was \$2.50. I got a drawing book for \$2.50. I got an engineering book for a dollar.

When I came to A&M, they had conceived the idea of a chemical engineering department, but they didn’t have it set up. It was part of



Oliver Osborn, Class of 1938, and wife, Emily

the chemistry department. It was later recognized that an engineering department should not be in the chemistry department, they eventually moved it out. But it was not moved out until after I left.

What were the chemical engineering classes like back then?

We had a chemical engineering class. The bottom of the chemistry building was empty, and there we built a triple effect evaporator throughout the semester. This was part of the chemical engineering course. It was to give us an idea of what chemical engineering was. We first assembled it, and then we had to run it. That was chemical engineering then – understanding a piece of equipment that made some sort of chemical.

We had a professor who taught qualitative analysis. And on the first day in his class he said, 'Gentlemen, I want you to know something. You need to know this upfront. I only pass one in three for this course.' This was accepted because a lot of guys had the idea that they wanted to be chemical engineers but didn't have the wherewithal to do it.

It was probably the hardest course. This was a weed out course, and sure enough he only passed one out of three, but I got by, just barely.

The next fella that took on the chemical engineers taught physical chemistry. He tried to make it hard for you, too. He wanted to make it hard for you so you would not only learn something but so you would have discipline in studying. You just couldn't sit there and pick it up.

What did you do after you graduated in 1938 with a chemical engineering degree from Texas A&M?

So in '38 I graduated and couldn't get a job. There were 24 in my graduating class, and three people got jobs. I went to the oil fields of west Texas to roughneck. I had to make a living some way. I worked in an oil camp out of Monahans, Texas. There wasn't even a telephone. We lived in a bunkhouse. I lived there for three years.

Then one day I got a letter from an Aggie who I had known at A&M. He was a chemical engineer in my class. His name was Jim Wood. He said he was in Freeport, Texas. The Dow Chemical Company was building a plant there. He said they had hired him, and if I got down there they might hire me

too. They hired me right off, and I was there ever since.

Obviously, that was the start of your career at Dow. What did you do for Dow?

I started off more as a chemist in a laboratory than an engineer. There was a man who had come down from Michigan. He was in charge of instrumentation. Having instruments in plants, like automatic controls, was new back then. He had come there to help install this equipment at Dow. I hadn't been there but about a year, but I was made superintendent of the instrument department of our new magnesium plant. The war was coming on now, and

magnesium was in critical need. There wasn't enough to supply magnesium to make alloys for aluminum for aircraft. The government had subsidized with Dow a major magnesium plant, and cost was no object.

The plant carried the highest priority during the war, and because of that I received a presidential deferment so that I could remain working at the plant.

We built a staff and put the plant online in about

six months, which was unheard of. When the war was over, the magnesium plant closed down, but I had made friends with another man who was running the plant. He had been asked to start a new research department, and I helped start that department. It was known as electrochemical engineering. This was in 1945. So I was with Dow for 36 years in research roles. I had several different departments at several different times. I started out in electrochemical engineering and then went to metals research and then to contract research. Then I went to resource engineering, which was looking for raw materials.

During your career, you were assigned many different types of projects. What were some of the most memorable ones?

During the years of 1943-1948, there were five hurricanes that came into the gulf. There was a blackout on information at that time, and nobody really knew where these hurricanes were. Although none of the storms damaged the area, the impending threat of the storms caused the Dow plant to shut down three times. In those days, it cost a million dollars a day to shut down. Our general manager went to my boss and



Texas A&M looked quite different when Osborn attended in the mid 1930s.

wanted to figure out a way to detect the locations of these hurricanes. I got the job.

Well, one day I picked up a Life magazine. On the cover of this magazine was a picture of a hurricane off Florida. I read about this hurricane and found out that there was an Army aircraft that passed through there, and its radar showed this hurricane. I thought this sounded like the answer. I was able to buy a war surplus radar. I bought this unit and brought it down here. We hired a radar technician and set the radar up at the end of the Dow plant, facing the gulf. We were just about to test the thing out, and the word came out that there was a hurricane in the Gulf of Mexico. The radar was turned on and we could see it. We had an old 16 mm movie camera, and we arranged it so that every minute this camera would turn and get another film. If you played it all together, you got to see the movement of this hurricane coming in. We called into our general manager and told him a hurricane was coming. He gave the order to shut down. That hurricane came directly over our radar station but didn't damage our equipment, so we got pictures of it.

That was the start of using radar to detect hurricanes. This was before satellites. The Weather Bureau was doing flips because they had not thought about that themselves, so we had weather people coming down from all over the place. They picked up on the idea and started buying radar themselves. But we were the first to demonstrate that radar detection worked.

You also worked on some fairly unconventional projects, didn't you?

Later on, I was working with a guy who was an Egyptian Ph.D. from A&M who didn't mind experimenting. There was a stream coming out of Dow with an organic contaminant in it in such concentrations that you could not get it out. You couldn't make it precipitate or filter it out, and yet something had to be done about it. So this guy took on the project, and he used a lot of unconventional thinking. He thought about a bacteria that would eat this contaminant. This was salty water, much saltier than seawater, so not much would live in it. Well, he got soil samples from the Great Salt Lake to see if some bacteria had genetically adapted to the salt concentration. Then he got some soil off the levy where this

stream was running, and the bacteria ate up the stuff. From that, he developed a culture of bacteria that would eat this material up. But when it did, it would produce a scum that was very difficult to filter. He was working on another project that dealt with culturing shrimp. Dow was looking into commercially raising shrimp. We knew that shrimp supplies were being exhausted very fast.

We found out that the little baby shrimp eat algae. Then after they quit eating algae, they eat brine shrimp. So we were culturing brine shrimp. Well we soon lucked out and found out that the algae would eat the scum in the stream produced by the bacteria. Then we brought the brine shrimp in and they ate the algae. Then we could filter the brine shrimp out of the stream and reuse them. We failed on the shrimp project, but we won on the stream project. But had we not been doing the shrimp project, we would not have won on the stream project. The process went commercial. I've got a plaque in my office from

Dow recognizing my involvement in this process.

What do you attribute to the success you experienced throughout your career?

Texas A&M, of course. Also, I think most people are fairly conventional in their thinking. I'd say that I've taken advantage of being an unconventional thinker and expecting what I would think of to work but not being disappointed if it didn't – to keep cutting-and-trying, cutting-and-trying. I had made a practice of trying to stay on top of technology. I was a member of every technical society you could think of. I read a lot of their journals. I was current with a lot, like nuclear energy when it started.

Why are you such a staunch supporter of Texas and its chemical engineering department?

As I look back on it, A&M really made my life for me, made my career for me. I was highly introverted, very timid, undecided on what I wanted to do. I was raised on a farm and didn't have very much contact with other kids. A&M opened a whole new world to me. Had that not happened to me, I don't think I would have been able to do what I did. It changed my whole personality - to be in the Corps, to be accepted by the Corps and all the people around me. It changed my outlook on life and gave me self confidence. When I went there I wasn't a people person. I didn't know how to get along with people. A&M was a wonderful experience for me. 🍷

