

**A COMPILATION  
AND  
COMMENT  
ON  
FIFTY YEARS  
1870-1920**

- I. ENGINEERS AND DITCH MEN DEVELOPED ON THE CACHE LA POUFRE, 1870 - 1920
- II. "DITCH MEN", WATER HUNTERS OF THAT FIFTY YEARS, NOT ENGINEERS

William R. Kelly  
February 10, 1967

**ENGINEERS AND DITCH MEN DEVELOPED ON THE CACHE LA POUFRE**

A Compilation and Comment on 50 Years, 1870 to 1920

It takes "men to match mountains", also to move earth to make ditches and dams. This article is of ditches and men. Its purpose is to mention some ones of those men who were the engineers of those first fifty developing years (1870-1920).

Those years were the era of large-scale canal and reservoir construction in the Cache la Poudre River Valley. Though some were without engineering diplomas, all were none the less engineers, in planning and construction. Most of them learned in the hard School of experience. They led the way, experimentally, it is true, but pushed ahead with purpose and energy to subdue the "land where life is written in water".

PIONEERS HAD TO IMPROVISE:

Captain David Boyd related that there was 'much dissatisfaction and fault finding by patrons in those 1870 first years of "No.2" and "No.3" canal construction. That was the lot in the first years for all new canal builders. Experience required, and brought, enlargements and betterments in succeeding years, and the seasoning of the channels.

First ones to break the trail had to learn, by doing, the ways of water and earth. Colonists who went to Utah, to learn how they did it there, came back with the report that they were still experimenting to learn the know-how. Utah had been practicing irrigation at Salt Lake from the Mormon's creek bottom ditch, a furrow from the creek plowed out the day of their arrival, in 1847.<sup>1</sup>

These first Colony canal builders had no one trained from elsewhere to tell them how to make water run downhill at the proper channel size or rate of flow.

A dozen ditches had been taken out from the Poudre River in the ten years previous to 1870 by small ranches. These first ditches were short, along river bottoms. They often were given their course by starting at

---

<sup>1</sup> Boyd, History of Greeley and Union Colony, 1890, Greeley Tribune.

the river with a plow and proceeding just ahead of the flowing stream in the furrow, to the arid land. Sometimes they were laid out with a board with a spirit level on top tipped 1/2-inch downgrade to the rod.

That digging was mostly done by settlers with their own teams, plows and half cubic yard "slip" scrapers. They so "worked out" the cost of their shares in the mutual ditch company. They got part cash, for horse feed, bacon and beans. Cash was scarce. To get the dams built, they had to do it themselves.

The day of short ditches was past. There had come the need to lead the water many miles away, from the river bottom to the higher bench lands. That took larger canals, many fifty miles in length, some longer.

This recital will, for a first section, enumerate some of those engineers. A second section will list some of the "ditch men" of that half century. They went along together. Often the initiator of the project was the ditch man. He got the engineer to execute it.

#### I. ENGINEERS OF THAT FIFTY YEARS:

Among those notable big ditch engineers, first to be recorded is E. G. Nettleton, an original 1870 Union Colony recruit from Pennsylvania. He was a land surveyor. He pitched in that spring on directing Union Colony Canal "No.3". It led easterly to the Greeley garden land from a Cache la Poudre headgate built up the river, six miles west from Greeley. On that job of ditch digging, with horse teams, walking plows, half-yard scrapers and hand shovels, there were plenty of new things to learn. There was much confusion of counsel, and criticism of those doing the work. All were new at such construction. They got the job done so water would run down Canal No. 3 that June 10, 1870. It took much betterment in the four later years.

Nettleton's next big job in 1870 was to supervise a like, but larger, Greeley "No.2" Canal ditch building for Union Colony farmlands, next north. It is now known as Cache la Poudre Irrigating Canal. It led easterly 26 miles from the river at a rock and brush dam opposite what is now Timnath. Extensions now make it 50 miles long, beside many laterals, to irrigate 60,000 acres.

Benjamin H. Eaton, with Ft. Collins men, under Nettleton's engineering, was to enlarge and extend, in 1878, the original 1864 or "No. 10" part, of the Larimer and Weld Canal, commonly known as the "Eaton Ditch System".

Ben H. Eaton, later Governor of Colorado, was a pioneer in that work, a true western builder. He was born in Ohio, taught school there, then came to Colorado with the gold rush and in 1860 took up a homestead south of where Windsor is now. He is to be rated among the engineers from his direction and many practical contributions to canal and reservoir construction.

Eaton helped build union colony Canal No.3. He was a ground breaker, also, in building of several storage reservoirs to conserve the flood waters of spring for later by carry-over summer use after the river flow had played out. Eaton had built in 1864 his own "B. H. Eaton Ditch" to his homestead along the Cache la Poudre bottom land south of Windsor.

These early canals, many built with a "fall" or grade of one foot per 1000 feet, were too swift. Their current caused consequent erosion. They required later additions of many checks in the channels to slow their current and to raise it to the user's headgates. Later, engineers of big canals gave large canals a grade of only one foot to 5000 feet length.

While E. G. Nettleton laid out the line and one McDonald was in charge of the digging, David Boyd, was, at first, for two months, put in operation of No. 3 Ditch in its first year of water, which began June 10, 1870. There were plenty of disappointments in expected results. Only 1/10 of the water was realized from the channel being too small, banks too loose or having, gopher holes, those first years. Then B. S. LaGrange took over. Conditions were better, but it still needed enlarging, straightening. The builders were without experience, unless, like McDonald, first digger under Nettleton, who had some experience with placer mining ditches, on which some had worked.

