

The
UNIT RIG
Story



By
Jerry A. Shelton
Retired Vice President of Sales

**AN UNAUTHORIZED HISTORY OF
UNIT RIG & EQUIPMENT CO.**

Text by: Jerry A. Shelton

Published by: Jerry A. Shelton

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April, 2010**



UNIT RIG LOGOS



1936



1950



1963



1980

DEDICATION.

This book on the history of Unit Rig & Equipment Co. is dedication to Jesse L. Vint, Jr. who was the heart and soul of Unit Rig from 1956 to 1982. It was his leadership in all phases of the company's operations including; engineering, sales, manufacturing and financing that allowed Unit Rig to be successful in the off-highway truck industry. It is also dedicated to all of those employees who benefited from his leadership and dedicated themselves to making Unit Rig so successful. We also recognize the founders of Unit Rig and the Kenneth W. Davis, Sr. family who encouraged Unit Rig to get into the off-highway truck business and then gave their financial support to that effort.

This history of Unit Rig & Equipment Co. is in recognition of all of the thousands of Unit Rig employees that worked hard through the bad times and the good times to make Unit Rig the great company that it became. In the **ACKNOWLEDGMENT SECTION** of this history, I acknowledge a number of Unit Rig employees that contributed to the success of this company. But for everyone that I named there must be a 100 that I did not name and every one of them can be proud of their contribution to the success of Unit Rig.

In the early 1950's, Unit Rig was struggling to keep its doors open during a down turn in the oil well drilling industry. There would be times when the company had no product manufacturing work for the plant personnel. Instead of laying-off these workers, Unit Rig management would put them to work doing things like, painting the inside of the plant, repairing tools and machinery and other jobs just to keep them busy. When business improved, many of the workers would return that favor by working their shift, going home and eating supper, then returning to the plant and working a few more hours without clocking in. It was this kind of dedication, by the employees and management of Unit Rig that allowed a small, struggling manufacturer of oil field equipment to move into the business of designing, manufacturing and marketing large haulage trucks for the open-pit mining industry. This market was dominated by companies like; Caterpillar, K. W. Dart, Wabco and Terex. Unit Rig not only entered that market but they dominated it for more than 20 years. This is the story of that company.

Jerry A. Shelton

PREFACE.

I started to work for Unit Rig & Equipment Co., in November, 1951, as a Trainee Mechanical Draftsman. I was on three months probation that was later extended to six months. I retired from the company in March, 1994, as Vice President of Sales. During those 42 years I saw the decline of our oil well drilling equipment business and our entry, in 1959, into the business of designing, manufacturing and marketing large trucks for hauling waste and ore in the open-pit mining industry. In the first draft of the history of Unit Rig, I designated the first 20 years in the mining truck business, 1959 to 1979, as Unit Rig's Golden Years. But, I have concluded after researching the years from 1935 to 1950, that the founders and early employees of Unit Rig might say the years from 1935 to 1950, were also golden years in the history of the company. The truth is that Unit Rig, all through its history, from 1935 to 1988, was an outstanding company that accomplished some really amazing things and produced a lot of "gold" for its owners, stockholders and its customers. For various reasons, I stopped this history of Unit Rig at the time, in 1988, when the company was purchased by Terex Corp.

I started The Unit Rig Story by writing about events that happened during my employment at Unit Rig.. I was more comfortable with this part of the history because I either had first hand knowledge of an event, or I could talk to someone else who had knowledge or at least an opinion as to what had happened. When I started writing about the early history of the company, 1935 to 1950, I had to educate myself by researching those early days. If I had had more time, or had just taken more time to look into the early history, I know that I could have come up with additional information. For instance, there are still members of Hugh S. Chancey's family living in the Tulsa area. I made one brief contact with one family member, and I am sure that there is information available with other family members that would add to Unit Rig's early history. Later, maybe I will try to add to our information on Mr. Chancey.

I would have liked to have obtained more information concerning the 1947 law suit that pitted Bill Guier against Hugh Chancey. This law suite ended up with Bill Guier getting control of Unit Rig and Hugh Chancey getting Unit Rig's sister company, Portable Drilling Company. The only real information that I could uncover was that "Boots" Adams, President of Phillips Petroleum Company was apparently involved in that law suit. I talked to some clerks at the Tulsa County Court House about this law suit, but they were not very encouraging. They did not believe that there was very much information still available.

With a limited amount of research I was able to gather a lot of information concerning the company and the people that made it so successful Irish poet, William Butler Yeats said, "All life is a preparation for something that will never happen, - - - - unless you make it happen." That just about sums up the definition of a Unit Rigger, they were people who were not afraid to make things happen. This is their story.

Jerry A. Shelton

ACKNOWLEDGMENTS.

There were a number of people that made direct contributions to my effort to write this history of Unit Rig & Equipment Co. I was fortunate to have obtained the written works of **H. Craig Doennecke** concerning William C. Guier, one of the founders of Unit Rig. Craig was an outstanding design engineer who worked for Unit Rig off and on from the late 1930's to sometime in the mid 1970's, first as a Mechanical Draftsman while he was still in high school and then as a Design Engineer after college and his time in the U.S. Navy during World War II. Craig had a personal and working relationship with Bill Guier. When Bill Guier moved to Tulsa, in 1935, he moved into a house just across the street from where Craig lived with his family. Another Unit Rigger, Jim Christopher grew up in the same neighborhood. At some point in their relationship, Bill asked Craig to write the Bill Guier Story and I know that Craig put a lot of time and effort into that request. Later, apparently, the family commissioned someone else to write the Bill Guier Story. But the work that Craig did in putting together information concerning Bill Guier was a big help in writing this history of Unit Rig.

I was lucky to have met **R. J. Savage** at the Granby Miners Museum in Granby, Missouri. R. J. remembered Jerry Underwood, a founder of Unit Rig, and provided me with a lot of useful information about Mr. Underwood who was a banker in Granby and a partner in the Kelly-Underwood Bridge Building Company. **Stan Storer**, who once lived in Granby, contributed additional information on Jerry Underwood.

A couple of years before **Jesse L. Vint, Jr.** died; he gave me a box of newspaper clippings that provided me with a lot of old Unit Rig information. I also spent some time talking to Jesse when he was in various nursing homes. His body was not in good shape, but his memory was sharp, and he provided me with inside information on a number of important events in the history of the company. **Royal Hibblen** gave me four issues of "The Oil Show Daily" Newspaper, from the 1940 Oil Show. Two of the issues I gave to Kenneth W. Davis, Jr. and the other two I have used in putting together the early history of Unit Rig & Equipment Co. I "quietly" quizzed **Jim Christopher, Dick Evans, Jack Hodges, Bill Chronister, Mickey Ford, Jim Willis** and **Rodger Goodbary** to get their knowledge, opinion and prospective on the history of Unit Rig. They were all a big help and each of them looked at the history from a little different perspective.

The information on the life of Kenneth W. Davis, Sr. was obtained from the Fall 1968 issue of the **Mid-Continent News** magazine and from the book "**I'll Take The Rest Of The World**" By **Carlton Stowers**, Published by **William S. Davis**. I also used information from the book, "**Faszination Baumaschinen**" by **Wolfgang Poppy**.

A special thank you to my Daughter-In-Law, **Perlinda Shelton**, to my friend **Tom Smith**, Unit Riggers **Jim Thompson** and **Mary Meeks**. They edited my work and made suggestions for making this history a little easier to follow and understand. But I am still not sure of the correct way to use a comma.

Jerry A. Shelton

INTRODUCTION.

The Unit Rig story started in 1935 when an oil field equipment salesman, Hugh S. Chancey had an idea for a rotary drilling rig that he believed would give a drilling company a competitive edge, in the booming oil well drilling business. It essentially ended in 1988 when the 1985 bankruptcy of Unit Rig's parent company, Kendavis Industries International, Inc., caused Unit Rig to be sold to the Terex Corporation. Even though I continued working for Unit Rig/Terex until March, 1994, I stopped this history in 1988.

This is the story of a successful oil field equipment manufacturer that was not able to sustain its success in that industry. To stay in business, it changed its product line to open-pit mine haulage trucks and became even more successful. But once again could not sustain that success. One of the reasons for Unit Rig's inability to continue its success in the mining truck business was an external event, the bankruptcy of its parent company. There also were internal events such as the hiring of upper and middle management people from outside the company. These and other events had a big effect on Unit Rig's demise. Still, Unit Rig's entry into the mining truck industry, and the things that were accomplishments in that business, is a real American success story and its employees can all be proud of that success.

Unit Rig accomplished some really amazing things in both the oil field and the mining industries. In the 1930's, 40's and 50's, Unit Rig set the Gold Standard for rotary drilling equipment by successfully competing with all of the big companies in the oil field equipment industry: National, Ideco, Brewster, Oil Well Supply and others. In the 1960's, 70's and 80's, Unit Rig set the "Gold Standard" for open-pit, off-highway haulage trucks by taking on the "Big Boys" in the open pit mine haulage equipment industry: Caterpillar, Euclid, Wabco, Terex and K. W. Dart.

In the mining truck business, Unit Rig was the first to:

1. Use the General Electric's motorized wheel drive system in a haulage truck. (1959)
2. Manufacture and Sell a fleet of diesel-electric trucks for the mining industry. (1963)
3. Use gas turbine engine power in a open-pit mining truck (1965)
4. Use diesel/trolley power for a fleet of large open-pit mining trucks. (1970)
5. To build a 200 ton payload capacity, two-axle, rear dump truck. (1972)
6. To develop and operate a fleet of "Driverless trucks" in an open-pit mine. (1974)

These are accomplishments that made Unit Rig a leader in this industry.

My first motivation for writing the history of Unit Rig was probably just curiosity as to how the company really got started. Over the years, the company had written a number of "Histories" that I knew were just promotional articles. So when I started to write about my own experiences working for Unit Rig, I decided that I wanted to include a more accurate and comprehensive record of why the company was founded, why it was so successful and why it would eventually fail.

Outside of the people that I listed in the preface, I did not interview anyone else. In hindsight I wish that I had been able to interview some other ex-Unit Riggers who contributed so much to the success of the company. Such as: Assembly Leadman, **Elis Barlow**, who redesigned my failed, first design project, while standing in the Assembly Shop. After he fixed my design he then sat me down on a wooden crate and watched while I measured the changes and recorded them on a scrap of paper. Whenever I was involved in designing a hydraulic system, I always let another assembly man, **Fred Johnson**, look at my design because of his practical experience in hydraulics. And there were **L. C. Steward** and **Glenn McCarty** who, at various times, ran the Assembly Department. In the Weld Shop we had **John Schuette** and guys like **Virgil Cooper**, who was an outstanding steel fabricator.

Author's note. I was standing in the Assembly Department one day with Virgil Cooper looking at a rather long chain drive case that I had designed. It was mounted on a "Rock Over Trailer" that had an engine compound mounted high above the axle and a mud pump sitting low between the axle and the fifth wheel. The upper end of the chain case had a shaft and sprocket assembly mounted in pre-machined rings that had been welded to the chain case. The lower end was mounted to the pump with the pump drive shaft and sprocket extended inside the chain case. The problem was that in the fabrication process, the chain case had twisted and the two shafts were not parallel. I told Virgil that we were going to have to remove the chain case from the trailer, remove the shaft and sprocket from the case, remove the welded on rings and weld a new ring in place so that the shafts would line up.

Virgil looked at me and said, "Oh, I don't think so." He turned around and walked away. When he returned he had a bucket of water and a heating torch. He sat the bucket on the floor and began heating the outside wall of the chain case with the torch. Every now and then he would spit on the heated area and then continue to heat it with the torch. Finally he said, "That should do it" and he picked up the bucket of water and threw it on the heated area of the chain case. There was a little steam and the chain case made some funny noises. When I looked around, Virgil was gone. We checked the two shafts and they were parallel.

I do not know what we would have done without **Kenneth C. (Wally) Wallingford's** talent for designing jigs and fixtures for use in the shop and the field. I worked for Wally for a couple of months one summer and marveled at his ability to understand a problem, visualize the solution to that problem, and then design a jig or fixture to assist with fixing the problem. Wally was equally respected by Management, Engineering, Manufacturing and the customers that he dealt with in the field.

Unit Rig always had dedicated people in charge of the manufacturing plant, people like **John W. Tullis, William J. (Bill) Peycke Jr., James A. (Jim) Christopher and Russ Jones**

A number of our plant personnel and engineering personnel were asked to transfer to the field and work as service engineers and/or go to the field to solve a specific problem.

These employees did more than just keep our trucks operating; they were the “face” of Unit Rig in the mining industry. Their dedication and hard work promoted Unit Rig to our customers and potential customers and contributed to the “Repeat Orders” from customers that were so important to Unit Rig’s success.

There were good people in every department, people like **Craig Doennecke, Duane Lackey, Rodger Goodbary, Dick Evans, G. A. Tomlinson, John Neighbors, Gene Wortman, Ed Lyle, Jim Willis, Jack Hodges, Don Wilson, Larry Lyon, Paul Parton, Dennis Duffy, Hubert McAulay, Nolan Cummins, Mary Meeks, Larry Vargus, Royal Hibblen** and many more in the Engineering Department. In the Sales Department there was: **Charlie Southward, Tommy Long, Bob Johnsen, Roland Parmentier, Tommy Peery, Rusty Braswell, Bob Pierce, Al Logan, Al Hunt, Eldon Stout, Glenn Samford, Ed Bielo, Bob Herrick, Connie Wheeler, Susan Casey, Billie Snow, Barbara Walling and Jesse Ewing.** And my very good friends; **Zarko Puretic**, our main man in Belgrade, Yugoslavia and **R. P. Kotecar** in Mangalore, India. **Mickey Ford, Jack Bodnar, Russ Ford, Ray Farquharson, Bob Grossman, Doug Crain, Ray Gibson and Roger Goolsby** in Service. **Howard L. Brainard, Dani Turner and Tia Thompson** in Sales Administration and **William L. (Bill) Chronister** and his ability to accurately estimate the cost of a new product or part. The list could go on and on with people like; **Don Curran, Charlie George, Richard Thomas, Al Steward, George Watson, Harold Purkiss, Vernon Mills, Walter Pate and Sue Morgan** and so many more, - - - I wish that I could name them all. Virtually, everyone that worked for Unit Rig during the first 50 years of its history can be proud of their contribution to the success of this company.

And of course there was our President, **Jesse L. Vint, Jr.**

Jesse was President of Unit Rig from August, 1956 until his retirement in April, 1982. It was his leadership that took Unit Rig from a struggling manufacturer of oil field equipment to a company that became the innovative leader in the design, manufacturing and marketing of haulage trucks for the open-pit mining industry. Jesse was not perfect and he never pretended to be, nor did he expect you to be perfect. He wanted employees that worked hard, made decisions, fixed mistakes and then learned from those mistakes. He could be a tough, intimidating president, but he was also caring and loyal, sometimes to a fault.

He did not mind if you disagreed with him as long as your disagreement was based on tangible things and not emotions. Once he had made a decision he wanted you to forget about the disagreement and get on with your work. I remember one time Jesse needed to make a decision on a new product. He assigned two employees, who were very capable, but relatively new to the company, to research the product and make a recommendation. As Manager of Application Engineering, I was copied on their report that recommended that the company not proceed with this new product. I strongly disagreed with the recommendation and called Jesse to see if I could discuss it with him. I walked into Jesse office and he was sitting behind his desk. I sat down in a chair in front of his desk. After I had explained to Jesse why I was in favor of the project, Jesse said, “Jerry, I assigned two

very good people to research the product and they disagree with your recommendations. I responded, "I agree they are both capable people but I think that they based their recommendations on what they thought you wanted to hear and not on what they believe." Jesse said, "Why would they do that?" "Well, I responded, you can be pretty intimidating."

Jesse rose up from his chair and in one motion, leaned across the desk and hit the top of the desk so hard with an open hand that a framed photograph on the desk fell over. In a loud and angry voice Jesse said "DAMN IT JERRY I AM NOT INTIMIDATING." Without losing eye contact I leaned back in the chair and smiled at him. For about five seconds I was not sure what was going to happen and then his face softened and his body relaxed. He sat back down in his chair and a big sheepish grin came across his face and he said, "Well - - - - - maybe a little intimidating" He turned down my recommendation, which I still think was right, but I left feeling that I had a fair hearing and was ready to get on to the next problem.

When I was about 15 years old, my Grandfather Shelton told me that there were only two things that he knew of, that were good about growing old. He said, "For one, you could flirt with the younger women, and they could flirt with you, and neither one of you would take it seriously. And two, you could "pass gas" in public and no one would laugh at you." Grandpa was 65 years old when he *passed* that bit of information on to me. I am now 78 years old and I agree with his thoughts on flirting and passing gas, although I try real hard not to do the latter in public.

At 78 years old, I can add a couple of other advantages to growing old; one, you can play golf from the senior tees and two, you have the wonderful advantage of hind sight. In writing this history of Unit Rig & Equipment Co., I have tried hard not to pass judgment, on things that happened years ago, based just on hind sight. For the most part, I was not there and therefore do not know what went into the various decisions that had both a positive and negative effect on the history of this company. As I said, I have tried not to pass judgment based on hind sight, but, as you will see, sometimes I just could not help myself.

In putting together this history, I have noticed a parallel between the old Unit Rig (1935 to 1960) and the new Unit Rig (1961 to 1988). The old Unit Rig started in 1935 with an improved version of an established method of drilling oil wells. The innovative Unit Rig U-10/U-15's were easier to set up and easier to move from one location to another. They were also more efficient to operate and therefore more profitable to the owners and operators. From 1935 to 1960, this innovation became the "Gold Standard" of the oil well drilling industry.

In the late 1950's, the General Electric Company took a successful product, the diesel-electric locomotive drive system, and through innovation, produced a new drive system for off-highway, open-pit mine haulage vehicles. Unit Rig took this new drive system and through hard work and its own innovations, produced a new line of haulage vehicles (the M-85, M-100 and M-120-15) that was more efficient and more profitable for the

operators of open-pit mines.. This line of trucks became the “Gold Standard” of the mining industry from 1963 to the late 1970’s.

In both the “old “ and “new” Unit Rig, competition caught up with their innovative products and Unit Rig was not successful in maintaining a high market share. I do not know what happened during the early oil field days, because I was not there, but in hind sight I do believe that the “new” Unit Rig could have maintained its advantage, for many more years, in the off-highway truck business. In the course of writing this history of Unit Rig, I will try to convey, *in hind sight*, what Unit Rig might have done to better maintain that competitive edge.

In the mid 1960’s, Unit Rig hired an engineer named John Neighbors. I was assigned to introduce John to the people in the Engineering Department and to show him around the company. At lunch, that day, I asked John what his first impressions were of Unit Rig and he said, “Unit Rig will not have any problem reaching a high level of success, because they have good people and a good product that is needed and accepted by their customers. The problem is that I do not think that Unit Rig will be able to handle and maintain that success.”

John’s prediction was correct; it was a lot harder maintaining a high level of success than it was reaching that level. Key people retired, or died, or just left the company and were not replaced with the right people. And things happened at our parent company over which we had no control. But this does not take away from the 50 years of success that was accomplished by dedicated, hard working overachievers who were winners because they made things happen. This is the story of Unit Rig & Equipment Co. based on my research, 42 years working for Unit Rig and input from many other people.

Jerry A. Shelton

WHY A NEW COMPANY?

WHAT WAS THE MOTIVATION?

When I started writing the history of Unit Rig, I asked myself these questions, *Why did the founders start a new company? What was their motivation?* Why, in the middle of the great depression (1929 to 1941) did the founders of Unit Rig leave good jobs and begin this new venture. All of the founders are dead, so it is impossible to be sure of their motivations, but I have gathered enough information to make an educated guess.

Unit Rig was founded as a partnership in 1936 by **William (Bill) C. Guier, Hugh S. Chancey and Jerrold (Jerry) R. Underwood**. Nineteen thirty-six was right in the middle of the Great Depression that started in 1929 and lasted until the United State's entry into World War II. This was a time, in the history of the United States, when any job was hard to find and good jobs were almost impossible to find. All three of Unit Rig's founders had good jobs. William C. Guier was Vice President of Engineering and Manufacturing at Cardwell Manufacturing Products Company in Wichita, Kansas. Hugh S. Chancey also worked for Cardwell and was Sales Representative for the Oklahoma Sales Area. Jerry R. Underwood was a partner in the Kelly-Underwood Bridge Building Company, located in Granby, Missouri, as well as the owner and President of a bank in Granby. What motivated Guier and Chancey to leave their good jobs to start a new company and what motivated Underwood to invest in this new venture?

HUGH S. CHANCEY

Hugh S. Chancey was born July 23, 1903 in Sulphur Bluff, Texas, about 35 miles southeast of Paris, Texas. At age 17, he started working in the oil fields. Early in his career he moved into sales and worked for a number of companies that were involved in the oil industry, including Cardwell Manufacturing Products Company, in Wichita, Kansas. He married Grace Henden, of Granby, Missouri, in 1925.. He died August 21, 1955 at the age of 52. Entombment is in the Mausoleum at the Rose Hill Cemetery in Tulsa, Oklahoma. Two of the honorary pallbearers were Paul Courtney, former President of Unit Rig and T. J. (Tommy) Peery a long time employee of Unit Rig. At the time of his death, Mr. Chancey was President and owner of Portable Drilling Co., and Vice-President, Treasurer, and co-owner of Gackle Drilling Co., Inc. Gackle Drilling Co. had offices in Fort Worth, Texas and Hobbs, New Mexico.

I did not know Hugh S. Chancey. But the fact that early in his career he moved from what was probably, a roughneck job into sales, says to me that he was ambitious and smart. Like all good salesmen, he probably was always looking for an angle that would give him an advantage over his competitors. There were indications that he was also a bit of a maverick;. If that was true, he probably was the type of person who would rather own a company than work for a company owned by someone else.

I think that the original idea for starting a company to build a unitized drilling rig and another company to operate this new concept in drilling rigs probably came from Hugh S. Chancey. He would have been 32 years old when he got together with Bill Guier and Jerry Underwood and started Unit Rig and Portable Drilling. I do not know where the idea for a unitized drilling rig originated but it really does not matter. Maybe it was Hugh Chancey's idea, or maybe someone suggested it to him. Chancey may have taken the idea to Bill Guier and together they may have taken it to the President of Cardwell, who may not have been interested in pursuing it. But that is not important. The important thing is that Chancey, Guier and Underwood took the idea and made it happen.

