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## **CHAPTER IV**

### **THE DIRECT SYSTEM TO END OF THE GENERAL LAND OFFICE**

## THE PERIOD 1910 — 1946

As organized at the beginning of the direct system of surveying and resurveying the public lands, the GLO consisted of six units:

- (1) Washington Headquarters Office (GLO and divisions therein)
- (2) Offices of the Surveyors General
- (3) District Land Offices
- (4) Field Service
- (5) Surveying Service
- (6) Logging Service

The Commissioner of the GLO, the Assistant Commissioner, the Surveyors General, and the Registers and Receivers of the district land offices were appointed by the President.

Surveyors General and their offices were located at Juneau, Alaska; Phoenix, Arizona; San Francisco, California; Denver, Colorado; Boise, Idaho; Helena, Montana; Reno, Nevada; Santa Fe, New Mexico; Portland, Oregon; Huron, South Dakota; Salt Lake City, Utah; Olympia, Washington; and Cheyenne, Wyoming.

Division "E" in the Washington Headquarters office had general supervision of all cadastral surveys on public lands, regardless of who managed those lands. All instructions for surveys issued in the field were examined and approved in Division "E."

The *Civil Appropriations Act of March 4, 1911*, 36 Stat. 1363, permitted the Secretary of the Interior to appoint two Supervisors of Surveys. Frank M. Johnson and Arthur D. Kidder had already been appointed to those positions.

The Field Surveying Service was organized with Johnson as Supervisor of Surveys; his office was located in Denver, Colorado. Kidder later became Associate Supervisor of Surveys in Washington, D.C. Ten surveying districts were established with an Assistant Supervisor in charge of each district, except the Eastern States District, which was under the Associate Supervisor. The Districts and their numbers were:

- District 1 — Montana,
- District 2 — Colorado and Wyoming
- District 3 — South Dakota and Nebraska
- District 4 — New Mexico
- District 5 — Arizona and California
- District 6 — Utah and Nevada
- District 7 — Washington and Idaho
- District 8 — Oregon
- District 9 — Alaska
- District 10 — Eastern States, at Washington, D.C.  
(not numbered until 1918)

Under this organization, the technical direction of the actual field work was controlled by the Supervisor of Surveys, through the Associate and Assistant Supervisors. The major office work was done under the Surveyors General, who were under the Chief Clerk in Washington. They issued the *Special Instructions*, prepared the plats and approved the field returns prepared by the field surveyors; but the plats did not become official until accepted by the Commissioner. The Surveyors General remained custodians of the survey records and also received and disbursed monies deposited by settlers for surveys and resurveys. This splitting of the re-

sponsibilities for the surveys was unsatisfactory at best, but continued for 15 years until the offices of Surveyor General were abolished in 1925.

The first cadre of surveyors was made up primarily of men who had been field examiners of the contract surveys and from the known reliable Deputy Surveyors who had proven themselves when executing their contracts. The titles given them were either "U.S. Surveyor" or "U.S. Transitman." They were selected very strictly on the basis of ability. All were government employees, paid a monthly salary, and provided with food and lodging (tents) when in the field. All instruments and equipment were furnished by the government, although like most surveyors, they had and used personally owned equipment as well.

The Surveyors General grouped the proposed field work together by type and classification; i.e., railroad, coal, and forest lands, settler's application (deposit) surveys, and resurveys. If the proposed work program was approved by Division "E," the Surveyor General prepared *Special Instructions* under a Group Number. A "group" might be a few miles of a special type of survey, but most often was for the survey or resurvey of a township or group of townships. The township was the usual unit used. The *Special Instructions* were approved in either Division "E," or if more expedient, by a Supervisor. The work would then be assigned to a U.S. Surveyor or U.S. Transitman for execution in the field. Assignment instructions were issued by the appropriate Assistant Supervisor of Surveys. The surveyor assigned would hire his field assistants, gather his camp and surveying equipment and head for the field.

At first, some of the Examiners of Surveys remained on that duty until all of the outstanding contracts were completed, examined, and approved. These men then became U.S. Surveyors or Assistant Supervisors. In the early years of the direct system, while the organization was being perfected, the field surveyors were placed in the field and moved around by the Supervisor of Surveys. A set amount of time was allowed for preparing field returns and in effect the field surveyors were per-diem employees, furloughed between jobs. The system was gradually refined and later the surveyors were assigned to a district and worked within that state or states as the responsibility of the Assistant Supervisors increased. Surveyors could not transfer from one district to another without the approval of the Supervisor of Surveys.

