There are few regions of the globe where the handwriting of nature is larger, plainer, or less obscured by nature's own subsequent efforts to erase it.

— Rossiter W. Raymond
Report on mineral resources, 1869

SEEING THE LAND

The Snake River begins at 9,200 feet in the icy highlands of the Continental Divide. Flowing west from Jackson Hole in the Grand Tetons, it cuts stark, spectacular landscapes. Deep, vertical chasms split barren plateaus. Wildflowers spread in jagged formations. At Shoshone Falls, higher than Niagara, the Snake plunges into a gorge, falling 212 feet.

BY TODD SHALLAT
Upstream in eastern Idaho, west and north of Idaho Falls, the river crosses hellish terrain — moonlike craters, dark seas of lava, thick beds of volcanic ash.

Industry, ranching and farming have developed the volcanic basin, but its wilderness traits survive. Explorers called the country "forlorn," "fantastic," "dark and gloomy," "an indescribable chaos," a "frightful glimpse of the Inferno." In 1871 United States geologist Clarence R. King reported "Forlorn . . . fantastic . . . frightful." An Owyhee canyon.

Ropelike pahoehoe lava with flowering biscuitroot.
desolation. "You ride upon a waste," said King, approaching the "cascading whiteness" of Shoshone Falls. "Suddenly, you stand upon a brink ... a great river fights its way through labyrinths of blackened ruins." Today the Snake is a harnessed river. Held by dams, forced through turbines, it generates power for cities and towns in four western states. Tapped for agriculture, it irrigates wheat, barley, sugar beets, alfalfa and nearly one-third of the nation's potatoes. Among the rangeland and farms are dots of population: Boise, Twin Falls, Pocatello, Idaho Falls, all different, all similar — different because each serves a distinct region of a politically factious state; similar because all share water, an arid climate and a history of common struggle with a harsh yet fertile terrain.

To understand the arid crescent is to study the remarkable landscape — its record of human occupation, its flora, fauna and geologic past. Scientists call it the Snake River Plain, a prairie or high desert some 400 miles across. Bounded by Yellowstone to the east and Oregon to the west, it curves below the granite peaks of the Idaho batholith. Geologists see at least two separate regions — a western and an eastern plain. The western section began to appear about 15 million years ago as the Earth broke open in "fissures" that vented molten rock. The eastern section extends from Hagerman to the foot of the Rockies, a bizarre landscape of lava rock and "calderas," or craters, up to 100 miles across. Here geologists study an intense source of heat commonly called a hot spot. According to the most widely accepted theory, the
Shells, about 3 million years old, are delicate evidence of a huge prehistoric lake.

Earth's tectonic plates shifted over this hot spot, melting the crust. The land blistered, spewing out clouds of hot ash. Later, less violent eruptions left tall cones of lava and black fields of rubble along a chain of volcanoes from Craters of the Moon National Monument to American Falls. Today the migrating hot spot causes water to boil to the surface at Yellowstone National Park, evidence of the existence of a giant, potentially active volcano.

Volcanic activity left porous rock that created an unusual drainage system. Snowmelt from the mountains became "lost rivers" that percolated through the surface lava into the Snake River Aquifer, a deep strata of water-bearing rock. As lava flowed into rivers, huge lakes backed up across Idaho and northern Utah. Great floods carved magnificent canyons.

Changes in the natural landscape forced changes in the species that inhabited it. About a million years ago a cooling trend brought Pleistocene mammals to the plain. Elephantine mammoths crashed through the forests. Fierce cats hunted the grassy steppe for elk and bison. There were also warming trends, centuries of hot weather that thawed the tundra and turned the ice into swamp. Fossils near Hagerman preserve the imprint of zebralike horses, small camels, otters, turtles, snakes and a wide variety of shellfish that once inhabited the aquatic plain. Near the close of the Pleistocene Ice Age, perhaps 15,000 years ago, large sloths emerged from marshes to feed in deciduous forests.

