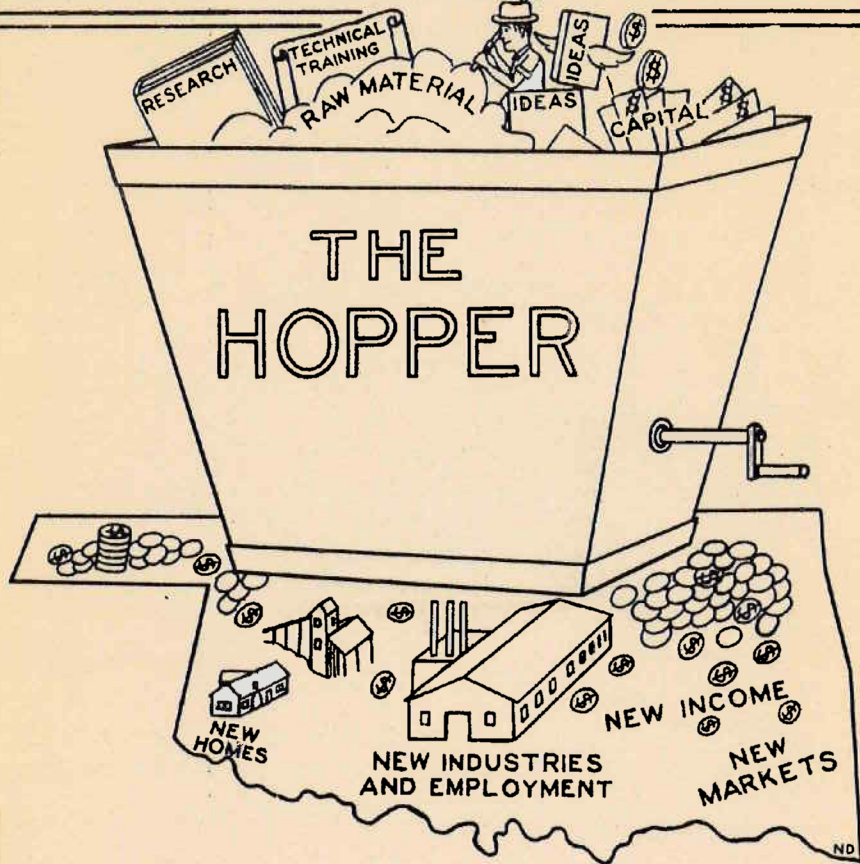


DEDICATED TO OKLAHOMA'S DEVELOPMENT



PUBLISHED IN THE OFFICE OF THE
OKLAHOMA GEOLOGICAL SURVEY
NORMAN, OKLA.

DOLESE COMPANY OPENS NEW SAND PLANT IN LOGAN COUNTY

Officials of The Dolese Company, of Oklahoma City, recently announced the opening of a new, modern sand plant located approximately 3 miles north of Guthrie, in central Logan County. The plant, just south of the Cimarron River bridge, is serviced for rail shipments by the Santa Fe Railroad and has loading and weighing equipment for truck shipments by U. S. Highway 77.

From this plant the company is selling sand for use in all types of construction work.

One of the largest and most modern plants in the area, it is capable of furnishing large quantities of sand meeting both Oklahoma State Highway Department and Federal government specifications. Also available is a finer sand for use in masonry construction.

Sand is obtained from a terrace deposited by the ancient Cimarron River where it once flowed at a higher elevation.

The Hopper extends congratulations to the Dolese Company for opening this plant, and thus helping to meet the raw material demand resulting from increased construction activity. (W.E.H.)

Raw Materials Can Make Industry Possible

Ingenuity may make industry profitable. For example: according to Ceramic Industry-Jan., 1955 issue Versatility in Design Awards Committee has presented John Frank, President of Frankoma Pottery, of Sapulpa, Oklahoma, with the 4th Annual Versatility Award in the field of ceramics in honor of Frankoma's ceramic Serva-Tray, "which can be used for a

snack tray, refreshment stand for bottles or glasses, a jumbo ash tray, a pipe rest, a magazine and paper rack with tray or chairside tray for knitting or other pick-up work". Oklahoma clay plus Oklahoma ingenuity is the combination. (A.L.B.)

Arbuckle Mountain Map Now Available

The colored geologic map of the Arbuckle Mountains prepared by W. E. Ham and Myron E. McKinley is now on sale from this office for \$2.00. The map is at a scale of 0.88 inches per mile and is printed in four colors. Five geologic cross-sections and a structure outline appear in the borders.

