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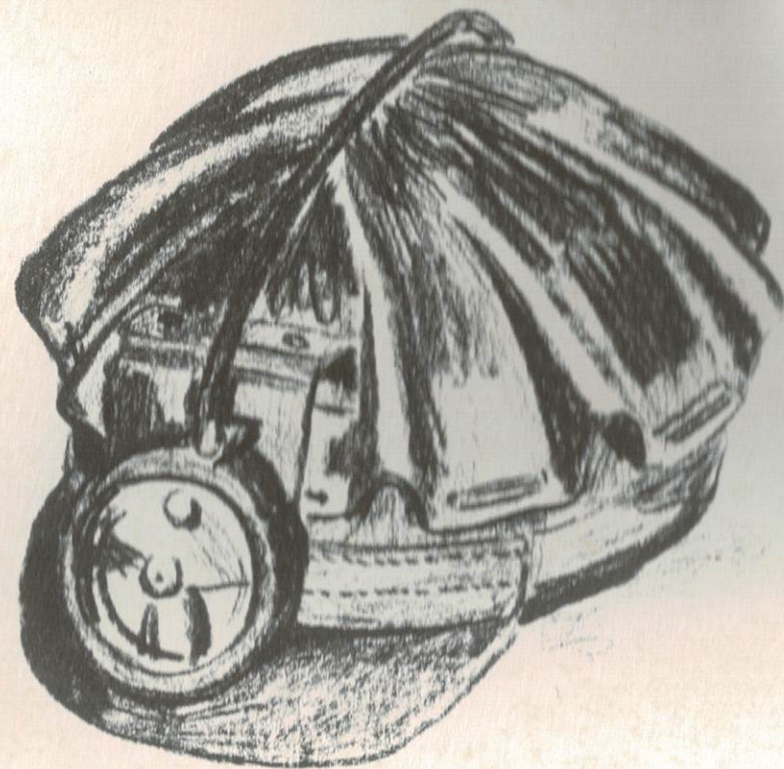
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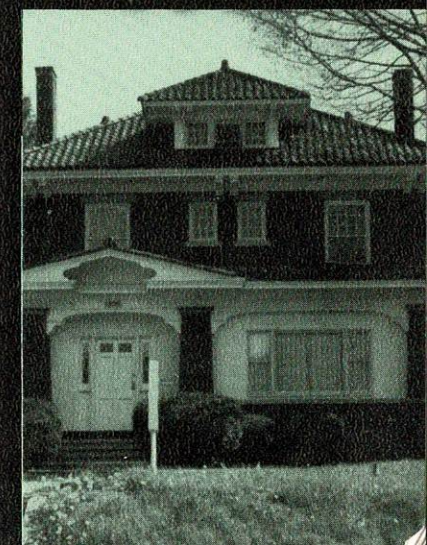
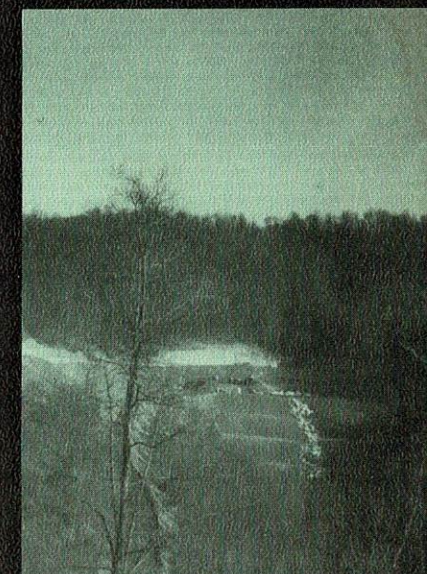
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Spring 1977

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The West Virginia Surface Mining and Reclamation Association is a nonprofit trade organization representing over 260 companies involved directly and indirectly in the surface mining and reclamation industries. Services of the organization include communications and community affairs programs, governmental relations, technical services division, research coordination, as well as a host of other programs designed to enhance and improve the performance of the surface mining industry. Any questions concerning the organization or the publication *Green Lands Quarterly* should be made to the West Virginia Surface Mining and Reclamation Association, 1624 Kanawha Boulevard, East, Charleston, West Virginia 25311. Phone (304) 346-5318.



Over 26,000 Acres Reclaimed



The scars of abandoned surface mining operations will soon be eliminated in West Virginia because of a unique program that has already reclaimed over 26,000 acres.

The Special Reclamation Program was established in 1963, in order to provide funds to reclaim those areas previously mined without a permit or specific reclamation requirements. The program is administered by the Reclamation Division of the Department of Natural Resources, but it is supported solely by the surface mining industry. Operators pay a \$60.00 per acre tax on each new permit, with the monies going into this fund.

Since the program was initiated, over \$9.2 million has been paid into the fund by the surface mining industry and over 26,000 acres have been scientifically reclaimed.

Benjamin C. Greene, Chief, Division of Reclamation, is in charge of administering the fund, and explained how sites are selected for Special Reclamation work.

"We have established a priority system that designates three categories," he said. "First priority is the elimination of a pollution problem affecting water quality and creating damage downstream."

He explained that the second priority is effective stabilization of mined areas visible to the public or near public areas, such as parks, recreation areas or state highways. The third category covers all other types of abandoned mines.

"Initial on-site inspections are conducted by our special reclamation staff to see if the area is eligible for funds under the guidelines of the Code," Greene said. "If it qualifies, then a project can be put out for public bid."

Greene noted that most of the work is done by one of three groups; a Soil Conservation District, a private reclamation contractor, or a surface mining company that is operating in the area.

"All reclamation plans for these Special projects must be submitted to our department for approval and the work is supervised by our Special Reclamation personnel. The staff includes Clifford Burdette, L. V. Minnick, and James Califf.

West Virginia Surface Mining and Reclamation Association President Ben Lusk, believes the program is providing a unique service. "We are the only state to take it upon ourselves to establish a tax to reclaim these areas mined long before present day reclamation technology was developed," Lusk said. "We take great pride in the achievements of this program, particularly since it is funded totally by the surface mining industry, at absolutely no expense to the taxpayers of West Virginia."



However, Lusk revealed that the program is not completely responsible for the elimination of old mining scars. The growing trend toward "restripping" or mining areas that were previously mined is having a significant impact on the reduction of orphaned land.

Greene is also pleased with the increase in restripping and revealed that over 95 linear miles of old highwalls have been re-permitted since April, 1975, and that these highwalls will be eliminated and the areas reclaimed under present day standards.

"This is certainly a healthy trend because we are receiving a higher degree of reclamation through restripping," he said. "It is also a great benefit to our Special Reclamation program, which would normally be responsible for reclaiming these areas."

Reviewing the status report of the fund, Greene noted that annual acreage has declined in recent years from a high of 4,004 acres reclaimed in 1973, to only 822 in 1976. He explained that this is due to the fact that all of the easy areas have been completed, leaving the most inaccessible and expensive projects remaining.

How much is left? According to Greene it is difficult to assess because it depends on the standards prescribed to "orphaned land." Presently the Code defines an abandoned mine as one that was mined without a permit.

"I think an area should be pronounced abandoned only after all the coal has been mined," he said, "because the department's experience with restripping has demonstrated that if there is coal remaining in the ground, it will be mined sooner or later."



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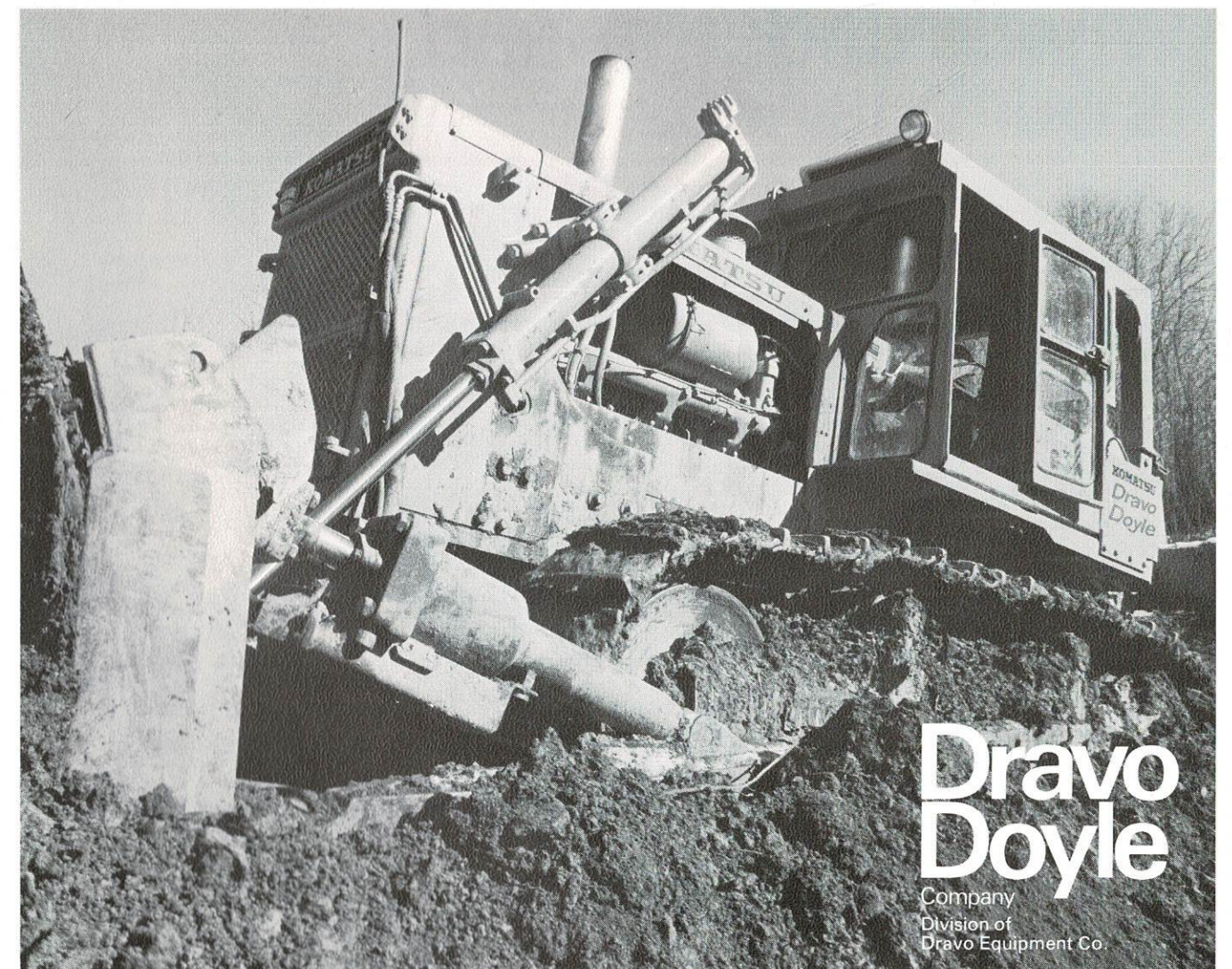
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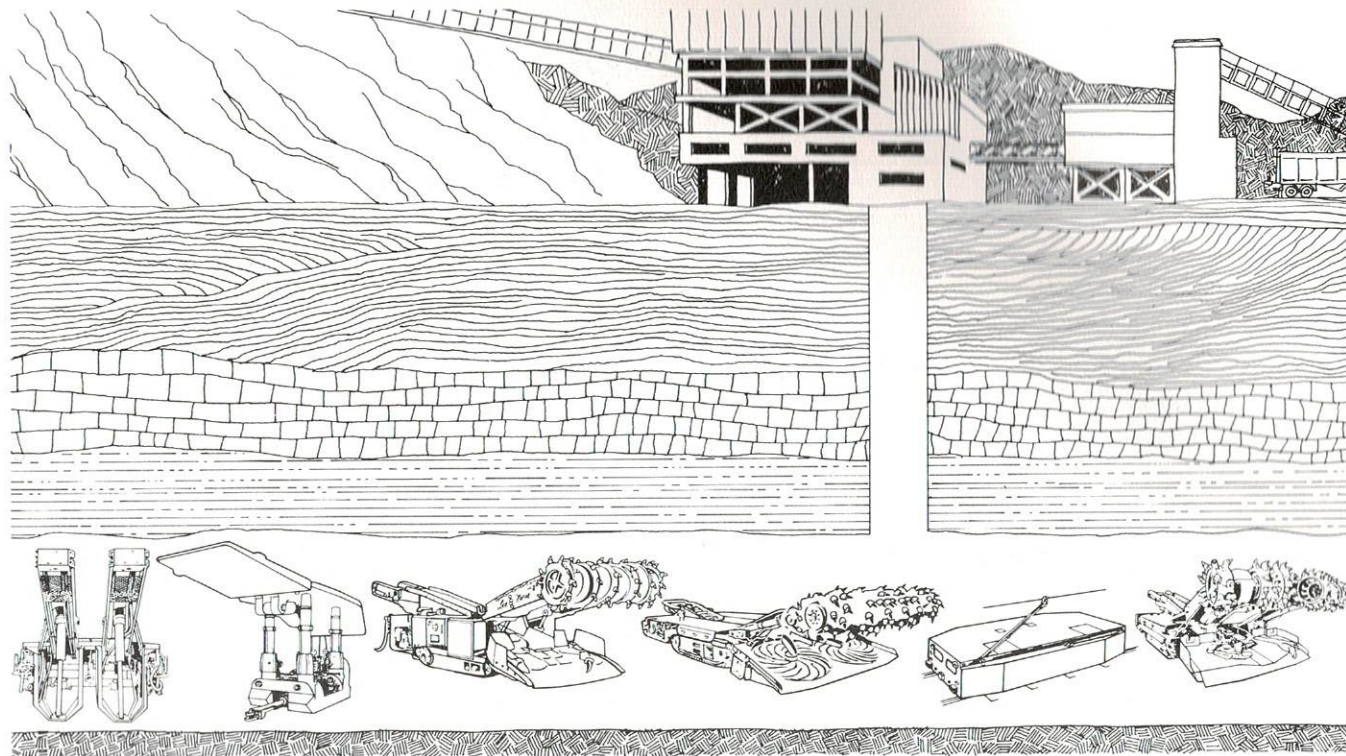
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Pride and Responsibility: Formula For Princess Susan's Reclamation Success