Prof. Louis G. Carpenter became an internationally famous water supply authority. He started that career at the Colorado Agricultural College. He taught there for a short time in 1884, then came back in 1888, to institute its course in irrigation engineering, and to head it

to 1910. It was the first such course in the United states. Carpenter was an intensive investigator, and student of water supplies and works, first on the Poudre and thenceforth not only in Colorado, Wyoming, New Mexico and other western states, but also in Africa, France, India and Italy. Poudre Valley development was the initial challenge to him.

Ed E. Baker, from Wisconsin, became, in 1870, a Union Colonist, along with his brother-in-law, J. Max Clark. Both were Civil War veterans. They threw in their lot to pioneer in the Colony irrigation development. Clark was a student of land and streams and the theory of irrigation. Baker was the man who, from 1870, was an engineer in the field. He assisted in Cache la Poudre "No.2" Canal building and for several early years was the superintendent in running that project.

Baker was to be the surveyor for a group of Greeley men, B. F. Johnson, H. N. Haynes, Abner, Frank and Lyman Baker, brothers, Jared Brush, J. Max Clark, Dr. Charles Emerson, Ben H. Eaton, F. L. Gill, L. Ogilvy and others, who built new irrigation works in downstream of the new land, lands then in Weld County. That territory was later split off, as Morgan County. It has become a highly productive farming county, under irrigation.

Ed Baker in the 1882 and 1883 years, laid the lines for Fort Morgan Canal, Upper Platte and Beaver, Lower Platte and Beaver canals, in the Ft. Morgan and Brush areas. Upstream, in the Orchard to Weldona areas, he was the surveyor of the Weldon Valley Ditch, built in 1881 by Greeley developers, notably among them A. W. Cage, G. T. Goodrich, Al Igo, Henry Igo, Solon Martin, P. W. Putnam, D. K. Thompson.

Baker engineered, in 1881, the Ogilvy Ditch, taken out at the east edge of Greeley by the Earl of Airlie and his younger son, Lyulph Stanley Ogilvy. It diverts water supplied largely by return flows into the Poudre River from irrigation under the canals taken out earlier, and higher up.

Short of statute, with ruddy cheeks, keen blue eyes, "Ed" Baker had an active brain. He searched out and saw possibilities, found ways and where to accomplish ditch and reservoir building. His plans and lines were to fit ways, at costs limited by his client's means. He lived a long life of action, which went through exertion in surveys and administration of the many new ditches, enlargements on ones already begun, court

adjudications of their water rights. Those adjudications of priorities of right to divert the streams constituted nearly the main business of District Courts in Larimer, Weld, Morgan and Denver.<sup>2</sup>

Raymond F. Walter: Engineering graduate at C.A.C., an early "interne" of Baker, later Baker's engineering partner practicing at Greeley, was R. F. Walter. Walter's name appears with Bakers on many ditch and reservoir maps being filed at the turn of the century. So great was Raymond F. Walter's talent that he went on, progressively, to become Chief Engineer of the U. S. Bureau of Reclamation. His early espousal of our cause was of great influence in congressional authorization of the Colorado-Big Thompson in 1934 and 1935.

Charles R. Hedke, Wisconsin engineering graduate, came to the Cache la Poudre Valley in 1902 with the Kilby Construction Company to engineer construction of the Ft. Collins, Eaton, Windsor, and Greeley sugar factories. The valley's prospects induced Hedke to stay to do canal engineering for the North Poudre Irrigation company revival by Burton D. Danborn, then work for Water Supply and Storage Company canals. He headed next in 1907 to 1910, engineering for the exciting Greeley-Poudre District project to tunnel the ridge from the Laramie River into the Poudre and for the new building canals and reservoirs of the "Poudre Valley Canal System." From this enterprise went on as engineer for projects in the San Luis Valley and the Montezuma valley in Colorado.

B. S. LaGrange, of French descent, of engineering talent, an early trustee of Union Colony and of Cache la Poudre Irrigating Company, designed "No. 2's" first dam on the river, helped build that Canal, and was a witness in its water adjudication. He was progressive, became a first water commissioner of the river. He became State Engineer. By experience and travels, in other irrigating projects, he was an

---

<sup>2</sup>Ed Baker was for so long a factual observer of water origins, fluctuations and seepage, that his opinions were often sought in court in suits involving water. He came to be amiably addressed (off the record) as "Mr. Exhibit B" by his lawyer friends. The late Delph Carpenter and L. C. Stephenson for many years were in almost every water case. Many times he was on the witness stand to identify maps, state facts of surveys, and action of water in open canals, in reservoirs, and seeping in the ground.

irrigation authority. The LaGrange district near Greeley was named for him.

