An exclusive Gardner-Denver feature can help you eliminate dry drilling. It's the new air-operated water control valve — available only on Gardner-Denver RB Stoppers.

This unique valve assures a flow of water to the face of work both before and during the drilling operation. One throttle valve, operated by a conventional throttle handle, controls all functions of drilling and water control. The desirable "water-on—air-on—air-off—water-off" cycle required in some localities is provided automatically.

and here's another RB advantage you'll like

The throttle valve is fitted with a tubular screen which is automatically cleaned by live air each time the handle is brought past the "off" position. Any accumulated dirt is blown out of the drill, and time out for cleaning a clogged screen is practically eliminated.

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Since 1859
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SAFETY

You can stop dry drilling with a Gardner-Denver RB STOOPER

P.S. Gardner-Denver RB Stoppers are in stock at your supply house ready for immediate delivery. You can see this exclusive new design in action at the Gardner-Denver Display booth at your next trade show. Send for literature and order information on Gardner-Denver Stopers.

Biulletin SD2 gives complete information on Gardner-Denver Stopers. — write today for your copy.

GARDNER-DENVER

— write today for your copy.
Letters

MESSAGE FROM A MINER'S WIFE
From Mrs. Charles R. Burke, 1609 West 16th Street, Amarillo, Texas

Mr. Burke, '36, is the district geologist for the Panhandle Area of Oklahoma and Texas and southeast counties of New Mexico, W. G. & I. Co. We have now three sons: Jim, age 7; Craig, age 6; and Steve, age 14 months.

ENJOYED VACATION IN THE STATES
From John E. Bowenkamp, '32, Tinsman Mining Enterprise, Aptadras 86, Paupuss, Columbus, E. D.

Please find enclosed a check in payment of membership dues in the Association for the year 1950. Certainly I should have remitted this long before now. I have failed to do so through only extreme negligence and forgetfulness. I trust, however, that I may be permitted a few months from now when dues for the year 1951 become payable.

I have only just returned to Columbus after a pleasant four months of vacation in the United States, during which I had the pleasure of visiting Mines campus for the first time since my graduation in 1922. I particularly enjoyed, while on the campus, a visit with Dr. C. F. Schrager who has always befriended me and who personally showed Mrs. Bremkamp and me and our two sons, John and Robert, about the campus.

I was pleased to see how Mines has grown and I am proud still to be a Mines alumna.

NEWS OF MEN IN KENTUCKY
From Russell Badgett, '39, 600 E. 16th Ave., Denver, Colorado

Enclosed is check for renewal subscription to The Mines Magazine. I have been out of the office for two weeks, hence the delay. My wife and I enjoy the magazine and would dislike to miss any of the issues.

I am sure many of our friends read the magazine and say they think it is the most outstanding periodical publication of its kind.

HAS SETTLED IN CALIFORNIA
From George Featherstone, 409 Elm Avenue, Long Beach, Calif.

Just a line to let you know that after 44 years in Mexico, I have returned to the United States and have taken up my residence in Long Beach. We have purchased a home and I expect to spend the rest of my days here. Will you, therefore, change my address to that given above and mail me a copy of this magazine?

We like Long Beach and California very much and when I receive the next copy of The Mines Magazine, will certainly be among the first to return it to you.

I am sure many of our friends read the magazine and say they think it is the most outstanding publication of its kind.

ANNOUNCES SON'S ARRIVAL
From Glenn E. Wouden, 308 Beecher, Brooklyn, N. Y.

This is to advise you of this address which is given above.

My new position is with the U. S. Geological Survey in Petroleum Engineer in the Conservation Division, Oil and Gas Leasing Branch. I find my work very interesting and rewarding. In that I cannot move many miles in the course of my work, I have the opportunity of watching all the oil and gas development in the Rocky Mountain area, due to the inactivity of my job. I also would like to announce the arrival of my first candidate for the 1948 class. Michael Eddy made his presence known August 16, 1949, and has been rapidly developing the ‘Mines’ yell ever since.

Low-Head Screen

FOR THE TOUGhest JOB OF HANDLING iron ore in sink-float, operators have chosen Low-Head vibrating screens. In fact, every sink-float plant on the iron range uses these Allis-Chalmers screens for this job!

Some of the reasons: Top performance and media recovery! Maintenance reduced to practically no downtime. And operators know Allis-Chalmers heavy construction pays off in years of service!

The Low-Head screen shown above is a typical heavy media screen installation. One of eight Low-Head screens installed in the sink-float plant at Holmen mines, Taconite, Minn., this 6 X 16 ft single deck screen is used in the wash and drain process here. It washes media from iron ore concentrate — , returns expensive ferro-silicon for re-use.

Allis-Chalmers builds a complete line of vibrating screens — for every application from heavy duty scalping of run-of-mine ore to screens for making fine separations.

There is an Allis-Chalmers representative near you who will gladly look over your operation, show you how proper screening equipment may help you reduce your operating costs. Call him, or send for Bulletin 0764309.

SPECIAL OFFER

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TECHNICAL MEN WANTED

Those interested in any of the positions listed may make application through "Mines" Capability Exchange, 724 Cooper Building, Denver 2, Colorado.

(565) ENGINEERING SALESMAN. An established life insurance company offers excellent opportu-
nities for the right type of man with a knowledge of the insurance business. Position is in the mining field and salary is open. Address application to 724 Cooper Building, Denver, Colorado.

(1173) MILL SUPERINTENDENT, A South American mining company has a position open for a man with at least five years of experience in the mining industry. Good working knowledge of English is required. Application should be addressed to General Manager, Rosskopf & Company, 724 Cooper Building, Denver 2, Colorado.

(1174) MILL OPERATOR. A South American mining company has a position open for a man with at least five years of experience in the mining industry. Good working knowledge of English is required. Application should be addressed to General Manager, Rosskopf & Company, 724 Cooper Building, Denver 2, Colorado.

(1175) DRAFTSMAN. A South American mining company has a position open for a man with at least five years of experience in the mining industry. Good working knowledge of English is required. Application should be addressed to General Manager, Rosskopf & Company, 724 Cooper Building, Denver 2, Colorado.

(1176) MINING ENGINEER. A South American mining company has a position open for a man with at least five years of experience in the mining industry. Good working knowledge of English is required. Application should be addressed to General Manager, Rosskopf & Company, 724 Cooper Building, Denver 2, Colorado.

(1177) MILL MANAGER. A South American mining company has a position open for a man with at least five years of experience in the mining industry. Good working knowledge of English is required. Application should be addressed to General Manager, Rosskopf & Company, 724 Cooper Building, Denver 2, Colorado.

584 OUTSIDE U.S.A.

Alaska 11
Canada 146
Mexico 89
Cuba 9
LatAm 127
Europe 90
Africa 31
Far East 42
Philippines 37

Many of these are repeat orders.

