

THE
STATE TEACHERS
COLLEGE OF COLORADO
Boulder, Colo.
1919

AUG 6



COLORADO HIGHWAYS BULLETIN ~

August, 1919

- Highway Department Activities
- Funds for Many Roads
- Good Roads Develop Farms
- Fifty Government Trucks Arrive
- Road Connecting National Parks
- Winds Build Roads
- Prospects for Lincoln Highway
- Future Roads to Estes Park

Issued by the
State Highway Department

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FREMONT—Jonathan Seaman, Canon City; James Bunten, Canon City; J. V. McCandless, Florence; G. V. Hodgkin, Canon City; Jas. Belknap, Hillside.

NOTE—In the appended list of county officials the first name in each county is that of the county clerk, the second name is that of the county surveyor, and the last three names are those of county commissioners.

GARFIELD—Carleton L. Hubbard, Glenwood Springs; P. C. Thurmond, Glenwood Springs; L. F. Grace, Glenwood Springs; R. P. Coulter, New Castle; Geo. Newton, De Beque.

GILPIN—Frank G. Moody, Central City; S. A. Rank, Central City; Joseph Borzago, Black Hawk; Neil McKay, Central City; R. I. Hughes, Russell Gulch.

GRAND—H. J. Harrison, Hot Sulphur Springs; F. I. Huntington, Hot Sulphur Springs; Simon Olson, Parshall; J. H. Cather, Kremmling; J. B. Stevens, Fraser.

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HUERFANO—J. G. Archuleta, Red Wing; J. O. Francisco, La Veta; Walter Hamilton, La Veta; J. T. Trujillo, Red Wing; Chas. E. Furphy, Walsenburg.

JACKSON—E. N. Butler, Walden; M. C. Ward, Walden; A. J. Monroe, Walden; W. G. Mellen, Coalmont; Chas. L. P. Winscom, Walden.

JEFFERSON—Frank N. Felch, Golden; Chester A. Lytle, Critchell; J. R. Cruse, Mt. Morrison; Gus A. Johnson, Golden; R. L. Downes, Evergreen.

KIOWA—Ed. M. Low, Eads; C. E. Bell, Eads; C. C. Wolever, Eads; Wurt Bailey, Townser; Ed. Houston, Arlington.

KIT CARSON—Miss Clio S. Judy, Burlington; D. D. Buck, Flagler; I. D. Messenger, Stratton; A. L. Anderson, Burlington; J. O. Hendricks, Seibert.

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LARIMER—G. R. Cushing, Ft. Collins; James G. Edwards, Ft. Collins; J. M. Graham, Loveland; Harris Akin, Ft. Collins; C. M. Garrett, Laporte.

LAS ANIMAS—Juan B. Romero, Trinidad; Hal Barnes, Trinidad; A. G. Prosser, Trinidad; J. J. Cordova, Aguilar; Robert C. Scott, Trinidad.

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MORGAN—A. H. Asmus, Ft. Morgan; J. A. Gilbertson, Brush; Jas. Hurley, Ft. Morgan; J. K. Samples, Brush; J. H. Osborn Wiggins.

OTERO—Oran Walker, La Junta; Marl Denson, Rocky Ford; W. F. Green, Rocky Ford; J. N. Johnston, Manzanola; Geo Barr, La Junta.

OURAY—R. Whinnerah, Ouray; J. H. Doran, Ouray; W. S. Rose, Ridgway; Geo B. Croft, Ouray.

PARK—Harry L. Moyer, Fairplay; W. H. Powless, Alma; G. S. Singleton, Shawnee; J. F. Rhodes, Fairplay; J. Tol. Witcher, Howbert.

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PUEBLO—Wm. Barber, Pueblo; C. A. Reese, Pueblo; Geo. Herrington, Pueblo; J. M. Sare, Pueblo; J. C. Harbour, Pueblo.

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RIO GRANDE—H. G. Trapp, Del Norte; W. W. Reilly, Monte Vista; August Weiss, Del Norte; W. W. Wright, Monte Vista; M. S. Woods, Monte Vista.

ROUTT—J. D. Crawford, Steamboat Springs; C. W. Harkness, Hayden; Claud J. Smith, Clark; Wm. Scheer, Oak Creek; Henry J. Summer, Hayden.

SAGUACHE—Birt Clare, Saguache; A. F. Smith, Saguache; Geo. Woodard, Saguache; A. V. Shippey, Villa Grove; Adam Deitrich, Center.

SAN JUAN—C. E. Dresback, Silverton; A. W. Harrison, Silverton; Gail Munyon, Silverton; J. Ernest Shaw, Silverton; Edward Meyer, Silverton.

SAN MIGUEL—Lillian C. Kenyon, Telluride; Ben W. Purdy, Telluride; T. B. Mahon, Telluride; A. T. Woods, Placerville; J. R. Galloway, Norwood.

SEDGWICK—Nellie E. Nichols, Sedgewick; E. C. Hamilton, Sedgewick; H. E. Hodges, Julesburg; Frank Nagel, Julesburg; J. G. Mowbray, Sedgewick.