I think that Chancey wanted to get into the contract drilling business and believed that a unitized drilling rig would give him the advantage that he needed to get started, and be profitable in that business. Thinking like a salesman, he would have concluded that *all* that he needed to pull this off was someone to design and build the new rig, someone to put up the money and he would do the rest. I am sure that he had good contacts with Caterpillar and Twin Disc, because he sold their equipment as part of Cardwell's product line. He would have used those contacts to get Caterpillar and Twin Disc to help finance this new venture. His brother-in-law, the brother of his wife, Grace Henden, worked at a bank in Granby, Missouri. The president of that bank was Jerry Underwood. Who would become a partner in the new companies and Underwood's bank would be another source of money for financing the new companies.

So, Hugh Chancey's motivation probably was wanting to be his own boss and a chance to make a lot of money in the contract drilling business. He was willing, even during the great depression, to take the risk of leaving a good job so that he would have that opportunity. That is what smart, ambitious people do.

JERROLD (JERRY) ROSCOE UNDERWOOD

Jerrold (Jerry) R. Underwood was born in 1878 and died in 1946. He is buried in the Granby Cemetery in Granby, Missouri. He was a partner in a bridge building company named Kelly-Underwood and owned a bank in Granby that was probably named Bank of Granby. He may also have been an ore assayer. Today Granby is a town of about 2,100 people and is located in southwestern Missouri, a few miles east of Neosho on U. S. Highway 60. The sign on the water tower states: "Oldest mining town in the southwest," remembering the days when the mines near Granby produced lead and zinc.

On November 8, 2006, I drove from Tulsa to Granby to see if I could uncover any information about Jerry Underwood. I left Tulsa early enough so that I could have breakfast in Granby. My thought was that I might run into some old timers, like myself, eating breakfast who might remember Jerry Underwood, even though he had died 60 years earlier. On Main Street I found a Café in which I could have breakfast. The young waitress walked up to my table, took one look at me and said, "I bet you are one of those kind of guy that has to see a menu before you will order." Without taking my eyes off of

her I said, "Two eggs over easy, bacon, whole wheat toast, milk and orange juice." She smiled and replied, "That works for me."

Sure enough there was a table with 6 or 7 men sitting around discussing the mid-term elections that had been held the day before. I decided that they were having too much fun talking politics to be interested in my problem, so I just ate my bacon and eggs, paid my bill and walked outside.

A little ways down Main Street I found the Granby Historical Society, located in the Granby Miners Museum. After signing the register and getting no response from ringing a bell for assistance, I walked to the back of the museum where I met R. J. Savage. To my surprise, R. J. did remember Underwood and thought that he, R. J., was about 10 years old when Jerry Underwood died. We spent the next half hour sitting in the office discussing Mr. Underwood. That is when I learned that Underwood had been a partner in the Kelly-Underwood Bridge Building Company. While we were talking, Dixie Hasse walked in and R. J. introduced her as, "Granby's Historian". Dixie Hasse also remembered Jerry Underwood. I asked her if Underwood was only involved in the financial end of the bridge building business. She said that if there was a bridge being built, Jerry would be out at the work site, working or supervising. One of the people who worked at Jerry Underwood's bank was a Mr. Henden, who was the brother of Grace Henden who was married to Hugh Chancey, one of the partners that formed Unit Rig & Equipment Co.

Stan Storer, an ex-Unit Rigger that lives in Tulsa and at one time lived in Granby, came up with some additional information concerning Jerry Underwood from the Internet. Underwood attended the University of Missouri, School of Mines and Metallurgy in the late 1800's. In 1899 he authored a dissertation for his Bachelor's Degree Thesis in Mining Engineering. The title was, "Some Quantitative Experiments on the Electro-Depositions of Copper." This indicates that Jerry Underwood may have graduated from the University of Missouri, in 1899.

R. J. and I walked down the street to the current bank, Community Bank & Trust, which is in the same location as was Jerry Underwood's old bank, the Bank of Granby. At the bank we talked to the bank's President and learned that Underwood's bank closed down a few years before he died. A couple of years later, another bank opened up in the same location. R. J. thought that this bank was named either the Citizen Bank or Citizen State Bank. This was followed by the current bank, Community Bank & Trust. None of this banking information is important except that it probably precludes any chance of finding any records of Underwood's bank's involvement in forming Unit Rig and Portable Drilling. Jerry Underwood and his wife Jenny Henden Underwood had no children, so this was probably a dead end for obtaining more information.

In talking to R. J. and Dixie, I did get a feel for Mr. Underwood who, unlike the other two partners, did not have to leave his job to get involved with the drilling rig venture. I am guessing that Jerry Underwood was an intelligent, hard working, entrepreneurial type who worked hard at surviving during the depression. He built bridges, owned a bank,

loaned money for various projects and my sources in Tulsa indicated that he was an ore assayer for the mines near Granby. I can find no record of his direct involvement in the day to day business of Unit Rig, but he seemed to be the type that would have kept a close watch on how his money was being spent. I know that he was a partner until his death because the two surviving partners, Bill Guier and Hugh Chancey had to go to court to decide on who would control Unit Rig and Portable Drilling.

Jerry Underwood would have been 58 years old when he got involved with the forming of Unit Rig & Equipment Co. and Portable Drilling Co. His motivation was probably that it was just another way to make some money during the Great Depression.

WILLIAM C. GUIER

William C. Guier was an innovator and inventor. He seemed to be one of those rare people who could not look at a man-made object or procedure without seeing a way to improve it. His innovating and inventive ways took him from; the design of drilling and pipe line equipment, to a machine to blow a sand, mortar and water mixture on the side of his concrete block house, to new ways to handle a string of drill pipe, to inflatable "Pigs" for use inside of pipe lines, to his golf swing trainer (The Pro-Trainer) and his adjustable golf putter that allowed the golfer to adjust the weight and shaft of the club. He worked with W. C. Coleman, founder of the Coleman Lamp Company and Lloyd Stearman who started the Stearman Aircraft Company. He truly was a man of many interests.

William C. Guier was born in Reno County, Kansas August 21, 1898. He died on February 13, 1986 and is buried at Memorial Park Cemetery in Tulsa, Oklahoma along with his mother Fannie May Guier, his father George F. Guier and his wife Dorothy E. Guier.

Reno County is a few miles north and west of Wichita, Kansas. In the very early 1900's, his father bought an interest in the White Mercantile Company, a hardware store in Henryetta, Oklahoma. Later Bill's father was in the real estate business and worked in a furniture store. Bill made money, while growing up, by trapping muskrats for their fur. He joined the U. S. Navy in 1918 where he was trained as a radio technician. After the Navy, he studied at Fairmont University in Wichita. It appears that his studies did not include engineering. He worked at Laird Aircraft Company. He got his first introduction into the oil industry at White Eagle Oil and Refinery Company. In 1929 Bill became Chief Engineer for Cardwell Manufacturing Company.

Bill Guier was 37 years old in 1935 when he moved to Tulsa to start putting together Unit Rig. The new company was formed in 1936 and Bill Guier rented a room in the basement of the Wheatley Brothers Pump and Valve Company and started designing the Unit Rig U-10 unitized rotary drilling rig. The Wheatley plant was located at what was then known as Hales Station on the Sand Springs Interurban Line that ran between the cities of Tulsa and Sand Springs. Wheatley was a manufacturer of pumps and valves for the oil

industry. The Wheatley Company has since been purchased by another company, but the old plant building is still there.

Bill Guier remembered the summer of 1936 when he was working in the basement of the Wheatley plant. The weather was very hot that summer and Bill's rented office became a steamy sauna making it very hard to work. Bill reported that Frank Wheatley, President of Wheatley Brothers, would occasionally help Bill alleviate the problem by bringing him a pint of whiskey.

The following paragraph is from Bill Guier's autobiographic notes, dated December 12, 1984.

"My experience with Cardwell from 1928 to November 1935 was about enough to give me an itch to try it on my own. An opportunity presented itself. Chancey, who was Cardwell's Oklahoma sales representative and a banker, Underwood, organized two companies, one a manufacturing company to be run by Guier, and a drilling company to be run by Chancey. I was to design and have built a rotary drilling rig to do contract drilling. The manufacturing company was named Unit Rig merging "Unit" and "Rig" each of which is a recognized term in the drilling field. The drilling company was to be known as Portable Drilling Co., Inc."

From the way that Bill's autobiographical note is worded, it indicates the original idea, for Unit Rig, was Hugh Chancey's and that Bill Guier's motive for getting involved with this new company seemed to be that he had an "itch" to run his own company.

A NEW COMPANY IS BORN.

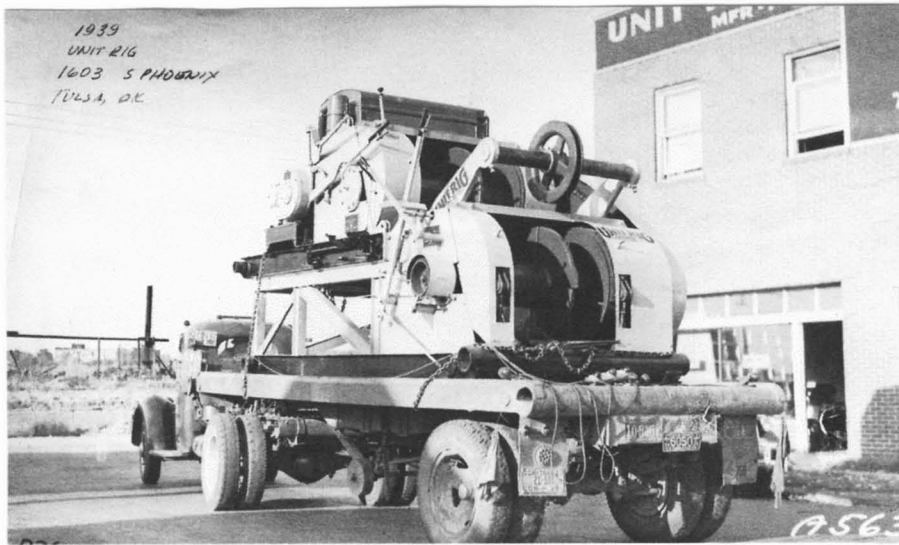
Unit Rig & Equipment Co. was formed as a partnership in early 1936 by William C. Guier, Hugh S. Chancey and Jerry R Underwood. The partnership's total funding was \$27,000.00, which included money borrowed from Caterpillar Tractor Co. and Twin Disc Clutch Co. The balance of the \$27,000.00 probably came from Jerry Underwood's bank in Granby, Missouri. But there is also the possibility that Bill Guier and Hugh Chancey put some of their own money into this venture.

William C. Guier had been Vice President of Engineering and Manufacturing for Cardwell Manufacturing Products Company, which was located in Wichita, Kansas and Hugh S. Chancey had been Cardwell's sales representative for Oklahoma. Jerry R. Underwood owned a bank and was a partner in a bridge building company in Granby, a small town in the southwest corner of Missouri. Granby is located on U.S. Highway 60, east of Neosho, Missouri. Chancey's brother-in-law, Mr. Henden, worked in Underwood's bank and that is probably how Jerry Underwood got involved with Chancey and Guier.

There is no known record of the break-down of the \$27,000.00 that was used to start Unit Rig and Portable Drilling, but we do know that Caterpillar, Twin Disc and Underwood's bank were involved. The fact that Guier used Caterpillar tractors in his design of Cardwell's pipe laying equipment and that H.W. Cardwell was owner of the H.W. Cardwell Tractor Company, a Caterpillar dealer in Wichita, would have provided Bill Guier and Hugh Chancey with very good connections at Caterpillar. This probably was the reason that they went to Caterpillar for part of the \$27,000.00. There may have been a similar connection with Twin Disc. The reason for moving to Tulsa, was probably because Tulsa was getting the reputation of being the Oil Capital of the World and what better place to start a new oil field equipment company. Also, Hugh Chancey probably had made many trips to Tulsa, representing Cardwell and liked this booming oil town.

Guier and Chancey's idea was to design and manufacture a unitized drawworks and engine compound that was capable of drilling a medium depth oil well. By mounting the drawworks and engine compound on one common frame or skid, the rig could be more easily moved from one drilling location to another. The manufacturing company was named Unit Rig & Equipment Co., with Bill Guier in Charge. The first unitized drilling rig would be named the U-10. The sister company, Portable Drilling Company, headed up by Hugh Chancey, would put the first U-10 into operation.

Later, in 1936, as the U-10 design progressed, Unit Rig moved to a small, two story building at 1603 South Phoenix Ave. in West Tulsa. The building formerly housed the 7 Up Bottling Company and was torn down a few years ago to make room for the Oklahoma State University's College of Orthopedic Medicine. The following photograph was taken in 1939 in front of the Unit Rig's office and manufacturing facility, located on Phoenix Ave. The photograph shows a U-17 service hoist attached to a U-19 auxiliary spudder loaded on a flatbed truck, ready to be shipped to the field. The land that the building occupied is now part of the OSU/COM campus.



U-17 service hoist attached to a U-19 Auxiliary Spudder Photograph taken in 1939, at Unit Rig's Plant located at 1603 S. Phoenix Ave, Tulsa

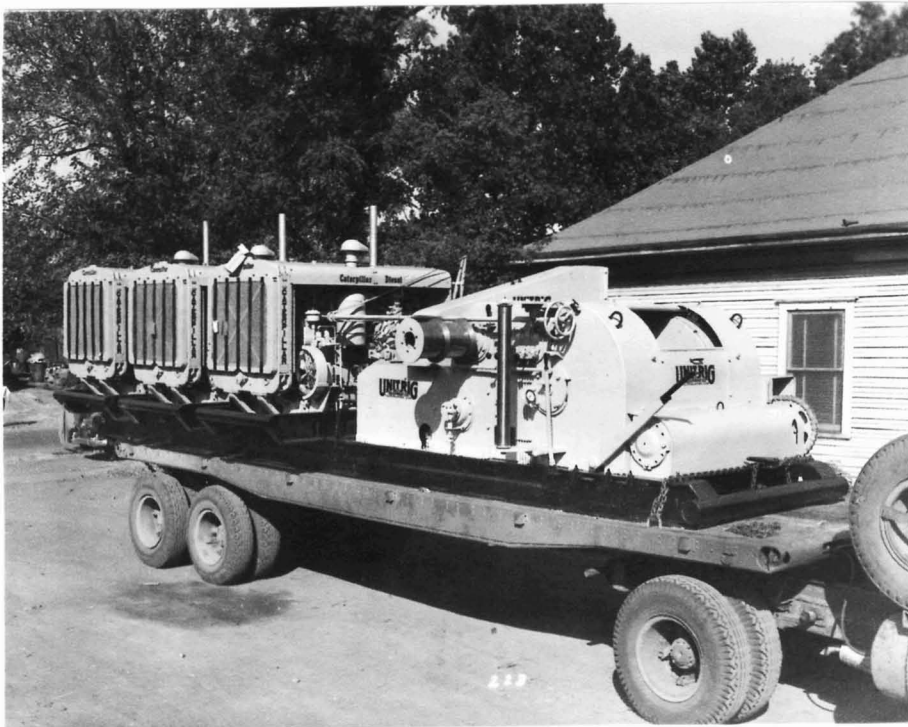
One of the first people who Bill Guier hired was an engineer named Bob Brown. Bob worked for Unit Rig for a few years and then moved to Ideco. One of Bob's main assets was that he was incredibly fast at making a drawing using a Kerr fountain pen. In 1936, Ray Eldon Carter left Cardwell and joined Unit Rig as Chief Engineer and Partner. Ray was 29 years old.. Other engineers to leave Cardwell and join Unit Rig were Earl Johnson and Fred. C. Schubert. Earl Johnson became Assistant Chief Engineer in August, 1951 after Ray Carter became President. Later, in 1955, he would transfer to Loffland Brothers Drilling Company where he finished his career. Earl Johnson hired the author, Jerry A. Shelton, in November, 1951.



Fred C. Schubert's retirement party in the basement of the Elks Club Building, 1951

Front row, left to right: Kenny Tate, Lester Updegraff, Mrs. Schubert, Fred Schubert, Maxine Osborne and Don Gaddy. Hubert McAulay, Craig Doennecke (standing against the wall behind Hubert), Tom Moughon, Earl Johnson, Unknown, Jim McClellan, Jesse Vint, Jr., G. A. Tomlinson, Jack Smith and Jim Ellison. The lady looking over Fred's shoulder is Maxine's sister, Pauline.

The basic fabrication of the U-10 was done at the Patterson Steel Company plant in Tulsa and the balance was manufactured at the Wheatley Plant at a flat rate of \$1.80 per hour. The first U-10 was completed in 1937 and was used by the Portable Drilling Company to successfully drill the company's first well. The well site was near Oklahoma City and they drilled to 5,500 Feet using 4 ½ inch drill pipe. This was 1,500 feet deeper than the U-10 was rated. The improved U-10, called the U-15, had larger engines and could drill to 10,000 feet. This was a good beginning for the two new companies.



One of the first U-10 Portable Rotary Drilling Units, powered by three Caterpillar Engines.

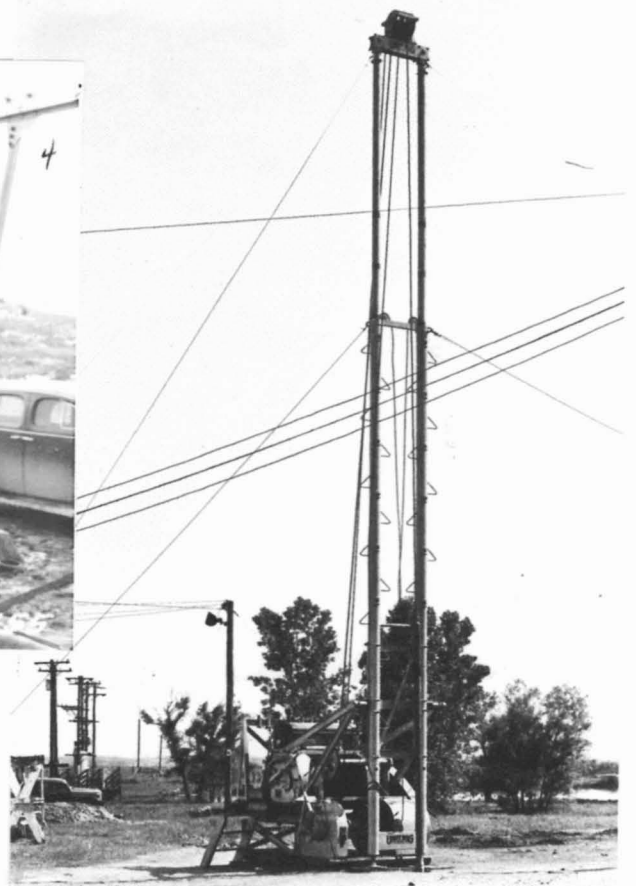


U-10 equipped with two Caterpillar Engines. Photograph was taken at Unit Rig's plant at 1603 S. Phoenix Ave in Tulsa. License on the truck is Oklahoma Tag Number 744-025, dated 1938

Unit Rig U-17/U-19
Oil Well Servicing Unit.



U-20 Telescoping Mast
With a U-17/U-19 well serving unit



Author's note: In the early 1950's, after Bill Guier and Ray Carter left Unit Rig there was a story that I was told about the shipment of the first U-10. There is no way of knowing if it is true and I do not think that it reflects, in a negative way, on either Bill Guier or Ray Carter. It just reflects the personality of these two very talented men. The story goes that after the first U-10 was assembled and tested; Bill Guier was ready to ship it to Portable Drilling Company so that they could test the new design under actual drilling conditions. But every time they got ready to ship the new rig, Ray Carter found something that he wanted to change to improve the product. After weeks of changes and delays, Bill Guier suggested to Ray that he needed to take the weekend off to gather his thoughts and then come back Monday ready to finalize all of the changes that he thought needed to be made so that they could ship the U-10 to Portable Drilling. So Ray took the weekend off, and you guessed it, Bill shipped the U-10 to the field over the weekend. There is no proof that the story is true; but it does seem to reflect the personalities of the two men.

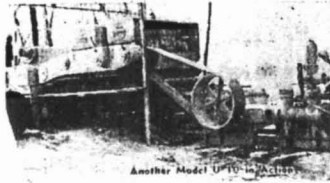
The U-10 was quickly accepted by the oil well drilling industry. Its oil tight chain cases and the well planned transmission gave the U-10 a streamlined look compared to the crude look of the 1920's vintage rigs that were still in operation in the 1930's. The U-10 design employed Bill Guier's two rules for successful innovation: 1) Keep it simple and 2) pay attention to the appearance of the product.

The U-10 portable rotary drilling unit was featured in a Unit Rig advertisement that appeared in the 1940 Oil Show Daily newspaper (See next page). The ad also included: the U-17 Service Hoist, the U-19 Auxiliary Spudder, the U-16 Combination Rotary and Cable Tool Rig, as well as several different models of the U-10. Unit Rig was not just sitting on its hands with the successful U-10; they continued to look at new and better products.

After a couple of years, what few "bugs" were uncovered on the U-10 were eliminated and an updated drawworks was designated the "U-15". The July-August 1953 Mid-Continent News magazine featured the 1953 Tulsa Oil Show (Two pages forward).. In this magazine, there is a photograph showing the 500th Unit Rig U-15. That is a really amazing accomplishment, since the 1940 Oil Show advertisement for Unit Rig did not mention the U-15. The U-15 must have been introduced in the early 1940's. The 1953 Oil Show was 13 years later and if you consider that World War II took over three full years of production away from Unit Rig's drilling rig business, that would indicate that Unit Rig produced about 50 U-15 per year for 10 years. *(There is also a chance that the 500 U-15's included the U-10's that were produced before the U-15 went into production).* It is a real tribute to Bill Guier, his Chief Engineer Ray Carter and all of the people who worked at Unit Rig, that they could produce and sell that many U-15's from the early 1940's until 1953.. In the mid 1980's many U-15's were still in operation and some may still be in operation today.

There were other products such as the U-12, which was the rear portion of the U-15 which made a chain drive transmission with a reversing capability, the "Automatic Cathead," that when engaged by the driller would pull the catline (which was attached to

the breakout tongs), one turn and then automatically release, the U-20 Telescoping Super Mast, (Not to be confused with the U-20 Drawworks that would be introduced in the late 1940's)



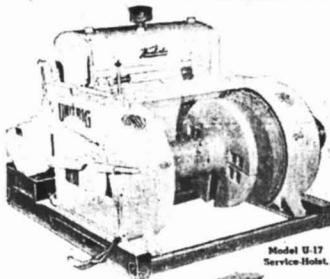
Another Model U-10 in a well site.



