



FIGURE 33.—Bureau of Mines marine mining research vessel,
the R/V *Virginia City*

An interesting new sampling device that is being developed by the Bureau is a portable X-ray probe that can be lowered into small diameter drill holes to determine the presence of gold or silver. Such a device would be invaluable as a means of improving efficiency in sampling techniques.

The Bureau of Mines has pioneered statistical sampling techniques over the past few decades and is presently further refining these methods for the heavy metals program. Extensive sampling experiments and subsequent analysis at the Homestake gold mine, the Nation's leading gold producer, have indicated that very significant reductions in the amount of exploration drilling may be achieved using these techniques. The Bureau will be applying these methods in its sampling at the Cripple Creek area of Colorado and northwestern Wyoming where the Geological Survey has identified potential resources and requested sampling programs.