

POPULATION OF SOUTHERN UTAH

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IN planning their western exodus the leaders of the Church of Latter Day Saints outlined the "State of Deseret"—a vast area that comprised the present Utah and Nevada, most of Arizona, half of Colorado, and parts of Idaho, Wyoming, Oregon, California, and New Mexico. As this little known region was thought available for colonization—and dominance—by the Church, it became imperative to ascertain its character and potential resources.

The Latter Day Saints reached the shores of Great Salt Lake in the summer of 1847 and within a few months began a geographic study of their chosen homeland. They gave first attention to the narrow belt of flat country along the west base of the Wasatch Range and the Pavant, Tushar, and Markagunt Plateaus, where practical routes of traverse had been marked out by trappers, traders, and exploring parties, and where Indians were few. Superficial observation had shown that the adjacent parts of Utah were either alkaline deserts or rough lands of mountains and canyons, occupied by vigorous, generally hostile Utes. The decision to give priority to the examination of "the lands along the mountains" was fortunate. Preliminary scouting revealed areas of fertile, easily tilled land, which could be irrigated at small cost—oases in a region of bare rock and dry sand—and, as exploration progressed during the decade 1850–1860, more than 50 oases in a belt two to 10 miles wide and extending nearly across Utah were found to be suitable for settlement. In southwestern Utah oases at the mouths

of canyoned streams that reach back into the Markagunt Plateau attracted the pioneers to Paragonah, Parowan, Summit, Cedar City, Fort Hamilton, Kanarra, Pintura, Toquerville, and La Verkin, and farther north many similar sites were occupied; in fact, this belt of oases has proved to be the most prosperous part of Utah. Within it reside about 80 per cent of the population of the state, and more than 40 per cent of the population in the entire intermountain region. It is interesting to note that because the "Oasis of Utah" was first settled the colonization of Utah progressed from west to east and thus differs from most pioneering activities in neighboring regions. In southern Utah the villages at the base of Hurricane Cliff were founded in 1850–1860, then in turn those in the Parunuweap, Kanab, Johnson, Sevier, Paria, and Escalante Valleys (1864–1878), and in the San Juan country (1880–1890).

Unlike most other parts of the United States, where the pioneers individually selected home sites widely scattered on prairies, in the mountains, along streams, and in woodlands, Utah was systematically colonized as self-sufficient villages and the history of the state is concerned chiefly with the growth of the original settlements. Practically the entire population of the counties considered in this survey—San Juan, Kane, Garfield, eastern Iron, and eastern Washington—has always been restricted to villages which are surrounded by large areas of uninhabited land. The farmer lives on a town lot, which constitutes his garden and orchard, and

goes back and forth to his dry land or irrigated tract at various distances and directions from home. Likewise the stockmen live in the villages and only in the summer season occupy wagon camps or cabins where their sheep and cattle may receive closer attention; homesteads along country roads are exceedingly rare. Diaries of the pioneers show that for two years Levi Savage lived alone at Kanab and that for three years Don Carlos Shirts was the sole resident of Paria Valley. But most sites were first occupied by groups of families. Long wagon trains loaded with men, women, and children, tools and household furniture, and trailed by milk cows, were hauled by oxen or horses over roadless tracts and unloaded at the chosen spot. Within a few weeks after the first caravans arrived Toquerville enrolled eight families; Virgin City, Kanab, Asay, and Hillsdale about 15 each; Parowan, 35; and St. George, 65. Available records show that none of the original settlements enrolled less than 25 people and that generally within a few years the pioneer families were joined by others. This grouping of the population into rather compact settlements is in accord with geographic conditions, but in large part was deliberately planned to bring to rural communities certain social, educational, and economic advantages otherwise possible only in urban centers. Even the smaller settlements had "meeting houses," school buildings, dance halls, and picnic grounds.

The colonization scheme of the Mormon Church included not only the choice of a site which scouts had thought favorable for agriculture, but also the selection of individuals to insure skilled amateur leadership in the various activities necessary in places far removed from markets and sources of supply. Though their interests and attainments were

varied, the colonists were closely held together by a common bond: "unfaltering faith in the leadership of the Church." The Saints "called" to found a colony included farmers, stockmen, masons, carpenters, weavers, blacksmiths, painters, shoemakers, harness makers, and other artisans, and for some settlements, teachers. In these groups professional physicians are conspicuously lacking. Home remedies were devised and skillfully applied but the chief reliance seems to have been on "cures by faith." Of late years Cedar City has become a medical center and Hurricane has a resident physician and hospital, but even today only one local physician is available to the 5,000 people in Garfield County; Kane and San Juan Counties, with a combined population exceeding 7,000, have no resident physician or dentist.

Apparently the pioneer settlements were organized in anticipation of conflict with the Indians. At each chosen site the first structure was a "fort," built of upright logs, adobe, or rock, large enough and suitably equipped to accommodate the entire population in times of siege. Southern Utah in the decade 1860-1870 has been described as a "string of stockades and forts"; however, such protective enclosures were little used. The Piutes were generally friendly; the Utes restricted their warlike activities to northern Utah; and the Navajos proved to be thieves rather than murderers. However, at times fear of the Indians made life in the frontier villages and outlying farms precarious. For a few years beginning in 1866 the people lived close to the forts; the occupants of small villages moved to larger ones and some settlements in Kane and Garfield Counties were abandoned.

Under the controls imposed by their organization, environment, and purpose,

the life of these pioneer communities must have been interesting though somewhat primitive. Typical of most settlements were the conditions at Rockville, as described in an interview with James H. Jennings, a pioneer of the sixties.

"Most of the people came by ox-team and were Mormons called by Brigham Young. We camped right in the brush and went to grubbing the same day. The main purpose of our coming was to grow cotton. Other crops were sorghum, corn, and a little wheat. We lived on molasses pretty much. We traded sorghum for potatoes with the northern settlements. Corn was to feed pigs. Old man Petty made a corn grinder. Later he got a cloth bolt and bolted flour. The town had about 100 head of cattle which, though privately owned, were treated as a community herd and the milk, butter, and cheese were equitably distributed. If you had three cows you herded three days, then the next man would take his turn. One day herding for each cow. We lived from our cows pretty much. [Edija] Newman was a millwright who came from Parowan where lumber was sawed for the Tabernacle organ in Salt Lake City. John C. Hall was a great student; his wife was a nurse. Samuel Kenner was a musician; he made fun for us. William N. Carpenter had a lathe and turned out wooden bowls which he traded up north. He also took cottonwood logs, cut out the inside, put a head on each end, and you had a barrel. Henry Stock was a molder; he made a sorghum mill. We wore buckskin pants. I had one pair of shoes when I came. These lasted a long time as I went barefoot for five years. Mail from the north came once a week by ox-team or on foot from Virgin where it had come from Toquerville [Settled in 1858]. It consisted of the weekly Deseret News and

a letter once in a while. Mail from Kanab and Pipe Springs was let down the cliffs near the mouth of the Parunuweap on a wire cable. Until the mill was established at Washington [1865] the home-grown cotton was locally ginned and the women would weave the cloth themselves. Copperas from a petrified log near Northrup was used to set the dye. The first year we made dugouts in the river banks. Next year they got to building log houses. The only gun my dad had was an old flintlock musket. Mr. Petty made a cap and ball gun out of it. No people were killed by Indians around here; the Berry boys were killed at Short Creek.

"A few Indians [followers of Chief Muhin (?)] lived at Rockville and at Virgin but I have never known Indians to live above Springdale. I noticed they would go up to kill deer in Zion Canyon but were always in a hurry to get back. The Piutes seemed peaceful enough and were well treated. Brigham Young said 'it was cheaper to feed them than fight them.' The trouble was with the Navajos. In fear of Navajo raids the residents of adjoining settlements moved to Rockville [1866]. Some bought places and built houses. The women remained for three or four years; the men went back and forth to care for their crops. Under Jim Andrus every able-bodied man and boy was enlisted in a military organization. They would put a kid with an older man to stand guard."

The primitive conditions that for many years characterized the pioneer villages was due largely to isolation. The materials needed for home building and farming necessarily came by wagon and pack train, over undeveloped roads and bridgeless streams—trips made in one to six months from Salt Lake City (300-350 miles), California, or Missouri River points. It is reported that

"in the early days nails cost 80 cents a pound, an ax \$10, a spade \$5, a plow \$150, and the poorest grade of cotton cloth 75 cents a yard. The cost of wire and ordinary tools of iron and steel was almost prohibitive; utensils of copper, brass, and tin could not be obtained; and linen and silk were unknown." Under such circumstances the failure of attempts to make profitable use of the iron ores near Cedar City and to develop the Virgin River Valley into a "cotton raising empire" must have been particularly disheartening. The hardships imposed by isolation were somewhat lessened by the construction of railways to Ogden (1869), and, in more recent times, to Marysvale (1900) and Cedar City (1923), but as yet no railroad enters Washington, Kane, Garfield, or San Juan counties. However, the anticipated extensions of the Union Pacific or the Rio Grande Western railways to St. George, Kanab, and Blanding are now of little interest; the present railheads are conveniently reached over Federal and State highways—outstanding contributions to the welfare of southern Utah. The construction of these highways, during the years 1925–1935, involved drilling the mile-long Pine Creek tunnel; blasting out the rock ledges in Long Valley, Red Canyon, Tropic Canyon, and at the divide north of Pintura; building roads up the Hurricane Cliffs and across the Markagunt, Paunsaugunt, and Aquarius Plateaus; and bridging Ash Creek, and the Parunuweap, Sevier, Green, and Colorado Rivers—engineering tasks that demanded skill and financial resources far beyond the reach of the local communities. These new roads give ready access to the outside world by automobiles, trucks, and horse teams, and they have made communication between the villages easy by replac-

ing the rough roundabout wagon trails in use for more than 60 years.

Because their sites include but a few hundred acres of irrigable land, most of the villages in southern Utah are small. Of 67 settlements important enough to be shown on the state highway maps of Iron, Garfield, Washington, Kane, and San Juan counties, 56 enroll less than 500 persons—most of them less than 200. The population of six settlements is listed as 1,000 to 2,000 and only two, St. George and Cedar City, as more than 3,000. In order to utilize the water from a common source Virgin, Grafton, Rockville, and Springdale and the abandoned towns of Duncan, Adventure, and Northrup lie in a narrow belt only 14 miles long; Henrieville, Cannonville, and Tropic are within an area about six miles in diameter; and the borders of Mt. Carmel, Orderville, and Glendale overlap.

