

State Produces 90% National Output

Moore County Has State's Richest Deposits Of Mineral, Pyrophyllite

Has Been Mined For 125 Years; Used To Be Called Soapstone

By WADE LUCAS

Although North Carolina is now producing more than 90 percent of all the pyrophyllite mined commercially in the nation, this mineral with a name somewhat difficult to spell is said to be the least known and understood of all the minerals found in the State.

In fact, pyrophyllite is mined commercially in only five of the State's 100 counties. These counties are Randolph, Moore, Alamance, Orange and Granville, and they are currently producing about 100,000 tons of pyrophyllite annually. Its estimated annual value is about \$1,000,000. Moore County's deposits of the mineral are the largest in the state and among the largest in the nation.

Only one other State is said to have a sufficient quantity of this mineral to mine it commercially. This state is California.

What is pyrophyllite and what are its principal uses?

Dr. J. L. Stuckey, State geologist and head of the Department of Conservation and Development's division of mineral resources, supplies the answer. It is a non-metallic mineral that bears a close resemblance to talc, another North Carolina mineral product. Pyrophyllite is a soft, greasy feeling mineral usually white cream or gray in color and occurs as crystals or in somewhat massive forms.

Chemically it is a hydrous silicate of aluminum, containing theoretically 66.7 percent of silica, 28.3 percent of alumina, and 5 percent water.

Pyrophyllite, which derives its name from the Greek words Pyr, meaning fire, and Phyllite, mean-

ing stone, is an important industrial mineral with a wide variety of uses in the ceramic and refractory trades, in the filler and paint industries, and in the preparation of insecticides and other compounds.

Mined For 125 Years Pyrophyllite has been mined in North Carolina for more than 125 years, Dr. Stuckey says. During the early days of mining it was called talc or soapstone.

It was not until 1882 that a scientist by the name of G. J. Brush correctly identified the strange mineral by the name it is now known.

One of the first deposits mined for pyrophyllite was found on the Womble property about one and one-half miles north of the village of Glendon in Moore County. That pyrophyllite was used for tombstones before its industrial uses were discovered is seen in the number of old gravestones made of the mineral and found in the Glendon area. Some of the stones carry dates between 1840 and 1845. Geologists believe these stones were taken from the Glendon deposits.

Pyrophyllite was discovered about 1888 in an area about two and one-half miles southwest of Robbins in this county. The Robbins mine is now the largest pyrophyllite mining operation in North Carolina.

New Deposits Formed During the 1930s new deposits were opened near Staley in Randolph county, and near Snow Camp in Alamance county. These mines are the chief sources of the so-called massive type pyrophyllite ore, which is used in refractory and ceramic industries.

Within the past several years additional deposits of pyrophyllite ore have been discovered and are being opened for production. These mines are located at Hillsboro and on Bowlings Mountain, which is about three miles northwest of Stem in Granville county.

All of the mines are of the quarry type except the one at Robbins, which is an underground operation. Processing plants for handling of pyrophyllite are located at Robbins, Glendon, Staley and Greensboro. At these plants the ore is mixed or blended with ores from other mines and ground to very fine sizes before it is shipped to consumers. At the Greensboro plant, however, the ground ore is used directly in the manufacture of refractory products.

Geologists have long been interested in the quite limited occurrence of this unique mineral and the rather complex way in which it is formed, according to

Sam Broadhurst, assistant State geologist.

In Ancient Rocks In North Carolina, Broadhurst said, pyrophyllite deposits are found only in a group of ancient volcanic rocks. These rocks are known to geologists as the Volcanic-Slate series. This series crosses the State in a northeast-southwest direction along the eastern section of the Piedmont region.

How Formed Geologists say these rocks were formed by a series of long fissure type volcanos, which existed millions of years ago. Many of the rocks were thought to have been blown into the air as fragments and dust settling in water which supposedly covered much of the area at that time. Some of the rocks are said to have been caused by ancient lava flows. After the formation of these rocks, they were badly mashed and folded by tremendous earth movements, possibly associated with the formation of the Blue Ridge and Smoky Mountains.

In certain parts of the volcanic rock formations, where shearing had been quite intense, hot solutions pushed up from below and reacted with the rocks, changing them to pyrophyllite. The process is known as replacement and works in the same way that a tree becomes petrified. In many instances geologists and miners have found the original structures in the volcanic rocks are still preserved in the pyrophyllite rocks.

Formation of pyrophyllite in these ancient volcanic rocks was not as simple as might first be imagined. Geologists believe it was accomplished in a series of stages which in some cases consisted of a replacement of the volcanic rocks by quartz or silica, other members of the minerals family, and the subsequent replacement of these by the mineral known as pyrophyllite.

