

B. GENE GOAR

Proceedings

LAURANCE REID

GAS CONDITIONING

CONFERENCE

1987

THE UNIVERSITY OF OKLAHOMA



FORWORD

The thirty-seventh annual Laurance Reid Gas Conditioning Conference was held at the Oklahoma Center for Continuing Education on the Norman Campus of the University of Oklahoma on March 2 - 4, 1987 with 176 registrants and speakers attending. The program consisted of twelve papers and an afternoon of workshop discussion led by J. P. Herrin, J. P. Herrin and Associates, San Antonio, Texas and Kenneth F. Butwell, Union Carbide Corporation, Tarrytown, New York. Our sincere thanks are extended to the speakers, moderators and many registrants who made substantial contributions to exchange of information that was experienced at all sessions.

The principal speaker at the conference dinner was Dr. Frank Horton President of the University of Oklahoma. His topic "Industrial Application of Energy Center Research" was well received and reflected the appreciation of the University for the efforts and dedication of the late Laurance Reid, founder of the conference.

The death of Laurance Reid in October 1986 came as a severe shock and sense of loss to all of his countless friends, in the gas industry. Mr. Charles R. Perry a former student of Laurance Reid and personal friend presented an excellent tribute to Laurance at the opening of the 37th annual conference. We have included the text of Charles Perry's talk in order to share with you a little of the character that made Laurance Reid an outstanding engineer, educator and humanitarian.

The arrangements for the conference and publication of these proceedings were performed by William E. Kinnebrew and his Continuing Engineering Education staff at the Center. Much of the success of this meeting was due to their skill and efficient handling of the multitude of details that is often taken for granted. A special note of thanks to William E. Kinnebrew who retired from the Center June 30, 1987, however he will be retained on a consultant basis and will continue as a member of the Program Advisory Committee.

The 1988 conference will be held at the Oklahoma Center on March 7-9, 1988 and will present twelve - fourteen papers and a one half day workshop.

TRIBUTE TO LAURANCE REID
PRESENTED AT THE LAURANCE S. REID
GAS CONDITIONING CONFERENCE
MARCH 1987
BY CHARLES PERRY

I have been asked to say a few words about Laurance Reid and I would like to qualify this by saying that I am not giving a eulogy because Laurance Reid lives on today as far as I'm concerned. The first thing that I would like to say is that Laurance Reid was a different kind of guy than I have ever known. You start out with the spelling of his name. Every other Laurance that I know spells his name L-A-W-R-E-N-C-E. And most of the Reids that I know spell their name R-E-E-D. But Laurance was different, from the spelling of his name on throughout his life and his career.

I first met Bud Reid as Professor Reid in 1949 when I was a sophomore in Chemical Engineering here at the University of Oklahoma. It was some years later before I even knew that he had a nickname "Bud" because I'd always called him Professor Reid and all I knew was Professor Laurance Reid.

Now back in that time that I am talking about during the era that I went to school here, the Chemical Engineering Department was headed by a fellow by the name of Doc Huntington. We had Laurance Reid, John Campbell, as many of you may know, and Mark Townsend, and both John and Mark were receiving their PhDs that year and both were teaching. The school had already established its name in gas processing and I guess that some of us who attended the University of Oklahoma might not have learned a lot about other parts of Chemical Engineering but we sure did know the gas business when we left this school at that time. This probably had more influence on my entering the gas business in the first place and certainly Laurance Reid was probably the key factor there. That legacy has stuck with me and many more like me even today.

Bud Reid was born in Iowa, he attended Rice University for a short period of time, and then he received his Bachelor's Degree at Iowa State in 1931. He worked some in between and then he received his Masters at the University of Oklahoma in 1937. Now early in his career, and I'm talking about prior to World War II, Bud became very interested in deep high pressure gas condensate reservoirs. As a result he became concerned about the hydrate formations which you

Tribute to Laurance Reid
Charles Perry

normally run into when you have a high pressure gas well and he became interested in the removal of all types of contaminants in high pressure gas. At this time he was serving as Assistant Chief Engineer for Southern Natural Gas Company of Birmingham. It was in this period of time, and I don't know exactly when, but Bud Reid coined the phrase "gas conditioning" which refers to the removal of contaminants from gas and that phrase has stuck with us today into this conference.

