Geochemical sampling at the Jones-Keystone mine

Randolph County, North Carolina

by

Arthur R. Kinkel, Jr.

U.S. Geological Survey National Center

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The Keystone or Jones Keystone mine is about 12 miles west of
Asheboro, Randolph County, North Carolina in the Denton 15 minute
quadrangle. Arvid Stromquist and I sampled the large open pits in
October 1966 (fig. 1). The samples, except those in the bottom of the
southwest pit, are on the walls of the pit and are a mixture of soil
and saprolite.

The host rock of the deposit is a sheared sericitized pyritized
rhyolite, part of which is probably pyroclastic. Silicified and
pyritized zones constitute the ore; there are very few quartz veins
and these appear to be barren. Pardee and Park (1948) give the history
of the mine. Emmons (1856) reported that the ore mined prior to 1856
contained about 5 ppm gold and was soft surface material (saprolite).
Our samples confirm earlier reports that the gold was in rich seams
and that the bulk of this material was low grade. Copper and arsenic
are unusually high in the surface material in this deposit compared
with other deposits in the slate belt which I have sampled. The deposit
as exposed in pits appears to follow the schistosity. The northeasterly

extension is under low ground with no outcrop. The southwesterly extension is marked by a few shallow pits and is all on high ground with considerable outcrop.

Stromquist, who has mapped the geology in the vicinity of the Jones-Keystone mine believes that the deposit is on a northeast trending fracture or shear zone which is at an angle to bedding as determined by larger rock units. This north east trending shear zone is in line with the Loughlin mine, which is 1.7 miles southeast of the Jones-Keystone mine. A grab sample of the dump of the Loughlin mine by Stromquist contained 6.8 ppm gold and a sample on a small hill 0.3 miles northwest of the Loughlin mine contained 2.06 ppm gold.

If Stromquist is correct in believing that the ore deposits were formed only where the shear zones crossed favorable beds, the potential of the Jones-Keystone deposit along the strike would be limited to the bed in which it is found, as would the deposit at the Loughlin mine. It appears from Stromquist's regional mapping that these deposits cannot be on the same stratigraphic zone, yet at each deposit bedding and schistosity appear to be parallel as well as can be determined, and the lithology is identical. Outcrop is inadequate to resolve this problem.

I believe that exploration at the Jones-Keystone deposit might outline a fairly large deposit of low grade gold ore, as mineralization appears extensive over several hundred feet of width, and the deposit has not been explored along strike or down dip. Bands of strongly pyritized rock suggest that a ground EM survey should be the first exploration method used.

References cited

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Geologic map of the Denton quadrangle, central North Carolina:
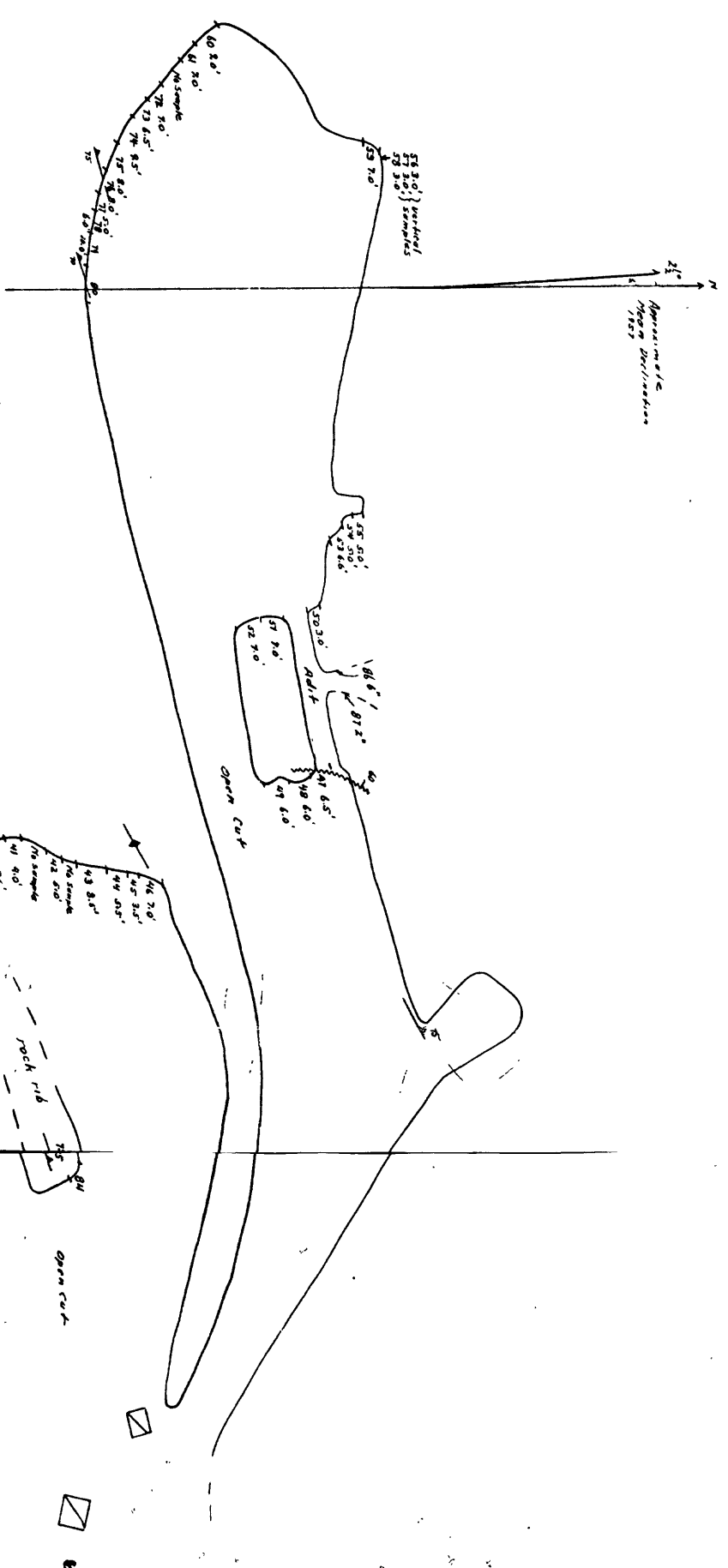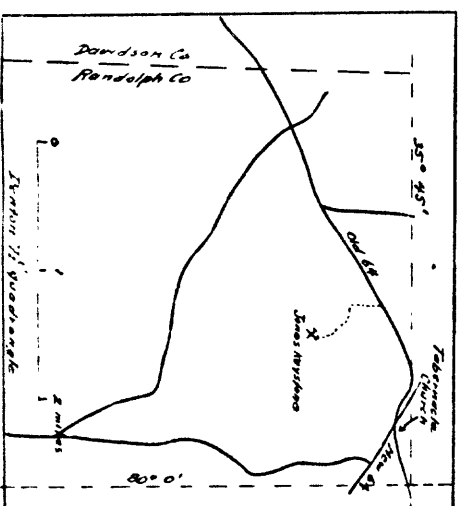
U.S. Geol. Survey Geol. Quad. Map GQ-872, scale 1:62,500.

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Figure 1
Vines-Keystone mine,
Randolph County, North Carolina

0   20   40   60   80 feet

Analyses in parts per million