



# PHILMONT COUNTRY

THE ROCKS AND LANDSCAPE OF  
A FAMOUS NEW MEXICO RANCH

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GEOLOGICAL SURVEY PROFESSIONAL PAPER 505



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# PHILMONT COUNTRY

THE ROCKS AND LANDSCAPE OF  
A FAMOUS NEW MEXICO RANCH

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Illustrated  
by  
John R. Stacy

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GEOLOGICAL SURVEY PROFESSIONAL PAPER 505

*The geologic story of the last billion  
eventful years in the Philmont Ranch  
region, where the Cimarron Range  
rises from the High Plains*

UNITED STATES DEPARTMENT OF THE INTERIOR

STEWART L. UDALL, *Secretary*

GEOLOGICAL SURVEY

Thomas B. Nolan, *Director*

## FOREWORD

This book is an informal account of the geology of the Philmont Ranch quadrangle, where the Southern Rocky Mountains meet the Great Plains in northeastern New Mexico.

From time to time the U.S. Geological Survey publishes nontechnical accounts of the geology of places visited by large numbers of people, such as the National Parks and Monuments. The Philmont Ranch quadrangle is such a place. Its stirring scenery and romantic past attract many thousands of visitors each year, and thousands more discover it as they travel to better-known Taos and Santa Fe on U.S. Highway 64. Moreover, half the quadrangle is occupied by the Philmont Scout Ranch, which is visited by several thousand adults annually for training in Scout leadership, and by many thousands of Explorer Scouts each summer for protracted camping expeditions. The quadrangle is part of a region that, because of its known and potential mineral wealth, has been under investigation by the Geological Survey for many years. Some of the technical data thus assembled are here recast in a form that we hope will be of interest and use to those who visit the area.



THOMAS B. NOLAN  
*Director, U.S. Geological Survey*

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# WHAT THIS BOOK IS ABOUT

The geologic story of the Philmont Ranch region is mostly the story of one of the mountain ranges that make up the Rocky Mountains—the Cimarron Range in northeastern New Mexico. In a way it is an autobiography, for the range tells its own story, but in a difficult tongue. We are simply the translators. It is no epitaph, for the range is still young. The story is long, for some of the rocks in the core of the range are among the oldest on the North American continent, and those on the flanks of the range are still forming today. It is an incomplete story, but the missing events whet our curiosity. Parts of the rocky record can be read in more than one way, and this adds spice to the telling.

How the range got its name has been forgotten. Most likely it was named by Spanish explorers, who were the first Europeans to see it. In 1540, Coronado came as far north as Taos, but not until a century or more later did the Spaniards venture this far north along the east front of the mountains, in search of precious metals and jewels, not in the ground but in legendary El Dorados, Cities of Gold. Here they found no golden cities, but they saw dark, timbered

mountains swarming with mountain sheep, deer, elk, bear, puma, and smaller animals. The Spaniards, or their successors, began speaking of the mountains as the Sierra Cimarron, or Range of the Wild Beasts.

