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SUGGESTIONS TO PROPERTY OWNERS ON PROSPECTING AND SELLING A MINERAL DEPOSIT

BY

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The Division of Geology is frequently asked to advise property owners as to the best way to prospect and sell a deposit of mineral on their place. A summary of such advice is given in this article on prospecting. A similar article is to follow on selling a mineral deposit.

The owner of a property that contains outcrops of a commercial mineral should not sit back and expect the world to beat a path to his door to buy it from him. It is his duty to find out what he can as to the modes of occurrence and value of that mineral and the character and extent of his deposit. Not until he has done this will he be in a position to interest a possible buyer of his property or to get a reasonable price for his mineral deposit.

The owner should begin by asking himself if his deposit is near enough a railroad to be worth mining. Minerals such as gold or sheet mica that sell for a high price per pound or smaller unit can be mined at long distances from a railroad. Other minerals, such as manganese or kyanite, that sell for a moderate price per ton cannot be mined more than five or ten miles from a railroad. Low priced minerals, such as iron ore or sand and gravel and minerals that must be manufactured into low-priced articles for the local market such as brick clay, must be on or very close to the railroad.

He should ask himself if there is a sufficient market for his mineral. A brick clay that would be valuable close to a large city with no existing brick plants would be of much less value far from such a market or near a city already well supplied by flourishing brick yards. Georgia has many adjacent deposits of limestone and shale or clay suitable for making portland cement, but the plants now in operation are more than sufficient to supply the demand.

The size and quality of a deposit of mineral that meets the above conditions can only be determined by prospecting. The property owner does not need to prospect the deposit thoroughly. This will be done by the company purchasing the property or leasing the mineral rights. He needs only to do enough prospecting to satisfy himself and a prospective buyer that the mineral is in sufficient quantity and of such a quality as to make a thorough prospecting worthwhile. He should preserve all the samples that he obtains and should leave the prospect pits or trenches in such a form that they will stay open as long as possible so that prospective buyers can see the deposit and collect their own samples.

The method of prospecting a deposit will depend on the mode of occurrence of that mineral and the individual characteristics of each deposit, such as the size and distribution of natural outcrops and the lay of the land. Minerals occurring in veins or dikes are prospected quite differently from those found in massive bedded deposits. Directions for prospecting every mineral found in Georgia cannot be given here, but an example will be presented of two main types of occurrence.

Prospecting for Mica: Mica or "isinglass" may be taken as an example of a mineral that is found irregularly distributed in veins or dikes. It is practically impossible to thoroughly prospect a mica deposit. Not only are the veins very irregular in length, width, and depth, but the mica is very irregularly distributed throughout the vein and its value depends largely on the size of the flat sheets that can be split from the crystals or blocks. The usual outcrop of mica consists of badly weathered pieces scattered over the top of the ground at one or more places. Prospecting is usually necessary to determine the direction of strike, width, and angle of dip of the vein, and the relative abundance and character of the mica in it near the surface.

The direction in which the vein crosses the property can sometimes be told from the shape and distribution of the outcrops or by tracing the pieces of vein quartz (often called "flint-rock") that usually occur with the mica. It can be more accurately determined by digging through the covering of soil in various directions from the outcrop until both walls of the vein are exposed. Trenches should then be dug across the vein at right angles to the strike at frequent intervals. These need only be dug through the overlying soil and badly weathered vein material to a depth, usually not over 6 feet, necessary to show the character of the vein and the distribution and abundance of mica. The trenches should be of sufficient length to show both walls of the vein. If the outcrop is on a good slope, the lower end of the trench should be extended to give natural drainage. The mica obtained from each trench should be separately sacked and tagged and stored in a dry place.

The pegmatite dikes or veins from which the mica is obtained are also the source of primary kaolin, feldspar and a number of rare minerals, such as beryl, columbite, and the radio-active minerals. Watch should be kept for large deposits of nearly pure kaolin or feldspar, and any unknown mineral should be saved for identification.

Prospecting for Sedimentary Kaolin: The large deposits of pure white clay or sedimentary kaolin found south of the Fall Line in Georgia may be taken as an example of a mineral occurring in a bedded deposit. The property owner should determine roughly the extent, thickness and quality of the kaolin and the thickness of the overburden that must be removed to mine it. This information may be obtained by two methods:

(1) Boring with a clay auger. This is a rapid and cheap method of determining the thickness of the kaolin and overburden, the extent of the beds, and to some extent the character of the clay. However, the samples brought up by the auger may not be satis-

factory for testing because of contamination by the overburden in the upper part of the hole. Furthermore, when the auger is pulled up the ground appears as it did before and no record is left for the next person to see.