The map presents the results of work done by Dr. Ham over a period of about 10 years and by Mr. McKinley during part of 4 years. Twenty-six separate stratigraphic units are shown in color, and literally hundreds of faults are indicated.

New Geologic Map of Oklahoma In Demand

The new geologic map of our State has been selling so rapidly that our clerical staff has been largely a sales staff. We received 500 copies by express and sold them all in 3 days. The freight shipment arrived a week later, and since then about 2,000 additional maps have been sold. Our stock of the map with the overprint is exhausted. The map with the overprint can be obtained from the Distribution Section, U.S. Geological Survey, Denver Federal Center, Colorado; or from the Chief, Distribution Section, U.S. Geological Survey, Washington 25, D. C. We plan to prepare a new overprint which will show highway change since 1951 and will show the Turner Turnpike and the Murray Turnpike. In the meantime, we have plenty of the new geologic map without the red highway overprint.

THE MINERAL INDUSTRIES OF OKLAHOMA IN 1953

(Final Annual Figures)

The value of mineral production in Oklahoma in 1953 reached a new record high of \$669 million, 7 percent greater than the previous record of \$621 million in 1952. Crude oil continued as the most important raw material in value in the State, followed by natural gas liquids, natural gas, coal, and cement. Total value of metal production declined sharply in 1953 as lead and zinc metal prices fluctuated downward during the year. Only four of Oklahoma's 77 counties failed to report any mineral production.

MINERAL FUELS

Mineral fuels constituted the major portion of Oklahoma's mineral production and value in 1953, these commodities accounting for 94 percent of the State's mineral value. Crude oil was the principal mineral fuel commodity, being responsible for 82 percent of the total mineral value and 86 percent of the total mineral fuel value. Natural gas liquids followed crude oil in value, with natural gas and coal accounting for the remainder.

Prepared by the Oklahoma Geological Survey, William E. Ham, Geologist, and John H. Warren, Assistant Geologist, in cooperation with F. F. Netzeband, January 7, 1955, Mineral Industry Division, Region VI.

coal production; strip operations 60 percent. Coal was produced in 14 of the State's 77 counties. The five principal coal producing counties in order of production were Haskell, Okmulgee, Rogers, LeFlore, and Pittsburg.

Natural Gas: Oklahoma was the third ranking State in the nation in marketed production of natural gas in 1953. The 619 billion cubic feet of natural gas marketed in 1953 was valued at \$34 million, an increase of 11 percent in quantity and 14 percent in value over that of 1952. Natural gas was produced in 55 counties with the five leading counties in the order of their production as follows: Texas, Garvin, Oklahoma, Stephens, and Logan. Estimated recoverable reserves of natural gas in Oklahoma increased 4 percent to 12,228 billion cubic feet in 1953, according to the American Gas Association.^{1/}

There were 339 new gas well completions in the State in 1953. Utility natural gas pipeline mileage, irrespective of pipe diameters but including field, gathering, transmission, and distribution lines, except service pipe, totaled 15,100 miles at the end of 1953, an increase of 7 percent over the 1952 total of 14,060 miles. Field and gathering lines totaled 2,750 miles, transmission lines 5,500 miles, and distributions lines 6,850 miles.

Coal: Quantity and value of coal production in Oklahoma in 1953 approximated that of 1952. In 1953 there were 2,183,009 tons of coal produced having a value of \$12,628,887 compared with 2,193,409 tons valued at \$12,687,855 in 1952. Underground mining accounted for 40 percent of 1953

^{1/} American Gas Association, Bureau of Statistics, "Gas Facts", 1953.

Natural Gas Liquids: Production of natural gas liquids in Oklahoma increased 8 percent to 20 million barrels in 1953 from 1952. Natural gasoline and allied products accounted for 51 percent of this production with LP-gases contributing 49 percent of the total. The value of natural gasoline declined 4 percent, reversing the trend of all other oil and natural gas products, which advanced in value during 1953. The yield of all natural gas liquids from gases treated remained the same as in 1952. There were 73 natural gasoline and cycle plants active in Oklahoma in 1953. These plants were located in 28 counties. Estimated recoverable reserves of natural gas liquids, including condensate, were 304 million barrels in 1953, a 7 percent increase over the estimated reserves in 1952.

