

# PHILMONT COUNTRY

THE ROCKS AND LANDSCAPE OF  
A FAMOUS NEW MEXICO RANCH

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# A BIRD'S-EYE VIEW

## The Philmont Landscape

The Philmont Ranch region—Philmont for short—covers 420 square miles of the area where the Rocky Mountains meet the Great Plains in northeastern New Mexico. Figure 1, on the preceding two pages, shows how a bird, flying high enough, would see the region. In the western part of Philmont rise the timbered peaks of the Cimarron Range, whose crests are 10,000 to 12,000 feet above sea level. To the north the range joins the still higher Sangre de Cristo Mountains, which extend for 200 miles along the Rocky Mountain front in southern Colorado and northern New Mexico. Separating most of the Cimarron Range from the main mass of the Sangre de Cristo Mountains is Moreno Valley. Along the west side of the mountains flows the Rio Grande. The famous Ranches of Taos are on the west flank of the mountains, as, farther south, is historic Santa Fe, capital city of New Mexico for more than 400 years and under four flags.

In the southeastern part of Philmont, the mountains rise suddenly from the gravel-clad plains of the Las Vegas Plateau, which

sweep eastward in broad low treeless steps, beginning at an altitude of about 7,200 feet at the mountain base and descending to an altitude of 6,400 feet within the area. These steps continue down to the east to the Canadian (or "Red") River, 20 miles away, then rise again to mesa lands near the Oklahoma and Texas borders.

Elsewhere, a strip of steep-fronted rocky mesa lands separates the plains from the mountains. Mesas or benchlands in northern Philmont are part of the Park Plateau, a 40-mile-wide upland that rises 500 to 1,000 feet above the Las Vegas Plateau and extends 70 miles northward to the base of the Spanish Peaks, in Colorado. The coal-mining cities of Raton in New Mexico and Trinidad in Colorado are at the eastern edge of the Park Plateau. At the south end of Philmont, the Cimarron Range ends abruptly at lake-dotted mesa lands of the Ocaté Plateau, which stands 9,000 to 10,000 feet above the sea, or 2,000 to 3,000 feet above the plains. The Ocaté Plateau continues southward for 35 miles to the Mora River.