(2) Digging a prospect pit or well. This is slower and much more expensive, but is much more reliable because the overburden and kaolin can be seen in place and a large representative sample can be obtained for testing. Moreover, as long as the pit remains open its record is open for all who visit it.

The method that should be followed will depend upon the number and character of the kaolin outcrops on the property. If numerous outcrops show the entire thickness of the bed so that representative samples of fresh unweathered kaolin can be obtained, the only prospecting necessary will be auger holes at intervals between the outcrops and on the slopes above them. These will serve to trace the extension of the deposit and determine the character of the overburden.

More work will be necessary if the outcrops are few and show only the top of the kaolin bed. Auger holes at the outcrops and extending out from them at regular intervals can be used to determine the extent and thickness of the kaolin and the amount of overburden. The borings should be made through or as far as possible into the kaolin. If the borings show the presence of a large body of kaolin, one or more prospect pits or wells should be dug through the kaolin at points where the auger holes showed the thickest and best kaolin to be located. A ditch should be dug on the slope just above the pit and it should be boarded over to keep out surface and rain water.

Remember that prospecting is of little value unless accurate records are kept at the time the work is done. Each auger hole and prospect pit should be numbered. A permanent stake should be driven into the ground nearby with the number on it. The records should give: (1) the number of the auger hole or prospect pit, (2) its location, (3) the thickness of the beds passed through, both overburden and kaolin, and (4) a description of these beds.

All the borings of unstained kaolin from each hole should be separately preserved, with a label giving the hole number and depth from which they came. All the unstained kaolin from the prospect pits should be placed on a clean paper or cloth as it is removed from the pit and later stored in a dry place, preferably in clean sacks or boxes properly labeled. These large samples can be used to furnish smaller samples to prospective buyers for testing.

Deposits of other minerals are prospected by methods similar to the two examples given above, the details varying with the mineral and the local conditions. The Department of Geology is glad to give further prospecting advice at any time to Georgia property owners. A request for such advice should give the exact location of the property and a detailed description of the outcrop. It should preferably be accompanied by a sample of the mineral.

The next step is to get in touch with a prospective buyer. A complete description of the deposit, including the prospecting records and samples, should be filed with the State Division of Geology and with the Industrial Development Departments of the nearest rail road and power company. Such departments often receive inquiries for commercial deposits of minerals in their territories. A conservative advertisement in the trade journals of that mineral industry or such general industrial magazines as the Manufacturers' Record, Baltimore, Md., and Industrial Index, Columbus, Ga., may help. The Chamber of Commerce of the nearest city may help to find a buyer.

The property owner should always investigate the business and financial reputation of a prospective buyer. An honest individual or company will be glad to furnish banking and other references as to his character and financial ability to handle the proposed terms of the sale or mining enterprise. A little care in this respect will prevent the disappointments that follow dealings with dishonest and "flee-by-night" persons.

The prospective buyer of a mineral deposit will always thoroughly prospect it himself before purchasing the property or the mining rights. He must be given an option before he will start the prospecting. This option should state the time allowed for prospecting, at the end of which the option expires, and should state all the terms of the purchase price if the deposit should prove to be satisfactory. The price paid for the option should be enough to fully compensate the property owner for any inconvenience or damage to his property during the prospecting.

There are three methods by which mineral deposits are sold: (1) land sold in fee-simple for a fixed sum; (2) mineral rights only sold for a fixed sum; and (3) mineral rights only leased with a small cash payment and a royalty of so much per ton of the mineral mined or a fixed percentage of the selling price of the mineral. Each method has its advantages. With the first two methods, the money is obtained at once and future misfortunes of the purchasing company do not affect the former property owner. Yet, on the other hand, it is very difficult to set a fair price on a property containing a mineral deposit. The investment required for the equipment to mine most minerals and prepare them for the market is large, and few companies can, in addition, afford to invest a very large sum in the raw material. Two or three times the farm land value for the property is probably the most that can be hoped for. Sale of the property in fee-simple is usually to be recommended rather than sale of the mineral rights only. The latter method often leads to endless litigation. The property owner, if the mining enterprise prospers and no more money is coming in to him, is apt to feel that he has been cheated and tries to get his "rights" by damage suits.

