

PRODUCTION

These
Rare-Earth
Elements...

... when used
along with
these standard
alloys...

... in making
these metals...

... may pro-
duce these
improved
qualities

Lanthanum
Cerium
Praseodymium
Neodymium
Samarium
Europium
Gadolinium
Terbium
Dysprosium
Holmium
Erbium
Thulium
Ytterbium
Lutetium

Nickel
Chromium
Molybdenum
Vanadium
Silicon
Manganese

Alloy Steel
Stainless Steel
High Temperature Steel
High Speed Steel
Electrical Steel

Better control of impuri-
ties and gases
Resistance to oxidation
and corrosion at high
temperatures
Improved physical prop-
erties
Easier workability in cold
and hot forms.

Rare Earths Are Moving Into Industry

For years, the group of metals known as the "rare earths" have been in the same category with museum pieces: unique, but not very practical. All 14 of these elements (chart) have been researched, identified, and logged by the scientists. But they've found only a few uses by industry—such things as coloring agents for glass, and alloys for cigarette lighter flints.

Now, however, the rare earths are about ready to move into the industrial picture. You won't hear much about what's going on in this area—but that is because the companies that are experimenting with the rare earths have such high hopes of them.

Right now, they are going through an experimental phase in the steel and foundry industries. Metalworkers have discovered that small doses of these elements can make big improvements in the end products of such primary metals as steel, aluminum, magnesium, and copper. They make them easier to work, improve some of their physical properties, and cut down impurities. American Metallurgical Products Co., of Pittsburgh, Pa., predicts that within 10 years rare earths will be household materials, as common as iron or aluminum.

• **Misnomer**—Rare earths, the general name that identifies the group, is mis-

leading. All together, these elements are more plentiful than several of the nonferrous metals. The total in the earth's crust is more than that of zinc, and five times that of molybdenum.

They aren't really earths, either, but metals just as iron or nickel. They originally got that name because they were first known in the form of oxides, in which they resemble the nonmetallic minerals. The only connection they have with earth is that they are usually found in the mineral monazite.

The form that the metallurgists are using today is actually an alloy of several of the elements, which they call misch (or mixed) metal. The steel makers and foundries don't use the hodgepodge of elements that are found in nature, though. They make a refined version, a mixture that has definite amounts of each element. One of the most popular used in commercial operations has about 50% cerium, 30% lanthanum, and a 20% combination of 13 other rare earths with a trace of iron.

• **Still a Lab Problem**—The operation of putting a misch metal into a heat of steel or iron is still in the experimental stage. The metallurgists add up to six lb. of rare earths to each ton of steel, putting it into the ladle after the heat has been tapped from a furnace.

And here, there is one limitation: The operation is successful only with steel that has been made in basic electric or open hearth furnaces.

The fine points of this operation still haven't been ironed out well enough to suit most metallurgists. And the steel companies and foundries now working with the rare earths want to make sure of the fundamentals before they disclose any of their results. The metallurgists have built up a broad general knowhow about the earths, though, and are now working for specific answers.

They know, for one thing, that a misch metal will easily alloy (or combine) with nearly all the common metals. And they know that the rare earths have a strong attraction for the nonmetallic elements such as oxygen, carbon, nitrogen, and sulfur. This means that the rare earths could be immensely useful in controlling a heat of iron or steel. But the metals experts have one blank spot: They haven't enough analytical methods yet for accurately figuring just how the reaction of the rare earths with other elements works.

• **End Product Improved**—The payoff from the rare earths is a whole raft of improvements in the end products. The

"... The rare earths will usually improve many of the properties in a metal, but never harm them..."

RARE EARTHS starts on p. 46

results haven't been tested long enough to suit most in the industry, but so far they have never been disappointing. The rare earths will usually improve many of the properties in a metal, but never harm them.

In the steelmaking processes, a misch metal can control carbon content and cut down such impurities as sulfur and nitrogen. It gives them better working characteristics at hot and cold temperatures—which means that they are easier to roll, or form, and machine into finished shapes. The foundry industry uses cerium in the metals for its castings, gets a better grain structure that way.

The rare earths have been added to steel as a group of elements because, so far, that is the cheapest, most practical way of doing the job. The trouble has been that it's hard to estimate the end results of each of the elements. Some experts think that, later, the results will be easier to evaluate when they are able to add the elements individually instead of as a group. Take the high boiling points of some of the rare earths, for instance. These properties alone might make a big difference in the end product when an individual rare earth is put into steel.

• **Hard to Separate**—But there are a lot of technical obstacles in the way of individual use. In their natural state, the rare earths come as a tightly bound combination of elements. The mixture is hard to separate because, chemically, each element isn't much different from its neighbor. So it takes a long, complicated process to get them into pure form. The processes used to refine them all take advantage of the slight chemical differences among them. Some of the rarer elements take several thousand processing steps to isolate and purify.