LaGrange's grandson, Lewis L. Stimson, followed Hedke on the Laramie-Poudre construction engineering. He became a keen, hardworking water rights engineer, graduate of C.A.C. in 1898, had a part later in construction of most of the irrigation works on the South Platte as well as many in the Montezuma Valley in southwestern Colorado, some in Nebraska, some in New Mexico.<sup>3</sup>

Franklin C. Avery was constructive as a young man. He came from Ledyard, Cayuga County, New York, to the Colony in 1870. He had training as a surveyor. He made the first plat of the townsite of Greeley, and of the union Colony lands. Avery then went on to Fort Collins, and there in 1872 made the survey and official plat of the original town of Fort Collins, then the town of the "Agricultural Colony". He acquired much real estate of ranching and farmland, became a banker and also community builder and hunter for water for those new lands which became the "Larimer County Ditch" area. While he had surveyed small ditches, his chief constructive early activity was to become one of the leaders in building that large ditch to irrigate 60,000 acres in Larimer and Weld Counties. With N. C. Alford and Noah Bristol in 1881, Avery was an original incorporator of the "Larimer County Ditch Company". He was its president for several years. After its financial difficulty from the 1904 Chambers Lake dam washout, the company was reorganized as the Water Supply and Storage Company.

Avery was an originator of the "Skyline Ditch", the first project to collect water of the Laramie River, to bring it south into Chambers

---

<sup>3</sup>In 1935 Stimson completed a report of the dates, flow records, supplies and shortages of the seven counties of all the existing canals and reservoirs which were to comprise the Northern Colorado Water Conservancy District. It demonstrated the needed supplemental water supply of that beneficent project was effective in getting its congressional authorization. August and September, 1933, Stimson led a survey, the first or "flyline" survey, for its tunnel and works from the Colorado to the Poudre, and Thompson Rivers. Of open mind, though along in years, Lew Stimson was one of the July and August 1933 first advocates of that source of new water for the east slope.

Lake, and so into the Poudre watershed. In a long career, he was always a builder, studying possible sites for reservoirs and water supply.<sup>4</sup>

Robert J. Wright, whose life career was at Sterling, Colorado, grew up in Greeley. In 1901, "Bob" went to Ft. Collins to graduate, in 1905, in engineering at C.A.C., (now Colorado State University). Lew Stimson took Bob along to become a project engineer in 1914 of the new North Sterling Reservoir system. That took 100 miles of inlet canal leading east from the north side of the Platte at the east boundary of Morgan County. Bob was engineer of the Prewitt Reservoir, built in 1910 on the south side of the Platte to irrigate in Logan County. Of energy, bright mind, inclined to underestimate the value of his own services, Bob continued with the North Sterling system for more than forty years, as the selection not only of Boards of the North Sterling, but of three other related irrigated districts under the Prewitt Reservoir system in Logan and Washington Counties. He coordinated the operations of all to the benefit of all. Such was his handling of mutual interest and potential conflict between them, and so practical and devoted was his service, that for thirty years, the users of all were confident to continue him in the development and administration of all those five parts as one entity. They once had been watchful competitors for water supply.<sup>5</sup>

Zac T. Duval, was the engineer who, in 1904, surveyed in detail line of the tunnel from the Laramie to the Poudre, and the collection ditches to it on the Laramie. With his party of six men he was on that Laramie River work for five months for the initiators of the Laramie-Poudre system, after irrigation experience on his father's farm, in the Littleton area south of Denver. He had been surveying "mining and irrigating ditches since 1876 in South Dakota. In 1883 he was engineer on

---

<sup>4</sup> Watrous, History of Larimer county, p. 345, Courier Pub. Co.

<sup>5</sup> Bob had been on a 1905 C.A.C. engineering survey of a proposed tunnel from the Colorado River at Grand Lake. When, in 1933, Greeley, Ft. Collins and Loveland water men became tenacious advocates of it, Bob was on the first committee chosen as leaders to be the steering committee to get congress to authorize the 'Grand Lake", Colorado-Big Thompson, as a reclamation project.



the construction of the North Poudre canal system, for Carter-Cotton, until it had to stop for lack of finances in 1885. From 1886 to 1913 he was engineer on canal building on the Arkansas. In 1904 he surveyed the supply ditches, from Rawah Creek to the tunnel on the Laramie, as well as canals over Cameron Pass to the Poudre from the North Platte. In 1921, from the Big South headwaters of the Poudre, he did the construction survey for Peterson Lake, now a part of the City of Greeley water supply.<sup>6</sup>

After the "Eaton" or Larimer and Weld systems, the next big canal to be built from the Poudre after Union Colony "No.2" was the "Larimer County". It was begun in 1881. It is "Water Supply and Storage System". It's river headgate is about two miles above Laporte, on the north side of the river. It extends eastward 85 miles. It went through several starts and obstacles met. The effort was carried forward by succeeding appropriators' efforts. It was a first transmountain diverter from the (Grand) Colorado River.

James H. Andrews, 1901 engineering graduate of C.S.U.; son of Poudre 1871 pioneers from Pennsylvania, besides sugar construction, was active in engineering the original Grand River Ditch for Water Supply and Storage company and building of Black Hollow Reservoir for that company in 1906 and 1907. From 1906 for two years he taught engineering at C.S.U. while doing the Water Supply and Storage Company engineering. In 1913 he was engineer on North Fork Canal and tunnel building for the North Poudre Company. Again in 1935 to 1939 Andrews was engineer on completion and extension of the Grand River Ditch from West Slope headwaters into Long Draw Reservoir on the Poudre.

All this besides work as County Surveyor, railroad construction, and other engineering in Larimer County. He is now retired, continues to live at Ft. Collins.

---

<sup>6</sup> Duval's 1904 to 1906 Laramie-Poudre tunnel survey followed that of R. Q. Tenney and varied but slightly in line, the chief difference being that he put the west end of the tunnel 200 feet farther north, to avoid boxing through drift from a gulch. There he found Tenney's preliminary survey for the west end of the tunnel. Duval located the east end of the tunnel at the same place as had Tenney. The U. S. Supreme Court disregarded this.

