My Last (and Best!) 23 Years in Coal

by Raymond A. Bradbury

Greetings to all of you from an alumnum of this great University and more particularly an alumnum of the School of Mines, Coal Option, as the Mining Engineering program was referred to then, the Class of 1950. I was one of three non-veterans who graduated in that class of 54 students. We thought then that it would probably be the largest class ever in the mining program. It is my pleasure and privilege to be your guest this afternoon.

I was pleasantly surprised when I received a letter of invitation last January from Dr. Christopher Bise to speak to you today. I've now been retired from the industry for almost 19 years. And now I am also residing in a state, North Carolina, whose residents know very little about coal except that both Duke Energy and Progress Energy burn a lot of it. I rely on e-mails and correspondence from friends who send me articles from West Virginia, Kentucky, Virginia and Pennsylvania to keep me informed about what is going on in the industry. Very little news about coal appears in the Charlotte Observer, and when it does appear it isn't usually good news.

My association with Chris Bise, he has reminded me, goes back to days when I visited Penn State to participate in their Short Courses that Dr. Robert Stefanko was providing. We renewed acquaintance in March of 2010 when Chris was a guest of the Massey Energy Co. at the Raymond A. Bradbury Safety Award program. The company had on display a Safety Expo at the Charleston Civic Center. There were more than 600 Massey members and guests present at that event. I'll say more about that award later.

Some explanation is necessary regarding the title I chose for this presentation. All of my last 23 years in coal were with Martin County Coal Corporation, a Resource Group of the A.T. Massey Coal Co. located in East Kentucky. My earlier years, 19 in all, served me well. At each location and with each promotion I learned valuable lessons concerning both my jobs and the industry. These years prepared me for my greatest undertaking and challenge.

Some background is useful. Graduating in June of 1950 I went to work in the supervisory training program of the Mining Division of Armco Steel Corporation at Montcoal in southern West Virginia. That didn't last long. My career in coal was interrupted by the Korean War. I was draft material and volunteered for the Air Force in January, 1951 and served for 4 years which included a combat tour in Korea as an aerial
navigator. Upon release I went to work in southern Illinois at the Bradbury Mine of Midwest Utilities Coal Co. My Uncle Harry Bradbury needed an engineer to back up his Chief Engineer and Mine Superintendent. "Brad" was my father's older brother. He was an innovator and from him I learned the efficiencies of using 2 Joy 11-BU loading machines on a section. This was in 1955 and you might call it an early version of what we later came to know as a "super section." It was a slope mine with all belt haulage. After 20 months there I decided to go back to east Kentucky.

Next, I gained valuable experience with Princess Elkhorn Coal Co. at David, Kentucky in the thin Elkhorn No. 3 Seam. I earned my first management position there in February, 1960 as General Superintendent of 2 mines and preparation plants. We were innovative, had to be, in coal heights ranging from 26 inches to 40 inches with little of the latter. We pushed the Joy Manufacturing Co. to develop the 14-BU loading machine for that thin seam, introduced 9 foot cutter bars, self-propelled coal drills and six-wheel Joy 18-SC hinged shuttle cars with 6-foot wide conveyors. All of this was done for "low coal." During the year 1960 with an average coal height of 30 ½ inches, operating 9 conventional loading sections, the 2 mines topped 1 million tons of clean coal production for the first time.

Before being promoted I served as Director of Industrial Engineering. In those years many coal companies were using Industrial Engineering techniques doing time studies and scheduled unit-assembly change-out programs on mining equipment. I also was heavily involved with labor relations, another of the functions of that office. I learned to recognize how important it was to know your personnel and I developed interpersonal skills which served me well in my career. Know your people, by name. Develop the ability to remember names, is my advice for any of you who aspire to go into management no matter what level.

As General Superintendent, I also became very aware of my role and responsibility to promote mine safety and accident prevention. I took safety on the job very seriously. I also want to add that my early introduction to the mining business was through my father, Arthur Bradbury. He was Safety Director for the Inland Steel Co. mines at Wheelwright, KY and was known as "Mr. Mine Safety" in East Kentucky. The importance of developing safe workers and safe work practices in coal mines was his legacy to me.

In October, 1962 I returned to Armco's mines at Montcoal. I became Superintendent at the Robin Hood mine near Madison and later, 2 mines at Montcoal. During my time in that capacity I also became involved in a safety training program.
similar to one used at Bethlehem Steel Co. mines known as "The Next Step to Zero." You see, the company and industry were attempting to eliminate disabling and fatal accidents. As Superintendent I was the trainer for our foremen in a very comprehensive safe worker training program. It was successful in that it made us all more aware of developing safe work procedures. I might add that during the time that I was Superintendent at the Robin Hood mine that operation won the "Sentinels of Safety" award for underground mines with an accident-free year in 1964.