The commoner earths such as cerium and lanthanum are refined by a method called fractional crystallization. The earths are formed and reformed into crystals until they come out in a pure state. This method will probably be around for a long time to come.

Another way to refine them is ion exchange, one of the standbys in chemistry that was first used on the rare earths by the Atomic Energy Commission. The operation is nearly identical with every other ion exchange: A mixture of rare earths flows through a bed of chemically sensitive resins. There, they separate and line up ac-

ording to their weight. The output is a batch of nearly pure elements. The Ames Laboratory of AEC has a pilot plant that monthly turns out four lb. to seven lb. of rare earths this way. And a few firms are commercially producing the rare earth metals by both methods.

• **Good Supply—Shortages** probably won't ever worry the industry, if it decides to use rare earths for commercial operations. They are as plentiful as dirt, and a little goes a long way in a ton of steel. The chief sources of monazite, the ore that carries the rare earths, are the U.S., Brazil, and India. Stateside, it is mined in Texas, North Carolina, and Colorado.

PRODUCE

These
Rare-Earth
Elements...

Lanthanum
Cerium
Praseodymium
Neodymium
Samarium
Europium
Gadolinium
Terbium
Dysprosium
Holmium
Erbium
Thulium
Ytterbium
Lutetium

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Rare Earths

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cities to see where they were weak, where they were strong. On the strength of their findings, they set up the basic list of merchandise that is to go into the store.

The New York buyer has full responsibility for the initial ordering. He sets the item, the general style, the price, and the supplier for the basic lines. On fashion lines, he decides when a line should be changed to keep up to date. He places the order, tells the store the stock is waiting.

• **Some Local Say**—The individual store, however, does have some say in the matter. The merchandising manager consults with the buyer before the orders are placed, stipulates minor style factors—whether he wants a lampshade in pink or green, say, and how big an order he can handle.

The individual store has some rein on reordering, too. True, it must stick to its budget, set jointly by the store and the New York office. But if it needs to replace stock and has the money to do it, it doesn't have to go through New York on some—but not all—of the basic merchandise. If the supplier is close by, it can order the goods direct and forward a copy of the re-order to the New York office. The criterion in this case, says Ginsburg, is simply economy—what will save the most in time and shipping costs.

Even on reordering, however, the individual store has one hand tied. On replenishments of fashion lines, all orders go from New York. These lines are replaced automatically, on a day-by-day tally of sales.

Fedway plans to do a considerable part of its buying from manufacturers direct. That's particularly true of goods made to Fedway specifications—non-brands, or Fedway brands. However, it's calling on all the normal resources of department and chain stores.

• **The Formula**—Fedway feels confident that it has a formula that will ward off some of the locusts that have plagued the big department stores recently. It has a trump card in that it's starting with a brand-new plant (only the Westwood store in Los Angeles, formerly Bullock's, wasn't built for Fedway).

Perhaps best of all, because a single staff operates for the chain, it can be top-drawer talent. Thus, J. Lawrence Sher, vice-president in charge of stores, quit his post as vice-president and general manager of the White House in San Francisco. The staff is all of a caliber that no one of the stores could afford singly.

But Fedway isn't forgetting the second half of its formula: It's a chain, but it's a department store chain. That means it is offering all department-store services—delivery, charge accounts (which it will solicit before the store opens), service selling.