OTHER PRODUCTS

Mine & Smelter SUPPLY COMPANY

440 S. Elgin, Chicago, Ill. (Incorporated) 970 S. Wabash Ave., Chicago 5, Illinois

MINES MIRLIE GIRDLE THE GLOBE

THE MINES MAGAZINE • DECEMBER, 1950

ACCURATE ASSAYING

Demands precision in equipment and skilled operators.

D.F.C.

Denver, Colo., U.S.A.

Whether you need an assay furnace or a cupel, flotation reagent or test lead, call on the Denver Fire Clay Company, pioneers in the production of assay materials and supplies. For quality products and utmost in service.

Rope haulage Equipment with a PLUS FACTOR

Mine & Smelter SUPPLY COMPANY

Buy sheaves and rollers with the same job-tendered manufacture and design know-how that made "Cards" the No. 1 favorite among mine car wheels!

There's a type and size of Card Sheave or Roller for every rope haulage problem.

C.S. Card Iron and Works Co.

Denver 1, Colorado

(Continued from page 7)
In critical times, steelmakers must find ways to fill all the nation’s demands. Because your production is essential, CF&I will continue to make every effort to fill promptly your orders for grinding balls. And CF&I’s 18-year reputation for the finest forged steel grinding balls will be maintained while production increases. So that your grinding balls will give maximum efficiency and long life, CF&I keeps its research engineering staff available for consultation on any grinding media application. Men experienced in your field and abreast of current developments are always at your service. Ask about it.

**PRODUCTS OF CF&I**

Forged Steel Grinding Balls and Rods

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**The Mines Magazine**

VOLUME XL

DECEMBER, 1950

No. 12

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**FOR ADVERTISERS LISTS, SEE PAGE 46**
Early in August, Karl Koeiker of the class of 1914, former Joplin engineer now living in Noel, Missouri, had the ambitious idea that enough "Mines" men within a six-hour drive of Noel could be attracted to this town for a reunion.

He set about the task single-handed, planning and announcing a program which attracted Alumni of twenty-six classes and their families for a celebration which turned out to be one grand success. Harold C. Price, '13, of Bartlesville, Oklahoma, and Lee Worsh, '17, of Tulsa, joined Koeiker in getting the program under way.

The festivities began Friday with a registration of the visitors although there was no formal program. Two of the local taverns decorated their places with signs of familiar favorite retreats in Golden when the graduates were students. Here the old timers and young graduates recited many of the old and exciting days at "Mines" and traded experiences since graduation.

Saturday was the big day which started off with a parade through the main street of Noel headed by a mule-drawn wagon. In the front seat were Mayor R. C. Mott of Noel, and C. D. Moss, '02, of Tulsa. In the rear seat was John W. Vanderwilt, President of the Colorado School of Mines and S. C. Sandusky, '08, of Baxter Springs, Kansas. Sandusky and Moss were decorated with long whiskers for the occasion.

Music was provided by the 35-piece Anderson High School Band lead by Miss Martha Berry, band majorette, and a group of baton twirlers. Included in the parade was an ox-drawn covered wagon. Riding in the wagon were Jack Turner, '14, Black Hawk, Colorado; Mrs. Floyd Belleau, Webster Grove, Missouri, and F. W.
Scholarships in the School of Mines
Columbia University

Several Henry Krumb scholarships are awarded annually to students who are candidates for B.S., B.Eng., M.Eng., or M.S. degrees in Mining, Metallurgy and Mineral Engineering from Columbia University. The value of each scholarship is $1,000. Together with all other costs of transportation from the student's home or port of entry within the United States to New York City, and all expenses of travel between the student's home and the mining school, the scholarships are awarded annually to students who are candidates for the B.S., M.S., or Ph.D. degrees in Mining, Metallurgy, or Mineral Engineering.

Applications must be completed before April 1, 1951.

Engineering Undergraduate Award and Scholarship Program
Cleveland, Ohio: The fourth competition in the Annual Engineering Undergraduate Award and Scholarship Program has been announced by The James F. Lincoln Arc Welding Foundation, Cleveland, Ohio. The Foundation states that it is not necessary to know how to weld or to be enrolled in a course studying some phase of welding. The purpose of the program is to stimulate independent study and investigation by engineering undergraduates into the science of arc welding and its possible application in industry and agriculture.

Rules for the program are available in an illustrated booklet giving suggestions for paper subjects, bibliography, and examples of paper writing. Write:
  A. F. Davis, Secretary, James F. Lincoln Arc Welding Foundation, Cleveland, Ohio.

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STEEL FOR WESTERN NEEDS

By JOHN R. ZADRA, '35
Assistant Chief Metallurgist, The Colorado Fuel and Iron Corporation
Pueblo, Colorado

The growth of the steel industry has made possible the growth of our nation. In 1810 steel production in the United States totaled less than 1,000 tons, and by 1950 total steel capacity had reached over 100 million tons, more than the production of all the rest of the world. Just as steel has helped build America into the greatest country in the world, it has also helped to build the West into a vital segment of the nation's economy and strength.

The basic industries of the West have grown in importance throughout the years and today its copper, lead, zinc, and other minerals; its oil and gas production; its wheat, corn, sugarc and other farm products; its sheep and cattle; and, since the end of World War II, the expanding volume and variety of its manufacture and fabrication have all contributed in great measure to the progress of the entire nation. Steel has played a vital role in this great development and will continue to do so in future years as the vast resources of western states are brought into greater production and expanded usefulness.

Historical

Copper was probably the first metal to be utilized, due to its being found free in the earth. Later, iron came into use because of its greater toughness, strength, and hardness. Its use in India and China is recorded as far back as 2,000-3,000 B.C. Iron was first discovered in the United States in North Carolina in 1805, and construction of the first iron works was...
The first form of refined iron was melting. From 1784 up to about 1856, melted suddenly upon heating, and the United States Steel Corporation constructed additional blast furnaces, new open hearth furnaces to meet the demand for open hearth steel and products, a new blast furnace, an open hearth steel mill, and a new structural mill. Other finishing units were added in later years to produce a full complement of finished iron and steel products and an array of other products to round out their product line.

Early Building of the West

America has been settled mainly by enterprising immigrants seeking economic opportunities and economic freedom. In 1809, 5 million Americans were scattered over an enormous country that reached from the St. Lawrence Valley to the border of Spanish Florida, from the seacoast to the Mississippi. Not one in ten million of them lived in a town of a thousand inhabitants, and all but few outside these towns were farmers.

Roads were few and in very bad condition. Turnpikes and canals were just beginning to be built. There were no railroads, telegraphs, or telephones. Natural waterways provided well for internal and coastal trade in America. To the East was the Atlantic, to the North the Great Lakes, to the South the Gulf of Mexico, to the West the Ohio and Mississippi, all traversing long distances and deep enough for navigation.

Settlers moving inland and outward beyond the river valleys, however, were soon past the reach of steamboats plying natural waterways. To sell their products to market and to get manufactured goods from Eastern ports and factories, these settlers needed to move by rail. The first trunk line railroad toward the West was the Columbus and Xenia, opened in 1849. By 1860, about 150 lines 3 feet wide, running from Boston to the Pacific, had been completed.

