

## How To Identify Useful Minerals Of This Region

BY H. J. BRYSON

In the Farmers Federation News THE useful minerals of Western North Carolina that have or are being produced on a commercial scale are as follows: barite, copper ore, corundum, feldspar, gold ore, garnet, iron ores, kaolin, cyanite, lead ore, manganese ore, mica, olivine, quartz, rutile talc and soapstone, vermiculite and zinc ore.

In order to identify any of these minerals by description, one must have some knowledge of mineralogy. However, the terms used in describing the above minerals will be explained briefly.

The physical properties of the minerals, especially those observed with the naked eye are color, luster, cleavage, fracture, hardness, specific gravity or weight, and crystal structure.

The color of a mineral is its appearance to the naked eye when observed in large fragments held in natural light. Most minerals have a different color when seen in an artificial light as well as when wet.

The luster of the mineral is the manner in which it will reflect light. The terms usually used are metallic, submetallic, vitreous (meaning glassy), silky, pearly, greasy, dull, earthy and resinous.

The cleavage of the mineral is when it has the tendency to split along different planes.

The fracture is the manner in which the mineral breaks. The fracture terms used are splintery; that is, a mineral has a splintery fracture when it has a tendency to break into splinters; conchoidal is when it breaks more or less shell-like; uneven fracture is when a mineral has an uneven surface when broken.

All minerals have a different weight when pure, some minerals are very light while others are very heavy. The specific gravity, then, is calculated by how much heavier the mineral is than water. If the mineral has a specific gravity of 4, that merely means it has a weight four times that of water.

All minerals have a tendency under certain conditions to crystallize in different forms. When minerals are found in this form, they are said to be crystallized. Many minerals are easily identified by their particular crystalline structure. When quartz occurs in crystals, it always has six sides and is said to be hexagonal.

The hardness of a mineral is the degree in which it resists abrasion according to a definite hardness table. The mineral talc has a hardness of 1 and diamond has a hardness of 10. All other minerals have a hardness between this range. Talc, then, is the softest mineral known and diamond the hardest. The finger nail has a hardness of 2, brass a hardness of 3, a penny the hardness of 4, ordinary window glass a hardness of 5.5, an ordinary knife blade a hardness of 6, and common quartz a hardness of 7.

Below is a brief description of each of the minerals named above:

### Barite

Barite: The mineral barite is also called heavy spar due to its excess weight. The color may be white, brown yellow or red and even at times it is colorless. The luster is usually vitreous (glassy) or pearly. At times, it has a cleavage in one direction and usually an irregular fracture. The hardness is from 3 to 3.5 and specific gravity 4.5. It is then a rather heavy mineral since it is 4.5 times as heavy as water. The extreme weight is one of the easiest methods of recognizing it.

### Copper Ores

Copper Ores: The copper ores of Western North Carolina are usually in the form of chalcopryite, the iron copper sulphide. These ores usually have a brassy yellow color, an uneven fracture, no cleavage, a hardness of 3.5 and a specific gravity of 4.2 to 4.3. Usually when copper ore is exposed to the atmosphere, they have a peculiar display of colors which can be described by the name of "peacock" colors.

### Corundum

Corundum: Corundum is found at a great number of localities in Western North Carolina and usually distinguished by its extreme hardness which is 9. The color may be white, gray, yellow, brown, green, blue, pink or red. It is called sapphire when blue and ruby when red. In crystalline form, it has a diamond-like luster. The fracture is always uneven with little or no cleavage developed. The specific gravity is 3.95 to 4.1. It is always distinguished by its hardness and high specific gravity.

### Feldspar

Feldspar: The name feldspar is assigned to a group of minerals which vary some in chemical composition but little in physical properties. In all, there are eight feldspars found in Western North Carolina. The color may vary from white, green, flesh, red, gray

to green and in some places may be even colorless. The luster is vitreous to pearly. The cleavage is usually well developed in one direction and sometimes in two directions. When it has cleavage in two directions, the angles between the faces are usually less than 90 deg.; that is, less than a right angle. The hardness is usually 6, probably about the same as that of the knife blade. The specific gravity is usually 2.57 to 2.8.