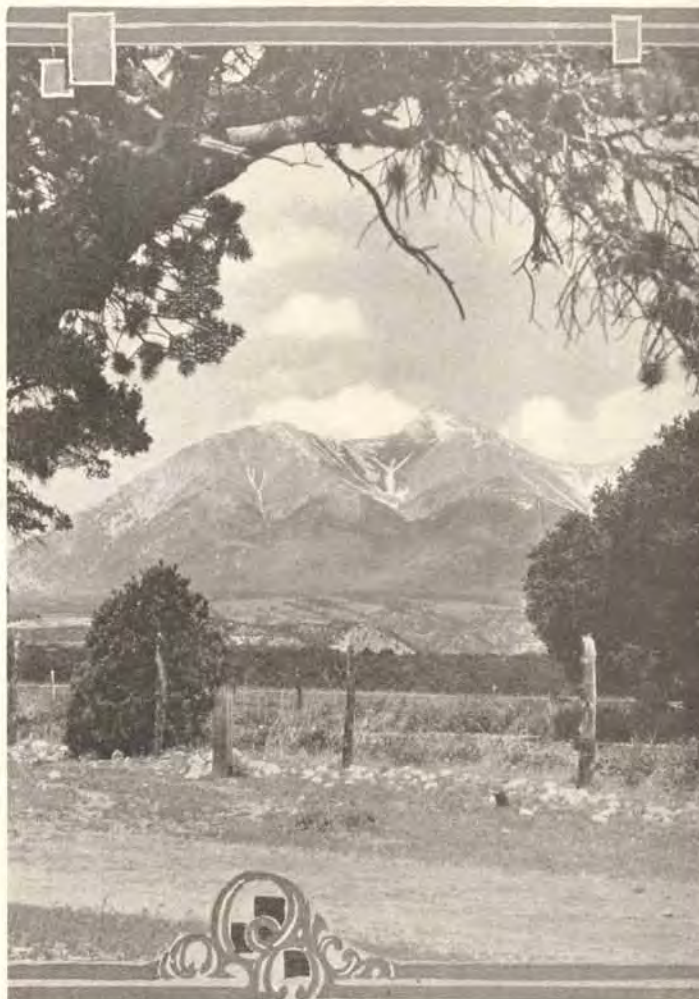
SUMMIT—Geo. F. Forman, Breckenridge; James D. Galloway, Breckenridge; A. Lindstrom, Dillon; W. H. Hampton, Frawley; Ell Fletcher, Breckenridge.

TELLER—J. H. White, Victor; E. Arthur, Jr., Cripple Creek; T. J. Wick, Cripple Creek; Tom Foster, Woodland Park; I. N. Riley, Victor.

WASHINGTON—L. Roy Cummings, Akron; Elbert Lewis, Akron; Homer Evan Akron; R. M. Buckmaster, Abbott; E. Lewis, Burdett.

WELD—Chas. E. Littell, Greeley; L. Stimson, Greeley; A. F. Peters, Mead; Elmer Rowe, Greeley; J. W. Birkle, Plattville.

YUMA—John Adcock, Wray; A. C. Car Wray; Harry P. Strangways, Wray; H. V. Jackson, Yuma; Alex. Shaw, Wray.



Mt. Shavano, Salida, Colo., June 12, 1919, showing the "Snow Angel," which appears every summer with the melting of the snows. Photograph by H. R. Hay of Salida. This wonderful scene is between Salida and Maysville.

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COLORADO HIGHWAYS
BULLETIN

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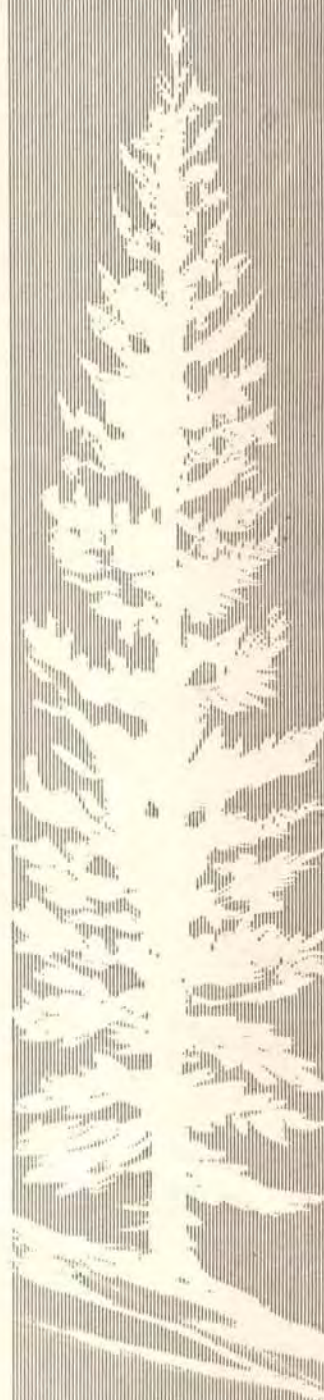
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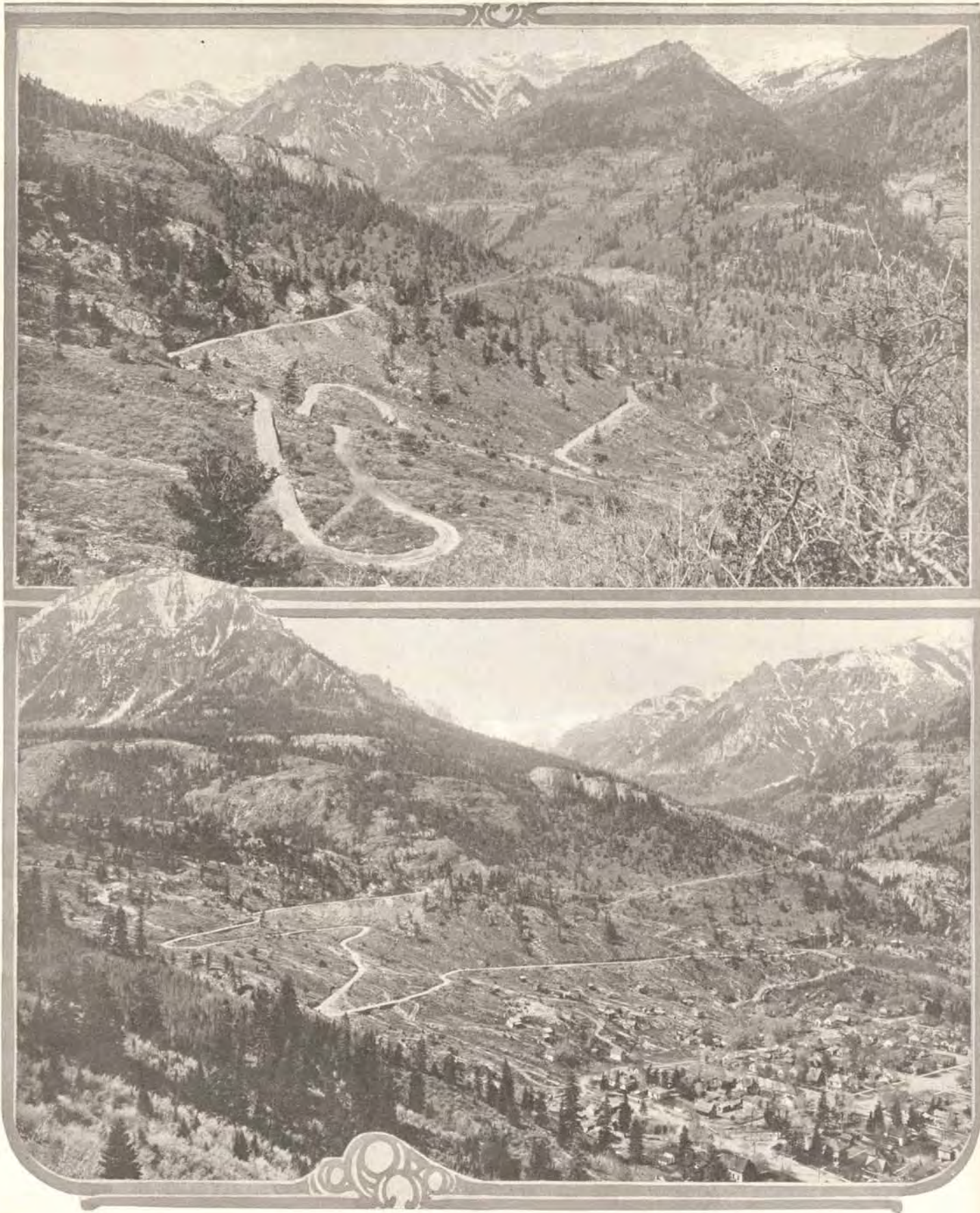
Denver, Colorado.