*Annual Instructions* were issued on July 20, 1910, outlining in detail the procedures to be used in hiring surveyors, procurement, and use of equipment, duties of responsible persons, and other details of expending the appropriation for surveying. The surveyors *Weekly Progress Report* was installed and is still used in only slightly modified form. The *Standard Field Tables* and *The Ephemeris* (of the sun and selected stars) were issued in 1910 and are still being supplied to all BLM surveyors.

The changeover to the direct system was apparently a rather smooth operation and had been in the planning and preparation stage for more than a year. Much of its early success was due to the superb organizational ability of the Supervisor of Surveys, Frank M. Johnson, and his selection of able Assistant Supervisors.

After field work was completed on a group, the surveyor

submitted sketches and plats of the work to the Surveyor General. Field notes were usually handwritten, one mile per page, on loose sheets and turned in with the other materials. The notes would then be typed by an office typist. Those surveyors who had access to a typewriter and knew how to use it could type their notes directly. In a few years, when typewriters became available, the surveyors had to type up all the final field notes themselves. As more complicated resurveys and special surveys became numerous, this was a practical necessity. The first survey approved and accepted under the direct system was Group No. 1, Colorado, T. 14 S., R. 100 W., Sixth Principal Meridian, executed by A. C. Horton, Jr., U.S. Surveyor, and Jay P. Hester, Transitman, under *Special Instructions* issued on July 14, 1910. The returns were submitted to Division "E" on September 30, 1910, but were not immediately accepted because of a few deficiencies in the field notes and plat. Perhaps that is not too surprising, considering that an extremely rough and mountainous township had been surveyed, the field notes written, and plat drafted in just two and one half months. It is doubtful that any double party, complete with the most modern equipment, could match that feat today. The surveyors were out to prove that the direct system was more economical than contracting and succeeded despite the fact that most of easier, more accessible work had been already surveyed. And in fact the direct system was more economical in cost per mile of line surveyed and produced higher quality work than the contract system was doing in 1900-1910.

### Fairbanks Meridian

The *Appropriations Act of June 25, 1910*, provided \$100,000 for public land surveys in Alaska. Prior to that date, an irregular arrangement was made between Secretary of the Interior Richard A. Ballinger and George O. Smith, Director of the Geological Survey, without consulting the Commissioner of the GLO, Fred Dennett. Smith detailed a large party to Alaska under the supervision of R. H. Sargent, Topographer. Smith formulated a system of "plans" for the surveys and sent them to Sargent on June 29, 1910, which called for metes and bounds surveys at the direction of settlers or speculators, laying off of township boundaries from irregular triangulation networks without measurement on the ground and to "correct" or alter previously established and accepted surveys. Most of the work was a matter of platting and protraction, rather than running and monumenting the lines.

Commissioner Dennett and Division "E" disapproved these plans. They were not in compliance with the requirements of the *1902 Manual* and hence would be in violation of the *Act of April 26, 1902*. But Sargent was in Alaska and executed much of what work was accomplished during the 1910 field season. The initial point of the Fairbanks Meridian was established and some of the meridian and baseline surveyed. The \$100,000 appropriation for surveys was largely consumed. The GLO insisted on the right to audit and disburse funds and this caused conflict with the USGS, who withdrew from the enterprise, since they could not exercise complete control of the work and funds.

Sargent's field returns were forwarded to Division "E" on May 15, 1911, in an incomplete and fragmentary condition. When examined they contained about 95 miles of line which

were finally acceptable. These miles included the establishment of the Fairbanks Meridian and Baseline, the exterior boundaries of several townships, and the survey of five sections of land.

The establishment of the initial point of the Fairbanks Meridian was made by S. G. Lund, under the supervision of R. H. Sargent. The point was monumented with a concrete post and brass tablet. The surveys were approved June 7, 1913.

These surveys were made by calculations from an un-checked triangulation net, with "forced" closures. The survey corners established were monumented with wood posts of spruce, birch, and aspen, instead of iron posts or stones. These were later replaced by U.S. Surveyors with permanent monuments. On the basis of the lines finally acceptable, the average cost of these surveys exceeded \$360 per mile. As far as can be determined, this was the last adventure of the USGS into the execution of the rectangular system of surveying.