Model U-10 Single Engine hook-up can be mounted on truck or trailer.

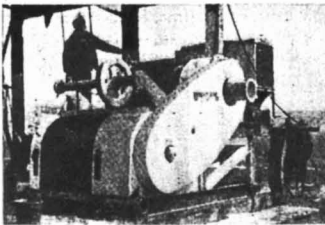
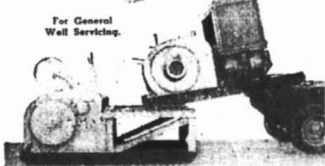


Model U-10 Three Engine hook-up loaded intact. For deep drilling and exploration service.

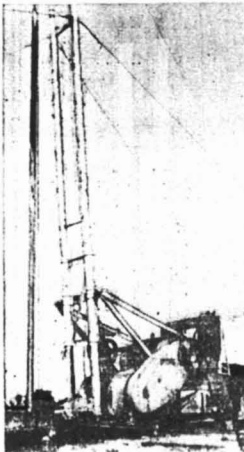


Model U-17 Service-Holet.

For General Well Servicing.



Models U-17 Service-Holet, and U-19 Auxiliary Spudder Unit Attached for Double Drum Service.



Model U-20 Telescoping Super Mast with Unit Rig U-17 and U-19 Combination in General Well-Servicing Use.

UNIT RIG

"Designed for the Job"

More Speed and Power



With "Flexible Speed Control" for All Depths

The Last Word in PORTABLE ROTARY UNITS

STRONG . . . SAFE . . . DEPENDABLE! FULLY ENCLOSED OIL BATH CHAIN DRIVE TRANSMISSION SYSTEM. Can be moved intact in one load.

The Model U-10 is available with UNIT RIG AIR-O-MATIC Friction Clutches, which eliminate every adjustment on the rig, with exception of a single brake equalizer. Features of the Air-O-Matic clutch include . . .

- Simplicity of design. No toggles to wear. Only one motivating part. Forced air cooling. Should last indefinitely.
- Finger touch control. Smooth operation results from cushioned engagement of clutch. No grabbing, regardless of skill of operator.
- Unlimited capacity.

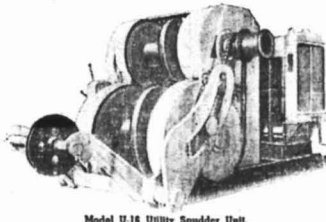
Designed, built, and proved by UNIT RIG for strenuous drilling operations.

On Exhibit at Tulsa - - - - Immediate Delivery

UNIT RIG & EQUIPMENT COMPANY

TULSA, OKLAHOMA

Export Representative: Petroleum Machinery Corp., 30 Rockefeller Plaza, N. Y.



Model U-16 Utility Spudder Unit.



Model U-16 - Combination Rotary and Cable Tool Rig.

Unit Rig advertisement that appeared in the "The Oil Show Daily" May 21, 1940



A BACK VIEW of the Unit Rig Golden Driller shows also a part of the many exhibits at the International Petroleum Exposition. Unit Rig & Equipment Company had ten drawworks on display, including the 500th U-15 drawworks produced by the organization. Mast in foreground is Ideco Full-View Mast.

By 1941 Unit Rig had outgrown its facilities in West Tulsa and moved its offices, including the Engineering Department, to the Kennedy Building in downtown Tulsa. All manufacturing operations, including fabrication, machining, assembly, warehousing and a new service department, were moved to the old Parkersburg Supply building that was, at that time, owned by Oil Well Supply Company, located at 11 N. Elwood Ave, between Denver Ave and Elwood Ave , and between Archer Street and the railroad tracks. An article in The Oil Show Daily newspaper dated May, 1940 states, “----- one of Tulsa’s largest industrial real estate transactions was announced at the International Petroleum Exposition Monday in the purchase of the plant and equipment of the Oil Well Supply Company by Unit Rig & Equipment Company. This is said to be one of the largest buildings in the southwest devoted entirely to the manufacturing of equipment. Hugh S. Chancey and William Guier, principal owners of Unit Rig and Equipment Company, stated that the purchase of the new plant was necessitated by the increase of business and need for more space. The company manufactures a complete line of modern, streamlined drilling equipment and well-servicing units”.



UNIT RIG & EQUIPMENT CO.
TULSA, OKLAHOMA

INSIDE THE MANUFACTURING PLANT AT 11 N. ELWOOD AVE.

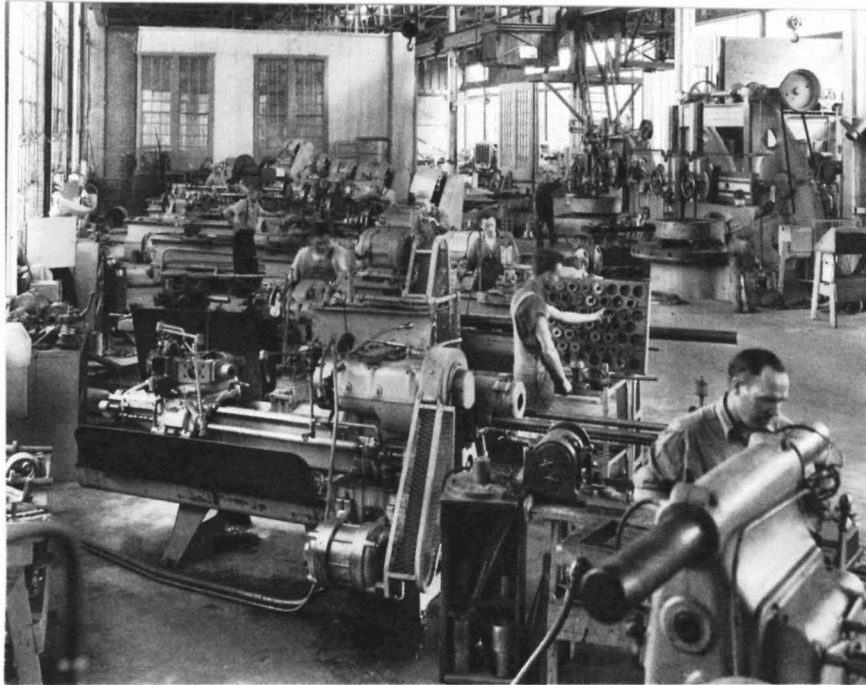


ASSEMBLY DEPARTMENT



WELD SHOP

INSIDE THE MANUFACTURING PLANT AT 11 N. ELWOOD AVE.

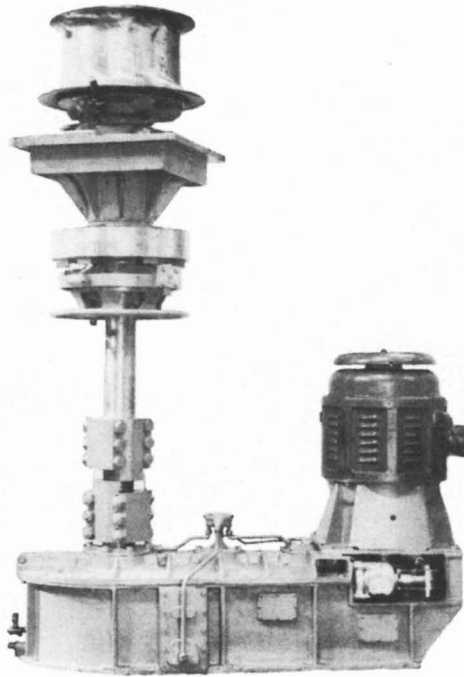


MACHINE SHOP

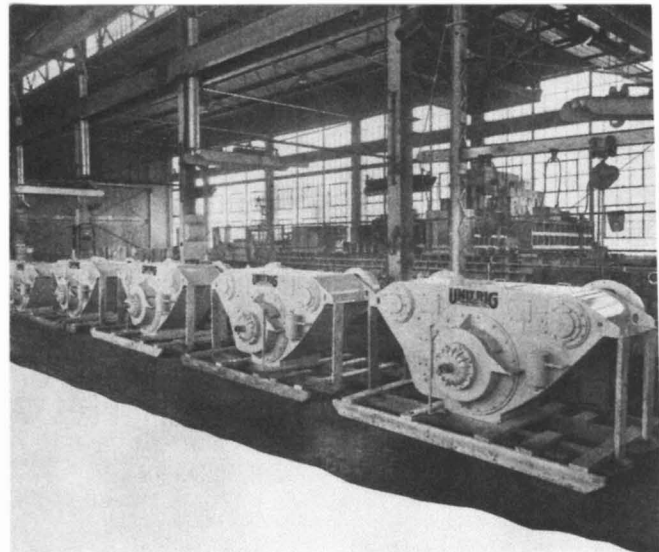


MACHINE SHOP

The six year old Unit Rig & Equipment Co. was enjoying tremendous success in the growing oil industry when the United States entered World War II. Production slowed on Unit Rig's line of oil field equipment and Unit Rig threw itself into the war effort. The first project was an anchor windless for the Navy.



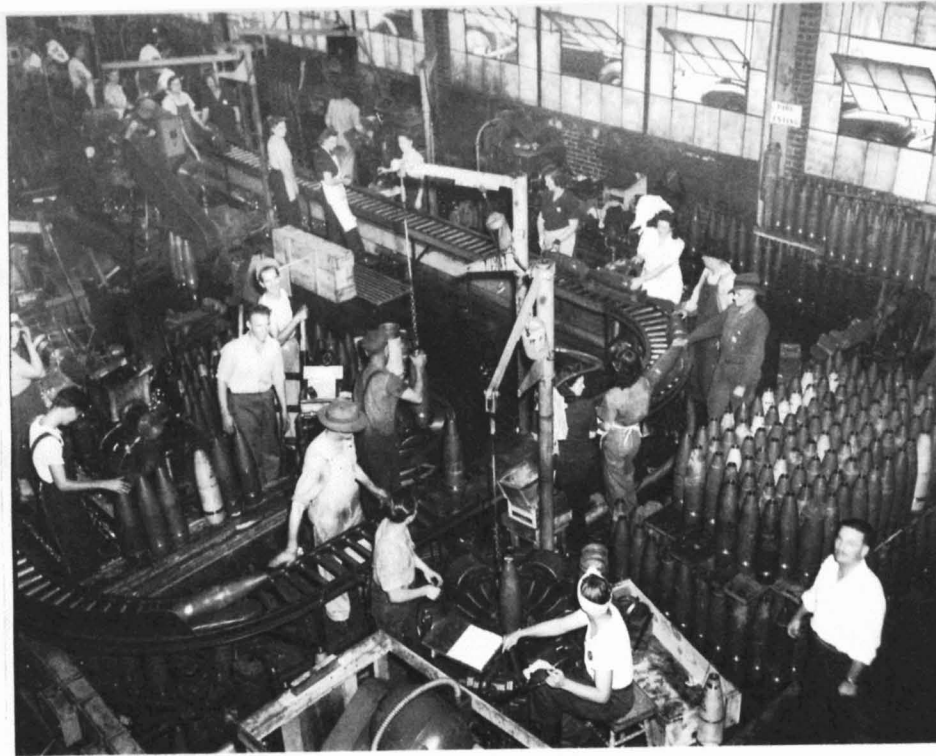
ANCHOR WINDLESS



MARINE TRANSMISSION

Next was a Bill Guier designed marine transmission. It was a roller chain transmission in a fabricated steel case which also housed the clutching mechanism for forward and reverse speeds, plus compounding of the engines. Seventy-nine of the transmissions were ordered but only sixty-five were shipped before the end of the war. When the sea trials were conducted, in the Gulf of Mexico, to test the transmission in actual operating conditions, the sea became very rough and all of the Navy officials and most of the crew of the ship got sea sick. The only people that did not get sick were the two Unit Rig representatives, Bill Guier and Ray Carter.

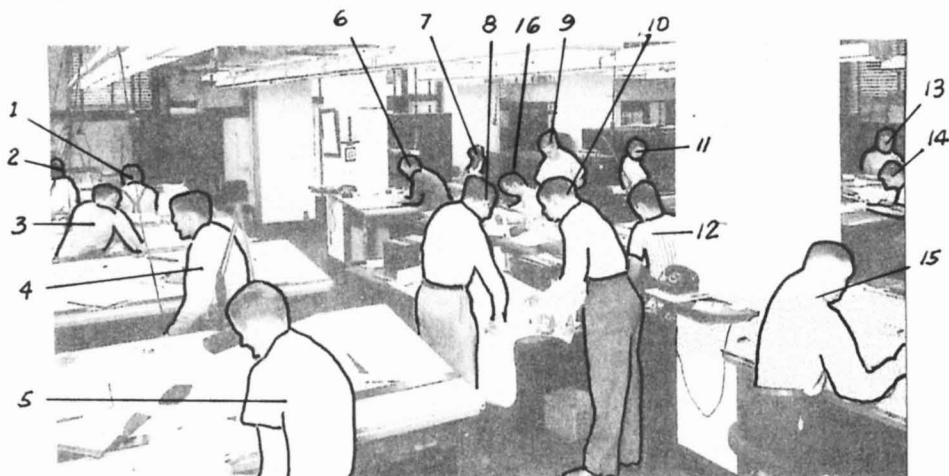
The last project in the war effort was an assembly line that produced 155mm artillery shells.



With the war over and sales going strong, everything was going well for Unit Rig-----at least that is how it looked on the outside, but on the inside things were not going so well. There was heavy friction between the partners that ended up in Court. The situation came to a head in 1947, when Jerry R. Underwood died. At the time of his death, Unit Rig and Portable Drilling Company were still a partnership and although incorporation proceedings were already in process, being a partnership gave Hugh Chancey the opportunity to sue for control of both Unit Rig and Portable Drilling. In what has been described as a dramatic courtroom scene, Bill Guier and Ray Carter, with the help of "Boots" Adams, President of Phillips Petroleum Company, gained control of Unit Rig while Hugh Chancey got control of Portable Drilling. The incorporation proceedings were completed after the law suit was settled.

Unit Rig would no longer work with Portable Drilling so a new drilling company was formed with E.A.(Ed) Smith as President. Ed was an experienced drilling expert and well prepared to head up the new company, Service Drilling Company. The new company specialized in moderately shallow wells and operated mainly in the Texas Panhandle and Osage County in Oklahoma. They eventually operated 8 to 12 drilling rigs, most of which were the new Unit Rig U-34's. Service Drilling survived the oil "bust" of the mid 1980's. After Ed Smith's retirement and subsequent death, his son Sherman ably ran the company and kept the company as one of the premier small drilling companies in the country.

Sometime after World War II, around 1948 or 1949, Unit Rig moved the Engineering Department to the basement of the Elks Club at Second Street and Boulder Ave. Jack H. Smith was chief engineer, Ray Carter was executive vice president and Bill Guier was president.



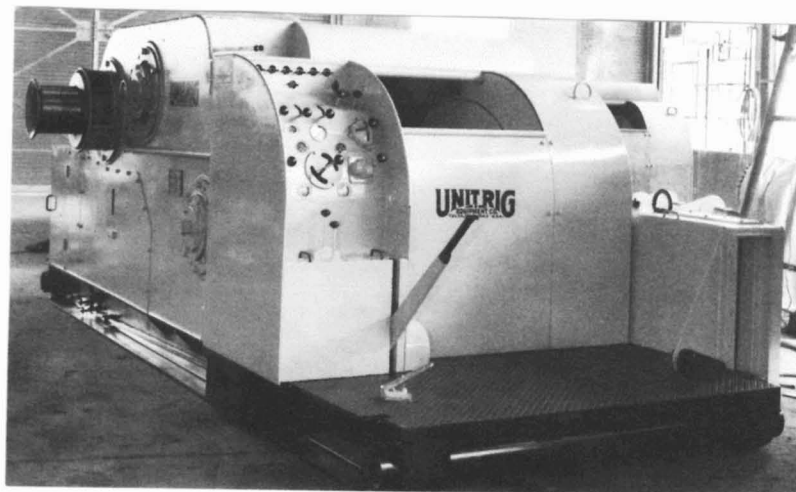
1. Fred Schubert
2. Jim Ellison
3. Jesse L. Vint Jr.
4. Craig Doennecke
5. Unknown
6. Ken Tate
7. Pauline
8. Unknown
9. G. A. Tomlinson
10. Jack Smith
11. Unknown
12. Eddy Foster
13. Maxine Osborne
14. Lester Updegraff
15. Earl Johnson
16. Jim McCellan

Work was begun on two new drawworks, a small torque converter driven unit called the U-34 and the U-30 to be used with the U-36 engine compound and designed for deeper drilling. The U-34 was a small, torque converter driven unit designed for shallow drilling. I believe that the project engineer on the U-34 was Tom Moughon. Tom was one of the more interesting people at Unit Rig.

Author's note: Sometime in the early 1950's after Tom had completed another big project. (I believe that it was the U-35 Project. It was a project that kept Tom working 12 hour days, six or seven days a week for about nine months). He was back in the Engineering Department in Tulsa, sitting at his drawing board, with his head in his hands. I walked over from my drawing board and asked him what he was going to do now that he had finished this project. Without looking up Tom asked me if I had ever been to his house. I responded that I had. Well then he said, "I would guess that you remember the front porch with the railing around the outside and the old rocking chair that is sitting next to the railing." I told him that I indeed remember the porch, the railing and the old rocking chair.

Tom raised his head from his hands and looked me in the eyes and said, "Well Jerry in about one minute I am going to get up from this chair. I going to go down stairs and get into my car and drive to my home. I going to go in the back door of the house, stop at the frig and pick up a six pack of beer and continue out to the front porch. Then I am going to sit down in that old rocking chair, put my feet on the wooden rail and open a bottle of beer. And after about six months, I am going to start rocking----- real slowly."

The U-30 was a much larger unit designed for medium drilling. I believe that Jesse L. Vint, Jr. was project engineer on the U-30. The U-34 was very successful, but the U-30 enjoyed only moderate success, maybe because it was decided to market the U-30 drawworks as a drilling rig with more capacity than the original concept.



UNIT RIG MODEL U-30

To get the product line back in balance, it was decided to design a new medium deep drilling rig, the U-20. The first U-20 was probably produced in 1950.

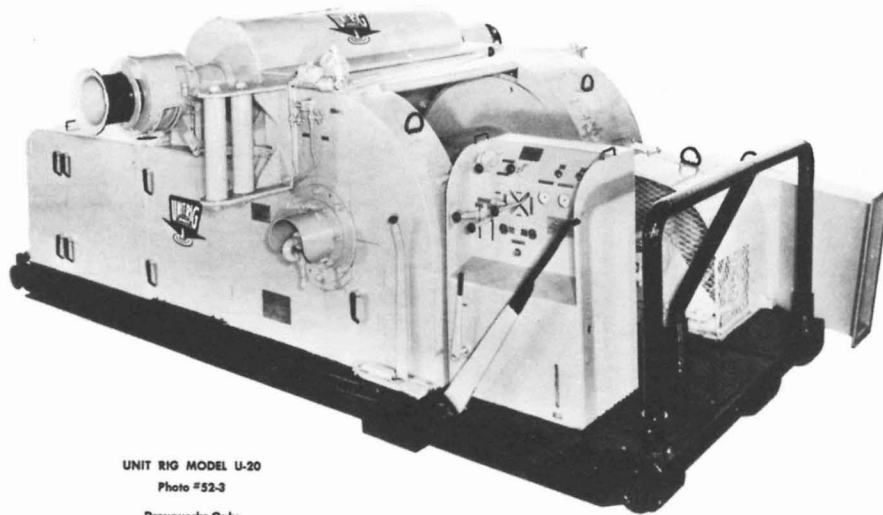
UNIT RIG AND EQUIPMENT COMPANY

POST OFFICE BOX 1889



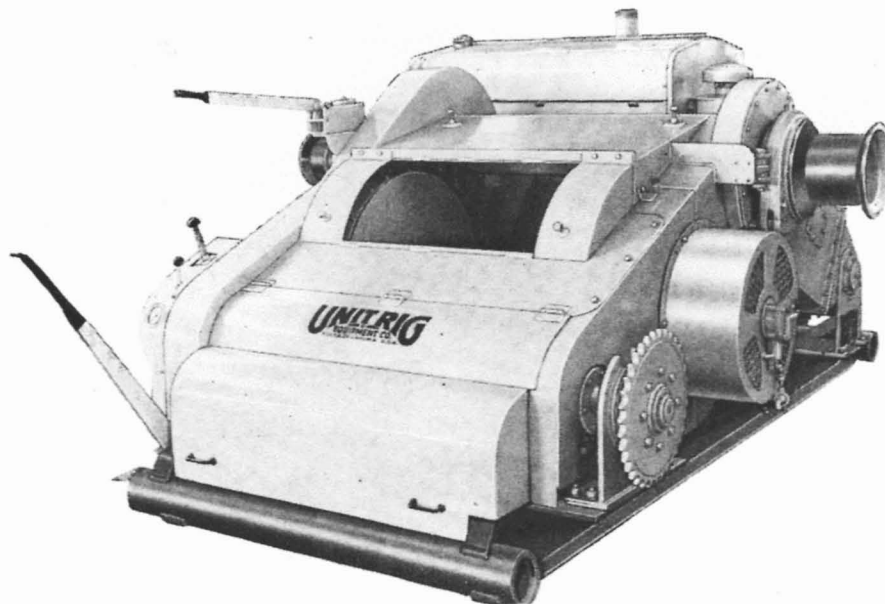
TULSA 1, OKLAHOMA

"Designed for the Job"



UNIT RIG MODEL U-20
Photo #52-3
Drawworks Only

UNIT RIG MODEL U-20



UNIT RIG MODEL U-34

A U-34 IN OPERATION IN DECEMBER, 2009

The following photograph appeared in the December 30, 2009 edition of the Tulsa World. The photograph shows a roughneck working on a drilling rig near Stroud, Oklahoma. Below the Roughnecks hands you can clearly see that the drawworks is a Mid-Continent U-34. The U-34 was designed over 60 years ago and manufactured by Unit Rig at least 30 or 40 years ago. It was this kind of dedication to quality in design and manufacturing that served Unit Rig well in both the oil business and the mining business.