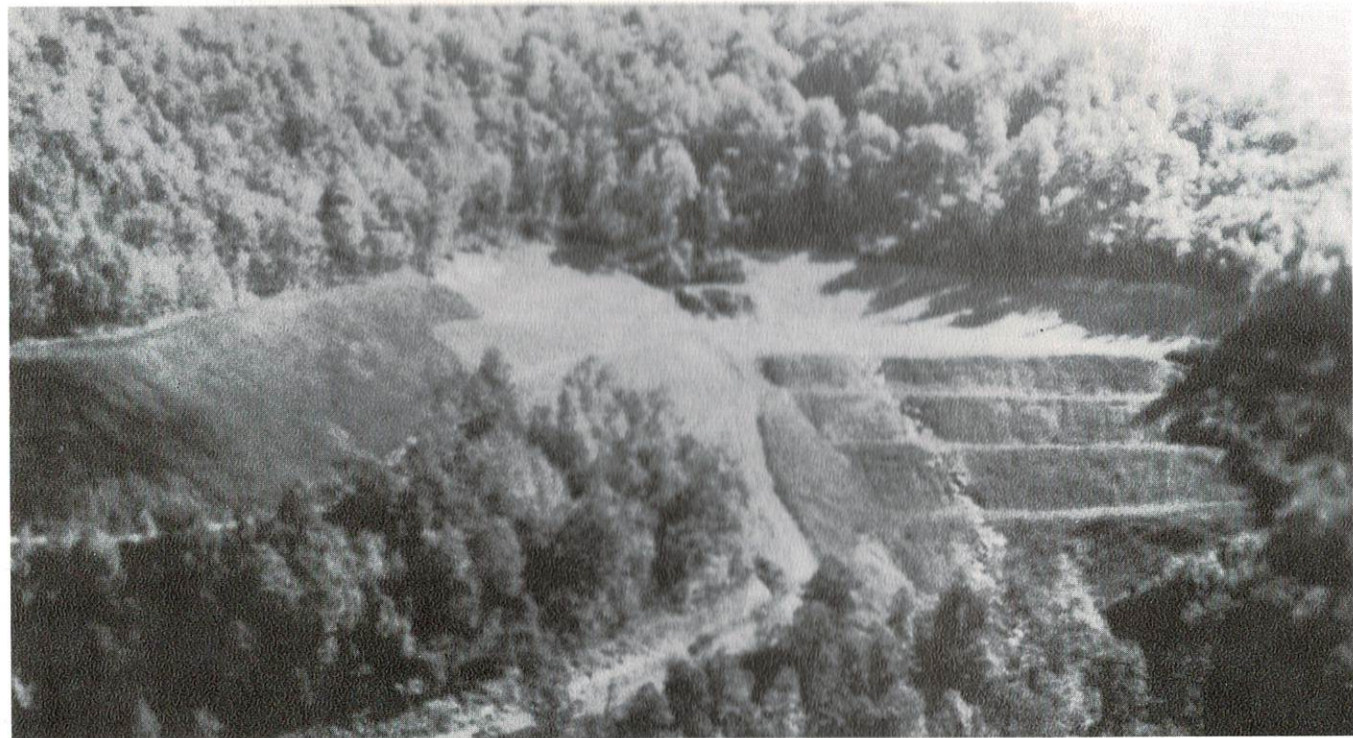
Princess Susan Coal Company has developed a reputation for outstanding reclamation and company President Bill Butler attributes the success to a strong sense of pride and responsibility.

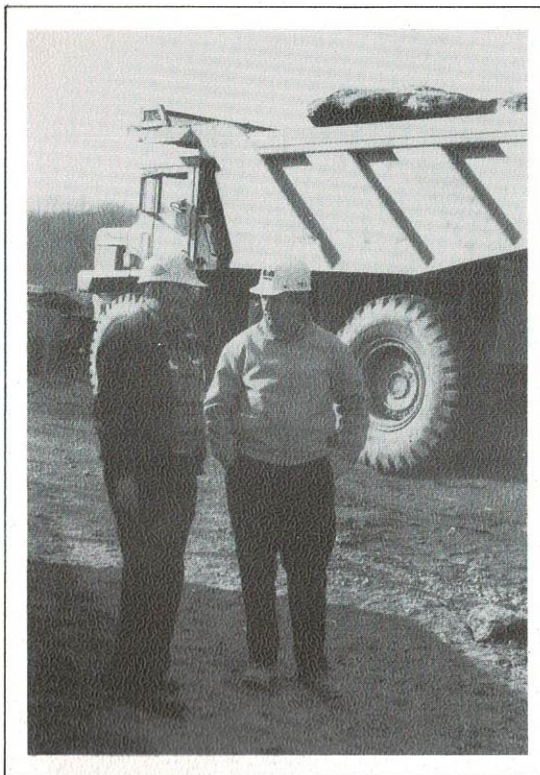
"We try to do a good job that we can be proud of," says Butler. "We all want to feel we can bring anyone out here and say 'Look what we did.'"

Princess Susan, located at Kelley's Creek, Kanawha County, utilizes the haulback mining method (also known as lateral movement) in its operations. This concept, which has only been applied to steep slopes in the last few years, reduces environmental disturbance by nearly two-thirds, as compared to surface mining methods used in the past.

The haulback method involves augering and precision blasting, that prevents material from going over the side of the slope, thereby maintaining the treeline. The overburden material is then hauled from the pit in trucks and backfilled against the highwall, beyond the auger operation. This process eliminates the highwall except for a small drainage trench at the top of the fill, necessary to prevent erosion and siltation.

Princess Susan Coal Company, located in Kelley's Creek, Kanawha County, utilizes the haulback mining method on its operations.





Bill Butler, president of Princess Susan (right), discusses progress being made on an active operation with Job Superintendent Bill Locke.

The haulback method eliminates the highwall with the exception of the small drainage trench at the top of the fill, which is necessary to prevent erosion and siltation.



"The difference between using sound judgment on a haulback operation, as opposed to doing it only half right, does not result in a big financial difference in the long run," according to Butler. While he adds that the initial cost of the procedure may be from 45 to 50 percent greater than conventional contour mining, some of the extra expense can be accounted for on the reclamation end. Not only is the bonded and disturbed area reduced 25 to 35 percent, but also the drainage systems and silt ponds are smaller than those of conventional contour mining operations.

"The costliest situation with haulback is when you're in low coal with a steep slope and you have to take a minimum width," he points out. "Today you have to take an 80-foot pit just to have room for all the equipment."

Butler's pride and responsibility in his work seems to have been inherited from his ancestors. In 1903, his great grandfather established Central Penn, a company that surface mined anthracite coal in Pennsylvania. Central Penn remained active, working in West Virginia and surrounding states, until 1970. It was at that time, that the Butlers returned to West Virginia and established Princess Susan.

Butler noted that his grandfather and father had built a reputable business in anthracite fields of Pennsylvania, and that Princess Susan is striving to maintain that family reputation.

"If we would ever move out of this area, I'd like to feel I could come back and hold my head up," he said.

Presently, however, it seems highly unlikely Butler will be leaving the state.

"In all honesty," Butler says, "West Virginia is where the future is. Someday we're going to have a federal surface mining bill, for better or worse. And when this happens, West Virginia is going to be in a very strong position."

Noting that coal is the answer to the energy problem, he added, "While we'll always have our ups and downs, for the responsible operator, it will be rewarding in the long run. West Virginia's economy is quite secure now, and an expanding coal industry can only strengthen it."

Even with the great production demands being placed on the coal operators, Butler believes that environmental movement is still much stronger than the surface mining industry. "This movement has doubled, and even tripled the price of coal," he stated. "But this is a price society has to pay."

Butler feels western coal is a big threat to the eastern markets in that it will set the price for steam coal in the future. However, he adds that they too have their problems — the biggest right now being transporting western coal to eastern markets.

"The idea of a coal slurry pipeline scares me," he said. "This will drive the price of western coal down to a very competitive level. However, the full effect of western coal will probably be determined more than anything else, by the Arab countries and their control on oil. If the Arabs should initiate an embargo in the future, then we will desperately need all the energy we can domestically produce — including both eastern and western coal."

West Virginia's coal industry, however, should be more concerned with competition from surrounding states, he feels. "Action must be taken to enable us to compete on the same level as our neighboring states."

Princess Susan, which employs approximately 85 people recently moved its offices to the City National Bank Building, Kanawha City.

Butler, a graduate of Lafayette University, resides in Charleston with his wife Cathy and their five children.



The haulback method reduces the disturbed area by nearly two-thirds when compared with conventional surface mining.



"We try to do a good job that we can be proud of," says Butler. "We want to feel we can bring anyone out here and say 'Look what we did'."

The overburden is removed from the pit and hauled by trucks along the trench. It is then backfilled along the highway.



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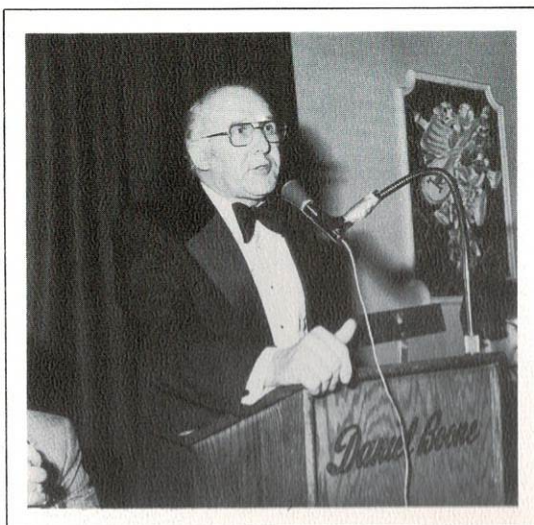
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"Coal Man" Buck Harless Honored At Testimonial



Chairman of the Board Frank D. Jennings welcomes participants to the second annual "Coal Man of the Year" testimonial dinner.



Paul Miller, WVU assistant athletic director, proclaims Mr. Harless "Mr. Mountaineer" for 1977.

Over \$40,000 was raised for the West Virginia University Mountaineer Scholarship Fund at the second annual "Coal Man of the Year" testimonial dinner held January 12, 1977, at the Daniel Boone Hotel, Charleston. The dinner, sponsored by the West Virginia Surface Mining and Reclamation Association and the Mountaineer Scholarship Fund, was initiated last year to recognize individuals for outstanding leadership and service to both the coal industry and their community.

James H. "Buck" Harless, president, Lynn Land Company, was chosen recipient of this year's award. A most active member of the West Virginia Surface Mining and Reclamation Association, Mr. Harless is presently serving as First Vice-Chairman of the Board and has been involved in the coal industry for over 35 years.

Over 300 persons attended the \$100-a-plate dinner, which featured guest speakers Nick Joe Rahall, II, U. S. Congressman; Lysander L. Dudley, Sr., WVU director of development; Paul Miller, WVU assistant athletic director; Frank Cignetti, WVU head football coach; and Lawson Hamilton, Jr., president, X-Cello Corporation. Master of ceremonies for the occasion was Frank Jennings, WVSMRA chairman of the board, and the invocation was provided by Jim Poindexter, president, Mountaineer Euclid, Inc.

Frank Jennings welcomed the group to the testimonial



James G. "Buck" Harless is presented 1976 "Coal Man of the Year" award by WVSMRA President Ben E. Lusk.