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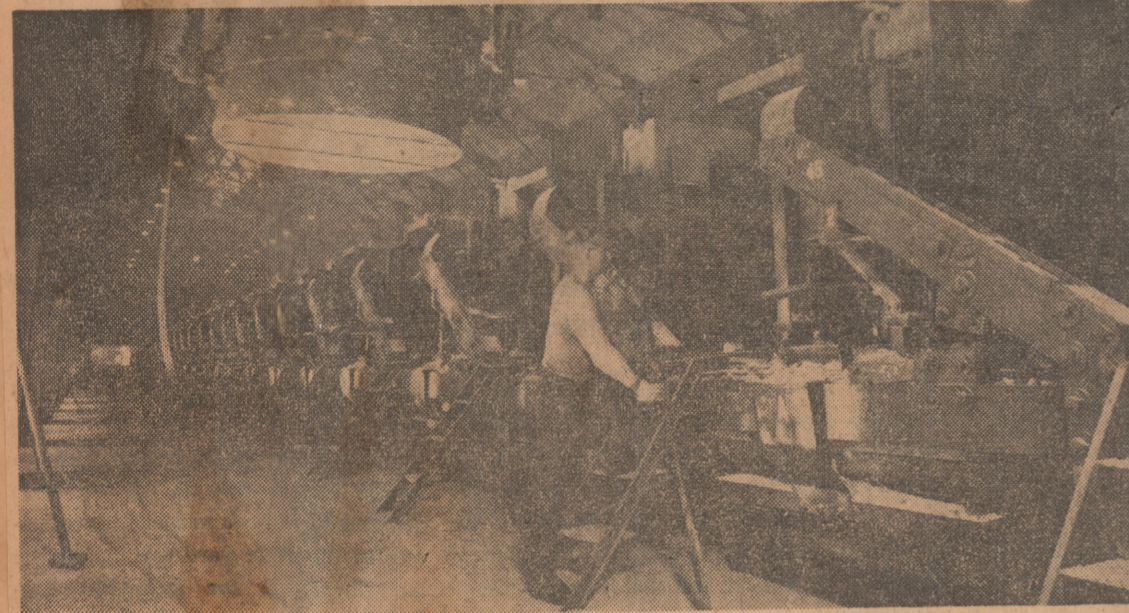
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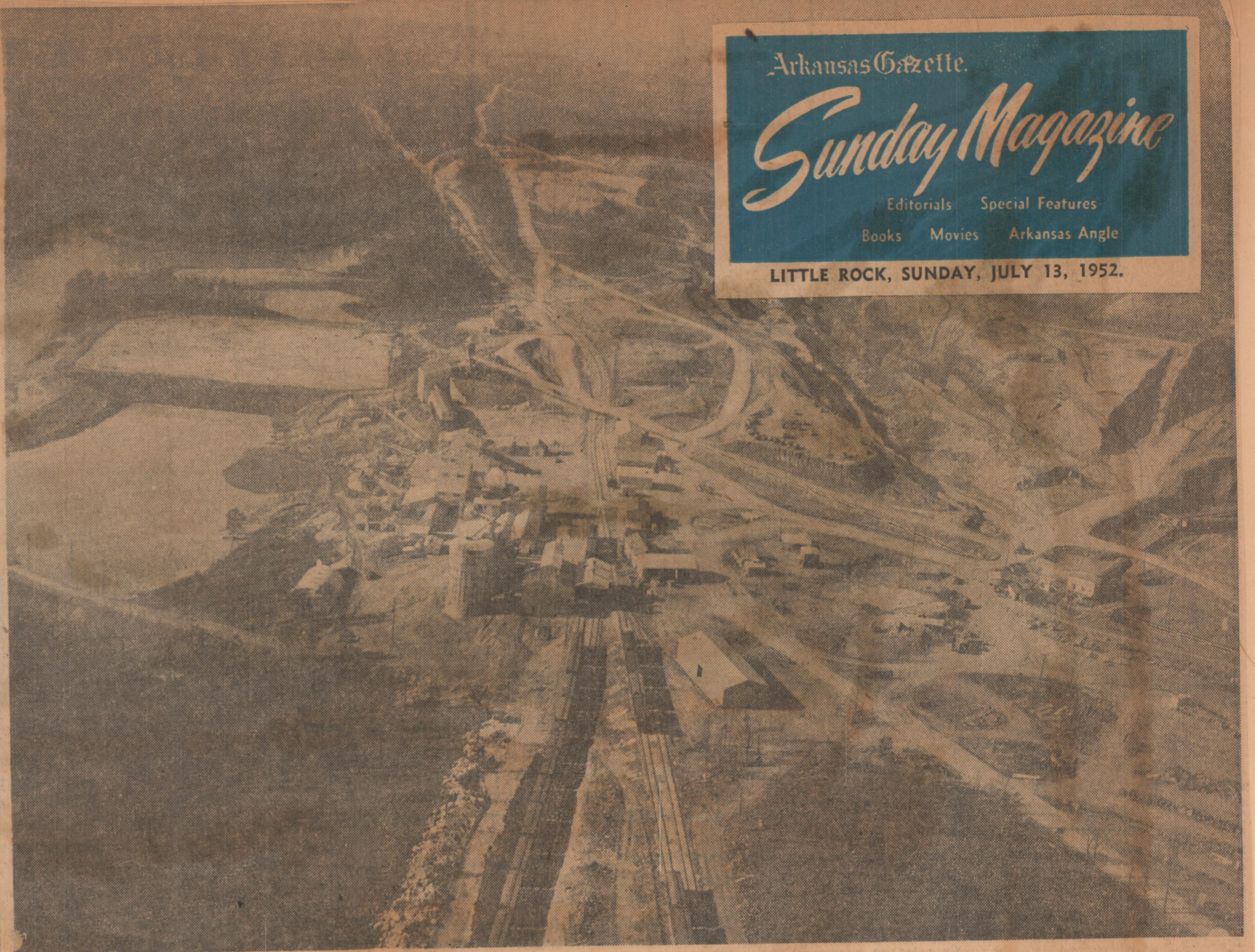
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Brick production is one of Hot Spring County's oldest and biggest industries. Principal producer is Acme Brick Company which, on opposite sides of Malvern, operates two of its total of 16 plants. Charles L. Sewell, right, inspecting a still-warm brick from the continuous tunnel kiln at rear, is district superintendent for Acme, helped build first kiln at the Perla plant just east of Malvern. Six brick from first kiln firing in 1921 are built into wall of his office. Perla plant produces buff face and fire brick and building tile, as does similar plant operated by Malvern Brick and Tile Company. Acme also produces red brick from differing clay deposits.