Petroleum: Oklahoma remained the 4th State in crude oil production in 1953, a rank maintained since 1946. The 203 million barrels of crude produced in Oklahoma in 1953 was 6 percent greater than the 1952 crude production and amounted to 8 percent of the United States total. This 1953 production was valued at \$547 million, up 12 percent from the 1952 value. Crude oil was produced in 57 counties of Oklahoma in 1953, whereas 54 counties reported production in 1952. The five leading crude oil producing counties in the order of their production were Stephens, Carter, Garvin, Oklahoma, and Osage. There were 22 oil refineries in Oklahoma in 1953, 21 of which were producing during the year. Throughput capacity of the State's refineries was 341,050 barrels per day, 1,800 of which were idle. Proved reserves of crude oil increased 12 percent to 1,752 million barrels at the end of 1953, according to the American Petroleum Institute.¹/

¹/ American Petroleum Institute; Facts and Figures, 11th Edition.

METALLIC MINERALS

Mine production of lead and zinc in Oklahoma continued the decline begun in late 1952 through 1953. This drop was the result of reduced metal prices caused by the oversupply of lead and zinc in both the free world and domestic metal markets. This oversupply in the domestic market existed notwithstanding a record domestic consumption rate.

Lead-zinc: The production of crude ore in Oklahoma dropped 44 percent in 1953 when compared with 1952 production, resulting in a 38 percent drop in recoverable lead to 9,304 tons and a 37 percent drop in recoverable zinc to 33,413 tons. The major portion of this reduction occurred in the latter half of 1953 as crude ore production declined 68 percent, lead concentrate production 78 percent, and zinc concentrate production 71 percent. The Eagle Picher Co. mines and big Central mill operations were closed by a strike from June, 1953, to late December, 1953. About 100 mines were operating at the beginning of 1953, but only 20 were active in December. All tailings operations had shut down at the close of 1952 and remained idle throughout 1953.

Zinc opened 1953 at 13 cents, up $\frac{1}{2}$ cent from the 1952 closing price, but declined to 10 cents in September, 1953, where it held for the rest of the year. Lead metal prices fluctuated through a minor price range, opening 1953 at $14\frac{1}{2}$ cents, down $\frac{1}{4}$ cent from the 1952 closing price, and closing at $13\frac{1}{2}$ cents in December, 1953.

MISCELLANEOUS METALS

The minor metals cadmium, germanium, and indium occur as traces in the concentrates of Oklahoma

lead-zinc ores and are recovered from the flue dusts of zinc retort smelters and from the precipitate of zinc electrolytic smelters. The amount of these commodities is small and their recovery is from the accumulated dusts and residues of ores from several states and foreign countries.

Smelters: There were three zinc retort smelters in Oklahoma in 1953, two of which operated at near capacity throughout the year, the third curtailing production for several months when mines supplying its concentrates were shut down by a strike.

A new germanium recovery plant at Miami, Okla., was completed by the Eagle Picher Co. late in 1953. The Eagle Picher Co. has been the major producer of this metal for many years. The demand for germanium has increased recently because of its peculiar electrical properties, and is finding unprecedented use in the electronics field, particularly in transistors.

NONMETALLIC MINERALS

The value of nonmetallic minerals produced in Oklahoma in 1953 was \$24 million, nearly equal to that reported in 1952 when the previous high was recorded. Principal changes in 1953 were tonnage increases of 25 percent in sand and gravel and 12 percent in clay, compared with a decrease of 7 percent in stone. Miscellaneous minerals as reported in the undistributed category remained nearly the same as in 1952.

A new record was set in production of sand and gravel.

Although accounting for approximately 4 per-

cent of the total value of minerals produced in Oklahoma, the nonmetals supplied much of the construction raw materials used in the State, including crushed and dimension stone, construction sand and gravel, cement, gypsum, native asphalt, and clay used for brick, tile, and expanded lightweight aggregate. Important chemical raw materials such as lime, chemical grade limestone and dolomite, glass sand, ground silica, salt, and sulfur were also produced, and contributed significantly to the large glass-manufacturing industry in Oklahoma.

Trends and New Developments

New commodities, new methods of operation, and the opening of new quarry sites near large construction projects marked the trend of nonmetals in 1953. Reported for the first time this year were the production of elemental sulfur from natural gas, the production of lightweight aggregate from expanded clay, and the first underground mining of chemical grade limestone.