R. Q. Tannel, born in 1838 in New Hampshire, migrated to Fort Collins in 1871 and there began ranching. He was not a graduate engineer but learned ditch surveying by actual field work on the ground. He had vision, loved outdoor activity in irrigation development. He lived a long life. Because of his connections with numerous irrigation works, he, in later years, was often in the witness chair in courts on water right matters. There he would appear in boots, flannel shirt and with tousled hair. This garb gave him the look of a mountain man. He had the keen eye and Yankee inquiring mind and energy which had made him first surveyor on the North Fork Ditch (now known as the North Poudre Irrigation system). He made the surveys extending the Jackson Ditch to Terry Lake, and Wooster Reservoir, of the Eaton Ditch system, Long Pond and other reservoirs of the Larimer County ditch system. Tenney was the first surveyor of the Laramie-Poudre Tunnel two and one half miles in length through Green Ridge from the Laramie River into the Poudre.<sup>7</sup>

Ralph L. Parshall, Professor of Irrigation at C.A.C., had a long career at Fort Collins as an experimenter, authority on water research, stream flows, return flows, land studies, water needs, design and invention of devices for water measurement, sand extraction. The "Parshall flume" perfected and named after him, is so accepted as now to be in almost universal use for measuring water flow in open channels, large and small. Later, Parshall's 1935 Economic Study of the water supplies, potentiality of crop production and need for supplemental supply, was of great weight in getting reclamation and congressional authorization of the Colorado-Big Thompson project. On that tremendous task he enlisted the cooperation of engineers L. L. Stimson and Theodore Moodey of Greeley, in comprehensive and graphically tabulating records of thirty years of stream flows and performance of every canal and reservoir

---

<sup>7</sup> This tunnel project, after construction was well underway, became the unfortunate victim of block of litigation in the United States Supreme Court. Its water users were victims in 1910 between the rival loyalties of later appropriators down the Laramie River in Wyoming who caused to be instituted the injunction suit in United States Supreme Court, to hold up construction resumption until 1923 - deadening in time as well as in attraction of water allowed to be diverted from the Laramie in Colorado and the Justice who wrote the opinion adverse to Colorado had in earlier years been active in Wyoming affairs.

in the seven counties of the Northern Colorado Water Conservancy District. Though never published, Parshall's, Moodey's and Stimson's reports were valuable factual works.

Ed B. House, born at Evans, grew up in Greeley, graduated in civil engineering at University of Michigan. He became a member of the faculty at C.A.C. in 1906 and followed his mentor L. G. Carpenter as professor of irrigation engineering there, from 1911 for 20 years. While not noted for field work, he was the teacher of many men to become engineers of works for water diversion in many western states.

Elwood Mead, was for years a Ft. Collins resident, became head of its irrigation engineering and of that of California and Australia. He is another giant among the early developers of irrigation engineering in the west. Born in Indiana, graduate of Purdue, he became a student and lecturer on irrigation at Colorado Agricultural College in 1883 and 1884. He became state Engineer of Wyoming, there devised its model irrigation law. His book, one of the earliest on the subject, "Irrigation Institutions" published by MacMillan in 1910, was a comprehensive, yet brief, exposition of that subject. It gives much space to the history of irrigation everywhere in the world. It particularly dwells of that of innovations and early results of the Union Colony of Greeley and the Agricultural Colony of Fort Collins, and their development of co-operative, or mutual irrigation companies. He antedated L.G. Carpenter as an international authority.

Elwood Mead, twenty-five years later, by his recognized expertness in the field, became Director of Reclamation from 1924 until 1936. His early and keen interest in the Poudre Valley, its water supplies, needs and potential, did great introductory service to make clear the way for the steering committee of the Colorado-Big Thompson Project when, in his tenure of office, a friend in court was needed in Washington, with prestige to obtain the active allegiance of Secretary of the Interior, C. S. Ickes in that project.

Burgis G. Coy, born 1879, whose father and mother migrated from New York to Ft. Collins by ox team in 1862, and there built the Coy Ditch,

graduated from Rensselaer Polytechnic Institute. He was the engineer in 1906 to 1912 in charge of the Laramie-Poudre Tunnel construction. He had been engineer on the Moffot Tunnel. In the World War I he was a major in the U. S. Engineer Corps.

After that Burgis Coy was City Engineer for Ft. Collins and for the Mountain-Plains, "Portner and Schureman", system of high mountain reservoirs, which they sold to the city of Greeley. He engineered many northern Colorado irrigation works in the first quarter of the century.

C. D. Paige, was an easterner who, as a young man, joined Union Colony. His practical engineering learning began under Ed Baker. He was on the Upper and Lower Platte and Beaver construction in 1882. Then for a time became manager of its land development in the Brush and Morgan area. Twenty years later he was engineer of the Poudre Valley Canal inlet to Cobb Lake and Douglas Reservoir in 1902 in Larimer County. His next big project was the Empire Reservoir inlet canal from Weld County eastward to the county line.

Emmett C. McAnelly, of Ft. Collins, civil engineering graduate in 1899 under Professor L. G. carpenter, had much to do with ditch and reservoir construction in the Poudre Valley and in the exploration of water supplies of the Poudre and the Laramie Rivers. He was early on Laramie-Poudre and Larimer county ditch surveys. He became a revered river commissioner for the Cache la Poudre.