Aluminum pours in molten state in ever-increasing quantities from the potline installations such as this of Reynolds Metals Company's reduction plant at Jones Mills on Lake Catherine. The recently enlarged plant was built with government funds by Alcoa, leased after the war to Reynolds which later purchased and increased capacity. Part of output is destined for direct use in castings by General Motors division scheduled to build nearby plant.



Mining in Magnet Cove area is subject of feverish round-the-clock activity by two concerns who operate on adjoining lease areas. Airview is of National Lead Company's Baroid Sales Division which strip mines barium sulphate, commonly known as barite, from pits at upper right, concentrates and bags the product for oil-well drilling purposes in plant in center foreground. Water-filled pits at left are settling basins from which processing water is reused. Magnet Cove Barium Corporation's diggings are on adjacent site out of camera range to right. Their near-the-surface deposits are gone, but they're bringing the ore up currently from mines now approximately 600 feet deep. Area got its name from magnetized iron ore deposit, abounds with deposits of various minerals (count varies between 42 and 55), many believed to be in commercial quantities.

The Counties of Arkansas

Hot Spring: Its 'Second Growth' Sparks a Boom

By Carroll McGaughey

FIVE MALVERN businessmen of 1874 made up a \$30 kitty to have seven blocks of the new railroad town's Main Street cleared of its virgin pines and hardwood trees.

Malvern's businessmen of 1928 raised a purse of \$80,000 largely because the area's trees were gone.

Between these two events—both of which have proved remarkably sound investments—a tornado whipped a tree out of the ground a few miles west of Malvern. In the soil clinging to its upturned roots were particles of an odd mineral; below was a solid shelf of the same slate-like deposit. No one in Hot Spring County recalls the 1915 tornado as an ill wind.

The many links between these incidents have forged a mighty chain by which hangs the prosperity of this central Arkansas community.

The sound of the woodman's ax felling Malvern's Main Street trees could scarcely be heard in the blossoming little Ouachita River town of Rockport, a mile or so west. But the echoes sounded its death knell. It was 1870 when a surveying party of the Cairo and Fulton Railroad (now a part of the MoPac) began laying out a rail route through the area.

"Would the citizens of the county be interested in subscribing \$50,000 in railroad stock to assure the right-of-way location within a mile of the courthouse at Rockport?" the railroad asked.

"No," said the citizens at an election, secure in their conviction that their property would force the railroad "to come to Rockport."

The engineers calmly selected a station location to suit the railroad's convenience, staked out a townsite of nine city blocks and laid the cross-ties and rails.

A Virginian employed by the railroad, who thought the terrain resembled that of the Malvern Hills of his home state, named the town Malvern. The river could not compete with the rails. One by one, the stores and churches of Rockport moved their buildings to the new town.

Malvern's First Street, paralleling the tracks was no longer sufficient. Capt. W. H. Cooper decided to build his store where Chamberlain Drug Store now stands up the hill on Main Street, at right angles to First. Cooper paid \$10 of the \$30 to have the new street cleared; four other businessmen contributed \$5 apiece. Four years later the new town's future was clear. It replaced Rockport as county seat; the river town was dead.

The chug of the locomotives, when they came, was almost drowned out by the chug of the portable sawmills that began to rip out the magnificent stand of virgin timber, pine and hardwood, that covered the rolling lands. The huge logs became the source of livelihood for the community. Big capital of the timber industry moved in, bought up huge tracts, set up their planing mills at Malvern. The little city boomed as free-spending loggers tramped the streets in their off hours.

Daily the railroad hauled away the logs and the dressed lumber, removing the county's wealth carload by carload.

By the time World War I rolled around, some of the mills already were having trouble finding enough virgin sawlogs to keep them running, began looking around for as yet unexploited timberland elsewhere in the country.

Many of Hot Spring County's young men looked into what proved to be a clouded crystal ball, saw no future for themselves in a community whose resources were rapidly dwindling, packed up and left.

It was a dismal day for the community in 1929 when Arkansas-Wisconsin Lumber Company shut down its plant—the last of the large mills to sell out.

But a small group of Malvern businessmen had not been caught unawares by the shutdown. For years they had watched the gradual slowdown of the lumbering industry as more and more of the trees around them fell, leaving the land denuded of everything but stumps. They had seen what was coming and had taken stock of their assets.