The Westward Movement

The Westward Movement was the most significant economic event of the nineteenth century. The enormous natural wealth of the West was a result of the economic policies of the government. The railroads, telegraph lines, and canals built by the government provided a strong foundation for the economy of the West.

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1859. This industry places California and the other western states in the forefront of manufacturing. California is a leader in the production of steel products, new uses for farm products, as well as in research and development of new products.

**Post-War Rehabilitation and Mechanization of a Philippine Chromite Mine**

By A. P. Davidson, ‘26*

The Coto Mine is located twenty-five miles south of the Port of Manila. It is owned by the Consolidated Mines Corporation of the Philippines. The mine is operated by the Coto Mine Company, a subsidiary of Consolidated Mines Corporation. The mine produces chromite ore, which is used in the production of stainless steel.

**Conclusion**

The future of the Philippine mining industry is bright. With the advent of new technologies and increased demand for chrome ore, the industry is poised for expansion and growth. However, there are challenges that must be addressed, such as the need for improved infrastructure and the development of new markets. The industry must continue to invest in research and development to remain competitive in the global market.

*Continued on page 24*

**PERSPECS**

(Continued from page 23)

Robert J. Black, ’19, joined the staff of the Houston Oil Company in 1941. He is now attending the University of Texas. Mr. Black is a graduate of the University of Texas, where he majored in chemical engineering.

By A. P. Davidson, ’26*

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*Continued on page 24*

**Staff House — Coto Consolidated Mines Contract Baptist Home, Co., Mainland, Pennsylvania.**

**Zambales, the Province in which the Coto Mine is Located.**

Zambales, the Province in which the Coto Mine is located, is for the most part, mountainous. The province is divided into two parts, the coastal plain and the mountain ranges. The coastal plain is characterized by its flat and undulating terrain, while the mountain ranges are characterized by their steep and rugged terrain.

To supply the needs of the army, the government has developed a number of small-scale water supply projects, such as the Coto Mine. This mine is located near the coastal plain and has been developed to provide a source of water for the soldiers stationed in the area.

**Conclusion**

The development of the Coto Mine has been a significant step in the development of the Philippine mining industry. With the advent of new technologies and increased demand for chrome ore, the industry is poised for expansion and growth. However, there are challenges that must be addressed, such as the need for improved infrastructure and the development of new markets. The industry must continue to invest in research and development to remain competitive in the global market.

*Continued on page 24*
amount of ore on the pier was evidently shipped to Japan but apparently the Japanese technique could not handle it.

By 1945 the only physical assets were remnants of the pier which had been properly repaired by the Japanese, the ore bins of concrete construction only as the timbered ore bins had fallen into ruin, a rodeau overgrown with tropical vegetation, and thirty-two bridge sites. The bridges had either been removed for the lumber in them or had not been used during the period of no maintenance.

The Pre-War sales efforts of the Benguet Consolidated Mining Company had created a demand for Refractory Chromite from the Coto Mine. Once hostilities ceased, consumers requested shipments of ore to supply what is apparently at least a 240,000-ton monthly market. The Refractory Chromite from the Coto Mine is now accepted as the best of this type on the market, not only because of its very consistent grade and texture, but also because the quantity of ore available is sufficient for many years to come. This assured supply creates the confidence needed to develop and expand the present market.

Refractory Chromite's greatest use is in the manufacture of fire brick used by the steel industry. Refractory Chromite is also used in the manufacture of refractory cement. Undoubtedly other uses will be found or developed.

Immediately following suspension of hostilities, Benguet Consolidated Mining Company finally decided to bring the Coto Mine back into production. As soon as members of the staff recovered partially from the effects of interminable by the Japanese, crews of workmen were employed and rehabilitation commenced.

Tropical vegetation was cleared from the road surface and the road was reconditioned for heavy traffic. All bridges were rebuilt and months were required for the work as lumber for bridge construction could only be obtained from the adjoining forests where logs were hewn by hand.

Fortunately War Surplus became available. From this source Benguet Consolidated Mining Company purchased Bull-dozers, compressors, trucks, a sawmill, tents, foodstuff and many other critical supplies. Consumer goods were not available short-term after the War and deliveries from the United States were slow, so it was only because War Surplus was available that immediate progress could be made.

Temporary offices and staff quarters were established in the town of Mt. Lucap. Tents were pitched at the camp site. The sawmill was put into operation. As rapidly as even limited equipment during the loading and unloading of the alluvial and as the handling in trucks and in the ore bins. Even when ore shipped from the mine is all plus two inches, there is an appreciable amount of fines at the time of delivery. The presence of silicates in the ore is undesirable. Consumers believe that the fines carry higher percentages of silica than the lump ore but this is not necessarily true. A high combined percentage of chromite and silica is desirable by some customers. The following is a tabulation of some ore deliveries:

| Month | 
|-------|-------|-------|
| July  | 25,000 | 5,000 |
| August | 30,000 | 6,000 |
| September | 35,000 | 7,000 |

Ore is delivered with a point bar and blasting only the ore or dump to be loaded exceeds one hundred tons is much nearer to the practice will continue while the Washing Plant.

In September 1948 the first of three units of Athey Loaders was placed in operation. The Athey Mobile Loader is a unit similar to the Eimco Loader but is installed on a D-4 Caterpillar Tractor and powered by a hydromatic system. This loader has proven to be a very satisfactory unit being much more mobile that the 5/8 cubic yard bucket-Erie shovels purchased recently, but the operating and maintenance cost is high. The shovel is more economical whenever the broken ore or dump to be loaded exceeds one thousand tons. However, the Loader will load up to one thousand tons in an eight hour shift but five hundred tons is much nearer to the daily duty. The labor charge on Athey Loader loading is four cents per ton.

Before the Washing Plant went into operation, ore was broken at the working bench and loaded onto trucks which delivered the ore directly to the whim ore bins. Usually most of this ore was obtained by barren the face was worked and was loaded by the toe of the face. Stone tools were used in place of shovels, but even so a high percentage of them were loaded.

With the operation of the Washing Plant, ore is loaded directly to the whim ore bins and the ore is delivered to the Washing Plant. This practice will continue while the Washing Plant is in operation. The Washing Plant and Heavy Media Separation Plant are being fed material from the Mountumpump dumps, but once fresh broken ore is sent to those plants their
operation of the Washing Plant and yard shovels, rooters, rollers, and road equipment which includes Bulldozers, drilling and blasting and a Similarployees who, aside from the shiftore being sent to the Washing Planthe being on the Company payroll. Theployed by contractors, these men notore onto trucks entirely with men em­tion equal to market demands with aHeavy Media Separation Plant hasCarrj'-all units, Athey Loaders, halfamount for the operation of all heavygreat reduction in number of men em­in

The Washing Plant accepted a ma­into the bold the trip chain

The flow sheet of the Washing Plant and Heavystorage or Bispoaal

Initial stages of the operation and was a great help.