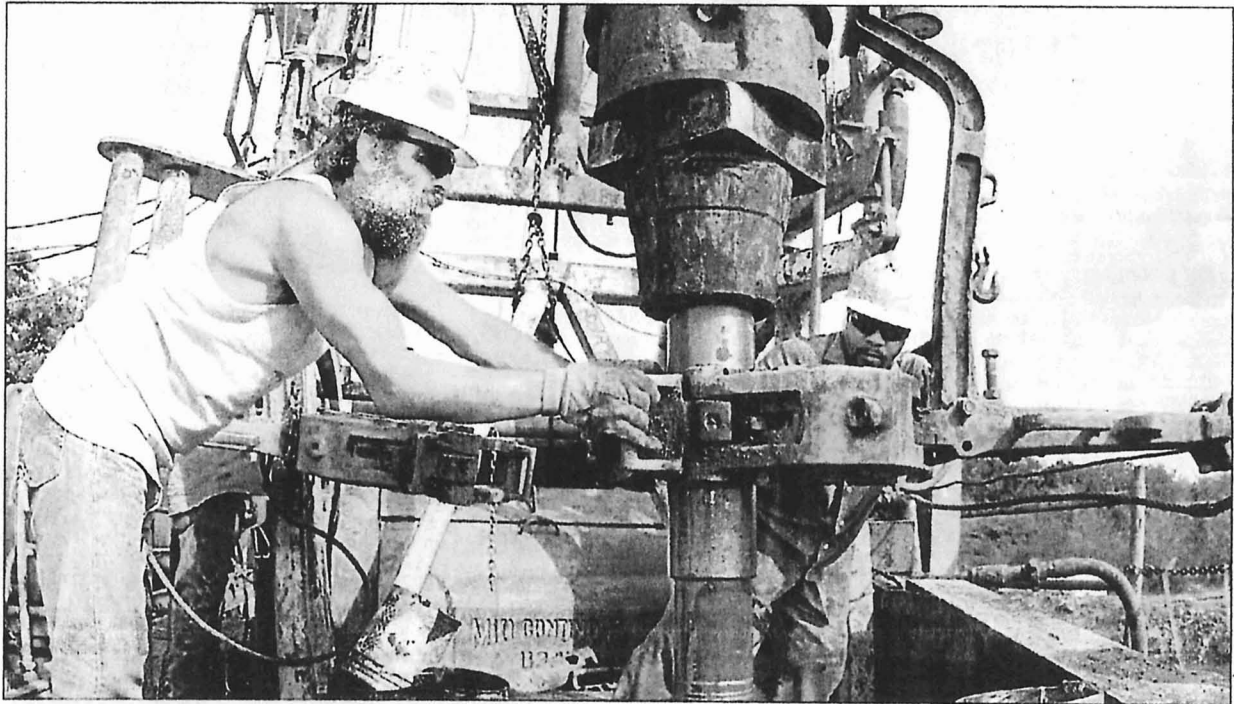
TULSA WORLD

E1 Wednesday | December 30, 2009 | tulsa-world.com

BUSINESS

Drink-serving hosts
should plan wisely. E4

Dow 30 10,545.41 ▼ 1.67 | S&P 500 1,126.20 ▼ 1.58 | Okla. Sweet \$75.25 unchanged | Natural gas \$6.01 ▲ \$0.11 | Yen per dollar ¥91.96 ▲ ¥0.37 | Gold \$1,097.00 ▼ \$10.20



In this file photo, roughnecks manhandle a new section of pipe on a well west of Stroud. A Federal Reserve economist notes that Oklahoma gets more of its earnings from energy than any other state. MICHAEL WYKE/Tulsa World file



PLANT OFFICE MAY 21, 1953

Bill Guier loved the pipeline business and thought that someday he would get back into that type of equipment. Although that did not really happen, to any significant extent, Unit Rig did nibble at the business. In the late 1940's, Unit Rig built about a dozen "Big Incher" for Crutcher, Rolf and Cummings, a big pipe line supply company that was generally known as CRC. The "Big Incher" was a large wheel type ditching machine with Caterpillar drive tracks and steel drum front wheels. Unlike the all mechanical machines of the day, the "Big Incher" featured a number of Hydraulic drives designed by Ray Carter. The appearance of the machine was rather spectacular and it was a colorful and popular exhibit at the 1949 IPE show in Tulsa.



UNIT RIG "BIG INCHER"

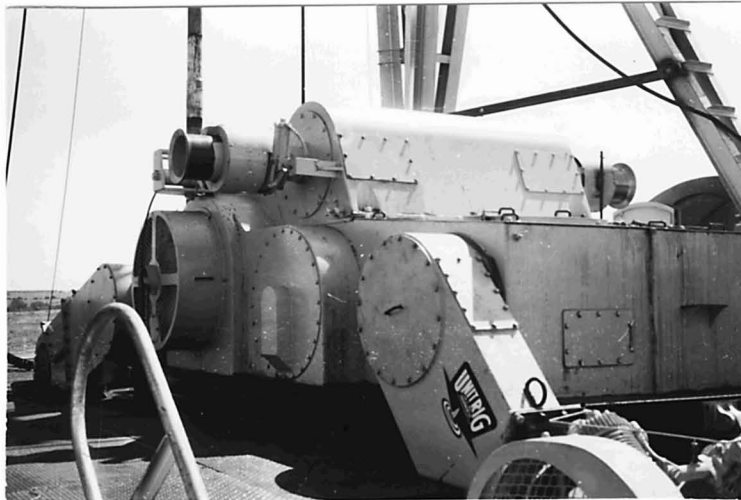
THE TRANSITION YEARS.

In January, 1951, William C. Guier and Ray E. Carter sold Unit Rig & Equipment Company to Kenneth W. Davis, Sr., of Fort Worth, Texas for a reported \$2,000,000.00. Mr. Davis, at the time he purchased Unit Rig, owned Mid-Continent Supply Company, Loffland Brothers Drilling Company, Cummins Sales and Service and several other Companies. Mid-Continent was one of the largest and most aggressive of the oil field supply companies operating at that time. Later, the Kenneth W. Davis, Sr. conglomerate would be named Kendavis Industries International, Inc.

Kenneth W. Davis, Sr., joined Mid-Continent in 1929 and within a year he bought controlling interest in the company and started building his industrial empire. He was a man without a formal education, but with an indomitable will, sound business judgment and the courage to pursue his ambitions. Ken and his wife had three sons, Ken Jr., Cullen and William. Bill Guier liked Ken Sr. and got along well with him and agreed to stay on as President of Unit Rig until August, 1951. At that time Bill Guier left Unit Rig and Ray Carter became President. The date of Ray Carter's exit from Unit Rig is not known but it was probably in May of 1953, the date that Paul Courtney became President of Unit Rig.

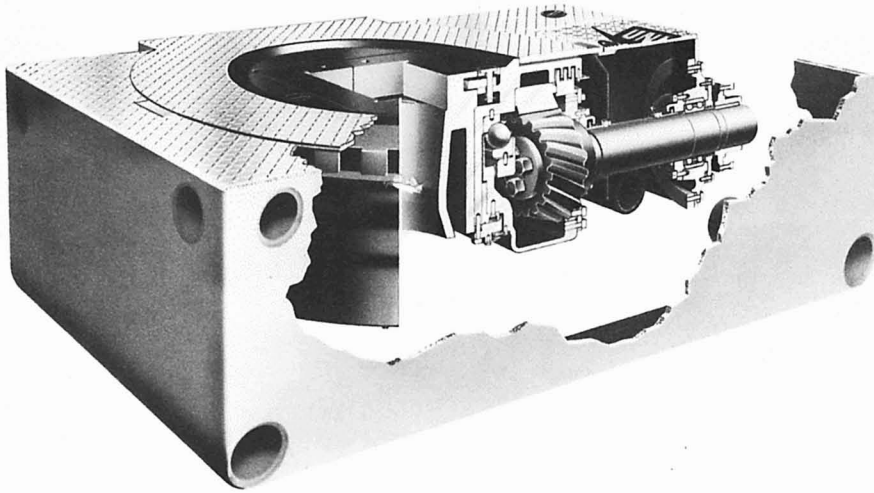
At the time of the sale to Ken Davis, Sr., Mr. Davis was having a dispute with Aeroquip Hose Company, for whom he had been a distributor. One of the first thing that Ken did after he had purchased Unit Rig, was to set up a group of automatic screw machines in a pre-fab building on the east side of the Unit Rig manufacturing complex, and started his own hose and hose fitting company to compete with Aeroquip. This new company would be named Stratoflex Inc. Stratoflex Inc. became a very successful company.

Unit Rig continued to design new equipment. In 1952 they introduced a new draw works, the U-40. Jesse L. Vint, Jr. was project engineer on the U-40. A number of "Rock-Over" trailer mounted pumping units were produced and several new engine compounding units.

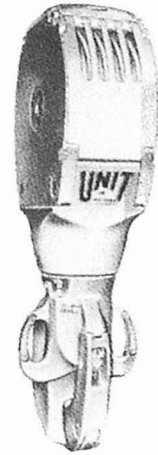


UNIT RIG MODEL U-40

Two new products lines were also introduced; Traveling Blocks and Rotary Tables.

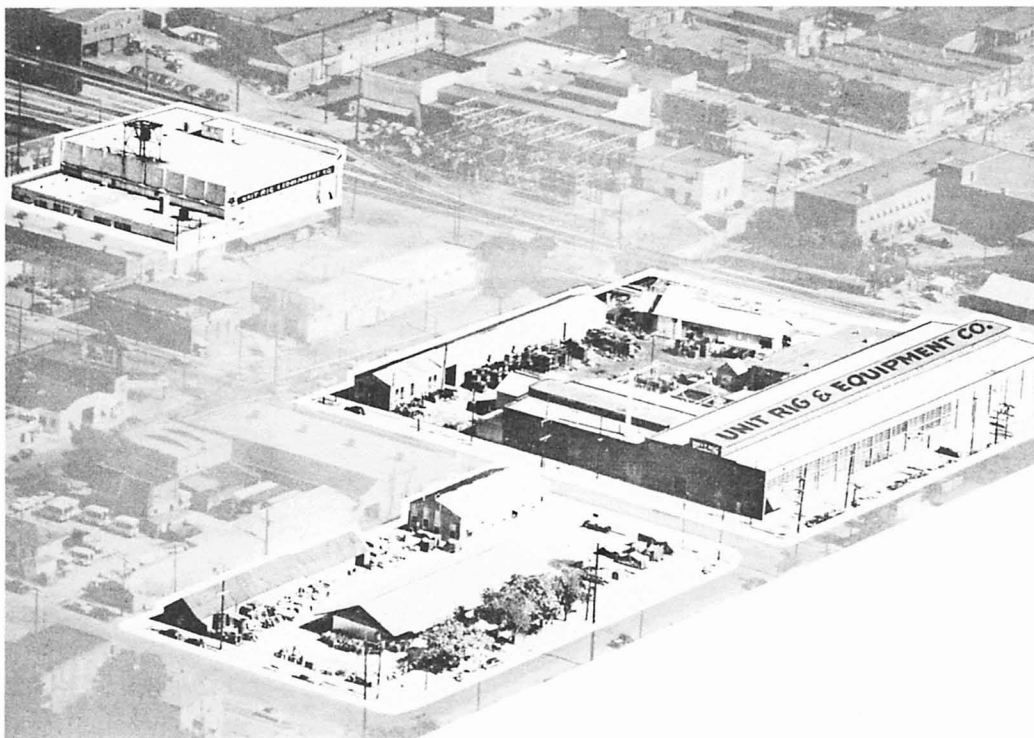


ROTARY TABLE



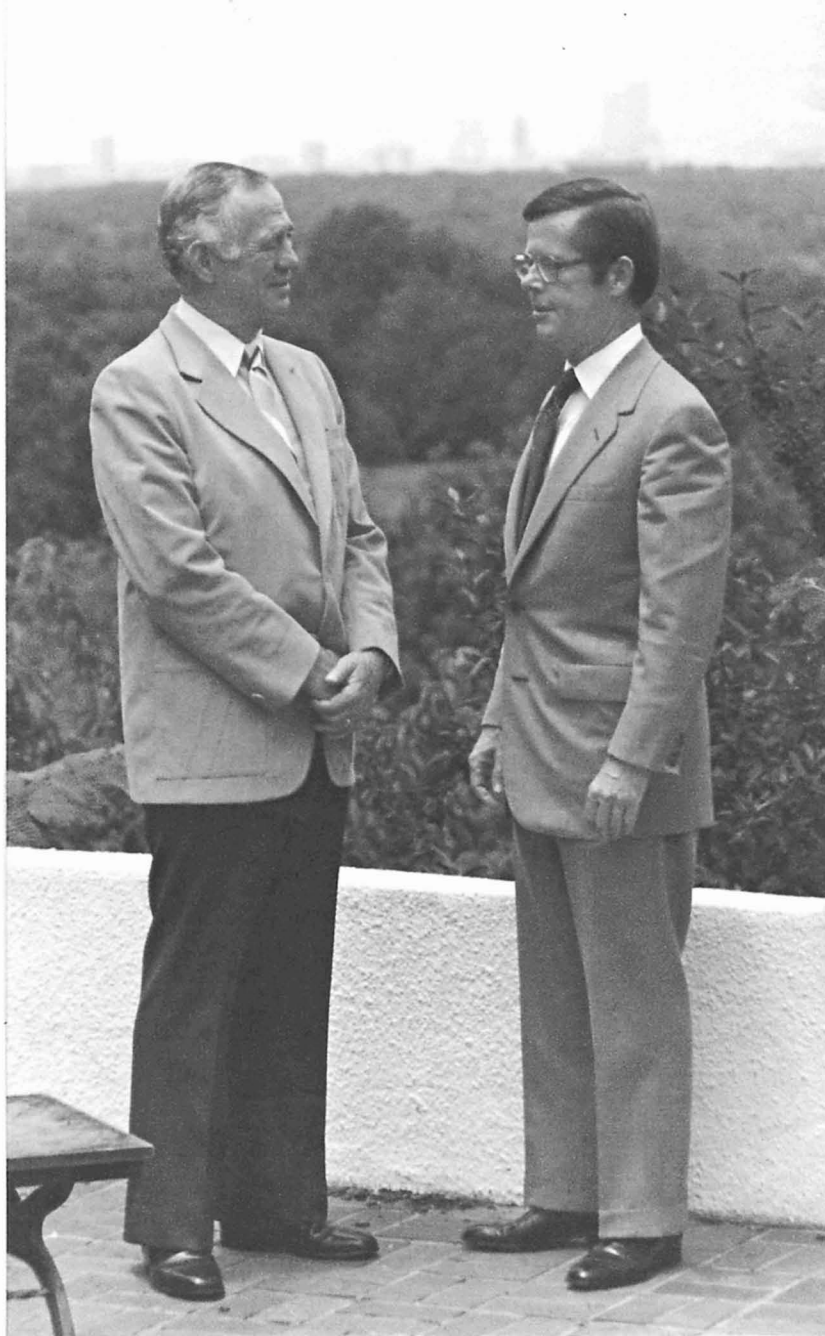
**TRAVELING
BLOCK**

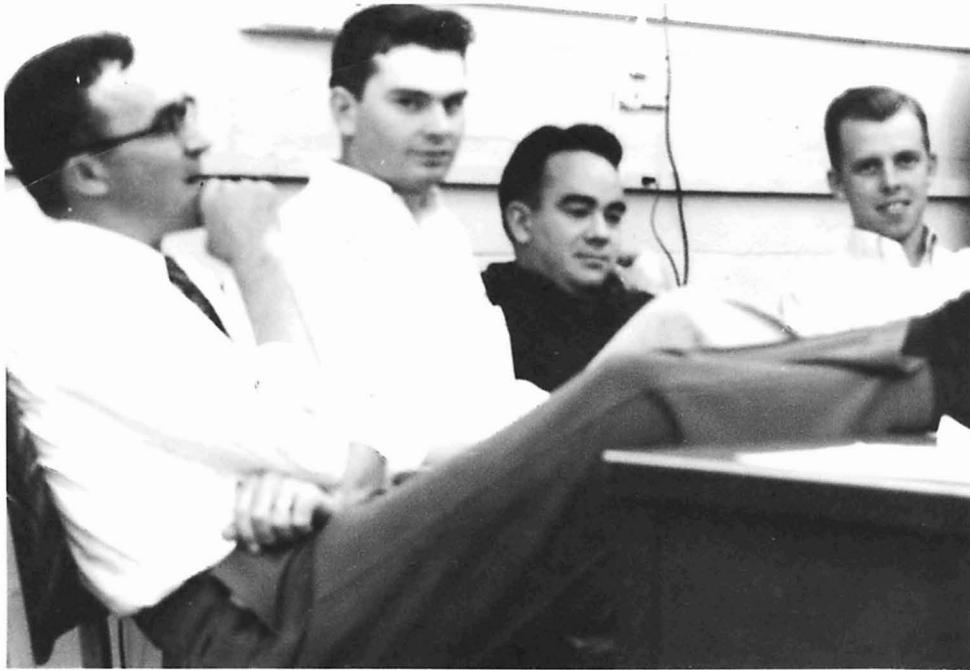
Later in 1953, Unit Rig moved all of their office functions from the Kennedy Building and the Elks Club, to the Oklahoma Tire and Supply Company's old warehouse at 12 N. Cheyenne Ave. This new location was one block east of Unit Rig's manufacturing plant on Elwood Ave



Jesse L. Vint, Jr.
President

Ken W. Davis, Jr.
Chairman of the Board





Left to right: Duane Lackey, Harvey White, Jack Shaffer and Jerry Shelton. Photograph was taken in the Engineering Department at 12 N. Cheyenne Ave. about 1956.



Jerry Shelton getting on top of his work. Photograph was taken in the Engineering Department at 12 N. Cheyenne Ave. about 1956.

From 1936 to 1951, Unit Rig's history was dominated by Bill Guier and Ray Carter. From 1956 to 1982, Unit Rig's history was dominated by its President, Jesse L. Vint Jr. and his management team of C. F. (Charlie) Southward, V.P. Sales, John W. Tullis, V.P. Manufacturing, and F. C. Morton, V. P. Finance. Between 1951 and 1956, there was a transition period that frankly did not get off to a very good start.



C. F. SOUTHWARD



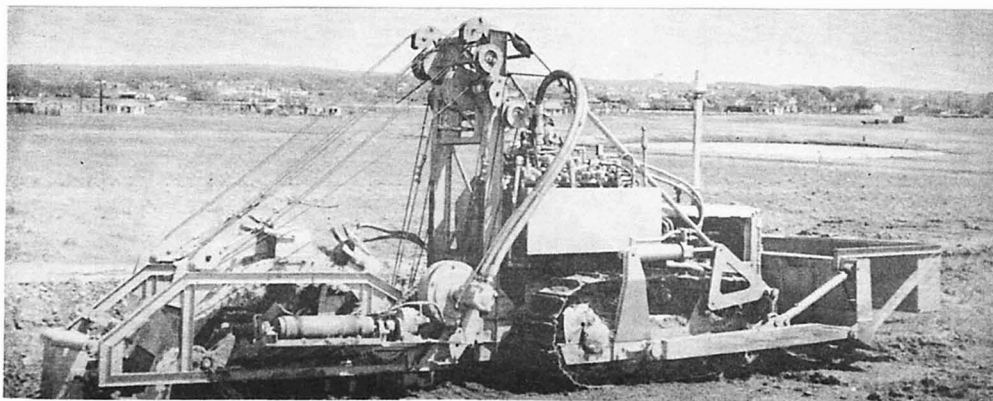
F. C. MORTON



J. W. TULLIS

Sometime in 1952, probably about May or June, Unit Rig got involved in designing a new product, the Unimatic Detachable Ditching Machine. A.B. "Al" Burns convinced Unit Rig, or maybe Mid-Continent, to design and manufacture a ditching machine that could be quickly and easily attached or removed from a Caterpillar D-4 Tractor. I do not know Al Burns's background, except that he was an able promoter and had been involved with Unit Rig's Big Incher project in the late 1940's. Al Burns became President of the new company, Unimatic, and set up his office just off the reception area of Unit Rig's office at 12 North Cheyenne in Tulsa. An engineering office was set up near downtown, I believe in the 200 block of West Boulder Ave. Three very good design engineers worked on the project, Hubert McAulay, Gene Wortman and Dick Evans. The Unimatic was an engineering success, but a marketing disaster. It was a good entrencher and could be attached and detached quickly; but, it was very expensive and was not accepted in the industry. Unit Rig built 6 or 7 of the machines, most of which sat in the weeds in the corner of the Unit Rig West Tulsa property that would, in 1964, be the location of it's new plant.

Author's note: In 1963, Unit Rig invited Mr. Kenneth W. Davis, Sr. to come to Tulsa to see the first production model of the M-85 Lectra Haul being tested at the West Tulsa property. They did not want to remind Mr. Davis, that the last project that he was asked to invest his money in, was a big failure. So they sent some shop people out to the location of the Unimatic's and laid them on their sides, deep in the weeds, where they could not be seen from the test track.



Unimatic Detachable Ditcher connected to a Caterpillar D-4 tractor

In May of 1953, Kenneth W. Davis, Sr. brought in Paul Courtney to be President of Unit Rig. Mr. Courtney brought in his own team of people to help him run Unit Rig. This included; J. T. Tucker as General Manager of Sales, and K. W. Patterson as Assistant to the President.



Left to right: Howard Brainard, K. W. Patterson, J. T. Tucker and Paul Courtney

In August, 1954, Tucker was promoted to V. P. of Sales and Patterson was promoted to V. P. in Charge of Manufacturing. Paul Courtney went inside Unit Rig to promote Jesse L. Vint Jr., who had been Chief Engineer, to V. P of Engineering. With the exception of Jesse Vint, the expertise of the new members of Unit Rig's management team, did not match up with Unit Rig's requirements and by March, 1955 the new team, except for Jesse Vint, was gone and Ken Sr. had made Kenneth W. Davis Jr., President of Unit Rig.

Ken Jr. quickly got Unit Rig under control. When Ken Jr. became President, he appointed Jesse L Vint Jr .to the position of V. P. President of Sales. At the same time, Ed A. Lyle was appointed Chief Engineer. *Ed Lyle joined Unit Rig in 1952 and was responsible for the design of a new line of equipment for Unit Rig; rotary tables and traveling blocks.* In August, 1956, Jesse L. Vint Jr. was appointed President. This was the beginning of the second wave of golden years for Unit Rig & Equipment Co.

