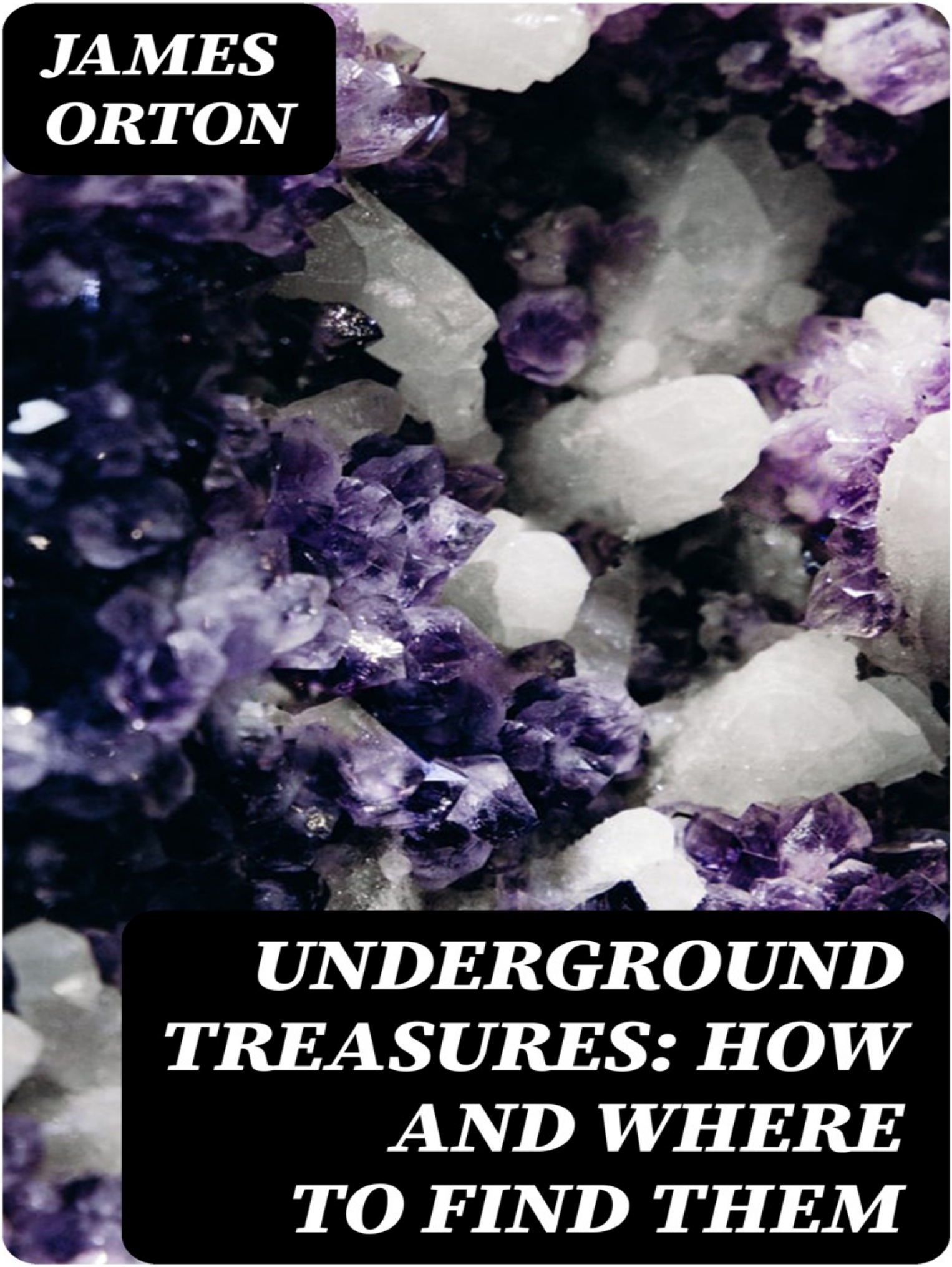
JAMES ORTON



UNDERGROUND TREASURES: HOW AND WHERE TO FIND THEM

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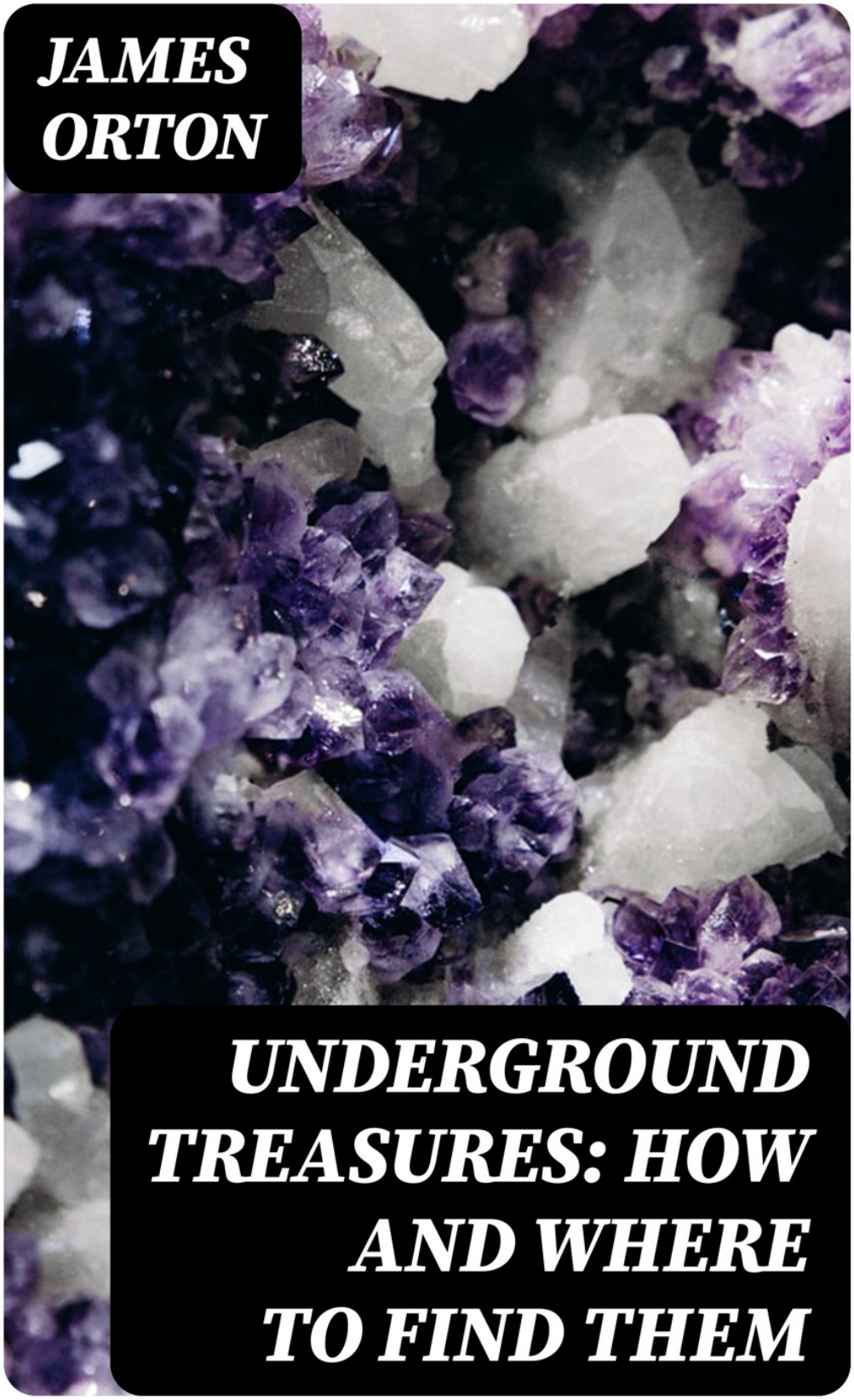

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Underground Treasures: How and Where to Find Them

A Key for the Ready Determination of All the Useful Minerals Within the United States

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CHAPTER I.

INTRODUCTION.

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MONEY IN THE ROCKS—THE UNDERGROUND WEALTH OF OUR COUNTRY—VALUABLE MINERALS DISGUISED—HOW GREAT FORTUNES ARE MISSED—NUMBER OF MINERALS IN THE UNITED STATES—OBJECT OF THIS WORK AND HOW TO USE IT—THE BEST MINERAL REGIONS.