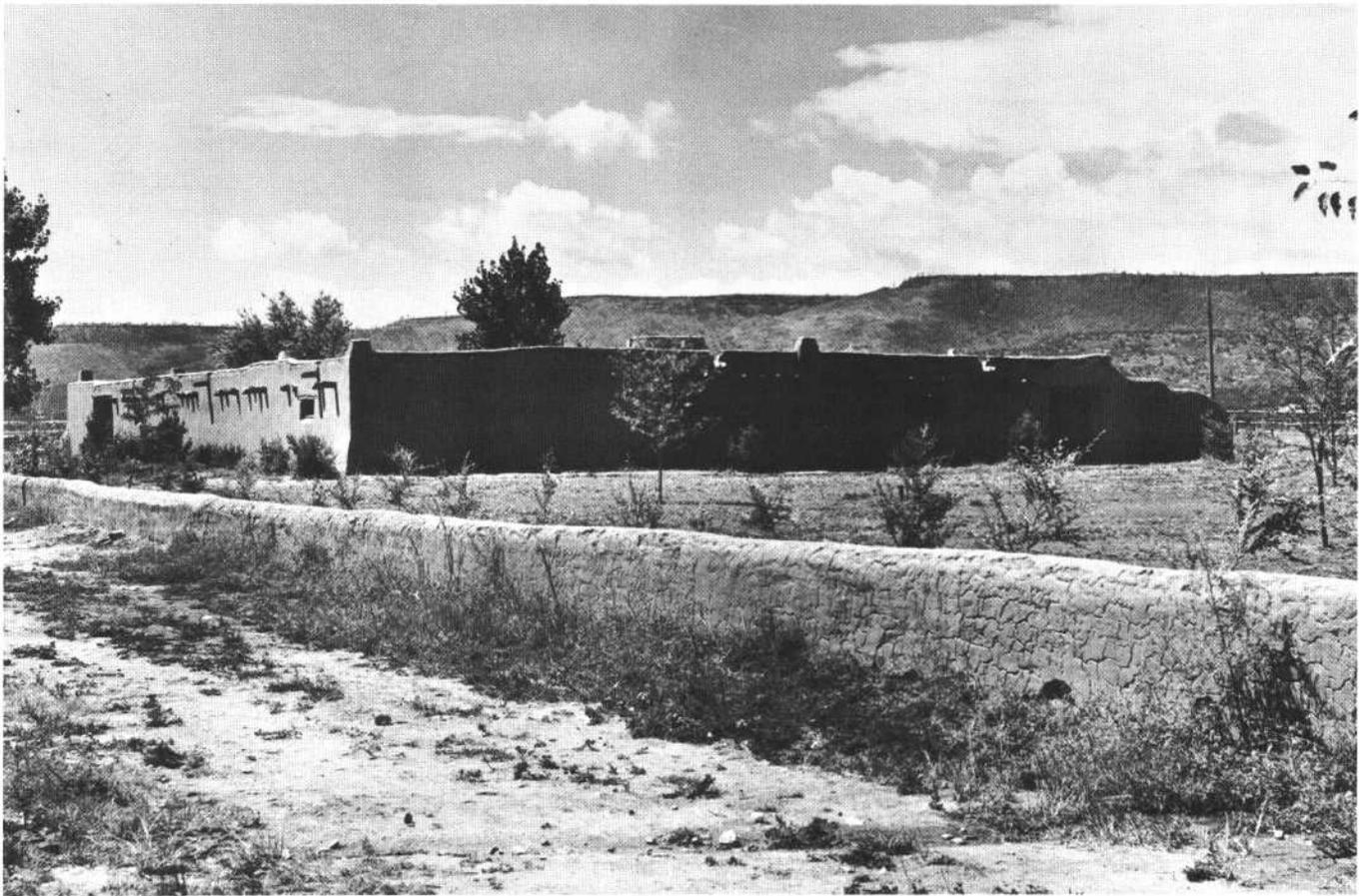
The storied Santa Fe Trail followed the western edge of the plains at the base of the benchlands. It swung southward from Santa Fe, around the tip of the Sangre de Cristo Mountains, through Las Vegas, around the base of the Ocaté Mesa, past the home of famous Indian scout Kit Carson in the southeast corner of Philmont (fig. 2), along the east

edge of Philmont, and thence northeastward along the base of the Park Plateau to Raton and the East. Deep wagon ruts of the old trail can still be seen in a few places. The pioneers chose the easiest route, and it is not surprising that the modern highway follows almost the same path.

## Landforms

Let's take a closer look at Philmont, with the help of a shaded-relief model at a larger scale than figure 1. (See pl. 2, in the back pocket.) The model is drawn as it might look to a bird hovering high above the southeast corner of Philmont. Most visitors come into Philmont from Raton over U.S. Highway 64, which enters the area of the model about at the center of its east edge. The highway swings sharply west and passes through Cimarron town, by far the largest permanent settlement. For 50 years after its founding by Lucien Maxwell in about 1860, Cimarron was a major trading center, and it once had a population of several thousand. In this century, the year-round population of the town has declined and is less than a thousand, engaged mostly in ranching.

From the highway in the center of Cimarron town, we have a good view of the entire Philmont area (fig. 3). The highway and the town are on a plain at the inner edge of the Las Vegas Plateau. The mesa lands on the right (north) skyline are part of the Park Plateau, the southern tip of which is at Deer Lake Mesa, on the left (south) side of the highway. The flat-topped benches behind the town are a high part of the gravel-clad Las Vegas Plateau. Beyond them, and filling the whole center of the view, is the dark, forested mass of the



KIT CARSON'S HOME, now a museum, near the old Santa Fe Trail in southeastern Philmont. (Fig. 2)

Cimarron Range. Extending eastward from the main mountain front is light-colored Tooth of Time Ridge. At its base, hidden from view by intervening high graveled plains, are the three headquarters areas of the Philmont Scout Ranch. On the skyline at far left is the dark smooth surface of Urraca Mesa, in the southeastern part of Philmont and at the north edge of the Ocaté Mesa.

