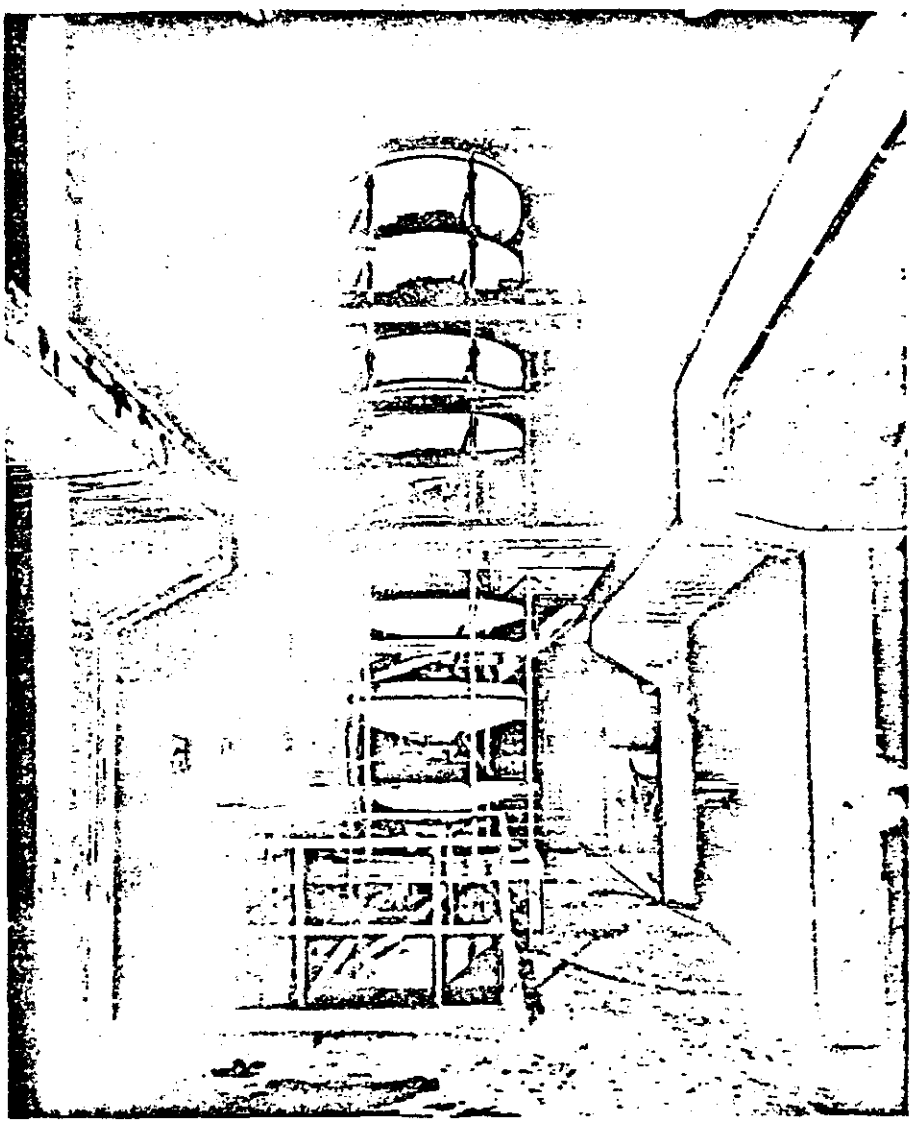

REICHERT cone concentrator stabilized the modified gravity circuit.

whether low grade concentrates were marketable or could be chemically treated as to give overall economy.

At first, bulk flotation of calcium minerals with subsequent separation was studied. Selective desorption of the collector film was attempted utilizing a method devised by Petrov[2,3] which involves conditioning the bulk concentrate in hot solution with sodium silicate.