With the approval of the Colorado State Auditing Board.

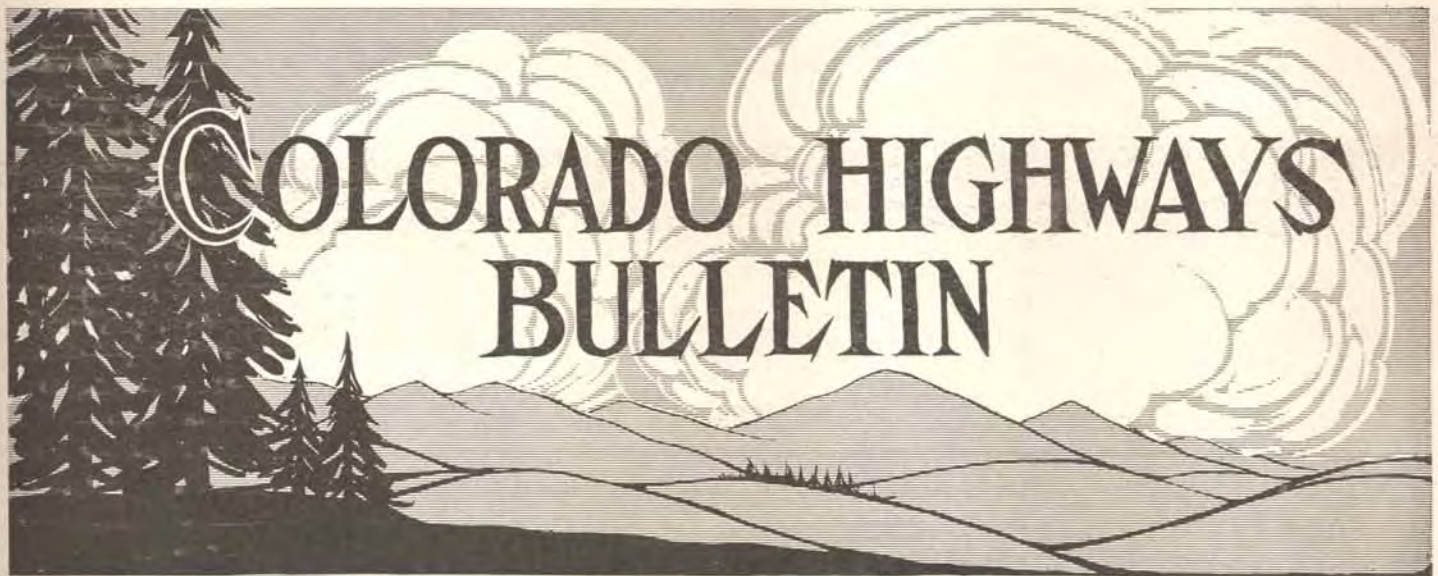
Address all communications to Colorado Highway Department,
attention J. G. Hilliard, editor, Colorado Highways Bulletin.

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The Ouray-Silverton Road, one of the most picturesque in Colorado, which is being rapidly completed through the energies of Commissioner Fred Gobel of that district. Upper picture shows part of the heavy construction, a double hairpin loop, and the lower photograph a part of the pioneer mining town of Silverton.



Maloney Discloses Department Activities

State Engineer Makes Comprehensive Report Detailing Work Now in Progress, Chiefly on Federal Aid Projects Throughout Colorado. Lack of Bidding Contractors is Noted and Recommendation is Made That State Make Arrangements to Carry Out Important Projects on Force Account.

ACTIVITIES of the State Highways Department are disclosed in the report of State Engineer J. E. Maloney to the Highways Commission, dated July 12 and received by the board at its meeting of July 14.

That work of carrying out the programme on the Federal Aid projects is proceeding rapidly is indicated in this report, which is as follows:

Denver, Colo., July 12, 1919.

Mr. T. J. Ehrhart,
State Highway Commissioner,
Denver, Colo.

Dear Sir: I desire to report as follows upon the condition of the engineering and construction work under charge of this department:

FEDERAL AID PROJECTS.

Denver-Littleton, No. 1: Completed.

Walsenburg-Trinidad, No. 2: Grading work in progress on all sections. Concrete work in progress on Sections C and B. Work in charge of Superintendent W. W. Whitmore and Engineer E. E. Montgomery.

Field Engineer Hal Barnes and party on Secs. C and D.

Field Engineer Francisco and party on Secs. A and B.