A sulfur plant, erected by Joe L. Parker in 1952, was in its first full year of production during 1953. Located east of Madill in Marshall County, the plant recovers elemental sulfur from waste sour gases from a nearby gasoline plant. All sulfur produced in this plant is trucked to Tulsa where it is used in the manufacture of sulfuric acid.

Lightweight aggregate production began in December, 1953 at the newly erected plant of the Oklahoma Lightweight Aggregate Co. about 1 mile east of Choctaw, Oklahoma County. This is the first plant in the State to utilize clay as a raw material for making lightweight aggregate. Clay used in the plant is scraped from pits in the

alluvium of a small stream adjacent to the plant. The clay is fired in a 6 x 75-foot rotary kiln in a temperature range from 800° to 2008° F. After firing the product is cooled, crushed, and sized.

The Oklahoma Glass Sand Company at Hickory, Murray County, shipped sand for glass-making after rebuilding at the same site a plant that was destroyed by fire in 1947.

A new limestone quarry and crushing plant was opened in eastern Tulsa County about October, 1953, by the Edgar Tinlin Equipment Company. The limestone produced here is from the Oologah formation of Pennsylvanian age, and is used chiefly for road base material and concrete aggregate.

Late in 1953 the St. Clair Lime Company made new entries at their open-face quarries near Marble City, Sequoyah County, in preparation for the underground mining of high-calcium limestone to be used as lime in the manufacture of calcium carbide. A 27-foot face will be worked by the room--and-pillar method.

Four new quarries were opened during 1953 to obtain crushed stone near large building projects. Gibson Construction Company quarried limestone for highway construction near Drumright in Creek County. A granite quarry was opened in Kiowa County by Metropolitan Paving Company to supply crushed stone for construction of air fields. H. D. Youngman opened a limestone quarry in the southern part of the Arbuckle Mountains, Carter County, to supply 100,000 tons of crushed stone for air base construction. Crushed stone (chert conglomerate) for highway construction was obtained at a new quarry in Seminole County by Steelman Construction Company.

Commodities Produced

Nonmetallic commodities produced in Oklahoma in 1953 were clays (including bentonite), sand and gravel, stone, and miscellaneous minerals (native asphalt, cement, gypsum, lime, pumicite, salt, ground sand and sandstone, sulfur, and tripoli). Reported value of these minerals in 1953 was approximately the same as the record high of 1952. In 1953 a new record in production and value of sand and gravel was established, and clay, gypsum, and ground sand (silica) increased moderately over 1952. Cement, stone, lime, salt, and pumicite decreased slightly in comparison with 1952.

Clay. Production and use of Oklahoma clay in 1953 was principally for the manufacture of brick, tile, and cement, together with smaller production of bentonite, pottery clay, and clay for the manufacture of lightweight aggregate. Lightweight aggregate made from expanded alluvial clay was produced in the State for the first time during 1953, but there were no other significant changes compared with 1952.

Clay sold or used in 1953, exclusive of clay used for cement, was 301 thousand tons valued at \$361 thousand, a 20 percent increase in tonnage and 17 percent increase in value over 250 thousand tons valued at \$307 thousand in 1952.

Clay for brick and tile was produced at 12 plants in Creek, Custer, Garfield, Greer, Oklahoma, Pittsburg, Pontotoc, Seminole, and Tulsa Counties. One plant in Lincoln County remained idle.

Production of bentonite from near Camargo, Dewey County, continued in 1953 as in the previous year.

Sand and gravel. Construction sand and gravel was produced from 30 counties in 1953. On a tonnage basis Tulsa was the leading county, followed by Oklahoma, Muskogee, Kingfisher, and Cherokee. Plants in other counties were well distributed throughout the State.

High-purity silica sand continued to be produced from sandstones of Ordovician age in Johnston, Murray, and Pontotoc Counties, in the Arbuckle Mountains region of south-central Oklahoma. Most of this sand is used in manufacturing glass, but smaller amounts are used as foundry sand and for making sodium silicate.

Production of sand and gravel in 1953 was at an all-time high, surpassing the previous record set in 1952. The combined total of sand and gravel (including silica sand) produced in Oklahoma during 1953 is reported as 5 million tons valued at \$4 million, a 25 percent increase in quantity and 36 percent increase in value over 1952.