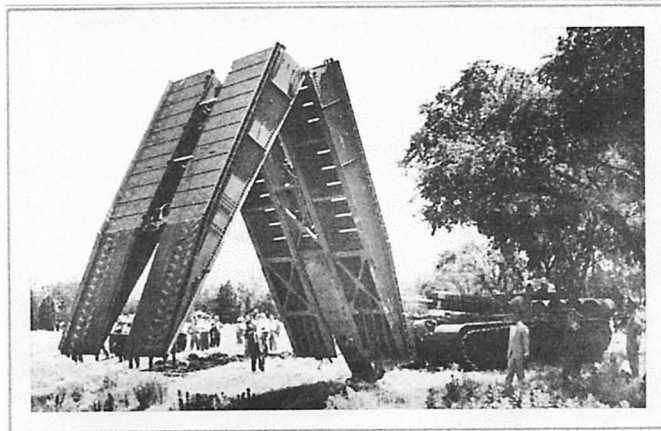


This photograph was taken in 1956. From left to right:
Top row: Ken Davis, Jr., A. S. Ringwald, T. J. Peery, C. F. Southward, Ed Lyle, Vann Campbell
Front row: Howard Brainard, Wendell Messenger, Henry Block, J. L. Vint, Jr. Bill Sullivan
Middle row: Earl Moyer, Ray Loudenback, Roy Smithey

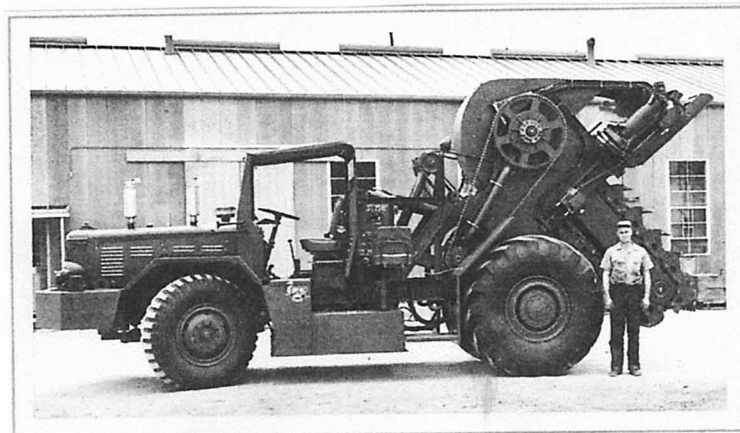
On January 23, 1958, Mid-Continent Supply Co. became the exclusive distributor for Unit Rig's line of oilfield equipment which would be sold under the Mid-Continent trade name. The name "Mid-Continent" was placed on all Unit Rig oil field equipment. The serial number plates indicated that the equipment was manufactured by Unit Rig & Equipment Co., a subsidiary of Mid-Continent Supply Co., Fort Worth, Texas. Unit Rig would continue to handle field service and Mid-Continent would handle sales and advertising.



The mid 1950's was a difficult time for companies in the oil industry and Unit Rig was fortunate to have Jesse L Vint Jr. as its President. With the oil business in a slump, Unit Rig had to look elsewhere for opportunities to keep its work force busy. An opportunity came in mid 1958, when Unit Rig was asked to bid on the detail design work and manufacturing of a folding aluminum bridge, and bridge launching mechanism for the U.S. Army Corp of Engineers. The launcher would be mounted on an M-48 U.S. Army tank chassis and would be used to launch a 40 foot long, folding, aluminum bridge. The first launcher and bridge was tested near The Tulsa Country Club on June 25, 1957. Unit Rig completed a contract for 27 bridges and 18 bridge launchers. In May, 1960, Unit Rig received an additional contract to provide the U.S. Army with 140, 60 foot long aluminum folding bridges and 67 launchers for those bridges. The total contract was for \$5,997,631. The bridge portion of the contract was sub-contracted to Allison Steel Manufacturing Company in Phoenix, Arizona.



In 1959, Unit Rig was awarded a contract to design and manufacture a high speed combat entrenching vehicle for the U.S. Army. Max Frazer was Project Manager and Eddy Foster was Project Engineer on the entrenching machine. Later, Jack Hodges was named Project Engineer. The first unit was tested on May 25, 1960. The entrencher was capable of digging a trench 6 feet deep and 2 feet wide at the rate of 20 feet per minute. Unit Rig produced 150 of these units for the army.

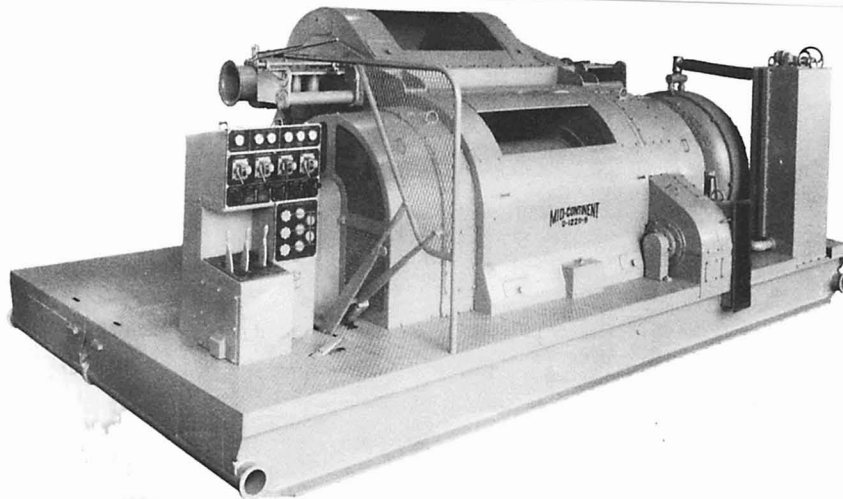


THE END OF ONE GOLDEN ERA, AND THE BEGINNING OF ANOTHER.

Unit Rig management knew that the government work was short term and continued to improve their line of drilling equipment by adding two new draw works, the U-914 and the U-1220.



UNIT RIG U-914 DRAWWORKS



UNIT RIG U-1220 DRAWWORKS

While they added to and improved the drilling rig product line, they continued to look for a long term solution to their need for a product that would supplement the cyclical oil field drilling business. The solution came in 1958, when Unit Rig and General Electric would come together to produce a new line of open-pit haulage vehicle. The prototype was an articulated, four wheel drive, 64 ton payload, rear dump truck that was named the Unit Rig M-64 Lectra Haul. It was produced in 1959.



UNIT RIG LECTRA HAUL M-64
Operating at the Hanna Mining Company's Mine in Minnesota



UNIT RIG LECTRA HAUL M-64
With Lester Nash of Hanna in the drivers seat

The first production truck was built in 1963 and would be a two-axle, 85 ton payload rear dump truck designated the Unit Rig M-85 Lectra Haul. This new line of trucks would dominate the open-pit haulage industry for two decades and would mark the start of Unit Rig's golden years in the off-highway truck business.



SHIPPING THE FIRST M-85



**M-85 SERIAL NUMBER 52
OPERATING AT KENNECOTT'S CHINO MINE IN NEW MEXACO**

Many unrelated events were happening in the late 1950's that contributed to Unit Rig's entry into the open-pit mining truck industry. General Electric needed a product to replace its declining locomotive business. Unit Rig needed to supplement its drilling equipment business with a product in a different industry. The open-pit mining industry needed a more efficient means of moving large volumes of ore and waste material in their expanding mining operations. To that end, they were testing some innovative new haulage trucks. The Anaconda Company's Berkeley Pit became an important testing ground for some of these new haulage concepts.

The General Electric Company produced a variety of railroad locomotives that were powered by diesel-electric drive systems. In the mid 1950's, GE's share of the locomotive market had been substantially reduced by its competitors, I believe, to about a 20% market share. An important part of this business was railroad locomotives that hauled ore and waste material in large open-pit mines. GE was getting a lot of competition from the makers of mechanical drive, rear dump trucks with payloads up to 65 tons. Hauling material in these rear dump trucks gave the mine operators more flexibility than the trains. It was much easier to load the trucks because the trucks could drive right to the shovel and during blasting, the mines did not have a railroad track to move.

In 1959, The R. G. LeTourneau Company placed a 65 ton payload, TR-60 rear dump truck in the Berkeley Pit. The TR-60 was a diesel-electric rear dump truck with traction motors mounted at each of four wheels. Each motor was rated at 400 hp and obtained its power from either an overhead fixed trolley line or its truck mounted twin-diesel engines. The diesel engines were used for off trolley operations at the dump or at the shovel. During the same time frame, another diesel-electric truck, a tractor-trailer vehicle built in Portland, Oregon, was being tested at the Berkeley Pit. This was a 65 ton payload truck with a 700hp diesel engine that provided power to two electric wheels. I could not find a photograph of this truck.



**R. G. LeTOURNEAU COMPANY'S TR-60
Operating in Anaconda's Berkeley Pit**

Authors note: The following information concerning how and why General Electric decided to design a drive system for use in off-highway trucks is from my memory of what happened during the early days of Unit Rig's entry into this business. While writing this history of Unit Rig, I did contact some people that were either working at GE or had worked at GE for their input, but I got no written response. So, the following information is to the best of my knowledge.

Some time in the early 1950's, GE had been involved with converting a number of rear dump trucks from diesel-mechanical drive to all electric-trolley drive. A fleet of these trucks were operated at Riverside Cement's underground mining operation near Riverside, California. When GE started looking at diesel-electric drives for trucks, they revisited the "Riverside design" and converted two 65 ton payload trucks (*I believe they were Wabco 65 ton Haulpaks*) to diesel-electric drive by replacing the transmission and converter with a DC generator and twin electric traction motor that plugged into the rear axle of the truck. These two trucks were operated in The Anaconda Company's Berkeley Pit near Butte, Montana some time in the mid 1950's.

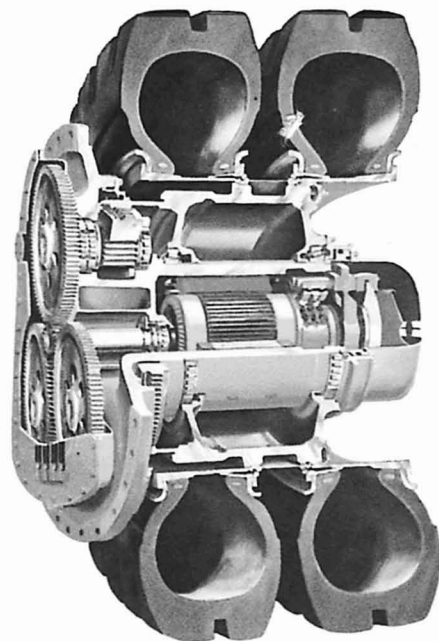
Kennecott Copper Corp. was also a big user of General Electric's locomotives in their open-pit mines. They apparently told GE that they liked their diesel electric drive system in their locomotives but wanted to replace the locomotives operating in their mining operations with rubber tired rear dump trucks. Kennecott suggested that GE should design an electric drive for an off-road mine haulage truck. GE recognized that developing a diesel-electric drive system, for a truck, using the same basic components as their locomotives, could be a way to recapture the business currently being lost to mechanical drive trucks.

General Electric knew that using the "Riverside Design" would give a truck an unfavorable empty vehicle weight to payload ratio and therefore might not be competitive with the mechanical trucks. GE decided if they were going to have a successful drive system they needed to develop a design where the traction motors that would fit inside a tire or dual tires, thereby allowing the motor frame to become a structural part of the motorized wheel thus lowering the weight of the drive system. This presented some difficult design problems. GE overcome these problems and successfully completed their design, some time in the mid 1950's.

Author's note: When Unit Rig first started looking at designing the production model of the Lectra Haul line of trucks, the "Gold Standard" of the industry was the LeTourneau Westinghouse (Wabco) Haulpak line of trucks with payloads from 20 ton to 65 tons. I believe that this line of trucks was introduced in 1957. The designer of these trucks was Ralph H. Kress and I have always considered him to be the father of the modern rear dump truck. If you look at today's 400 ton payload, two-axle, six tired, rear dump trucks with their "V" bottom dump body and hydraulic suspensions, they look a lot like the Kress design. However, without question, Unit Rig was the father of the modern diesel-electric drive rear dump truck. Unit Rig took General Electric's innovative motorized wheel and married it to the Unit Rig Lectra Haul truck. That combination, along with

Unit Rig's oil field service mentality, changed open-pit mining material handling forever. And that will always be the legacy of Unit Rig & Equipment Co.

GE took their new drive system to some or all of the major truck manufacturers without success. One reason may have been that the mechanical drive trucks had many more moving parts that produced a big and profitable after market parts sales. The electric drive had fewer moving parts to wear out and therefore would produce a smaller parts business. Or it may have been that the truck manufacturers had been building mechanical trucks for many years and just did not see a reason to change. Or maybe they remembered some bad experiences with previous electric drive systems. What ever the reason, the truck manufacturers turned down the opportunity to get in on the ground floor of this new venture and opened the door for Unit Rig. I believe that the only place that the new drive system was tested, before Unit Rig built their first truck, was on a Caterpillar scraper.



GENERAL ELECTRIC 772 MOTORIZED WHEEL

General Electric believed they had a good idea and continued to look for a way to get this project off high center. The opportunity presented itself with the Hanna Mining Company. Hanna which I believe was owned by The National Steel Company, had a Vice-President who was on the Board of Directors of the General Electric Company. Through this connection, I believe that GE and Hanna decided to work together on this project. The first step was to agree on the basic configuration and specification of the

truck. The second step was to find someone to design the truck to that specification and produce a prototype.

The details of how Unit Rig and General Electric got together on this new project are probably lost for ever, but a good educated guess can be made. Pete Trenary, a General Electric engineer, was working with Unit Rig's Manager of Research and Development, Duane Lackey on designing an all electric drive drilling rig for off-shore drilling. Pete was not in GE's Transportation Division but was aware of their motorized wheel project and the difficulty they were having getting one of the established truck manufacturers to make a serious effort to employ the diesel electric drive on one of their trucks. Pete may have contacted his friends in the Transportation Division and suggested they contact Unit Rig and set up a meeting. I am only guessing that is the way it started, but I do know that GE contacted Unit Rig's President Jesse L. Vint, Jr. and asked for a meeting concerning the possibility of Unit Rig getting involved in this new project. A meeting was set up and a group from GE came to Tulsa and made a presentation to Mr. Vint. The meeting apparently did not go well and the GE people decided to regroup and come back for a second meeting. Jesse L. Vint Jr. was a very creative and innovative engineer who was looking for new products for Unit Rig to manufacture and sell and I am sure that he would have been interested in this new product. So I am not sure why the first meeting did not go well. I talked to one of the GE engineers that made the presentation and my best guess is that the GE people were too aggressive in their presentation. Jesse was not the kind of guy that you could pressure to make a decision. A second meeting was held between GE and Unit Rig and this time an agreement was reached to proceed on this project.

The following is from a March 31, 1968 article from the business section of the Tulsa World newspaper in which Jesse L. Vint, Jr. is quoted as follows:

"-----General Electric was looking for new outlets for it's locomotion equipment and we went into the mining country and talked to them about large hauling equipment. It was evident there was a substantial market if we could develop a product to substantially reduce coats. We started in 1958 to survey the market, a study which went into 1959".

"In June, 1959 Hanna Mining Co., General Electric and Unit Rig worked out an agreement to produce and test a prototype electric drive unit. After 2 ½ years of testing, Unit Rig built four units of what was then termed the production design units. These were 85 ton capacity ore hauling trucks".

General Electric and Hanna Mining Company were not the only companies involved in this project; Cummins Engine Company supplied the engine, Goodyear Tire and Rubber Company supplied the tires, a manufacturer of hydraulic components supplied the hydraulic components and Unit Rig designed and manufactured the truck.

THE GOLDEN YEARS IN THE OPEN-PIT MINE TRUCK INDUSTRY.

Looking back on the early days of the Lectra Haul truck project, there was no way we could have known what lay in the future for Unit Rig. In the next two decades, Unit Rig would go from a small oil field equipment manufacturer that was having a lot of trouble competing in that market, to the dominant supplier of large haulage trucks for the mining industry. It is truly an amazing story.

The prototype truck would be designed to Hanna Mining Company's specifications and would be named M-64 Serial number 51. It would be a four wheel drive, articulated, rear dump truck using General Electric's new drive system. It would be powered by a 700 hp Cummins diesel engine, with 4 - 33.5 inch x 37 inch low pressure tires and a payload capacity of 64 tons. The brand name of this new line of haulage trucks would be Lectra Haul.

Author's note: Starting with serial number 51 was a hold over from the early days of Unit Rig when the first U-10 was designated serial number 51. Bill Guier and Ray Carter did not believe that it was a good idea to start a new product with serial number 1. One brand name that was suggested, in jest, by Gene Wortman, one of the design engineers, was "Vint's Volts Wagon" which got a lot of laughs but no consideration.

Duane Lackey was project engineer on the M-64. Hubert McAulay designed the steering and dumping hydraulics. Jerry Shelton laid out the steering and designed the mechanical portion of the steering. Jim Willis designed the dump body from a hand sketch made on a yellow legal pad by Gene Wortman. Other engineers involved with the design were: Dick Evans, Dick Sittle and Gene Wortman.. Later, Dick Evans took over as project engineer and both Dick and Gene spent a lot of time at the Hanna mine monitoring the operation of the M-64.

Unit Rig Lectra Haul M-64, serial number 51 was completed in January, 1960 and tested at Standard Industries, Inc.'s rock quarry east of Tulsa. Unit Rig was very concerned about driver acceptance of the M-64, and asked Hanna to send one of their drivers to Tulsa to test the truck. Hanna Mining Company's union employees were on strike so Hanna sent their tire inspector, Lester "Les" Nash to drive the new truck. Les stayed in Tulsa for ten days on that first trip and made many subsequent trips back to discuss the truck during the time it was being tested in Minnesota.

Author's note: I talked to Les Nash, by telephone on September 6, 2006. Les, who is living a few miles north of Nashwauk, Minnesota, said that he had fond memories of Unit Rig. He asked about Jesse Vint, Gene Wortman and Dick Evans. He said that he was really surprised that the President of Unit Rig, Jesse L. Vint, Jr., met him at the airport on his first visit to Tulsa. He also reminded me that Ronald Reagan was the host of

General Electric's Star Light Theaters, a live, prime time television program. One of the shows featured the Unit Rig M-64 truck and had Les Nash on the program as a guest.

Shortly after the testing began at Standard Industries rock quarry, the goose neck, that connected the tractor to the trailer, failed. This problem required some major redesign of that area of the truck. The goose neck redesign project was handled by Dick Sittle. The M-64 with the redesigned goose neck was shipped to Hanna Mining in June, 1960 and assembled near Hibbing, Minnesota. It was then driven some 20 miles to be put into operation at Hanna's Hunner Mine near Colaraine, Minnesota. Later, it was driven back to the Hibbing area and put in operation at Hanna's Pierce Mine.

The goose neck continued to have problems that were amplified by a major ride problem. Goodyear Tire and Rubber Company advised the Unit Rig design team that if they used the low air pressure 33.5 x 37 tires, there would be no need for a suspension system. The results were a very bad ride that put extra stress on all of the structural components of the vehicle and made it very difficult to drive.

Through a lot of hard work by Unit Rig's engineering department and service department and the co-operation of Hanna's service people, the M-64 stayed in operation, I believe, until the end of 1961.

During the testing of the M-64, Unit Rig surveyed the open-pit mining industry and determined that there was a substantial market for a diesel-electric powered truck. So, with the experience of the M-64 under their belts, it was back to the drawing board to design the first production model.

Unit Rig was so sure that the GE Electric drive system was going to be successful in the open-pit mines that even before they started work on the design of the new truck, they were prepared to sign a contract with GE to secure, for three years, all of GE's production of the new drive system. Unit Rig had to agree to purchase all of GE's motorized wheel production during the three years, but they did not have to pay for a system until they took delivery of each drive system.

The specifications of the drive system included components for a four wheel drive similar to the drive system on the M-64. Unit Rig's plan was to design another articulated, four wheel drive truck. Dick Evans, Project Engineer on



**Dick Evans, Project Engineer-M-64
standing on the steps of the M-64**

the M-64 project did not believe that four wheel drive was necessary in an open-pit operation. He reasoned that if a two wheel drive mechanical truck could operate in open-pit mining, then a more efficient, lighter weight, two wheel drive electric truck, should be able to out perform the mechanical trucks that were currently in operation.

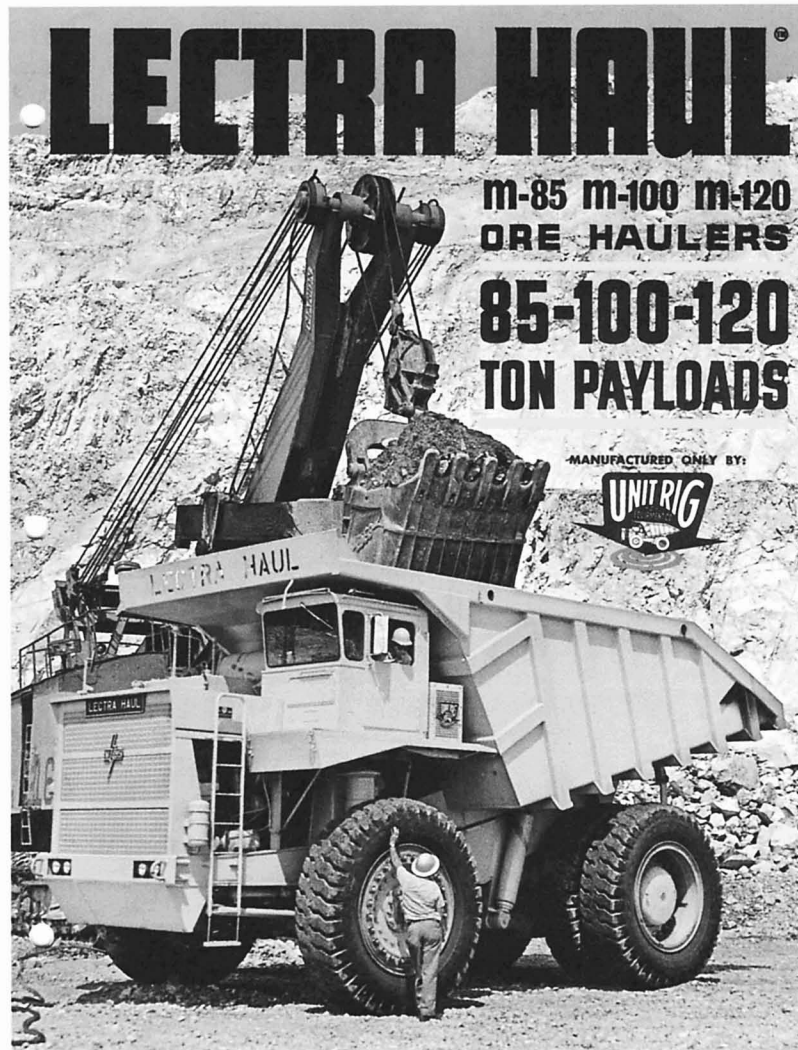
The day before General Electric was scheduled to be in Tulsa to have Unit Rig sign the new contract; Dick Evans spent the day and on into the night putting together the calculations that proved that there was no need for four wheel drive on the purposed vehicle. The next day, before GE arrived at Unit Rig's office, Dick presented his calculations to Unit Rig's President, Jesse L. Vint, Jr. who agreed with Dick's conclusions. As a result, the contract with GE specified a two wheel drive system.