Field Engineer Reno on survey maps and estimate.

Inspectors Smith, Beal, White and Palmer on concrete, piling and office work.

Granite-Twin Lakes, No. 3: Upper section completed by Superintendent Harlan and day labor. Bridge at Lake Creek ready for advertising. Lower section ready to ad-

vertise if desired. Field Engineer Edwards and party in charge of work.

Rifle-Meeker, No. 4: Grading 75 per cent completed. Surfacing 20 per cent completed. Field Engineer P. C. Thurmond and party in charge of work.

Project No. 5: Withdrawn.

Lamar-Springfield, No. 6: Work completed. County now placing gravel on surface. Field Engineer I. C. McBride in charge of work.

Naturita-Norwood, No. 7: Project statement in. Surveys and plans completed and in hands of U. S. office. Ready to advertise. Field Engineer Becker in charge.

Meeker North to County Line, No. 8: Project statement in. Survey and plans about 90 per cent completed. Field Engineer Snelson in charge.

Big Thompson Canon Road, No. 9: Surveys and plans completed. Work advertised. No bids received. Work postponed to fall. Assistant Engineer E. E. Montgomery in charge of surveys.

Denver-Brighton, No. 10: Surveys and plans completed. Work advertised. One bid received. Now awaiting disposition by State Highway Commission. County will meet difference. Field Engineer Randall in charge.

Wray-Idalia, No. 11: Surveys completed. Plans 90 per cent completed. Field Engineer Randall and Field Engineer Edwards in charge.

Greeley-Denver, No. 12: Surveys and plans completed. Work advertised. One bid received. Awaiting disposition by State Highway Commission. Field Engineers Randall and Edwards in charge.

Denver-Boulder, No. 13: Surveys and plans completed. In to U. S. office.

Longmont Road, No. 14: Surveys and plans completed. In to U. S. office. Field Engineers Randall and Edwards in charge.

Merino Bridge, No. 15: Survey complete. Plans awaiting establishment of road as post road. Field Engineer in charge.

Morgan-Brush, No. 16: Surveys and plans completed. Work advertised to be let July 14-19. Field Engineers Randall and Edwards in charge.

Colorado Springs Road, No. 17: Surveys completed. Records received from county engineer July 11, 1919, and are now being put in shape to send to U. S. office. Surveys by Mr. Ford, county engineer.

Pueblo East, No. 18: Surveys and plans completed. Work advertised. Two bids received, both over estimate. It was understood that there would not be enough funds to bring this stretch to the cemetery gates from the city limits and the matter was talked over with County Commissioner Herrington. It was agreed to put in the project to the cemetery gates and Pueblo County was to put in enough money to carry the work to that point, if the bids ran over the appropriation. These bids are awaiting disposition by the State Highway Commission. Field Engineer Montgomery in charge.

Lamar-Springfield, Nos. 19 and 20: Surveys 90 per cent and plans 50 per cent completed. Field Engineer Byrnes in charge.

Rocky Ford Road, No. 21: Surveys and plans completed. In to U. S. office. Field Engineer Ernest Montgomery in charge.

La Junta Road, No. 22: Surveys and plans completed. In to U. S. office. Field Engineer Ernest Montgomery in charge.

Delta-Montrose Road, No. 23: Surveys under way. Engineer J. Bertholf in charge.

Ft. Garland-San Luis Road, No. 24: Surveys and plans completed. In to U. S. office. Field Engineer J. Cheney in charge.

Montrose-Delta, No. 25: Surveys completed. Plans 10 per cent completed. County Engineer Fielding in charge of surveys.

Ouray-Red Mountain Road, No. 26: Surveys completed. Plans 60 per cent completed. County Engineer Wienerah in charge of surveys on plans.

Grand Junction-Palisade, No. 27: Surveys complete. Plans 40 per cent complete. Engineer J. Bertholf in charge.

Blue River Road, No. 28: Surveys complete. Plans 30 per cent complete. Field Engineer A. Tanner in charge.

Turkey Creek Road, No. 29—Morrison-Baileys: Surveys under way. Field Engineer J. Donovan in charge.

Denver to Hospital, No. 31: Surveys 90 per cent completed. Field Engineer Walters in charge.

Morgan-Brush, No. 38: Surveys completed. Field Engineer R. Randall in charge.

Burlington North, Nos. 43, 44, 45: Surveys 90 per cent completed. Field Engineer Edwards in charge.

Canon City-Denver Road, No. 47, 48: Surveys under way. County Engineer Ford in charge.

Castle Rock-River Bend, No. 50: Surveys 60 per cent completed. Field Engineer Littlefield in charge and County Engineer Matthews assisting.

Lamar North, No. 57: Surveys and plans completed. Field Engineer H. C. Byrne in charge.

Lamar-Springfield, No. 58: Surveys 60 per cent completed. Plans 40 per cent completed. Field Engineer H. C. Byrne in charge.

Las Animas City East, No. 59: Surveys and plans under way. Field Engineer Geo. Beach in charge.

La Junta Road, No. 60; Rocky Ford Road, No. 61; Manzanola Road, No. 62; Fowler Road, No. 63: Surveys and plans completed. In to U. S. office. Field Engineer Ernest Montgomery in charge.

Ft. Garland-San Luis, No. 64: Surveys completed. Field Engineer J. Cheney in charge.

Ouray-Silverton, No. 65: Surveys completed. Plans under way. County Engineer Winnerah in charge.

Rico North, No. 67: Surveys started. Engineer J. Bertholf in charge.

Monte Vista-Saguache and Saguache-Del Norte: Surveys completed. Plans started. Field Engineer J. Cheney in charge.

Craig West, No. 74: Surveys under way. Field Engineer Carson in charge.

Grand Junction-Palisade, No. 77: Surveys under way. Engineer J. Bertholf in charge.

Battle Mountain, No. 78: Surveys under way. Engineer E. E. Montgomery and L. Jeanness in charge.

Steamboat North, No. 80: Surveys and plans under way. Field Engineer Carson in charge.

Projects numbered 30, 32, 33, 34, 35, 36, 37, 39, 40, 41, 42, 46, 49, 51, 52, 53, 54, 55, 56, 66, 70, 71, 72, 73, 75 will be started within the next two weeks.