Stone. In Oklahoma nearly 9 million tons of stone valued at more than \$7 million was produced in 1953. This was a net decrease of 11 percent in quantity and 15 percent in value over 1952. Significant increases in dimensional granite and sandstone (crushed and dimensional) for 1953 were offset by decreases of 30 percent in miscellaneous stone (chat) and 10 percent in crushed limestone. Completion of the Turner Turnpike between Oklahoma City and Tulsa in 1953 accounted for part of the decline in crushed limestone production.

During 1953 crushed limestone, the leading commodity with production of approximately 6 million tons valued at about \$6 million was produced in 18 counties. In the order of their

tonnage the first five counties were Murray, Comanche, Tulsa, Atoka, and Sequoyah.

Dimension granite, used chiefly for monumental stone, was produced by six companies in Kiowa, Greer, Comanche, and Johnston counties. Production in 1953 was 4,400 tons valued at \$322 thousand.

Other stone commodities were chat, produced from zinc-lead tailings in Ottawa County; dimension limestone and sandstone; and crushed sandstone.

Miscellaneous minerals. Minerals produced in Oklahoma in 1953, for which statistics cannot be revealed because there are less than three producers or because one company produces a large percentage of the total, are native asphalt, cement, gypsum, lime, pumicite (volcanic ash), salt, ground sand (silica), sulfur, and tripoli. Production of these commodities was valued at over \$11 million compared with \$12 million in 1952, the previous high.

Cement and gypsum were the most important commodities in this group. Cement showed a slight decrease, as did lime, salt, and pumicite. Partially offsetting these decreases were increases in gypsum, ground sand (silica), and tripoli, along with the first production in Oklahoma of sulfur, which was recovered as a by-product from sour natural gas.

T A B L E S

I. Mineral Production of Oklahoma, 1952-1953

**II. Value of Mineral Production in Oklahoma by
Counties, 1952-1953.**

TABLE I. Mineral Production

Commodity	
Clays (except for cement)	short tons
Coal.....	do....
Gypsum (crude)	do....
Lead (recoverable content of ores, etc.).....	do....
Natural gas	thousand cubic feet.
Natural-gas liquids:	
Natural gasoline	42-gallon barrels.
LP-gases	do....
Petroleum (crude)	do....
Sand and gravel	short tons.
Stone (except limestone for cement and lime)	do....
Zinc (recoverable content of ores, etc.).....	do....
Undistributed: Native asphalt, cement, gypsum, lime, pumicite, salt, silica, stone (dimension limestone, 1952), sulfur, and tripoli (1953)	
TOTAL OKLAHOMA	

1/ Included in "Undistributed".

2/ Excludes certain stone included with
 "Undistributed".

of Oklahoma, 1952-1953

1952		:	1953	
Quantity	Value	:	Quantity	Value
249,819	307,189	:	301,007	360,532
2,193,409	12,687,855	:	2,183,009	12,628,887
<u>1/</u>	<u>1/</u>	:	<u>1/</u>	<u>1/</u>
15,137	4,874,114	:	9,304	2,437,648
554,033,000	29,918,000	:	618,700,000	34,030,000
9,660,000	29,459,000	:	10,325,000	28,066,000
8,953,000	14,090,000	:	9,858,000	14,886,000
190,435,000	487,510,000	:	202,570,000	546,940,000
3,769,663	2,911,845	:	4,702,406	3,969,693
<u>2/9,636,475</u>	<u>2/8,974,334</u>	:	8,570,485	7,633,247
54,916	18,232,112	:	33,413	7,684,990
---	<u>12,387,022</u>	:	---	<u>11,810,692</u>
---	621,351,000	:	---	670,448,000