He had several accomplishments during that time. He was one of the first people to recognize the advantages of using high pressure short-cycle gas adsorption units for both the removal of water and natural gasoline. He was probably one of the first people to use glycol injection for low temperature processes. But even more important, he became intrigued and interested in a new compound that was rarely seen outside of a laboratory called triethylene glycol. And that became a basis for several of the accomplishments he did in the years to come.

In 1940, he turned to teaching here at the University of Oklahoma starting as an Associate Professor in Chemical Engineering. He continued that work on the gas conditioning processes such as the small package dehydration unit, the automatic switching systems for quick cycle adsorption units, and later he worked on processes to provide super dry or high purity glycol. In 1949 he collaborated with Dr. Huntington in writing the book, Natural Gas and Natural Gasoline which became a part of the prestigious McGraw Hill Chemical Engineering Series. In fact Bud wrote the chapters regarding gas dehydration in that book. But the thing that stuck in my mind more was what he did in 1950 where he collaborated with two graduate students, E. L. McCarthy and W. L. Boyd. They furnished the first extensive correlation of natural gas hydrates, hydrate temperatures, and pressures. I know I've used my curve, the Boyd, McCarthy, Reid Hydrate Curve, even today to figure out what a hydrate temperature is in gas.

In 1952, Bud joined with Mark Townsend in developing the Townsend Process which is a process for the removal of hydrogen sulfide and conversion into elemental sulfur in one step. And while that process probably never did achieve commercial success, it was the forerunner of several processes that are working today and got us started in the right direction.

Tribute to Laurance Reid
Charles Perry

In 1951, he founded the Gas Conditioning Conference which I'll talk about a little bit later, but he was described at that time as the permanent chairman of the Gas Conditioning Conference. In 1951 through 1956 he formed and became the first chairman of the School of Natural Gas Engineering at the University of Oklahoma. He doubled up in '55 and '56 to also serve as chairman of the School of Chemical Engineering.

In 1969 he became the chairman of the Southwestern Gas Measurement Short Course which was in its 45th year at that time and had been chaired by the late Dean Carson for many many years. But when Dean Carson died Bud picked up the ball and carried that one too for many, many years. And that conference continues today.

He served from '57 to '61 as Director of the University of Oklahoma Research Park. Then in 1969 he retired from the University of Oklahoma and became a consultant setting up his own consulting business. After that period of time I had many business ventures where we worked with Bud, joint ventures and things of this type, and perhaps I got to know him personally a lot better than I had known him when I was going to school. I thought he was a little aloof then - he wasn't - but I just thought he was. He was a member of Sigma Xi and Tau Beta Pi (which were the two honorary engineering fraternities), AIChE, AIME. He has published so many papers and has so many patents I just lost count of them when I was trying to figure that out.

However, in 1970, Bud Reid was awarded the Gas Processors Association Hanlon Award, which is considered the highest honor possible in the gas industry, and I think it's significant (I was there at that meeting when he received that award) that Bud received it at a relatively young age and relatively early in his career. Most people who receive the Hanlon Award are right at retirement or maybe have already retired.

And talking about this conference here, the Gas Conditioning Conference - as I mentioned, it was founded in 1951 and, even though I was a student, a senior in chemical engineering at the time, I did not participate in that conference. I did hear about it. It was really just an ad hoc group that got together to bat some ideas around and talk about some problems, but it was so well received and everybody had gotten so much out of it that they decided at that time to make it a permanent affair every spring which they did. Bud Reid had two criteria that I've heard him say many times about this conference which carried through to today:

Tribute to Laurance Reid
Charles Perry

He wanted the conference to be small; he preferred 200 or fewer people in attendance. He felt that a small conference had a much better chance for a free exchange of ideas and he felt that was a part of the conference - the exchange of actual experiences, ideas and particularly new ideas - and there would be no official recording of questions. If you have something to say you can get up and say it and not worry about the word getting back to the home office of what you might have said. And basically I've heard him say several times "you're free to say anything you think you're big enough to say." Needless to say over the years I've seen many, many very lively debates during the question and answer session of this conference where one guy over here would say something, somebody over there would say I don't agree with you, I think you don't know what you're talking about and - boy it would get started. But we would get some ideas that way and it worked.