By hiking or driving westward from Cimarron on Highway 64, we can get a good idea of the landscape of the entire Philmont area. (In the first half of the century, when gold mining was active around Baldy town and on Ute Creek in the northwest corner of Philmont, we could also have taken the train as far as Ute

Park; but the railroad stopped running when gold mining ended at the start of World War II, and later the tracks were removed. The old roadbed and the scars of the tracks can still be seen in many places near the highway.) A mile out of town the edge of the high mesa lands of the Park Plateau flanks the right (north) side of the road. The lower plains continue on the south side, but within another mile they begin to give way to hills. Four miles out of town the plains disappear, and the road is flanked on both sides by hilly ground.

The hills on opposite sides of the highway are very different. On the right (north) they are the same mesas or benchlands that we saw when we were first leaving town. The benches appear

smooth, and the risers between them are steep but also smooth. Lightly sprinkled with bushes and clumps of grass through which alternate light and dark ledges of rock appear, the benchlands look striped. On the left (south) the hilly country is rough and irregular and is pitted by many small depressions (fig. 4). The hills are covered with dense brush broken by many small stands of trees. This contrast in landscape continues for 5 more miles.

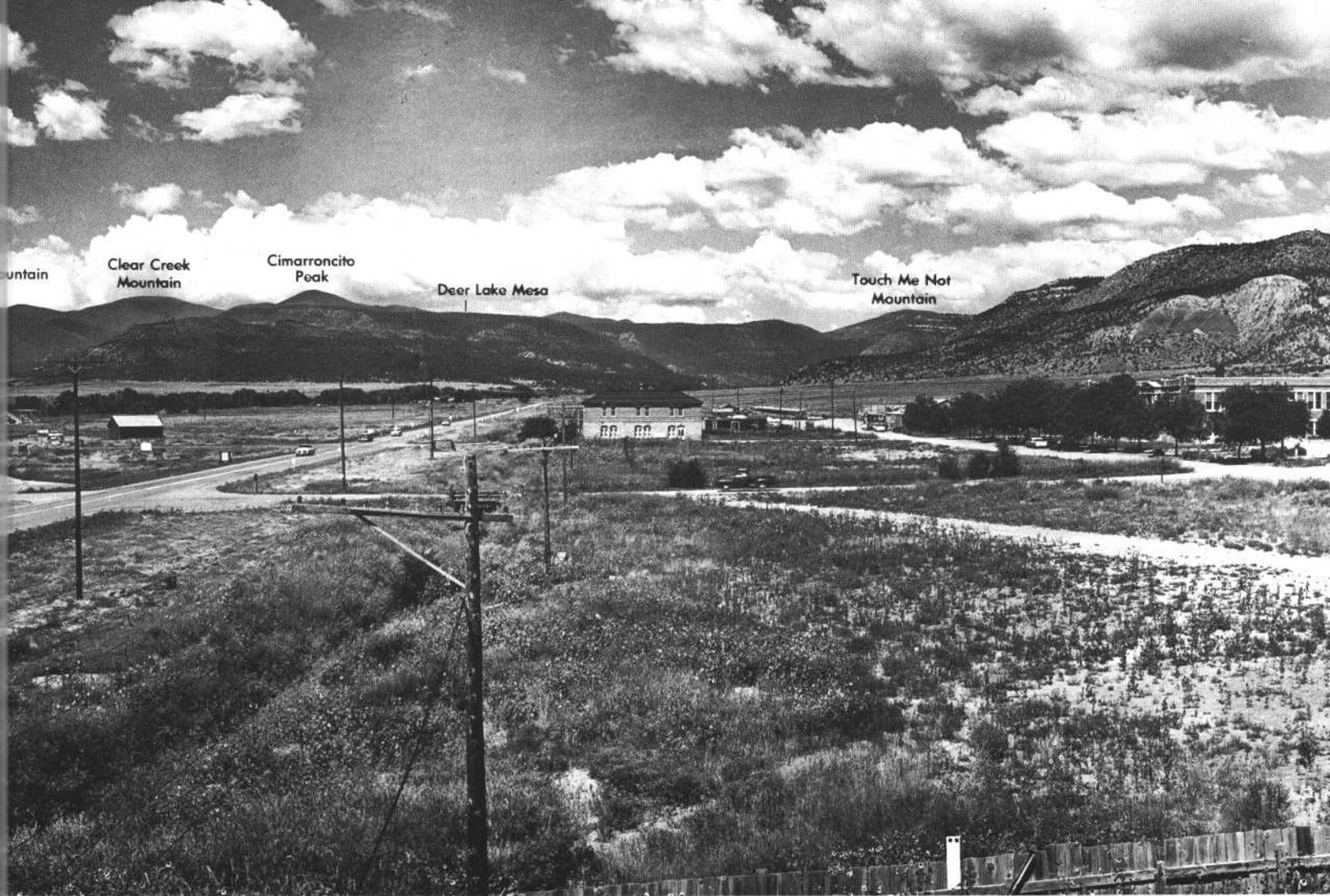
Nine miles west of Cimarron the country opens out into another lowland like that around Cimarron, but much narrower. This is the valley of Ute Creek (fig. 5). Rising above the valley on both sides are hummocky, irregular surfaces like those that we have previously seen flanking the south



