

# Oklahoma's Buried Treasures

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## Oklahoma Geological Survey

MINERAL industries in what is now the state of Oklahoma began over one hundred years ago. Recovery of salt from brines near Salina, and from salt springs in Sequoyah County is listed among the activities of the earlier white traders and missionaries. Quarrying stone and burning lime were other early industries.

Stone and lime probably were prepared entirely for use in constructing missions, military posts, and other local structures, and we may reasonably assume that salt was the first mineral produced in the present area of Oklahoma that entered into general commerce of the white man and the civilized Indian tribes. Lime probably was burned for use at Union Mission about 1820, and is definitely known to have been used at Fort Towson in 1824, and probably at Fort Gibson the same year.

At the time the settlers made the "Run" to settle unoccupied lands of what is now parts of Cleveland, Oklahoma, Canadian, Logan, Kingfisher, and Payne Counties, on April 22, 1889, the mineral industry of what soon became Oklahoma Territory consisted chiefly of scraping up salt on some of the salt plains of parts of the wild Indian and ranching country to the west, to supply the few ranchers of the region.

During the three years, 1889 to the establishment of the University of Oklahoma in 1892, many of the settlers were busy quarrying stone for their first permanent buildings. Thus, the early mineral industry of Oklahoma Territory paralleled that of her sister territory. In 1892 her mineral industry consisted of mining salt and quarrying stone, and the first mining of gypsum and manufacture of gypsum plaster appears to have been started in the early 1890's, probably between 1892 and 1894.

By this time, Indian Territory had developed an important mineral industry—coal had been discovered in the 1870's, and coal mining started about 1872. Coal mining and coke making, by 1889, had become a million dollar industry. During 1889 oil was discovered, followed in 1891 by lead and manganese. When the University of Oklahoma was established, the value of mineral production in Indian Territory was slightly over \$2,000,000 a year.

During the 50 years since 1892, the value of mineral production in the two territories—now the State of Oklahoma—rose to \$569,518,693 in 1926, declined to

\$172,560,924 in 1933, and was approximately \$236,000,000 in 1940. Total value of mineral production 1885-1940 has been \$8,948,744,000. Average annual value for these 56 years was \$159,799,000.

The last war created an unprecedented demand for oil, resulting in the discovery of many new fields and a phenomenal increase in the state's oil production. The race for discovery continued at an accelerated rate through the 1920's, and at no time during the period did annual withdrawals exceed, and in many years did not approach, newly discovered reserves. Since 1934, the rate of discovery has declined, and present estimates of proven reserves indicate that well over

tion; coal and coke 27.9 per cent; and lead and zinc 0.5 per cent. A few years later, lead and zinc exceeded coal and coke in value; and in 1939, 50 years after the Run, relative values were as follows:

Petroleum and related products	88.9 per cent
Lead and zinc	7.3 per cent
Coal	1.0 per cent
Other minerals	2.8 per cent

To date much of the mineral raw materials of Oklahoma which require elaborate processing and manufacturing plants have been either exported to other parts of the country or not utilized to any extent. Very little lead and zinc is utilized in manufacturing industries in Oklahoma, although there are three zinc smelters which reduce the ore to zinc slabs before it is exported. The state has a number of oil refineries and natural gasoline plants, and a start has been made in utilizing petroleum in chemicals, but about 60 per cent of the production is exported as crude oil to processing plants in 15 other states.

In construction materials, the story is somewhat different. There are a number of brick and tile plants, three lime plants, two cement plants, rock wool plant, gypsum mills, stone crushers, and various plants for making concrete pipe and similar products. Thus, Oklahoma exports little if any of the type of raw materials used in construction materials, and for some items probably processes about as much as is used within the state.

There are also a number of glass plants in Oklahoma, and though these plants import limestone, soda ash, feldspar, and other minor raw materials for processing, most of the glass sand used is produced within the state. This is an Oklahoma processing industry that commands a wide market, and much of its products is sold outside the state.

Future direction of mineral industries of Oklahoma will likely depend on several factors, over some of which the state and the individuals interested in establishing industrial enterprises may have little or no control. One fact is fairly certain, Oklahoma is more likely to be faced with a decrease rather than increase in new wealth to be derived from exportable mineral raw materials in the future. To offset this threat to the future economy of the state, many forward-looking citizens are now seeking an expansion in the processing industries.

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half of the probable original quantity of oil beneath Oklahoma has been withdrawn from the ground. Total production to January 1, 1942 amounted to 4,986,856,000 barrels. Estimates of recoverable proven reserves as of January 1, 1942, are given as 1,104,022,000 barrels.

This latter figure of course, does not take into account new fields, and new producing areas that may be discovered through improved technology in exploration and drilling, nor of increases to proven reserves that may be obtained through secondary recovery and other improved production technique.