### Seward Meridian

On May 15, 1911, John P. Walker and G. G. McDaniel, U.S. Surveyors, established the initial point of the Seward Meridian and Baseline, near Seward, Alaska, tied into the existing Coast and Geodetic Survey (USC & GS) triangulation net. Walker and McDaniel surveyed many miles of township boundaries and subdivided several townships on the Kenai Peninsula in 1911. The work was approved June 11, 1914, by Charles E. Davidson, the second Surveyor General of Alaska. The Seward Meridian Surveys were extended into the Anchorage and Matanuska Valley areas in 1912 by using computations for position based on the Coast and Geodetic Survey (USC & GS) triangulation network, instead of extending the rectangular survey lines directly over the mountains. The *Act of July 31, 1876*, permitted that procedure and it worked well with the proper application.

The *Act of August 24, 1912*, 37 Stat. 512, made Alaska a territory of the United States and established a civil government for the territory.

On June 5, 1913, Clay Tallman was appointed Commissioner of the GLO.

The *Act of March 12, 1914*, 38 Stat. 305, authorized the President to have the Alaska Railroad built and provided for townsites along that railway. Anchorage was one of the first townsites surveyed under the act.

The *Act of July 17, 1914*, 38 Stat. 509, amended the public land laws to provide for agricultural entry on lands containing phosphate, nitrate, potash, oil and gas, with those elements reserved to the United States. The law did not apply to lands containing metallic minerals; those elements came under the 1872 Mining Act. Since 1914, nearly all homestead, cash entry, and small tract patents contain a clause reserving the minerals to the government. These mineral reserves can cause problems for the present-day surveyor when the surface has been patented, and he is called on to resurvey the section lines to identify the subsurface mineral deposits.

The *Act of March 4, 1915*, 38 Stat. 1214, granted sections 16 and 36 in every township in Alaska to the territory for support of schools when the lands were surveyed. In addition, section 33 in each township in the Tanana Valley between parallels 64° and 65° north latitude and between 145° and

152° west longitude was granted. The four sections (1, 6, 31, and 36) around the corner of Tps. 1 N., Rs. 1 and 2 W., and Tps. 1 S., Rs. 1 and 2 W., Fairbanks Meridian were granted for a college.

By the *Act of June 9, 1916*, 39 Stat. 218, the unsold lands granted to the Oregon and California Railroad (pursuant to the *Act of June 25, 1866*) were reverted to the United States. These lands soon required surveys and resurveys to identify their boundaries and these have continued to the present time.

The *Act of July 8, 1916*, 39 Stat. 352, reduced the size of homesteads in Alaska to 160 acres.

The *Act of August 25, 1916*, 39 Stat. 535, established the National Park Service within the Department of the Interior. The boundaries of the national parks have been surveyed by the surveyors of the GLO and BLM.

In 1917, the organization and supervisors of the Field Surveying Service was reported as: Supervisor of Surveys — Frank M. Johnson, and Associate Supervisor of Surveys — Arthur D. Kidder.

District	Assistant Supervisor of Surveys
No. 1—Montana	J. Scott Harrison
No. 2—Colorado and Wyoming	Herman Jaeckel
No. 3—Nebraska and South Dakota	N. B. Sweitzer
No. 4—New Mexico	Alonzo E. Compton
No. 5—California and Arizona	A. C. Horton, Jr.
No. 6—Utah and Nevada	George D. D. Kirkpatrick
No. 7—Idaho	Frank S. Spofford
No. 8—Oregon and Washington	Ernest P. Rands
No. 9—Alaska Eastern States	John P. Walker Charles L. Dubois, Chief Division of Surveys, GLO

In January 1918, the Eastern States office was designated as District No. 10.

The *Act of September 21, 1918*, 40 Stat. 965, provided for resurveys or retracements in townships which were more than 50 percent in private ownership. Resurveys could be made on application of three-fourths of the land owners or a court of competent jurisdiction and deposit of the estimated cost of executing the resurveys. This act is now codified in 43 U.S.C. 773.

On June 16, 1919, advance sheets of the first six chapters of the 1930 *Manual of Surveying Instructions* were officially issued. Congress had appropriated funds for revision of the 1902 Manual in previous years, following the resurvey law of 1909. A board was appointed to make the necessary revisions. Of the first six chapters, Chapter IV, Corner Monuments; Chapter V, Restoration of Lost Corners; and Chapter VI, Resurveys; were probably the most important. They directed the Cadastral Engineers in the proper marking of iron post monuments and in the execution of resurveys, things not covered by any of the previous manuals.

The *Civil Appropriations Act of July 19, 1919*, 41 Stat. 163, provided funds for one Supervisor of Surveys and ten assistant supervisors and also provided funds for the resurvey of

State boundaries where required to close the public land surveys against them. This same provision for State boundary resurveys was included in the appropriations acts in 1920, 1921, and 1922.