TABLE II. Value of Mineral Production

County	1952	1953
Alfalfa	$\frac{1}{/}$	$\frac{1}{/}$
Atoka	$\frac{1}{/}$	$\frac{1}{/}$
Beaver	888,490	1,206,478
Beckham	25,347,914	25,082,212
Blaine	$\frac{1}{/}$	$\frac{1}{/}$
Bryan	2,887,746	2,484,500
Caddo	13,731,066	14,335,459
Canadian	462,703	346,010
Carter	49,814,632	64,664,673
Cherokee	$\frac{1}{/}$	$\frac{1}{/}$
Choctaw	$\frac{1}{/}$	$\frac{1}{/}$
Cimarron	66,741	266,379
Cleveland	5,344,566	6,487,328
Coal	1,678,390	2,477,001
Comanche	1,598,450	1,816,366
Cotton	5,799,617	5,419,548
Craig	91,449	75,044
Creek	23,397,614	26,383,266
Custer	$\frac{1}{/}$	$\frac{1}{/}$
Dewey	$\frac{1}{/}$	$\frac{1}{/}$
Ellis	$\frac{1}{/}$	---
Garfield	3,858,561	5,157,003
Garvin	55,617,576	58,297,090
Grady	7,503,617	8,544,841
Grant	3,186,616	2,544,623
Greer	102,522	31,126
Harmon	$\frac{1}{/}$	$\frac{1}{/}$
Harper	12,668	11,396
Haskell	1,866,587	3,288,713
Hughes	9,352,665	13,225,717
Jackson	362,897	885,783
Jefferson	2,829,611	2,726,326
Johnson	846,154	730,340
Kay	8,364,904	9,780,367

Principal commodities produced
in 1953, in order of value

Petroleum

Stone

Natural gas, petroleum, sand and gravel

Petroleum, natural gas liquids, natural gas

Gypsum

Petroleum, natural gas, sand and gravel

Petroleum, natural gas, natural gas liquids

Petroleum, natural gas

Petroleum, natural gas liquids, natural gas

Sand and gravel

Stone

Natural gas, petroleum, sand and gravel

Petroleum, natural gas, natural gas liquids

Petroleum, stone, coal

Stone, petroleum, natural gas

Petroleum, natural gas

Coal, stone, petroleum

Petroleum, natural gas liquids, natural gas

Clay

Clay

Petroleum, natural gas liquids, natural gas

Petroleum, natural gas liquids, natural gas

Petroleum, natural gas, natural gas liquids

Petroleum, natural gas

Clay, sand and gravel, petroleum

Natural gas liquids

Natural gas, petroleum

Coal, stone, natural gas

Petroleum, natural gas, natural gas liquids

Petroleum, sand and gravel, natural gas

Petroleum, natural gas

Sand and gravel, stone, silica

Petroleum, natural gas liquids, stone

TABLE II. Value of Mineral Production
(continued)

County	1952	1953
Kingfisher	1,098,913	1,023,169
Kiowa	840,368	745,338
Latimer	92,409	247,861
LeFlore	2,630,693	2,427,524
Lincoln	18,867,270	25,963,307
Logan	8,705,273	12,234,333
Love	372,873	465,040
McClain	6,363,418	7,460,869
McCurtain	<u>1/</u>	<u>1/</u>
McIntosh	750,052	627,479
Major	4,851,165	3,640,317
Marshall	7,955,009	6,869,933
Mayes	<u>1/</u>	<u>1/</u>
Murray	2,071,258	1,436,842
Muskogee	905,334	904,071
Noble	9,078,676	8,478,560
Nowata	8,968,282	11,065,035
Okfuskee	5,279,071	8,893,406
Oklahoma	47,315,772	42,928,147
Okmulgee	5,440,318	6,140,828
Osage	27,306,138	32,895,853
Ottawa	24,617,968	11,273,775
Pawnee	5,031,931	5,795,257
Payne	11,887,796	13,708,962
Pittsburg	1,628,685	1,694,998
Pontotoc	17,770,747	17,579,930
Pottawatomie	14,326,195	13,840,626
Pushmataha	<u>1/</u>	<u>1/</u>
Rogers	3,510,612	3,689,167
Seminole	29,452,929	32,638,519
Sequoyah	2,457,342	1,909,458
Stephens	92,664,527	94,779,438
Texas	13,339,699	16,127,203

Principal commodities produced
in 1953, in order of value

Petroleum, natural gas, sand and gravel
Petroleum, stone, sand and gravel
Coal, natural gas
Coal, sand and gravel, natural gas
Petroleum, natural gas liquids, natural gas
Petroleum, natural gas, natural gas liquids
Petroleum, natural gas
Petroleum, natural gas
Petroleum
Coal, petroleum, natural gas
Petroleum, natural gas liquids, natural gas
Petroleum, natural gas liquids, natural gas
Petroleum
Stone, native asphalt, petroleum
Petroleum, sand and gravel, coal
Petroleum, natural gas liquids, natural gas
Petroleum, stone, natural gas
Petroleum, natural gas, natural gas liquids
Petroleum, natural gas liquids, natural gas
Petroleum, coal, natural gas liquids
Petroleum, natural gas liquids, natural gas
Zinc, lead, stone
Petroleum, stone, sand and gravel
Petroleum, natural gas, natural gas liquids
Coal, natural gas, stone
Petroleum, cement, natural gas liquids
Petroleum, natural gas liquids, natural gas
Building stone
Petroleum, coal, natural gas
Petroleum, natural gas liquids, natural gas
Coal, stone, lime
Petroleum, natural gas, natural gas liquids
Natural gas, natural gas liquids, petroleum

