Some of the points connected with the work of sampling, upon which comments seem necessary, may now be noted.

It has already been stated that the object of sampling is to obtain a correct general average of the value of a block of ore reserves; since such ore reserves can only be sampled on exposed faces, it follows that the smaller the block from which samples are taken the greater the approach to Large blocks of reserves, therefore, accuracy. must be examined with great thoroughness. If such blocks are penetrated by winzes, upraises or drifts, these openings will give a chance to note any variations in value as the centre of the block is approached. If there are no such openings, the list of assays must be searched to detect, if possible, the existence of streaks, either high or low in grade, running through the block.

It is unwise to attempt to set arbitrary limits to the extent of blocks of reserves, the conditions attending being so diverse. One must be guided by assay, and a distance of three feet in width, or laterally, between two samples. may show values ranging from \$2.50 per ton in the one assay to \$25 per ton in the second assay. In one case it is possible that samples may be taken from a longer stretch than the values would justify stoping, or, in another case, if the sample be cut across the full width of the pyrrhotite showing, its full value may be greatly reduced.

The writer has met with the same possible error in sampling some auriferous saprolites in the Southern States. In the figure shown (No. 3) the width between walls is 60 fect, all of which was extracted and worked by previous owners as "ore."* Preliminary sampling showed values were not uniformly distributed, but were segregated along two lines; the face, therefore, was sampled in the manner shown in Figure 3.

As to the distribution of sample lines and the intervals between them, something has already been said showing that distribution of values and widths



by the record of the stopes which have been worked out, and which may show whether payable portions of the deposit have been erratic in form and extent or regular and uniform. Among the figures the writer finds given by other engineers, the greatest allowable dimension for height appears to be 100 feet, but (it may be stated) with a strong preponderance of opinion for 60 feet as the permissible limit; the greatest length allowable is 200 feet; this would make the maximum unpenetrated block permissible one of 100 feet by 200 feet. The writer does not care to set limits personally, believing that such must be governed by the character, past history, and previously noted peculiarities of the deposit.

A possible source of error arises occasionally out of the practice of taking assay samples at irregular distances, without having first determined by trial samples the extent of the ground to be regarded as "pay ore." The possible error is chiefly confined to deposits in which the pay ore is indistinguishable to the eye from ore that is barren or very low grade. For example, the pyrrhotite ores of the Rossland, B. C., Camp present no reliable way of distinguishing poor ore from rich except of ore bodies are governing factors. To this should be added the statement that in the case of very rich ores the sample lines must be much closer than with low grade ore ores. Care must be taken that the samples cut shall impartially represent the full section taken, and to facilitate such impartiality it is often advisable to have the section trimmed to a good face before cutting the channel for the sample.

In sampling the ends of drifts or levels, where a good cross section cannot be obtained, the sample, as an alternative, may be cut crosswise, or as an X, thus:—



* Bonner Mine, Carrollton, Georgia.