So likewise held in respect was Will J. McAnelly, Emmett's brother and successor commissioner.

A man in long high esteem of ditch men was John L. Armstrong, of Fort Collins, for many years river commissioner as 'Emmett's predecessor. He helped to inaugurate and apply the "exchange system" of greater utilization of Poudre water supplies, by substituting reservoir water to lower ditches for their rights to direct flow from the river at headgates higher upstream.

John R. Wortham, engineering graduate of Purdue, after engineering railroad construction, began his irrigation career in Colorado at Greeley in 1909 as District Engineer of the Laramie-Poudre system under Charles

R. Hedke. In the next twenty years, Wortham located, and mapped and constructed several reservoirs and canal enlargements for irrigation and for power plants in the Poudre Valley.

II. "DITCH MEN", WATER HUNTERS OF THAT FIFTY YEARS, NOT ENGINEERS:

Nathaniel C. Alford, born in the state of Maine in 1834, came west with the Pikes Peak gold rush in 1859 to help discover the Breckenridge mines. After freighting to the further west, in 1871, he located in cattle ranching in Larimer County, north of Livermore. His career was full of fruitful activity. In 1881 he became, with F. C. Avery and Noah Bristol, one of the incorporators of the Larimer County Ditch Company and brought under irrigation a large body of land under it. He followed with protracted rehabilitation and fruition of that system. For many years, he was President of the Poudre Valley Bank. Alford knew where to show the engineers to look and where to start.<sup>8</sup>

Abbott, David Boyd, B. S. LaGrange, Joseph Moore, J. D. Buckley, J. Max Clark steered this legislation, for determining priorities of water rights and a state engineer and river commissioner authority to administer such priorities in time of scarcity of water supply.

Dr. Charles A. Lory, President of the Agricultural College, before that professor of physics at University of Colorado, was highly respected by Mead. That tie, with Mead's desire to do something for the Cache la Poudre Valley, in which he had early irrigation activities, helped pave the way to access through Mead and acceptance of the project by Secretary of Interior Ickes and by United States senators and representatives. He is to be credited as an engineer.

That engineering school, now Colorado State University, its impetus under Louis G. Carpenter, carried on under Dr. Lory to get transmountain supply, and continued by President W. E. Morgan to this day, has turned out engineers trained in water works and developments, as the outstanding irrigation engineering institution of the country.

Several state engineers of Colorado and other western states and other men who rose in the Bureau of Reclamation, got their training there, among them Porter Preston, planning and first project engineer of the Colorado-Big Thompson, also James Ogilvie, of Greeley, from 1935 in

---

<sup>8</sup> Watrous, History of Larimer Co., 1911, Courier Prtg. Co., p. 348

the Reclamation Service. He had a large part in Colorado-Big Thompson works engineering, is now the project engineer of the \$174,000,000.00 Frying-Pan Arkansas Transmountain Diversion project.

John C. Abbot, born in Illinois, was a colonist who did something about the need for irrigation ditches. Abbot, then thirty (Colorado state Auditor), came with the Greeley colony in 1870, joined in No. 3 Canal digging, as did Ben H. Eaton. These two and Ben R. A. Cameron and J. L. Brush of the Union Colony went on up the Poudre to take out, in 1873, two new canals at Ft. Collins; one was Larimer County No.2, one was the Lake Canal. They had been organizers of the Agricultural Colony, which colony became the nucleus of that then pioneer, now modern, growing city. Abbot had moved to Ft. Collins to live in 1872.

The "Lake Canal" ditch they built in 1872 led to new lands on the north side of the Poudre to make what are now the productive districts of Timnath and Windsor. Later in time than No. 3 at Greeley, the 1873 Larimer County No. 2 and 1872 Lake Canal ditch users asked to take water from the river when the supply was short and "No.3" was without water, when the river was dry at its earlier, though downstream, headgate. It caused a meeting which could have led to bloodshed, but cooler heads prevailed, so instead, it led to the solution from which evolved the Colorado system of statutes for a state engineer to administer priorities of appropriation of water by ditches from natural streams, after a court procedure for claimants to present evidence of date of installation to determine what was the relative order of commencement of the appropriating works.

Benjamin H. Eaton, builder, is to be credited as a pioneer engineer. Within the 50-year period from 1870-1920, other earnest and active men were hunting the plains and hills, on horseback, in buckboards, and afoot, to discover possible storage basins and new water supplies. They were "ditch men", a significant term of respect.

Among these, not all, but some are the following men, who were prime movers in bettering water supply in this valley. Two were early colonists from Van Wert, Ohio, C. G. Buckingham and Dr. Charles W. Emerson. Both went into banking; but joined with money and encouragement

in building of several of the early canals; Emerson also in the Ft. Morgan area; Buckingham also at Ft. Collins, Loveland and Longmont. C. G. Buckingham joined Eaton in 1870 in building the "No. 10" ditch which Ben Eaton so enlarged to become the Larimer and Weld.

FOOTNOTE:

Of the enlarged Larimer and Weld, or "Eaton" System, O. J. Blandin, W. W. (Bill) Brown, C. G. Carlson, Horace Clark, W. R. Clark, J. M. (Roe) Collins, J. L. Dorsey, Bruce G. Eaton, Harry W. Farr, Jesse Gale, R. M. Haythorn, George M. Houston, James G. Milne, John R. McCall, Sam Southard, D. P. (Moss) and Dave, the "Wyatt Brothers", and T. H. (Scotch) Wilson, a cooperator with Lyulph Ogilvy, who built also the Ogilvy Canal east from Greley.