TABLE II. Value of Mineral Production
(continued)

County	1952	1953
Tillman	512,769	17,033
Tulsa	5,542,448	5,786,796
Wagoner	412,068	518,038
Washington	12,805,033	15,475,139
Washita	1,107,348	1,208,252
Woods	22,063	23,769
Woodward	<u>1/</u>	<u>1/</u>
Undistributed	<u>4,105,515</u>	<u>3,608,667</u>
TOTAL:	621,351,000	670,392,000

1/ Included with "Undistributed" to avoid disclosing individual data.

Principal commodities produced
in 1953, in order of value

Petroleum, sand and gravel, clay
Petroleum, stone, sand and gravel
Petroleum, natural gas, coal
Petroleum, cement, stone
Petroleum, natural gas
Sand and gravel, salt, petroleum
Sand and gravel

MINERAL PRODUCTION IN OKLAHOMA IN 1954 1/ 2/
Preliminary Annual Figures

The produced value of 12 Oklahoma minerals showed an increase in 1954 over that of 1953 while seven minerals showed decreases. Minerals showing an increase in produced value were cement, gypsum, lead, lime, pumicite, salt, sand and gravel, silica, stone, and zinc, with natural gas and LP-gases of ; the mineral fuels following similar trends. Mineral commodities showing declines were native asphalt, clays, sulfur, and tripoli, as well as crude oil, coal, and natural gasoline of the mineral fuels.

The total value of 1954 mineral production in Oklahoma amounted to \$628 million, 6.4 percent under the record value of \$670 million in 1953. Mineral fuels accounted for 94 percent of this total 1954 value, nonmetals for 4 percent, and metals 2 percent. The drop in Oklahoma crude oil production, was responsible for the major portion of the State's decline in mineral values.

MINERAL FUELS

Coal: Coal production declined in Oklahoma in 1954 following a similar trend of the entire domestic industry; curtailment and closures of the smaller operators accounted for most of this decline. There were nearly 2 million tons of coal produced in 1954 valued at approximately \$11

1/ Production and value estimated from 9 months actual data in most cases.

2/ Prepared by the Amarillo office of the U. S. Bureau of Mines in cooperation with the Oklahoma Geological Survey.

million, about 18 percent below 1953 production. Coal production was reported from 13 counties, the largest producer being Okmulgee county.

Natural gas: Marketed production of natural gas was slightly higher in 1954 than 1953 when 625,000 million cubic feet valued at \$34 million was sold. More than 50 counties in Oklahoma reported natural gas production with Texas County being the principal producer.

Natural Gas Liquids: The value of natural gas liquids produced in Oklahoma in 1954 increased more than 4 percent to \$45 million over 1953 value. This increase was due to greater LP-gas production during the year. Natural gasoline accounted for 50 percent of the production and 61 percent of the value of natural gas liquids with LP-gases responsible for the remainder. There were 68 natural gasoline and cycle plants operating in the State as of January 1, 1954, with 3 plants idle.

Petroleum: Production of crude oil in Oklahoma dropped 7 percent in 1954 to 188 million barrels from 1953 production. This quantity made the State the 4th largest oil producer in the nation for the 9th consecutive year. Crude oil production was valued at \$500 million which was 80 percent of Oklahoma's total mineral value in 1954. Production was reported from 55 of the State's 77 counties with Stephens and Carter counties being the leading producers. There were 21 refineries reported active in 1954 having an aggregate crude throughput capacity of 340,000 barrels per day.

METALLIC MINERALS

Cadmium, germanium, indium. Several minor

metals as cadmium, germanium, and indium occur in minute quantities in the lead and zinc ores of Oklahoma and are recovered in varying amounts from the flue dusts of the zinc smelting operations. It is impossible to assign the state origin of these minor metals, since their minute quantities in the ores precludes competent assay data and because the flue dusts from which these metals are recovered are the combined dusts of both domestic and imported ores.