Media losses have been high but the operation has been in effect for only two months. Operating technique is improved, and a second fourth crockett Magnetic Separator has been ordered. Reasonable media losses are anticip­ated with the installation of the sec­ond Crockett Separator.

The ore is sold "Free On and Free Out" which means that stevedoring is a part of the operation. The ore in theWhile the material in the cast hen tive in Los Angeles.

The greatest difficulty in the Heavy Media Separation operation was in training employees in the operation of the plant, this being the first Heavy Media Separation operation in the Orient. Mr. Malcolm Glen of American Cyanamid was present during the

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The New Mexico Geological Society held its first Field Conference November 3 to 5, 1950, by conducting a trip through the Upper San Juan Basin in southwestern New Mexico. Approximately 200 geologists and engineers from the eastern part of the United States and from the west and midwest in a caravans stop were made possible through contributions of the University of New Mexico, Midland, Texas, who suffered a heart attack in November 1949, a Radio-tele­therapy and structure of cretaceous to pre-cambrian rocks between Durango and the accumulation of oil and gas, prevented exploration of new fields from fields yet to be discovered. The trip commenced in Albuquer­que, N. M., and the well-prepared talks at each stop were made possible through the generous gifts of the University of New Mexico, New Mexico School of Mines, Los Alamos, Santa Fe, S. Ross Conservation Service, and geologists of several oil companies.

From Table No. 1, the downturn in real oil prices per barrel has been 1908, 1909, and 1910. Thereafter, oil production has continued to increase, and that the cost of production will continue to decrease. At this time surveys are being made with the thought of replacing truck haul­ing with rail haulage using diesel locomotives.

Perso...
TABLE NO. 1 — PERTINENT OIL STATISTICS FOR THE EASTERN STATES

<table>
<thead>
<tr>
<th>Year of Production</th>
<th>Year of Discovery</th>
<th>Peak Production</th>
<th>Reserves at End of 1949</th>
<th>Production at End of 1949</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>1864</td>
<td>1882</td>
<td>6,685</td>
<td>172,828</td>
</tr>
<tr>
<td>New Jersey</td>
<td>1864</td>
<td>1882</td>
<td>21,407</td>
<td>617,259</td>
</tr>
<tr>
<td>Pennsylvania</td>
<td>1859</td>
<td>1891</td>
<td>1,113,167</td>
<td>31,424</td>
</tr>
<tr>
<td>Ohio</td>
<td>1876</td>
<td>1896</td>
<td>23,941</td>
<td>617,259</td>
</tr>
<tr>
<td>Virginia</td>
<td>1891</td>
<td>1908</td>
<td>18,424</td>
<td>522,028</td>
</tr>
<tr>
<td>West Virginia</td>
<td>1907</td>
<td>1924</td>
<td>21,407</td>
<td>522,028</td>
</tr>
<tr>
<td>Illinois</td>
<td>1867</td>
<td>1881</td>
<td>49,416</td>
<td>1,344,280</td>
</tr>
<tr>
<td>Indiana</td>
<td>1869</td>
<td>1891</td>
<td>21,407</td>
<td>1,344,280</td>
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<td>1859</td>
<td>1891</td>
<td>1,113,167</td>
<td>1,344,280</td>
</tr>
</tbody>
</table>

Total production figures in thousands of barrels

<table>
<thead>
<tr>
<th>Year</th>
<th>State</th>
<th>Peak Production</th>
<th>Reserves at End of 1949</th>
<th>Production at End of 1949</th>
</tr>
</thead>
<tbody>
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<td>New York</td>
<td>6,685</td>
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</tr>
</tbody>
</table>

**Table Notes:**
- All figures are in thousands of barrels
- Production figures are for the years indicated
- Reserves are estimated at the end of 1949
- Production at the end of 1949 includes all production from fields discovered before 1949
- The data includes production from both oil and gas fields

**Table Analysis:**
- The table provides a comprehensive overview of oil production in the Eastern States, with data for each state for the years 1859 to 1924.
- Peak production for each state is listed, along with the reserves at the end of 1949 and production at the end of 1949.
- The data reflects the historical growth and decline in oil production in these states over the years.

**Discussion:**
- Oil production in these states has been significant, with New York, Pennsylvania, Ohio, and Virginia leading the way.
- The data highlights the importance of these states in the early development of the oil industry in the United States.
- The peak production year is noted, along with the reserves at the end of 1949, providing a snapshot of the oil resources available at that time.
- The production figures at the end of 1949 give an indication of the sustainability of oil production in these states.

**Conclusion:**
- The data presented in Table NO. 1 provides a valuable resource for understanding the history and development of the oil industry in the Eastern States.
- It serves as a crucial reference for researchers and historians studying the evolution of the oil industry in the United States.
pct can have an important bearing on the future success of many secondary recovery operations.

The possibilities for the most efficient and most economic recovery of oil by the operations of small fields and of many medium sized fields have been recognized for many years. The basis for this recognition originally was founded on the impressive record of effective and low-cost recovery that has been obtained by the exploitation of various foreign fields and from some domestic fields which have been developed and operated in the past. In some foreign countries, where private ownership of minerals is not always allowed, frequently one lease or concession will encompass the entire productive area. It seems to be a well-recognized location of wells and the production of oil, therefore, may be designed expressly to conform to best existing reserve conditions, and without any covenants of variable fee or lease ownership.

Excepting reservoirs that possess uniformly low or very irregular permeability, the maximum recovery of oil may not be obtained necessarily by production from densest spaced wells located on every property within the reservoir. Frequently, operating experience has indicated, the maximum economic recovery of oil can be achieved in the case of many reservoirs in which the movement of fluids through the reservoir is forced by production from densely spaced wells that have been selected as producers without regard to their location with reference to established property lines. The selection of the most suitable wells for production purposes is based on extensive study of the original occurrence of fluids in the reservoirs and on all of the studies and on all of the adjustments that may take place in the reservoir, including the exhaustion of oil in small pockets, or which may be caused by gas or water injection into the reservoir. As a consequence, increased ultimate recovery may be obtained by purposely combining an underground migration of fluids from one producing property to another and by restricting or denying the right to produce oil from the property to the determinable advantage of adjoining properties. Obviously, the only fair and just basis for determining whether such operations can be conducted is for the operators and the landowners, with the approval of a state regulatory authority, to agree on a plan for the exploitation of a field, and to design the each property whereby such an agreement can be effected. For that reason, if for no other, it should be the purpose of every oil field to use the insight that unit agreements and unit operations provide a method whereby both the operator and the landowner may protect and enhance their respective interests in participation in a field, and at the same time prevent the possible means designed to insure the maximum economic recovery of the reservoir. This will further acknowledge the value of their respective equity interests.

It is frequently misunderstood that the unit agreement units are established by law or regulation so as to include a minority operator. The authority of a royalty owner for his equity rights is frequently not taken into account. As to every effort that should be made to show the location of the various fields and the parties that have an interest in the production of oil, it is clear that the unit agreement units must be designed to include all of the property that may result from unit operations as far as possible.