Farmers around the Eaton area, associated in 1901, realized that another reservoir must be built and that they must do it.

FOOTNOTE:

As the Poudre Valley Reservoir Company, they incorporated it in 1902 with O. J. Blandin, J. L. Dorsey, Charles F. Finley, A. H. Meyers, D. B. and Dave Wyatt, the "Smillie Brothers", Thomas Smith, Sam Southard as incorporators and first directors. These, joined by Al Igo, Horace Clark, W. R. Clark, J. M. Collins, and about 50 active farmers subscribed for its stock, to build Cobb Lake and Douglas Reservoir, with Poudre Valley Canal as their inlet.

William C. Stover, another pioneer searcher for ways to improve the valley, came early to Ft. Collins. He first operated in freighting through the Rockies. Attracted by the lands next north of those under already built ditches, Stover, with John C. Abbott and John C. Mathews, sought out more water and began in 1878 a ditch from the north of the Poudre from its canyon onto the plains. It was taken over 1881 as the "North Fork Ditch Company", by Francis L. Carter Cotton. It got Travelers Insurance Company capital backing with which it bought up 16,000 acres of U. P. Railroad land.

These second enterprisers, in 1886, had to give it up, to yield to the adversities of financing new development of that day. The North Fork project languished to 1901. Then the company headed by Burton D. Sanborn, another water hunter and developer, with other Greeley men, took it over for a decade. L. C. Moore, Francis C. Grable were the Greeley men.

Sanborn is entitled to be numbered as an irrigation engineer. With associates of George M. Houston, Raymond F. Walter, Sanborn reorganized as North Poudre Irrigation Company. To meet Greeley reservoir water



applicants, they completed Fossil Creek Reservoir on the south side of the Poudre. The Grable, Moore and Fitzpatrick interests built Halligan Dam and other reservoirs.<sup>9</sup>

A. A. Edwards, of Fort Collins, native of Mercer County, Pennsylvania, was induced to follow Hibbard in leading that project known as the Laramie-Poudre. or Greeley-Poudre Project. "Al" Edwards, outstanding in irrigation development, was then in his thirties. He had a notable career in irrigation development and civic activity at Fort Collins from 1876, first as County Treasurer. A leader in building the Mercer Ditch, in 1891 he became one of the first Board of Directors of water Supply and Storage Company. He was its manager from 1895-1910, He was a member of that constructing board of that company's directors which built the "Skyline Ditch" to collect and divert Laramie River headwaters into Chambers Lake, started the Grand River Ditch from the upper Colorado, and built numerous reservoirs. "Al" Edwards became a member of the Board of Colorado State Agricultural College, of the Laramie-Poudre Reservoir and Irrigation Co., and other boards. His inquiring mind was applied to a study of water supply possibilities. He put his effort forth and "took hold of the shovel" as a leader in the quest for water. Edwards discerned where to conduct surveys.

Likewise, there were three Akin Brothers of Fort Collins and Ben Eaton, Dan H. Camfield and Burton D. Sanborn, of Greeley. They were all leaders improving the Poudre Valley. All six deserve to be numbered among the engineers. They led the way for the man they put to work with transits and levels. Of Ben H. Eaton, particularly, naturally much is elsewhere recorded. Otherwise this record would be more dwelt on here.

Willis Link was an early rancher in the Laramie River. Always watching for new water supply sites, in 1902, on Green Ridge, he was

---

<sup>9</sup> The system had many vicissitudes until 1957 when the Conservancy District allotments began to produce in the Poudre. It took the North Poudre's 40,000 acre foot allotment from that district, which farseeing later leaders, under Ed F. Munroe, signed up for in 1937. That made its water supply adequate. Its shares have since multiplied many times in market value.

struck with the narrowness of the mountain separating the Cache la Poudre from the Laramie River headwaters. He interested the brothers, Abram I. and Myron H. Akin and Harris Jesse (brother in-law) of Fort Collins, to actually start the earth moving on Laramie-Poudre on the ground and in financing. In 1903 these men got the survey of the tunnel from the Laramie to the Poudre River.

Their first surveyor was R. Q. Tenney, another practical water prospector for new sources of supply. Tenney's survey was confirmed in more detail in 1904 by Engineer Zac T. Duvall. In 1903 these men by excavation and clearing began actual construction of the collection ditch from Rawah Creek on the Larimer River. In March, 1904, they enlisted the constructive Wellington Hibbard from St. Louis, as full time leader for financing and construction. He was a man of energy, then in his prime. Hibbard's untimely death occurred in 1910 in a runaway automobile sliding off the steep and crooked Pingree hill road while on an inspection trip to the Upper Laramie work.

The Akins-Bonds-Harris-Hibbard-Link-Robinson-Ziegler consolidation was originally incorporated as Laramie Poudre Reservoir and Irrigation Company. It comprised the plains works from the Poudre, to which they added the Laramie River works into the Poudre.

That company was the contracting agency to build the works. The Greeley-Poudre Irrigation District, a special assessment district for bonds issued against the farm lands, was contracted in 1909 to construct and convey to the district, the irrigation works, among them, beside the tunnel, the Poudre Valley system purchased from the North Poudre Irrigation Company and other Poudre Valley Co. stockholders.