Official records, manuscript diaries, and conversations with "old timers" make it clear that the Mormon colonists thought of southern Utah as primarily an undeveloped "agricultural empire" adapted for the raising of grain, cotton, garden produce, and fruit, and that the income from irrigated farms could be supplemented by the exploitation of timber, mineral resources, and grazing lands. However, experience of the first 30 years showed that the acreage suitably placed for irrigation without prohibitive cost was smaller and more difficult to maintain in tillage than had been expected; that cotton—the anticipated chief crop—could not be grown with profit; that the iron ore could not be satisfactorily smelted; and that the coal was of only fair quality and so costly to mine that wood was generally preferred for fuel. For a time it seemed that the discovery of silver at Harrisburg in 1869 and of gold on sand bars in Grand Canyon in 1872 would

lead to a permanent mineral industry. But within 10 years the profitable ore in the fabulously rich Silver Reef was exhausted and Bonanza City with its 1,500 inhabitants had become a ghost town. The search for gold along the Colorado River proved futile; the "swarm of placer miners" returned empty handed.

The cessation of mining and the failure of the elaborate schemes to raise and process cotton, left the pioneers of 1880 about where they began in 1851-1860—communities of farmers who owned orchards, gardens, and sufficient livestock to supply milk and meat chiefly for local use. With a decrease in acreage of farm lands owing to destruction by flooded streams, and increasing population, financial support became more and more dependent on the income from live stock. Nowadays the profitable exports are cattle, sheep, hogs, wool, and fruit.

The development of the livestock industry in southern Utah illustrates the control exercised by topography and in much greater degree by climate. In this semiarid region the natural herbage is scanty and when destroyed reproduces itself with seeming difficulty. Its relative abundance depends on the snows and rains which show wide and unpredictable seasonal and annual variations in amount and distribution. The evidence is conclusive that during the period 1850-1880 grass and other succulent herbage was abundant in the canyons and lowlands and on the high plateaus and that conveniently placed springs and streams provided the necessary water. In pioneer days grass was so plentiful that milch cows and even small herds of beef cattle could be pastured near the settlements and returned to corrals at night. As the livestock increased in number and the local forage became less abundant near the irrigated

tracts, herd grounds were selected on nearby highlands in the summer and on the lower plains during winter, and the same grounds might be occupied in successive years. With additional increase in cattle and the introduction of sheep more distant range lands were utilized, especially the vast areas on the Markagunt, Paunsaugunt, Shiwits, and Kaibab Plateaus, in House Rock Valley, and along the Grand and Glen Canyons of the Colorado—districts that comprise about 21,000 square miles in southern Utah and 9,000 square miles on the adjacent Arizona Strip. By 1880 in Iron, Washington, and western Kane counties and by 1890 in San Juan and eastern Garfield counties, the larger areas of well grassed range land seems to have been fully stocked and some of the less desirable lands were brought into use. Under these conditions decreases in amount of precipitation and consequent loss of pasturage meant catastrophe. It is reported that during the severe drought of 1896-1900 "about half the cattle died of starvation." For some settlements the financial support dwindled or disappeared; shifting of population and abandonment of home sites are many times recorded. With the return of normal years stock raising expanded to its maximum but under changed conditions. To a considerable degree owners of small herds were replaced by incorporated companies with capital sufficient to restock the range and to develop adequate water supplies, especially on the Arizona Strip. But investment by these big companies was in large part misplaced. The large herds soon depleted the range that had not fully recovered from previous long droughts and the introduction of sheep made systematic range management impracticable. As an aid in restoring favorable conditions national forests were established, beginning 1902.

During the past quarter century even more than in previous years, the history of the livestock industry in southern Utah records the changing climatic conditions. Most of the region is overgrazed and even slight fluctuation in rainfall and snowfall determines the amount of forage—meager or less meager. In normal years such livestock as can be accommodated in the national forests graze on the plateau tops during the summer, on the foothills during fall and spring, and on the lower, more arid regions in winter.

Outside of the national forests in years of adequate rainfall the cattle, and the sheep that have largely replaced them, fare reasonably well, and when high prices prevail the financial returns are surprisingly large. But during such dry years as 1919, 1924, 1928, and 1933, and at times of low prices, the conditions are highly unsatisfactory. Though natural forage on the unappropriated public lands is now deficient and is being replaced by sagebrush and introduced annuals, it is still much in demand. The cost of feeding animals on harvested crops is four to eight times that on the open range. Probably less than eight per cent of the stock is fed in pastures, four to six months a year.

The population of southern Utah has always been small and its growth somewhat surprisingly slow. Since 1880, when all but four of the present settlements had been organized, the population increase has been about 18,000, and fully half of it is due to the growth of Cedar City and St. George and the founding under artificial conditions of Tropic (1891), Blanding (1905), and Hurricane and La Verkin (1906). In the pioneer days the increase in population was rapid—the result of immigration. Between 1851 and 1859 nearly 2,000 persons moved into uninhabited Iron and Washington counties and in 1870

the estimated number of immigrants was 5,000. From 1870 to 1920 the increase was almost wholly natural—the excess of births over deaths—which, for southern Utah is about twice that for the whole United States. During the 1890's the increase had become so rapid that about 50 families found it advisable to migrate from Iron County to Oregon, Idaho, and Wyoming. For the decade 1920–30 the census again records a large natural increase and also considerable immigration to Iron County and emigration from Garfield County. During this period the increase in the five counties under review is recorded as 24.9, 9.7, 8.8, 3.5, and –2.6 per cent. In more thickly settled regions these figures would imply substantial increase or decrease in population. For southern Utah they imply that on the average only about 134 people were added each year to the population of Iron County, 66 to Washington County, 80 to Kane County, and 12 to San Juan County, and that 37 left Garfield County. Beginning about 1925 an increase in population has resulted from the notable changes in economic conditions: the coming of the railroad to Cedar City; enlargement and fuller utilization of the national forests; allotments of grazing lands under Federal supervision; the construction of Federal highways; the large-scale development of orchards at Hurricane and La Verkin; profitable iron mining; and the establishment of Zion and Bryce Canyon National Parks, with their enormous tourist traffic. Much of the increase is recorded by Cedar City, which includes 57 per cent of the population of Iron County and by St. George and Hurricane, which together enroll 53 per cent of the inhabitants of Washington County. Since 1880 the population of several villages has been about static but most of the long established places record a con-

sistent, small increase. Of the 63 settlements listed in the accompanying tables, 13 show decreases and 14 have been abandoned, and many outlying ranch farms are no longer occupied. In 1940, 30,126 persons in southern Utah occupied 22,931 square miles of land—an area about four times the size of Connecticut and half the size of Pennsylvania, Ohio, or Tennessee. The resulting density of population is about 1.3 a square mile; for the small Washington County, 3.8, and for Kane and San Juan Counties 0.6. For the adjoining Arizona Strip it is about 0.001.

At first sight these figures seem small for a region settled 70 to 80 years ago by an unusually industrious people but it adequately represents the "carrying capacity" of southern Utah: lands suitable for dryland and irrigation farming seem to be fully utilized and the grazing land is fully stocked—some of it overstocked. In years when crops are ruined by the destruction of irrigation ditches, by insect pests, or drought, and years when scant forage or low prices make stock raising unprofitable, many men and some women and children "go outside" to earn living for their families. But this shifting of the population has rarely resulted in a permanent loss to the village; when the reason for their absence no longer holds, the men temporarily employed as miners, lumbermen, carpenters, and masons return to their homes. Possible migration to "better places" usually seems to receive scant consideration.

To a degree probably not duplicated elsewhere, the population of southern Utah is marked by racial purity and homogeneous culture. Originally it consisted of Nordic immigrants from Great Britain, Scandinavia, Germany, Switzerland, and the eastern United States, and most of the present inhabitants are the descendants of the pioneer

settler whose families are related through marriage. Fully 99 per cent are members of the Mormon Church and therefore have a common interest in the spiritual, intellectual, and economic development of their chosen home.

FOUNDING AND DEVELOPMENT OF THE SETTLEMENTS

BASE OF THE HURRICANE CLIFFS

The Latter Day Church Saints reached Salt Lake City in July, 1847, and almost immediately dispatched scouting parties into the surrounding regions. In the fall of 1847 a party under the leadership of Captain Jefferson Hunt en route to California traversed the country between Great Salt Lake and Little Salt Lake near Paragonah, and beginning in December 1849 a reconnaissance survey of the region along the base of the Markagunt Plateau and southward along the Hurricane Cliffs to the Virgin River was made by Parley P. Pratt, who recommended that Little Salt Lake Valley be colonized. In January, 1851, the Iron County Mission—119 men, 30 women, and 18 children—reached Center (Parowan) Creek—the site chosen for settlement. Thus Parowan (originally named "Louisa") became the pioneer village in southern Utah, in fact the first settlement south of Provo—200 miles distant. Almost immediately on arrival the essential first tasks began. Land was cleared and plowed for crops, irrigation ditches were dug, timber was brought from the mountains, and for protection against possible Indian raids a log house was constructed—large enough to accommodate the entire population. Within a few years the original "meeting house" was replaced by a "fort"—56 rods square, surrounded by earth and timber walls 12 feet high.

Evidently Parowan was designed as the administrative, commercial, and

ecclesiastical center for a vast region. Before the first settlers arrived the contemplated village was made the county seat of Iron County—established by decree in 1850 as a strip of uninhabited country about 100 miles wide that extended from the Rocky to the Sierra Nevada Mountains and before the settlement was fully organized it was granted a city charter—an honor shared only by Salt Lake City, Ogden, Provo, and Manti. The records suggest that the pioneer settlers saw an opportunity to develop Little Salt Lake Valley into a second Great Salt Lake Valley and to bring the surrounding region within the range of their influence. In 1851 and 1852 the "suburban villages" of Cedar City, Paragonah, Fort Johnson (Enoch), and Fort Harmony were colonized, and scouting parties reported on potential farm lands, grazing districts, and village sites in Ash Creek, Virgin, Sevier, and Parunuweap valleys. Citizens of Parowan took the leading part in the founding of Santa Clara (1854); Beaver and Minersville (1856); Washington (1857); Toquerville, Virgin City, and Pioche, Nevada (1858); St. George (1861-62); Panaca and Panguitch (1864); Bluff (1880); and also Snowflake, Arizona, and Big Horn, Wyoming. Parowan has been appropriately dubbed the "mother of the south." For nearly 40 years it

was the largest village in southern Utah and adjacent parts of Nevada, Arizona, and Colorado. At present the population of Parowan is exceeded in southern Utah by Cedar City, St. George, and Panguitch and in consequence of eleven changes in the boundary lines of Iron County its political control has been decreased. It remains a prosperous village of attractive homes for farmers on adjoining lands and for stockmen who utilize the forage on the Piute Highlands and the Dixie National Forest.