With Armco I gained a great appreciation for the maximum recovery of coal reserves. Pillar extraction had been done with conventional equipment for years. In 1964 I was able to introduce the latest type of continuous miners which enabled the company to gain even greater recovery of their reserves, all metallurgical grade coal.

In April, 1966 I took the position of Manager of Mines with Island Creek Coal Co.'s new Elkhorn Division in east Kentucky. I was returning to the former Inland Steel Co. mines at Wheelwright. I was following some advice that an Inland Steel supervisor at Wheelwright had offered me while I was a student here at WVU. It is probably as applicable today as then when he told me to seek to become associated with men in the industry who were recognized as leaders, men of vision and ideas, innovators. With Island Creek I joined George Evans, Dave Bayer (a WVU alumnus) and Stonie Barker. I had in the previous years joined David Francis of Princess Elkhorn, C.O. Kane of Armco Steel's mines and finally, Morgan Massey of the company that carried that Massey name. After 3 ½ years with the mines of Island Creek I left there and that's when my 23 best years began. Let me add that I am forever grateful for the opportunities, challenges and encouragement these men provided me in my career in the coal industry, a total of 42 years. I would hope that in your futures, that is, you students, you would be as fortunate.

In October, 1969 the A.T. Massey Coal Co. was one of three companies to have entered into an agreement to lease coal property in Martin County, Kentucky from the Pocahontas Land Co., the land-holding arm of the Norfolk & Western Railway Co. The original lease was 17,400 acres and in July, 1972 a second lease increased that holding to 27,800 acres. There were 4 minable seams occurring in the leasehold, all above drainage. The coal seams would be both surface and deep mined.

It was my good fortune to be hired by Morgan Massey in November of 1969 and provided the opportunity and privilege of developing that virgin coal property. Massey Coal had negotiated a contract with Duke Power Co. of North Carolina to provide 2 ½ million tons per year of low-sulfur steam coal to be burned at a new power plant then under construction which was scheduled to come on line in 1974. The Norfolk & Western
Railway built a 24 mile spur to serve Martin County Coal and the other 2 companies. This was going to be a major coal producing operation and I was excited about having the responsibility of bringing it into production. This was going to be Mine Design 101 class all over again, but this time for real. I also had 19 years of experience to rely on.

The contract with Duke Power called for coal deliveries to commence by April, 1972. Engineering, test mining, locating our mine portals and preparation plant, constructing an access road to the center of the property and the initial hiring of personnel consumed the most of 1970. Visiting preparation plants and deciding on what company would get the contract for the preparation plant construction also occupied our time. The construction of a power line to serve the new coal companies was a major project for Kentucky Power Co. In early 1971 we were ready to begin the plant construction and our very first mine in the Coalburg seam. Excavation for the prep plant was done by our own personnel. Our target for the plant start up was January 1, 1972.

Martin County Coal's entry into mining occurred following the enactment of the Coal Mine Health & Safety Act of 1969. Sweeping changes were introduced and, being an entirely new operation, our company, from the start, was able to incorporate the features of the new law. One of the greatest features dealt with the electrics. 69,000 volts were delivered to the property by Kentucky Power and we transformed that to 12,470 volts which we took underground. I believe that Martin County Coal was one of the first to take advantage of the higher voltage provision of the new mine law. The underground transformers we purchased were designed for 550 volts to operate our electric-powered equipment at the face as well as the belt conveyors. The continuous miners on order were wired for 995 volts.

The Coalburg seam height averaged 90 inches but at times reached 12 to 14 feet when the Coalburg rider seam approached close enough to mine it along with the main seam. Much more reject came with this, however, due to the parting. With this work height the company purchased high capacity continuous miners, twin-boom roofbolting machines, high-capacity diesel powered haulage equipment and 48-inch belt conveyors for mainline haulage. Forty-two inch belt conveyors were to be used in room and pillar panels. Martin County Coal was first to use Fletcher roof drills with automatic temporary roof support booms known as an ATRS. This product was developed at our Coalburg seam mine. Another product first developed for our Coalburg Mine was the Fletcher Co.’s Mobile Roof Supports. This came as a result of our efforts to recover pillars from that thicker coal seam. They are still sold and used today. Our company now had the equipment for high production.
Most importantly however, was the need to hire, train and develop the safest and most productive work force possible. Notice that I put safety first. I was determined that our mines would make safety our first consideration. In Martin County there were many young men eager to be employed and nearly all of them had no previous mining experience. The unemployment rate in the county at that time exceeded 15%. We planned to hire as many local people as possible knowing full well that we would have a major task of training them to be equipment operators. Although we did manage to hire an experienced continuous miner operator and 2 roof bolt machine operators, 80% of the men we eventually hired to work underground had no mining experience.

