A government scientist finding what minerals of value lie hidden in these remote mountains.

Our "Acres of Diamonds"

By AARON HARDY ULM

THOSE who have heard of Dr. Russell H. Conwell's lecture, "Acres of Diamonds," will recall his citations of dramatic instances of persons' going far afield for treasure which they could have found by merely staying at home and looking around them. There was the Thracian peasant who sold his little farm and sought diamonds in foreign lands. Later the greatest of ancient diamond mines was found on the farm he sold. There was the Pennsylvania oil prospector on whose boyhood home, after the prospector sold it, was discovered one of the biggest oil strikes in history; the mineralogist who worked for others on salary most of his life although as a boy and young man he had unknowingly walked daily over rich deposits of silver.

The mistake each made was probably in throwing the glamour of romance and distance over Nature's buried treasures; it is a mistake most people make. When I speak the word "diamond," or "ruby" or "gold," or even "silver," I command your attention; your mental inhibitions give way and your mind becomes receptive. This is because for ages mineral wealth was visioned in terms of the so-called precious metals or stones. When I mention coal and iron and bauxite or manganese, your impulse is to turn a page and look for something interesting. Yet coal and iron and bauxite and manganese, not to mention a score of other minerals, are much more useful than diamonds, gold or silver, or all the so-called precious metals put together. More money has been made from these "base" metals, more in future will be made from them, and more actual romance is associated with them.

Food supplies cached by geologists in uninhabited country.

Nature seems to have assumed that North America, and especially that part known as the territory of the United States, would be inhabited by a people of exceptional common sense. For Nature gave to this part of the world an undue proportion of mineral wealth and withheld from it, in large measure, those types of mineral wealth that are more ornamental than practicable. We have had, and it may be we still have, a large supply of gold, but as compared with supplies in other regions of the earth ours are not exceptional. We also have a large amount of silver. There our precious mineral resources almost end. Diamonds and rubies have been found in the United States, domestic diamond mines have been operated for a long time, but our supply of precious stones is very small. We have a little, very little, platinum and other super-precious metals. And there is very little hope that we will ever find in the United States any large deposits of "gew-gaw" minerals.

But of those minerals that really add to the comforts and the physical satisfactions of life we have, with few exceptions, supplies whose volumes stagger the imagination. And when we add to them other resources of the earth's interior, like water, or of the earth's surface, like water power, we have a total of stored wealth that makes even the cost of the World War look Lilliputian.

For more than forty years a definite program for cataloguing this immense national wealth has been under way. It is carried on by the United States Geological Survey, assisted by like but much smaller organizations maintained by many of the states and by some of the universities and scientific institutions. Despite all that has been done by government agencies and others, the cataloguing is yet far from complete, and general knowledge of what has been done is very small.

If you found a high school pupil in ignorance of the general location of an important American river, you would feel like lambasting our system of education. Yet it is doubtful if you would find more than a small percentage of high school teachers, or even college professors, familiar with what has been disclosed about underground streams in these United States. Yet those very streams are attaining a practical significance comparable to that of those above ground.

The managers of a certain southern university decided a year or two ago to sink an artesian well on the campus. The drills went down and down and down and no water came. Then somebody thought of writing to the Geological Survey.

"If you move your operations westward about 300 yards," a Survey specialist wrote back, "you will get water quickly."

The advice was followed and water obtained.

The specialist was able to direct them accurately for the reason that in great part the subterranean waters of the country have been mapped almost as completely as the surface waters, but the professors at the school in question knew nothing of a stream they walked over every day.

Why should the average person's brain be tortured with prosaic information about subterranean waters?

In the first place it is not prosaic, it is information freighted with Arabian Nights and Jules Verne possibilities.

And for second place let me propose an item of ignorance that perhaps not one in a million can disclaim—the writer couldn't have done so before he had dug through a lot of government pamphlets. The item has to do with the value of water as a mineral resource.

"Bah!" says the scoffer.