PHILMONT from the east. (Fig. 3)



ROUGH, HUMMOCKY HILLSIDES  
south of U.S. Highway 64. (Fig. 4)



side of the highway. At the tiny settlement of Ute Park, the plain ends abruptly, and the road enters canyon country (figs. 54, 65). Great rocky ledges separated by grassy and tree-lined vales and saddles rise on either side of the road. The streams run in sharp narrow canyons, and the heights are sharp and narrow, too. The country is all angles the rest of the way to Horseshoe mine—really just a prospect pit—at the west edge of our area (fig. 6).

Along the trails up other creeks at Philmont, we see similar landscapes. On Ponil Creek, north of Cimarron, the trail begins on the plains; but the plains narrow rapidly, so that 3 miles from Highway 64 the trail is in a narrow canyon flanked by striped bench-

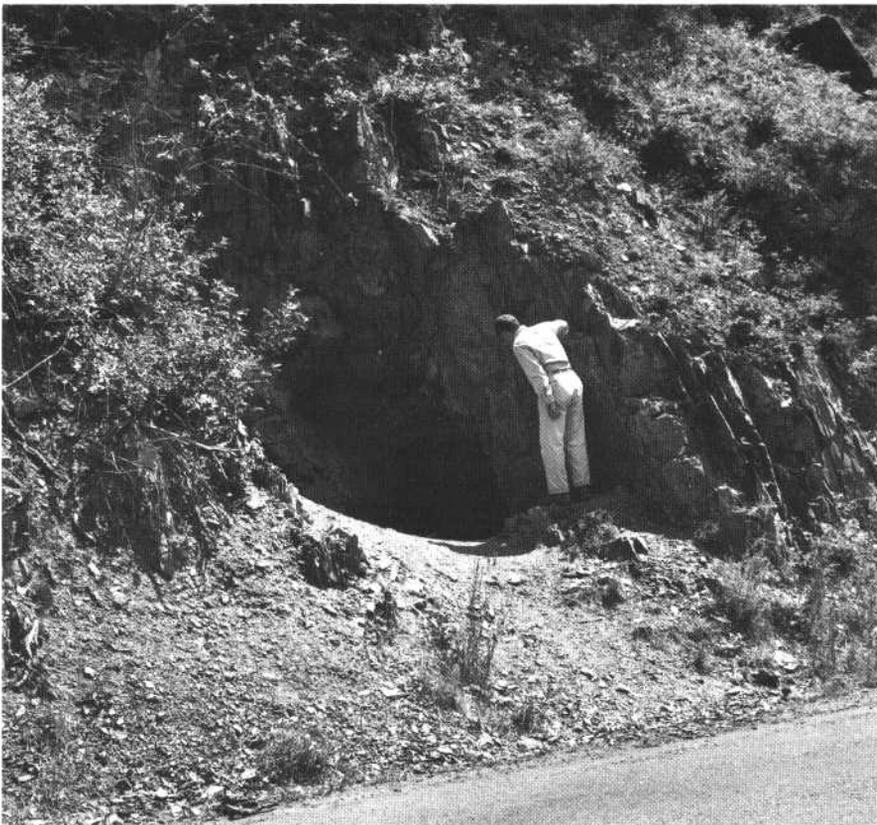
lands. The trail continues in this type of terrain to the edge of the area. Beyond, it eventually enters rugged mountain country. All the land drained by Ponil Creek and its tributaries—nearly half of Philmont—is a country of narrow canyons separated by broad steplike benches. Figure 7 is a photograph taken on the top of one of these high benches.