The Poudre Valley system went through a sustained period of financial difficulties, changes of ownership, new starts and expansions after 1902. It became the jugular vein of the Greeley-Poudre and the Laramie-Poudre irrigation systems. These organizations spent over \$300,000.00 in completing works on the Greeley Poudre and the Laramie, the tunnel, and on the canal to McGrew Reservoir. While trying to refinance in 1934 to 1936, its competitor for Laramie-Poudre water bought the bonds on it at great discount, foreclosed aggressively.

The writer hereof has written some history of the Laramie Poudre System. Some other person should write the history of the Water Supply and Storage.

Daniel A. Camfield, citizen of Greeley from 1885, native of Providence, Rhode Island, was not an engineering graduate, but he was one who had in the 1890's built canals and reservoirs along Crow Creek, to develop new lands, first. Then, in succession, he built larger works down the South Platte, in Weld, Morgan, Sedgwick Counties, Riverside, Empire, North Sterling, Julesberg systems. In 1907 his leadership was sought for the "Laramie-Poudre" Project, to bring under irrigation the large body of land next north above the older canal developments in Larimer and Weld counties. Charles F. Tew was his attorney and associate those constructions and the Greeley Poudre.

Camfield, with outstanding success in his previous projects to bring new lands under irrigation, accepted the Greeley-Poudre leadership with energy. He lost a fortune on the series of adverse events which frustrated its financing to flag.

Irrigation works builders, convinced Camfield in its early states of its great potential to add to the irrigated area. These were other men of vision and energy, prominent among whom Charles F. Tew, were S. H. Shields, W. S. Iliff, and W. J. Robinson of Denver, Bond Brothers of Trinidad, and their lawyer Julius C. Gunter, later Supreme Court Justice and Governor of Colo.<sup>10</sup>

Burton D. Sanborn: The North Poudre Irrigation Company, organized in 1901 by Burton D. Sanborn, had its office at Greeley for its first five years. E. S. Pinney of its first board was secretary of the Greeley No. 2 Company, whose shareholders became purchasers of water rights from

---

<sup>10</sup> The Wyoming water users gave widespread publicity in security markets of the east, to discredit sale of Greeley-Poudre bonds; that, and the bank depression of 1908 to 1910, hostile local competitors for Laramie water, and the long protracted (1911 - 1922) suit brought by Wyoming in U. S. Supreme Court suit compelled seeking other financing. While the suit was pending, Camfield died suddenly, on the streets of New York, trying to recoup the exhausted capital of the project in which he had slated, and lost, a fortune.

Fossil Creek Reservoir. That reservoir, with its intake on the Poudre on the east side of Fort Collins, has its dam across the mouth of Fossil Creek. Its outlet canal delivers into the Poudre just above the No. 2 Canal intake at Timnath and above the Greeley No. 3 intake below. "Fossil Creek rights" had a ready sale among "Greeley No. 3" users and the City of Greeley, which also bought Fossil Creek rights.

With Sanborn, on his first board of directors were George M. Houston, Sanborn's son-in-law and partner in the investment business.<sup>11</sup> Also were H. C. Andrews of Kearney, Nebraska, and Raymond F. Walter. When this board took over, in 1901, the Francis S. Carter-Cotton North Poudre Project begun in 1886, that original enterprising group, had run out of resources and the work had languished for ten years. Sanborn and associates added Fossil Creek Reservoir to its system of projected works, to meet the Greeley users' desire for more reservoir facilities. It was a good addition.

After its first five years, F. S. Grable from Nebraska, L. C. Moore (for about ten years) and others, of Ft. Collins, threw their interest into completing the works for the Wellington area land development. The office was moved to Ft. Collins. They built Halligan Dam and the tunnel through the ridge near the head of the canal from North Fork.

Ed Fitzpatrick, first as secretary, then as a director, continued for fifty years on the North Poudre enterprise. The continuity was carried forward, beginning in 1919, by the entry of Ed. F. Munroe, of Ft. Collins, to that board. Through 1963 his leadership, for thirty years, was unflagging to improve its water supply. North Poudre history deserves a book.

Note: The oldest decreed ditches on the Poudre were headed in Larimer County: The Yeager, from June 1, 1860; Watrous, Whedbee and Secord, June 1, 1861, Pleasant Valley by Antoine Janise, September 1, 1961 and Pioneer, March 1, 1962. Next headed in Weld County are Boyd and Freeman, March 15, 1962, John Whitney, September 1, 1962 and B. H. Eaton, April 1, 1964. The early appropriations of these have largely been transferred to pipelines of the cities of Fort Collins and Greeley.

---

<sup>11</sup> George M. Houston was also to be one of the first Board of Directors of the Laramie-Poudre Irrigation Co. along with J. N. Agan, A. A. Edwards, O. S. Moore and Harvey D. Parker, to revive that system in 1923. The writer was one of its incorporators.

Wellington Hibbard, born in New York, was a resident of St. Louis, Missouri. In 1907 on a visit to Ft. Collins, Colorado, his interest was engaged in the irrigation project to divert water from the Laramie River headwaters by a tunnel into the Cache la Poudre headwaters. He joined the local men in the project, the three Akin brothers, Wallis Link, Jesse Harris, and became its manager in 1906. The Laramie Reservoir and Irrigation Company had been incorporated in 1904. The project had taken on the promise of great benefit to the valley, the Greeley-Poudre, to carry water to new lands as far east as Crow Creek. These in 1908 enlisted Charles F. Tew, Greeley lawyer, and D. A. Camfield, builder of other recently completed Platte River irrigation enterprises.