Cedar City (Cedar Fort) received its first settlers in the fall of 1851—35 men from the Iron County Mission of Parowan who constructed a fort and began the cultivation of lands on Muddy Creek (now Coal Creek), about a mile north of the present village. To provide more favorable conditions for the rapidly increasing population the tiny village was moved in 1853, and in 1856 disastrous floods forced a second relocation. Though the site was recognized as suitable for irrigation farming and stock raising it was chosen primarily as a manufacturing center. Iron ore at Iron Springs and coal in Coal Canyon aroused hopes of a "western Pittsburgh." "There was awakened in the Latter Day Saints a special desire to establish iron foundries." Promptly mines were opened, an experimental

TABLE I
EASTERN IRON COUNTY

Settlement	1851	1860	1870	1880	1890-	1900	1910	1920	1930	1940
Cedar City (1851).....	...	301	517	892	1053	1530	1802 ¹	2462	3615	4695
Fort Hamilton (1870).....	16	...	30	36	...	...	24	16
Kanarraville (1861).....	282	225	249	326	279	309
Paragonah (1852)..... ²	211	256	268	358	399	449	384	365
Parowan (1851).....	...	526	861	957	...	1039	1156	1640	1475	1525
Summit (1859).....	...	49	174	123	143	135	107	154	157	151
Other villages and farms.....	260	223	775	1034	2042
COUNTY.....	445	1010	2277	4013 ³	2683	3546	3933	5787	7227	8331

¹ Figures for Cedar City and Parowan prior to 1920 include adjoining settlements.

² Reported as 25 families in 1853.

³ The census figure (4013) includes 1600 persons in the present Garfield County, organized in 1882. The Mormon Church records the population of Iron County in 1880 as 1987.

furnace was constructed, coal was hauled by sledges from the nearest outcrop, and a foundry and blacksmith shops were built. Owing to the lack of experienced workmen in Utah a call was sent to the Saints in England and Wales for miners, for "men who could make iron and machinery for slitting and cutting nails and drawing wire." These pioneer operations were suspended in 1856 and renewed attempts to work the iron (1868, 1871, 1879) resulted in failure. Recent large-scale mining and transport of the ore to Provo for smelting are "outside operations" of little concern to Cedar City. The growth of the city since 1920 is a measure of the economic change brought about by the construction of a railroad (1923)—the only one in southern Utah—and the development of Federal highways since 1930; both due in large part to the demand for ready access to southern Nevada and California and to regions of scenic interest in southern Utah and northern Arizona. In 1940 Cedar City had about 57 per cent of the population of Iron County.

During the first decade of colonization the only settlements along the Hurricane Cliffs south of Coal Creek were tiny Fort Hamilton and Toquerville, and the only other settlements in southern Utah were the tiny outposts at Fort Harmony (New Harmony) and Santa Clara.

For ten years after they were founded Parowan, and in less degree Cedar City, provided homes and markets for the families who derived their income from grazing and farming in southern Iron County and southward to the Virgin River in the present Washington County. To utilize the waters of Shirts Creek, Fort Hamilton, originally called Fort Walker (1851) and later "Sidon" was selected as a home site by Peter Shirts and was later occupied by "old man Hamilton, his two sons, Samuel

and John, and three other families." The settlement, never large, is now in part abandoned. In 1862 cattlemen founded Kanarraville, a site near their herd grounds, and within reach of the water from Kanarra, Spring, and Camp Creeks. They organized the famous Kanarra Cattle Company, which conducted operations not only on the nearby Kolob Terrace and in Ash Creek Valley, but also on the Markagunt Plateau, the distant Kanab Valley and the Paunsaugunt Plateau.

South of Kanarraville, Pintura, founded as Bellevue in 1864, is the home of about seven families, who derive their livelihood from fields and orchards, which are irrigated by waters of South fork of Ash Creek.

Toquerville, the oldest settlement along the southern Hurricane Cliffs, was founded in 1858 by eight families from New Harmony. In 1859, 19 families were busy growing wheat, cotton, sorghum, planting grape vines and fruit trees, and attending to their community dairy herd on the grass land west of the village. During the next few years these pioneers built a grist mill, a saw mill, a cotton gin, and began the construction of the brick houses that give character to the present village. The history of the village records the stirring events connected with the colonization of southwest Utah: the successful adaptation of agriculture and horticultural practice to semi-tropical countries, the pest of grasshoppers, the advent of the United Order, and the persecutions of polygamists. Toquerville is favorably placed to utilize the waters from two strong springs in the bed of Ash Creek Canyon and the grazing lands in the nearby La Verkin Valley and on the high-lying Kolob Terrace. The springs yield abundant supply for the town and its outlying fields and orchards and also

TABLE II
GARFIELD COUNTY

Settlement	1882	1890	1900	1910	1920	1930	1940
Antimony ¹ (1875).....	200	....	211	229	227	281	328
Boulder (1889).....	....	....	104	91	177	192	216
Cannonville (1877).....	137	242	211	219	311	227	255
Clifton (1874).....	60 (1876)	....	....	....	....	0	0
Escalante (1875).....	441	530 ?	723	846	1032	862	1106
Hatch ² (1880; 1900).....	....	....	....	....	250	274	294
Henderson (1922?).....	....	....	....	....	81	0	0
Henrieville (1877).....	33	145	181	158	170	207	240
Hillsdale (1871).....	....	....	251	180	250	22	6
New Clifton-Losee (1876).....	12	7	6	....	....	....	0
Orton ³ (1876).....	....	....	161	142	111	....	....
Panguitch (1864; 1871).....	664	....	1194	1391	1473	1541	1979
Spry ³.....	....	....	....	....	111	106	87
Tropic (1891).....	....	194 (1894)	379	404	474	447	514
Widtsøe ⁴ (1910).....	....	....	....	....	365	220	0
COUNTY.....	1613	2457	3400	3660	4768	4642	5253

¹ Organized as Marion Ward; post office Coyote. Name changed to Antimony 1921.

² Population records combined with Hillsdale 1900-1920.

³ Name changed to Spry in 1911.

⁴ Organized as Winder. Name changed to Widtsøe in 1915.

enough to provide water for household use at La Verkin and Hurricane.

Hurricane and La Verkin are the youngest villages in southwestern Utah; they were founded nearly 50 years after the other settlements along the base of the Hurricane Cliffs. To utilize their sites involved the conversion of dry, barren lands into fertile oases under exceptionally adverse conditions—a task that called for courage, determination, and ingenuity of the highest order. As early as 1865 it was recognized that the Hurricane Bench and the La Verkin Bench lacked only water to convert them into agricultural fields, and that abundant water ran in the canyon that separated the two tracts. Between 1870 and 1890 several schemes for utilizing the water were devised, but the cost of ditches and intake dams as recommended by engineers was prohibitive. Despite the discouraging reports, the settlers of the upper Virgin Valley were unwilling to abandon the scheme until the last possibility had been exhausted. New lands were needed to replace fields destroyed by floods in the upper river valley. "Our present

lands cannot support more people, we must have more water or move away." Finally in July 1893, a committee of six men from Toquerville, Virgin, Rockville, and Springdale traversed the Timpoweap Canyon of the Virgin in search of a feasible ditch line. On their recommendation the villages decided to install an irrigation system that would bring "under ditch" 2,000 acres of land on Hurricane Bench, "no matter how difficult the work or what sacrifices must be made."

Beginning with a dam 15 feet high, "the Hurricane ditch," nine feet wide and nearly eight miles long, is cut in solid rock and talus and passes over trestles and through tunnels high on the precipitous canyon walls. For its construction no engineering equipment was available nor the services of skilled masons, drillers, or carpenters, and funds for the employment of labor were lacking. The ditch was dug by farmers and stockmen working with shovel, pick, and crowbar, mostly during the winter when fields and herds needed little attention. As compensation the workers were entitled to shares in the

new acreage. Construction began in 1893 and 11 years later the big ditch was completed. Two more years were required to clear the land and to dig the distributing canals. Beginning with 10 families in 1906, Hurricane has become a prosperous village of 1,500 people. Every acre of the watered land is cultivated.

Like the much larger Hurricane, La Verkin, colonized in 1900, is a man-made oasis. Its all-essential water comes from the Virgin River, through a ditch and a long tunnel continued as a pipeline that feeds the irrigation laterals and also the turbines of an electric power plant. Also like Hurricane, La Verkin has a separate system of pipes that carries water for household use from springs in Ash Creek north of Toquerville. Climate, soil, and water combine to make these two settlements a semi-tropical garden in which peaches, grapes, figs, almonds, walnuts, pecans, and pomegranates find a congenial environment. The La Verkin Hot Springs, that issue from the Hurricane fault at the mouth of Timpoweap canyon, is a popular resort.

VIRGIN RIVER VALLEY

Settlement of the Virgin River Valley east of Hurricane Cliffs—the "Upper Valley" as known to Mormon pioneers—was part of the project to make southwestern Utah a cotton raising "empire." Scouting of the valley by Nephi Johnson, who followed an Indian trail from Timpoweap Canyon well into Zion Canyon (1858), revealed a strip of fertile alluvial land nearly 20 miles long and in places as much as half a mile wide. Water from the Virgin, the Parunuweap, and North Creek was found to be more than sufficient to thoroughly irrigate all the "bottom lands" and adjoining benches that could practically be brought "under ditch." Building material was available, and the adjoining valleys and highlands afforded timber and excellent pasturage. On reporting his findings to the Church authorities, Johnson was instructed to establish a settlement in Upper Valley at the most suitable place. The response was the building of a crude wagon road—the "Johnson twist"—from Toquerville across the La Verkin River and over the Hurricane Cliffs, and the selection of a site which he named Virgin

TABLE III
EASTERN WASHINGTON COUNTY

Settlement	1860	1870	1880	1890	1900	1910	1920	1930	1940
Duncans Retreat (1861).....	50 ^{1, 2}	47	13 ?	6 ²	.....	.....	.....	.....	0
Grafton (1859).....	.....	168 ^{1, 2}	71	104	98	106	46	23	16
Hurricane (1906).....	.....	.....	.....	.....	.....	366	1021	1199	1524
La Verkin (1906).....	.....	.....	.....	.....	.....	120	173	236	356
Little Zion.....	.....	6	14 ²	20	16	.....	.....	.....	0
Mountain Dell (1859).....	33 ²	30	12	6	.....	.....	.....	.....	0
Northrup (1861).....	.....	17 ^{1, 2}	14	8	12 ?	4 ²	.....	.....	0
Pintura (1864).....	.....	35	27	31	42 ?	.....	.....	.....	33
Rockville (1861).....	70 ¹	95 ^{1, 2}	232	194	214	189	208	361	307
Shunesburg (1861).....	.....	45 ^{1, 2}	36 ?	51 ²	8 ?	.....	.....	.....	0
Springdale (1862).....	.....	54 ¹	50	73	144	186	204	351	454
Toquerville (1858).....	95	.....	.....	.....	307	314	375	288	263
Virgin (1858).....	79	336 ^{1, 2}	254	213	269	136	212	202	154
COUNTY.....	691	3064	4235	4009	4612	5123	6764	7420	9269

¹ Church census July, 1864.