Now at age 42, I took some pride in the fact that I had established the reputation of being an innovator when it came to underground mining. The most significant innovation that I am credited with is the introduction of diesel-powered equipment in underground coal mines. Morgan Massey and I had learned of 2 Caterpillar engines that had been approved by the U.S. Bureau of Mines for use in coal mines. The Wagner Mining Equipment Co. of Portland, Oregon had incorporated the largest of those engines, rated at 150 H.P., in a load-haul-dump unit known as a ScoopTram. It had a 7 cubic-yard bucket. A wet scrubber took care of the exhaust. We bought one to use in the Coalburg Seam for the original development of our first underground mine. Martin County Coal and A. T. Massey Coal Co. pioneered the use of diesel-powered equipment in underground coal mines in March of 1971. I might add that the population of diesel equipment in coal mines today exceeds 5,200 units. I recently obtained an up-to-date inventory of all diesel equipment in use in underground coal mines from MSHA. I am impressed with how many different types of machinery powered by diesel engines there are in service in the industry. Personnel carriers, locomotives, tractors and utility units make up the majority of these vehicles. Most of these are used in outby operations. Many diesel units in use today are used in support of longwall mining. I also found that there are quite a few manufacturers of diesel-powered equipment.

First, I had to get permits to use this somewhat controversial piece of equipment in our underground mines. The Commonwealth of Kentucky had actually developed regulations for the use of diesel equipment underground when years earlier the Scotia Mine, in East Kentucky, tried unsuccessfully to use a diesel-powered shuttle car underground. I worked closely with the Commissioner in Kentucky as well as the Supervisor in the Norton District office of the Bureau of Mines. He, Mr. Joe Malesky, also a graduate of the WVU School of Mines, as well as Mr. Joe Lamonica of the Washington office of the Bureau, provided the support needed to allow us to introduce this almost
revolutionary machinery into our mine. Six-month permits are what I was originally issued by the Bureau. The Commonwealth of Kentucky accepted what the Bureau approved. I spent a lot of time reapplying for these permits in our early years for the company soon acquired other units. After almost 2 years a blanket permit was issued for all the diesel units we had in service which by then numbered a dozen. I have to say that the cooperation I received from the Bureau of Mines as well as the Kentucky Department of Mines was exceptional. Both agencies showed a lot of confidence in the way we were operating our equipment.

Wagner also built a high-capacity tractor-trailer haulage unit known as a TeleTram. They matched up very well with the Jeffrey continuous mining machines we purchased. These shuttle trucks, as we referred to them, hauled between 15 and 17 tons of material per load. Three of these vehicles were used on a production section. They had push-out blades to discharge their loads into feeder breakers. Eventually we had a fleet often in the Coalburg Seam and later, 2 thin-seam units in the Stockton Seam mine.

Why, you ask, use diesel equipment? We did so from both a safety as well as an efficiency standpoint. First, this equipment was more powerful. Also, electric shuttle car cables were eliminated. Flexible haulage patterns could be utilized and we were not limited to the distance to haul as would be the case with electric shuttle cars. This flexibility enabled us to have greater room depths in our belt panels which were following the contours of the hills in which we would be mining. Still another benefit occurred due to the increased amount of ventilation required with the use of diesel equipment; this especially after the new respirable dust standards were implemented. There was some early concern about the synergy of the coal dust and diesel exhaust. After many years of use and stringent standards this was never found to be a health hazard as had been forecast by certain parties. Another advantage was the bigger payloads that the TeleTrams carried as I pointed out earlier. Good maintenance programs were implemented and strictly followed. I was determined that we were not going to have any foul-ups with our diesel equipment. Rigid testing standards were followed regarding exhaust emissions.

The first unit train of 25 Norfolk & Western IOO-ton capacity cars was loaded on March 2, 1972. This was a test by the N. & W. to determine if unit trains could be loaded while their locomotives remained connected to the cars and slowly pulled under the loading point. Railroad company officials had to be convinced that IOO-cw unit trains could be loaded in 4 hours. It was a first for them and Martin County Coal proved to them that it would work.
New workers were being hired on a regular basis to enable the company to build to the 2 ½ million tons per year contract we had with Duke Power Co. And each one of these new employees received an orientation regarding what was expected of them with great emphasis on their becoming the safest as well productive equipment operators and employees. I provided most of those safety orientations. I was able to personally convey my sincere commitment to making our mines the safest in Kentucky.