Surveys for the Fall River Road are now being made by Engineer F. Huntington on the west side, and by Field Engineer Becker on the east side.

Field Engineer J. Cheney starts the survey on the Twin Lakes Road on the 14th.

An inspection of the Hyles Bridge was made by Field Engineer Randall for this department, and his report and my recommendations are included in the report submitted to you.

The proposed route via Waunita Springs in Gunnison County will be gone over by Field Engineer Jenness as soon as he finds the Battle Mountain survey.

The work on the Palmer Lake section of the Colorado Springs road was surveyed by Field Engineer Becker and the work started. The appropriation of \$3,000, however, will not be sufficient to complete all the work desired.

On the Floyd Hill section some washouts occurred during a recent freshet; these are now repaired. From the top of Floyd Hill to Bergen Park, some four miles, remains to be properly graded and widened, and I believe this will cost approximately \$9,000.

On many of our projects we have received but one bid

(Continued to Page 21)



Colorado State Highway Commission, State Highway Commissioner Ehrhart's Office, June 21. At head of table in foreground, Chairman E. E. Sommers; left to right, Commissioner T. J. Ehrhart; E. E. Nichols, District No. 2; Robert E. Norvell, District No. 5; Fred J. Radford, District No. 3; J. E. Maloney, State Engineer; N. A. Ballou, Secretary, and Frederick Gobel, District No. 4.

Board Appropriates Funds for Many Roads

State Highway Commission Makes Possible the Carrying Out of Large Number of Important Projects and Settles Question of Ratio of Distribution of Government Surplus Trucks Among the Five Districts of the State. Appropriations Extend to All Sections of Colorado.

THE regular monthly meeting of the State Highway Commission was called to order July 14 by Chairman Sommers. There were present Members Radford, Gobel, Nichols and Sommers, Commissioner Ehrhart and Secretary Ballou.

A telegram from Mr. Norvell saying he would be in Denver on the morning of July 15 was read.

It was decided that all trucks received from the War Department of the U. S. for highway purposes shall be distributed by the State Highway Department to the commissioners' districts on the same basis as distribution of Federal Aid Funds, as follows:

District No. 1, 40 per cent; District No. 2, 15 per cent; District No. 3, 17 per cent; District No. 4, 15 per cent, and District No. 5, 13 per cent. The commissioners of the various districts shall distribute the quota assigned to each district to the respective counties of that district on the basis of the requirements of each county. The possessory

title of said trucks and equipment shall remain always in the State Highway Commission and the counties receiving trucks shall agree to maintain at all times said trucks in good serviceable condition at their expense.

There was appropriated for the use of Jefferson County for construction on Road No. 23-S, from Ft. Logan west four miles, \$2,500 state funds, providing Jefferson County expends \$1,500 for a like purpose.

The sum of \$2,000 was set aside for construction and repairs on State Routes 3 and 8 in the town of Palmer Lake.

The sum of \$6,000 was set aside for construction on Road 63 and \$1,500 on Road 20 in Gunnison County, 100 per cent state.

The sum of \$250 was appropriated for construction on Road 18 in the town of Green Mountain Falls.

The sum of \$2,000 was appropriated for construction of Road 18 from Hartzel to Salt Works in Park County,

providing Park County sets aside \$1,000 for said construction.

Also \$1,000 was appropriated to Park County for construction on Road 18 between Hartzel and the Chaffee County line.

The sum of \$750 was appropriated to Chaffee County on a 3 to 1 basis for construction on Road 18 from Summit to Newett.

The sum of \$9,000 was set aside for construction on Route 21 between Floyd Hill and Bergen Park, Clear Creek County, the same to be expended under direct supervision of Commissioner Ehrhart.

The sum of \$1,000 was appropriated to complete bridges across Little Horse Creek and Steel Fork on Route 53 in Lincoln County.

The sum of \$9,000 was set aside for the purpose of graveling Road 30 between Burlington and Vona in Kit Carson County, same to be expended under the supervision of Commissioner Ehrhart.

A petition was read from Kiowa County asking for a change in State Highway No. 9-S at Sheridan Lake. The petition was granted and the change in road was authorized as shown in the plat now on file.

Bids for construction of two bridges on Road 2 in Adams County were read.

Bid of L. M. Spencer.....	\$7,599.96
Bid of Colorado Bridge and Construction Co.....	6,237.54

The contract was awarded to the Colorado Bridge and Construction Co., theirs being the lowest and best bid, and Commissioner Ehrhart was authorized to prepare and sign formal contract.

Bids for construction of a concrete road on Route 9, one-half mile east of Ft. Morgan, were read. Two bids were received, as follows:

Coulter & Franke.....	\$16,091.50
Colorado Bridge and Construction Co.....	10,423.40

The contract for this construction was awarded to the Colorado Bridge and Construction Co.

The commission met again at 10:00 a. m., July 15, with all members present, also Commissioner Ehrhart and Secretary Ballou.

The sum of \$400 was appropriated for construction of the North Fork Road in Grand County, to be expended under the direction of Commissioner Ehrhart.

The sum of \$3,000 was set aside for the use of Grand County in maintenance of state roads, providing Grand County meets said appropriation by setting aside \$2,000.

The sum of \$4,800 was appropriated to Saguache County, providing said county puts up \$2,400 additional to complete construction on Gunbarrel Road 36 caused by washouts last spring.

The State Highway Commission was authorized to purchase for the use of R. W. McQueary on Fall River Road one gasoline-operated portable air compressor at a cost of not to exceed \$3,500.

After adjournment at noon the meeting was resumed at 2:00 p. m., all members being present, also Commissioner Ehrhart and Secretary Ballou.

The services of R. H. Higgins as special agent on

Federal Aid projects will be terminated November 1, 1919.

The bid tendered by A. F. Hewitt for the construction of concrete Road 49 between Brighton and Denver was rejected.

Bids of Axton & Spratlen and A. F. Hewitt for construction of a concrete road in Pueblo County on Road 5 between the cemetery and Pueblo were rejected on account of bids greatly exceeding the engineer's estimate.