Tribes of hunters may have reached the plain about 14,000 or 15,000 years ago. Skilled toolmakers, they were part of the Asian migration that spread humanity across 16 million square miles, from Alaska to Tierra del Fuego. Early arrivals hunted the last of the mammoths, driving them into the swamps. As the climate changed, growing warmer and more arid, the herd animals thinned, and some species migrated north. Humans diversified. Native Americans, retreating from winter, built shelters in the canyons. In spring they found edible roots just above the plain on the Camas Prairie. Early summer was salmon season along the Boise and Snake rivers.

Combing the foothills in fall, the tribes found seeds and chokecherries to mash into cakes. Spanish horses widened the cyclical migration. By the time of Lewis and Clark, the mounted Shoshone and Bannocks ranged north into Canada and south to the Comanche
lands of the southern plains. Snake River tribes had stone corrals, rock art, villages with grass huts, elaborate hunting tactics and regional economies that moved on and off the plain as it changed according to season.

The reading public first discovered the Snake River country in the words of a man who never saw it himself, the essayist Washington Irving. In *Astoria* (1836), Irving relied on terse observations from Wilson Price Hunt and his party of beaver scouts. Here the basin appeared “cheerless,” an empty desert. Irving reconsidered the Snake in *The Adventures of Captain Bonneville* (1837). Vividly descriptive, it told a heroic story of trappers in the wild. The land was now “picturesque,” even “romantic.” Irving stressed the odd geology of the

“Porcupine Moccasin,” a Snake River Shoshone; right, essayist Washington Irving.

Elkskin autobiography of Chief Washakie of the Eastern Shoshone, 1880s. One image (lower left) shows a buffalo hunt. Nine others depict fatal skirmishes with the Blackfeet, Ute and Sioux.
Map Rock (about 1300 B.C.) While probably not a “map” in the modern sense of the word, this petroglyph at Wees Bar in southern Idaho might have been carved to plot or chart constellation changes or herd migrations.

Territorial map (1865). S. Augustus Mitchell’s schoolbook geography map reflected a careless attitude toward the West.

Surveyor’s transit, about 1936. This 20th-century transit was used to measure changes in elevation for map making and road surveys.

place. The basin was so level it seemed sunken and cracked. Near American Falls and along Bruneau Canyon, the Snake had a dark “volcanic character” with rocks in bizarre formations and cliffs black with basalt.

Soon the volcanic plain was a topic of interest in scientific circles, a frontier for research. The first wave of science was a search for natural wonders. In 1868 geologist King brought a photographer to verify one of the great spectacles of North America: Shoshone Falls. A year later the Smithsonian’s Ferdinand V. Hayden found fossils to support his supposition that the plain, once submerged by an ocean, had evolved into freshwater lakes. By the 1890s the focus of science had shifted to precious resources. Geologists soon discovered what prospectors already knew: Snake River gold was abundant, but its flakes were too fine to be easily mined. Water, however, could be tapped through ditches and wells, and in 1902 the U.S. Geological Survey said the potential for hydropower was “practically unlimited.” Meanwhile a few wells near Ontario, Oregon, hit small pools of oil and larger deposits of natural gas. In 1920–1921 the frantic search for gushers swept up the Payette and across the plain to the Teton basin. While the Idaho Bureau of Mines and Geology remained unconvinced, calling the plain “unfavorable” for petroleum production, wildcat rigs found just enough natural gas to keep exploration alive.
Sketch Map of Southern Idaho (1902). Israel C. Russell, a hydrologist with the U.S. Geological Survey, showed that the Idaho canyon lands were “clothed with vegetation” and included “large tracts of open forest.”

Landsat map (1986). Generated by electronic data, this image of Craters of the Moon was produced by a satellite in orbit 600 miles above Earth.

The evolving perspective of science showed that discovery was not an event but a process, an act of the mind as well as the eyes. Explorers, geologists, mining engineers — each group studied Idaho through the distorted lens of its own grand design. The Smithsonian valued the land for its fossils. Oregon-bound emigrants saw a passage through the mountains. Mormons envisioned a poor man’s Canaan, a desert Zion. Others found rangelands, veins of coal and phosphate, amazing artesian wells and fertile sites for irrigation.