² Records of the Church of Latter Day Saints.

City, "destined to be the center of homes and commerce" for an anticipated large population. The pioneer families arrived in the early spring of 1858-59 and during the first year of settlement irrigation ditches were dug, crops from 70 acres were harvested, and a road was built up North Creek where a few families established the picturesque hamlet of Mountain Dell. The next few years were likewise prosperous despite the damage from flood waters and the demonstration that cotton planting was not profitable. In 1864 the village enrolled 336 inhabitants. From this maximum the population has declined to 154 (1940). Mountain Dell is now uninhabited and only one ranch house remains on North Creek.

In December 1859 four or five families under the leadership of Nathan C. Tenney established the town of Grafton about six miles above Virgin City. In the winter of 1861-62 the little village was destroyed by floods and relocated at the present site, two miles farther upstream, reached by fording the Virgin River. At the time of its maximum size, Grafton is described as an "attractive village surrounded by fertile lands." The site of the most profitable fields and of some garden plots and houses is now the bed of the river. The present population of 16 (1940) derive their livelihood largely from outside sources.

Duncans Retreat, founded in 1861 between Virgin City and Grafton is another village whose history records the losing struggle with the flood waters of the Virgin River. For 20 years after its settlement a small acreage of exceptionally fertile alluvial soil supported a population of about 50. By 1890 the river had taken away about half the irrigated acreage, and further destruction made farming unprofitable. The site of the settlement is now marked

by a few foundation walls and fruit trees.

The history of Rockville begins with a settlement at the mouth of Huber Wash, established in 1860 by Phillip Klingdon Smith and others, under the name of Adventure. When the irrigation system was constructed it was found that much good land lay above the ditches, and high water in the winter of 1860-61 which nearly destroyed the buildings and farm lands showed that the lower lands were subject to disastrous flooding. In consequence the little town was relocated a mile upstream and renamed Rockville (December 13, 1861). During 1862 ditches were constructed, fields planted, dwellings built, and about a dozen families remained through the winter of 1862-63. In July 1864 the population of the new village was reported by the Mormon Church as 70; in 1870 as 95. During the decades 1880-1900, when the population was about 200, Rockville was recognized as one of the most beautiful and prosperous towns in Utah—a village of attractive stone houses, flower gardens, orchards, well tilled fields, and streets lined with stately mulberry and locust trees—and despite losses by floods and by the depletion of stock ranges Rockville remains a substantial settlement of 307 people (1940). To supplement their irrigated lands along the Virgin River the farmers of Rockville have cultivated the "Big Plain" back of Smithsonian Butte—an extensive area of successful "dry farming."

Shunesburg, near the mouth of Parunuweap Canyon, about four miles above Rockville, was chosen as a home-site by Oliver De Mille (1861) who bought the lands occupied by Shunes (Shoons, Shuns, Shurens), chief of the local Piutes. The following year four families arrived, and in 1864 the residents numbered 45. The site is an

alluvial flat of about 100 acres, readily irrigated by waters of Shunes Creek, South Creek, and the Parunuweap. For some 30 years the little village produced crops of corn, grapes, fruit, and grain, and by the construction of the famous "Wriggle Trail" (Shunesburg Trail) utilized the highlands above the canyon walls as pasturage for sheep and cattle. Members of the Wheeler and the Powell Surveys (1872) used Shunesburg as temporary field quarters. Destruction of arable land by widening of the stream beds and isolation from Rockville at times of floods caused abandonment of the site except during seasons of planting and harvesting. The ruined stone house, built by Christian Larsen for Oliver De Mille in 1886 (?), is a prominent landmark.

Northrup, on the Virgin River just above its junction with the Parunuweap,

was founded in 1861 by four families under the leadership of James Lemon, who cultivated some 50 acres of land immediately adjoining the stream. The farms that escaped destruction by "washouts" are still in use, but the last dwelling house was vacated in 1910 (?).

Springdale received its first families about the same time as Rockville, Shunesburg, and Northrup. In fact, during the years 1861-63 most of the arable land along the Virgin River above Grafton was allotted as farms, and temporary houses were constructed. The first permanent settlers of Springdale arrived in November 1862, and by July 1864 nine families had established residence. Two years later all of them removed to the more populous Rockville where anticipated Indian raids could more surely be forestalled. In 1874 they returned to their farms and relo-

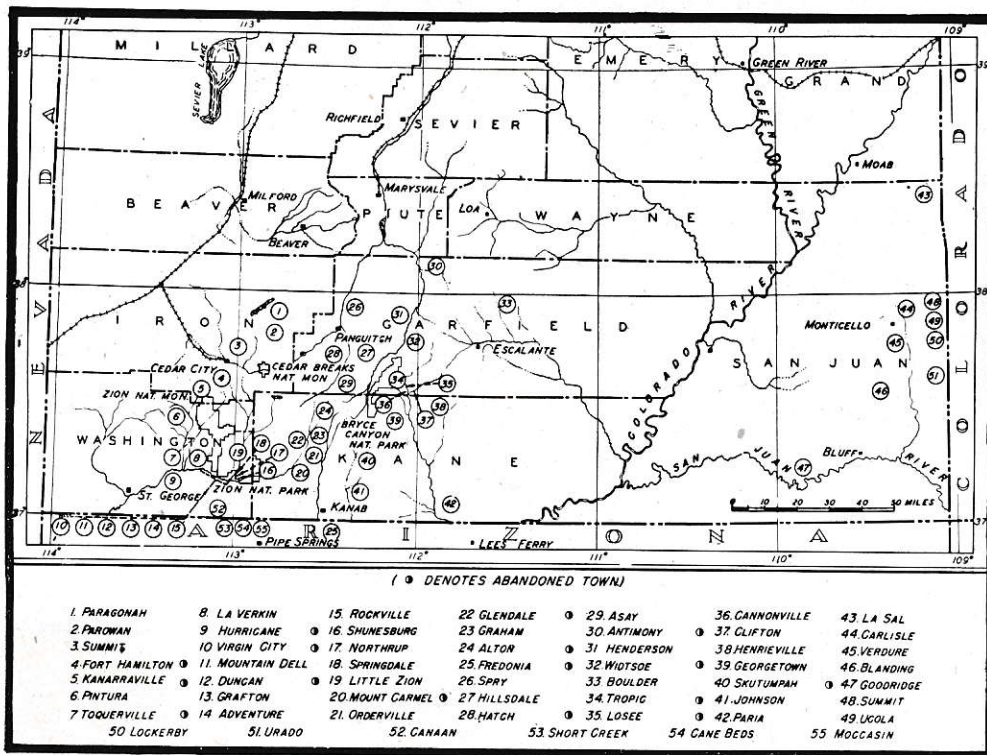


TABLE IV
KANE COUNTY

Settlement	1860	1870	1880	1890	1900	1910	1920	1930	1940
Alton (1908).....	98	169	193	227
Georgetown (1886).....	22	14	6	.....	.....	0
Glendale (1864).....	338	264 ²	319	244	250	239	297
Graham (1865).....	1	1	30	30	.....	.....	.....	8	12 [?]
Kanab (1863, 1870).....	..	73 ² , ³	394	572 ²	710	733	1102	1195	1397
Johnson (1871).....	87	104 ²	62 ²	66	12	5	0
Mt. Carmel (1864).....	..	200	137	122	137	131	143	133	187
Orderville (1875).....	514	429 ²	418	380	378	439	441
Paria (1865, 1871).....	85 ²	10	31	7	6	.....	0
Skutumpah (1870).....	..	35	42	22 [?]	16	.....	8	5
Upper Kanab (1872) ⁴	0	.....	106	111 ²	91 ²	.....	.....	.....	0
COUNTY.....	..	1513	3085 ⁵	1685	1811	1652	2054	2235	2557

¹ Reported as fourteen in 1865 and 34 in 1872. Since 1900 classed as part of Alton.

² Records of the Church of Latter Day Saints.

³ Reported as 299 in 1872.

⁴ In 1908, site of Upper Kanab changed and village renamed Alton.

⁵ Includes population of districts annexed to Garfield and Washington counties in 1882.

cated their scattered dwellings at the site of the present village some distance back from the flood plain of the Virgin. Within a few years all the available acreage had been provided with water by ditches from the Virgin, the canyon floor above the mouth of Pine Creek had been utilized for pasturage, and the village had become known for its manufacture and export of rawhide bottom chairs. But opportunities for growth were not favorable. For about 50 years the village was an outpost at the end of a long, difficult road beyond which travel was restricted by canyon walls. The pioneer farms, though fertile and easily tilled, comprised but "375 acres," and cattle range was distant. To reach their grazing ground on the eastern Kolob Terrace the cattle were driven over the roundabout trail through Rockville, Cane Beds, and Mount Carmel. As a short cut for this 80-mile drive a trail, always dangerous, was built up the walls of Zion Canyon (1896)—the original route of the present East Rim Trail. Logs for houses were let down the cliffs. With these handicaps a population of 50 in 1880 and 73 in 1890 seemed a reasonable measure of the community resources. When the railroad

reached Cedar City in 1923 a useful market less than 100 miles distant was for the first time available. Since the selection of the Virgin canyons as a national monument (1909, 1918) and their development into a national park (1919), and the construction of the famous tunnel road through the sandstone walls (1930), Springdale—"the gateway village"—has become much the largest settlement in Upper Virgin Valley.

Little Zion, a settlement shown on the United States Army maps of 1873-76, was the residence of a few families who cultivated small farms in Zion Canyon near the present Zion Canyon Lodge. According to James H. Jennings, Isaac Behunin (Behanin?) was the first settler and gave the name to the canyon. Among his crops was tobacco—for the first time grown in southern Utah. Farming was continued by "four or five families" until about 1900. In 1870 the earliest known photographs of southern Utah scenery were taken by C. R. Savage.

The status of the pioneer settlements in upper Virgin Valley is recorded in the "Church Census," June-July 1864, as follows:

Virgin City and outlying farms, 56 families (336 individuals), 210 acres in crops; Duncan's Retreat, eight families (50 individuals), 40 acres; Grafton, 28 families (168 individuals), 40 acres; Rockville, 18 families (95 individuals), 105 acres; Shunesburg, seven families (45 individuals), 75 acres; Northrup, three families (17 individuals), 105 acres; Springdale, nine families (54 individuals), 110 acres. For all these villages the crops listed are the same: "wheat, corn, cane (sorghum), alfalfa, especially cotton, orchard fruit, and grapes."