A proposition submitted by the Orman Construction Co. for the building of a concrete road from Pueblo to the cemetery was accepted, said proposition being as follows:

"The State Highway Commission, State House, Denver, Colo. Gentlemen: The Orman Construction Company agrees to furnish all tools and equipment in connection with the construction of concrete pavement known as the Santa Fe Trail, located in Pueblo County, Pueblo East No. 18. Compensation covering above items to be agreed upon between ourselves and commission. If conditions above meet with your approval, we agree to do this work on a percentage basis, viz.: plus 15 per cent up to the basis of the engineer's estimate; and will put up a suitable bond that it does not go over the estimated price of the engineer. Trusting this proposal will meet with your approval, and that we may be awarded the contract, we are,

"Yours very truly,

"ORMAN CONSTRUCTION CO.,

"By (Signed) W. T. Vedder."

The bid of the Engineer's Construction Co., of Greeley, Colo., for construction of concrete Road No. 49, Federal Aid Project No. 34, for one mile south of Greeley, was rejected on account of bid greatly exceeding engineer's estimate.

The bid of A. R. Young for rebuilding the old ear barn on East Colfax at a cost of \$3,500 was approved and Mr. Young instructed to start the work at once.

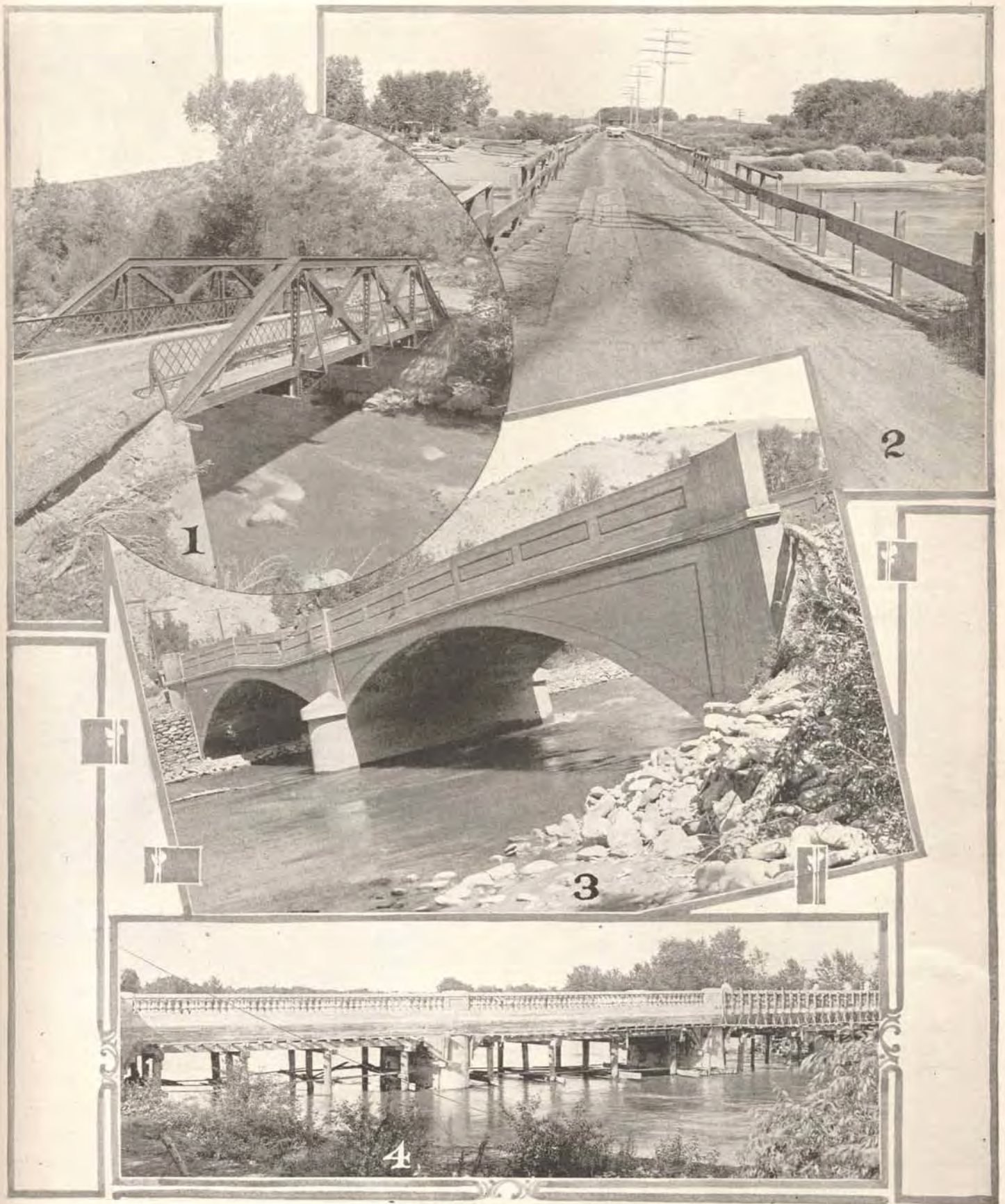
A road commencing at a point in Jefferson County one-half mile west of the town of Evergreen on Bear Creek, intersecting State Road No. 35, running thence in a westerly direction along Bear Creek to the county line between Jefferson and Clear Creek counties, a distance of about three and one-half miles, was declared a state road.

A contract entered into between the County of Elbert and B. L. & J. L. Morrison for construction of a bridge in Elbert County on State Road No. 8 was approved and Commissioner Ehrhart was instructed to notify county clerk to that effect.