In early 1970 Bud called me one day and I think he called some of the other fellows, Gene Goar and probably Bill Pearce, and I remember his words to me were "You know, I've figured out I'm not going to live forever and I'd like for this Gas Conditioning Conference to go on and I'd like to set up an Advisory Board to assure continuity of the conference." I readily agreed to serve and did serve on the Advisory Committee for several years. I think it's important that up till this time, and this thing had been going on for 20 years, that Bud Reid had personally solicited all of the papers, set up the entire conference, got everything himself personally without any help from anyone, didn't ask for it. I think all of us who were asked to come on that original advisory committee felt it was high time that, if it was that good a deal, we ought to share some of it and pass that work around among us so we did.

I remember many times in these conferences, the conference would open with a sort of basic paper on dehydration which Bud himself gave many, many times. I remember many times on Sunday night about 9:00 o'clock we'd be sitting around having a few drinks and bull session and all of a sudden Bud would get up and say, "well, I've got to go write my paper." I thought he was kidding about it but he wasn't; he'd go home at 9:00 or 10:00 o'clock and write his paper to present the next morning and he'd give a good one. But that's the way he felt like the conference worked the best;

Tribute to Laurance Reid
Charles Perry

it wasn't formalized, it wasn't something prepared way in advance, it was something where you really share your ideas.

Now over the years, the Gas Conditioning Conference has been "the forum" for gas treating, dehydration, and cleaning. In 1976 when we had the 25th anniversary of this conference, we had an old-timer's reunion and had many of the original people whose names I remembered in this gas conference when I first began to attend and who perhaps stand out in the industry. Thinking about people like Professor Donald Katz from the University of Michigan, a fellow named Les Polderman, and another one named Bob Blake from Union Carbide who were prolific with papers, they always showed up here. We had a few of us around that, I hate to say it, Bill Pearce being one of the standout originals at that time; Jack Dingman, I saw him this morning, Jack's been here every time I can remember coming. So there are some of us that I'm afraid are still around. Several have hair as white as mine, but that was a thing that always irritated us the most about Bud Reid, his hair was as black the day that I last saw him as the day we first met. And somehow he was almost ageless in his personality and was the same with his appearance. but over the years, if you had anything new to say about gas conditioning this was the place to present it. It has continued to be a free exchange of ideas as Bud Reid wanted it to be.

I last saw Bud in May of '86. I was up here to see a son and daughter graduate. I visited him when he was in the hospital. His health had begun to deteriorate at that time. but I had the best time; sat there all afternoon in the hospital visiting with Bud, talking about old times and some guys like Bill Pearce, a few things like that. But he hadn't changed a bit in 40 some odd years. I know his wife Mary, a wonderful person. I think she will be with you tonight. If you don't know her, you should meet her. Bud had two sons' Bob, who I know fairly well. Bob is a Vice President of Engineering with Petrolane. He lives in Long Beach, California. His younger son, Buddy is a physician; he lives in the Los Angeles area also. I think one of the funniest things though was that my mother was coming back from a trip to the Far East and was in Tokyo airport going through one of the curio shops or something and met this nice American lady and man, got to talking and said she was from Odessa, Texas. They said, well we have a good friend in Odessa - Oh, who's that? - Charles Perry. My mother said, well that's my son.

Tribute to Laurance Reid
Charles Perry

So my mother met Bud and Mary Reid in a Tokyo airport of all places. It is a small world.

I think this Gas Conditioning Conference is a fitting way to remember Bud Reid. I feel like as long as there is one cubic foot of gas out there that does not meet pipeline specifications, then Bud's legacy is going to be with us and the entire field of gas conditioning will live on as his legacy.

Thank you very much.