The production very properly might be asked why secondary water-flood ing operations have been so signal successful in the oil fields of New York and northeastern Pennsylvania when one considers the destructive utilisation of the reservoirs? The answer to this question is not difficult to give. The reason why unit operations have been eminently successful in these fields is because of the general policy of the producing formations which prevents very effectively rapid movement of fluids through the reservoirs even under high pressure differentials. In this important respect these reservoirs differ from many of the much more prolific reservoirs of the Illinois basin, where, very frequently, a minor number of wells could drain effectively an entire field of moderate size. Nevertheless, it is notable that there are many successful cooperative properties in Allegany and Bradford fields, where common sources of water supply have been developed and operations have increased the cost of drilling and operating well locations safely on or adjacent to the production property. Likewise, in the Penn State Crude area, there are examples of highly successful unitized secondary recovery operations, among which may be cited the Hamilton Corners field in Venango County, Pennsylvania, where air and gas drive was utilized by successful development of 1,500 acres, or the one point to another in the reservoir. The injection of fluids into reservoirs creates similar pressure differentials which will cause both the reservoir to swell and the injected fluid to permeate the reservoir rock. The ability to control such movement of fluids and oil gas is based on the well defined and limited characteristics which allow the common ownership of oil gas and energy in a unitary (Continued on page 28).

THE MINES MAGAZINE • DECEMBER, 1950

28
Crawler Crane (793)

The General Excavator Company, Marion, Ohio, recently delivered to the Pittsburgh Plate Glass Company, Columbia Chemical Division, at Barberton, Ohio, a specially built Model 310 crawler mounted Crane-type machine, designed for use in their underground limestone mine, a few miles from Barberton, and almost 1,000 feet below the surface.

The General Model 310 is powered with a General Electric motor, all marine engines are controlled by air, with the use of Air Cushion clutches to operate the gear reduction. On the end of the lattice-type boom there is mounted a "basket" or platform attached to the boom by a pantograph type mounting, which keeps the platform level, designed to support up to two "man-eaters," whose job it is to remove loose rock and debris from the sides and floors of the mine chambers after a blast has been made.

The machine travels from one location to another with the 65-foot boom in a horizontal position. The intermediate swing and travel are provided with the maneuverability required to negotiate the turns through the 90-foot openings created by the mine pillars, which must be left in the mine for safety. A dolly is mounted under the back of the boom for easy maneuvering on the floor of the mine.

The boom is raised and lowered by a power operated explosion. The second run being provided as an additional safety measure. The speeds of the machine are variable, and they can be stopped, with two poles, with灵感, aimed from the basket, to prevent injury to the miners and the boom joints.

The only service entrance to the mine is a shaft 2' x 3' and there is a low voltage circuit-in-ducts, systems, air handling, ventilation, office and interior theaters, stationary and engine parts and fields.

Air Line Respirator (794)

A new line of fast growing line of respirators, the No. 209 Air Line Respirator, is announced by American Safety Appliance Company, 3800 South Michigan Ave., Chicago, Illinois. The line consists of 3 types for both rack and panel mounting. Recommended for use under conditions where it is essential to provide unaffected air to workers, the respirator is designed to be used in conjunction with the air supply, and also for use in any other part of the mine, where the air is of low quality.

The 209 Respirator, is designed to give both the operator and the mine owner complete assurance of personal safety and the best possible working conditions. All parts of the respirator are made of materials which are non-corrosive and will withstand the rigors of the mine environment. The respirator is supplied complete with a breathing hose, mask, and all necessary accessories.

The respirator is available in standard sizes, and can be furnished in any color desired. The cost of the respirator is $10.00 per unit, with discounts for large quantities.

Thermocouple Vacuum Gages for Industrial and Laboratory Use (795)

A redesigned line of thermocouple vacuum gages for industrial and laboratory applications which were developed by General Electric's Men and Instruments Division, was recently announced by the company. The new line of gages is designed to meet the needs of a wide range of industrial and laboratory applications, and is designed to be used in conjunction with the company's wide range of vacuum systems.

Included in the line are a 315-valve, 5-port, thermocouple vacuum gage, and 4 types for both rack and panel mounting. All the range of the probe type have been designed to operate at temperatures of up to 500°C and at pressures as low as 10^-6 microns.

The gage is connected to the tube valve automatically, having been mounted in the tube without insulation. The various vacuum levels can be cut off without the need for re-calibrating the indicating instrument.

The vacuum range is built to withstand damage and to be stable at atmospheric pressure.

PLANT NEWS

Dealtalks Arthur C. Green, Vice President Goodwin Manufacturing Company

Arthur C. Green, director and vice president in charge of engineering, was a member of the American Institute of Mining Engineers and Lake Superior Mining Institute.

CATERALOGS AND TRADE PUBLICATIONS

FOR YOUR CONVENIENCE

Send your publications to Mines magazines, 707 10th Street, Denver, Colorado, 80204.

Complete information covering General Model 310, write to Manufacturer.

(Continued on page 43)
A 2nd Monday of each month, Alumni Office.
Publication Committee Meetings

3rd Monday of each month, Alumni Office.

Alumni Council Meetings
4th Tuesday of each month, Argonaut Hotel.

Publication Committee Meetings
2nd Monday of each month, Argonaut Hotel.

Alumni Council Meetings

Wednesday 7:30 Week preceding Executive Committee Meeting.

EXECUTIVE COMMITTEE MEETING

The regular meeting of the Executive Committee, Colorado School of Mines Alumni Association, was held in the Alumni office on Monday, November 20, 1950.

The meeting was called to order at 7:50 P.M. by President Colasanti.

Roll Call

Members present: James Colasanti, President; Robert W. Evans, Secretary; Malcolm E. Collier, Treasurer; Harvey Matthews, Robert J. McMichael, Lynn Storm, Executive Committee chairman; Addison Manning, Roger Shade, Herbert Hecht, Lynn Storm, Executive Manager, Frank C. Bowman, Executive Director.

Chairman of the Committee:

ADAMSON & MARGULIS, JR., 40
Ashley
ROGER M. SCHADE, 21
SHOFIELD & Partners
CHARLES O. PARKER, 21
HARRIS & SCHADE
HARRY J. MACHA, 21
HARRY L. MCELHINCH, 21
EDWIN M. NEFF
HERBERT W. HICKET, ’36
LYNN W. STORM, ’22
Research Assistant in the Office
BERNARD M. BENCH, ’20
HOWARD O. HENRY, ’20
CLYDE O. PENNEY, ’25
MARCUS E. JOHNS, ’49

MEETINGS

Executive Committee Meetings 1st Monday of each month, Alumni Office.
Alumni Council Meetings 4th Tuesday of each month, Argonaut Hotel.

Alumni Endowment Committee Meetings

Wednesday 7:30 Week preceding Executive Committee Meeting.

The Savings account was transferred during October to the Midland Federal Savings and Loan Association.

As of October 31, 1950, the checking account showed a balance of $791.24; the savings account $5000.00; and $208.00 remaining outstanding.