The *Act of February 25, 1920*, 41 Stat. 437, is known as the "Mineral Leasing Law." It provides for the leasing of non-metallic minerals on the public domain, including coal (except in Alaska), phosphate, oil, oil shale, and sodium. The leasing act also applies to the minerals on lands in which the minerals were reserved in the patents. Surveys for leases on unsurveyed lands are at the expense of the applicant.

Sec. 7 of the *Act of May 21, 1920*, 41 Stat. 607 and 613, provides that one government agency may provide goods or services to another government agency on a reimbursable basis. This section of the act is referred to as the "Economy Act," it is under this provision that the BLM executes surveys or resurveys on lands under the jurisdiction of another government agency, such as the Bureau of Indian Affairs or National Park Service.

The *Act of June 5, 1920*, 41 Stat. 1059, abolished the 80-rod shore space between homesteads fronting on navigable waters in Alaska.

On March 22, 1921, William Spry was appointed Commissioner of the GLO.

The *Act of March 20, 1922*, 42 Stat. 465, is the "Forest Exchange Act." It provides for land exchanges between the Forest Service and private owners of surveyed, non-mineral lands. As written, it implies exchanges of legal subdivisions and/or aliquot parts of surveyed sections. Forest Exchange Surveys, similar to Homestead Entry Surveys, have been made by surveyors employed by the Forest Service, under *Special Instructions* issued by the BLM. The field notes and plats were examined and accepted by the BLM. As of 1980, the surveys of odd-shaped tracts, made for exchange purposes, are made by BLM surveyors at the request of the Forest Service on a reimbursable basis.

The *Interior Appropriations Act of May 24, 1922*, 42 Stat. 552, did not provide funds for a Surveyor General in South Dakota; apparently that office was abolished.

The *Act of June 15, 1922*, 42 Stat. 650, directed that small holding claims, up to 160 acres in area in New Mexico, would be shown on all township plats. If confirmed, the claims would then be surveyed and segregated on the plats.

The *Interior Appropriations Act of March 3, 1925*, 43 Stat. 1141, abolished the offices of the Surveyors General, effective July 1, 1925. The surveying duties previously assigned to the Surveyors General were assigned to the Field Surveying Service under the direction of the Supervisor of Surveys.

Under the reorganization following July 1, 1925, the Assistant Supervisors were titled "District Cadastral Engineers." The former Chief Clerks in the Surveyor Generals' offices were titled "Office Cadastral Engineers." The ten Surveying Districts remained as before, but at least one Public Survey Office was maintained in each State. These offices maintained the field notes and plats and other public contact duties formerly performed by the Surveyor General. The Division of Surveys in the GLO (Division E) was placed under the general supervision of the Supervisor of Surveys, who approved the plats which were then accepted by the Commissioner. Both approval and acceptance dates were shown on the face of the survey plats.

The *Act of April 13, 1926*, 44 Stat. 243, allowed departure from the rectangular form for surveying homesteads in Alaska. Previously, homesteads were surveyed in a rectangular form with exterior boundaries lying in cardinal directions. Under this act they could lie in any direction and in different shapes but were to be compact and as nearly rectangular in form as practicable.

The *Act of March 3, 1927*, 44 Stat. 1365, provided for five-acre homesites or headquarters sites in Alaska on non-mineral lands, not withdrawn from entry. The act was amended in some provisions by the *Act of May 26, 1934*, 48 Stat. 809. These homesites and headquarters sites were all surveyed under the numbered U.S. Survey method of metes and bounds surveys.

The *Act of December 28, 1928*, 45 Stat. 1069, is sometimes known as the "Color of Title Act" and provides for survey and patent of lands claimed under color of title, the nearest thing to "adverse possession" of public lands.

On May 9, 1929, Charles C. Moore was appointed Commissioner of the GLO.

On July 1, 1930, Surveying District No. 3, Nebraska and South Dakota, was consolidated and combined with District No. 2, Colorado and Wyoming. Thereafter, District No. 2 was composed of the four States.

The 1930 *Manual of Surveying Instructions* was officially issued on June 14, 1930; 20 years in preparation, it was a vast improvement over the 1902 Manual. It incorporated the first six chapters issued in 1919 and introduced chapters on instruments and methods, modern corner monumentation, restoration of lost and obliterated corners, resurveys, special surveys, and included the instructions for executing mineral surveys. The cover was blue, as is the cover of the 1947 and 1973 *Manuals*. Since 1930 the *Manual of Surveying Instructions* has been referred to by the public land surveyors as the "Blue Bible."