For one thing, a few years before the Arkansas Power and Light Company had built the nearby Rempel Dam (it impounds the famed Lake Catherine) and Carpenter Dam, (Lake Hamilton) giving promise of plenty of hydroelectric power at minimum transmission cost.

For another, the huge Acme Brick

Company whose product is nationally distributed, had started operations at Perla, within shouting distance of Malvern, and seemed so well satisfied with the production



that it had taken over another brick plant on the opposite side of town.

The area's future, the businessmen decided, would have to rest on industry. What was needed was a good, big, and permanent industrial installation. They went shopping.

International Shoe Company of St. Louis was looking for a spot to locate a cotton textile mill. International made an offer; the businessmen accepted. It required that they obtain and give title to a suitable mill site (the acreage on which the Moline Lumber Company mill had once operated was chosen) and pay a cash bonus of \$80,000.

International, which in return had guaranteed to put a stipulated and sizable payroll into the community within five years, went into opera-

tion in June of 1929, processing some six to eight thousand bales of cotton a year into cotton drill, duck and sheeting. More important, the mill employed some 200 persons from the county.

It was none too soon. Four months later, Wall Street panicked. If the crash had come before the mill, International would never have built.

With payrolls braced, things began looking up for Malvern.

Then came rumblings of World War II. It brought with its evils an unprecedented demand for aluminum and for oil—two of Arkansas's resources.

The Defense Plant Corporation built Jones Mills reduction plant on Lake Catherine—in Hot Spring County—and aluminum poured from potlines manned by men of the area.

That was about the time that Joe Kimzey, who had always been fascinated by the varied minerals of his native Magnet Cove, began talking some more about that tree the tornado had blown over. Kimzey had done a lot of talking about that tree before. He had analyzed the mineral at its roots as a solid deposit of barite, an unspectacular, unattractive, gritty substance.

But barite, ground fine, has a spectacularly profitable use. Mixed into a mud, its weight and inert chemical property make it ideal for use in the drilling of an oil well.

As the drilling rig bites deep into the ground, there is the problem of

getting its chippings back up the shaft; there is also the danger that the shaft will unexpectedly reach a pocket of natural gas under high pressure and "blow" the well. The weight of drilling mud pumped into the shaft above the cutting head prevents a "blowout," because the mud is heavier than the drill cuttings.

Oil wells vary. Some have used as little as 10 tons of barite, others as high as 2000 in the drilling. An arbitrary "norm" is 200 tons; and barite sells for \$20 a ton bagged.

A locally-formed firm, the Magnet Cove Barium Corporation, first heeded Kimzey's advice and was the first to get into production in 1940 at Malvern, strip mining the mineral from the deposit on the outer slope of what is believed to be an extinct volcano crater. A few months later the Baroid Sales Division of National Lead Company had its adjacent plant in production.

Together, the two plants—which keep some 400 men busy—produce an estimated 80 per cent of all the drilling mud used in the U. S.

And what about that huge acreage of outover timberland? Some 82,000 acres of it was bought up by International Paper Company of Camden; a few far-seeing businessmen held on to their tracts.

Almost unnoticed, the pine seedlings began reaching for the sky again. By 1935, O. L. Payne had come in with a lumber mill which was successfully cutting 50,000 board feet a day from the second growth. International keeps its crews busy cutting and hauling pulpwood and, by advanced forestry methods, keeps the stand replenishing itself as fast as it is used.

