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Ore Deposits of the Ouray Quadrangle, Colo.

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The Ore Deposits of the Ouray Quadrangle,
Colo.: Dr. J. D. IRVING.

The ore-deposits are located in a small area of about three and one half miles square in the precipitous country in the near vicinity of Ouray, Colo.

The rocks of the region comprise a series of sedimentaries ranging in age from Algonkian to Cretaceous, with included porphyries, while the higher hills are capped by thick beds of volcanic tuff.

The ores are classified as silver-bearing fissure veins, gold-bearing fissure veins, replacement deposits in quartzite, replacement deposits in limestone.

The silver-bearing fissure veins penetrate the sedimentaries and pass occasionally upward into the volcanic tuff. They carry galena, tetrahedrite and some other sulphide in a gangue of barite and quartz. Replacements of limestone occur where beds of this rock are penetrated by the fissures. The silver values are present in the tetrahedrite.

The gold-bearing fissure veins are associated with intrusive dikes of monzonite-porphry, and contain chiefly auriferous pyrite with some chalcopyrite in a gangue of quartz and crushed country rock.

The replacement deposits in quartzite are flat shoots of gold-bearing pyrite with a little galena and other sulphides which have been deposited in quartzite. It is thought that they owe their origin to alkaline waters that have ascended to the quartzite through minute fissures. The quartzite is fully replaced only in the neighborhood of the fissures and is surrounded by empty solution cavities in the quartzite resembling those usually encountered in the limestone beds. The ores range from \$30 to \$600 in value.

The replacement deposits in limestone are of three kinds. One is in the limestone beds along the courses of the normal fissure veins

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where they form flat, lateral enrichments of such veins.

2. Large flat bodies of silica and barite with silver-bearing ores associated with minute supplying fissures.

3. Deposits of gold-bearing ore composed of an intimate mixture of pyrite and magnetite with actinolite, quartz, epidote and other minerals of supposed contact origin. This class of deposit carries low values in gold and is thought to have been deposited by replacement together with the associated minerals by circulating waters subsequent to the porphyry intrusions.

The geological age of all of these ores is Post Eocene.