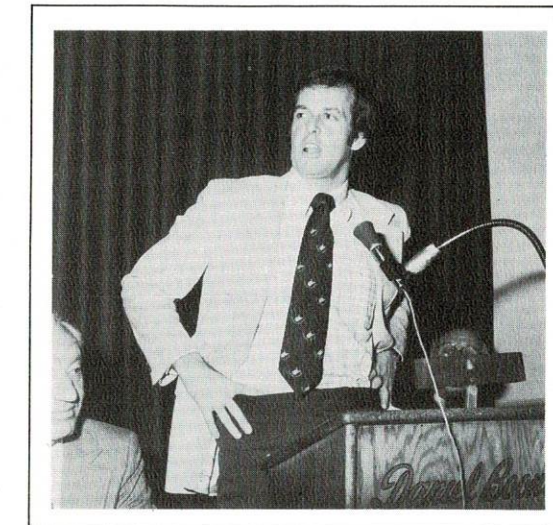
and pointed out that while the state needs increased coal production and improved reclamation, a strong, proud West Virginia also must have citizens who are willing to become involved in community activities and state affairs.

"We need people who will work beyond the realm of their own business, to insure that West Virginia stands out clearly as the pride of every Mountaineer," he said. "If you'll look around this room, you'll see these people; representatives of the coal industry and its related businesses. Whether it's No. 1 in football or basketball, or No. 1 in coal production, we have it because we've got the people who are willing to take that extra step. And that's why we're all here tonight."

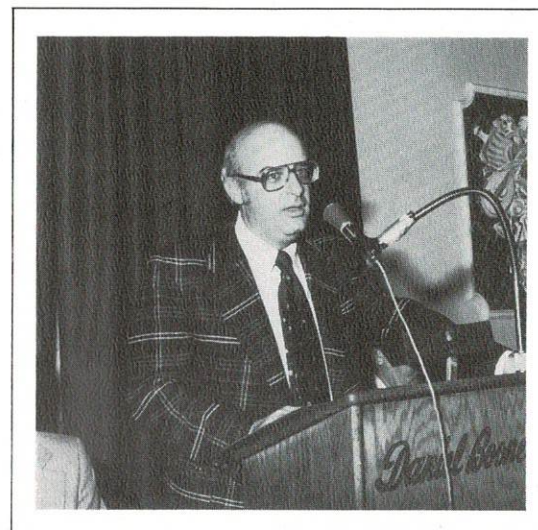
WVU Assistant Athletic Director Paul Miller was very pleased with the success of the testimonial and extended his appreciation to the participants for their interest and support. On behalf of West Virginia University, he presented Mr. Harless with a small statue of the University mascot, proclaiming him "Mr. Mountaineer" for 1977.

Also commending the coal industry for its concern for University athletics was Frank Cignetti, WVU head football coach. Cignetti also discussed the spring football practice soon to get underway, and outlined criteria for a successful 1977 football season.

A special award was presented to Mr. Harless by



WVU Head Football Coach Frank Cignetti forecast a successful season for the squad in 1977 and expressed his appreciation to the coal industry for the supportive role it has played in University Athletics.



Lysander L. Dudley, Sr., WVU director of development, also paid tribute to Mr. Harless for his leadership and service to the Mountaineer Scholarship Fund, the coal industry and his community.

On behalf of the WVSMRA, Lawson Hamilton (right) presents Mr. Harless with a plaque naming him honorary lifetime member of the Association's Board of Directors.



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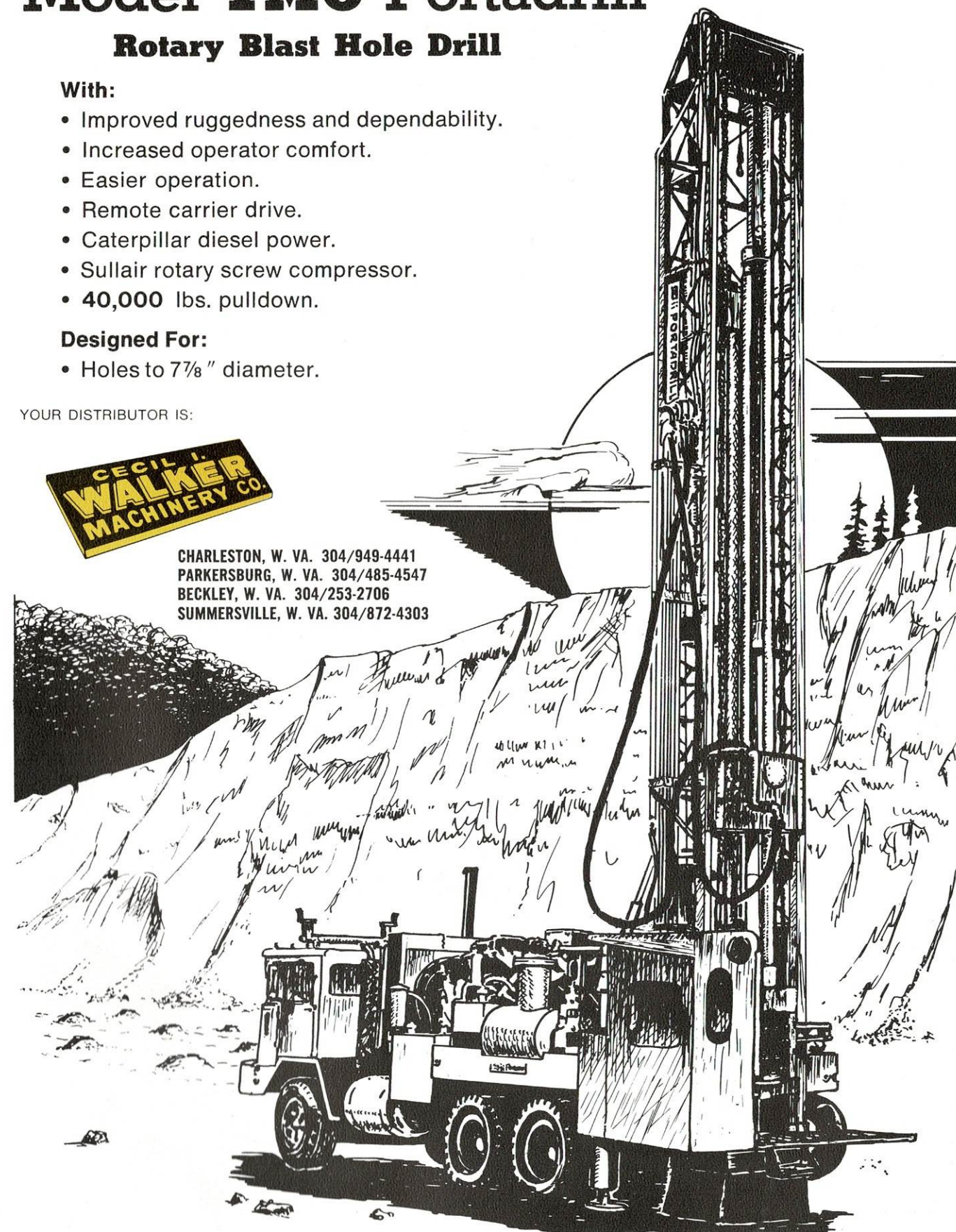
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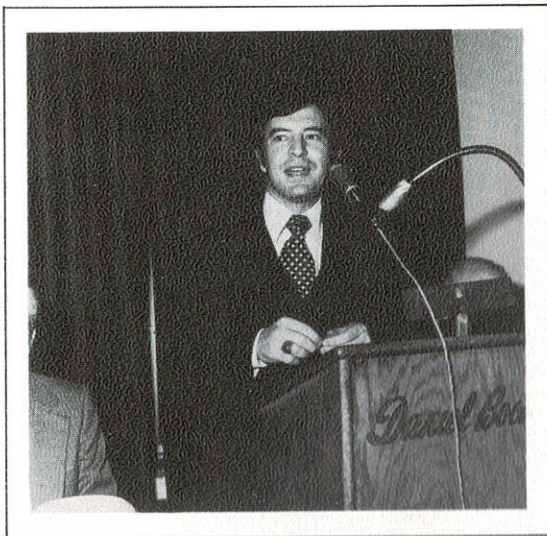
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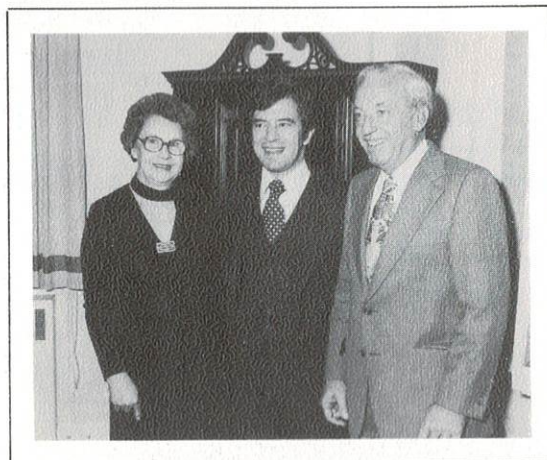


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U. S. Congressman Nick Joe Rahall, II informed the group he has invited the House Committee on Interior and Insular Affairs to visit West Virginia to view the state's successful reclamation program.



U. S. Congressman Rahall is pictured above with June and Buck Harless and below with Yvonne and Ben E. Lusk.



1976 "Coal Man of the Year" James H. "Buck" Harless, president, Lynn Land Company.

Lawson Hamilton, Jr., president, X-Cello Corporation. "In honor of his many achievements and dedication to the surface mining industry," Mr. Hamilton said, "James H. Harless has been named honorary lifetime member of the board of directors, of the West Virginia Surface Mining and Reclamation Association."

Guest speaker for the testimonial event was U. S. Congressman Nick Joe Rahall, II, who informed the group that he had sent a letter to Rep. Morris Udall (D-AZ), Chairman of the House Committee on Interior and Insular Affairs, inviting the Committee to West Virginia to view the state's successful reclamation program, before drafting a new federal surface mining bill. Rahall, who was recently appointed a member of the Committee, stated, "I've talked with Mo several times since sending him the letter, and I've also mentioned it to some other Committee members. Udall and several others seem to be very interested."

A native of Beckley, and a staunch supporter of West Virginia's coal mining industry, Rahall noted that coal was a primary reason he ran for the congressional office. He added that he had sought membership on the Insular Affairs Committee and was happy to see work had begun on the issue immediately.

Pointing out that he felt federal regulation of the surface mining industry was unnecessary, Rahall said, "I believe if Mo and his Committee will come to the district, they will see first-hand the fine job of enforcement done by the State Department of Natural Resources. I'm sure David Callahan (newly-appointed DNR director) will continue tough enforcements and keep this a state where reclamation laws work."

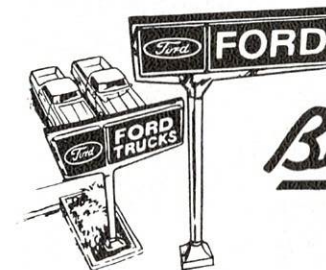
WVSMRA President Ben E. Lusk then introduced the honoree and presented him with the "Coal Man of the Year" plaque and silver wine bucket.



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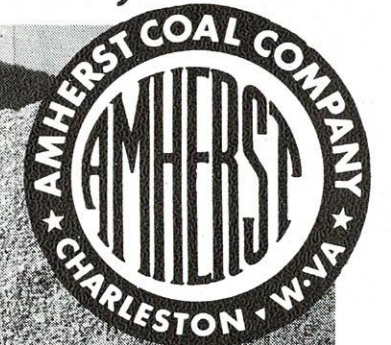
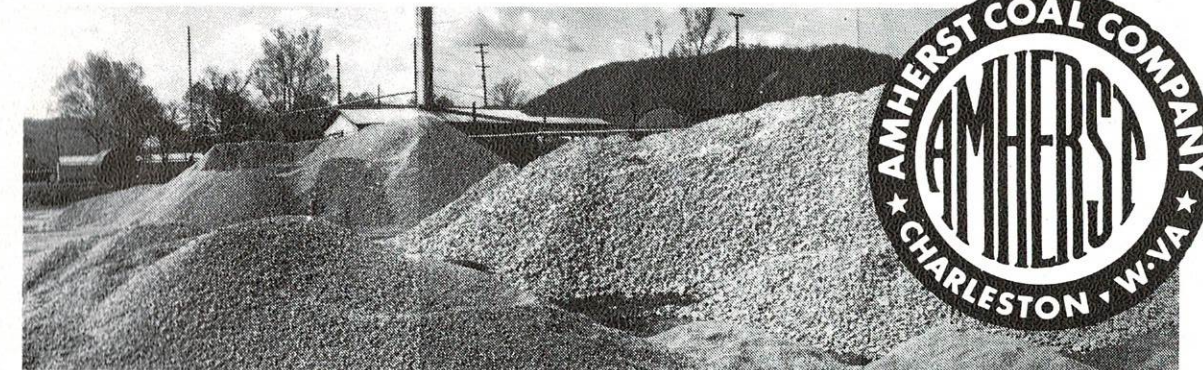
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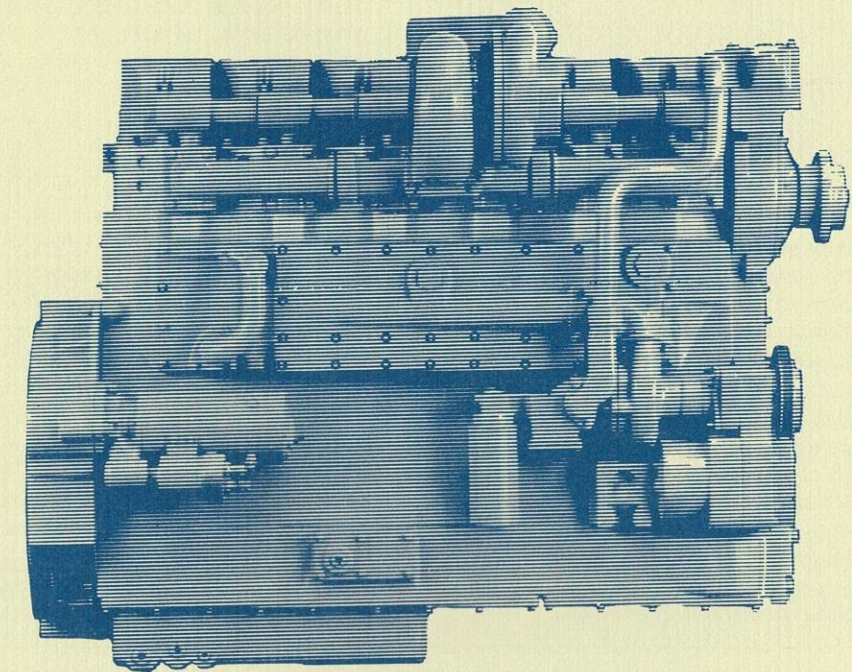
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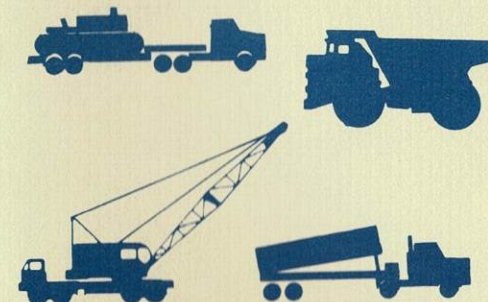