One item should be mentioned here, Section 377 of the 1930 and 1947 *Manuals*, which reads:

"377. Lost meander corners, originally established on a line projected across the meanderable body of water and marked upon both sides will be relocated by single proportionate measurement, after the section or quarter-section corners upon the opposite sides of the missing meander corner have been duly identified or relocated."

That section was interpreted to mean that original meander corners were not used to determine the proportionate position of a lost quarter corner or section corner, nor to proportion a one-sixteenth corner; the meander corner controlled the direction of the line but not the proportions along it. That procedure was wrong but the people who wrote the Manual did not correct the wrong interpretation, which lasted until about 1966.

On May 20, 1933, Fred W. Johnson was appointed Commissioner of the GLO and Johnson was destined to be the last man to hold the position. He served until 1946 when the GLO was abolished.

The *Act of June 28, 1934*, 48 Stat. 1269, is known as the "Taylor Grazing Act." Under this act, the Secretary of the Interior was authorized to withdraw up to 80 million acres of public domain and establish grazing districts, except in Alas-

ka. The lands were to be classified for their best use, etc. The Grazing Act halted agricultural homesteading (in effect) in the Western Public Land States. Under this act, the Grazing Service in the Department of the Interior was established. The need for original surveys under the rectangular system was greatly reduced in the contiguous States.

On May 1, 1937, Surveying District No. 1, Montana, was added to District No. 7, Idaho and Washington. For the next three years, District No. 7 included all three States.

The *Act of June 1, 1938*, 52 Stat. 609, as amended July 14, 1945, and June 8, 1954, is known as the "Small Tract Act." Under this act, small tracts up to five acres in area were sold or leased. The act provides that the lands must be surveyed, which was interpreted in various ways. In some cases, if a rectangular survey plat existed, even if surveyed 50 or more years previously, the lands were surveyed and 5-acre aliquot parts of a section were sold or leased. All too frequently, the old surveys were nearly obliterated and/or greatly distorted. Buyers tried to locate their lands according to the plat and build homes or cabins. Later a properly executed dependent resurvey and subdivision of section survey would reveal that these improvements were on someone else's land and even in the wrong section. As these conflicts arose, the need for dependent resurveys of the lands being sold as small tracts was evident. Later many dependent resurveys were made by the Cadastral Engineers because of this act. No particular problems occurred in Alaska because that territory was largely unsurveyed; the small tracts there were surveyed by metes and bounds as Lots in a U.S. Survey.

Effective January 1, 1941, the Surveying Districts were reorganized and numbered as follows:

District	State
1	Colorado, Wyoming, Nebraska, South Dakota
2	New Mexico
3	California and Arizona
4	Utah and Nevada
5	Idaho and Montana
6	Oregon and Washington
7	Alaska
8	Eastern States

Each District was supervised by a District Cadastral Engineer.

The Surveying Service was again reorganized into Regions, effective January 1, 1946, as follows:

Region	State
1	Colorado, Wyoming, Montana, Nebraska, and South Dakota
2	New Mexico, Arizona, and Southern California (the San Bernardino Meridian)
3	Utah, Nevada, and Idaho
4	Oregon, Washington, Northern California (Humboldt and Mount Diablo Meridians)
5	Alaska

The surveys in each Region were under the general supervision of a Regional Cadastral Engineer. The Cadastral Engineers worked out of the Public Survey offices under an Office Cadastral Engineer.

The *Act of July 16, 1946*, 60 Stat. 1100, known as Reorganization Plan No. 3 or the "Organic Act," consolidated the

GLO, the Grazing Service, the Oregon and California Administration, Alaska Fire Control, and others into one new bureau to be called the Bureau of Land Management (BLM). The GLO was abolished and the duties of the Commissioner were assigned to the Director of the BLM. The change had little, if any, immediate effect on the public land surveys.

On April 4, 1971, Harold H. Waller, the last surviving Deputy Surveyor under the contract system, died in Seattle, Washington. He was born September 19, 1889. Waller had continued executing public land surveys over the years. The last was U.S. Survey No. 4941, a Soldier's Additional Homestead Claim in Alaska, which he surveyed between September 10, 1967, and August 7, 1969.

During the past 30 years, changes have occurred. The surveying service has declined into more of a service instead of the planned program that existed under the GLO. The esprit de corps that existed among the surveyors following the beginning of the direct system has nearly disappeared. In 1910, Frank M. Johnson and the men under him were out to prove that the direct system could do better surveys at a lower cost. Johnson ran a tight, close-knit organization of hard-working, dedicated men. But, like Rufus Putnam and Edward Tiffin, they have all passed into history. And that is sad.