The importance of this change was probably the difference between success and failure of the Lectra Haul project at Unit Rig. A four wheel drive vehicle would have been; more expensive, harder to maintain and its higher EVW would have made it more expensive to operate and less competitive. Even a better designed articulated, four wheel drive vehicle would not have been good enough to have given Unit Rig the kind of start that it needed to get a foothold in this business. Unit Rig would have had to scrap the four wheel drive vehicle and started designing a two wheel drive truck. This delay would have made it more difficult to get a start in this business. Also Unit Rig may have had trouble getting Kendavis Industries to invest more money in the project. Like war, sometimes the battles in business, turn on the action of just a few. In this case, the good work of Dick Evans.

The production model truck was an 85 ton payload, two axle, rear drive, rear dump truck equipped with six 21.00 x 49, 40 PR tires, 700 hp diesel engine and the GE electric drive system. In June 1963, Unit Rig invited Kenneth W. Davis Sr., President and CEO, of Kendavis Industries International, Inc., the parent company of Unit Rig, to come to Tulsa to witness the testing of this first M-85. The test was conducted at the West Tulsa site of the future Unit Rig manufacturing plant and offices. The test was successful and Mr. Davis was favorably impressed.

Author's note: Dick Evans, Project Engineer on the 85 ton payload truck, had worked all night, with our manufacturing people, preparing the truck for the test. After the test, Dick was standing near Mr. Davis and Unit Rig's President Jesse L. Vint, Jr. Dick said that he remembered Ken telling Jesse, "If you want to build a new plant, you are not waiting on me," I am guessing that Mr. Davis's thinking was that it looked like the new truck had a lot of potential and there was no way Unit Rig could build enough of them in their current plant to get a very big market share and realize the full financial potential of the product so he said, "If you want to build a new plant, you are not waiting on me." I think that this was a good indication of why Kenneth W. Davis, Sr. was so successful. He saw a business opportunity. He recognized its potential. He encouraged the people who worked for him to take advantage of the opportunity and he then gave them the resources to make it a success. It also shows why Jesse L. Vint, Jr. was so successful. Jesse also realized the potential for the diesel-electric truck and was not afraid to build a new plant so we could go after the business.

It was decided to manufacture four production M-85's, serial number 52, 53, 54, and 55. The first three were shipped to Kennecott's Chino mine near Silver City, New Mexico. The fourth was to go to Kennecott's Bingham Canyon mine near Salt Lake City, Utah. Kennecott only wanted to test the new truck at one of their mines, so Unit Rig went looking for another location. This was probably the best thing that could have happened because Unit Rig ended up putting the fourth truck at the Anaconda Company mine near Butte, Montana. This mining operation ended up purchasing 178 trucks from Unit Rig.



In 1966, with only minor changes to the M-85, the M-100 was added to Unit Rig's line of trucks. In 1968, the M-120-15 was added to the line. In the next 19 years, over 2,100 of these trucks would be manufactured and sold.



Unit Rig Lectra haul trucks at Anaconda's Berkeley Pit

The story of how Unit Rig was able to put the fourth M-85 into the Anaconda's copper mine near Butte, Montana is another example of how the action of one or two people can affect the success or failure of a company. A few months before Jesse L. Vint, Jr. passed away, he told me this story of the first M-85 in the Anaconda Butte Mine.

Charlie Southward had information that indicated Anaconda was about to place an order for six new trucks. When Unit Rig failed to place the fourth production M-85 with Kennecott, it was decided to try to place it at Anaconda's operation near Butte, Montana.

Jesse and Charlie made the trip to Butte, Montana to try to get Anaconda to test the fourth M-85. I am a little surprised, because it is not the Unit Rig way, but Jesse's wife, Paula and Charlie's wife, Freda made the trip to Butte with Jesse and Charlie. When they arrived in Butte, they checked into a cheap motel and went out to dinner. When they returned to their room, there was a rather loud party going on in the room next door. Jesse said that the walls of the motel were so thin that they could easily hear what was going on in the room next to them. It turned out to be a competitors representatives and their local dealer, celebrating obtaining an order from Anaconda for six trucks. One of the celebrators said that they might be celebrating a little early because Unit Rig still had a meeting the first thing in the morning and Unit Rig might get the order. Jesse said that there was a moment of silence and then everyone started laughing. Then someone said that there was no way those Okies from that hick company that builds oil well drilling equipment was going beat us out of this order. Well, Freda started crying because they were making fun of Unit Rig and Jesse said the more he listened to these guys, the madder he got. Jesse said, "I sat there for a minute or two and then turned to Charlie and told him that we were not leaving Anaconda's office in the morning with out an order." The next morning a deal was made that let Unit Rig put the Fourth M-85 at this Anaconda mine for a six month test, at no cost to Anaconda. After six months, Anaconda could ether purchase the truck or return it. This agreement was based on Anaconda delaying the purchase of the six new trucks until after the test and if they did decide to purchase the M-85 they had to give Unit Rig the order for an additional six M-85's. M-85 # 55 was shipped to Anaconda in October, 1963.

Jesse said that one of the best moments of his life was walking out of that office and seeing the competitors sitting there waiting for their meeting. I just thought," fellows, two ole boys from that hick company in Oklahoma, just kicked your ass. And you know what, you had better get used to it." An important moment in Unit Rig's history that went Unit Rig's way because two people would not let Unit Rig fail.

The test was successful and Jesse Vint and Bob Volpe, Assistant to the President, and one of the original members of the GE diesel-electric drive system design team, returned to Anaconda to finalize the contract for the test truck and the additional six trucks. Unit Rig was scheduled to be the first supplier to meet with Anaconda, but Jesse refused this arrangement. He insisted on being the last supplier to make their presentation. Anaconda agreed to Unit Rig's request and Jesse and Bob was the last supplier to make their presentation. It took a lot of courage for a company like Unit Rig that was just getting started in a new business, to make that kind of demand on a large mining company like Anaconda. The strategy was successful and Unit Rig walked away with an order for the test truck and six additional trucks that were shipped, three in May, 1964 and three more that were shipped in June, 1964.

This strategy became standard operating procedure for Unit Rig's Sales Department. I have heard Charlie Southward, V. P. of Sales say, many times, "If I'm the last one in, I will get the order,"

The M-85 was an immediate success. By end of 1964, Unit Rig had shipped 34 M-85's. There were a lot of reasons for the success of this new product. The electric drive made this vehicle much simpler than the competition's mechanical drive trucks. The "Rubber Disc" suspensions, designed by Craig Doennecke, were easier to maintain and the rear disc brakes combined with the dynamic braking made it an easier and safer truck to operate. It fit Bill Guier's, one of the original founders of Unit Rig, idea of a new product, "keep it simple and pay attention to its appearance". It should be remembered that the M-85 was designed, manufactured and serviced by people that, for the most part, had never been involved in anyway with off-highway haulage trucks. This was an amazing accomplishment for the employees of Unit Rig. We took the big companies in that industry: Caterpillar, Dart, Terex, Euclid and Wabco, head on and came out on top.

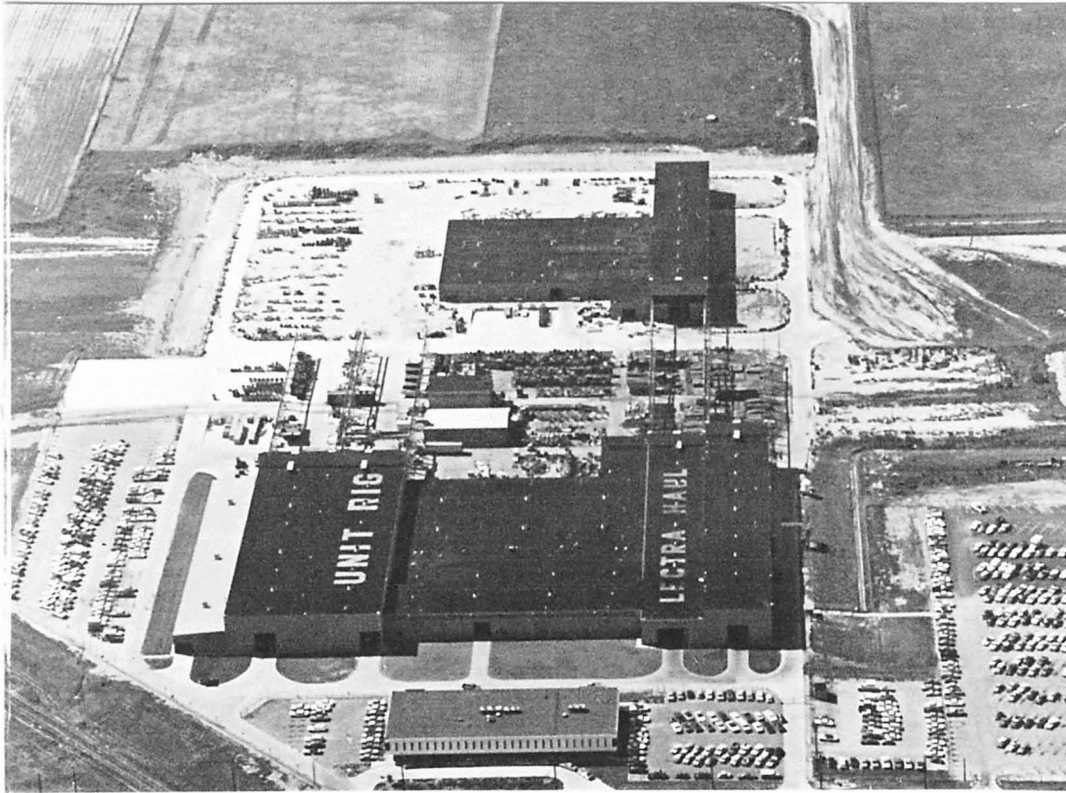
Engineering, Service, Manufacturing and Sales departments worked together to provide a level of quality and service that had never been provided in the mining industry. Unit Rig was use to providing the level of service that was required in the oil well drilling industry. If a part on one of our drawworks failed while the drilling company had drill pipe down in the hole, they wanted the problem fixed quickly or they might lose all of the drill pipe in that hole. When a part failed, that drilling operation was 100% down. The mining industry was different. If a mining operation had 20 trucks operating and a part failed that shut down one truck, then the operation was only 5% down. But it was better than that because the mining company would purchase enough extra trucks to cover a certain percent of non-availability. So a truck being down was not near as important in the mining industry as a drawworks being down in the drilling industry.

An example of Unit Rig's superior service occurred in 1963, in the early days of the operation of the first three M-85's at Kennecott's Chino Mine. A competitor's truck backed into one of our M-85's and destroyed the operators cab. Chino called Tulsa, on a Friday, and placed an order for a new cab. Unit Rig pulled a cab off of a truck in their assembly shop, loaded it on a flat bed truck and assigned two servicemen to drive straight through to Silver City, New Mexico. They were sitting at the front gate of the mine on Monday morning. They drove the flat bed truck into the maintenance shop, helped remove the old damaged cab and supervised the installation of the new cab. The truck was back in operation by the end of the day shift. The mine manager told our servicemen that based on his experience with our competition, they did not expect the new cab to be shipped for a couple of months. Enough cannot be said for the high level of service that Unit Rig's Engineering, Service, Manufacturing and Sales Departments brought to the mining industry, or the importance that it had to the success of the company.

Author's note: On October 26, 2006, I was having lunch at Unit Rig's old timer's monthly luncheon. In attendance was Mickey Ford who was involved in field service for Unit Rig, both as a field service engineer and as Manager of Service. Mickey and I got to talking about what made Unit Rig so successful in the mining business. Although there were some design and manufacturing problems, the overall design and the quality of the manufacturing of the early M-85's was outstanding, especially when you consider that, for the most part, the people who designed and manufactured these first truck had almost no experience in off-highway trucks. Mickey said that the reason we got through some early problems was that our Engineering Department was quick to solve the problems and provide the fix, ether parts or drawings, to the field service people. I said that I thought that the reason was that we had a group of dedicated hard working service people that were determined to make the trucks operate successfully. I bring this up because the real reason that we were successful was not because the Engineering Department was quick to solve problems or because we had dedicated service people. We were successful because all department at Unit Rig worked together, as a team, to make the company successful. That's not to say we didn't have a few fights among the different departments, because we did, but in the end we all knew that serving the customer was our first job.

The high level of service that Unit Rig provided, combined with our superior product and the General Electric drive system, combined to provide a truck with a higher availability, along with a lower operating cost. This allowed the mines to operate with fewer trucks at a lower cost per ton of material moved.

The quick acceptance of the GE electric drive and the M-85 Lectra Haul allowed Unit Rig to invest in a new manufacturing facility. Unit Rig continued to use the plant at 11 N. Elwood Ave. for all of its manufacturing while the new facility was being built. In October, 1964, they began to move their operation to the new location at 5400 S. 49th W. Ave. The first departments to make the move were the Weld Shop and the Assembly Shop. This would be followed by the Machine Shop, Warehousing and the Engineering Department. Late 1968, a new office building was completed and the balance of the company would relocate to the new facility.



Unit Rig's manufacturing plant at 5400 S. 49th W. Ave, Tulsa, OK

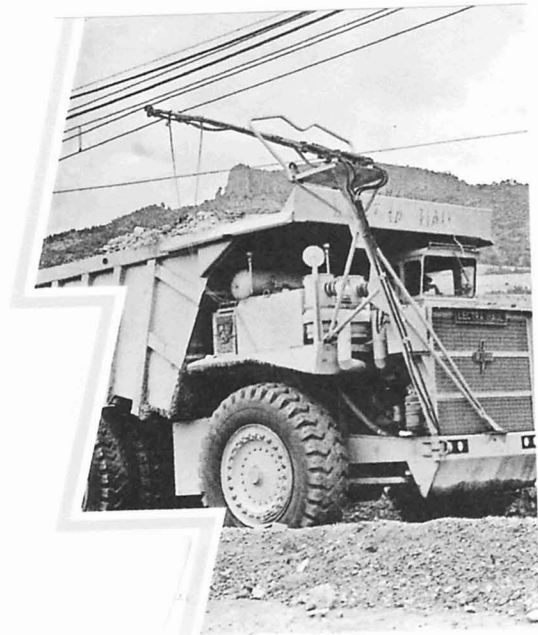
It became apparent that the M-85 would be capable of carrying more than its 85 ton payload rating if it had more horsepower and larger tires. The 21.00 x 49 tires that were standard on the M-85 were replaced with 24.00 x 49 tires. The first M-85's to be equipped with the 24.00 x 49 tire, went to Molybdenum Corp near Questa, New Mexico. Twelve of these trucks were shipped to Molycorp in May, 1965.

Unit Rig's quest for more horsepower resulted in it being the first to try gas turbine power in an open-pit haulage vehicle. The first M-100, UR Serial Number 120, was shipped to Anaconda at Butte, Montana in October, 1965. This truck was equipped with a Solar gas turbine engine. The second M-100 was equipped with a General Electric gas turbine engine and was shown at the 1965 AMC Show in Las Vegas, Nevada. After the show this truck was shipped to Kennecott's Chino Mine in New Mexico. A third gas turbine powered M-100, serial number 173, was built in March, 1966 and shipped to Anaconda Butte. Although the gas turbine tests were not satisfactory, the tests did put pressure on the manufacturers of diesel engines to provide higher horsepower engines for the M-85 and M-100. Soon 1000 hp diesel engines were made available. Later, the availability of the larger, 27.00 x 49 tire and 1200 horsepower diesel engines, lead to the introduction, in 1969 of the M-120 (Later to be named the M-120-15 for its 15 foot wheel base). The M-120 was, essentially, the same vehicle as the M-85 and M-100. The only differences were the size of the engine and tires, plus thicker steel in the frame. Its 15 foot wheel base contributed to a lighter empty vehicle weight than its longer wheel base competitors. This lighter EVW allowed the M-120-15 to carry a 120 ton payload without exceeding the allowable tire loading on the 27.00 x 49 tires. Our competitors needed 30.00 x 49 tires to carry 120 ton payloads. The first M-120-15 was shipped to Molycorp in November, 1969.



This is the second M-100 that Unit Rig built. It was given serial number 121 a continuation of the M-85 serial numbers. It was equipped with a General Electric gas turbine engine and was shown at the 1965 AMC show in Las Vegas. The lettering on the side of the engine compartment says ' Kennecott Copper Corp, Utah Copper Division. This would indicate that it was shipped to Kennecott's Bingham Canyon Mine in Utah. However I believe that it was shipped to Kennecott's Chino Mine in New Mexico.

In 1967, Unit Rig tested its first trolley power on a M-100 in the Kennecott Chino mine near Silver City, New Mexico. This successful test lead to the Quebec Cartier Mining Company to convert their fleet of 10 M-85's and 7 M-100's to trolley power. QCM operated trolley powered trucks in their Lac Jeannine Mine from 1970 to 1977.



M-100 TROLLEY TEST AT CHINO

In about 1979, Rio Tinto's Palabora Mine started converting its fleet of 170 ton payload Mark 36's to trolley power. In 1980, South African Iron & Steel Corporation Ltd. (Iskor) started converting its fleet of trucks to trolley power. In all three of these operations the trolley was very successful. Nchanga in Zambia and Gecamines in Zaire (Congo) may also have operated trolley trucks.



TROLLEY POWERED MARK-36 IN SOUTH AFRICA



M-200 AT THE 1971 AMC SHOW IN LAS VEGAS

On September 8, 1966, the idea for a 200 ton payload truck was presented to Unit Rig, in a meeting with Kaiser Steel that was attended by Charlie Southward and Jerry Shelton. In this meeting, Dick Barber, a mining engineer for Kaiser Steel who was writing the specifications for equipment to be used at Kaiser's Crowsnest operation in British Columbia, listed a 200 ton payload, rear dump truck to be used to haul overburden. Dick Barber wanted this truck to be powered by a diesel-electric locomotive drive system that used a 900 rpm Alco diesel engine. Unit Rig did not use the Alco engine but instead used the EMD engine and drive system. Unit Rig's decision to design a 200 ton truck around General Motor Company's EMD System was not well received at the General Electric Company.

In summer of 1969, Unit Rig shipped the first 200 ton payload, M-200 Lectra Haul to Pima Mines for testing. In 1969, this M-200, along with 6 additional M-200's, was shipped to Kaiser Resources, for their coal mining operation in British Columbia, Canada. These were the first of 119 M-200's that were produced and sold by Unit Rig.



Unit Rig Lectra Haul M-200 at Kaiser's Crowsnest coal mine

The M-200 used the same basic frame technology as the M-85 frame, including the use of 100,000 PSI steel. The truck incorporated a 1,650 HP, 900 RPM locomotive EMD engine that provided power for the EMD electric drive system. The rule of thumb for horsepower to payload ratio, for off-highway trucks, is 10 HP for each ton of payload. Therefore a 200 ton payload truck should have 2,000 HP to operate in most mines. The M-200 had 8.25 HP/Ton. This limited the market for the M-200. It operated fine at Kaiser and CJM, but not so well at Nchanga in Zambia.

The saving grace for the M-200 was that Unit Rig put a 2,450 HP EMD engine in the M-200 and A. K. (Rusty) Braswell and Charlie Southward sold 84 of them to V/O Autoexport for use in an Eastern Russian Siberian coal mine. The negotiations were long and difficult with the sale being finalized sometime in 1977. This was the largest and probably the most profitable truck order Unit Rig had ever received. Some of that profit was eaten up by the front and rear axle failures that were the result of some design and manufacturing problems and the extreme cold (-56 F) temperature of Siberia. But, nevertheless, it was a very profitable deal for Unit Rig, and made the M-200 project a success.



UNIT RIG LECTRA HAUL M-200 WITH A 2450 HP ENGINE

The M-85, M-100 and M-120-15's continued to be successful and over 2100, 15 foot wheel base, M-85, M-100 and M-120-15's were sold before that line of trucks was taken out of Unit Rig's production early in 1982. That amounts to an average of approximately 10 trucks per month for 19 years.

The M-85, M-100 and the M-120-15 all had the same basic frame. The only major difference in the frame was that the M-100 frame had a thicker top and bottom flange than the M-85 and the M-120-15 frame had a thicker top and bottom flange than the M-100. All three frames utilized 100,000 psi yield, T-1 steel. The basic design of the frame and the use of T-1 steel, made the frames difficult to manufacture. To the credit of the manufacturing department, the early frames were successfully manufactured without jigs and fixtures. However most of the frames in this series of trucks were manufactured utilizing elaborate jigs and fixture and careful preparation for welding. After the bugs were worked out of the early M-85 frames, this design was very successful, for 85 to 120 ton payload trucks.

In the late 1960's and early 1970's, Unit Rig was under a lot of pressure, from the manufacturers of tires and our customers, to install the larger 30.00 x 51 tires on all 120 ton payload trucks. It was a problem for Unit Rig because the 15 foot wheel base M-120-15 would not accept the larger tires. The M-120-15 with its lighter EVW, and less expensive 27.00 x 49 tires, cost less and would outperform its competition's heavier trucks with 30.00 x 51 tires. The tires on the competitor's trucks did have a longer life, but when comparing the cost per ton of material hauled, the 27.00 x 49 tires on the M-120-15 had a lower cost than our competitor's trucks with 30.00 x 51 tires. Since the tire manufacturers guaranteed the life of the tires, not the cost of operating them and the fact that our competition needed the larger tires because of their heavier EVW, the two combined to put a lot of pressure on Unit Rig to provide a 120 ton payload truck equipped with 30.00 x 51 tires.