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Cross-Ridge Mining

Skelly and Loy,

West Virginia Surface Mining & Reclamation Association

THE STUDY

Mountaintop removal is one of the few environmentally acceptable surface mining methods in the steep terrain of West Virginia, Eastern Kentucky and Tennessee. Unfortunately, conventional mountaintop mining methods generate consistently greater volumes of overburden material as coal recovery progresses. This continual ascension of overburden handling, combined with fluctuating coal selling prices of today's markets, often make conventional mountaintop removal coal recovery uneconomical before total extraction is achieved. Thus, many operations are abandoned before total elimination of the mountaintop is effected, leaving unsightly highwalls and unmined coal, and never realizing the environmental or land use benefits associated with complete mountaintop removal.

With the intent of eliminating these problems and developing mountaintop mining systems which will ensure efficient, economical, environmentally sound total resource recovery, the United States Bureau of Mines has engaged Skelly and Loy Engineers of Harrisburg, Pennsylvania and the West Virginia Surface Mining and Reclamation Association of Charleston, West Virginia, for a "Design and Evaluation of Cross-Ridge Mountaintop Mining". Cross-Ridge is a relatively new and innovative approach to complete mountaintop removal where mining advances perpendicular to the long axis of a ridgeline rather than along the outcrop. In a joint venture effort the two organizations are committed to:

- Designing several cross-ridge mountaintop removal mining concepts, where mining advances perpendicular to the long axis of the ridge line.
- Subjecting those concepts to detailed technical, economical, environmental analyses.
- Developing a program for field demonstration of the most feasible concept.

Ultimately the project will involve assessments of potential for environmental preservation, equipment and manpower requirements, physical limitations, and adherence to mandated environmental and mining regulations. Pending the outcome of these tasks as a two phase effort, the Bureau hopes to proceed with field demonstration of the most promising concept through a third phase of field demonstration. The following discussions are included to better illustrate the differences between conventional and cross-ridge mountaintop removal mining and identify the benefits that may be realized through cross-ridge applications.

CONVENTIONAL MOUNTAINTOP REMOVAL

Over the past several years, mountaintop removal surface mining has experienced increasing popularity in the Appalachian coal fields. Although the mountaintop removal projects vary in mining procedure, they have one factor in common: most of them use some form of conventional contour mining. With the intention of removing the entire mountaintop, mining is initiated at the coal outcrop, with the highwall either **parallel** to the long axis of the ridge or possibly encircling the entire mountain (Figure 1). The overburden to coal ratio is lowest near the coal outcrop, and initial profits are relatively high. However, as mining continues into the mountain, the overburden to coal ratio increases, thus increasing the cost of coal removal. This increased cost, together with the fluctuating coal market, can often force closure of these operations prior to completion. Ultimately, this results in one of two undesirable situations:

1. The creation of unsightly "applecores", or isolated mountaintops completely surrounded by highwall (Figure 2), or
2. Burial of much needed coal reserves as overburden is replaced around these "applecores" and regraded to conform to acceptable reclamation standards (Figure 3).

These situations are less likely to occur using cross-ridge mountaintop removal.

Figure 3—Overburden Replacement At A Former Mine Site Near Welch, West Virginia

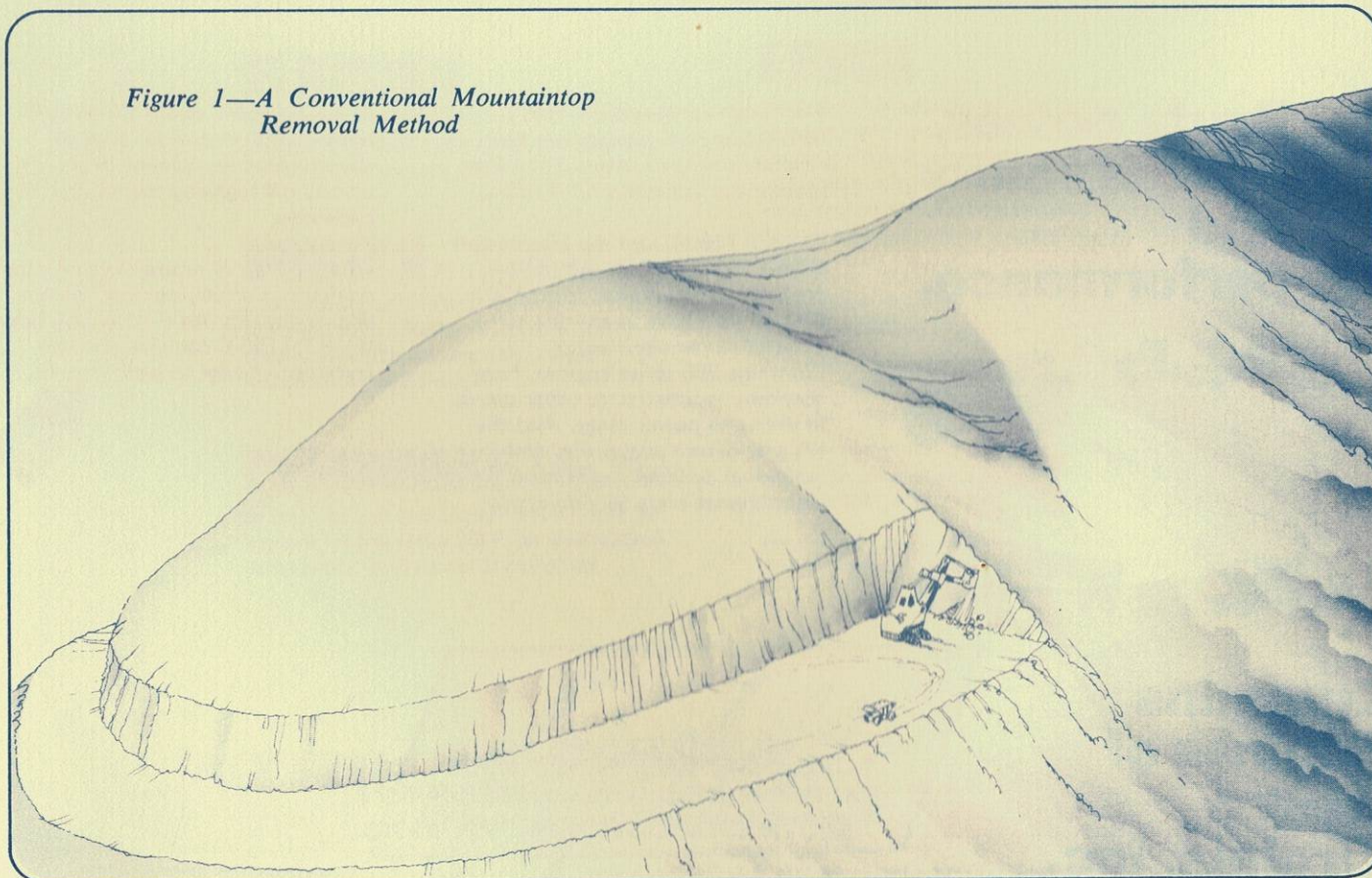


Figure 2—An "applecore" Near Jackson, Kentucky

CROSS-RIDGE MOUNTAINTOP REMOVAL

Because of the environmental and/or economic problems related to conventional mountaintop removal, the concept of cross-ridge is becoming popular. Cross-ridge mining is a type of mountaintop removal in which the highwall is oriented perpendicular to the long axis of the ridge. The initial cut may be through a low point in the ridge (Figure 4) or it may begin at one end of the ridge (Figure 5). Because mining progresses across the ridge, this

Figure 1—A Conventional Mountaintop Removal Method



method of mining combines removal of "low cost" outcrop coal (low stripping ratio) with removal of "high cost" center-of-the-ridge coal (high stripping ratio). Consequently, each block being removed represents an average stripping ratio. Although the initial profits are not as high as from conventional mountaintop removal, profits, as well as coal production, will be fairly consistent throughout the entire operation. In some cases, if a high profit is required early due to such things as high mine site preparation costs, the initial cut could be in a contour method, with subsequent cuts following the cross-ridge method. With a fairly uniform stripping ratio, the economics are much more stable and predictable. Because of this stability, cross-ridge operations have more promise of going to completion, with total recovery of coal.

RECLAMATION AND FUTURE LAND USE

Reclamation is a necessary and important part of surface mining today and can often dictate the profitability of an operation. Conventional mountaintop removal mining often requires intermediate solutions to overburden storage, necessitating costly rehandling of spoil. In cross-ridge mining, reclamation is an integral part of the mine plan, and is carried out concurrently with the mining operation. Disposal of overburden can be a real problem, particularly in steep terrain such as is common to southern West Virginia. In this steep terrain, most surface mining methods, including conventional mountaintop removal, are forced to rely heavily on valley fill techniques. Conversely, cross-ridge mountaintop removal provides a bench upon which overburden can be dumped. As mining proceeds through the ridge, the overburden is backstacked behind the operation on the bench. In this manner, the mining and

reclamation operations are confined to one area, and occur simultaneously. This makes an efficient operation, with equipment and manpower concentrated in one area. Another advantage of this mining technique is that, in most cases, only the first cut must be disposed of in a head-of-hollow fill. However, in the situation where the ridge widens as mining advances, head-of-hollow fills may become necessary for overburden disposal, due to lack of available ridge backstacking space. In any event, with a cross-ridge mining system, valley fill storage appears to be far less than that for conventional mountaintop operations.

Head-of-hollow fill reclamation, a somewhat controversial subject, is presently being assessed by Skelly and Loy under a contract sponsored by the Environmental Protection Agency. Detailed sampling and analyses of all environmental impacts are underway on twelve mining operations in West Virginia and Kentucky, which are presently using these techniques. Hopefully, the findings of this study will be used to formulate an environmentally sound head-of-hollow disposal technique for the first cut material. However, it is important to stress that the cross-ridge method usually relies on head-of-hollow fill only for its first cut material, whereas conventional mountaintop removal methods rely much more heavily on head-of-hollow fills for overburden disposal.

Because of the steep terrain, level land is at a premium in areas conducive to mountaintop removal. Locating suitable sites for housing and industrial developments, airports, municipal facilities, farming, and numerous other uses is a major problem, accentuated by the fact that flooding often makes the narrow valleys unsuitable. Removing the

entire mountaintop can provide a level upland terrain. The overburden deposited on the bench, as well as the head-of-hollow fill material, can usually be levelled, graded, and stabilized with vegetation. Other mining methods, in which the highest portion of the ridge is left standing, cannot produce such extensive level areas when reclaimed.

MINING PROCEDURES

At first consideration, it may appear that cross-ridge mining will require more manpower and more expensive and sophisticated excavation methods than other mining methods. The intent of this project is to prove that the reverse is true. The study will determine overburden removal rates to meet competitive production levels. From this, the necessary equipment can be determined. Truck haulback, scrapers, draglines, excavating shovels, and conveyor haulage are all being considered as possible excavation techniques. In another study, entitled "Development of New Mining Systems for Highwall or Outbound Haulage of Overburden", Skelly and Loy is evaluating the feasibility of using conveyor systems for overburden transport and placement. Some of the new concepts being designed for conveyor applications to mountaintop removal sites could prove to be very efficient haulage systems in cross-ridge mining (Figure 6).