PARUNUWEAP VALLEY

On their trip of exploration in 1852, John D. Lee and his associates found along the Parunuweap River "some handsome places for settlement in the narrow but fertile bottom of the stream." They reported that the central valley and the lower reaches of tributary valleys were easily irrigated; the adjoining high lands afforded excellent pasturage; timber for building was near at hand; and coal was available for fuel. This 20-mile stretch of river flat and low bench lands, locally known as Long Valley, was colonized in 1864, abandoned in 1866, and reoccupied in 1871. The Parunuweap Valley is the present site of farms, orchards, ranches, and coal mines, grouped about three villages whose borders overlap. In 1880 the population of the valley was recorded as 1,019—all the people that the restricted area could accommodate—and since that time has varied little. The decrease in population shown for the years 1910-1930 corresponds with the decrease in the quality of range lands.

The village of Mount Carmel, named for Mount Carmel in Palestine, and originally called Winsor, was founded (1864) by a band of adventurous pioneers under the leadership of Priddy

Meeks, who made temporary homes in dugouts, began at once to prepare the "bottom lands" for irrigation farming, and to select herd grounds on the adjoining high lands. Because of Indian troubles the site was vacated (1866), then reoccupied by immigrants from the Muddy River settlements in Nevada. As additional families arrived, land outside the village was reclaimed and ranches established along Meadow Creek, Muddy Creek, and Yellow Jacket Wash, on the plateau about Clear Creek Mountain, and in Parunuweap Canyon. The stake-clerk records show that grasshoppers destroyed the wheat in 1871, that part of the fields were destroyed by floods in 1885, and that in 1894 "50 per cent of the stock was lost on account of drought." The most dramatic events in the life of the village was the exodus (1875) of more than half the population to a site three miles up the Parunuweap River—the present Orderville. Thus "Mount Carmel is the father of Orderville."

Glendale, like Mount Carmel, was founded in the spring of 1864 by Mormon colonists, most of them "called" from Nevada. As the group included several families named Berry they called their settlement Berryville. During the first year good crops of potatoes, wheat, and corn demonstrated the fertility of the soil and the practicability of inexpensive irrigation. Favorable reports attracted many more immigrants, but the new town was too isolated for safe residence. To the south the villages on the lower Virgin were about 80 miles distant and reached by roundabout, difficult roads. To the north, the nearest settlements were equally distant, and in winter the roads to them were blocked by snow. To the east and west the village was walled in by cliffs beyond which nobody lived. For protection from the Indians a

stockade inclosing two acres and with accommodations for 25 families was built. In this the Berryville pioneers, also some from Mount Carmel, lived during the winter of 1865-66 and in fear of molestation by the Navajos the entire population left in June, 1866. On returning to their homes in 1871, the original farmers and stockmen were accompanied by many others including Bishop James Leithead, who renamed the village Glendale after his birthplace in Scotland. In 1873 the population was 160; in 1880, 338, or about that for later years. Significant events in the history of Glendale are the building of a flour mill in 1872, the only one in Kane County; the crop loss of 1873, when "the sun was darkened by clouds of grasshoppers"; the drought of 1894; the opening of coal mines in 1891; and the construction of modern approach roads (1930-35).

Soon after the founding of Glendale some of the pioneer families moved into the upper Long Valley, north of the Lava Narrows, where small areas of highly fertile land, abundant water, and excellent natural forage were available for dairy cattle. Their social and religious activities centered at Graham (Ranch Post Office, 1874-1912), chosen as a homestead by Graham D. McDonald in 1865 (?), then abandoned and resettled in 1872 by six families whose descendants cultivate farms at the mouth of Graham, Le Vanger, and adjoining washes and utilize the meadow lands for pasture.

Orderville, the youngest village in the Parunuweap Valley, was founded under unique conditions; the factors that controlled the selection of its site were religious rather than geographic. The soil, water, natural forage, and fuel supply presented no special advantages, and the thinly scattered farmers had easy access to the stores, church, and

schools at nearby Mount Carmel and Glendale. The new village was founded to make effective the provisions of the United Order—a scheme designed by leaders of the Mormon Church "to call forth a perfect submission in respect to our temporal affairs equal to that in which we now yield in spiritual matters." All members of the Order were required to deed over their real and personal property to the Board of Management, who had authority to direct all community activities.

The history of the United Order in Long Valley begins with the organization of the Mount Carmel Branch, March 20, 1874, with a membership of 109. Owing to the vigorous opposition of those who disapproved of coöperative labor and thus "made life in the village unpleasant," the enthusiastic initiates sold their lands, moved three miles upstream, and began the building of Order City (Orderville) exclusively for members of the society (February 1875). The first building erected in the new town was a dining room, where for five years all ate in common. To make the community as self-contained as practicable and to provide for expansion, a sawmill, a tannery, and a woolen factory were built; hats, shoes, and soap were made at home, farm lands outside the village were purchased; and ownership of the surrounding grazing areas was assumed with little friction. Orderville seems to have faithfully conformed to the original regulations of the Order for seven years (1875-1882) and to the revised regulations for three years, beyond which time disintegration was rapid. By 1890 coöperative activities had practically ceased, though the Order was not officially dissolved until 1900. Most residents of present-day Orderville belong to the families of the founders and are engaged in the activities that characterized the village 50

years ago. Many of them are "horse-back farmers" who share in the cultivation of some 1,800 acres of irrigated land in Long Valley and care for their sheep and cattle on nearby ranges and on the mesa lands south of Parunuweap Canyon.

KANAB VALLEY

The scouts of the Mormon Church who during the decade 1850-1860 investigated the potential resources of the Virgin and Ash Creek Valleys and the borders of the Markagunt Plateau seem not to have extended their systematic search eastward beyond Parunuweap Valley, and during the years 1860-1865 those who visited the region drained by the Kanab and Johnson Creeks speak enthusiastically of "herd grounds" but say little about lands suitable for farm and orchards. To a considerable degree these early observations have proven to be valid. Of the villages in Kanab Valley, Alton for many years served as headquarters for ranchmen; agriculture was a later development. At Kanab and Fredonia stockraising has always been the chief industry; the efforts to develop irrigation farming about these settlements have been discouraging and costly. Of the several farms along the Kanab Creek between Kanab and Alton all but one have been abandoned.

Alton is one of the few Utah villages that developed directly from a cattle ranch. On a scouting trip in 1865, Byron S. Roundy and his brothers, Jared and Lawrence, found the meadow lands and adjoining benches at the head of Kanab Creek "well-watered," "easily cultivated," "tall grass thick enough to be mowed for hay." In 1872 the site was chosen as a summer range by the Canaan Coöperative Stock Company, whose field of operation included

much of southwestern Utah. In 1873-74 some 10 families had taken up farms along the Kanab and in nearby Sink Valley, and during the next 10 years a scattered community named Upper Kanab reached its maximum population, reported as "about 200." As a center for stockmen the settlement was well placed; abundant pasturage of excellent quality was close at hand and farm crops produced high yields. But the area between the canyon walls possible to irrigate with inexpensive ditches was small, and suitable dam sites were lacking. To provide "better homes for our children" and "space for school house and church," the residents of Upper Kanab in 1908 selected the present Alton as a site where a compact village could be built and some of the ranch lands converted into farm lands by the construction of a high level ditch. The next year the community was organized as Alton—named for Alton Fiord, Norway.

Kanab received its first inhabitant in 1863 when Levi Savage came to "the big valley east of Pipe Springs" to graze a small flock of sheep. In 1864 he built a cabin and decided to remain. In 1865, 15 families came to share the new site "where the bottom lands, the hills, and surrounding country were carpeted with grass and wild game abounded plentifully," and "where springs and a permanent stream" provided water for irrigation. For the following two years the settlement was abandoned in fear of Indian raids. To maintain this desirable but isolated station a stockade, 112 feet square, was constructed (1867-68), and with this protection available many of the original settlers returned and reoccupied their homes. In 1870, 10 families were living in the "fort," and during that year a town site one mile square was laid out and named Kanab (a Piute word meaning willows).

Bishop A. Milton Musser reports (Deseret News, September 10, 1870):

"To-day the President located a town site a few hundred rods north east of this Fort, on a rise of ground, out of the range of the canyon winds which come down every night. Azra E. Hinckley located several points on the new site where water can be found by digging wells. . . . The corn looks well here, melons and vegetables all plentiful, and it is believed that much grain can be raised in these small valleys without irrigation. There are now sixty whites and one hundred Indians here. The former are under the direction of Bishop Levi Stewart, the latter go and come at the bidding of Elder J. Hamblin. The Indians render material help to the whites in the cultivation of the soil."

Within ten years after it had been made safe for residence Kanab had a population of nearly 400. The slow growth for the next 30 years has been followed by more rapid expansion into the present prosperous village of about 1,400 inhabitants.

Few if any other Utah communities have experienced such discouragement in providing the all-essential water for

irrigation. The chief reliance was necessarily on Kanab Creek, the only perennial stream that continues beyond the Vermilion Cliffs. Though water from this source was insufficient for large-scale agriculture, it was easily led to irrigation canals until July 1883, when during the "great washout" the creek bed was sunk 40 to 50 feet below the intake of irrigation ditches, and the walls became dry through under-seepage. Many dams were built, one of them 60 feet high, only to be destroyed by repeated floods and the flumes left useless. During some years no water reached the fields. A skillfully designed dam built in 1890 lasted until 1909, when it was destroyed by a flood even more disastrous than that of 1883. By the ingenious use of rock tunnels for flumes and spillways and vigilant attention to repairs, the present dam, built in 1910-11, seems to have been given a reasonably long life. But the dam makes available only five second feet of water for 1,800 acres of land—a smaller amount to the acre than in any other irrigated district in Utah. Water for household use also has been difficult to obtain. In the early days a little came

TABLE V
SAN JUAN COUNTY

Settlement	1882	1890	1900	1910	1920	1930	1940
Blanding (1904) ¹	385	1072	1101	1438
Bluff (1880).....	225	190	315 ²	160	150	200 ?	284
Carlisle (1889).....	28	22	36 ?	....	15
Cedar Point (1915).....	54	59	173
Indian Creek (1888 ?).....	53	26	6	7	0
La Sal (1878 ?).....	97	39	287	211	285
Lockerby (1916).....	187	114	200 ?
Mexican Hat } (1910).....	48	10	15	10
Goodridge }.....
Monticello (1887) ³	115	180	375	768	763	868
Ucolo (1917 ?).....	224
Verdure (1894).....	16	....	....	....	12
Indians..... ⁴	....	....	....	1200 ?	1443
COUNTY.....	225	365	1023	2377	3379	3496	4712

¹ Organized as Grayson (1904); name of post office changed to Blanding in 1915.

² Includes about 150 prospectors.

³ Original settlement called Hammond; name of post office changed in 1890.