In fact, most of these complex stages in the development of pyrophyllite in North Carolina, geologists say, were determined by Dr. Stuckey, who made the first detailed study of the deposits of this unique mineral.

Within the past few years several important minerals have been found closely associated with pyrophyllite in some of the deposits. Recently completed studies by Broadhurst and R. J. Council, another geologist with the C&D Department's Division of Mineral Resources, reveal these minerals include andalusite, topaz, kyanite and diaspore, all of which are high in alumina and highly desirable for the manufacture of refractory products.

CARTHAGE NEWS

By MRS. ALONZO BLUE

Infants Baptized Mr. and Mrs. Neill McKeithen Clegg presented their infant son, Charles Cox, and Mr. and Mrs. Oscar Leroy Shoenfelt, Jr., of Shruboak, N. Y., presented their son, Oscar Leroy III, for the rite of baptism Sunday morning at the 11 o'clock worship service in the Carthage Presbyterian Church. The Rev. W. S. Golden officiated.

Personal Miss Rebecca McDonald left Monday for East Carolina College in Greenville to begin her college course.

Miss Traude Sorrell of Ft. Bragg was the Sunday guest of Dr. and Mrs. Charles T. Grier.

Henry Alexander is vacationing with friends at Ocean Drive Beach this week.

Mrs. Ruth MacLeod and sons, Curtis and Charles, were Sunday night dinner guests of Mr. and Mrs. M. B. Pleasants in Aberdeen.

Mr. and Mrs. Oscar Leroy Shoenfelt and little son, Oscar Leroy III, of Shruboak, N. Y., are visiting Mrs. Shoenfelt's parents, Mr. and Mrs. Wilbur H. Currie.

Steve Arledge of Altavista, Va., was here over the weekend to visit Mrs. Arledge.

Miss Ruth Tyson left last week to resume her position with the music faculty in the Raleigh City schools.

Dr. and Mrs. Ernest Larkin of Washington, N. C., spent the weekend with Mr. and Mrs. R. G. Wallace and Mrs. Alice Watson.

Mrs. M. J. McPhail returned Sunday from a visit to relatives in Alabama and Florida.

Mrs. Graham Caldwell is spending 10 days in Washington, D. C., with relatives.

Mrs. Curtis M. Muse left Sunday to spend two months with her son-in-law and daughter, Mr. and Mrs. E. T. Weathersbee, in San Francisco, Calif. Mrs. Weath-

ersbee is the former Miss Martha Muse of Carthage.

Mr. and Mrs. John Webb are staying with Mrs. M. J. McPhail during the tobacco sales.

Mrs. S. H. Miller is visiting relatives in Hickory.

The Rev. and Mrs. Charles W. Worth and children, Lucy and Julia, of Whiteville visited Mrs. Worth's mother, Mrs. Alonzo Blue Wednesday.

Mr. and Mrs. Holt McNeill returned Sunday night from Washington, D. C., where they attended the Legion Convention and visited relatives. En route home they stopped over in Richmond, Va., and Henderson to visit.

Mrs. U. L. Barrett had as her guests Sunday Mr. and Mrs. James Craven and daughter, Nell, of Wilmington.

Mr. and Mrs. Jimmie Clawson and children of Jacksonville were weekend guests of Mrs. W. R. Clegg.

Maj. and Mrs. J. A. Lang, Jr., and children of Washington, D. C., were weekend guests of Mr. and Mrs. Howard Gardner. Major Lang attended the Democratic rally in Southern Pines Saturday night.

Mrs. J. J. Flinchum continues ill and is a patient at Memorial Hospital, Chapel Hill.

Mrs. W. L. McLean returned home Saturday from visits to her daughter, Mrs. E. W. Broford, in Elon and son, H. G. McLean, at Haw River, Rt. 1.

Mr. and Mrs. Harry Byrd of Branchville, S. C., and Mrs. E. C. Hines of Sanford were guests of Mrs. L. R. Sugg last Thursday.

Worth McDonald left Tuesday to resume his studies at A. S. T. C., Boone.

Mrs. Neill McKay and sons, Neill III and Orren, of Greensboro spent Sunday with Mrs. Sadie K. Wall.

Mr. and Mrs. N. A. McLeod vis-

ited relatives in Winston-Salem Sunday.

Mr. and Mrs. John Kelly and children, Rosemary and Archie, spent last weekend touring the

mountains in Western North Carolina.

O. U. Alexander visited coach L. G. Alexander in Boone over the weekend.

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