### Gold Ore

Gold Ore: At a number of localities in Western North Carolina gold ores occur. When the gold occurs in what is known as the free state (pure gold) it is usually found in quartz. However, the sulphite ores may also contain gold. The best way to identify gold is to pan the ore very carefully and examine the residue in the pan under a glass. Gold is usually yellowish with a hackley fracture, a hardness of 2.5 to 3 and a specific gravity of 19.3 when pure. It is usually identified by its high specific gravity, its comparative softness and its color. It is usually softer than the minerals in which it is found.

### Garnet

Garnet: There are six varieties of garnet found in Western North Carolina the two most important, however, are almandite and rhodolite. Almandite garnet is always a deep red to a brownish red color. It always has a vitreous or glassy luster and uneven fracture. It has a hardness of 7 to 7.5 and its specific gravity is from 4 to 4.15. Some times it occurs as crystals which have, usually, twelve sides and these crystals are known as dodecahedrons. The rhodolite garnet has a peculiar color which may be classed as a pink or pale lavender. The luster is always vitreous or glassy and fracture uneven. Rhodolite is a mixture of almandite and pyrope garnet.

### Iron Ore

Iron Ore: The iron ores of Western North Carolina are magnetite, hematite, limonite and pyrite. Magnetite iron is identified by its quality of being easily attracted by a magnet. It is usually steel gray to black in color and very heavy. The fracture is uneven, the hardness 6 and specific gravity 5.18. Hematite, another common iron ore, has a peculiar red color. The red stain is left on the fingers when rubbed over it. However, sometimes, when in the pure state, hematite has a dark steel gray color and is often mistaken for silver. The hardness is 5.5 to 6.5 and the specific gravity 5.2, a little heavier than magnetite. This particular mineral is characterized by its reddish streak. Limonite is sometimes called brown hematite. The color is dark brown to black, sometimes yellowish and the streak is always yellowish brown. It always has an earthy appearance the hardness is 5 to 5.5 when pure. The mineral pyrite is always a pale brassy yellow. Sometimes it is mistaken for gold and is often called "fool's gold." Occasionally, it is found in perfect cubes in crystalline form. The hardness is 6 to 6.5, much harder than any of the other yellowish minerals.

### Kaolin

Kaolin: Kaolin is a type of clay composed essentially of the mineral kaolinite. It is formed by the weathering of feldspars. It is always white when in pure form, very soft and usually covered and never found exposed on the surface. When washed carefully, kaolin is the purest clay known.

### Cyanite

Cyanite: The mineral cyanite is sometimes spelled kyanite to distinguish it from other materials. The mineral cyanite occurs in three forms: as large crystals in quartz; as pure lenticular deposits; and in schists. It always occurs in crystal form, usually blue in color but sometimes may be white, gray or green. It has a vitreous to pearly luster and a hardness of 5 to 7 and a specific gravity of 3.56 to 3.66.

### Lead Ore

Lead Ore: The lead of North Carolina is in the form of galena, the lead sulphide. Galena is recognized by its lead gray color and its cleavage which is perfect in three directions. When this mineral is broken; it breaks into small cubes. The color is always lead gray, the streak grayish black and the cleavage perfect. It has a hardness of 2.5, slightly harder than the finger nail, and a specific gravity of 7.6.

### Manganese Ore

Manganese Ore: The manganese ores found in Western North Carolina are principally pyrolusite and psilomelane. The pyrolusite is always iron black in color with a splintery fracture and a hardness of 2 to 2.5. The specific gravity is 4.75. Psilomelane is a somewhat harder mineral than pyrolusite but has the iron black color and a brownish black streak. The hard-

ness is 5 to 6 and specific gravity of 4.3. These minerals are easily identified by the fact that they will stain the fingers when handled.

### Mica

Mica: There are several varieties of mica found in Western North Carolina. The most common varieties are muscovite and biotite. The muscovite is usually of very light color while the biotite is dark even at times black. Mica is easily recognized due to the fact that it splits into very thin sheets, therefore, it has perfect cleavage in one direction. Mica is sometimes called isinglass. This is not correct due to the fact that isinglass is an artificial product.