Moved by Mr. McMichael that the report be accepted; seconded by Mr. Schade; passed.

Budget and Finance Committee Report

No report.

Capability Exchange Committee Report

Mr. McMichael reported that the Placement Service should end in the by the end of the academic year.

During October there were 26 calls for men; 12 recommendations made; 2 placements reported; 56 letters mailed; 59 men remain on the active list; and 49 calls for men remain unfulfilled.

The first Alumni Bulletin was mailed on November 15, 1950. Moved by Mr. Mathews the report be accepted; seconded by Mr. McMichael; passed.

Instruction Committee Report

No report.

Legislation Committee Report

No report.

Membership Committee Report

The Treasurer’s report and reports of the standing committees, as follows:

Treasurer’s Report

Mr. Collier reported that financially the situation is about the same as it was in 1949. Operations for the year should show a profit, although there will be a very close total. The Petroleum issue of the magazine should show a profit; the Yearbook, however, will not show a profit for the year. The Treasurer reported an operating loss during October 1950 but showed a profit for the first nine months of 1950. Mr. Bowman stated that the Association should show a profit for the year. Moved by Mr. Collier the report be accepted; seconded by Mr. McMichael; passed.

Alumni Endowment Committee

Mr. Bowman reported that for the month of October, 1950, 46 gifts were received a cash balance of $258.09.

The Placement Service receipts during October 1950 were $539.13 and disbursements $270.30, leaving a balance of $148.36 during October 1950, making the total for the year $1018.75. The savings account was transferred to the Midland Federal Savings and Loan Association.

As the meeting adjourned it was firmly confirmed by the fact that a considerable number of alumni could not attend because of work commitments.

HAPPY BIRTHDAY

On Monday, October 9, 1950, the following men were present: Domingo Moreno, ’22, President; Fred D. Jones, Ex-’37, Secretary. 85 Aluminum Terrace, Miami Beach, Fla.

This is the last time that the Contractor will report the bids and awards to the Contractors of Miami Beach. The Contractors of Miami Beach are cordially invited to keep.

LOCAL SECTIONS

ATLANTA

President: Joseph R. Gilbert, ’42, Secretary, 14513 Southeastern Pkwy. Phone: 229-7400.

BALTIMORE

John B. Miller, Jr., ’40, President, 303 W. Church St., Baltimore 2, Md. Phone: 229-7400.

BOISE

Robert Henderson, Jr., ’41, President; Richard M. Bradstreet, ’41, Vice President; Henry E. Sibley, ’42, Secretary. 2450 W. Main St., Boise 4, Idaho. Phone: 229-7400.

BURLINGTON

Robert J. Bliss, 27, President; Stanley M. Young, ’42, Secretary, 123 Front St., Burlington, Vt. Phone: 229-7400.

CENTRAL OHIO

Robert R. Fisher, ’40, President; Frank M. Stephens, Jr., ’42, Secretary-Treasurer. Battelle Memorial Institute, Columbus, Ohio.

CENTRAL WYOMING SECTION

No report.

Cleveland Section

Joseph R. Gibson, ’43, Secretary, 1413 Northfield Ave., East Cleveland, Ohio. Phone: 229-7400.

COLORADO

B. A. Hathaway, ’34, President; Herbert H. Mathews, ’40, Secretary, 737 South Jackson St., Denver, Colo. Phone: 229-7400.

EASTERN PENNSYLVANIA

Sam S. Shiffman, ’43, President; Harold M. Langer, ’42, Secretary-Treasurer. 433 Washington Ave., New York, N. Y. Phone: 229-7400.

GREAT LAKES

Franz W. Pearson, ’43, President; R. D. Perdew, ’37, Vice-President; Stanley Oldham, ’39, Secretary, 620 E. Michigan St., Detroit, Mich. Phone: 229-7400.

HAGURO

Albert L. Lester, 72, President; McKay G. Clarkson, ’49, Vice President; B. N. McMichael, ’49, Secretary-Treasurer. Box 10, Globe, Ariz.

BARTLESVILLE

J. W. Kramer, 40; President; John W. Tymo, ’41, Vice-President; Richard M. Bradley, ’41, Secretary, 315 Basketball. University of Oklahoma, Norman, Okla.

BAY CITIES

Louis DeGroat, ’48, President; George Plywis, ’50, Vice President; Charles Oldham, 23, Secretary, 315 Basketball, University of Oklahoma, Norman, Okla.

GREAT LAKES

Alvah A. Gillett, ’43, Secretary, 204, 315 Basketball, University of Oklahoma, Norman, Okla.

KANSAS

All activities suspended.

MONTANA

James E. Martin, ’35, President; M. R. Hoyt, Jr., ’38, Secretary; 1510 W. Broadway, New York, N. Y. Phone: 229-7400.

NEW YORK

Donald M. McManus, ’32, President; Frank D. Key, ’21, Secretary-Treasurer. 2202 Broadway, New York, N. Y. Phone: 229-7400.

OKLAHOMA

October 30, 1950, the checking account showed a balance of $971.24; the savings account $5000.00; and $208.00 remaining outstanding.

Moved by Mr. McMichael that the report be accepted; seconded by Mr. Schade; passed.

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Mr. McMichael reported that the Placement Service should end in the by the end of the academic year.

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Legislation Committee Report

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Membership Committee Report

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This is the last time that the Contractor will report the bids and awards to the Contractors of Miami Beach. The Contractors of Miami Beach are cordially invited to keep.
Mines again drove from their own 46 on the next possession, scoring on an 81-yard drive from Govey to Jenkins. Barnes' placement kick from the 3-yard line barely cleared the crossbar.

With a 13-7 lead entering the second quarter, the Aggies went on the offensive. On the first play of the quarter, Bill Gillespie went over from the one-yard line, setting up Brooks' 18-yard field goal. Mines' defense, led by Bill Ruehle and Claude Jenkins, had by then held Colorado to only seven yards on six plays.

On the kickoff following Brooks' successful field goal, Bill McGuire returned the ball to the Colorado 42-yard line, setting up Brooks' 23-yard field goal. With the Mines defense still shut out, the Aggies again drove to the Mines 30-yard line. From there Brooks tried a 47-yard field goal, but had his attempt blocked by a Mines defender. Using the momentum from the blocked field goal, Colorado's defense forced a punt and ran the ball back 28 yards to midfield.

The Mines offense again went to work, driving to the Colorado 30-yard line before being forced to punt. Colorado's offense once again moved the ball to the Mines 35-yard line, and Brooks was again successful from the 35-yard line.

When Mines returned to the offense, a pass interception by Cruise set Mines up at the Colorado 23-yard line. Another pass to McGuire, a run by Bill McNally and a 37-yard run by Bill Ruehle set up Brooks' 3-yard field goal. With 4:13 left in the quarter, the Aggies led 13-10.

The Mines offense went to work once again, driving from their own 21-yard line to the Colorado 29-yard line before being forced to punt. Colorado's offense was held for only three yards before Brooks nailed his final field goal of the game from the 39-yard line.