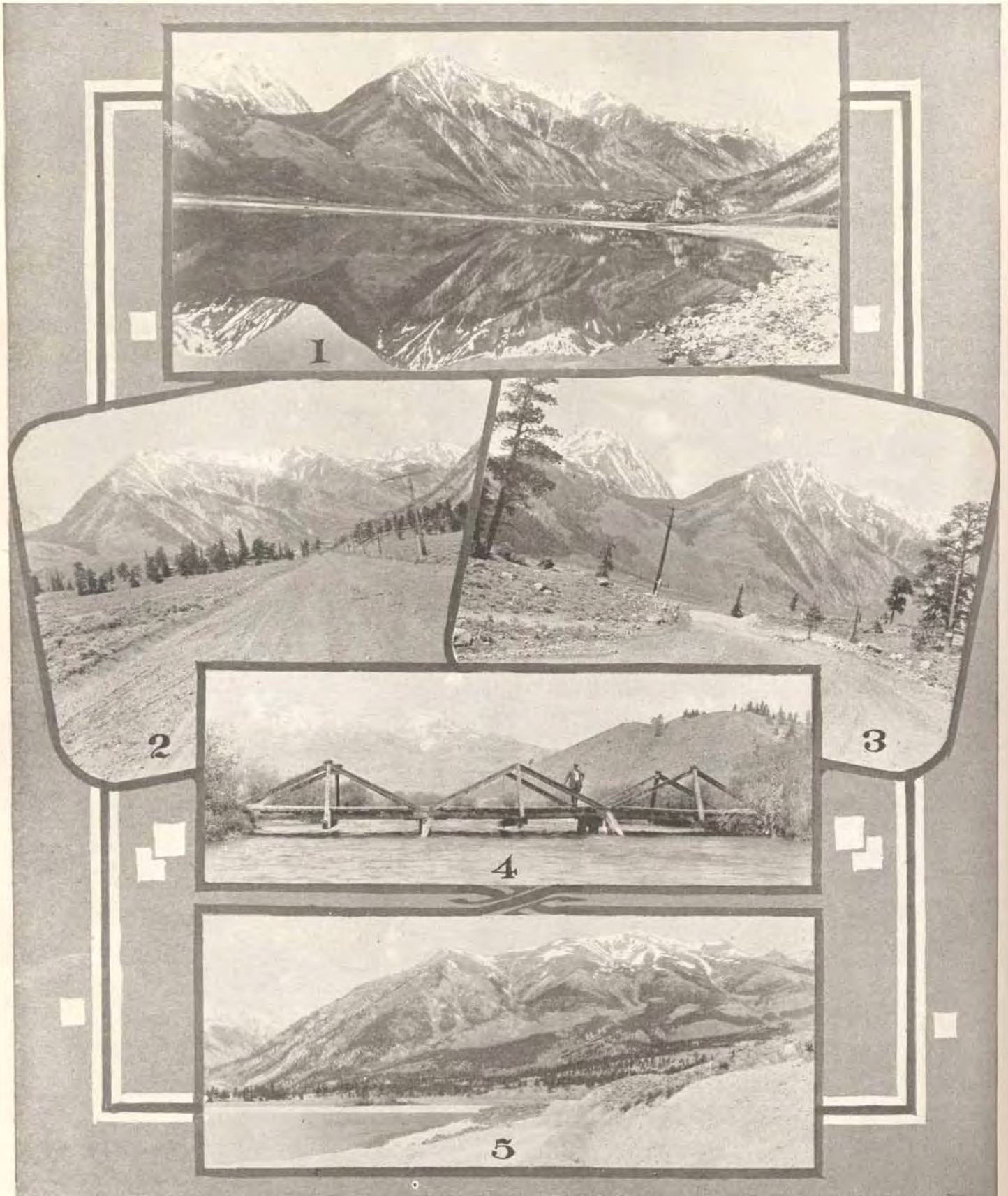
The meeting adjourned and met July 16 with all members present, also Commissioner Ehrhart and Secretary Ballou.

The State Highway Commission decided to stand the expense of laying a sidetrack from main line of the D. & R. G. R. R. in Huerfano County at Huerfano Station to stone quarry, the estimated cost to be \$2,600, it being understood that the J. Fred Roberts Construction Co. shall do all necessary grading at no cost to state. This spur or sidetrack will be the property of the State of Colorado.

The State Highway Department is to purchase from Boyd & Vaughn of the town of Huerfano five acres of lime-



Roads and bridges, good and bad, the experiences with which have taught State and County Commissioners some good lessons. 1. Substantial iron bridge over Big Thompson River. 2. Old and unsafe bridge over the Poudre River. 3. Faulty cement bridge construction; note where arch is broken. 4. Strong and handsome new bridge across Poudre River.



Beautiful scenes on or reached by Federal Aid Project No. 3, $4\frac{1}{2}$ miles of which have just been accepted by State and Government. 1. New road around south shore of one of the lakes. 2. A fine stretch of the new road leading to Independence Pass and Aspen. 3. Mts. Faith and Hope. 4. Lake Creek, Lake County, and the new bridge. 5. Mt. Elbert, 14,400, skirted by new road.

Good Roads Develop Farms--Some Statistics

What Good Roads and the Automobile Are Doing for Agricultural Development in Colorado is Proved Conclusively by New Figures Showing That Cultivated Acreage in State Has Almost Doubled in Past Ten Years. To Good Roads Will Fall Development Hitherto Done by Railroads.

PEOPLE in other states are not accustomed to regard Colorado as an agricultural state. It was gold and silver that first made Colorado known to the world, and for a great many years very little of value was produced within its borders except the precious metals. The romance of the mining camp was much more widely read in the newspapers and magazines thirty years ago than are the somewhat prosaic and commonplace statements that are published today, showing from time to time the progress of a wide variety of industries in the state, of which mining is by no means the leader. For this and other reasons people in other states generally regard Colorado to this day as consisting of a more or less important group of gold and silver mines in the mountains, principally surrounded by desert and almost wholly unproductive land and hostile Indians.

Perhaps good roads and the automobile are doing more than any other agency to correct this erroneous impression of our resources and surroundings. It is not especially difficult to believe what you have seen, even though it is necessary for you to discard some of the geography lessons you tried to learn in the grade schools a quarter of a century ago to do so. Also the conception of a country formed by a person who has visited it, and conveyed to his friends who have never seen the country in question, is apt to form a more definite and lasting impression than the mere reading of occasional newspaper stories and descriptive pamphlets devoted to it.