APPLICATIONS OF CROSS-RIDGE MINING

Cross-ridge mountaintop removal mining may not be the best mining technique for every situation. However, in steep terrain, when mining a defined ridge with flat-lying, consistent coal seams, cross-ridge may be a highly viable mining method. One of the primary goals of this study is to determine the physical and economic limitations on the cross-ridge mining system.

A FUTURE FOR CROSS-RIDGE MINING

There is a growing interest in cross-ridge mountaintop removal mining among coal companies today. A number

of companies are considering the use of the cross-ridge technique at selected locations, while several others have been actively employing the technique for a few years.

Cross-ridge mountaintop removal appears to be a viable, promising mining technique for mining of long ridges in steep terrain. We feel that this technique has the potential to offer total coal recovery, consistent profits, stable economics, and good reclamation practices as an integral, efficient part of the mining operation. Skelly and Loy and the West Virginia Surface Mining & Reclamation Association, using sound data, experienced personnel, and ultimately a field test of the cross-ridge mining technique, hope to prove its feasibility and its applications to the surface mining industry.

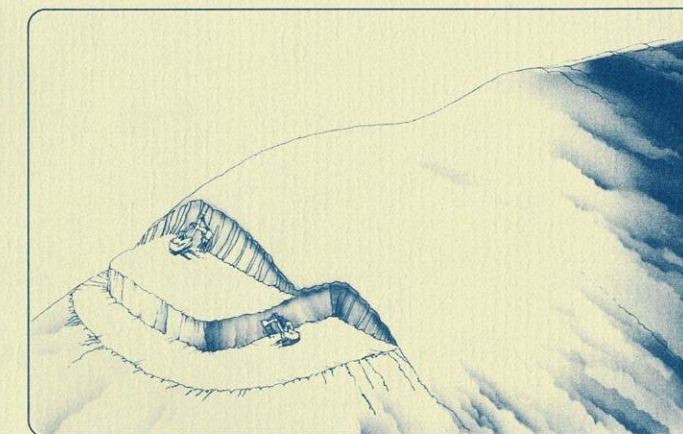


Figure 5—Initial Cut In Cross-Ridge Mining At One End Of The Ridge

Figure 6—Conveyor Hauling Overburden During Cross-Ridge Mining

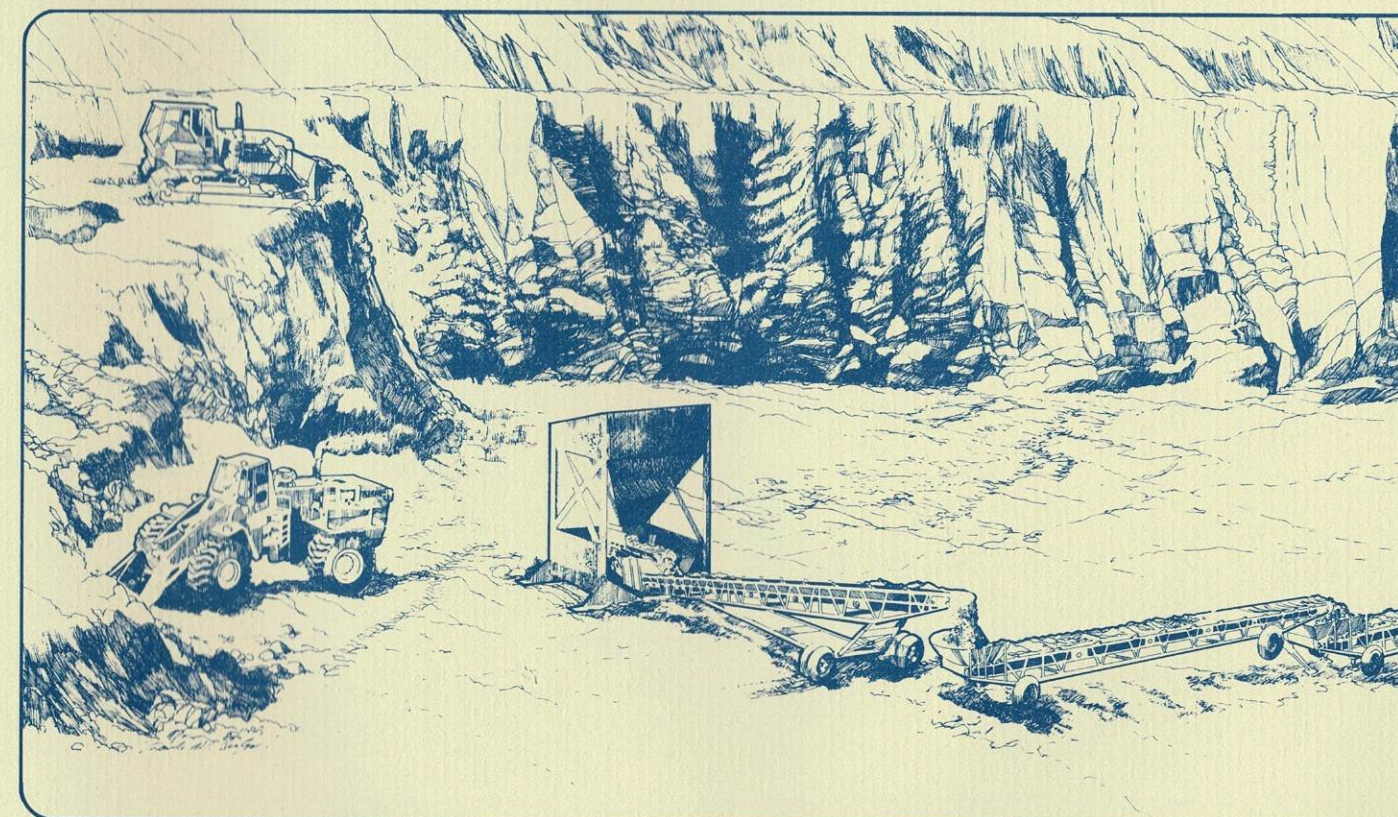
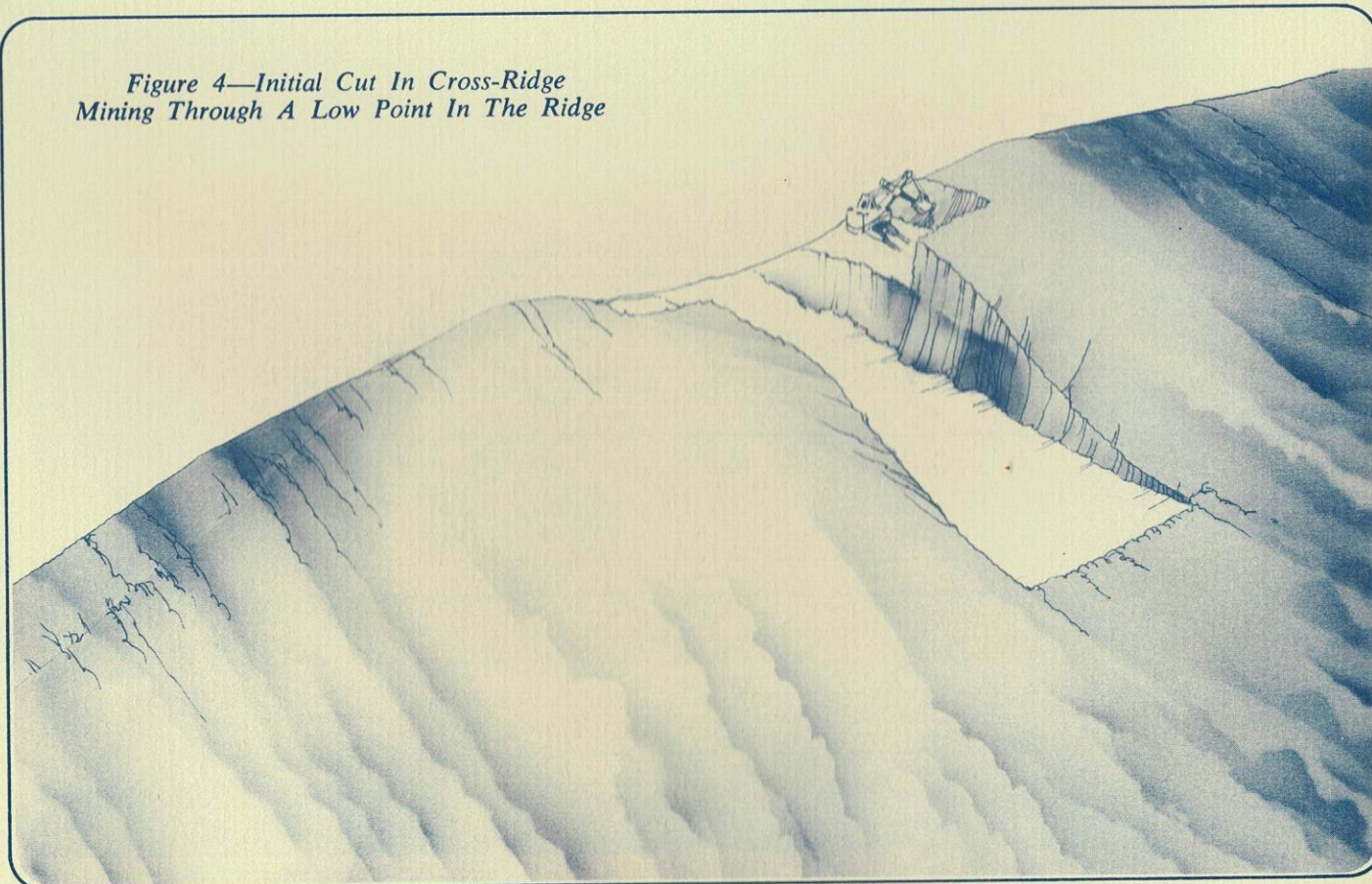


Figure 4—Initial Cut In Cross-Ridge Mining Through A Low Point In The Ridge





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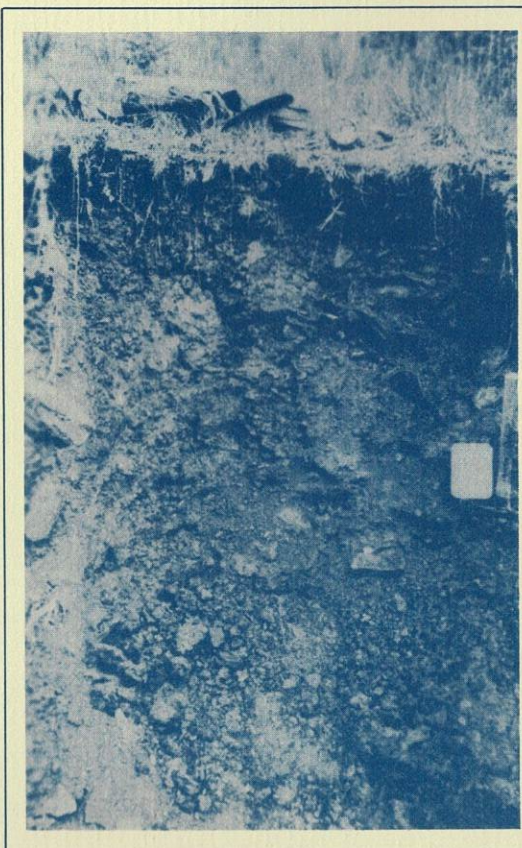
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Each Root Tells A Story

by

Richard Meriwether Smith, Eric Perry and John R. Freeman



Extremely acid minesoil with only shallow roots.

Selective placement of coal overburden and proper treatment with lime, fertilizer, mulch and seed have proved that valuable mined land can be created according to plan. Quick, green ground cover catches the eye of most observers. But research on new minesoils digs deeper than the surface cover. The more we dig the more we learn that plant roots tell what we need to know about the new topsoils and subsoils. If plants such as locust, lespedeza, birdsfoot trefoil, fescue, redtop or other adapted perennials send their taproots and fiber roots down and all through the new soil we can be sure the tops will keep growing.

It is sometimes easier to look at the surface or only the top three inches. This helps tell how to sample for soil analysis or fertilization. But if you really want to know what to expect over time, you have to dig deeper for samples to analyze and to see what the plant roots are doing. This is the approach of our active research on different kinds of new soils.

Many root observations and measurements in minesoils have indicated special reactions between different kinds of plants and different kinds of rock or soil as deep as 6 feet or more (Sencindiver, 1977; Smith, Tyron and Tyner, 1971).