The trails up creeks south of Cimarron Creek, such as Cimarroncito Creek, Urraca Creek, and Rayado Creek, pass through the same sequence of country as that on the south side of Cimarron Creek: first, broad lowland terraced plains such as those in the southeast corner of Philmont (fig. 8); then rough, hummocky hillsides capped by rocky upland

benches; and finally, rugged mountain country that has no flatlands (fig. 9). Along two creeks in the heart of the mountain country, however, is a different kind of landscape: marshy meadowlands dotted with ponds and with clumps of trees (fig. 10). Long strips of such peaceful meadows flank Bonito Creek for several miles downstream from Beaubien Camp and flank Agua Fria Creek upstream from Rayado Base Camp. But downstream from Rayado Camp, the mountains close in (fig. 11); and Agua Fria Creek and Rayado Creek, after joining, run in a rocky canyon for many miles. Bonito Creek, too, pours into a gorge near the mountain front.



LOOKING NORTH UP UTE VALLEY to Baldy Mountain. The ghost town of Baldy is on the east flank of the mountain. (Fig. 5)



HORSESHOE MINE, beside U.S. Highway 64 where it crosses the west edge of Philmont. (Precambrian metamorphic rocks.) (Fig. 6)

ON MESA above Old Dean Trail Camp.  
Baldy Mountain in the background.  
(Fig. 7)



STEPLIKE TERRACED PLAINS in south-  
eastern Philmont. View is southeast from  
near gaging station on lower Rayado  
Creek. Kit Carson Mesa in middle dis-  
tance. Highest surface is Gonzalitos  
Mesa, beyond Philmont. (Fig. 8)





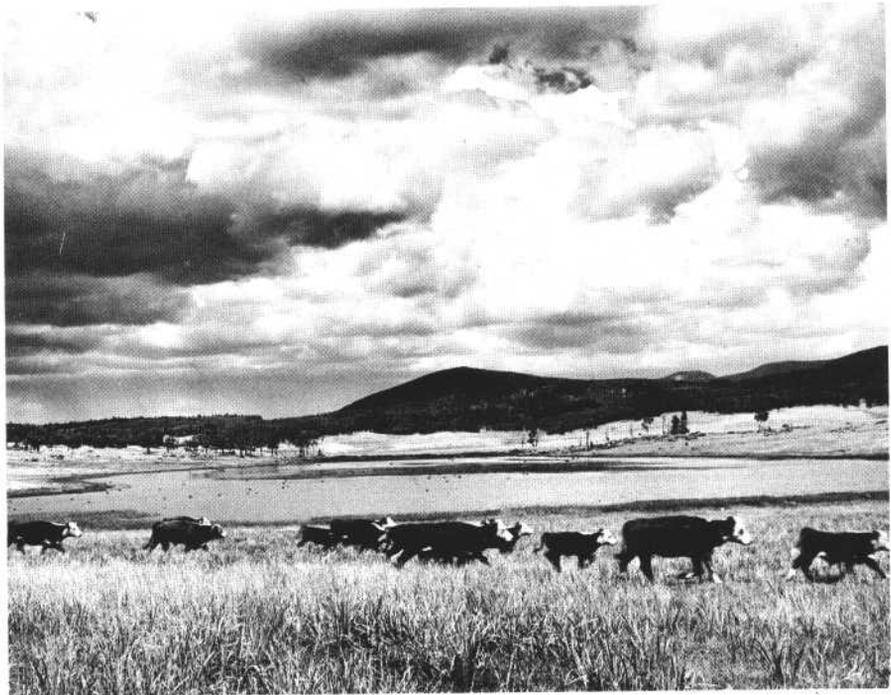
RUGGED MOUNTAIN COUNTRY in west-central Philmont: Bear Mountain (rounded top) and Black Mountain (pointed) viewed from Cimarroncito Base Camp. (Fig. 9)