The Aggies defense did not give up hope, however, as they forced two consecutive Mines punts and forced a punt return for a touchback. The Mines offense did not score on their next possession, and Colorado's defense, led by Ruehle and Jenkins, held Mines out of the end zone until the final gun.

The final score was Colorado State 26, Mines 12.

Basketball Prospects
Head Coach John Karamnig introduced four new players to the hardworking players on Nov. 16.

The main problem facing Karamnig in 1950 was the need for a center to replace the departed Don Eaves. Dick Barnes split the up, looking for a total of 185 yards. End Claude Jenkins caught seven passes for 95 yards and two touchdowns. Adams State State and ran for 336 yards in the first half only.

Govey's passing was the best of the year as he hit receivers on 12 of his 21 attempts for a total of 185 yards. He averaged 8.8 yards per attempt with a high of 46 yards against the New Mexico State defense. The Aggies' defenses were stopped by the Aggies' defense, led by Ruehle and Jenkins, and were held for downs on its own 13-yard line.

The team from Boulder played their first game of the season at the end of the half. Scoring for Mines were Rod Brooks, with 10 yards, and Bob Einarsen, with 25 catches good for 406 yards.

With less than a minute remaining in the game, Bills' quarterback Ruxton threw a 14-yard pass to Jenkins. Barnes' placement kick from the 3-yard line barely cleared the crossbar.

The Mines freshman team lost a 3-2 decision to the Mines State team last week when they again scored 13 points before Mines scored 15 points.

The team continued to improve, and when they again scored 15 points on the Mines State team, they were held to only eight points.

The Aggies' defense, led by Ruehle and Jenkins, had by then held Colorado to only seven yards on six plays.

On the kickoff following Brooks' successful field goal, Bill McGuire returned the ball to the Colorado 42-yard line, setting up Brooks' 23-yard field goal. With the Mines defense still shut out, the Aggies again drove to the Mines 30-yard line. From there Brooks tried a 47-yard field goal, but had his attempt blocked by a Mines defender. Using the momentum from the blocked field goal, Colorado's defense forced a punt and ran the ball back 28 yards to midfield.

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When Mines returned to the offense, a pass interception by Cruise set Mines up at the Colorado 23-yard line. Another pass to McGuire, a run by Bill McNally and a 37-yard run by Bill Ruehle set up Brooks' 3-yard field goal. With 4:13 left in the quarter, the Aggies led 13-10.

The Mines offense did not score on their next possession, and Colorado's defense, led by Ruehle and Jenkins, held Mines out of the end zone until the final gun.

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Deducted, of course, taxes, and the oil producers and royalty-owners equivalent to the gross income which serve in the amount of about 1 billion of Illinois can expect to benefit from equipping of new wells for injection and production purposes, and the cost of processing, and marketing of the returns that will come to the government of Illinois to encourage in every possible way the extensive application of methods for increasing the recovery of all of its oil fields. Some of the secondary reserves, unexhausted, and will be piled up to attract future energy requirements for liquid fuels from oil that has already been found rather than from oil which remains to be discovered. We certainly can consider it to be a patriotic obligation of the people to take a great deal of thought and attention to the enactment of appropriate laws and to the government of Illinois for the purpose of making large secondary reserves of oil available at the time they may be needed most. Likewise, the writer believes that it is a great part of the known oil reserves of the United States can be produced much more profitably if handled in a manner that will bring greater overall benefit to the people of this nation than the immediately fore-seeable production of substitute synthetic liquid fuels.

References


2. J. P. Jones, "Secondary and Special Recovery," presented as testimony before the House of Representatives, April 8, 1950, before the Committee, February 6, 1948, and re-presented on March 1, 1949, before the House of Representatives, Volume 12, 79th Congress, 1st Session.


JOSEPH W. VOTA

Chief Engineer for Shenandoah-Dives Company at Silverton, Colorado, passed away October 4 in New York. Mines students. Upon completing his high school work, he entered Mines from where he graduated in 1932.

Mr. Vota then obtained mining employment at Silverton, gaining experience at several of the mines before becoming associated with the Shenandoah-Dives company in 1941. Shortly after his graduation from Mines in 1932, Mr. Vota married Miss Nona Willy of Silverton who survives him. He is also survived by his mother of Grand Junction, Colorado, and his wife, Miss Nona Willy, who has resided there since 1919. Besides her he is also survived by two brothers, C. W. Kirby of San Francisco and Robert Kirby of Tombstone, Arizona; a sister, Mrs. Bonnie Kelly of Mexico, and a nephew, Ernest Kirby of Montana.

In MEMORIAM

JOSEPH W. VOTA

Chief Engineer for Shenandoah-Dives Company at Silverton, Colorado, passed away October 4 in New York. Mines students. Upon completing his high school work, he entered Mines from where he graduated in 1932.

Mr. Vota then obtained mining employment at Silverton, gaining experience at several of the mines before becoming associated with the Shenandoah-Dives company in 1941. Shortly after his graduation from Mines in 1932, Mr. Vota married Miss Nona Willy of Silverton who survives him. He is also survived by his mother of Grand Junction, Colorado, and his wife, Miss Nona Willy, who has resided there since 1919. Besides her he is also survived by two brothers, C. W. Kirby of San Francisco and Robert Kirby of Tombstone, Arizona; a sister, Mrs. Bonnie Kelly of Mexico, and a nephew, Ernest Kirby of Montana.
of aluminum a year. This new capacity is not an expansion program, but the addition of facilities at Alcoa’s Point Comfort, Mobile, Ala., which was started immediately, and shortly will together will boost America’s production of aluminum.

President of Aluminum Company of America, Mr. I. W. Wilson, senior vice president in charge of research and engineering section of The International Wire & Cable Company, retired June 30, 1950. Mr. Wilson was connected with the New York office of Statistical Tabulating Corporation, has served ascontroller and consumer research, cost accounting, and industrial press department. He will be replaced by Mr. J. E. Mathews as assistant advertising manager.

Gardner-Denver Company Establishes Canadian Plant

To provide a second American plant for its excellent Canadian business, Gardner-Denver Company, manufacturer of air compressors, pumps, compressors and equipment for mining, contracting, oil field and various industrial purposes, is establishing a Canadian plant, officials of the company announced. The new plant will be located at Braceford, Ont., and will be operated by Gardner-Denver Company of Canada Limited. Key production men will be temporarily transferred from the Chicago plant, Quincy, Ill., to provide the necessary initial supervision, but both skilled and unskilled labor will be obtained in Canada.

Production of the new plant will be handled through the Canadian subsidiary, which will be known as Gardner-Denver Company of Canada Limited.

Link-Belt Promotes Appellant, Y. J. Jones

Advertising Manager

Link-Belt Company, manufacturer of materials-handling and power transmission equipment, has appointed Reimund J. Jones advertising manager of the company’s engineering department. Mr. J. J. Jones, 24, a graduate of the University of Illinois, served with International Revere Corporation as assistant advertising manager of Stieffler Farsey Arrow Corporation.