Long range forestry research reported by Chapman (1967) shows that too much grading and compaction causes poor root development and slow growth of trees. Tyner and others (1948) found that roots of young tap-rooted legumes sometimes turned or twisted and wandered in dense or partially acid young soils before reaching their normal depth. This happens because rock fragments and densely-packed fine soil prevent penetration by growing root tips. Similar appearances occur where extreme acidity

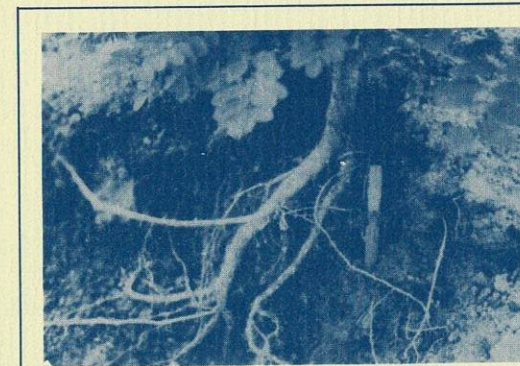


Grading, smoothing, etc. tend to cause compact zones that discourage healthy roots.

and soluble aluminum kill the growing root tips in one place while other branches grow into more favorable soil in a different direction. This habit of roots seems to prevent some plants from being damaged by toxic elements. When the root tips die, they leave the toxic zone isolated and harmless. Sturm (1973) observed that certain invading plants were limited by pH, available phosphorus, and other extractable elements in the soil surrounding most of the roots. Chemical properties in the immediate surface or in some part of the root system appeared to have little influence if most of the root system occurred in more desirable material. This may happen when highly disturbed soils consist of mixtures of contrasting rocks and minerals. With minesoils made from one particular rock type, roots distribute themselves consistently. A recent study by Akers (1975) illustrates root growth by birdsfoot trefoil in mine-soil dominated by weathered sandstone, on the Plant Science's Experimental Farm at Morgantown. The rate and development of birdsfoot roots were influenced here by mixtures with tall fescue grass and rate of nitrogen fertilization, but no compact or chemical barriers stopped roots in the subsoil.

In studying mine wastes or gob piles for classification as soils, Delp (1975) observed that roots penetrated and branched vigorously where such wastes were chemically favorable. Burned wastes, or red dog, often supported vigorous roots. Most unburned wastes were too acid unless limed or topsoiled with favorable earthy materials. Limitations in wastes usually are chemical rather than physical. Mine waste soils usually have medium textures and loose packing that favor good aeration and good root development.

Recent reclamation practices have greatly reduced acidity in minesoils. At the same time, grading, shaping, smoothing and topsoiling with fines only have tended to cause some compact zones at and below the surface that discourage healthy roots. Extreme cases delay intake of free water as well as roots. In time some moisture moves in but essential oxygen exchange does not occur. If the chemistry is favorable, adapted plant roots gradually work



Locust roots in acid mine soil twist and turn and find favorable soil.



Deep, vigorous roots with few barriers.

Barriers form at the contact between layers.



Researchers dig to study roots and soil in birdsfoot field.

their way downward, aided by freezing and thawing, shrinkage and swelling, and by earthworms or other organisms.

Reclamation practices can help provide subsoil root zones that are favorable physically as well as chemically. Medium texture and loose compaction of the top 3 feet helps plant roots. Blending of topsoil and subsoil, including small rock fragments, by chiseling prevents barriers at the contact between layers. Avoiding unnecessary traffic leaves desirable looseness.

Physical stability of deep earth deposits on slopes requires an anchor of coarse fragment as well as some compaction, but we should not forget that roots need air, moisture, friability and mineral nutrients. Moreover, deep roots help protect the soil against surface erosion and shallow slips. We need to plan and carry out procedures that make good physical as well as good chemical properties of soils and subsoils. Remember, each root tells a story, but you have to dig to find it.

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Richard Meriwether Smith, Professor of Agronomy; Eric Perry, Research Technician; John Freeman, Research Assistant; West Virginia University, Morgantown, WV.

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Researcher digs to study roots and soil in clover field.

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Twelve Companies Receive Reclamation Awards

Twelve state surface mining companies received recognition for outstanding reclamation at the West Virginia Surface Mining Symposium's Annual Awards Luncheon, held January 13, 1977, at the Daniel Boone Hotel, Charleston. The companies chosen were based on nominations made by DNR inspectors and supervisory personnel.

Outgoing Department of Natural Resources Director Ira S. Latimer, Jr. was guest speaker at the luncheon and presented the awards to various companies throughout the state for outstanding achievements in surface mining and reclamation. Companies receiving awards were:

CEDAR COAL COMPANY, Kanawha County, "for giving every consideration to overall reclamation, regardless of its methodologies of mining. They have exhibited particular attention to concurrent regrading and revegetation as well as drainage control planning and practice."

EASTERN ASSOCIATED COAL CORPORATION—BLUESTONE COAL CORPORATION, McDowell County, "for innovative approaches to overburden removal and grading, drainage control, and revegetation in order to achieve a product of high quality reclamation. Much of their efforts have been in excess of that required and illustrates a great deal of innovation on the part of the company and operating personnel."

GALLOWAY MINING COMPANY, Upshur County, "for illustrating the maximum consideration for land use feasibility in its preplanning procedures in back-filling and regrading. Future utility of the mined land was the primary objective of this company and its reclamation to date presents a realistic achievement of this critical goal."

GRAFTON COAL COMPANY, Harrison County, "for consistently exhibiting innovative and effective approaches toward the implementing of its pre-planning. They have illustrated good water management in a highly acidic area with extensive cooperation with the state and federal governments in the Snowy Creek and Youghiogheny watershed projects. The innovative use of helicopters and other modern seeding equipment has resulted in notable revegetation accomplishments, while the use of the most modern blasting equipment has significantly reduced the problems and complaints associated with the active operation."



Jick Caldwell accepts award on behalf of Cedar Coal Company.



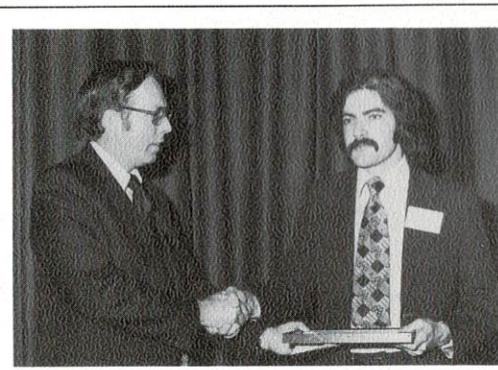
George Garland and Jim Justice accept award on behalf of Eastern Associated Coal Corporation—Bluestone Coal Corporation.



Dale Riggs accepts award on behalf of Galloway Mining Company.



Chick Lockard accepts award on behalf of Grafton Coal Company.



Michael Walk accepts award on behalf of Hawley Coal Company.



Jess Anderson accepts award on behalf of King Knob Coal Company.



Tony Petitto accepts award on behalf of Petitto Brothers, Inc.

HAWLEY COAL MINING CORPORATION, Fayette and Raleigh Counties, "for consistently showing maximum consideration for environmental protection through effective reclamation, as planned in its comprehensive and realistic pre-mining proposals."

KING KNOB COAL COMPANY, Harrison County, "for demonstrating excellent mining and reclamation methodologies on their Isaacs Creek operations. Much of their reclamation efforts have been in excess of current regulations in that they have reclaimed many old existing highwalls with their active mining operations."

PETITTO BROTHERS, INC., Harrison and Barbour Counties, "for overall attention given to reclamation practices throughout the preplanning and operation on permits located in Barbour County. This operator has continually given every consideration to the placement and conservation of topsoil for improved regrading, the advancement of mining in concert with seasonal feasibility so as to achieve immediate out-slope grading and revegetation. This acceptance of reclamation as an operating consideration is very much evidenced by the operations of this company."

RANGER FUEL CORPORATION—D. W. WINKLEMAN COMPANY, INC., Raleigh County, "for showing that proper preplanning and haulback methodologies will produce a very worthwhile product which is better than the pre-existing mining conditions. They have placed a great deal of emphasis on seed bed preparation and slope stabilization in that all inslopes have been tracked in."

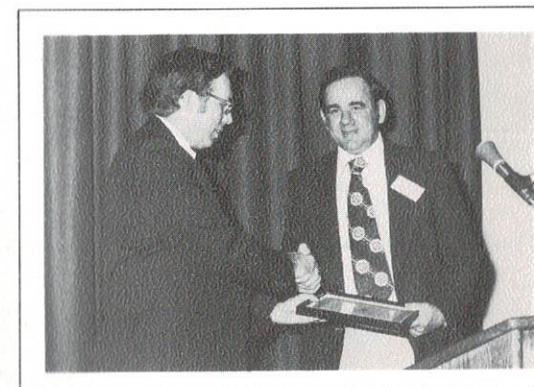
ROBINSON-PHILLIPS COAL COMPANY—WINSTON COAL COMPANY, INC., Logan County, "for overall outstanding performance from a reclamation standpoint. They have given every consideration to all facets of the mining operation from initial planning to final revegetation, with notable emphasis given to spoil stability through tracking and seed bed preparation."

ROCKVILLE MINING COMPANY, INC., Preston County, "for preplanning considerations and respective operations showing the highest regard for aesthetic and environmental improvement in Preston County, as well as exhibiting a great deal of cooperation with the nearby community of Valley Point. Rockville, in their operations, has effectively reclaimed some 75 acres of previously mined land, resulting in the elimination of approximately three (3) miles of existing highwall. Simultaneously, they have cooperated with the community in civic improvement projects involving the elimination of health problems through the dredging of a previously heavily polluted stream in the vicinity and the paving of public roads in order to minimize hazards to the travel of residents. This company's operation illustrates professionalism from beginning to final reclamation."

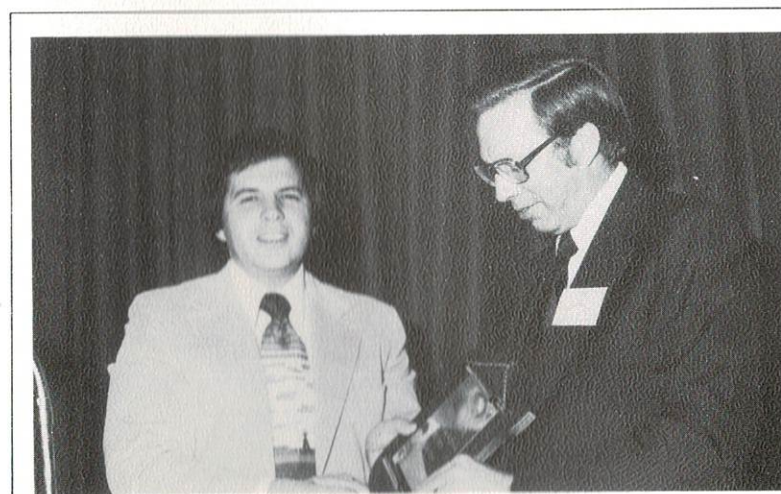
STERLING SMOKELESS COAL COMPANY—VECELLIO & GROGAN, INC., Raleigh County, "for repeatedly showing the highest regard for surface mining operation and reclamation in order to obtain land which is more desirable and useable prior to mining. For example, the new Independence High School near Sullivan was constructed on an area mined by this company. Eventually, the entire operational area will be utilized for one of the most modern educational complexes in the country."

WOOD PRODUCTS, INC., Mineral County, "for illustrating reliable preplanning and conscientious operation in order to achieve an environmentally and aesthetically acceptable product of reclamation. This company's operations have been conducted in critical areas subject to a great deal of exposure with no complaints from the residents of the area or observers who might have passed."

Following the distribution of awards, WVSMRA President Ben Lusk presented Mr. Latimer with a plaque proclaiming him "Reclamation Man of the Year." Lusk also expressed appreciation on behalf of the Association, for Mr. Latimer's outstanding cooperation with the surface mining industry during his seven years in office.



Max Messenger accepts award on behalf of Wood Products, Inc.



WVSMRA President Ben E. Lusk presents "Reclamation Man of the Year" award to out-going DNR Director Sandy Latimer.



Chuck Varney accepts award on behalf of Ranger Fuel Corporation—R. W. Winkleman Company, Inc.



Winston Cline accepts award on behalf of Robinson-Phillips Coal Company—Winston Coal Company, Inc.

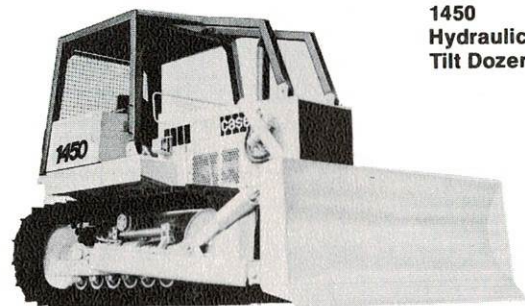


Joe Elliott accepts award on behalf of Rockville Mining Company, Inc.



Jim White and Leo Vecellio, Jr. accept award on behalf of Sterling Smokeless Coal Company—Vecellio & Grogan, Inc.

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Impact of Air and Water Regulations Studied At Symposium



Lt. Colonel Samuel L. Britten, Deputy District Engineer, U. S. Army Corps of Engineers.



Jim Jones, Director of Environmental Quality, Peabody Coal Company.



Ray George, West Virginia Coordinator, U. S. Environmental Protection Agency, Region III.



Larry Demase, Legal Counsel, Consolidation Coal Company.

"The Impact of State and Federal Air and Water Regulations on the Coal Industry," was the theme for the Association's fourth annual West Virginia Surface Mining Symposium, held January 12-13, 1977, at the Daniel Boone Hotel, Charleston. Despite inclement weather conditions, over 250 Association members and their operating personnel, industry representatives and members of the press attended the two-day meeting.