⁴ Indians on the Navajo Reservation not segregated for the period 1890-1920.

from a spring in nearby Toms Canyon, some of inferior quality from wells, but more of it from settling basins supplied by ditches from Kanab Creek. In 1909-10 a pipeline was built to a spring in Hog Canyon, and when this source proved inadequate, water was piped from spring-fed lakes in Cave Lakes Canyon, seven miles distant. Kanab is essentially a home ranch for stockmen, whose range comprises the famous House Rock Valley, the Kaibab, Kanab, and Uinkaret Plateaus, and lands extending northward to the Pink Cliffs. In the southern tier of Utah counties the village for 50 years has stood first as a livestock center.

Fredonia is the "new town" in Kanab Valley—established in 1886, many years after more favorable places in southwestern Utah had been occupied. Like Orderville and Short Creek, in fact like the State of Utah, its site was chosen in response to religious convictions and with little regard to geographic features. The village is said to owe its founding to the attempts by Federal authorities to enforce the laws against polygamy in Utah. To escape prosecution polygamous men of Kanab and neighboring settlements retained one wife at home and provided establishments for the others just south of the State line where they were legally beyond the reach of Utah officials and separated from Arizona officials by the canyons of the Colorado. The episode is recorded in the name bestowed by Apostle Erastus Snow—Fredonia, derived from free dona (free women). Fredonia has no natural advantages. The water obtainable for irrigation of alfalfa, sorghum, and garden crops is inconsiderable; water for household use must come from distant sources; and as a ranch headquarters the village overlaps the interests of neighboring settlements. In a sense it is a suburb of Kanab and for some time received its

entire support from that village. Of late years Fredonia, like Kanab, has benefited somewhat by its location—a supply point at the beginning of the 300-mile road across the Colorado River, to Flagstaff.

JOHNSON VALLEY

Johnson Valley, like Kanab Valley, attracted settlers interested primarily in stockraising. Especially along Skutumpah Creek and the branches of Johnson Creek that rise at the rim of the Paunsaugunt Plateau, the grazing grounds were excellent and small plots of well-watered bottom lands provided favorable home sites. As early as 1870 Skutumpah was chosen as a ranch site and in 1875 its population was listed as about 35, a number that included the occupants of nearby irrigated farms. In 1879 the lands and buildings of the pioneer settlers came into the possession of the Kanab Cattle Company. Since that date its ownership has changed many times. At present it is a successful small ranch of irrigated grain fields and adjoining pasture lands.

The development of Johnson Valley below Skutumpah began with the founding of Johnson (1871) as a community center for five families who recognized that water from Johnson Creek was sufficient for the irrigation of several small areas; that springs supplied abundant water for homes and gardens; and that pasturage on the adjoining lands was ample. Within 10 years the new site became an attractive village of more than 100 people living in brick and adobe houses surrounded by prolific orchards and gardens. After 40 years of prosperity the village experienced the disaster common to neighboring settlements: Johnson Creek and its tributaries began to cut deeply into their alluvial floors, destroying fields and greatly increasing the difficulty of main-

TABLE VI

NORTHERN MOHAVE AND COCONINO COUNTIES, ARIZONA, IN "ARIZONA STRIP"

Settlements	1860	1870	1880	1890	1900	1910	1920	1930	1940
Cane Beds (1914).....	5 ¹	42	40	17
Fredonia (1886).....	96 ²	178	175	210	254	212
Canaan (1868).....	..	16 ³	14	...	...	8	...	...	4
Lees Ferry (1869).....	..	8	...	...	...	35	5	5	0
Moccasin (1864).....	..	3	...	...	...	...	...	78	77
Pipe Springs (1863).....	30	55 ⁴	20 ⁵	16 ⁵	15	10 [?]	6	...	0
Short Creek (1862).....	36	61 ⁶	175

¹ First permanent settlers arrived in 1914; previous to that time, site used intermittently as headquarters for cattle companies.

² Church census records 216 in 1895.

³ Reported as 10 families in 1870-1890 and 13 families in 1890-1910.

⁴ Includes about 40 men engaged in building "Winsor Castle."

⁵ Exclusive of cattlemen and about 50 polygamous Mormons who temporarily moved into Arizona to escape prosecution by Federal officers in Utah.

⁶ In 1931 and continuing into 1935 population increased by 10 families (114 persons) representatives of a Mormon sect that practiced polygamy.

taining irrigation ditches. Farming became speculative. At present Johnson is a ghost agricultural town. Its church, school house, and stores are in ruins and the few remaining farms are occupied only during the summer. For nearly 50 years Johnson was a much used stop-over and supply point on the road from Kanab and settlements in Arizona to Panguitch and Salt Lake City. Since the construction of the Kanab-Mount Carmel link in the Utah-Arizona highway (1918) the abandoned village is isolated on a by-pass.

SEVIER VALLEY

The pioneer agriculturists of southern Utah seem to have been concerned almost wholly with the development of the lands west of the Hurricane Cliffs, especially the "warm lands" where cotton might be grown. No systematic attempt was made to colonize the higher, colder Sevier Valley for ten years after John D. Lee (1852) had called attention to the fertile lands near the mouths of the big streams that flowed down the east slope of the Markagunt Plateau: Panguitch, Mammoth, and Asay Creeks. In 1864 six families from Parowan and

Beaver who crossed the plateau and camped near the mouth of Panguitch Creek were delighted to find a region with abundant water for irrigation and large areas of meadow land suitable for farming. They decided to remain. They established the town of Fairview—the present Panguitch—constructed an irrigation ditch, and planted a small crop. During the winter of 1864-65, when snow blocked the trails to Parowan (25 miles to the west), the isolated community was forced to subsist on boiled grain and flour ground in coffee mills. Fear of the marauding Utes made it necessary to live within a stockade and forced the abandonment of the village in 1866. In March 1871, the site was reoccupied and since that time Panguitch has experienced uninterrupted growth. Its population has increased from 664 (1880) to 1,975 (1940), its irrigated lands from 300 (?) to approximately 3,800 acres. Its large livestock industry gives it a prominent place among Utah villages and as a commercial center it serves a larger area than any other village in southern Utah. Of late years Panguitch has assumed increased importance as a supply point on the Utah-Arizona highway and as the

gateway to Bryce Canyon National Park.

With the founding of Panguitch began the search for suitable farm lands farther up Sevier Valley, where water from the South Fork of the Sevier River and its tributaries was available for irrigation. In the summer of 1871, 15 families, under the leadership of G. D. Wilson, founded Hillsdale, on the river terrace about half a mile east of the present village. In 1872 the town of Aaron, near the mouth of Asay Creek, was established with an initial population of ten families, 70 people. During the same year farmers occupied land at the mouth of Mammoth Creek, and soon afterward selected homes in Hillsdale, Procter, Johnson, Mammoth, Castle, and other canyons tributary to the Sevier River. In 1880 the families at Aaron joined with those scattered along the river in founding Hatchtown, a village of about 100 people, at the junction of the Mammoth and the Sevier. The location, however, proved to be unsuitable for "keeping water in the ditches," and after the town had been flooded by the breaking of the source reservoir, it was moved to its present site (Hatch) in 1900-02. Likewise north and east of Panguitch farmers established homes in Red, Casto, Limekiln, and Sanford Canyons and at places on the wide meadows along the Sevier. A group of farm houses about 10 miles north of Panguitch constitutes the village of Spry, originally called Orton, which in 1900 enrolled 161 persons, reduced to 87 in 1940.

Soon after Panguitch and other settlements along the South Fork of the Sevier River had become centers for farms, dairies, and ranches the stockraising possibilities of the East Fork Valley, of the Sevier and Paunsaugunt Plateaus, and the more distant Aquarius Plateau, were investigated. As early as 1873

the floor of Grass Valley, the meadow lands above Kingston Gorge, and the adjoining well-watered highlands provided forage for the "Kanarra Coöperative herd." In 1875 the district was chosen as a ranch by cattlemen from Beaver, Utah, who brought with them "4,000 head of cattle and 300 horses." In 1877 Marion Ward (post office, Coyote), enrolled 33 families. In 1880 the discovery of antimony (stibnite) in Coyote Canyon attracted attention to the isolated settlement. During the boom periods of 1880-83, 1906-07, and 1916-17, "about 200 people were employed at the mines, mills, and smelters," and in recognition of the mining interests the town site was renamed Antimony (1921). Except for the erratic incursions of these "outsiders," the population of the village increased gradually from about 200 (1880) to 328 (1940). Because they constitute a continuous strip, and water for their irrigation comes from the same sources, the arable lands between Black and Kingston Canyons of the East Fork of the Sevier are governed as a single unit, thus avoiding conflicts of interest and control. Antimony, therefore, is one of the largest town sites in Utah. As incorporated in 1934 it comprises an area 15 miles long and five to seven miles wide, within which about 2,000 acres are irrigated, chiefly by water from Antimony Creek.

Unlike the continuously prosperous Antimony, Widtsoe and Henderson—the two other settlements along the East Fork of the Sevier—have experienced both prosperity and disaster. In 1876 Widtsoe, at the mouth of the tributary Sweetwater Creek, was the site of a ranch, and in 1902 the permanent home of three families. Anticipating a considerable population supported by farms on the broad Sevier Valley and by grazing lands on the nearby Aquarius and Sevier Plateaus, the original homestead

of 40 acres was divided into lots and named Winder (1910). In 1912 the town site was enlarged and in 1915 its name changed to Widtsoe. The records show that in 1916 the town had a large social hall, two hotels, four stores, and a three-room school house, and a water system that supplied each home. Most of the residents, recorded as 310, cultivated dry farms or small irrigated tracts. "There are 5,000 acres of cleared land and every square mile of the valley has good soil."

For agriculture, the advantages of the East Fork Valley above Black Canyon are large areas of fertile soil in position easy to cultivate. The disadvantages are inadequate rainfall (about 11 inches), high altitude (7,000 feet) and consequent short growing season, and the scarcity of surface water available for irrigation. Though recognizing that the East Fork Valley was unsuitable for large scale irrigation farming, the settlers thought that dry farming supplemented by stockraising would provide a satisfactory living. Beginning about 1880 and for the following 20 years, farms in small numbers were taken up in the most promising places and, lured by the supposed opportunities of the Enlarged Homestead Act of 1909 and by the high prices for produce, more settlers came in 1911, 1912, 1913, and, as a whole, the decade 1910-1920 was a period of expansion. The population increased during the "good years"—1919-1922—and rapidly decreased during the "years of no crop"—1923-1926. At the time when the future of the valley was most rosy the village of Henderson was founded and attained a population of 81. In 1926, the ambitious plans for the rehabilitation and development of the valley began to take shape. Under the leadership of W. E. Holt, who to a large degree financed the project, attempts were

made to make all the water of the region available for a common community use. The individual water rights were purchased, including that to 5,500 acre feet of water in Pine Lake hitherto carried by ditch to Cannonville. Dams were built, ditches dug, buildings and corrals erected, and a grist mill and creamery was built at Osiris. Newspapers report that "people rushed in," "fields were plowed and buildings constructed by the score." One estimate gives the population as 1,205 and another as "about 1,000," but many prospective settlers made short stops and the maximum population outside of Widtsoe probably did not exceed 300.