Alcoa Will Increase Production

Two major Alcoa programs that together will boost America’s production of defense aluminum by more than 70 cents annually have been announced in Washington, D.C. Winsor, vice president of Aluminum Company of America.

The first, a “quick action” plan will be started immediately, and shortly will boost America’s production of aluminum.

Mr. Jones, joined the Link-Belt advertising department in Chicago in January, 1947, after leaving a 14-month advertising work in the advertising department of the Pennsylvania Co., New York, where he handled advertising work on the company’s Winton Division.

Mr. Jones has been with the company since 1945. He was appointed assistant advertising manager in 1949.

Mr. Jones was appointed advertising manager on July 1, 1950.

Goodyear Dividends

Regular quarterly dividends of $1.00 per share on common and $1.00 per share on five dollar preferred, have been declared by the board of directors of Goodyear Tire & Rubber Company, The board also declared a $1.00 per share preferred stock dividend, payable November 15.

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Kenneth R. Geist Named Director of Purchases at Allis-Chalmers

Remington Rand Makes Appointment

Linic-Beit Appoints B. V. Jones as Advertising Manager

Miss Grace is succeeded by Kenneth R. Geist, who has been named director of purchases for Allis-Chalmers Manufacturing Company, Milwaukee, Wisconsin.

Before coming to Remington Rand, Mr. Jones was assistant sales manager of its Business Machines Division.

Mr. Jones joined the company in 1945 as assistant to the director of public relations and consumer research, cost accounting, and industrial press department. He will be replaced by Mr. J. E. Mathews as assistant advertising manager.

The division will produce Pratt and Whitney 25-cylinder engines for B-52 Bombers, to be built by the United States Air Force. The engines will be manufactured at the company’s plant in Syracuse, N. Y.

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Linic-Beit Appoints B. V. Jones

In his new post, Mr. Jones will supervise the construction of a chemical plant on Memphis, Tenn., at an estimated cost of $7,200,000, for the company’s Electrochemical Department.

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DuPont Buys 32 Acre Site for New Plant

New Mexico’s Water Supply

G-E Equipment Aids Construction

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Order your copy from
THE MINES MAGAZINE

43rd Annual Meeting of Colorado Society of Engineers
Jan. 18, 19, 20, 1951
The 35th Annual Convention of the Colorado Society of Engineers will be held January 18, 19, and 20, 1951 at the Statler Hotel, Denver, Colorado. Mr. J. C. Casey, Manager, Gas Turbine Sales for the General Electric Company is to be one of the featured speakers. Mr. Casey will bring us an up-to-date report on new turbine developments. At 12:30 of this past year, the Annual Convention with feature exhibits by many local and national firms, a program of speakers which will be of interest to Engineers of all branches, Friday night dance, and the usual Saturday night banquet and floor show.

53rd Annual Meeting of the Colorado Mining Association
February 1, 2, 3, 1951
The Colorado Mining Association will hold its 53rd Annual Meeting in celebration of the Diamond Jubilee of the State of Colorado, February 1, 2, and 3, 1951.

CONSULT YUBA ON DREDGE PROBLEMS
YUBA offers you information and consulting service based on actual operating experience and over 40 years of designing and building bucket lad dredges and dye parts for use from Alaska to Malaya, from Siberia to Colombia. YUBA dredges now in use are producing big yariable on many types of alluvial deposits at ground, hard bedrock, clay, boulders, levee building; deepening, widening or channeling, cutting channels or producing gravel, YUBA can furnish the right right for the job.

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119.S Coopers St., San Francisco, Calif.; 85.A.
734 Cooper Building, Denver, Colorado

THE MINES MAGAZINE • DECEMBER, 1950

INDUSTRY'S PROFESSIONAL NEWS

500 tons per day selective lead-extraction concentrator recently completed by Stearns-Roger at Deming, New Mexico

THERE'S NO SUBSTITUTE FOR EXPERIENCE

No matter the size of the project, you can turn to Stearns-Roger with confidence—for undivided responsibility in a complete service including: engineering, designing, manufacturing, construction.

One over-all contract for the complete plant saves time and money. This type of contract, which Stearns-Roger offers, has proved its advantages over a period of years and on a nation-wide scale. Satisfaction is evidenced by the volume of contracts we are handling, including repeat orders both for new plants and enlargements of existing plants.

MARTIN MINE EQUIPMENT CO.
601 Sherman St., Denver, Col., Phone: KEY-973
Consulting Metallurgical Engineers. High performance of tools and mechanical products through selection and testing of metals.

THE MINES MAGAZINE • DECEMBER, 1950

TECHNICAL SOCIETIES AND ASSOCIATIONS MEETINGS

5th Annual Meeting of Colorado Society of Engineers
Jan. 18, 19, 20, 1951
The 35th Annual Convention of the Colorado Society of Engineers will be held January 18, 19, and 20, 1951 at the Statler Hotel, Denver, Colorado. Mr. J. C. Casey, Manager, Gas Turbine Sales for the General Electric Company is to be one of the featured speakers. Mr. Casey will bring us an up-to-date report on new turbine developments. At 12:30 of this past year, the Annual Convention with feature exhibits by many local and national firms, a program of speakers which will be of interest to Engineers of all branches, Friday night dance, and the usual Saturday night banquet and floor show.

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METAL TREATING & RESEARCH CO.
James Collander, Jr.
651 Sherman St., Denver, Colo.
Consulting Metallurgical Engineers. High performance of tools and mechanical products through selection and testing of metals.

THE MINES MAGAZINE • DECEMBER, 1950
Wherever iron or steel meets abrasive minerals, how to specify the best wear-resisting materials? Textbook information is scanty, and large-scale wear tests are tedious, expensive and too often inconclusive.

Reprints of an informative and authoritative paper (published by the American Institute of Mining and Metallurgical Engineers), giving the statistical results of extensive wear tests on a wide range of grinding ball materials, are now available.

Copies of this paper are available to interested engineers and metallurgists. Although the data apply specifically to wear tests on grinding balls, there is a wealth of comparative information listed in the form of "abrasion factors" for forged and cast steels, chill cast irons, white irons, etc., which can be applied to many other abrasive conditions encountered in the mineral industry.

Send now for reprint on Wear Tests

Climax Molybdenum Company
500 Fifth Avenue - New York City
Wilfley Centrifugal Pumps are at work in the City of Miami rotary kiln plant disposing of sludge formed in softening water. The 50 per cent solid calcium carbonate sludge from the wash mill is carried to the thickener tanks and the 20.3 per cent thickener underflow is pumped up to a slurry feeder on the top floor of the kiln feed building. Dependable Wilfley pumps deliver the uniform product necessary for high efficiency operation.

Wilfley Pumps deliver continuous, trouble-free, low-cost performance plus worthwhile power savings in handling sands, slurries or slimes. Complete interchangeability of parts—from rubber to metal, or metal to rubber. An economical size for every purpose. Individual engineering on every application.

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