The program opened Wednesday morning with a discussion on "U. S. Army Corps of Engineers—Section 404 Regulations" by Lt. Colonel Samuel L. Britten, Deputy District Engineer. Jim Jones, director, Environmental Quality, Peabody Coal Company, followed with a presentation on the impact and implications of the National Environmental Policy Act (NEPA).

Featured in the afternoon session was a panel discussion on the topic "State and Federal Water Pollution Control," moderated by Jerry Lombardo, corporate director, Environmental Affairs, Island Creek Coal Company. The panel, composed of both state and federal representatives and members of the coal industry, discussed the water pollution control permits coal operators must obtain from the U. S. Environmental Protection Agency and the West Virginia Department of Natural Resources.

Thursday morning activities got underway with a report on "State Air Pollution Standards," by Richard Talbott, Jr., manager, Legal Services, Monongahela Power Company. Mr. Talbott discussed the standards affecting the coal industry and told the group what was being done to help the northern operators with the problem of selling their high sulfur coal.



Jerry Lombardo, Corporate Director of Environmental Affairs, Island Creek Coal Company.

Lee Marshall, acting chief, Air Compliance Branch, U. S. Environmental Protection Agency, then discussed the standards on the federal level.

Wrapping up the technical portion of the program was a panel discussion on present and pending air quality standards. Joseph Mullen, vice-president, Government Relations, National Coal Association was moderator of the panel.

"ALPHABET SOUP"

Presented at the
Fourth Annual West Virginia Surface Mining Symposium
January 12-13, 1977

Besides members of the coal industry, we have on our panel today personnel from the USEPA, the WVDNR and the Army COE. As you know, we are all here today mainly because back in 1972, Congress passed the FWPCA (or PL-92-500). From that law, the USEPA was given control of the NPDES permit program. Also in the FWPCA (or PL 92-500) we find three levels of water pollution control. We must meet BPCTCA by July 1, 1977, we must meet BATEA by July, 1983 and somewhere between these two dates, NSPS, as promulgated by the USEPA, will go into effect.

Once NSPS are promulgated, application to the USEPA for an NPDES permit could well involve an EIS under the NEPA of 1969 (or PL 91-190). If the USEPA is required to submit an EIS to CEQ under NEPA, we, as coal operators, will be required to have an EA. The EA will eventually lead to an EAR (or an EIA) which in turn, would be submitted to the USEPA for their use in deriving an EIS. Once the EIS is approved, then, of course, the NPDES permit will be issued by the USEPA. (Bear in mind, however, that approval may be considerably delayed if objections are filed by the EDF, NRDC, SOCM or ARDC.)

Now, if a state is approved by the USEPA to issue its own NPDES permits (in West Virginia, the DNR would be the control agency), then an EIS would not be required even if NSPS were promulgated. That is true, unless the state had its own "little NEPA", at which time, the same ERA, EIA and EIS consideration as under the NEPA of 1969 (or PL 91-190), would be in effect.

Let us not forget that the WVDNR has its own permit system as authorized under Article 5A (the WVPWA). Section 20-5A-5 of that article enables the WVDNR to issue permits for water discharges.

Remember also, that if your operation involves crossing a stream of 5 cfs or greater, you must apply to the Army COE for a permit. The Army COE also derives its authority from the FWPCA (or PL 92-500) under Section 404.

Before you're through putting in a new mine, you will probably have encountered the WVDOR or the DNR, the CR and DC section of the DNR, the WVDOM, the WV DOH, the SCS and MESA.

And finally don't forget your "spcc" plan. I might also mention the CAA of 1970 (or PL 91-604) with its NAAQS, AQCR, and its SIP for SO₂, TSP and probably NO_x. However, that's another story. If you want to learn more about that, you'll have to come back tomorrow.

So, now you know why we're here. If you understood all of that, you can leave. I wrote it and even I don't understand what I said! But these good gentlemen on our panel today will help to set us all straight.

Jerry Lombardo



Mohammad Baloch, Assistant Chief, Division of Water Resources, West Virginia Department of Natural Resources.



Lawrence Benning, Chief, West Virginia Industrial Section, U. S. Environmental Protection Agency, Region III.



Mark Gold, Chief, West Virginia Legal Branch, U. S. Environmental Protection Agency, Region III.



Bruce Kranz, Environmental Manager, Valley Camp Coal Company.

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
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MINE ACADEMY:

Training For A Safer Coal Industry

"Congress declares that . . . the first priority of all the coal mining industry must be the health and safety of its most precious resource—the miner . . ." Federal Coal Mine Health and Safety Act of 1969.

It's almost ironic that the seventh permanent federal academy, the National Mine Health and Safety Academy, was dedicated during the celebration of our country's bicentennial—a year reflecting on 200 years of our American progress, while simultaneously looking to the future, forecasting an even greater utilization of our nation's most abundant fossil fuel—coal.

The \$20.6 million Academy, located seven miles outside Beckley, West Virginia, was officially dedicated August 17, 1976, in the facility's gymnasium. Speakers on hand for the ceremony included MESA Administrator Robert E. Barrett, Secretary of the Interior Thomas E. Kleppe, Senator Robert C. Byrd (D-WV) and Academy Superintendent Michael G. Zabetakis. The dedication marked the fulfillment of a plan proposed in 1970, based on requirements of the Federal Metal and Non-metallic Mine Safety Act of 1966, and the Federal Coal Mine Health and Safety Act of 1969.

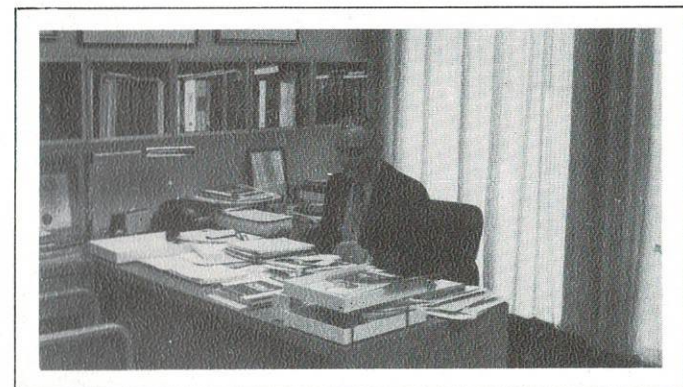
Chief administrative officer for the Academy is Dr. Michael G. Zabetakis. A warm and efficient man, Zabetakis graduated from Washington and Jefferson College, receiving a B.S. degree in chemistry and mathematics and a M.A. degree in physics and mathematics. He later attended the University of Pittsburgh where he received a Ph.D. in physical chemistry. His impressive background includes: Deputy Assistant Administrator, Education and Training (1973-75); Research Supervisor, Methane Control and Ventilation, Bureau of Mines (1971-73); Professor of Mathematics, Washington and Jefferson College (1967-71); Research Director, Health and Safety Research and Testing Center, Bureau of Mines (1965-67); and Physicist and Chief, Branch of Gas Explosions, Bureau of Mines (1949-65).

Dr. Zabetakis' responsibilities at the Academy include formulating, coordinating and implementing programs concerning health, safety, education and training. A Board of Advisors, composed of mining officials, academicians and other coal industry representatives, will be available to provide assistance to him when needed.

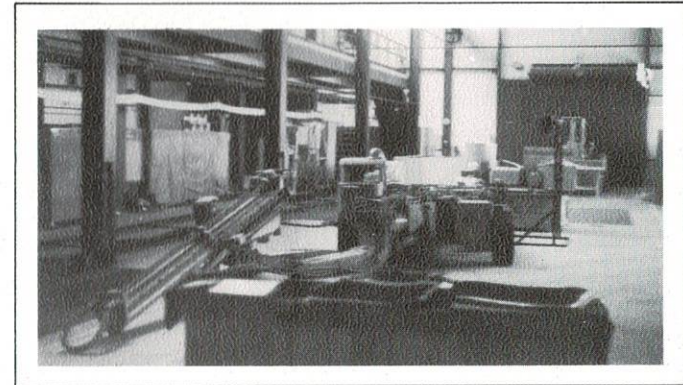
The three heads of the academic department (Resident, Seminar and Continuing Education), as well as a business manager and research and planning coordinator also assist the superintendent in carrying out activities and responsibilities.

The Academy complex is made up of six buildings located on a 70-acre plot, adjacent to the Raleigh County Memorial Airport. Dormitory space is distributed over four levels in the Residence Hall, and consists of 171 two-person rooms, and nine apartments to accommodate visiting lecturers or special guests. Presently the facility has the capacity to provide living quarters for 350. The Administration Building houses the main offices, a 400-seat auditorium and a large cafeteria that can handle 800 students per hour.

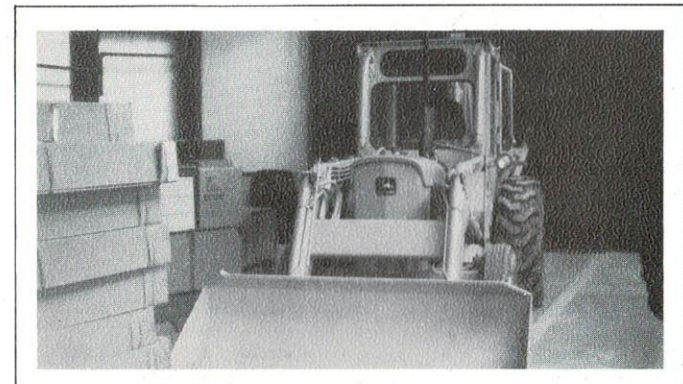
Thirteen classrooms, seven laboratories and a library equipped with a learning resources center are all located in the Classroom Building. A separate structure, the Mine Machinery Laboratory, contains all major surface and under-



"The Academy was founded to establish a permanent facility for training federal employees and mining industry personnel to recognize, eliminate and prevent hazardous conditions in the mining environment," according to Superintendent Dr. Michael G. Zabetakis. "Those who enter the Academy become a part of a growing profound tradition which assures the protection of that most precious resource—lives of America's miners."



A full power panel was constructed in the special mine machinery laboratory to demonstrate operation of the heavy equipment housed in the building. The actual coal mining equipment (such as the front-end loader below) enables students to closely inspect the machinery, while learning the safest way to operate the equipment.



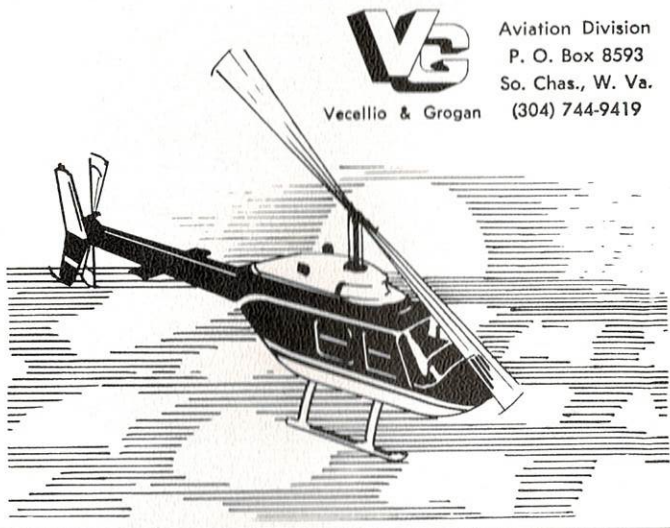


An aerial view shows the vastness of the Academy, which is situated on 70 acres of land outside Beckley, West Virginia. The facility is the seventh permanent federal academy to be established in the United States—joining the Army, Navy, Air Force, Coast Guard, Maritime and F.B.I. Academies presently in service.

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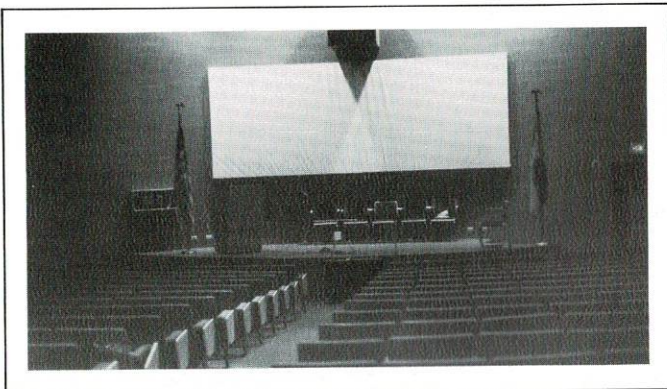
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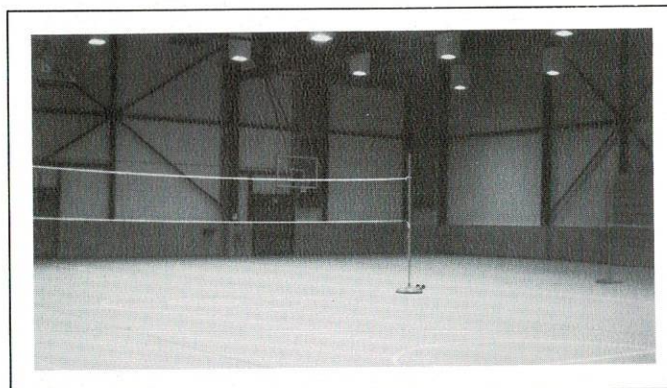
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Facilities include a 400-seat auditorium (above) used principally for seminars and guest speakers, and a fully equipped, modern gymnasium (below). Ceremonies for the dedication of the Academy last August were held in the gym, when keynote speakers included Interior Secretary Thomas S. Kleppe and Senator Robert C. Byrd (D-WV).



