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Correspondence

DEPLETION OF MINERAL DEPOSITS

Editor, THE JOURNAL OF ACCOUNTANCY:

SIR: In reading over the article "Depreciation, Income Tax and Dividends" by Will-A. Clader in the July, 1933, issue of THE JOURNAL OF ACCOUNTANCY, I find that some statements were made in regard to depletion which appear to ignore both the legal aspects of provision for depletion and the essential difficulties involved in the correct determination of such an allowance.

It is quite clear from a long chain of legal decisions, both in this country and in England, that the courts in both countries recognize the propriety of omitting to provide reserves for the depletion of a wasting asset, and they recognize the right of the directors of a company exploiting wasting assets to pay dividends out of capital without declaring what proportion of such dividends represents return of capital. Some of the leading cases are:

Lee v. Neuchatel Asphalt Co., an English case decided in 1889.

Excelsior Water & Mining Co. v. Pierce, a California case decided in 1891.

United Verde Copper Co. v. Roberts, a New York case decided in 1898.

It is probably safe to say that the directors would not be held personally liable in any jurisdiction in the United States for distributing as dividends profits from the exploitation of wasting assets before deducting depletion, provided that the funds of the company were not reduced to a point which would impair the rights of creditors.

Mr. Clader's article closes with this statement: "It is, therefore, inconceivable to me that any corporate officer would issue a statement of profits without the correct charge for the cost of the things sold or used to produce the gross revenue." I, too, can not conceive of a corporate officer issuing such a statement provided he knew what the correct charge should be, but the officers of mining companies are confronted, every time a statement is issued, with the problem of issuing a statement when they do not know and can not know what the correct charge for depletion is.

In order to determine correctly such a charge we must know and know definitely:

First, the quantity of recoverable units of the mineral or metal contained in the mine or deposit;

Second, the price at which the material will sell throughout the life of the mine or deposit;

Third, we must be certain that conditions will permit the entire number of recoverable units to be extracted and sold, and

Fourth, we must be certain that no technical changes in the methods of mining, reduction or treatment will increase or decrease the value of the mine or deposit.

Of these four requirements the first is the simplest to determine and in some cases—such as certain types of coal deposits, stone quarries and some few types of mines where the ore occurs near the surface and in easily definable bodies—

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it may be calculated with a very fair degree of accuracy. In other cases, and this includes by far the majority of metal mines, the accurate determination of the number of recoverable units in a particular mineral deposit is a practical impossibility.

In mines where deep shafts must be sunk and where bodies of high-grade ore occur in comparatively small veins the estimate of the number of recoverable units contained in the mine is being constantly altered as mining, exploration and development work of necessity go hand in hand. When a break in the vein occurs through a geological fault or for some other natural reason a great deal of time and expense is generally consumed in relocating the ore body. In some cases millions of dollars and years of effort have been expended without finding the original ore body, although this type of work is not dependent on chance but is carried out according to the calculations and observations of the most experienced geologists and engineers. In other cases, where mines have apparently been exhausted, additional discoveries of more than the original value of the mine have been made so that the answers we get to the simplest of the problems in depletion are, at best, approximate ones.

The question of the price of the mineral is of the utmost importance, as a mineral which can not be profitably mined may as well not exist, for purposes of calculating the value of the property.

When a mining property is acquired, the rights to all minerals occurring within the limits of the claim are the property of the locator or patentee. In most cases minerals occur in groups: silver and lead; lead and zinc; lead, zinc and silver; copper, silver and gold—these are common combinations. Frequently deposits of two different minerals occur within the limits of the same property: for instance, zinc ore and copper ore may occur in very close proximity to each other. If the metals are combined in one ore the factors which determine whether the ore can profitably be mined or not are the prices of all the metals. For instance, silver at the present time has advanced in price, and if the present price is maintained or a further advance is made, mining properties containing silver-lead ore will be operated at a profit regardless of the price of lead. However, if silver should decline rapidly it would be impossible to mine the ore either for the silver or lead content. We must, therefore, in the case of a combination of metals in one ore body know the price of each one before a decision as to profitable operation can be made. If a newly discovered deposit can not be profitably operated there is no purpose in calculating depletion. For example, every one familiar with the mining industry knows that there are deposits of iron ore in the Rocky Mountains and that practically none of this is mined, the reason being that the cost of extraction is so great compared with that of other districts that no one could mine this metal profitably in those sections.

If two deposits of different minerals occur in the same property sufficiently separated so that one does not have to be extracted to get at the other, we must know whether the price for each of these metals will be sufficient to justify the mining operations. If the price of one is and will remain so low that operation is not profitable, the entire capital must be recovered from the extraction of the ore which can be profitably mined. A change in price level or in technical methods of treatment may mean that the apparent capital value of a claim has been greatly over or under estimated.

To the west of Salt Lake City lies the bottom of an old salt lake, now dry. This old lake bottom is from thirty to forty miles across and is covered with a bed of salt from four to six feet thick. The salt is not pure but has a number of other chemicals in it. A company was formed to extract the various chemicals and to produce salt suitable for table and industrial use. During the time when there was a demand for the salt and other chemicals derived from these deposits the company operated with some degree of success. The project, however, failed when prices for salt and the chemicals produced fell because of lack of demand and because of the resumption of communications with countries which had formerly supplied these chemicals. There seems little probability at present that prices will rise sufficiently to warrant resumption of operations. The plant is completely dismantled.