MARSHY MEADOWLANDS along Agua Fria Creek upstream from Rayado Base Camp. (Fig. 10)



MOUNTAIN VIEW EAST from Rayado Base Camp, where Agua Fria Creek joins Rayado Creek and flows in a narrow rocky canyon. Sunlit rocks (Precambrian metamorphic rocks) are on the flank of Lookout Peak. (Fig. 11)



HIGH MARSHY MEADOWLANDS on the Ocaté Mesa. (Fig. 12)

The southernmost trail in the Philmont region follows Moras Creek upstream to the steep front of the Ocaté Mesa and then wanders across the mesa. For several miles this trail, too, crosses familiar scenery: first the lowland plain flanking Moras Creek, rising in three bench steps to rough, hummocky hillsides along the mesa front; and then a rocky bench atop the mesa. The benchland at the mesa edge is definitely darker colored than that far to the north, but the shapes are similar, if a little more rounded. Westward, however, to Rimrock Lake and beyond, the trail crosses many marshy meadowlands, like those of Bonito and Agua Fria Creeks but much broader and more irregular (fig. 12).

We have seen that the landscape can be divided into five main kinds of landforms: gravel-capped lowland plains; smooth-sided rocky benchlands; rough, hummocky hillsides; rugged mountain country; and high marshy meadowlands. These are shown on a scale model, plate 1 in the back pocket. The model is drawn as it might look to a bird hovering high above the southeast corner of Philmont. How each of these forms came to be, we will learn as our story unfolds. It is not just a matter of height above sea level, for there is much overlap in altitude among the five kinds of landforms. We can see already that the rocks beneath the land are somehow related. Before turning to the rocks, however, we must look at another major landscape feature—the water on the land.

## Water on the land: Creeks and lakes

After a heavy rain or after the spring thaw, water runs off every slope and pours down every gully



GEOLOGICAL SURVEY STREAM-GAGING STATION on Cimarron Creek. A, Cable car used when measuring the rate and amount of water flow. B, Depth-recording gage. (Fig. 13)

and canyon; but for long periods in summer and winter, all the gullies and most of the short canyons are dry. In the long canyons, creeks usually flow all year round, although most of the flow comes in the 4 months, April to July. After spring thaws or heavy summer rains, the main streams may for a few days discharge so much water that they overflow their banks and flood their valley floors. The rest of the year they dwindle to a trickle; sometimes they even run dry.

The details of streamflow are very important to everyone living in the area; for this is dry ranching country, and the streams are a

main source of water for drinking, waste disposal, and irrigation. To measure streamflow accurately, the U.S. Geological Survey maintains stream-gaging stations on Cimarron, Rayado, and Ponil Creeks. Figure 13 shows what such stations look like. The depth of the water at each station is automatically recorded by a gage (fig. 13B), and the rate and amount of water flowing past the gage is measured, usually twice a month, by an observer, using a hand-powered cable car (fig. 13A) who makes measurements at mid-stream. Several thousand such stations are operated all over the United States.