The decision to design a new truck that would utilize 30.00 x 51 tires was the right decision. Unfortunately, Unit Rig did not really design a new truck; they just took the M-120-15 and added two feet to the wheel base. By doing this, Unit Rig missed an opportunity to design a new truck around a frame design that was easier to build and better suited to the longer wheel base.

The first person that I remember questioning the frame design was Rodger Goodbary. Rodger came to work for Unit Rig, I think, in 1964 or 1965. I remember him wondering why we used a rectangular cross section, cross beam, to transfer loads from one main frame member to the other main frame member. He thought that we should have used a tubular cross section. Rodger, Dick Evans, Jim Christopher and probably many others also questioned the use of 100,000 PSI, T-1 steel in our frames.

I can only speculate as to why we just extended the frame of the M-120-15, to accommodate a 17 foot wheel base and 30.00 x 51 tires, instead of investing in a new design.

Authors note: One big mystery to me has always been why Unit Rig did not have a Vice President of Engineering. Whenever there was a meeting to discuss a new product or new project, typically, the meeting was attended by: the President, the Assistant to the President, the Vice President of Manufacturing, the Vice President of Finance, the Vice President of Sales and the Chief Engineer or Director of Engineering. The person that was in charge of engineering did not have the same status as the top people in the other main branches of the company. This may have had an influence on many major engineering decisions.

About a year later, we compounded the mistake by designing a new 170 ton payload truck using the same frame concept as the M-85, M-100 and the M-120-15 family of trucks. In my opinion, if Unit Rig had designed a completely new 120 ton and 170 ton payload truck, instead of just making a larger version of the M-85, M-100, M-120-15 trucks, and assuming that the new designs were successful, we would have continued to dominate this market through the 1980's. Instead we produced, approximately, 105 Mark 30's, 303 M-120-17's and 648 Mark 36's, all of which had major frame problems. This opened the door to our competitors and allowed them to get back into the ball game.

An interesting side note involves the naming of the 120 ton trucks. The first 17, 120 ton trucks were named Mark 30. The original idea was to rename the 15 foot wheel base M-120, as the M-120-15. The new 17 foot wheel base 120 ton truck, would be named the M-120-17. Jerry Shelton, Manager of Application Engineering, proposed that we stop using the payload rating in our model name and instead use the tire size. This would allow us to take advantage of our lower EVW and rate our trucks payload capacity based on each application. So the 17 foot wheel base truck, with 30.00 x 51 tires was named the Mark 30. The first 17, 120 ton payload Mark 30's were manufactured between August 1971 and January, 1973. Fifteen of them were shipped to Iron Ore Company of Canada. These early 120 ton trucks had a lot of problems and in 1974 we changed the name back to M-120-17. This was done to give us an opportunity to design a new 120 ton truck and use the name, Mark 30. Unfortunately, we did not really design a new truck. In 1981, we just made some improvements, to the M-120-17 and renamed it the Mark 30. The frames on all of these trucks were based on the same concept as the M-85.

In 1971, Unit Rig designed the BD-180, a tractor-trailer bottom dump truck to be used to haul coal in open-pit mines. The BD-180 utilized the M-100 as its tractor. The first one was shipped in February, 1972. A total of 29 BD-180's were shipped between February, 1972 and May, 1984. Additionally, in 1985, one BD-240 was shipped and, in 1986, two BD-270's were shipped. In 1979 Unit Rig designed a new bottom dump truck, the BD-145 which was later redesigned and named the BD-30. Five of the BD-30's were built and sold.

A two axle, bottom dump truck, similar in concept to the BD-30, was first proposed by Rodger Goodbary, who I believe was Manager of Product Planning at the time. I discussed this with Rodger recently and Rodger provided me with the following information.

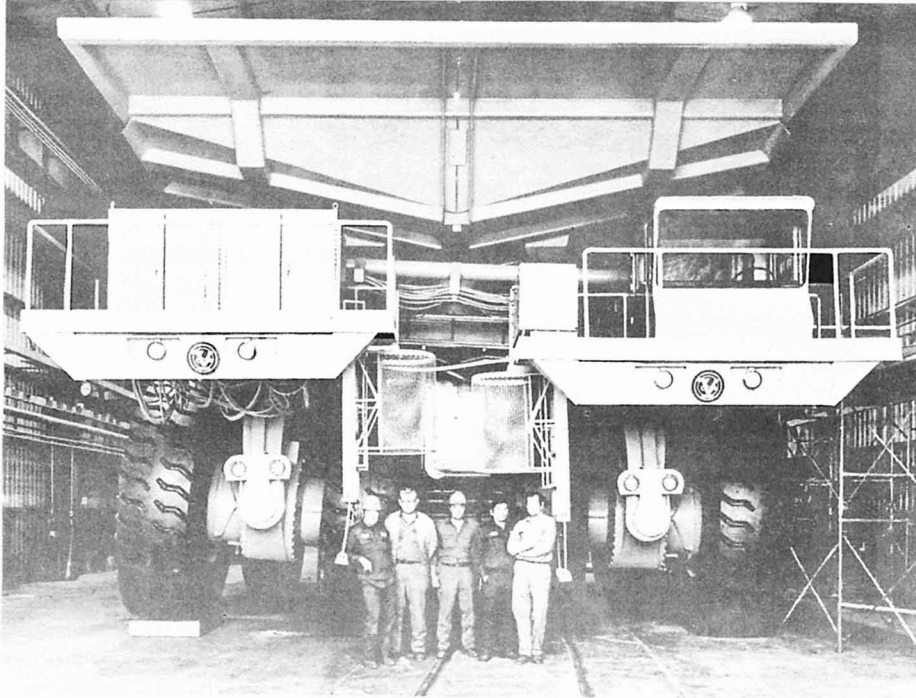
There was resistance within Unit Rig to this truck project and the two axle bottom dump truck was rejected. Rodger Goodbary was convinced that there was a market for this concept and was determined to get the project approved by Unit Rig management. A stalemate developed between Rodger and Unit Rig. Recently I discussed this with Rodger and he confirmed what I had a vague memory of, that Jesse L. Vint Jr., President of Unit Rig, offered financial assistance, through Unit Rig, if Rodger wanted to build this truck outside of Unit Rig. An agreement was not reached and Rodger left Unit Rig and started Goodbary Engineering Company.

Goodbary Engineering Company designed and manufactured the two axle bottom dump truck that Rodger had tried to get Unit Rig to build. Later Goodbary Engineering would design and manufacture a 240 ton payload, two axle, rear dump truck. Sometime later, Unit Rig would file a law suit against Goodbary Engineering that would last 9 years before it was thrown out of court. The law suite had the effect of tying up much of Goodbary Engineering's monetary funds which made it difficult for Rodger to operate Goodbary Engineering. Sometime in the late 1970's, Bill Davis, one of Kenneth W. Davis, Sr.'s sons, purchased Goodbary Engineering and formed a new company, Wiseda, Ltd. Many Ex-Unit Rig employees worked for Wiseda including A. K. (Rusty) Braswell who was President of Wiseda when it was sold to Liebherr Mining Equipment Co. I suspect that Rusty's negotiating skills played an important role in the negotiations with Liebherr. Liebherr has become a major player in the off-highway mine haulage industry.



UNIT RIG LECTRA HAUL BD-30

In the late 1960's, Pete Trenary Ex-GE and KIII employee, along with Ex-Unit Rig employee, Duane Lackey got involved in the design of a radically new off-highway vehicle and started Vehicle Constructors or V-CON. V-CON would later become a Division of Peerless Manufacturing Company. I am not sure whose idea it was to try to develop this new truck. Pete and Duane had worked together on oil well equipment design and both had been involved in the first Unit Rig truck. Sometime late in 1970 or early in 1971, V-CON produced the first, and I believe only, V-CON Model 2606 end dump truck. The truck was tested at the Pima Mine near Tucson, Arizona. The truck was rated at 340 ton payload and was equipped with 8-36.00 x 51 tires, 6-GE772 motorized wheels and was powered by an Alco 251-12E 2600 HP diesel engine.



**V-CON
MODEL 2606
END DUMP
TRUCK**



Authors note: After the V-CON truck was shipped to Pima Mining, Duane Lackey asked me to leave Unit Rig and become Chief Engineer for V-CON. I had looked at the V-Con truck at the Pima Mine and although I thought that the design was based on some interesting ideas, I did not believe V-Con had much of a chance at success and I turned down the offer.

Unit Rig's early success, in the open-pit mining industry, encouraged the company to investigate other products that could use a diesel electric drive system. In August of 1968 the company introduced the L-120 Lectra Lift, a 60 ton capacity fork lift. The L-120 utilized many components of the M-100 and was designed to carry large slabs of steel at speeds above 25 mph. Unit Rig's engineering department did a good job designing the L-120; but, the Market for a 60 ton fork lift did not develop and this first venture outside of rear dump trucks was a failure. Only two L-120's were built.



UNIT RIG L-120 LECTRA LIFT

Unit Rig had better results getting into the airplane tow tractor business. In the early 1960's, Boeing was competing with Lockheed to build a new heavy logistics transport aircraft. On September 30, 1965, Lockheed was awarded the contract to build the C-5 Galaxy. Boeing decided to go ahead with a project that it had been working on before and during the competition with Lockheed, and announced the start of the Boeing 747 project. Pan American Airlines ordered no less than 25 of these aircrafts. The first demonstration model was finished September 30, 1968 and the 747 was FAA approved on December 30, 1969. Pan Am put the first 747 in operation January 22, 1970.

The ATA decided that the 747 would require a larger tow tractor to move this large aircraft while it was on the ground. They went out for bids for a larger, more powerful tow tractor and on February 26, 1969, Unit Rig announced that it had orders for the new Unit Rig T-150 from Pan Am, and Lufthansa. Unit Rig built a total of 57 T-150's and 12 of the smaller, T-90 tow tractor.



**UNIT RIG T-150
LECTRA HAUL
TOW TRACTOR**

In 1970, Unit Rig started designing a system that would allow a haulage truck, working in an open-pit mine, to operate driverless. Unit Rig teamed up with a Swedish firm, Saab-Scania, to develop and test a driverless truck. The driverless, "The Hands Off Truck" was shown at the AMC Mining show in Las Vegas in 1974.. In 1976 Unit Rig operated a fleet of 5, M-100's, utilizing the driverless system, at Kennecott's Chino Mine near Silver City, NM. An interesting side note was that in order to get the labor union at the Chino mine to agree to the driverless test, Unit Rig had to agree not to sell the system to this mine for ten years. The test was successful and lasted several months and then was disassembled. The system did work but just was not practical with the technology available at that time. Today, with GPS, it might work or maybe this concept is just not practical for open-pit material hauling.

Another big project was the Bucket Wheel Excavator or BWE. This was not one of Unit Rig's better coordinated efforts. A man in Texas had built a mobile digging machine that consisted of three large digging wheels mounted on the front of the unit. These wheels could be lowered into the ground to dig coal, shale, dirt, etc. The wheels would deposit the material on two cross conveyors that moved the material to another conveyor that moved the material to the rear of the machine and on to another conveyor that deposited the dug material on the ground. The machine was mounted on two axles, the rear of which was powered by a diesel engine. A number of people from Unit Rig made trips to Texas to evaluate the machine and eventually Unit Rig signed a contract with the inventor that gave Unit Rig the right to redesign and manufacture a new machine based on the prototype machine. When the Unit Rig design was completed it was very big and very heavy. Unit Rig had trouble finding axles large enough to support the BWE. The BWE did eventually get to the field and was put into service. The axles continued to be a problem. Dust produced by the digging action was another problem. Unit Rig eventually abandoned this project.



UNIT RIG BWE-BUCKET WHEEL EXCAVATOR

After all of the frame problems that Unit Rig had on the M-120-17, Mark-30, Mark-36 and M-200, Unit Rig finally decided to start with a “clean sheet of paper” and design a completely new truck, the MT-1900. Unfortunately this became the pet project of our President and the Director of Engineering. The basic specifications and concepts were not discussed with other more experienced people and the MT-1900 was a disaster. The project plan was to design a 190 ton truck with a main frame that would never fail. The first time that I saw the MT-1900 frame was when it was being fabricated in the weld shop. One of the welders stopped me and asked, “How many tons of payload is this designed to carry”? I told him, 190 tons. His response was, “Are you kidding me? This frame will carry twice that load”.

My reaction to the frame was just about the same. I walked back to the office and went to the engineering department and told the Director that based on the size of the frame, I thought the truck should be rated at a payload of 250 ton. He said that it was a 190 ton truck. I was later told that the truck was designed so that the largest tires that could be installed on the MT-1900 was 36.00 x 51 and the maximum payload on the M-1900 truck, with 36.00 x 51 tires, was 190 tons. It is always a mistake to design a new product without including all departments in the decision making process.

The first MT-1900 was sold to RTB Bor Majdanpek in Yugoslavia. I think that this was actually serial number 52. Serial number 51, I think, was used as a test truck at the plant. Number 52 was shipped to Yugoslavia, March 7, 1986. It had a lot of rear axle problems and did not provide satisfactory service. The salvation of the MT-1900 program was that the new Director of Engineering, Fred Loeber and his people found a way to install 40.00 x 57 tires and we renamed the MT-1900; first, the MT-2050 rated at 205 tons and then the MT-2120 rated at 212 tons. We sold 21 of these trucks to Hamersley Iron in Australia and guaranteed them for 240 ton payloads. Further redesign was done on the MT-2120 and it became the very successful MT-4000.



**UNIT RIG LECTRA HAUL
MT-4000**

The design of the MT-1900/MT-4000 frame got Unit Rig away from the frame concept used on the M-85, M-100, M-120-15, M-120-17 Mark-30 and Mark-36. We also stopped using 100,000 PSI steels in the frame. Although the frame was better than the Mark-36 frame, it still had lots of room for improvements.

In 1984, Unit Rig organized the Product Planning Department and under the leadership of the Product Planning Department, a “Family of Big Trucks” (FBT) task force was organized. These were tough times for Unit Rig and its employees and everyone was concerned about their future and the future of the company. From the beginning, it was obvious that there was going to be some serious conflict between the FBT Task Force and the Engineering Department. The MT-1900 fiasco just made the situation more difficult. The FBT project did not really get going until after Unit Rig came out of bankruptcy in May 1988 and the design of the family of big trucks was left in the hands of the Engineering Department. The results were good, but the Engineering Departments resistance to FBT Task Force and the lack of support from our President delayed getting started on the new truck design during the bankruptcy days. This put Unit Rig four or five years behind where they should have been and made it more difficult to return, after bankruptcy, to a paramount position in the mining industry.

In designing the new trucks, Unit Rig incorporated the Dart’s unique front axle arrangement into the frame design. This new frame design and the end to using 100,000 psi steel move Unit Rig away from the problems of the Mark-36 type frame. The first vehicle utilizing this new frame design was the MT-3700. This was followed by the MT-3600, the MT-3300, the MT-4400 and the MT-5500. These trucks are still being manufactured today and are probably the best trucks that Unit Rig had ever designed.



MT-4400



MT-5500

THE BEGINNING, OF THE END, OF A GREAT COMPANY.

If you ask an ex-Unit Rigger, to pin point the beginning of the end of Unit Rig, the response that you would get would depend on where they worked and when they had left the company. I retired in 1994, and to me the beginning of the end for Unit Rig was the 1985 bankruptcy problems of its owners, Kendavis Industries International, Inc. (KIII). It wasn't so much the bankruptcy itself, because Unit Rig came out of the bankruptcy in very good shape. The real problem was that KIII's bankruptcy forced the sale of Unit Rig. When Terex Corp (Who had just recently been purchased by Northwest Engineering) bought Unit Rig in 1988 they did not, in my opinion, appreciate the potential of the company they had purchased and did not, with a few exceptions, have the right people in place to manage the company. As a result, Unit Rig was not able to return to a dominant position in the off-highway truck market.

On the other hand, a real strong case can be made that the beginning of the end started much earlier, when in the 1970's Unit Rig started going outside the company to hire top management people. I believe that Jesse L. Vint, Jr. wanted to transform Unit Rig from a relatively small company into a large company and he thought that the way to do that was to hire upper management people from big companies like General Electric.. This change in hiring philosophy started when the company began to lose the management team that had guided the company during the 1960's and 1970's. First, in the mid 1970's, a new Manager of Engineering and an Administrative Assistant to the President were hired from outside the company. Then F. C. Morton, V. P. of Finance and John W. Tullis, V. P. Manufacturing retired and in early 1977, C. F. Southward, V. P. of Sales died. The decision was made to replace these managers and many others, with people from outside of the company. The situation was made worse by the fact that most of these new managers brought in additional people to serve on their staffs to try to strengthen their own position in the company. This created new levels of middle management that made for a less efficient and more costly operation. Additionally, these new middle managers were more likely to be competing with the other departments rather than cooperating with them. I believe that employment topped out at over 2,000 people which was way more people than was required to handle our level of business.

On April 12, 1982, A. T. (Tucker) Davis (The son of Kenneth W. Davis, Jr.) was appointed President replacing the retiring Jesse L. Vint, Jr.. By 1985, under Tucker's leadership, Unit Rig had become a leaner company and was in a better position to face the 1985 bankruptcy problems of KIII. A. T. (Tucker) Davis left Unit Rig in 1987.

There were also some bad decisions involving equipment design. In my opinion the decision made, in 1975, to base the design of the new 120 ton payload trucks (M-120-17 & Mark 30) and the 170 ton payload truck (Mark 36), on the design of the successful M-85, M-100 and M-120-15 series of trucks. was a major mistake. The frame design, on the M-85, M-100 and M-120-15 was not suited for a longer wheel base and heavier payload

truck. The Mark-30/M-120-17 was, for the most part, a M-120-15 with a two foot longer frame utilizing slightly thicker steel. Basing the design of the new M-120-17 frame on the design of the M-120-15 frame limited the amount of depth in the main members of the frame and the longer wheel base increased the amount of torque, between the main members of the frame. This torque was transmitted by rectangular cross members that were not well suited to do this job. Adding to the frame problem was the use of 100,000 PSI Steel and the use of .065 inch bare welding wire. The use of 80,000 PSI steel and a different welding technique may have lessened the frame problems. Unit Rig produced over 1000 trucks with what I believe was an inadequate design. This decision cost Unit Rig a lot of money in frame warranties and hurt our reputation as the premier manufacturer of off-highway vehicles.

In hindsight, another mistake may have been in not putting our major competitor, Wabco out of business. In the early 1970's, Unit Rig had a major share of the off-highway truck market and it appeared that Wabco was "on the ropes". Unit Rig's profit on new trucks and service parts was very, very good. It was suggested that we lower our prices a few points and try to force Wabco out of the truck business. If that strategy had been tried, I think that it might have been successful and if so, would have had a important, long range impact on the industry. In the short term, not going after Wabco may have been the right decision, but I think that long term it was a mistake.

By the mid 1980's, Unit Rig had made progress in overcoming its management problems and had definitely over come the equipment design problems of the 1970's and early 1980's. It looked like Unit Rig was on the road to reemerge as a leader in off-highway open-pit mine haulage vehicles, and in my opinion it would have, if not for the bankruptcy problems of KIII.

When the first wave of Terex management took over the operation of Unit Rig, it appeared that their "marching orders" were to immediately lower expenses by getting rid of as many people as they felt that they could, and still operate the company at the level of business that it operated at during the bankruptcy. This resulted in the loss of a lot of very good people who were important to Unit Rig's ability to return to a dominate position in the off-highway truck industry. Although Unit Rig came out of the bankruptcy in good fiscal condition, its market share of new truck sales had suffered and I would guess that Terex based Unit Rig's potential, on its sales level during the bankruptcy and not on the sales level before the bankruptcy. When the second wave of Terex management arrived, they did not seem to have the experience or the patience required to return Unit Rig to the level of success that it enjoyed before the bankruptcy problems. I do not know what level of Due Diligence that Terex did before they purchased Unit Rig, but I am guessing that it was not much. In Terex's defense, the Unit Rig management people, including myself, did not do a good job of convincing Terex of Unit Rig's potential.

Author's note: Shortly after Terex purchased Unit Rig, the new Director of Finance came storming in to my office demanding a list of all of Unit Rig's liabilities. When I told him that no such list existed, he responded, "How the hell can you run a company without

knowing all of its liabilities”? I responded, “How the hell could you buy a company without knowing all of its liabilities”?

There is no question in my mind that bringing in managers from outside the company in the 1970's, the equipment design problems of the 1970 and the bankruptcy problems of KIII in the 1980's's were the principal reason for Unit Rig's decline. But on the other hand, maybe John Neighbors was right, it was just that as good as we were, we just could not stand success. But boy it was a great ride while it lasted.

CHAPTER 11 BANKRUPTCY.

On February 21, 1985, involuntary petitions under Chapter 11 of the United States Bankruptcy Code were filed against Kendavis Holding Company, Kendavis Industries International, Inc. (KIII) and sixteen individual companies that were a part of KIII. Although no involuntary petitions against Unit Rig & Equipment Co. were accepted by the Bankruptcy Court, the court did force Unit Rig to operate as if they were in Chapter 11 bankruptcy.

The primary business for all Kendavis Industries International, Inc.'s companies, which were involved in the filing of the bankruptcy petitions, was connected to the oil industry. The only exception was Unit Rig, whose main business was manufacturing and selling haulage trucks for the open-pit mining industry. The oil industry was going through some hard times in 1985 and this appears to be the root cause of KIII's creditors filing the involuntary bankruptcy petitions. An article, which appeared in the May 19, 1988 issue of The Tulsa Tribune, stated that, "*It (Unit Rig) was forced into bankruptcy in May 1985 as part of the bankruptcy action against the Kendavis group of Fort Worth. A French banking company, to which Kendavis owed \$13 million, had forced the action.*" The Tulsa World stated that, "*Thirteen banks filed petitions with U. S. Bankruptcy Court in Dallas late Friday afternoon, seeking payment of nearly \$400 million in loans that had been guaranteed by the 16 firms, - - - .*" There is not enough information available to me to determine if the action was justified; but KIII and the Kenneth W. Davis, Sr. family had a long history of success in the oil business and it is not hard for me to believe that the creditors would have been better served by giving KIII a chance to work out their problems. It is for sure that Unit Rig would have been better off.