Martin County Coal initiated training and retraining for our employees in 1972, long before the 1977 Mine Safety Law was enacted which then required it. This responsibility fell to the Mine Superintendent originally, much like I had done while I was at Armco Steel's mines. Our employees were paid to be present at these training sessions. As production was being increased it was time to find someone to take over the safety training function on a full-time basis. In 1972 the company had started a second underground mine in the Stockton Seam and also the first surface mine, a contour job mining both the Stockton and Coalburg Seams. In July, 1973 I hired Mr. Ed Chafin to be our Director of Training. He was also to supervise the safety function for the company. He is still engaged in the training business today, while self-employed, and in my estimation he is the very best there is in that occupation.

I can't say enough about the importance I put on training and retraining of our employees. Mr. Chafin and his staff, which included our own mine inspectors and EMTs, did an outstanding job for the company by providing interesting and engaging training sessions for our employees. Training our workers, we felt, was the answer to accident prevention. In August, 1982, our new Training Center opened after having used a double-wide portable type structure for about 8 years. I am quite certain these training days, along with the emphasis that my supervisors put on safe work procedures on the job, were responsible for the success that the company had in attaining low incident rates of lost time accidents.

To illustrate, in 1985, 14 years into production, Martin County Coal Corporation shipped 2,961,565 tons of clean product. The safety performance for the four surface mines and four underground mines reached a new low of 13 NFDL occurrences providing an Incidence Rate of 2.34. This was the best in all Massey Resource Groups and far better than that of the industry at that time. Our company regularly led the Massey operations in its safety performance. However, I regretfully report that the company experienced a fatal accident on September 20, 1982, 11 years after production began. By this time the total production was 18 million tons. When I retired at the end of 1992 production had exceeded 54 million tons of clean coal and we had not experienced
another fatal accident.

As a result of this commitment to job safety, Morgan Massey, in 1986, gave me the additional responsibility of being the Safety Coordinator for the A. T. Massey Coal Co. As such I was now holding quarterly safety sessions with the individuals who were in charge of the safety programs at the other Resource Groups. We compared performances, shared ideas and generally attempted to put into use the safe worker practices that had resulted in improved job safety at each of the other operations.

Regarding our safety program I'll tell you about a talk I gave in which I used the acronym, ACTION. This was what best described what we were doing at Martin County Coal. It was our action program. Without elaborating on each word or words as we did in the paper I'll tell you that we used the words awareness and attitude for the letter A. A positive attitude on the job and continued awareness of potential hazards are important. Communication is the word for the letter C. Verbalizing on the job, person to person, to emphasize the importance of safe practices on the job. T is for training. I've already indicated how much importance I placed on training. Inspection and investigation are the words for the letter I. We expected our own inspections to be as thorough, or more thorough than agency inspections. Accident investigations were performed for every lost time injury and many other near accidents in which injury could have resulted. Observation was for the letter O. Job observations, by foremen, of their employees were required on a regular basis. Critiques, which could include praise, were offered. Last, and with some literary license, enthusiasm for the letter N. Enthusiasm for the job, the task at hand and with a desire to do it correctly and safely, in my view, is also important. In our paper we were more detailed than what I have time for today. As our Director of Training, Ed Chafin covered the training subject and I spoke about the rest.

With a company that I led in its growth and success, with equipment that was productive and safe to operate, with a trained and skilled workforce, with supervisors and a staff who were always there to do their best and with a satisfied customer because we always met their requirements in quality and on-time delivery these were the reasons I give as to why my last 23 years, those spent with Martin County Coal, were my best in coal.

When I retired at the end of 1992, I was honored to have an award named for me, the Raymond A. Bradbury Safety Award, which I mentioned earlier. This came as quite a surprise. The trophy is a bronze casting of me in mining gear standing on a pedestal on which is inscribed a phrase I coined and used in the Massey organization, "A Safe Mine is a Productive Mine." It was awarded annually, usually in March, to the Resource Group
that achieved the best safety record in the previous year. Martin County Coal was the very first winner for their outstanding record in 1993.

At Martin County Coal we had both safe mines as well as productive mines, thanks to a workforce that knew their jobs and then tried to perform them in the safest manner possible. I can't stress enough that there must be a commitment and dedication to mine safety, at all levels, in order to eliminate that possibility of an injury on the job or worse, a fatal accident. Coal mining today is a safe occupation, highly regulated, and although the industry may get a bad rap at times, the record will show that the mines today are the safest that they have ever been. It is just good business to operate a mine safely.