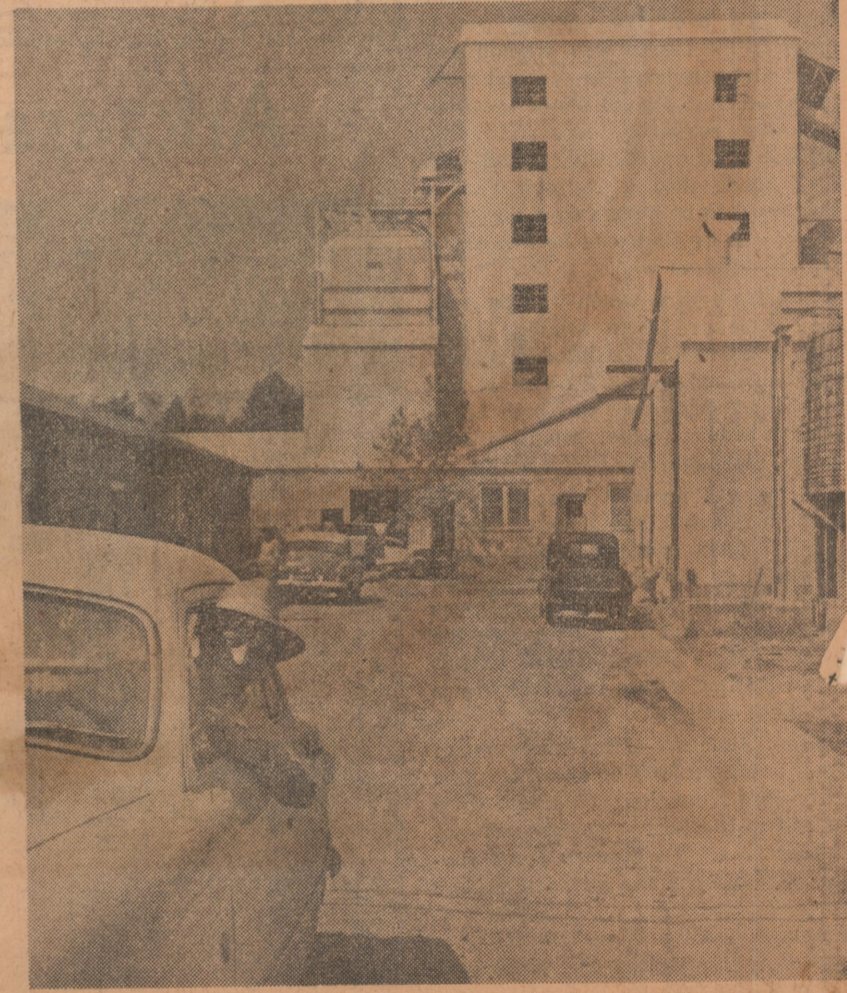
An assortment of hardwood and construction timber mills in the county, buying from managed timber tracts, cut an approximate \$1,000,000 worth of timber each year and are in business to stay.

The industrialization of the area gains momentum almost daily. Westinghouse is building a huge bulb manufacturing plant on Lake Catherine; Reynolds Metals Company has added to the capacity of its Jones Mills plant; Arkansas Power and Light Company is doubling its huge Lake Catherine steam generating plant; General Motors' Fabricast division is to soon start construction of a multi-million dollar plant to utilize in castings molten aluminum transported directly from the adjacent Jones Mills potlines.

Meanwhile the spindles at International's textile plant keep whirling, the kilns at Acme's two plants and a third similar plant owned by Malvern Brick and Tile Company, stay hot; and the whine of the saws is almost never still.

Hot Spring County's second growth has made its people first generation industrialists.

Carroll McGaughey is Associate Editor of the Gazette. Next week—Jefferson County.



Barite was first produced in area by Magnet Cove Barium Corporation whose processing plant is in Malvern. Ore is hauled by rail from nearby mine to plant for processing. Company was started in 1940 by local businessmen, purchased in 1949 by Dresser Industries of Dallas, an oil industry supply house. Manager for Dresser is V. C. Golden, who leans from his car at gate entering plant site.



Timber was once mainstay of Hot Spring County's economy, but industry virtually died out after big sawmills "cut out" in 1920s. Careful management of second growth has re-established lumber and pulpwood production as permanent and flourishing industry. Largest timberland owner is International Paper Company of Camden which leaves sufficient stand of timber to replenish growth. On one of International's tracts, District Forester Duncan Cothren, at right, visits Foreman Burton Best in the De Roche community. Cutting crews are almost entirely mechanized, using chain saws, tractors and mechanical loaders to handle short pulpwood logs. Only hand operation is actual stacking of logs in clearings to await arrival of mechanical loader. Seven-man crews cut and stack approximately 17 cords of wood in a day.



Dairying and stock farming lead the way in Hot Spring County's agricultural pattern which, though overshadowed by the area's industrial progress, still brings in about \$1,500,000 to the county each year. Cattle industry is centered about community of Bismarck in western section. Typical of the area are Dairyman S. P. Kinnaird, left, and his son A. C. ("Rusty") Kinnaird, in front of their stock barn at Bismarck. The elder Kinnaird shifted to dairying from truck farming about 14 years ago. His son is his partner in that business, and has gone into beef cattle raising on their jointly-operated farm. County's entire agricultural output has ready market in Hot Springs, Little Rock, Malvern, Benton and Pine Bluff. Census of 1950 showed that while there were 1,621 farms in the county, 1,001 reported that other income of their family for preceding year was greater than the value of farm products sold, indicating general pattern of farming as "supplemental" income to wages received from the various industrial installations.

Alabama Oil Field Adds Strong Well

Breyton, Ala. (AP)—Gulf Refining Co.'s first Alabama producer in the Pollard field flowed at the rate of 295 barrels a day through an 11/64ths-inch choke.

A Gulf spokesman said the T. R. Miller Co. No. 1 well was "comparable or better" than the Allen Moye No. 1 gusher discovery well in the field. The Moye well was gauged at 339 barrels a day through a slightly larger choke opening.