The high hopes for the development of the valley soon faded. Experience showed that the amount of available surface water had been grossly overestimated, that the rainfall was markedly unreliable and generally lacking during the growing season, that frost might come any month of the year, and that the forage was insufficient for intensive grazing. It is reported by the Agricultural Adjustment Administration that in 1935 "44 families were living in a district where seven families could gain a living by farming." Expensive detailed investigation by six different Federal bureaus showed the valley to be unsuitable for agriculture of any kind, and the Department of Agriculture recommended that the land be purchased by the government and the stranded settlers removed to more favorable regions. At present Widtsoe is a group of vacant houses, Henderson is marked only by house foundations, and the farms about these ghost agricultural towns are overgrown with weeds. The inhabitants of the valley are four families on ranches at the mouth of Sweetwater, Horse, Birch, and Ranch Creeks, places that have been occupied since the pioneer days. The control of

the abandoned lands has been returned to the Forest Service.

PARIA VALLEY

The Paria Valley, throughout most of its 50 miles course, is a narrow canyon joined by many tributary canyons, most of them mere slots cut into masses of sandstone. Only at three places is its floor broad enough and flat enough to permit profitable cultivation: at Paria, where erosion has widened the valley between cliff walls; in the region about Cannonville, where closely spaced tributaries have broadened the valley floor, and at Lees Ferry where the Paria River emerges from the Vermilion Cliffs.

As a site for a small agricultural community the vicinity of Paria appeared attractive to the pioneers. The Paria River is here crossed by a hogback (East Kaibab monocline), above which the valley floor broadens and below which for a distance of about eight miles the canyon walls stand back from the stream, leaving alluvial flats in a favorable position for irrigation. Grazing lands extend both sides of the stream. In 1865 Dos Carlos Shirtz settled at Rock House, two miles below "the hogback," only to be driven away the following year by Navajos. In 1871 Rock House was relocated by six families. The next year there were 11 families, and the place produced "plenty of corn, sorghum, and garden truck." In 1873 Adairville, farther downstream, was established, and soon became a prosperous community of cattlemen and farmers. But Rock House and Adairville were destined to short lives. In 1874 "trouble with the ditches" caused the 15 families at Rock House to relocate above the hogback, at the present site of Paria, and in 1878 the eight families at Adairville joined in the exodus. For several years the new village of Paria prospered, the field and

garden crops returned good yields, and the cattle increased in number and quality. By 1884 the population included 107 resident members of the Mormon Church, in addition to non-resident cattlemen and about 20 Piute men and women who worked intermittently on the basis of half rations. But prosperity came to a sudden end in 1885. Floods in 1883, followed by more floods in the summer of 1884, washed away farmhouses and fields and converted the narrow stream channel into a wash. Except for a few acres protected downstream by rock buttresses all the arable land disappeared. In September of 1884, 48 people remained, and in 1885 the town site was abandoned. Because Paria (pah, water; reah, elk), is situated on the established trail leading to the Uteford (Crossing of the Fathers) and at the only feasible crossing of lower Paria Canyon, the village was a camp ground for the Piutes and Navajos and probably for the cliff dwellers before them. Hamblin and other Mormon scouts visited this place many times, and it served as field headquarters for expeditions under Powell (1872), Wheeler (1872), and Thompson (1875).

The suitability for settlement of the upper Paria Valley was recognized by James Andrus, the "Indian fighter," in 1866, and by A. H. Thompson of the Powell Survey in 1871, who noted that the region is well watered and has good soil; that firewood, coal, and lumber are near at hand; that extensive tracts for grazing surround it; and that the climate is favorable for field crops and during most years for fruit trees. Doubtless guided by the reports of Andrus and Thompson the pioneer settlers built homes at Clifton, near the junction of Paria River and Henrieville Creek (1874), and during the following ten years four other villages were estab-

lished, all within a radius of about six miles. Of these Cannonville and Henrieville have grown into sizable villages; Clifton, New Clifton (Losee), and Georgetown have been abandoned.

In the early eighties Cannonville, with a population of about 200 was "the metropolis of Paria Valley," the home of prosperous stockmen, who had available for grazing more than 2,000 square miles of unallotted land, and of farmers who cultivated nearby parcels of fertile land watered by ditches from the Paria River. By 1886 the increased population was using about all the land that the available water could irrigate, and the Paria River and many tributary streams began to cut deeply into their floors, replacing fertile fields with a network of canyons walled with sand and gravel. At Henrieville and Cannonville about a third of the arable acreage of 1880 has been destroyed and carried away as streamborne silt. However, north of Cannonville there remained a large area of fertile land beyond the reach of irrigation canals from Paria River—land that was required if the population of 1890 was to be increased or even retained. To forestall future disasters water was diverted from the East Fork of the Sevier River high on the Paunsaugunt Plateau and through a canal nine and three quarter miles long was led over the Pink Cliffs to the barren lands of the upper Paria Valley. After two years of work by men and boys with axes, picks, crowbars, and scrapers, water from this distant source was flowing through the new town site of Tropic and onto the adjacent fields. The life of Tropic, the largest village in the Paria Valley, had abruptly begun. Like the famous Hurricane Ditch, in Washington County, the East Fork Canal (the "Tropic ditch") is a home-made structure, and like Hurricane, Tropic is a man-made oasis.

Along many of the western tributaries to the Paria, where locally the valleys are broad and easily irrigated, farms were cultivated and ranch sites developed during the period 1880–1900. Of these, only the large and prosperous Findley ranch in Meadow Creek Valley is continuously occupied. The former homes in Swallow Park, in Podunk, Bulrush Lick, Willis, Sheep, Kitchen, and other valleys south of the Paunsaugunt Plateau are now abandoned or used occasionally during the grazing season. Isolation makes these otherwise favorable locations unattractive.

ESCALANTE VALLEY

While camped in Potato Valley (at the east base of the Aquarius Plateau) in 1872, Dellenbaugh and Thompson of the Powell exploring expedition "saw Mormons from Panguitch who talked of making a settlement here and advised them to call the place Escalante." The first settlers came in 1875, and in the following years selected a town site near the junction of Pine Creek and the Escalante River—the present village of Escalante. The reports of arable lands, of abundant water for irrigation and power, and of favorable grazing lands that extended far in all directions induced many families to leave the less congenial plateau tops to the west, and come to the new village even though some of them were forced to find shelter under overhanging rocks, in caves dug in banks, and in makeshift wikiups, tents, and shacks. Six years after its founding Escalante enrolled 441 names, and its consistent growth has made the village one of the largest compact settlements in Utah.

The unsatisfactory feature of Escalante's situation is its inaccessibility. The village stands at the base of slopes and cliffs that necessitate a climb of 2,700 feet and a sharp descent to reach

the highway that stretches 52 miles to the railroad at Marysvale. Before the expensive, skillfully planned road was constructed over the Aquarius Plateau and down the East Fork of the Sevier River wagons traveled the rough, roundabout route through Henrieville, Cannonville, and Panguitch, which made the distance to the railroad about 125 miles. Before the railroad was constructed to Marysvale (1900) salable produce, chiefly butter and cheese, was carted to Salt Lake City, 250 miles.

Boulder, at the base of "Boulder Mountain" (northeast Aquarius Plateau), lies in a small, well-irrigated tract that produces grain and alfalfa (three crops a year), and since its settlement as a community ranch in 1889 has been the center of a large prosperous livestock industry that makes use of the forage in the adjacent Powell National Forest. Boulder is the most isolated village in southern Utah: its nearest neighbors are in Escalante and Fremont Valleys, 30 miles away, and the most used road to the railway is 220 miles long. East of the village for 120 miles no one lives.

SAN JUAN VALLEY

Doubtless a few adventurous trappers and prospectors found their way into San Juan Valley during the years 1850-1870, but the topographers of the Hayden Survey in 1874 found no white men in any part of southeastern Utah. The recorded history of San Juan Valley begins with the founding of Bluff City in 1880, in response to a report of Mormon scouts that the county afforded excellent opportunities for irrigation, farming, and stockraising.

The site of the proposed new settlement was peculiarly isolated. To the north across Utah the only white people were a few families at Moab, 110 miles distant; eastward the villages in Colorado were 70 miles away; southward

for 160 miles was Indian country; westward the settlement of Escalante was 115 miles distant. The nearest markets and sources of supplies were Albuquerque, 225 miles distant, and Salt Lake City, 350 miles distant. Though the natural neighbors for Bluff were the settlers on the Mancos and the La Plata Rivers, who could be easily reached by inexpensive roads, the leaders of the Church thought it highly desirable that the Saints in the San Juan country should be brought into religious, political, and personal contact with their fellow Saints in Utah rather than with the "Gentiles" in Colorado and New Mexico. To put into effect this desire for close union involved the construction of a road from the high plateaus of central Utah across the Glen Canyon of the Colorado River, the Red Rock and Grand Gulch Plateaus, and Comb and Butler Washes—an almost superhuman task. Building the road as they proceeded, the members of the San Juan Mission reached the mouth of Cottonwood Creek on April 5, 1880, and though their destination was "Fort Montezuma," 18 miles up the San Juan, they could go no farther. The 225 men, women, and children who had survived the continuous hardships for 170 days, were exhausted, and the diminished herds of horses and cattle were "barely able to move." On April 6, 1880, Bluff City was established. By an act of the legislature (February 17, 1880) San Juan County had been organized and the leaders of the mission band appointed as its officers—when as yet it had no inhabitants.

Life at Bluff during the first few years must have been discouraging. Official reports and personal records speak of "continuous trouble with irrigation ditches"; "floods from the Cottonwood covered fields with mud"; as protection from Indians, "women and children

lived in a fort"; "stock had to be herded to prevent stealing"; in the fall of 1880 "about half of the population moved away"; crops for 1880, 1881, 1882 were "very poor." The "great flood" of June 1884 drowned the farm lands above Bluff, destroyed the settlement of Fort Montezuma, and "changed the meadows on Cottonwood Creek into sand flats"; in 1885 more farm land was destroyed; by 1886 "20 miles of farms along the San Juan in 1880 had become at most 700 acres served by one ditch at Bluff." Though the people of dwindling Bluff accepted the decision of the Church that the mission be held in spite of hardships, their experience had proved that farming in the San Juan Country was unprofitable, and, beginning about 1885, stockraising replaced agriculture as the primary industry. The opportunities to supplement summer forage on Elk Ridge and the Abajo Mountains by raising alfalfa and grain on dry farms and fields irrigated by headwater tributaries of the Montezuma attracted settlers from Bluff and from Mancos and led to the organization of the "tough cattle town" of Hammond (now Monticello) in 1887, Carlisle in 1889, and Verdure in 1894, and to the starting of ranches in Strawberry Creek (Mormon Pasture), Cottonwood Canyon, and Indian Creek. The village of La Sal was at first the headquarters of the Pittsburg Cattle Company (1885), which acquired the rights of the few pioneer farmers.