Well, water, just ordinary water, says the Geological Survey, is the most valuable mineral resource we possess. Its value exceeds that of coal, of which there is several thousand years' supply, or of iron, of which the store is about twice that of coal, or seven and a half billion tons; all this in the upper crust of these United States. And this relates only to the subterranean and surface water, such as is used for irrigation, power or drinking purposes. Subterranean water has made vast areas of arid country to blossom like the rose, has rendered many miasmatic areas healthful and supplies power on an extensive scale. If our subterranean and our surface streams were utilized to the fullest extent, there would be an addition to the nation's wealth so vast that the figures would be bewildering. Of our surface water power a negligible portion only yet has been put to economic use.

No sensible person would think of choosing a business location or a habitat without giving further thought to the equation of water. But we do not give as much thought as we should to the matter. May this not be due to the fact that things "geological" are not regarded as things germane? Geology covers things so intimate that we never are away from them, so inclusive that every one must be something of a geologist, and so far-reaching that geology comprises virtually our only safe guide to the past and our only accurate light on the future.

So important to modern life have geological matters become that it is not extravagant to suggest, the person preparing for a business career, especially for manufacturing, should begin by mastering its important and pertinent phases. For the fundamentals of most producing and many distributing ventures depend ultimately on geology. Power is perhaps the most potent equation in modern industrial life. And power is now very largely in the geologic field. Coal, petroleum, water are the chief sources of industrial power, and you can act safely with reference to none of these unless you consider geology.

Getting the lay of the land from a high mountain point.

Failure in the past so to consider power caused the industries of the country to develop in large part contrariwise to the geography of nature; so much so that, in the words of Dr. George Otis Smith, director of the Geological Survey, one of every five tons of coal shipped goes nowhere. It is wasted in the process of linking power with industry. It has now been found, through an extensive study of the subject, that, by the mere pooling of the power resources in the industrial region 150 miles from the seaboard between Boston and Washington, some 25,000,000 tons of coal would be saved annually. And the chief saving would be in transportation, for one-fifth of railroad freight now comprises coal alone, all because thought of fundamental geology figured so little in the development of industry.

But mineral raw material is perhaps more important than power. We now mine about one hundred minerals that are used as such material. And somewhere in the country we have ample supplies of almost all that are of consequence. We are short on tin and on available potash, and we have no nitrates; lacking also several of the lesser consequential metals. But no other country in the world has such variety or volume of most of the metals that enter into industry.

There are few businesses in which the source, supply and character of minerals used in industries don't have controlling importance. Thus the wise man going into business will investigate geologically with reference to more things than current supplies. He will become acquainted with fundamental geology as set forth in the publications issued by the Geological Survey and like organizations.

Those publications cover a wide field, giving the results of researches in all parts of the country by specialists of various orders.

Today members of the survey's force of nearly 1,000 are studying fossils in Nebraska or Georgia, perhaps, and from them unraveling the records of millions of years in earth's wonderful life story. Fossils are the geologist's clock. From them he tells time and is able to diagnose the mineral content of the earth's crust in different areas.

Other geological survey men are making studies of specific mineral deposits in different sections, so that engineers and prospectors may have data to guide them in opening up new supplies of mineral wealth.

One of the biggest jobs of the Survey is that of making topographic maps for all the country. Data for these maps must be gathered from detailed surveys over every inch of area covered. The maps show the altitude of every spot included and usually all other features such as houses, roads and streams. Those maps are sold at 10 cents each, about the cost of the paper and printing, and you may be surprised to learn that more than one-half million copies are sold every year. In fact, the Geological Survey conducts the biggest map-making establishment in the world.

Geologists lead adventurous lives, for they often go where no one has gone before. They have done the most exploring in Alaska of all the men who have written about life in the Far North.

One of the most adventurous tasks ever put up to the survey is that of mapping the territory and cataloguing the mineral resources of Alaska. One of the first items of that task was the exploration of Mt. McKinley, the highest mountain in North America. Survey men were the first white persons to penetrate into the remoter parts of Northern Alaska. They have produced many volumes dealing with the Great North, but there

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