Dr. Zabetakis demonstrates the importance of audio-visual aids in the Academy's curriculum. These displays are set up along "Student Street," allowing the student opportunity for additional independent study.

ground mine machinery and also has a full power panel to operate the heavy equipment.

The Maintenance and Equipment Building is utilized for upkeep of all Academy equipment and also for some instructional laboratory study on the heavier mine equipment. A separate building houses the Gymnasium which is well-equipped for numerous physical fitness activities. Other recreational facilities in the Academy include a swimming pool, tennis courts, baseball field, handball courts, and a separate electronic gameroom, card room and table games room.

With the exception of the Maintenance and Equipment Building, the buildings are connected by a quarter-mile long "Student Street" enabling one to travel from building to building without going outside. Future plans include construction of an above-ground simulated mine and a ventilation tunnel.

The overall design of the Academy is a modern interpretation of characteristics found in a coal mine, with the utilization of roughly textured concrete surfaces, long tunnels and exposed steel girders and pipes. The decor includes tree-size plants throughout the complex and realistic coal mining murals on the walls. A large collection of pictures of the Russian coal industry are found along the walls of the Academy. These were presented to Dr. Zabetakis last spring when a group of Russian coal representatives visited the then-uncompleted structure. According to Dr. Zabetakis, many foreign countries have expressed an interest in sending mine inspectors to the Academy for training.

The Academy presently has an approximate enrollment of 150 students per week with an increase to 400 students per week anticipated during the next year. Average age of the students is 42.

Three separate programs, resident, seminar and continuing education, are offered at the Academy. The Resident Program is broken down into: a 12-week instruction course to prepare experienced personnel in becoming mine inspectors; a 36-week course to prepare students with minimum or no direct experience in becoming mine inspectors; and a 24-week safety management and health management course for students interested in mine safety or occupational health management careers with MESA, other state or federal government agencies, or with other aspects of the mining industry.

The Seminar Program provides annual re-training and update of mine inspectors and the coordination and presentation of relevant seminars, short courses, conferences and workshops. This department covers the three categories of coal mine health and safety, metal and nonmetal health and safety, and management training, professional development and special programs.

The third program is that of Continuing Education, which applies mainly to nonresident students. This program trains and educates MESA employees and other government and industry personnel and includes correspondence courses, programmed instruction workshops and audio-visual materials.

Dr. Zabetakis points out that the various programs have "all been developed with one idea in mind—the improvement of the health and safety conditions in mines through education and training. That is our goal. The extent to which we are successful will be reflected in the gains made by the nation's mines in reducing accidents and unhealthful conditions in future years."

Additional information on the Academy can be obtained by contacting the:

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About the Association . . .

GERKIN NAMED EXECUTIVE DIRECTOR OF CONTRACTORS ASSOCIATION

WVSMRA Vice-President Daniel R. Gerkin has been named Executive Director of the Contractors Association of West Virginia. Dan has been with the West Virginia Surface Mining and Reclamation Association for nearly six years.

A native of Pittsburgh, Pennsylvania, he was raised in New Martinsville, West Virginia, and educated in Wetzel County schools. He attended West Virginia University, receiving a Bachelor of Science degree in Journalism in May 1971.

Immediately following graduation, Dan joined the WVSMRA as News and Information Director. His duties included press relations and public affairs, speech writing, speaking engagements and public tours, all involving surface mining and reclamation technology. He was also named Assistant Editor of **Green Lands Quarterly**. In June 1973, he was named Assistant to the Director, with expanding responsibilities to cover advertising and other promotional activities, as well as meeting and convention planning. Following a structural reorganization, Dan was promoted to Vice-President of the Association, with additional duties including internal administration and government relations.

Dan is married to the former Carolyn Blaine of St. Albans.

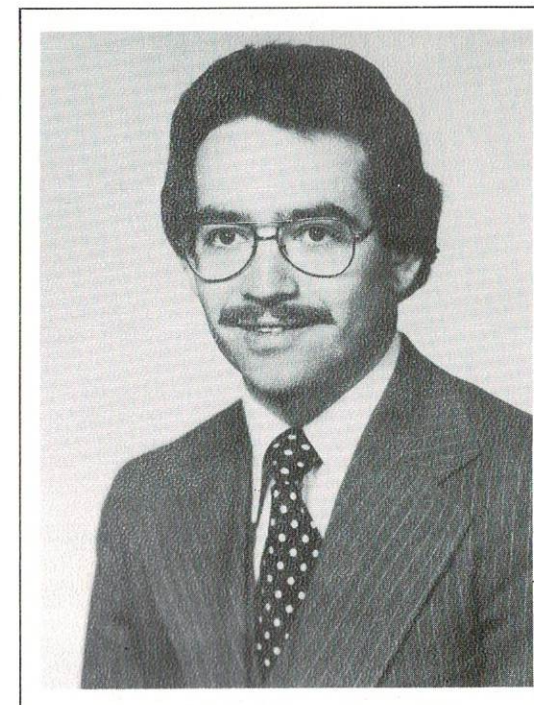
LUSK TELEGRAMS CONGRESS CONCERNING FEDERAL LEGISLATION

WVSMRA President Ben E. Lusk recently telegraphed each member of the U. S. House of Representatives and the U. S. Senate, to clarify the Association's position concerning the federal surface coal mining legislation pending in Congress.

"The West Virginia Surface Mining and Reclamation Association (the nation's largest association dealing with the surface mining of coal) has testified many times in favor of the federal government establishing minimum guidelines for regulating surface mining in the coal-producing states," he said. "Such guidelines should be designed to bring about a more environmentally acceptable industry, while at the same time, develop a more stable and consistent situation for our country's most abundant and readily available energy source."

He pointed out, however, that two bills recently introduced (S. 7 and HR-2) would not achieve that goal.

"Either of these bills would effectively eliminate much of the production capabilities of the surface coal mining industry through restrictive legislation which does not take into consideration new mining methods and improved rec-



DANIEL R. GERKIN

1977 COAL NEWS CALENDAR OF EVENTS

MARCH 6-9

West Virginia University and National Ash Association, short course, Technology and Utilization of Power Plant Ash, College of Engineering, West Virginia University, Morgantown, WV.

APRIL 5

Bituminous Coal Operator's Association, annual membership meeting, The Madison Hotel, Washington, D. C.

MAY 1-4

American Mining Congress, 1977 coal convention, Hilton and William Penn Hotels, Pittsburgh, Pa.

MAY 6-19

West Virginia Surface Mining and Reclamation Association, 3rd International Mining and Reclamation Conference, Sydney, Australia.

JUNE 26-28

National Coal Association, 60th annual convention, Shoreham Americana Hotel, Washington, D. C.

JUNE 30-JULY 3

West Virginia Surface Mining and Reclamation Association, annual meeting, Greenbrier Hotel, White Sulphur Springs, WV.

SEPTEMBER 11-14

American Mining Congress, 1977 mining convention, Hilton and St. Francis Hotels, San Francisco, Calif.

SEPTEMBER 19-24

Tenth World Energy Conference, Istanbul, Turkey.

OCTOBER 14-15

West Virginia Surface Mining and Reclamation Association, board of directors meeting, Lakeview Country Club, Morgantown, WV.

OCTOBER 18-20

NCA/BCR Coal Conference and Expo IV, Kentucky State Fairgrounds, Louisville.

NOVEMBER 17-20

NCA Coal Lawyers Conference, Royal Orleans Hotel, New Orleans, La.

lamation technology developed in recent years," he stated. "The bills presently being proposed have not changed significantly since Congress started its investigation into this issue.

West Virginia, has led all other states in mined land reclamation, Lusk noted, as a result of strict enforcement of a strong state law, the development of new mining methods through various research programs and an industry willing to be an asset to the state rather than a liability.

"We feel strongly that an investigation into the current West Virginia law and the research activities of our industry the past five years should be undertaken by Congress," he said. "We stand ready and willing to accommodate tours of our reclamation sites, provide information to any member of Congress and testify at the request of the various committees studying the surface mining issue on the progress we have made in West Virginia."

Lusk concluded by urging the members of Congress and their staffs to do everything possible to support any effort to adopt federal surface mining guidelines which would effectively help the states develop a strong program to bring about a more environmentally sound and economically stable industry, rather than support current proposals that would only worsen the present energy crisis.

EASTERN MINING AND INDUSTRIAL SHOW SLATED MAY 17-19

The 1977 Eastern Mining and Industrial Exposition will be held May 17-19, at the Charleston Ordnance Center, South Charleston, West Virginia. Formerly known as the West Virginia Industrial and Mining Show, the name of the event has been changed to reflect its status as a major national and regional exposition of mining and industrial equipment, products, services and supplies.

The West Virginia Industrial and Mining Show originated in 1959, and its last show, held in October, 1975, attracted 170 exhibitors from twenty-one states, and over 9,000 visitors. The 1977 show already shows promise of being a record-breaker, and will feature exhibits from the world's leading manufacturing, supply and service companies affiliated with the coal industry.

EXPLOSIVES, INCORPORATED HOLDS BLASTING SEMINAR

Explosives, Incorporated of Bridgeport, sponsored a blasting seminar last October for the Department of Natural Resources' northern and central West Virginia inspectors. The seminar was held at the company's "Powder House" on Route 73, north of Bridgeport.

According to Bernard J. Folio, president of Explosives, Inc., the company organized the seminar at the request of the Division of Reclamation, Department of Natural Resources, "to better acquaint the inspectors with blasting and the various solutions to the problems in blasting."

Criteria for the seminar included: basic blasting, handling, use and storage of explosives; facts regarding delayed blasting; four methods of controlled blasting (line drilling, cushion blasting, smooth blasting and pre-shearing); and how to reduce the noise from blasting. Instructing the

group were Robert J. Valentine, marketing representative for E. I. DuPont deNemours & Company, and Bernard Daugherty, technical representative for Explosives, Inc.

Approximately 20 men attended the seminar, which was the fourth in a series of one-day technical sessions designed to keep the inspectors abreast of current mining and reclamation techniques being utilized in the state. Previous seminars were held earlier in the year on overburden analysis, geology and water quality.

LOUISVILLE COAL SHOW "GREAT SUCCESS"

The NCA/BCR Coal Conference and Expo III held in Louisville, Kentucky last October, was a great success, featuring over 200 exhibitors and numerous informative seminars. The show opened with a musical salute to the industry entitled "I am Coal. . . I am America" and featured a special banquet for the registrants and exhibitors. Daily seminars included over 120 papers presented by industry and government representatives, covering such topics as surface mining and reclamation, coal mine drainage control and research, and coal management techniques.

The West Virginia Surface Mining and Reclamation Association exhibited its display booth at the conference and copies of **Green Lands Quarterly** and literature on surface mining in West Virginia were distributed. Manning the booth during the three-day show were staff members Dan Gerkin, Terry Iden, Cindy Jennings and John Sturm.

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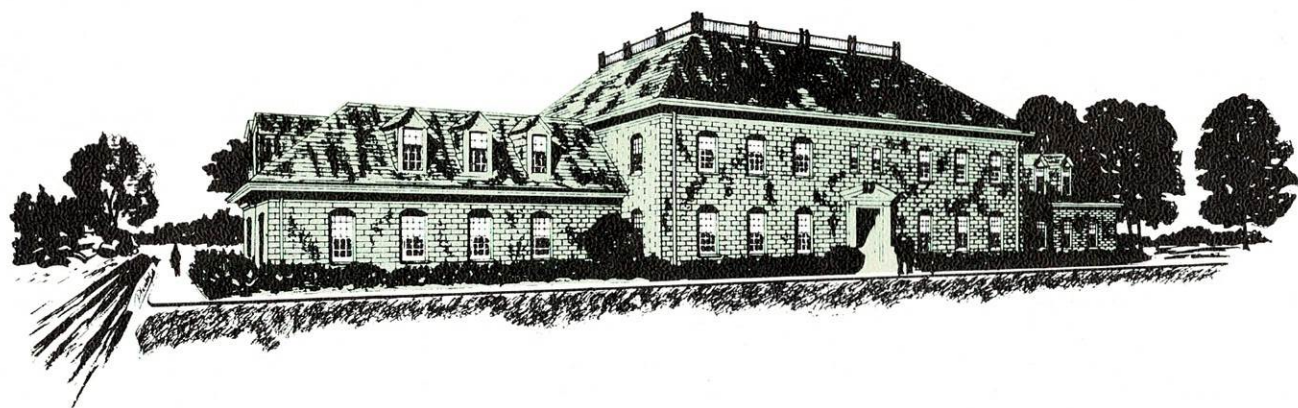
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