ping to a concern which inflicted no penalty until a maximum of over 12 per cent. was present. Moreover, by a judicious mixing it is often possible to avoid paying any penalty whatever, and in some instances I have known, matters have been so manipulated that credit was obtained for one ingredient which would not otherwise attain the necessary standard, as in the case of an ore carrying a little less than $2 per ton in gold; by shipping in conjunction with material giving higher returns of this nature, the whole of the gold contents will receive recognition.

The idea of smelters being intentionally dishonest and not paying on the real assay value of the ore received, is one largely held by those who are either suspicious of everyone on principle or in the habit of incorrectly sampling their ore before it leaves the mine. This view I need hardly say is not accepted by the more observant managers, but that smelters may occasionally make mistakes, possibly to the disadvantage of the miner, will be conceded even by their own employees, and therefore a preliminary sampling before the ore is shipped is important to serve as a check on the smelter returns.

When convenient it is more satisfactory perhaps for the shipper to go himself or send a representative to supervise the sampling done at the smelter, for I know of one case at any rate where the check pulp corroborated the actual returns as given by the smelter, and yet on a representation from the mine that it did not accord with their preliminary results the car was re-sampled and the returns materially increased.

The value of pulp as delivered for check purposes is, I suppose, questionable, unless the shipper has, as suggested, personally seen his ore weighed, crushed and sampled, and further assisted at the moisture determination, but the smelter company practically agreeing to pay on the assay value as shown by this sample, it is always advisable and sometimes profitable to carefully check their returns. It will detract in no way from the recognized efficiency of smelter assayers if I say that even they are occasionally caught napping, and in justice to their integrity I wish to record the fact that on several occasions I have discovered that the smelter has paid for more than other competent assayers were able to detect in the pulp which was furnished them.

One other matter to which I should like to draw your attention is that I have been taught by experience that owing possibly to a slight difference in practice, smelters assayers themselves vary to a degree, which is well worthy of consideration, and that whereas I invariably obtain a fraction of aa ounce less than actual returns as given by some smelters, the reverse is the case in others, one instance coming to mind where there is always a deficiency of from one to three ounces. We are justified in assuming therefore, that slightly better returns will be obtained on the same ore from an establishment belonging to the former class than from one of the latter, and in practice it is manifestly economy to take advantage of experience of this kind.

Then too in the case of ore which is characterized by containing part of its value in the form of metallic prills there is need for the most searching investigation, as owing to the unevenness of its distribution smelters are sometimes doubtful of their own assays even representing the contents of the ore in bulk, it being much more convenient to entirely ignore the prills, a course of proceedure which I have been assured is occasionally followed where the value represented is small in comparison to the whole.

These are all doubtless matters of little importance by themselves, but in the aggregate they mount up and may assist in determining the difference between the successful and unsuccessful management of a property. I do not, however, cite them as common experiences by any means, but simply to show that they may occur unless guarded against, and that therefore it pays to devote the most careful attention to detail in every direction alike.

It frequently happens that a variety of minerals of an essentially different nature are encountered in the same workings, but we find that very often, owing possibly to prejudice or the apathetic determination to follow custom in the matter, no effort is made to dispose of anything but the main product. This is a very serious error, and one which may be rectified by a careful stndy of the situation and the demand for any particular class of ore. It is safe to say that tin mining in Cornwall would not have survived to the present day but for the recovery of the associated copper, arsenic and tungsten minerals, and instances abound the world o'er where the comparatively unimportant element has furnished the margin of profit on the investment. Hitherto the Slocan has been regarded solely as a silver camp, no other metal, with the exception of the lead, having found favor in the eyes of the smelter men. It is by no means certain, however, that other descriptions of ore, some possibly unknown at the present time so far as this region is concerned, will not eventually constitute part of the output; indeed there is one mineral very intimately associated with galena which ought to be turned to account, and this in spite of the fact that it has so far proven a source of considerable loss and been regarded generally as a detriment—I refer of course to zinc blende. It is no secret that the Bosun mine has disposed of several car loads of ore in London at a large profit, for which it was absolutely impossible to find a market this side of the Atlantic, constituting, if I am not mistaken, the first record in the history of the Slocan where actual payment has been made for the zinc contents, although the penalty inflicted by American smelters on ore of this class may be avoided by shipping to certain works on the Manchester ship canal. I commend this to the attention of mining men generally and those of this district in particular, as there is a possibility that in many cases it may lead to encouraging results. The ore in question I may say was hand picked until it averaged roughly 45 per cent. metallic zinc, 1.5 per cent. lead and from fifty to eighty ounces of silver per ton.

The ever widening nature of the subject I have chosen is becoming so alarmingly apparent as I progress, that I find it expedient to make no effort to complete the undertaking in the manner originally contemplated. I beg leave, however, before concluding to refer to two other matters which fully merit our notice. The first is the absolute necessity of every mine being supplied with a proper system of accounts so that the manager can refer whenever he desires to the cost of any particular piece of work and make the necessary comparisons as he goes along. There is no need, however, for me to dwell upon this at length, even if I had not already trespassed too long upon your time, for I notice that Mr. Hardman, the worthy president of the Institute, intends to go into the subject more fully in his contribution to the proceedings.

The other matter which I had in mind would fill a volume if necessary, as it relates to the much vexed subject of concentration. While I have had some little personal experience in work of this kind, and am thoroughly conversant with the principles underlying the process, there are members present I know who have been making a special study of this branch for months past, so that I shall be very brief indeed, in order to give them an opportunity to speak for themselves. I would willingly have omitted all mention of this matter were it not self-evident that the process is destined to be the chief factor, if I may be allowed to say so, in the future advancement of the district. In no other department perhaps is the strictest supervision so essential to success, for even a little carelessness may result in large values being persistently run to waste. It is economy of the first order to employ a thoroughly competent mill man, as he will save hundreds of dollars worth of ore in a month which would doubtless be irrevocably lost under less skilful treatment. So too the highest professional skill is the cheapest in the long run, and a mine owner makes a serious