With the increase in production and value of petroleum in Oklahoma, the relative value of the production of coal was relegated to a minor position in the state's mineral economy. The year the University of Oklahoma was established, coal and coke accounted for 99.9 per cent of the combined mineral production of Oklahoma and Indian Territories. Oil and lead production was just starting and accounted for a few hundred dollars each that year. The year the two territories were admitted into the Union as the State of Oklahoma, oil and gas were accounted for 66.6 per cent of mineral produc-

position as regional manager for Oklahoma for the Veterans' Administration and the position was so attractive that he felt he could not refuse it. However, he left the Association in good running order after his eight-year administration which saw a tremendous advancement in the alumni program.

In October of 1936, T. M. Beaird, who had been on the extension staff of the University and was widely known as secretary of the Oklahoma High School Public Speaking League, and director of WNAD during its formative years, was appointed to succeed Mr. Cleckler as executive secretary. Roscoe Cate, who had been city editor of the Norman Transcript for the previous seven years, was employed as half-time editor of *Sooner Magazine* and half-time assistant in public relations for the University.

Mr. Beaird, in addition to his alumni duties was also appointed manager of the Union Building, the same combination of responsibilities which Frank Cleckler had held.

In this same year came another example of O. U. and Aggie co-operation. The O. U. alumni board officially approved and recommended passage of the bill for establishment of a non-political board of regents for Oklahoma A. and M. College. This was a matter in which the O. U. board had no direct interest, but the board members felt that an important principle was involved and that all state institutions of higher education should be controlled by non-political boards.

The following year, 1937, another step was taken in the long effort to make the Alumni Association completely independent. The Association's finances were reorganized so that none of the regular employees of the Alumni Association would receive any salary from the state.

Following the action, which was taken at a joint meeting of the alumni executive board and the Stadium-Union Trustees, President Earl Foster issued a statement which said in part: "The reorganization will in no manner affect the continuation of the Association's policy of whole-hearted co-operation with the Board of Regents and the University administration in furthering at all time in every possible way, the best interests of the University of Oklahoma." Alumni leaders felt that they had taken a great step forward in taking the Association employees completely off the University payroll, thus making them completely free of any suspicion or coercion in determining policies.

As a result of this reorganization, the editor of *Sooner Magazine* gave up his work in the University press relations office and became *Sooner Magazine's* first full-time editor-manager. This made possible the establishment of a separate and permanent office for *Sooner Magazine* and marked the beginning of a permanent biographical file of alumni which now oc-

cupies ten four-drawer letter-size file cabinets and is used daily for reference purposes.

It was also in 1937 that the Association adopted an advisory council plan by which five leading alumni in each county were appointed to represent alumni and University interests in that community. As a means of securing better representation of younger alumni in executive

#### ALUMNI ASSOCIATION PRESIDENTS

- 1899-01 Lawrence W. Cole, Boulder, Colorado.
- 1902-03 Clyde Bogle, Norman.
- 1903-04 Roy Gittinger, Norman.
- 1904-05 Dr. R. P. Stoops, Oakland, California.
- 1905-06 G. A. Bucklin, Berkeley, California.
- 1908-09 Roy Hadsell, deceased.
- 1909-10 C. Ross Hume, Anadarko.
- 1910-11 W. L. Kendall, Maplewood, New Jersey.
- 1911-12 Walter C. Erwin, deceased.
- 1912-13 Tom F. Carey, Oklahoma City.
- 1913-14 E. E. Holmes, Los Angeles, California.
- 1914-15 John Harley, Tulsa.
- 1915-16 Fred Tarman, Norman.
- 1916-17 Shelley E. Tracy, New York City.
- 1917-18 Paul A. Walker, Washington, D. C.
- 1918-19 E. D. Meacham, Norman.
- 1919-20 Neil R. Johnson, Norman.
- 1920-21 R. W. Hutto, Norman.
- 1921-22 Tom B. Matthews, Tulsa.
- 1922-23 Dave McKown, Oklahoma City.
- 1923-24 C. C. Roberts, Oklahoma City.
- 1924-25 A. N. Boatman, Okmulgee.
- 1925-26 Glenn C. Clark, Ponca City.
- 1926-27 Dr. H. V. L. Sapper, deceased.
- 1927-28 Errett R. Newby, Oklahoma City.
- 1927-28 Roscoe Cox, deceased.
- 1928-29 Tom F. Carey, Oklahoma City.
- 1929-30 Raymond A. Tolbert, Oklahoma City.
- 1930-31 Luther H. White, Tulsa.
- 1931-32 Mike Monroney, Washington, D. C.
- 1932-34 Chester H. Westfall, Tulsa.
- 1934-35 Lewis R. Morris, Oklahoma City.
- 1935-37 Earl Foster, Oklahoma City.
- 1937-38 Lowrey H. Harrell, Ada.
- 1938-39 Charles Memminger, Atoka.
- 1939-40 Hicks Epton, Wewoka.
- 1940-41 Norman Brillhart, Madill.
- 1941-42 O. F. Muldrow, Ardmore.
- 1942- Elmer L. Fraker, Mangum.

board meetings, the Association adopted a plan submitted by Secretary Beaird for an advisory council from recent classes which includes one representative from each of the last ten classes.