Three ephemeral events have interrupted the normal development of settlement in San Juan County: the "gold excitement" on the San Juan (1890-92); the "mining boom" in the Abajo Mountains (1892-93); and the "oil boom" at Mexican Hat, which reached its height between 1907 and 1910. The unverified report that rich placer gravel "was strewn all along San

Juan Canyon" brought "about 2,000 people through Bluff in 1892," and the shift of the disillusioned miners to stream bottoms and ledges of the Abajo Mountains still left Bluff as the out-fitting point. Diaries record that 40 to 50 miners passed in a day; Bluff was amazingly prosperous.

Monticello, still primarily a "cattle and sheep town," has developed into a prosperous village of 886 inhabitants—largely as a result of natural increase. About it are 1,200 acres of irrigated land, watered by streams from the Abajo Mountains, and large areas adapted to dry farming lie to the east and north. East of Monticello, at Cedar Point, and on the Sage Plain at Lockerby, Ucolo, Urado, and a few other places, settlers have taken up land in the hope of success from dry farming.

The last important shift in population of the San Juan Valley came with the establishment of Blanding (formerly Grayson). Like Hurricane in Washington County, and Tropic in Garfield County, Blanding stands on an artificially made oasis developed by the persistent efforts of a small group of pioneers whose farms at Bluff had been destroyed by floods. When the first irrigation ditch was dug (1903), the site of Blanding was a waterless expanse of sagebrush, pinyon, and bare rock. From the few families who established the village in 1904 the population has increased to more than 1,400, and thus makes Blanding the largest settlement in San Juan County and, except for Panguitch, the largest in the adjoining Kane, Garfield, and Grand Counties. In addition to extensive grazing districts the village derives support from an estimated 7,000 acres of irrigated and partly irrigated land and from about 4,000 acres suitable for dry farming.

Mexican Hat, the newest town in the San Juan Valley, has a history unusual

for Utah settlements. It lies in a rough, arid region where the soil is infertile and the water, except the muddy liquid in the San Juan River, is undrinkable. Its attraction has been exclusively placer gold and oil. During the "gold excitement [1892-93] as many as 1,000 prospectors" visited the Mexican Hat region and a few continued their search for precious metals until 1901. The discovery of oil (1882) and especially the drilling of a successful "gusher" (1907), again attracted "outsiders." During the "oil boom" (1908-1911), the population varied from 50 to more than 300 and, on the assumption that the new-found oil field would continue to be productive, the town sites of Mexican Hat and Goodridge were laid out, stores and boarding houses were built, and plans were made for the installation of a water system. But, like the search for gold, the drilling of oil wells soon proved unprofitable. In 1930 Mexican Hat was abandoned and its name transferred to the former Goodridge, where three families operate a store and care for the needs of tourists.

BASE OF THE VERMILION CLIFFS— ARIZONA

Organized scouting (1852-1856) of the "Arizona Strip"—that part of Arizona between the Vermilion Cliffs and Colorado River—revealed a vast grazing district but no large areas suitable for agriculture. Except during floods the stream beds are dry or carry little water and along their banks of crumbling sand the cost of maintaining irrigation ditches is almost prohibitive. The value of the region lies chiefly in springs that emerge from lofty cliffs in canyons tributary to Little Creek and Short Creek; sources from which water may be piped to corrals and reservoirs for the use of cattle and to small fields where vegetable and forage crops may

be grown. Springs of moderate flow determine the location of Canaan, Short Creek, and Cane Beds and large springs made possible the settlement of Pipe Springs and Moccasin. Though in Arizona, these settlements were founded by immigrants from Utah and their development has been guided by the Church of Latter Day Saints. As early as 1859 the canyon and adjoining flat lands known to the Piutes as Sobinoquint (cottonwood) and renamed Short Creek Valley, was granted by the Church to William Hyde as a "herd ground." In the winter of 1866-67 W. B. Maxwell built a house at the spring which rises near the mouth of the canyon, and in 1868 Canaan also Cane Beds (Piute, Atitonquint: sandy creek) were chosen as ranch headquarters. Except for a few years after 1866, when four men and one woman were killed by marauding Navajos and Piutes and the isolated families sought safety in the villages of Virgin River Valley, these sites have been continuously occupied by one or more farmers and oftentimes by many stockmen and have generally been developed into profitable ranches. During the period 1900-14, the "great cattle days," 10,000 to 20,000 cattle were mustered at fall and spring round-ups at Pipe Springs and Canaan, and cattle on the "Arizona Strip" owned by Maxwell and the Grand Canyon Cattle Company are reported as "more than 100,000." Following the rapid decline of the cattle industry from its peak, about 1908, some progress has been made in converting the old ranch sites into typical southern Utah farms—small plots of ground watered by irrigation ditches and wells, supplemented by nearby range land on which a few cattle and sheep find forage. At the present time farm produce and stock provide ample support for one family at Canaan, two families at Pipe Wash, and about

seven at Cane Beds. At Short Creek the first permanent settler (1914) installed an irrigation system adequate for watering about 200 acres and thus supplying the needs of six to eight families. In 1930 five families were harvesting garden and field crops. During the period 1931-35 the influx of some 10 indigent families, one of them with 40 children, brought the population to 310 (?) and thus far overtaxed the local resources. These newcomers, the first of them from far-off Lees Ferry, were Mormons seeking an isolated place where unmolested they could continue the practice of polygamy which had been outlawed by the Federal Government and since 1890 officially discountenanced by the Church of the Latter Day Saints. The leaders of the movement thought of Short Creek settlement as the "First City of the Millenium," "the City of Fair Colors" within which "bliss and glory" were to be attained through "celestial marriage." But material poverty and hardship led to disillusion: about half of the members of the ancient cult moved away; the others, supported in part by their coreligionists in Salt Lake and elsewhere, continue their precarious existence among sand dunes and bare rock.

Pipe Springs is a historic spot. To the Indians it was Matung (the end of a rock ridge, Winsor Point), the junction point of trails from Paruss (Virgin Valley), Uinkaret and Kaibab Plateaus, Pah Rhea (Paria) River, and Owatie (Long Valley—Upper Parunuweap Valley), and thus was a council ground for Piute clans and a camp for raiding Navajos. Mormon scouts first visited the spring in 1856 during the course of exploration of "the country in and around Colorado River." In pioneer fashion they named it in praise of the marksmanship of Gunlock Bill (William Hamblin), who at a distance of 30 paces

shot the bottom out of a pipe without breaking its bowl. Attracted by the abundance of pure water in a region of grass lands otherwise arid, James M. Whitmore selected the site as a ranch (1863), living in a dugout roofed with bark and juniper poles. Three years later (January 1866) in an attempt to recover stock stolen from their pasture, Whitmore and his companion, Robert McIntyre, were killed by Indian arrows. The estate of Whitmore became the property of the Mormon Church, whose leaders saw the importance of Pipe Springs as a center for a large cattle industry and a point of strategic value in the colonization of lands in Arizona. In 1865 six families lived at Pipe Springs and cultivated some 50 acres of land. In 1868 Bishop Anson P. Winsor was instructed to build a fort, safeguard the water supply, and develop the surrounding region as a range for cattle belonging to the Church. (Winsor Stock Growing Company.) The well-known Pipe Springs fort, locally dubbed "Winsor Castle," was completed in 1870-71 and after its connection by telegraph wires with Toquerville, Virgin City, and St. George, (1871), was enabled to give prompt warnings of Indian raids and to summon assistance from neighboring settlements.

In the days of Bishop Winsor, Pipe Springs was not only a stronghold and a ranch that sent out cattle to St. George and to Salt Lake City, it was also a factory of butter and cheese—the produce of about 100 cows. At this place the topographic parties of the Powell Survey (1871-72) obtained their beef, mutton, butter, cheese, grain, and vegetables. Bishop Winsor left Pipe Springs in 1875, and soon afterward the holdings passed from the Church to private ownership but continued to be maintained as a ranch until 1923, when the spring and a few acres of adjoining

land were designated by the Federal Government as the Pipe Springs National Monument. The maximum population (1885-90) consisted of Mormon refugees from Utah, who escaped to Arizona, where polygamy laws were not then enforced.

Moccasin, five miles north of Pipe Springs, was chosen for settlement because of the springs of pure water that rise from the sandy floor of a short canyon. Under the name of Pa-it-spick-ine (big, bubbling springs) the Piutes used the site as a hunting ground, probably also for gardens. Other tribes likewise visited the place; a discarded Navajo sandal suggested the name. In 1864 the lands and water rights at Moccasin, claimed by William B. Maxwell, were purchased by Kale Rhodes and Woodruff Alexander, and through successive transfers became the property of the United Order. When the Order was disbanded (1885) the holdings at Moccasin fell to the lot of five Heaton brothers, who occupied the ranch at that time, and later, through purchase, passed to Jonathan Heaton (1893), whose descendants in three generations number 99. In 1936 this patriarchal community comprised 78 individuals, all of Heaton blood. While the springs and farms at Moccasin belonged to the United Order the Indians were encouraged to establish homes nearby and to learn the care of crops and livestock—an experiment that led to the establishment of the Kaibab Reservation (216 square miles) on which some 80 Piutes now do a little

farming and care for small herds of cattle.

Lees Ferry, on the Colorado River at the point where Paria River emerges from the Vermilion Cliffs, ranks high among the historic settlements of Arizona and Utah. It was chosen as a home site by John D. Lee (1869 ?) who planted corn, alfalfa, and fruit trees, abundantly watered by ditches from the Paria. This attractive but peculiarly isolated site, 80 miles from the southernmost settlements in Utah, was doubtless thought by its founder to be a refuge from persecution by his fellow participants in the Mountain Meadow massacre (1857). But the seclusion of the spot was soon dispelled by the discovery that it marked the only feasible crossing of the Colorado canyons between Needles, California, and Greenriver, Utah. In 1870 Major Powell accompanied by Jacob Hamlin, crossed the Colorado at this point in a crudely constructed punt and in 1873 a boat capable of transporting horses and wagons and equipment was constructed under the supervision of Joseph W. Young "to enable the missionaries appointed for the Colorado Mission to pass without difficulty." The original "Lonely Dell" had become Lees Ferry, an essential station on the route across the Colorado Plateaus. After 59 years of service the ferry and its picturesque approaches have been abandoned. Since 1929 the pack trains, wagons, and automobiles on the Utah-Arizona highway cross the Colorado on the Navajo bridge near the head of Marble Canyon.