Unit Rig had a good position in the open-pit mining haulage equipment industry and was strong and profitable. Things were good enough that in April, 1985 Unit Rig purchased the Dart Company's line of rear and bottom dump off highway haulage trucks, along with the Dart 600C front-end loader. In 1984, in behalf of Unit Rig, I made the first inquiry into the possibility of Unit Rig purchasing the Terex Corporation (this was before Terex was purchased by Northwest Engineering.) Unit Rig was also in discussion with the Bucyrus-Erie Company, a manufacturer of large power shovels for the open-pit mining industry, regarding the possible purchase of that company. The future had looked very bright for Unit Rig & Equipment Co.

The management of Unit Rig petitioned the Bankruptcy Court to exclude Unit Rig from the Bankruptcy proceedings; but the court decided to delay a ruling on the petition to a later date. The effect of this decision was that Unit Rig had to operate as if it was a part of the bankruptcy proceedings. When the decision was made to sell Unit Rig to help pay off some of KIII's debts, the Bankruptcy Court made Unit Rig a part of the Chapter 11 bankruptcy proceedings.

On May 1, 1987, A. T. (Tucker) Davis resigned as President of Unit Rig and L. T. (Tom) Williams was named Tucker's replacement. During the time that Tom Williams was President, there was an attempt by Tom and other Unit Rig employees to purchase Unit

Rig. I was at first, a part of this action but later withdrew from this effort because I was not satisfied the groups relations with the Davis family. Therefore I do not have any details except that the effort was not successful. In hindsight this might have been a better long range solution for Unit Rig- - - or maybe not.

On October 8, 1987, Joe Freeman, court appointed CEO of KIII, announced that Unit Rig & Equipment Co had signed an agreement of purchase and sale of its assets to Marathon LeTourneau Holding Co, Inc. It was estimated that the final agreement would be signed on November 30, 1987. I do not know what happened to the Marathon LeTourneau agreement. It was rumored that Marathon LeTourneau was late in getting the final agreement to the proper people and Terex Corporation slipped in with an offer that was accepted. That may be what happened, but I suspect that there is more to it than that. As I said, I do not know how this change came about, but it would be very interesting to know what happened that allowed Terex to purchase Unit Rig.

On June 7, 1988, Unit Rig was sold to the Terex Corporation and Frank Hill, an ex Wabco Vice President of Manufacturing, was named President. The company was renamed, Unit Rig Incorporated. On July 15, 1988, Unit Rig Incorporated purchased, essentially all of the operating assets of Unit Rig & Equipment Co. I remember that the Human Resource Department went around and removed all of the small brass tags on desks, chairs etc. that identified that object as the property of Unit Rig & Equipment Co. But nobody bothered to remove the approximately 10 foot high 200 foot long sign on the side of the assembly Shop building that identified this property to be UNIT RIG & EQUIPMENT CO.

From the questions that were asked by Unit Rig's new owners, I suspect that Terex had very little time to do due diligence before they purchased Unit Rig. This could have contributed to Terex not understanding what a strong company they had purchased and to their decision as to how and who would run the company

Later the name of the company would be changed to: Unit Rig a division of The Terex Corporation. When Terex reorganized its mining equipment companies into Terex Mining, they continued to use the Unit Rig & Equipment Co.'s brand name, "Unit Rig Lectra Haul."

A LITTLE TWIST OF HISTORY

At the time that I completed the writing of the "Unit Rig Story", in February, 2010, it had been announced, that Terex Mining had been sold to Bucyrus-Erie Company. As of this moment, I do not know if the sale has been completed, but if it has been, it makes for an interesting twist in the history of Unit Rig and may mean better days ahead for Unit Rig Trucks.

Sometime late in 1984 or early 1985, Unit Rig management, including myself, met in Tulsa, with a team of management people from Bucyrus-Erie to discuss the possibility of Unit Rig purchasing Bucyrus-Erie Company. About the same time, I was authorized by the President of Unit Rig, to contact the Terex Corporation to start discussions with Terex concerning the possibility of Unit Rig purchasing Terex. (This took place before Terex was purchased by Northwest Engineering). I made one phone call, but we never met. This all came to a halt when Unit Rig's parent company KIII went into Chapter 11 bankruptcy on February 21, 1985. If the bankruptcy had not happened there is a possibility that Unit Rig would have owned both Terex Corporation and the Bucyrus-Erie Company.

If the purchase of Terex Mining by Bucyrus-Erie is completed, it could be good for the Unit Rig brand. Unlike Terex, Bucyrus-Erie knows the Open-Pit mining business and could make better use of the Unit Rig family of trucks.

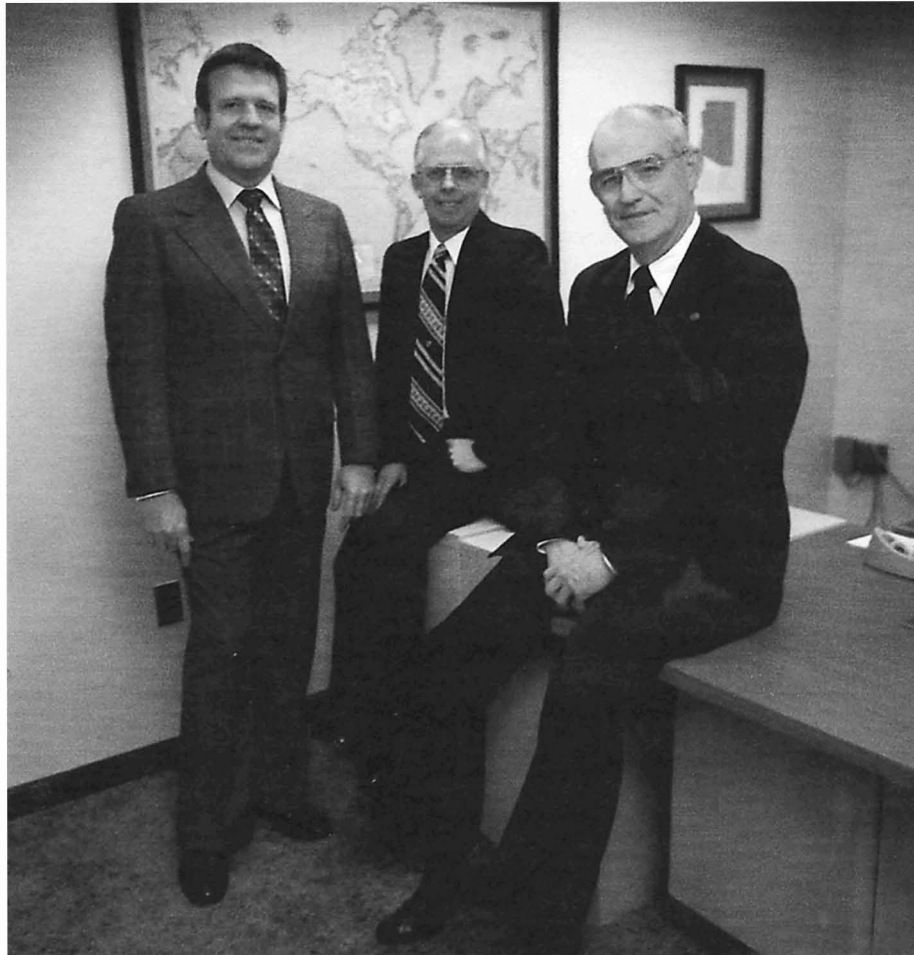
As of December, 2009, Unit Rig trucks were being manufactured in Mexico and sold around the world. Unit Rig Lectra Haul trucks, probably will never return to the days when they were the "Gold Standard" of the industry. But it is a credit to the many dedicated people who worked for Unit Rig, from its beginning in 1936 until today, that the Unit Rig name and Unit Rig products are still respected in the oil well drilling and open-pit mining industries.

The Unit Rig name lives on, at least for now but the company is gone. We will all miss this great company and the people who made it so successful. I don't know about other Unit Rigger's, but I miss; the smell of cutting fluid and the sounds of a machine tool cutting steel in the machine shop, the "fireworks" and clanging of steel on steel in the weld shop and the satisfaction of seeing a truck going together in the assembly shop and all of those manufacturing people who made it happen. And there was the satisfaction of a good design that satisfied the needs of our customers. And of course there were the Family Day Picnics, the Scanner Magazine and the pride of being a part of the best in the industry.

Every department: Weld Shop, Machine Shop, Assembly, Warehouse, Accounting, Parts, Human Resources, Administration, Engineering, and Service and, of course, the "Glory Department", Sales can all be proud of their contribution to our success. I have always said that those of us in the Sales Department got way too much credit when we obtained a truck order and way too much blame when we lost one. Winning and losing an order was a team effort at Unit Rig, and that is what made this an outstanding company. The team is gone. The company no longer exists. But the memories of those golden years in Unit Rig's history will live on in the minds and hearts of all of us "Old Riggers".

SOME AFTER THOUGHTS .

When I started this little project, I knew that I would not be able to acknowledge everyone who, in their own way, contributed to the history of Unit Rig, because there were thousands of you. I did run across a few photographs of people that I worked with that I decided to include:



These are two guys that I worked with in the Sales Department who contributed a lot to Unit Rig's success and from whom I learned a lot. The photograph was taken in 1982. Left to Right, **Bob Pierce**, General Sales Manager, South America, Pacific, China and Australia, in the middle, **Jerry A. Shelton**, General Sales Manager, Europe, Africa and the Middle East and **A. K. (Rusty) Braswell**, General Sales Manager, North America

This photograph was taken at a sales meeting in 1977, not long after C. F. "Charlie" Southward, V. P. Sales died. This was a good group of hard working guys that I was lucky to get to work with.



Front row left to right: Jerry Shelton, Assistant Sales Manager, Rusty Braswell, Acting Director of Sale, Doug Braddy, Service Manager, Rich Kilmer, Coordinator of Advertising & Sales Promotion.

Back rows: R. L. Harris, Sales Representative, Jim Hendy, Sale Representative, R. P. Parmentier, Manager Atlantic Division Sales, Barney Balionis, Manager S. W. USA District Sales, Glenn Samford, Sales Representative, Bob Johnsen, Manager Pacific Division Sales, Al Logan, Manager South African Division Sales, Dick Fleming Manager Northern Division Sales, Tommy Long, Manager South American Division Sales, Wayne Ogden, Sales Representative, Ed Lyle, Manager Western Division Sales, Robert Long, Assistant to Administration Manager of Sales.



**This photograph was taken in about 1967. Left to right:
Unknown, John Neighbors, unknown, Jerry Shelton and Charlie Southward**



**Looking at some really big tires: Left to right,
Ike Braton, Jack Hodges and Bob Stech**



Entertaining customers at the Hilton Hotel in Las Vegas in 1974.

Left side: Jerry Shelton, Paul Guttman, Unit Rig Sales, Mrs. Smith, Zambia, Jesse L. Vint, Jr. President, Unit Rig, Unknown. Right side: Betty Shelton, Mr. Smith, Zambia, Wanda Vint, Unknown.



This is at the Tropicana Hotel in Las Vegas in December, 1993. Earlier in the evening I had told the President of Unit Rig that I was going to retire. Left side: Jerry Shelton, Gary Nicholas, Steve Grant and Keith Pieper. Right side: Don Wilson, Brian King, Terry Doden, Bob Grossman, Shelley Fenley and Dani Turner. I retired in April, 1994.

Author's note: Craig Doennecke was in the Navy during World War II and was second officer on LCT 332. LCT 332 was involved in the landing on Omaha Beach during D-Day and was scheduled to land on the beach 20 minutes after "Zero" hour. Craig said that he remembered American P-47 fighter planes flying cover during the landings. Another of our engineers, John Neighbors, was also involved in the D-Day Omaha landings. He flew P-47's. John was an Ace in World War II and flew F-86's during the Korean War.

One thing that I have noticed about people that have survived a life threatening experience is they do not talk much about it. I am referring to events like the World Trade Towers destruction, the Oklahoma City bombing and any war time combat situations. One day I was sitting at my drawing board in the Engineering Department and John Neighbors and Craig Doennecke were standing a few feet from me having a casual conversation. John had not worked for Unit Rig very long, so it was sort of a get acquainted conversation.

John said, "I hear that you were in the Navy in World War II." Craig responded, "Yeah I was on a LCT Landing Craft." John, "Did you see any action?" "I was second officer on a LCT during the Omaha Beach Landing on D-Day. Our ship was disabled by a Teller Mine before we got to the shore and we had to sit there, off-shore for several hours until the tide went out and we could unload. The Germans were lobbing mortar shell at us and we were glad to have a number of P-47 fighter planes flying over us, attacking the shoreline."

Craig then asked John if he was in the war and John responded, "I flew P-47's in the European Theater. On D-Day I flew missions covering the landings at Omaha Beach." For a few seconds John and Craig just looked at each other and then Craig extended his hand and the two of them shook hands. Craig said, "Thank you." "You are welcome." John responded. For another few seconds they just looked at each other and then they walked back to their drawing boards. I never again heard them discuss the war.

Other Unit Rig engineering people who served during World War II; Gene Wortman flew P-38, Royal Hibblen saw a lot of action as a navigator on PBY's and B-25's. Dick Evans was in the Army Corp of Engineers and served in North Africa and Italy, Duane Lackey was also in the U. S. Army Corp of Engineers and served in Burma, G. A. Tomlinson was an officer in the Navy. I am sure that there were others in the Engineering Department and all through the company who served in World War II I just do not know their names.

During my 42 years at Unit Rig the company had a number of Logo's. The first one was just a rectangle with "Unit Rig" in big letters and "& Equipment Co" under them in small letters. The next was a wide stylized arrow sticking in a bull's eye with the company name at the top and a drilling rig just above the point of the arrow. When the company started building trucks, they removed the drilling rig and replaced it with a truck. Sometime in the early 1980's, KIII decided that we needed a new, more modern logo. KIII designed a new logo and informed Unit Rig of the change. Most of us did not like the new logo and there was talk of getting up a petition to try to get Ken Davis, Jr. to let us go back to the old logo. Having been around for 30 years I knew that it was a waste of

time trying to get this decision reversed so I started trying to get use to the new design by keeping a new logo on my desk and just looking at it several times a day. And that is what I was doing one afternoon when I discovered something unusual about the logo. If you turned the logo 90 degrees clockwise, the red stylized truck became the letters **J S**. I was laughing to myself about this discovery when two young people from the Parts Department came into my office with a petition asking Mr. Davis to give us back the old logo.

As straight faced as I could, I told them that I could not sign the petition since Mr. Davis had gone to the trouble of honoring me (which of course he had not) for my service to the company by incorporating my initials into the logo. I then picked up the logo, rotated it 90 degrees and showed them my initials. They walked out of my office and that was the last time that I heard anyone talk about getting back our old logo. It did not take very long for everyone to get comfortable with the new logo. I personally think that it is the best of our company logos.



MY LAST BUSINESS TRIP

I settled back in my seat as the Boeing 727 jet started moving down the runway at the Reno, Nevada airport. I had said my little prayer, a habit that I had practiced the last few years of traveling, and was ready for the flight to Dallas and then on to Tulsa. The plane lifted smoothly off the runway, followed by the familiar sound of the landing gear retracting. It was January 5, 1994 and it was hard to believe that this would be the last trip that I would make for Unit Rig. I had informed Unit Rig's President, on December 10, 1993, during a sales meeting in Las Vegas, of my intentions to retire on March 31, 1994, after 42 years, 4 months and 4 days.

It had been an interesting career, one that had been challenging and had provided well for me and my family. I owed a debt of thanks to a lot of people including; the original founders of the company, the Kenneth W. Davis Sr. family, the Unit Rig management team during the company's golden years, numerous fellow employees and my wife Betty for her support. I had started as a trainee mechanical draftsman in 1951 and watched the company grow from a struggling supplier of oil field equipment to the golden years as a dominate supplier of trucks for the open-pit mining industry. And now I was retiring as Vice President of Sales. I was leaving without any real regrets, but with some apprehensions over what the future held for Betty and me. But after 482 business trips, 3,015,769 miles of air travel, being away from home 2346 days (6.4 years), visiting about 70 countries on 6 continents (I somehow missed the Antarctica), I knew that it was time to give it up and get on with this the next stage of my life. Travel wasn't the only factor in the decision, there were others including; a change in the management style of the company, my inability to influence the direction the company was taking, a change in the company's relationship with our customers, a strong desire to spend more time with my wife, Betty and a real case of career burnout.

My eyes closed and I relaxed to the sounds of the 727 aircraft. Forty-two years at Unit Rig drifted up from my memory: Missing my first day of employment because I was too scared to go to work; driving to Wynnewood, Oklahoma with G. A. Tomlinson, in his yellow Cadillac convertible, on my first field trip; flying to Lafayette, Louisiana on my first airline trip; and flying to Belgrade, Yugoslavia on my first international trip. I remembered the bitter cold of Russian Siberia; and the almost overwhelming heat at the bottom of Palabora Mining Company's copper mine in South Africa. There was the thrill of seeing the Pyramids in Egypt; the Taj Mahal in India; and the Great Wall of China. The fun of stealing a piece of the Kremlin Wall and Red Square while walking through Red Square one evening. I got to see beautiful Dubrovnik, Yugoslavia, the South American Andes in the summer and the Swiss Alps in the winter. I thought about the mid-night sun in the summer and the long nights in the winter in Kirkenes, Norway; the poverty in Calcutta, India and the prosperity in Vancouver, B.C. Canada. And there were the beautiful Rocky Mountains in British Columbia, the endless sands of the Sahara Desert; Kruger (wild animal) Park in South Africa; and experiencing the beauty of the East and West coast of Australia. And there was all of that jogging, in more places around the world than I could remember.

On the business side, there was the satisfaction of creating a good mechanical design during my days in the Engineering Department, and in the Sales Department, the incredible high when you obtained an order and the equally incredible low when you lost one. There was the loneliness of travel and the thrill of returning home to the family that I loved. I thought about all of the people, all over the world, that I worked with, competed against, sold to, or tried to sell to, and those that I just came in contact with, they would all be missed. (Well, maybe not all of them).

That part of my life was over and I was ready for Betty and me to move on with our lives. In a few hours I would be home from a business trip for the last time and ready to start that next stage of my life. I had once again reached a level of incompetence, but I knew that Betty and I, together, would overcome that incompetence and we would be as successful in this stage of our lives as we had been in all of the previous stages. My eyes opened, and out the window of the plane were the lights of Tulsa - - - - -.

Jerry A. Shelton

AND WHAT ABOUT THE FUTURE? IT SURE WON'T BE LIKE IT USE TO BE.

Years ago, in the 1930's and 1940's, there was a comic strip named "Out Our Way", that appeared daily in one of the Tulsa newspapers. This comic strip featured men that worked in a manufacturing plant that looked very much like Unit Rig's plant on North Elwood Ave in Tulsa. The workers wore Bib Overalls and Railroad Engineers Hats or old felt Dress Hats. These comic strip characters were people that were raised on a farm or still lived on a farm and were now working in the big city. They drove to work, from the country every day, with fresh eggs and produce to sell or give to their fellow workers. The Engineering Department had drawing boards and calculations were made with slide rules. The accountants used green eye shades to block out the light from a single overhead light bulb over their heads and arm bands to keep their white shirt sleeves out of the ink. I am guessing that this is very much like Unit Rig in the 1930's and 1940's.

Things had not changed very much when I started to work for Unit Rig in November, 1951. Most of the workers had probably moved to town and bringing eggs and produce to work was not an everyday happening, but it still happened. I remember sitting in the Assembly Department one day during lunch and watching one of the assembly guys remove a sack of fresh eggs, (that a worker had brought to the Plant Superintendent), from the Plant Superintendent office and hard boil them in a "cooling pan" with a heating torch. After the eggs were hard boiled he returned them to the Superintendent's office before he returned from lunch. I ask the superintendent the next day how he liked his eggs and he just laughed and said that he was not near as surprised as was his wife.

In 1951 the manufacturing and design methods had not really changed that much from the way things were done in 1935. Engineers were still sitting at their drawing boards and doing their calculations with their slide rules. Better lighting made it unnecessary for accountants to use eye shades, and ball point pens made it difficult for them to get their sleeves in the ink. And all of the machining, burning and welding was done by hand. From 1951 until 1994 when I retired, there were a lot of changes mainly brought on by the computer. Drawing boards gave away to Computers with CAD programs. Slide rules were replaced by pocket calculators and accountants let the computers help them keep the books. In the manufacturing plant, computers did a lot of the machining, after a worker had set it up, and a lot of the burning and welding was also handled by computers. Since I retired, in 1994, I am sure that there have been even greater changes.

But if you are impressed with the changes over the last 73 years, then hold on to your hat, because the next 73 years will blow your socks off. I am not going to try to predict what the changes will be, but I will tell you what I think will be the effect of these changes.

I believe, based on what I have been reading that the world is on the threshold of a technological boom that will change both its business and political structure. It will change the way people work and the way they play. Sometime in the future, a manager will be able to sit in his office and have real time meetings with the images of people from another continent, just as if they were really sitting across the table.

It will change health care, transportation and communications. But of more importance is that technology will change the political structure of the world because businesses will no longer be organized around countries, they will be organized in a way that allows the company to produce a product in the most efficient and most profitable manner.

These changes have already started; components for the Boeing Company's new 787 Dreamliner airplane, are being manufactured all over the world and the different components flown to the United State for assembly. Airbus, an English and French company is competing for a contract to build, for the U.S. Air Force, a new aircraft tanker for refueling other military aircraft while in flight. Some of the components for the Airbus airplane will be manufactured by U. S. companies. This change from, "Country" oriented companies to "World Wide" oriented companies will continue and will, out of necessity, force a change in the political structure of the world. The United States must work hard to make sure that in this changing world we are fully in control of our future. We need to keep our way of life, our type of freedom and our moral standards the model for all the world's people

There are only three things, that I can see, that could stop these amazing changes in how, in the future, people live; (1) a failure of our political system, (2) a big natural disaster, or (3) the use of weapons of mass destruction by terrorists. We need to be better prepared for natural disasters, we must as citizen of this great country take a greater interest in the operation of our government and we can not afford to stop working to prevent the use of weapons of mass destruction.

My father, Loy James Shelton, died in 1967, when the United State's was racing to be the first to land a man on the moon, and he me told from his hospital bed that, " It isn't so much that I mind dying, it is just that I hate to miss whatever is going to happen next." I agree with him and when my time comes, I am sure that I will be thinking the same thing.

The great New York Yankee baseball catcher, Yogi Berra said it best, "**The future ain't what it used to be**" It surely is not, Yogi.

Jerry A. Shelton