### Olivine

Olivine: Since the mineral olivine has recently become of interest in certain industries, it is mentioned at this time. This mineral is usually called crysolite and sometimes peridot. Olivine, I think, is the best name for this mineral due to the fact that it is always an olive green color. The luster is vitreous, fracture uneven, hardness 6.5 to 7 and specific gravity 3.27 to 3.37. The chief distinguishing properties are its olive green color and its peculiar sugary or granular appearance.

### Quartz

Quartz: Quartz is the most common of the minerals. It occurs in several forms and is called rock crystal when perfectly clear, amethyst when lavender, agate when streaked, jasper when red, chert when black. It is commonly known as flint. It may be almost any color and always has a vitreous or glassy appearance. It has a hardness of 7 and a specific gravity of 2.65. When in crystal form, it always has 6 sides.

### Talc

Talc: Talc is one of the easiest minerals to recognize due to its

softness and its greasy feel. The color may vary from green to white. It has a hardness of 1 and a specific gravity of 2.8. Any of the talc minerals will make a mark on clothing.

### Vermiculite

Vermiculite: There are several varieties of vermiculite found in the western part of the State. These minerals are very closely related to the micas but are recognized easily by the fact that they will expand considerably when heated even at a low temperature. The colors vary through the various shades of green to a bronze or even to a golden yellow. They are non-elastic, that is, when bent they remain in that position. The true micas are elastic.

### Zinc Ore

Zinc Ore: The zinc ore in Western North Carolina is usually in the form of the sulphide. This material is often called zinc blend or black jack. The name is sphalerite. The color is always dark brown to coal black, the streak light to dark brown. The hardness is 3.5 and specific gravity 4.05. This mineral is usually recognized by the fact that it has a peculiar resinous color, at times resembling beeswax.

### LEGAL ADVERTISEMENTS

IN THE DISTRICT COURT OF THE UNITED STATES OF AMERICA FOR THE WESTERN DISTRICT OF NORTH CAROLINA, ASHEVILLE DIVISION, AT LAW NO. 129. NOTICE TO BE PUBLISHED. UNITED STATES OF AMERICA, vs. 561.96 acres of land in Macon County, North Carolina, Andrews Manufacturing Co., et al. TO: Mrs. Vesta Forester, wife of J. C. Forester, Young Cane, Georgia; W. N. Clement and wife — Clement, Young Cane, Georgia; J. M. Clement and wife — Clement, Young Cane, Georgia; M. L. Clement and

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wife — Clement, Young Cane, Georgia; Mrs. Robt. Seabolt, Calhoun, Georgia, as heir of Mrs. Martha Seabolt, Calhoun, Georgia; J. W. Spagenburg and wife — Spagenburg, whose residence is unknown; and all persons whomsoever owning, or claiming to own any estate, lien or interest of any kind or character in and to the premises described in the petition in this cause: You will take notice, that an action entitled as above has been commenced in the District Court of the United States for the Western District of North Carolina, at Asheville, for the condemnation of certain tracts of land described in Exhibit "A" of the petition filed in the above entitled proceeding, and known as the Andrews Manufacturing Company tracts situated in Macon County, North Carolina, containing according to survey 561.96 acres fully described by metes and bounds in the petition filed in said proceeding, the said lands having been selected by the Secretary of Agriculture, with the approval of the National Forest Reservation Commission and found necessary for the purpose of carrying out an Act of Congress of the United States approved March 1, 1911, being Chapter 186, page 961, Vol. Statutes at Large, as amended by the Act of August 10, 1912, 37 Stat., 269-300 Ch. 284. And the said non resident defendants above named, and all persons whomsoever owning or claiming to own any estate, lien or interest of any kind or character in and to the premises described in the petition in said proceeding, defendants named as aforesaid, will further take notice, that they are required to appear in the District Court of the United States for the Western District of North Carolina, at Asheville, on the 20th day of February, 1933, and answer or demur to the petition or complaint in said proceeding, or the plaintiff for relief demanded in said petition. This notice is issued by order of Court, directing publica-