Lead: There were 12,600 tons of recoverable lead, valued at \$3,427,200 produced in Oklahoma in 1954. This was 40 percent more in quantity and value than the 1953 quantity and value. Oklahoma was responsible for almost 80 percent of the lead produced in the Tri-State District in 1954.

Zinc: Mine production of recoverable zinc in Oklahoma increased about 30 percent to 42,650 tons in 1954 over 1953 output. This zinc was valued at \$9,468,300 compared to 1953 value of \$7,684,990, an increase of 23 percent. While only 20 mines were operating on January 1, 1954, this number increased to over 40 during the year as metal prices settled at 15 cents for lead and 11½ cents for zinc after midyear, the result of accelerated government stockpile purchases.

Smelters: The domestic zinc smelting industry began curtailing production in November of 1953 as metal stocks rose from 88,000 tons in 1953 to over 200,000 tons before midyear of 1954. This reduction amounted to about 20 percent of the active capacity and had a stabilizing influence on zinc metal prices of 1954. There were three zinc retort smelters operating in Oklahoma in 1954.

NON-METALLIC MINERALS

The estimated value of non-metallic minerals produced in Oklahoma in 1954 is \$26 million, an all-time high for the State. The previous record of over \$24 million was established in 1952 and was nearly equaled in 1953, indicating that for the past three years the production of non-metals has shown a significant rising trend. Principal gains were shown in stone, sand and gravel, cement, gypsum, silica, and lime, followed by pumicite and salt, whereas slight decreases were reported in native asphalt, clays, sulfur, and tripoli. The net gain reflects increased activity in the construction field and in the glass industry.

Clays: Production of clays in 1954 was estimated to be 296,000 tons valued at \$355,000, down nearly 2 percent in tonnage and value compared with 1953.

Sand and Gravel: Records for tonnage and value of sand and gravel in Oklahoma were broken in 1954, when estimated production was 5 million tons valued at more than \$4 million. The new totals surpass previous records set in 1950, 1952, and 1953. Increases were reported both in the number of plants and in the production per plant, in response to rising construction demands.

Stone: Near-records are indicated for production of stone in 1954, the estimated 10 million tons valued at \$9 million representing a 10 percent increase in quantity and value above 1953, and only a 2 percent decrease below 1952, the previous high. The most important commodities in this group are crushed limestone, chat, and dimension granite.

Miscellaneous minerals: Included in this group are mineral commodities of which there are less than three producers, and whose individual statistics can not be revealed. Total value of miscellaneous minerals estimated in Oklahoma for 1954 was \$12 million, about 2 percent less than the previous record set in 1952. Cement and gypsum, the two leading commodities, increased in 1954 to near-record levels established respectively in 1952 and 1951. Significant gains were made in ground silica and lime, and small gains were reported in salt and pumicite. Native asphalt, sulfur, and tripoli declined slightly.

T A B L E

Mineral Production in Oklahoma

1953 and 1954 (Estimated)

Mineral Production in Oklahoma,

Commodity	:
Clays (except for cement)	short tons.
Coal	do....
Lead (recoverable content of ores, etc.)....	do....
Natural gas	thousand cubic feet
Natural gas liquids	
Natural gasoline and cycle products	42-gallon barrels
LP-gases	do....
Petroleum (crude).....	do....
Sand and gravel	short tons.
Stone (except limestone for cement and lime).....	do....
Zinc (recoverable content of ores, etc.)	do....
Undistributed: Native asphalt, cement,	
gypsum, lime, pumicite, salt, ground	
sand (silica), sulfur, and tripoli	
Total Oklahoma	

1953		:	1954 (Estimated)	
Quantity	Value	:	Quantity	Value
301,007	360,532		296,000	355,000
2,183,009	12,628,887		1,800,000	10,800,000
9,304	2,437,648		12,600	3,427,200
618,700,000	34,030,000		625,000,000	34,300,000
10,325,000	28,066,000		10,200,000	27,500,000
9,858,000	14,866,000		11,500,000	17,200,000
202,570,000	546,940,000		188,423,000	500,000,000
4,702,406	3,969,693		5,180,000	4,435,000
8,570,485	7,633,247		9,500,000	8,800,000
33,413	7,684,990		42,650	9,468,300
	<u>11,810,692</u>			<u>12,206,300</u>
	670,448,000			628,492,000