The events of the last five years are too recent to require detailed discussion. The organized alumni continued to take an ever active part in helping the University solve its problems.

The alumni sponsored a conference of everyone interested in starting an endowment program at the University; changed *Sooner Magazine* from a ten-month publication to a twelve-month basis; increased the size of the Magazine and the number of personal items about alumni; won half a dozen national awards in alumni magazine competition; published separate directories for the alumni of the School of Medicine, Law School, College of Engineering, and College of Business Administration; started printing the ballot

for executive board member elections in the quarterly news bulletin which goes to all alumni as a means of securing a more representative vote on board members; appointed scores of committees to work on legislative matters and other special problems of the University; sponsored a very successful conference on the state's financial problems; sponsored a conference on the proposed educational co-ordinating board amendment and later endorsed the amendment and helped pass it; took a quiet but active interest in several reported movements for arbitrary removal of President W. B. Bizzell; sponsored a regular series of programs for alumni over WNAD; and in scores of other ways served as liaison agents between the University and alumni and the general public.

Since December 7, 1941, the alumni program has been adapted to the war situation.

One of the major responsibilities has been that of keeping accurate records on the participation of alumni in World War II. The total number of alumni in the service had reached nearly three thousand in August which makes the task of record keeping an extensive one.

A special department for news items about men in military and naval service was established in *Sooner Magazine* soon after the war started and the department has continued to expand each month. In view of the interest in the magazine shown by O. U. men in the service who have received it, the Alumni Association has established a special price of two dollars a year for sending the magazine to any man in the service.

The Association also is contributing to the war effort by investing the receipts from Life Membership payments in war savings bonds.



## Buried Treasures

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It is hazardous to make predictions, but some possibilities of the direction that industrial development could take may be suggested. It should be borne in mind that these are based entirely on the availability of raw materials and fuels, and do not take into account such items as costs of transportation to markets, market possibilities, and other factors outside the province of this discussion.

Probably the greatest industrial potentialities, based on the abundance and variety of Oklahoma's raw materials, are in the field of chemical processes. Listed below are a few of the types of chemical products that can be made from the most abundant of the state's mineral raw materials:

(1) Based on *petroleum*: synthetic rubbers, detergents, solvents, and many miscellaneous organic compounds.

(2) Based on *natural gas*: alcohols, acetone, formaldehyde, acetaldehyde, acetals, etc. These materials are all essential to the plastics industry.

(3) Based on *coal*: coke, coal-tar, aromatic solvents, dyestuff intermediates, explosives, ammonia, hydrogenated products, water-softeners, etc.

(4) Based on *brine*: alkalies such as sodium bicarbonate, soda ash, and caustic soda; chlorine, calcium chloride, common salt, magnesia, bromine, etc.

(5) Based on *dolomite*: magnesia, magnesium salts, magnesium metal, calcium products as by-products, building plaster, agricultural soil conditioner, etc.

(6) Based on *limestone*: chemical quicklime and hydrated lime, builders' lime, agricultural lime, calcium salts, etc.

(7) Based on *miscellaneous materials*: sulfuric acid from sulfide ores, pigments, oxides, and various salts of lead, zinc, iron, titanium, cadmium, barium, strontium, and calcium.

Oklahoma has such basic industrial resources as iron and manganese ores, but in too small quantity to justify the location of steel plants of standard size and design, within the state. Although the ores can be shipped to steel mills in other states, the unit value of mined ore, and the limited quantity available, would not produce a very great value, either in employment or dollars. The more desirable and advantageous way to utilize such materials would be in the manufacture of high-value specialty products, many of them chemicals such as paint pigments, chemical salts, etc., in processes that require relatively little raw material, considerable skill and employment in processing plants, and whose products can find markets in all parts of the country. Thus will Oklahoma benefit most from her heritage of mineral resources.

Other possible industries that could be started, or expanded include: abrasive, polishing and cleaning materials from volcanic ash, tripoli, silica, feldspar, iron ores, etc. Insulating and soundproofing material (rock wool) is already being produced from impure limestone, and this enterprise is a good example of the profitable utilization of one of the minor, low-value raw materials.

Oklahoma's abundant, high-quality fuel supplies—coal, gas, and oil—available at relatively low cost, offer unusual attraction to processing and fabricating industries in all fields—minerals, chemicals, textiles, and food. It should be pointed out that Oklahoma's industrial raw materials include not only products of the mine and quarry, but also of the field and forest.

Oil field brines, the bane of the oil producer since the birth of the industry, might become an important raw mineral material for Oklahoma's industry of the future. Thus, history may repeat itself—brine, the first mineral resource to be used in what is now Oklahoma, in the early nineteenth century, may point the way to future industrial expansion in the mid-twentieth century. To look ahead, we perhaps should first look all the way back.

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