The method of leasing the mineral rights on a royalty is apt to bring larger returns in the long run if the mineral deposit is large and the mining company means business. The royalties commonly paid depend upon the value of the mineral, the quality and size of the deposit, the nature and thickness of the overburden, the cost of mining and treatment, and the distance from railroad transportation. The following table gives the royalties commonly paid on some of the minerals mined in Georgia. Many of these figures will seem absurdly small to the property owner until he stops to figure the large tonnage of some of these minerals that can be mined from a single acre in a year, and until he realizes that it means an income to him with absolutely no risk or effort on his part.

Average Royalties Paid to Property Owners on Minerals Commonly Mined In Georgia*

Mineral	Common Method of Buying Deposit	Usual Royalty When Leased
Asbestos	Leased on royalty	50c to $1.00 per ton
Barite	" " "	30c to $1.00 per ton
Bauxite	" " "	25c to 75c per ton
Brick clay	Bo't in fee-simple	2c to 5c per ton
Feldspar	Leased on royalty	25c to 50c per ton
Fullers earth	Bo't in fee-simple	30c to 75c per ton
Gold	Leased on royalty	1-6 or 1-8 of gold recovered
Granite	Bo't in fee-simple	Dimension stone 5c to 10c per cubic ft. Crushed 2c to 5c per ton
Iron Ore	Leased on royalty	10c to 15c per ton
Kaolin	Leased on royalty	Soft kaolin 15c to 25c per ton. Hard kaolin 5c to 10c per ton
Kyanite	Leased on royalty	50c to $1.00 per ton
Limestone	Bo't in fee-simple	2c to 5c per ton
Manganese	Leased on royalty	20% or less of manganese 25c-50c 20% to 30% manganese 50c-$1.00 30% to 40% manganese 75c-$1.50 40% or more manganese $1.00-$2.00
Marble	Bo't in fee-simple	
Mica	Leased on royalty	1-6, 1-8 or 1-10 of sales price of mica
Ocher	Bo't in fee-simple	50c to $1.50 per ton
Sand and Gravel	Bo't in fee-simple	2c to 5c per ton
Talc	Bo't in fee-simple	Crayons 10c to 20c per gross Ground 25c to 75c per ton
Tripoli	Leased on royalty	50c to $1.00 per ton

*The writer is indebted to Dr. Poole Maynard, Consulting Geologist, Atlanta, Ga., for some of these figures and to various producers for others.

The lease of the mining rights should be carefully drawn up by a trustworthy lawyer. The owner should see to it that the lease contains the following clauses, clearly stated:

1. Cash payment. The amount of the cash payment at the time the lease is signed will depend upon the size of the property and the value of the mineral.

2. Royalty. In addition to stating the amount and method of payment of the royalty, some provision should be made whereby the owner can check up on the tonnage mined on which royalty should be paid. Often this can be done from the ralroad records of freight shipped by the company. With valuable minerals, such as gold and sheet mica, provision is sometimes made that none of the mineral may be removed from the property except in the presence of a representative of the owner.

3. Minimum royalty. Provision should be made for the payment of a minimum monthly or yearly royalty whether or not a corresponding amount of the mineral has been mined. It should state that failure to pay this minimum royalty will automatically void the lease. The amount should be large enough to discourage a company from leasing but not mining a property simply to keep it out of the hands of competitors, but should not be so large as to force a financially sound company to abandon the property in times of depression when production is naturally low.

4. The owner should have the right to farm or remove timber from land not in necessary use by the company.

5. The company should be liable to all damages to crops, stock, houses or equipment caused by the mining operations.

The owner should avoid selling the mineral rights on his place for a fixed sum to any individual or company which has no intention of mining but is buying it for an investment. The owner seldom gets a fair return for his mineral rights in such a sale, and the buyer often prevents development by expecting too large a return on his investment. A better arrangement would be for the owner to pay the "promoter" a commission out of the regular cash payment if he can arrange for a mining company to lease the mining rights in the usual way.

The owner of a mineral deposit should make sure that he has a clear title to the mineral on his land. In selling land, especially in north Georgia, mineral rights are often "reserved". All future deeds to the land should state that the mineral rights have been reserved, but often this has been neglected and is the cause of many law suits. Mineral rights, when owned separately from the land, are personal property and are subject to taxation, according to Section 1008 of the Georgia Code. This fact is little known, even to many of the county tax authorities. The title to mineral rights held separately from the land is, therefore, not clear unless they are annually returned for taxation and the tax paid.

Owners of mineral deposits should avoid forming an exaggerated idea of the value of their deposits which will result in the purchase of other properties rather than theirs. A carefully drawn lease of the mineral rights, with a reasonable royalty, to an honest and financially sound company will often result in a steady income for years to come. The mineral has no value as long as it remains in the ground, but only becomes valuable as it is put to use.