Some of the grandest promotional schemes have centered on water, Idaho’s “liquid gold.” Irrigation on the plain began in the 1860s with small diversions from the Boise and Payette rivers. By the 1890s a growing network of canals in the Rexburg-Blackfoot area was already one of the world’s most ambitious gravity systems. The 1894 Carey Act granted land for the enormous Twin Falls project at Milner, opened in 1905. Upstream at M tinydoka the dam held the U.S. Bureau of Reclamation’s first hydro facility, a symbol of the federal commitment to rural electrification. In 1914 the small high school at Rupert was the first in America with electric heat. Meanwhile, reclamation engineers were breaking construction records with the storage reservoir and curved gravity design of Arrowrock Dam on the Boise River. Completed in 1915, the 348-foot dam was the tallest in the world.
Two benefits of federal reclamation were cheap hydropower and the rising water table that created ideal conditions for pump irrigation, a technology pioneered by Idaho irrigators. When Julion Clawson brought drilling equipment to the Minidoka area in 1946, neighbors assumed he was looking for oil. Soon Clawson’s electric wells were watering large tracts of beans, wheat and potatoes. Pump irrigation opened the upper Snake River basin to postwar homesteading, and today the plain’s groundwater reclaims about 1.6 million acres.

While federal water projects brought wealth to the upper basin, at times the technology failed. On June 5, 1976, the collapse of Teton Dam dramatized the danger of holding water between permeable walls of a lava canyon. In 1984 the discovery of radioactive tritium beneath the Idaho National Engineering Laboratory (INEL) forced the lab to shut down a 600-foot injection well. Meanwhile the rising demand for irrigation cut the great river in half — one part impounded by dams above Milner, the rest flowing west and north to the Columbia and the Pacific. In dry years a small child can cross the muddy stream-bed below Milner Dam. Sapped by drought and irrigation, Shoshone Falls at the end of summer stands virtually dry.

The plain’s population continues to grow. From 1940 to 1970, the population doubled to 600,000, and today more than 800,000 live in the lava crescent from Ontario to Ashton. Farming and food processing still dominate the desert economy, producing about 75 percent of the state’s agricultural returns, but the reliance on irrigation leaves Idaho vulnerable to drought and economic slumps. Recessions cut deep in a region so dependent on a few principal crops.

As agribusiness expands, water, Idaho’s wealth, remains a perennial problem. Since 1982 a growing dispute between upstream irrigators and the Idaho Power Company has led to complex adjudication and a challenge to the “first in time, first in line” doctrine of prior
appropriation, a bedrock of Idaho law. Meanwhile the salmon runs are dangerously close to extinction and Indians have filed lawsuits over treaty fishing rights. Opposition to dams has fueled conservation — a concern for the other uses of water: fish habitats, raft runs, boating facilities, scenic vistas and wildlife preserves. Elsewhere the scrimmage for water has spilled into neighboring states. Since 1964, when Californians began thirsting for a Snake River pipeline, Idahoans have fiercely campaigned to keep the water at home.

Today the contest for water and power mirrors diverse expectations. Some federal agencies still value an empty desert. Isolated, moated by lava, INEL seems a likely site for nuclear research. When the U.S. Air Force looks at the plain near Mountain Home, it sees an excellent training range. Farmers, ranchers and environmentalists resist the Air Force, but their motives are seldom the same. Grazing fees, fire prevention, pesticide use and recreation remain matters of heated debate. One brewing dispute pits ranchers against environmentalists in a conflict over the condition of rangelands. Another conflict centers on the Bruneau River near its confluence with the Snake, where the water table is falling and a small snail was classified as an endangered species before a federal judge overturned that listing on procedural grounds. Meanwhile anglers and dam builders square off over hydro development on the Snake River’s Henry’s Fork. Each constituency, defending its claim to the Snake River country, makes its own subjective assumptions about the highest use of the water and land.

Thus the Snake country remains a plateau of contrast — blank yet majestic, a dry basin for one of America’s largest rivers, a Treasure Valley, a Magic Valley, a shifting mirage. Once a sterile waste, now a fertile crescent — these stereotypes shape our expectations for southern Idaho, yet our images blur as the region evolves. Each generation rediscovers the lava desert. Each revelation of science invites a look at our culture and its ancient debt to the land.