The well, which had shown tendencies to gush because of a strong bottom hole pressure, was throttled down to keep it under control. What the well would do if allowed to flow full blast was not announced.

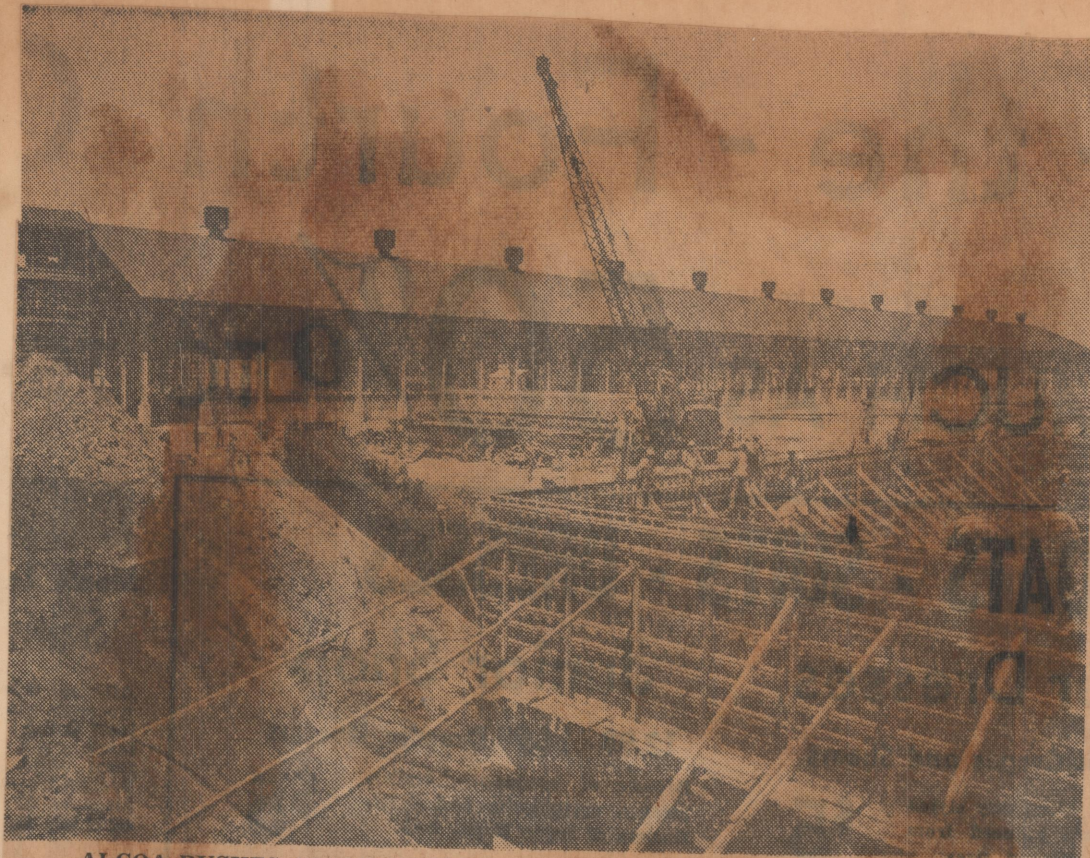
The grade of the oil was listed at 29.3 gravity, which is about the same as the other Pollard producers and close to the national average.

The oil pouring out of the T. R. Miller well was remarkably free of sediment, containing less than four-tenths of one per cent.

Gulf's producer, brought in between 5,834 and 5,860 feet Saturday, is located about one-half mile northwest of the Moye discovery.

Gulf began moving its rig today to the T. R. Miller Co. No. 2, two tracts west of the No. 1.

The oil is being shipped to Gulf's marine oil terminal at Mobile for tanker movement to refineries.



ALCOA RUSHES CONSTRUCTION—Extra crews have been added to speed completion of crushing and crude ore handling facilities of Aluminum Ore Co.'s new \$54 million alumina works at Bauxite. Construction schedules call for start of operations about August 15. Yesterday, Aluminum Ore's sister company, ALCOA Mining Co., shipped the last trainload of Arkansas bauxite out of the state. From now on, all bauxite ALCOA digs here will be used in the new plant.

2,959 Rigs Active During Last Week

Dallas, June 28. —A total of 2,959 rigs were active in oilfields of the United States and Canada this week, the Hughes Tool Company reported to the American Association of Oilwell Drilling Contractors.

This compares with 3,032 a week ago, 2,994 a month ago and 2,680 in the comparable week of 1951.

In the Arkansas-Louisiana-East Texas area, 160 rigs were active, one less than a week ago.

Rigs in operation in other areas: Pacific Coast, 168; Oklahoma, 326; Kansas, 160; Rocky Mountain, 244; Canada, 172; West Texas and New Mexico, 623; Gulf Coast, 614; Illinois, 172; and North-Texas, 311.