MINERALS head the list of the sources of our nation's wealth. Gold, iron, coal and marble have not only contributed largely to the enterprise and opulence of America, but at this very moment they exert a commanding influence in political circles. No one can prophesy the greatness of the commercial power which is sure to rise on their foundations.

No other country can boast of such vast and valuable mineral deposits. Yet our country is not half developed. Treasures lie undiscovered in our mountains and under our farms,—gems of "purest ray serene" and still more precious metals. Some will be accidentally brought to light; but the majority are so disguised that their real nature is not seen. How unpromising are the best ores of iron, zinc and silver and the rarest gems! Then, again, there is "mimicry" in the mineral kingdom; worthless stones are often good imitations of the valuable, and fortunes have been sunk in mining pyrites for gold, mica for silver and slate for coal. But if we

wait for mineralogists to develop our mineral resources, we must wait a millenium, our country is so vast and scientific laborers so few. Fortunately, however, nature has stamped upon each mineral some peculiar feature or assemblage of characters which enable any one with average common sense to distinguish those which are of value in the arts.

The object of this work is to point out those distinctions so clearly and in popular language that those who do not claim to be scientific may determine specimens for themselves; in other words, to furnish *a key for the ready determination of all the useful minerals within the United States*.[1]

Two hundred and forty-four mineral species have been found within the bounds of the Union. Of these only one-third are of any use to the practical man. These eighty have certain general characters in common, but always some specific differences. The object is to divide them into groups, as the botanist divides the plants, and then to separate the individuals by some properties or features peculiar to each. Only those minerals are mentioned which are useful: any specimen, therefore, which does not fit any of the descriptions given, may be considered of no special value. By the term “color,” is meant the color of a fresh fracture, for the exposed surface often misrepresents the true aspect. Exact color is not meant, but “red” stands for reddish, “yellow” for yellowish, “white” for a light gray up to the perfectly transparent. “Magnetic” means that the specimen disturbs the needle of a compass, or that a magnet will take up fine particles. A mineral is “opaque” if the light will not pass through either the edges or a thin

fragment. A “translucent” mineral is either clear as crystal or only allows light to pass dimly through a thin portion. “Effervescence” is the bubbling produced by the escape of a gas, as in soda-water. “Gravity” is the weight compared with that of an equal bulk of water. In the majority of cases the specimen can be determined without it; but there may be several doubtful cases which can be settled only by obtaining the gravity. This is done by first weighing a fragment of the mineral in a small apothecary or jeweler’s balance, reckoning it in grains. Then by a thread suspend it below one of the scales in a tumbler of water, taking care that the specimen is covered with water and does not touch the sides. Subtract the weight in grains as it hangs in the water from the first weight, and divide the first weight by the difference: the result is the gravity. Five per cent. should be allowed for impurities. Where exactness is not required, the gravity of a specimen may be judged by comparing it with well-known substances. Thus,

The gravity of anthracite coal is about	1.5
The gravity of brick is about	1.8
The gravity of clay is about	2.0
The gravity of marble and glass is about	2.5
The gravity of slate is about	2.8
The gravity of cast-iron is about	7.0
The gravity of copper is about	9.0

The gravity of lead is about 11.0

If the gravity of a mineral is 1.5, a cubic inch of it will weigh about ¾ ounce; if 2., 1 oz.; if 2.5, 1¼ oz.; if 3., 1½ oz.; if 4., 2 oz.; if 5, 2½ oz., etc.

There is no section of our country that may not reward a diligent search for precious or useful minerals. The rocks, however, between the Alleghanies and the Atlantic and between the Rocky Mountains and the Pacific furnish the greater variety and abundance. Here are found the best ores. Gold and silver seem to abound more on the western than eastern sides of both mountain-chains. A trap-region, like the shore of Lake Superior and the Connecticut River Valley, is likely to be a good locality for copper and iron. The Mississippi Valley, or the region of Bituminous Coal, furnishes chiefly iron and lead; gold, silver and copper are seldom found. In general, where the layers of rock lie level and contain fossil shells, it is a locality good only for soft coal, (New York excepted), iron ore, gypsum and salt. The regions of granite, slate, limestone, marble, etc., offer the greatest inducement to search for useful minerals.