Construction was being pushed in a big way on the Laramie River, the tunnel and on the Plains Canal to McGrew Reservoir through Nunn and eastward in 1910 when the state of Wyoming brought the suit in U. S. Supreme Court to enjoin the diversion from the Laramie.

During the widespread agricultural depression of the early nineteen thirties, a competing company bought, at distress price, control of the bonds and crowded foreclosure. They so got properties worth a million dollars at their gain and at the builder's loss.

"Larimer County" Ditch Men of the Era to 1920:

In Water Supply and Storage System development, next north, a name which first occurs in the era following A. A. Edwards, is A. C. (Gus) Kluver. Others were Anton Anderson, Will Bennett, Clyde Bartels, J. H. McCall, Ralph McMurray, August Molander, Alex Mead, Robert Wykert, W. E. Quayle. Anderson, McCall, Molander, Wykert and Quayle were of Ault; Gus Kluver, Bartels, Bennett, McMurray were active in Fort Collins, Alex Mead at Greeley. A worker for his neighbors for Laramie-Poudre water, and for the new Pierce Lateral lands east of Union Pacific in Weld County, was the late George W. Ball of Pierce.

Cache la Poudre Irrigation Co. Ditch Men of 1870 to 1920:

Nearer Greeley, under the "No. 2 Ditch", beginning in that fifty year span after its initial board of 1870, were builders with periods of service of more than a quarter century each, notably Mort W. Darling, Asa Decker, H. M. Devotie, W. H. Gill, M. J. Hogarty, Lew Kern, George F.

Kern, John E. Law, A. N. Lyster, Charles F. Mason, J. S. Newell, B. C. Rienks, Millard Riggs, H. C. Watson, Harry L. Wells, and, last but not least, David Kelly, one by whom the writer, from boyhood, was constantly being told of effort for more reservoirs on the Poudre, and transmountain water supplies. He came to grow with the Greeley area in 1890 in his early forties. His 35 years of service on "No.2" and Windsor Reservoir boards was joined to that of other improving men in the forefront. Of such men was the valley built "in a dry and thirsty land."

Down the South Platte, Greeley ditch builders

Beside later Camfield led reservoir building of Bijou, Empire, Jackson and Riverside Reservoirs, Early Greeley men initiated and built ditches from the South Platte River to irrigate lands in Morgan and Washington counties, followed the reservoir building to meet late season crop needs.

The Weldon Valley Ditch was begun October 26, 1881. These Greeley men were its organizers and builders, G. A. W. Cage, Solon D. Martin, Charles Mason, Albert Igo, Henry Igo, Stillman K. Thompson, P. W. Putnam, G. T. Goodrich. Morgan men Mason Dandridge, H. Girardot, A. D. Preston, James Hurley, Nathan Lamborn pioneered in development of that dependable ditch and the Waldon Valley lands.

The incorporators, in 1882, of the Platte and Beaver Improvement Company were Charles Emerson, Bruce F. Johnson, Daniel Hawks, James C. Scott, Jared L. Brush, Silas B. Haynes to build the Upper Platte and Beaver in 1882 and 1884 and the Lower Platte and Beaver Canals as mutual irrigation companies to irrigate lands now highly productive in the Fort Morgan, Brush and Hillrose areas. Others at the outset active in that development as large stock subscribe were Benjamin H. Eaton, H. N. Haynes, J. Max Clark, Abner S. Baker and L. Ogilvy. Engineers were E. E. Baker and C. D. Page. All of these constructors were Greeley leaders. The boards of early years meetings were held in Greeley at the law office of H. N. Haynes. Abner Baker, then of Fort Morgan, brother of E. E. Baker, was a large contributor of construction funds and land development. They were joined by Morgan county land developers, prominent among them W. H. Clatworthy the Baker's brother-in-law.

The Fort Morgan Canal, the larger of the three irrigation systems to irrigate the Bijou Flats in Morgan county, begun in 1883 and backed by Greeley men, had as its incorporators, beside Abner Baker, L. Ogilvy, Abner Baker's brothers E. E. Baker and Lymun Baker, besides Fort Morgan land owners Bruce Johnson and H. W. Edwards in 1886 built the Johnson Edwards ditch to their "22" Ranch in the Merino area.

The early difficulties of these canals to subdue sagebrush and cactus or prairie lands did not profit the original builders. A later generation was to reap the gain.

IN RETROSPECT:

Only that fifty years era, those from 1870 to 1920, is attempted to be here touched upon. Another can take up from there.

In reading the biographies of those men who were in the forefront of those ditchmen. an important realization is that those were men in their thirties and forties when they were starting these works. Many were recently returned Civil War veterans.

Excepting James Andrews. George M. Houston, George F. Kern, Charles A. Lory and Ed F. Munroe, all have passed off the scene of action. These were doers of the word. They came to an arid country. They saw that it needed ditches. They built them. They proposed to make the valley in which they had settled a better place than they found it. Difficulties, yes. But these stouthearted men regarded obstacles as something to be surmounted. They built for their own and future generations.

Often they did not profit, but rather lost, financially from their efforts. But they were heartened by knowing that the water supply of the valley was bettered, by that saved from the Cache la Poudre, or introduced into its supply by that from other watersheds. Many not specifically named, less prominent, put their hand to the shovel and contributed to the consummation. All these mens' careers deserve record beyond that "written in water".

February 10. 1967

William R. Kelly