Hempstead County Test Drills Ahead

Gazette State News Service
Magnolia, June 28. —Brody Oil Company was drilling ahead this week on the Edwards and Foster Unit No. 1, a wildcat in NE NE SW 15-13-26, Hempstead County. It is proposed for 4,000 feet.

The same firm recently abandoned as dry the King Estate No. 1 in 35-12-25, Hempstead County.

10—ARKANSAS DEMOCRAT, Wednesday, July 9, 1952

Manganese Deposit To Be Worked

Marshall (AP)—Workmen are digging a tunnel through a hill near here which the property lessor says contains a rich deposit of manganese ore.

Leonard Baxter, Cushman, said yesterday that government assayers

had told him the Orville Pemberton property about 12 miles northeast of here had a manganese deposit assaying 61 per cent.

Baxter, who has leased the property, said the Mushman manganese deposit, where a large manganese processing plant is under construction, assayed 53 per cent.

Baxter also said the Pemberton manganese dioxide deposit assayed 94 per cent.

He has a crew at work sinking a shaft and digging a tunnel into a hill on the property.

JACKSON, MISSISSIPPI, TUESDAY, JULY 15, 1952



COMPANY OFFICIALS AND STOCKHOLDERS of Cross Oil Co. are shown above. They include, left to right L. G. Roberts, stockholder, Hot Springs; Buren MacGregor, drilling contractor, Fairfield, Ill.; Roy Urfers, board member, Wynne; Leonard Harmon, board member, Cherry Valley; H. C. Stewart, president, Fair Oaks; Ivar Hatlestad, geophysicist, Wynne; M. L. Hampton, secretary-treasurer, Wynne; G. E. Stewart, stockholder, Wynne; and Caudell Lane, assistant secretary, Wynne.

Extensive Drilling Program Planned By Independent Group In Ark. Area

Geophysicist

Wynne, Ark.—Plans for an extensive oil and gas exploration program are being formulated by the Cross Oil Co. in areas of Cross, Poinsett and St. Francis Counties, Arkansas.

Already two tests have been drilled by the company on acreage held in Cross County and shows noted in the Nacatoch formation has spurred officials of the company to formulate plans for the



Ivar Hatlestad, geophysicist conducted surveys of holdings of Cross Oil Co. and recommended locations for drilling. The company has reported minor shows in two wells already drilled.

STAKE THIRD TEST

Wynne, Ark. — Cross Oil Company has been issued permit to drill their third test on acreage holdings in Cross County, Arkansas.

The test will be the company's No. 1 Charlie Rhodes in the northwest quarter Section 20-SN-2E.

Objectives of the new test in addition to the Wilcox and Nacatoch will be the Paleozoic formation.

drilling of six additional wells. According to members of the firm, three of these tests will probe deep into the Paleozoic formation with the other three slated to test the shallower Wilcox and Nacatoch formations.

The group originally organized as the Northeast Arkansas Development Association in September, 1951. Instrumental in the formation of the original association were the following: G. E. Stewart, M. L. Hampton, R. H. Winters, Roy Urfers, Carson Brown, Corbin Daniels, and Caudell Lane, all of Wynne; H. C. Stewart and Emmett Wampler of Fair Oaks, Ark.; L. G. Roberts, Hot Springs; Leonard Harmon of Cherry Valley and Luther Hagler of Hickory Ridge.

The group incorporated in April of this year as the Cross Oil Company. Assets of the company include approximately 100,000 acres of 10-year commercial leases. The principal part of the acreage is held in Cross County with lesser amount in Poinsett and St. Francis Counties.

Following incorporation, the following officers were elected: H. C. Stewart, President; Carson Brown, Wynne, Vice President; M. L. Hampton, Secretary - Treasurer; and Claudell Lane, Assistant Secretary. The Board of Directors comprise the following members: M. L. Hampton, Emmett Wampler, L. G. Roberts, Roy Urfers, Leonard Harmon, Carson Brown and H. C. Stewart.

Attorneys for the company are

J. L. (Bex) Shaver and Senator Walter Kellough, both of Wynne.

Geophysical work for the company has been conducted over the entire acreage by Ivar Hatlestad. He has recommended that part of the acreage is potentially productive from the shallow Wilcox and Nacatoch formations while some holds productive potentialities from the deeper Paleozoic formation.

To explore the undeveloped acreage, the company has engaged Buren MacGregor, drilling contractor of Fairfield, Ill., who is also a native of Arkansas. Since World War I, Mr. MacGregor has worked areas of Oklahoma, Kansas, Texas, Michigan, Southern California and the Illinois Basin. Rigs owned by MacGregor include light units which will be sufficient to test the Wilcox and Nacatoch in the Cross County area and heavy units capable of 8,500 feet for testing the deeper Paleozoic zones.