We have here an example of an enormous deposit of a useful and easily extracted mineral which can, moreover, be measured with a high degree of accuracy. The only factor not known to us is the price of the product; but on that the whole question turns. With salt and the other chemicals at their present prices the deposit has no commercial value and the owner of any part of such a deposit could not properly place any value on it in his books. If the price of salt should suddenly double or treble the deposit would in all probability be of considerable value; but a depletion allowance based on the assumption that the entire deposit could be profitably exploited would be incorrect, unless we could be sure that the price would stay at a profitable level during the entire period of exploitation.

The third point, that is, that depletion can only be calculated on the number of units which can be sold, is particularly applicable to deposits such as coal mines, clay beds, quarries and the like. If a company owns an entire mountain of marble which it would take some hundreds of years to convert entirely into salable material, it would be wrong to divide the total cost of the property by the number of units, as no one invests his money for a possible return four or five hundred years hence. Some reasonable life such as forty or fifty years would have to be adopted and the depletion allowance calculated on what would be recovered in that time rather than on the total recovery. This is not an important consideration in most metal mines, but with many of the non-metallic minerals it is a question of the greatest moment.

The fourth point, the effect of technical progress on the value of mineral deposits, is one of the greatest importance. Before the perfection of the oil-flotation method of concentrating copper and other ores the large deposit of low grade copper ore now worked by Utah Copper Company was of no value. After the discovery of the oil-flotation method the property became one of the great mines of the world. Nothing was changed in the physical property, the same units were there, but after oil flotation they had a value; before oil flotation they had not.

There are zinc mines in the United States now operating profitably, the ores from which could not be successfully treated until a method of applying the principles of electrolytic refining to zinc had been devised. A calculation of the depletable value of these mines before the perfection of this process would have indicated no value for the zinc contained in the ore and no value at all for the ore except as it had a heavy content of silver or some other metal which could

be extracted. After the perfection of this process the value of the deposits increased greatly.

Practical difficulties such as these prevent the officers of a mining company from issuing statements which show a charge for depletion which represents the exact value of the metal extracted. The depletion calculated for income-tax purposes is, of course, based on a number of assumptions which frequently have little relation to physical or financial facts. In the first place depletion for income-tax purposes is based on values either at March 1, 1913, or the so-called "discovery value," neither of which represents cost which we assume is the basis of the depletion which Mr. Clader thinks should be shown on the financial statements. Values of 1913 are higher than cost values in most cases, as properties acquired many years before 1913 had by that time either been abandoned or were definitely determined to be profitable and valuable. Discovery values are of necessity higher than cost, as the cost of making a discovery is comparatively small compared with the value of the property developed.

It is for these reasons that many operators, engineers and accountants having to do with mining properties are inclined to doubt the possibility, in most cases, of computing figures for depletion which are really satisfactory to investors. Any attempt to present such figures would necessitate revision from year to year. The general opinion is that, if it is understood that the value of properties shown on the balance-sheets represents original cost either in cash or stock and if as much information as is practicable is given to the public as to the progress of development work and the ore immediately in sight, about as much really valuable information has been given as is possible. Elaborate calculations of depletion based on a series of assumptions, few or none of which can be accurate, are apt to be more confusing than informing. Certain mining companies have adopted the practice of showing, not an attempt at cost depletion, but the increased values placed on the books for tax purposes and the depletion, also for tax purposes, written off against these values. This practice is not, of course, objectionable where the basis for the increase in values and the reserve for depletion is clearly stated. If, however, notices are sent to stockholders showing the amount which is taxable and the amount which is non-taxable as being a return of 1913 or discovery values, approximately the same result is obtained. In neither case is there any attempt to show a "true" or "accurate" figure for depletion.

For the benefit of those having to do with the care of estates or where similar distinction between corpus and income must be made, it may safely be stated that if income-tax depletion under the present law is assumed to be a return of capital they will not overpay parties who are entitled to receive income only.

It is not fair to say as Mr. Clader does that "When half, say, of the mineral content of a property is extracted and is not recorded on the books, the accounts will show as on hand the cost of a thing no longer possessed. That is just as incorrect as selling merchandise from the shelf of a grocer and showing on the financial statements as assets both the cost of the things sold and the cash received for them."

If the grocer kept a shop somewhat like that kept by the old sheep in *Alice in Wonderland*, where the things constantly appeared and disappeared and where it was almost impossible to tell from one moment to another what was on the shelves, he would be in much the same position as an officer of a mining com-

pany trying to ascertain a correct allowance for depletion. And it is only a shop dealing in goods of such an uncertain and unpredictable quality that can be compared with the typical mining enterprise.

If it were possible to ascertain the different factors which the correct calculation of the depletion allowance involves, there is little doubt that the officers of mining companies would be happy to publish such figures and it would be difficult to defend the suppression of this information, if it existed or could be obtained. The reason why these figures are not given is not any reluctance to inform stockholders as to the condition of their property, but it is rather the result of a reluctance to give out figures which must be based on assumptions either known to be incorrect or are not susceptible of proof or demonstration, which would produce figures having a most convincing appearance of exactitude but in reality so uncertain and indefinite as to be misleading and positively dangerous. If the officers of the company make an honest report of the things they really know, a stockholder or an investor can and does make his own guess to the best of his own ability. It is the duty of a mining company to provide the basis for such a guess, but the officers of the company, far from having the duty of presenting a guess of their own, have, it seems to me, a positive obligation to put forward no such expressions of opinion in the guise of calculations.

Yours truly,

MAURICE E. PELOUBET

New York, January 2, 1934