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tion be made for six (6) successive weeks in the Franklin Press, a newspaper published in Macon County, North Carolina, in the Western District of North Carolina. This the 21 day of December, 1932. J. Y. JORDAN, Clerk United States District Court for the Western District of North Carolina. By: O. L. McLURD, Chief Deputy Clerk. J5-6tc-F9

### NOTICE OF SALE

North Carolina, Macon County. Whereas, power of sale was vested in the undersigned trustee by deed of trust from T. B. Ashe and wife Arie V. Ashe, dated March 6, 1929, and registered in the office of the Register of Deeds for Macon County in Book No. 31, page 153, of Mortgages and Deeds of Trust, to secure the payment of a certain indebtedness in said deed-of-trust set forth; and whereas, default having been made in the payment of said indebtedness: I will, therefore, sell at the courthouse door in Franklin, North Carolina, on Monday, the 20th of February, 1933, at 12:00 o'clock noon, to the highest bidder for cash, the following described property: Beginning at a stake on the bank of Highway No. 285, the North corner of the Fred Jacobs tract of land, runs thence S. 58 E. 178 feet to a stake; thence S. 32 E. 107 feet to a stake; thence S. 58 East 39 feet to a gate post; thence S. 59 E. 143 feet to a fence post; thence N. 23 E. 354 feet to a stake; thence N. 26 W. 67 feet to the Highway; thence with the Highway to the beginning. Also Lots Nos. 10, 11, 12, 13, 14, 15, 16 and 17 in Block One in a tract of land in Macon County, N. C., known as the Lyman Field, as surveyed and mapped by W.

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B. McGuire, reference being hereby had to said map as recorded in Book 1-3, records of Macon County, N. C., pages 56 and 57, for a fuller and more particular description of the land and lots hereby conveyed. This the 18th day of January, 1933. R. S. JONES, Trustee. J26-MC-4tc-F16

### EXECUTRIX NOTICE

Having qualified as executrix of Elizabeth Kelly, deceased, late of Macon County, N. C., this is to notify all persons having claims against the estate of said deceased to exhibit them to the undersigned on or before the 26th day of Jan., 1934, or this notice will be plead in bar of their recovery. All persons indebted to said estate will please make immediate settlement. This 26th day of January, 1933. LASSIE KELLY CUNNINGHAM, Executrix. F2-6tc-M9