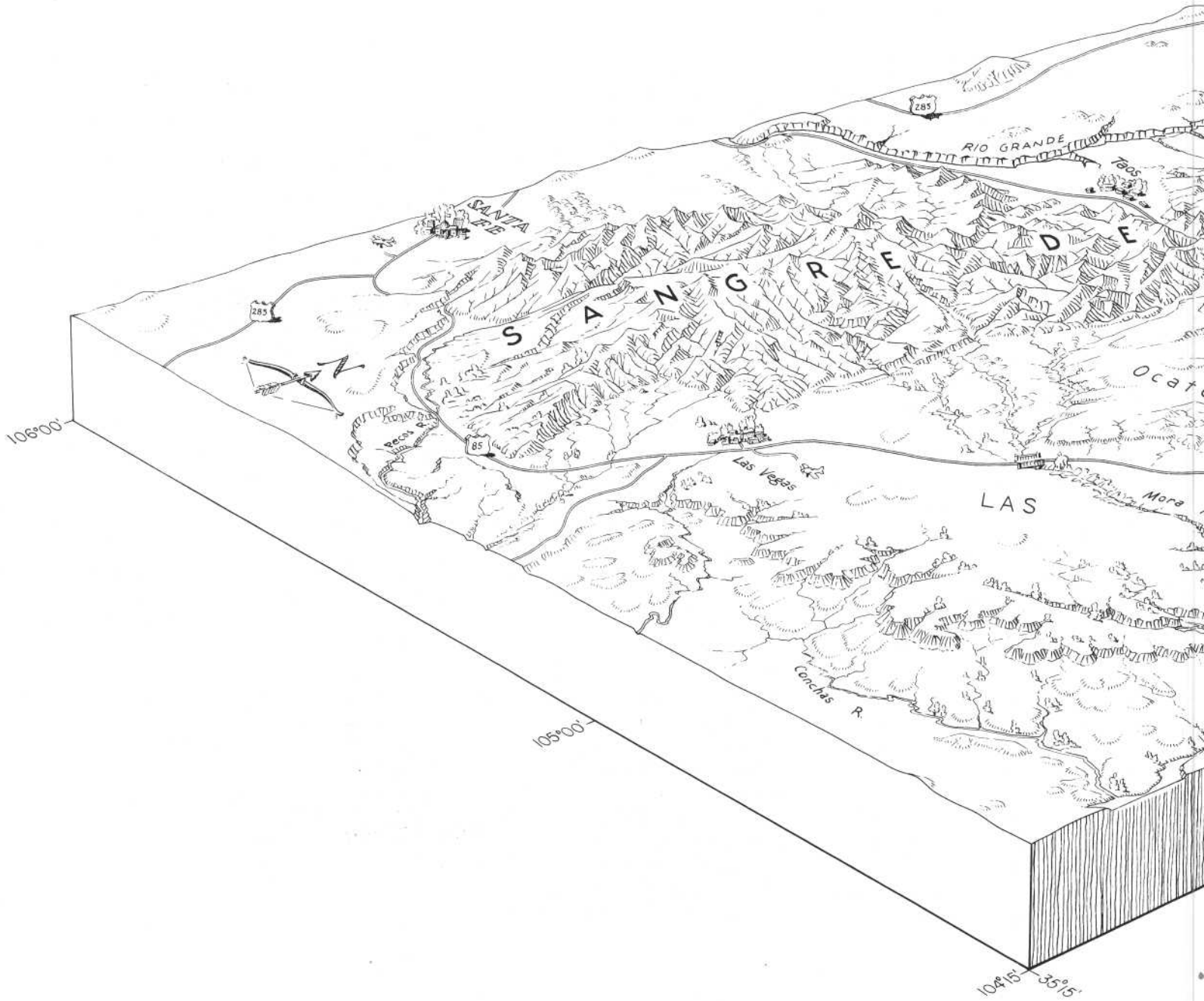
The name is no longer very apt, because the animal population has declined as the gun-toting population has grown. Mountain sheep became extinct decades ago, and descendants of the other large animals exist only under the protection of the law. The game that once ranged the bordering plains—buffalo, pronghorn, giant rabbit, and coyote—has almost vanished, too. On the other hand, animals unknown to the Indians until the Europeans came—horses, burros, cattle, and domestic sheep—are now many.

We are all aware of how rapidly the pattern of animal life has changed in the West. It is harder to realize that the mountains change too. But in the vast span of recorded geologic time—something like a billion years in this region—the Cimarron Range has existed but a brief 50 or 60 million years, and in its lifetime it has constantly, if slowly, changed. We hope to piece together, from evidence in the rocks and land-

scape, what happened before the mountains were born, how they came to be, and what has been happening to them since. Our account will be more a detective story than a lecture.

In working out the life story of the Cimarron Range and of the plains at its feet we will work backward. First, we will consider the landscape of today (fig. 1). Then we will examine the nature and origin of the rocks and water beneath this landscape—take, as it were, a geologic inventory. Third, we will work out the order in which the rocks of Philmont have formed, and when. After that we will find how and when the rocks have been deformed and changed by forces from within the earth. Next, we will try to decide how the landscape has been shaped. Finally, we will fit what we have seen of the rocks and scenery, and what we have reasoned about them, into a single, marvelously eventful, if incomplete, story—a geologic history.





WHERE THE ROCKIES RISE FROM THE PLAINS: the setting of the Philmont Ranch region. (Fig. 1)