With sodium oleate as a collector, desorption was fairly unselective, but it improved if the fatty acid were slightly modified. Very encouraging results were achieved with an amphoteric high molecular unsaturated carboxylic acid (KemaNord Lilaflot OS). In batch tests scheelite concentrate assaying 67 percent WO_3 was produced at an 85 percent overall recovery.

It proved, however, difficult to reproduce these results in the pilot plant as the process is sensitive and difficult to control. Particularly varying calcite contents in the bulk concentrate called for rapid changes of process parameters. Hence it seemed doubtful whether sufficiently steady conditions could be created without using very sophisticated equipment. The flowsheet of this Petrov model process is shown in Figure No. 4.

In parallel to the studies mentioned above tests were also carried out on selective flotation. Here it was tried to find suitable combinations of calcite and fluorspar depressing agents which would permit scheelite to be floated selectively. Chemicals such as soda ash, sodium silicate, and polyphosphates

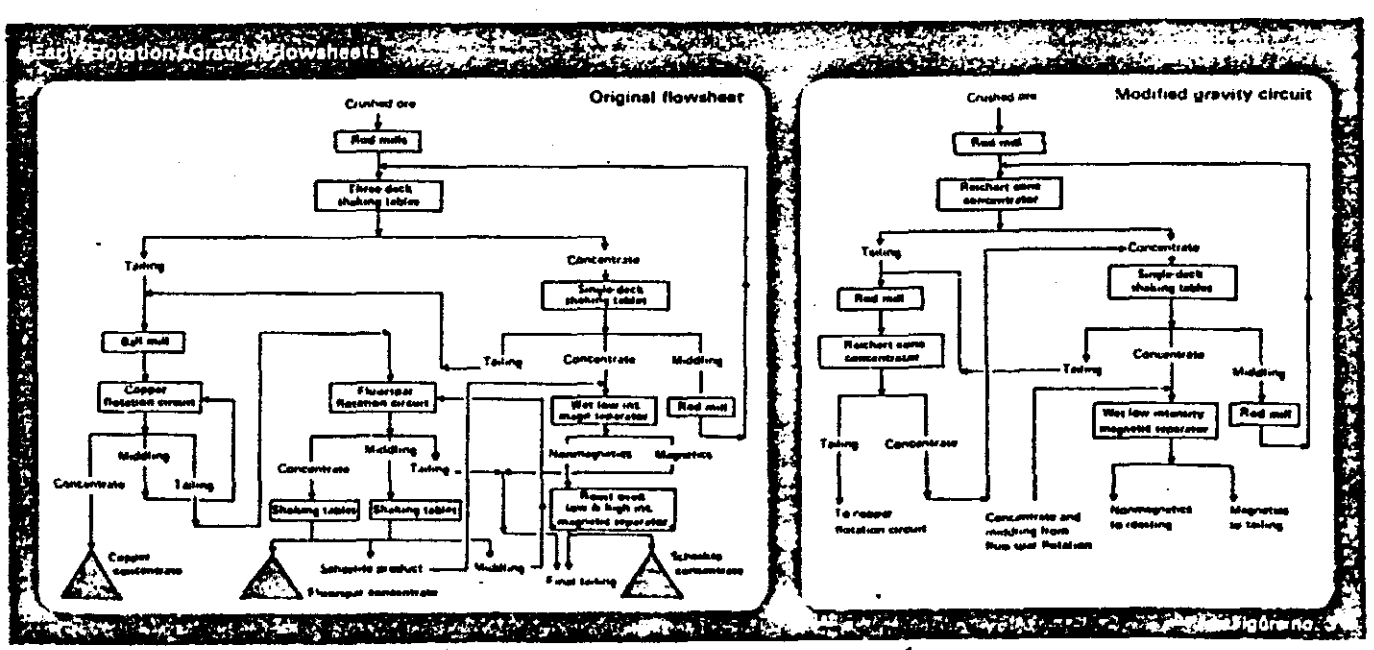

Fig. 4. Flotation/Gravity flowsheets