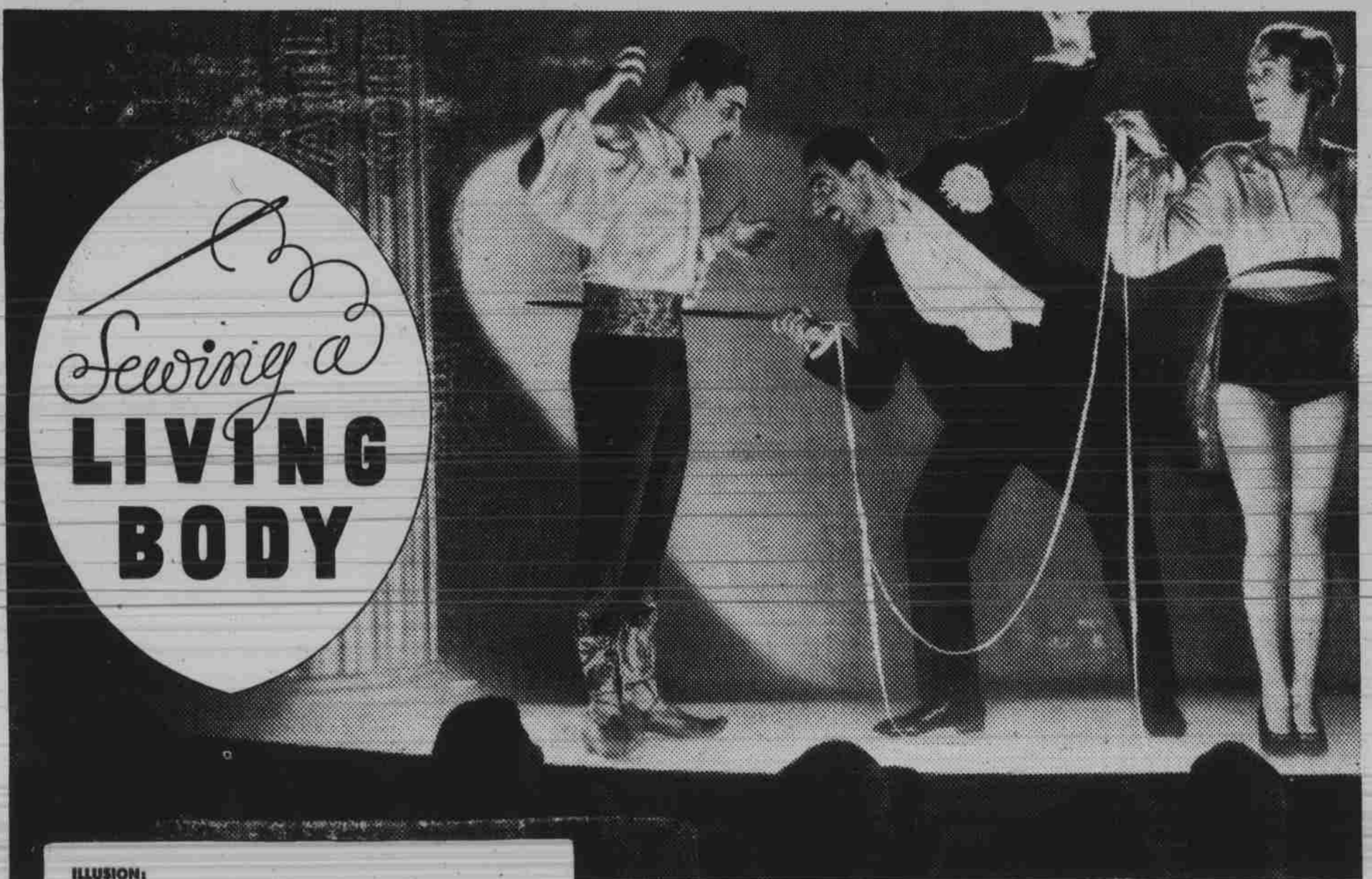
### FRANKLIN SHOE SHOP SAYS:

Just another word or two— How about your troubled feet? Let us straighten up your shoe And then your life will be complete.

—Troy Horn.

FRANKLIN SHOE SHOP Opposite Courthouse "We Buy and Sell" Box 212 Troy F. Horn

Funeral Service BRYANT FURNITURE COMPANY Franklin, N. C.



### ILLUSION:

In this startling trick, the magician seemingly pushes a huge threaded needle through the body of an assistant, pulling the needle out the other side, followed by the thread.

### EXPLANATION:

Under the clothes of the victim is a pipe, extending around one side of his body from front to back. The needle, which is flexible, is inserted in the front end of the pipe, is carried around the body and emerges from the pipe in back. This operation is performed so quickly that the audience does not notice that the needle and thread are momentarily shortened during the act.

SOURCE: "Magic Stage Illusions and Scientific Diversions" by Albert A. Hopkins... Munn & Co.



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# CAMELS



## It's fun to be fooled — ...it's more fun to KNOW

We like tricks...but we prefer to keep them out of business.

Here's one that's interesting...The illusion that by some obscure magic certain cigarettes are "cooler" than others.

THE EXPLANATION: Coolness is determined by the speed of burning. Fresh cigarettes burn slowly. They're cool. Parched, dry cigarettes burn fast. They're hot.

Camels are carefully wrapped in moisture-proof cellophane...in the fa-

mous, air-tight Humidor Pack. Camels are cool because they're fresh.

A cigarette blended from choice non-irritating tobaccos also gives a cooler effect than one that is harsh and acrid. The finer the tobacco the less irritating it is, and therefore the "cooler."

It is a fact, well known by leaf tobacco experts, that Camels are made from finer, MORE EXPENSIVE tobaccos than any other popular brand.

This is why Camels are cool and mild, non-irritating—full of flavor. This is why Camels have given more pleasure to more people than any other cigarette ever made. It's the tobacco that counts. Keep the famous welded Humidor Pack on your Camels. It assures you a fresh, cool smoke.

## NO TRICKS ..JUST COSTLIER TOBACCOS IN A MATCHLESS BLEND