So the tourist is possibly our best publicity agent. But Colorado is a big state, and it is a hard job for him to get a clear conception of its varied resources and growing industries merely by driving from the Kansas or Nebraska line to Denver, thence to the Rocky Mountain National Park and a few other mountain resorts, and returning by about the same route. It is the duty of the people of Colorado to help the tourist out a little in this respect by giving him a few facts about the state, which he will be glad to add to his stock of information gathered by observation when he comes to see our mountains and breathe our very best air.

By way of doing my bit in this direction I am going to put down a few facts that I have collected recently regarding agricultural development in Colorado. Perhaps they will be worth passing on to a few of the thousands of tourists who are making Colorado's mountain playgrounds more popular this year than they have ever been before. I have been collecting facts about Colorado for a good many years, but I do not recall discovering any place a more interesting and instructive set of facts and figures about agriculture in this state than those which have re-

cently been collected for the State Board of Immigration by the several county assessors.

These figures are not yet complete, for the law requiring their collection was signed by Governor Shoup less than a week before the assessors began their work of taking the annual assessment of property this spring, and it goes without saying that they had little time to prepare for their added duties in relation to agricultural statistics. But they are complete enough to show even the people of Colorado a good many things they did not know about the agricultural development of this state.

In the first place they show that there is under cultivation in Colorado this year 4,420,765 acres of land, exclusive of 216,012 acres devoted to wild hay. This total will be raised at least 200,000 acres when all reports are in, for two counties have not yet reported and the reports for several other counties are incomplete. This figure may appear a little more impressive when it is recalled that the total acreage in cultivation in Colorado in 1909 was 2,614,312 acres, and wild hay was included. The acreage actually in cultivation this year is almost twice as great as that in cultivation only ten years ago. The total cultivated area in the state at present is almost as great as the entire land area of the state of Massachusetts.

No data have been available heretofore showing how much raw land is broken in Colorado each year to be put in crops, but apparently a larger acreage of virgin land is being cultivated this year than ever before. Assessors' reports show 368,630 acres broken for the first time to be cropped in 1919, including land broken for winter wheat last summer and fall. The figure will be close to 400,000 when all reports are complete, and it will then be considerably below the actual acreage, for in several counties where much raw land is being broken every year, this part of the report has been neglected and nothing or a very small acreage has been reported.

Special attention is called to Logan County, which is Colorado's banner agricultural county, in that it has a larger percentage of its area in cultivation than any other county. The area in cultivation there this year is reported as 405,736 acres, or about one-sixth as much as was under cultivation in the entire state in 1909. This is a larger cultivated area than is shown in any other county except Weld, which reports 584,181 acres. The area of raw land first cropped this year in Logan County is reported as 62,513 acres, the largest reported for any county. A very large percentage of this was put in wheat, the county having 202,819 acres of winter and spring wheat, the largest acreage for any county in the state. Washington County

(Continued to Page 21)



The first expedition of surplus war material trucks given by the War Department to Colorado to leave Continental Divide by their own power two days later. In front are a mechanic, Attorney General Governor Oliver H. Shoup, Chairman E. E. Sommers, Highway Commissioner T. J. Ehrhart, Deputy

Fifty Government Trucks Arrive in Denver

Part of the 200 Machines Which are Alloted to Colorado Out of Surplus and Unused War Material Have Come From Washington and are Distributed to the Various Districts of the State. Many More are Coming and Counties are Jubilant. Western Slope Counties Take First Trucks.

FORTY-SEVEN of the government's surplus war material trucks arrived in Denver July 10, and fourteen more came July 11, following a visit by Chairman Elmer E. Sommers of the State Highway Commission to Washington to secure from the War Department an order for immediate shipment to Colorado of this state's share of the distribution of trucks recently ordered by the federal government to be made to the various states for good roads building purposes.

Chairman Sommers' trip to Washington was a model of neatness and despatch. Leaving Denver June 15 he returned July 1 with the assurance that the trucks allotted to this state, 200 in number, would begin moving at once. In ten days the first big consignment, 47 in number, arrived in Denver and was duly housed in the former car barns at Forty-second and Tejon streets on the North Side. There were in the shipment seventeen Federal 3-ton trucks, fourteen Kelly Heavy Aviation 3-ton trucks, fourteen Nash "Quad" 2-ton trucks and two Internationals of two tons capacity each.

The trucks received a welcome, even an enthusiastic reception. They are all new, none having been driven

more than 150 miles. They were built for military purposes, but the early ending of the war obviated the necessity of sending any of them abroad. Most of the trucks came to Colorado from Fort Benjamin Harrison at Indianapolis, but several were sent from Camp Marmoyale, Texas. Fifty Nash "Quads" are now en route of a total of 149 more trucks assigned to Colorado.

It is probably fortunate that the trucks were without bodies upon arrival in Denver, for the State Highway Commission is thus enabled to equip them with the proper sort of tops for road-making. Accordingly, the commission set about to find the best body for this purpose. After examination of all makes, it decided July 17 on the Horizontal Hydraulic Dumping Unit, manufactured in Milwaukee, and ordered 100 bodies, the first carload to be delivered in three weeks with ten to fifteen to be shipped each week thereafter until the order is completed.

President E. R. Bacon of the Horizontal Hydraulic Hoist Company came on from Milwaukee himself to sign the contract with the state for the new truck bodies. He stated while here that similar equipment is now in use on the highways of Michigan, Montana, Oregon and Illinois.



at Capitol grounds in Denver, June 18. These trucks are bound for five Western Slope counties and crossed the
 E. Keyes, Secretary of State James R. Noland, State Auditor Arthur M. Strong, State Treasurer Harry E. Mulnix,
 Commissioner Robert H. Higgins, Secretary Nate Ballou and Sidney, the office boy.

County commissioners from the Western Slope were the first to arrive on the scene at the state Capitol and demand their quota of army trucks for road building. They came from Montrose, Gunnison, Delta, Mesa and Saguache in such numbers that they could not be denied. Their enterprise was appreciated, at any rate, and they were perfectly willing to promise, to pay the freight on the new cars from point of shipment to Denver, take them from Denver

to their respective county seats and pay for the new horizontal dump body with which all trucks must be equipped.

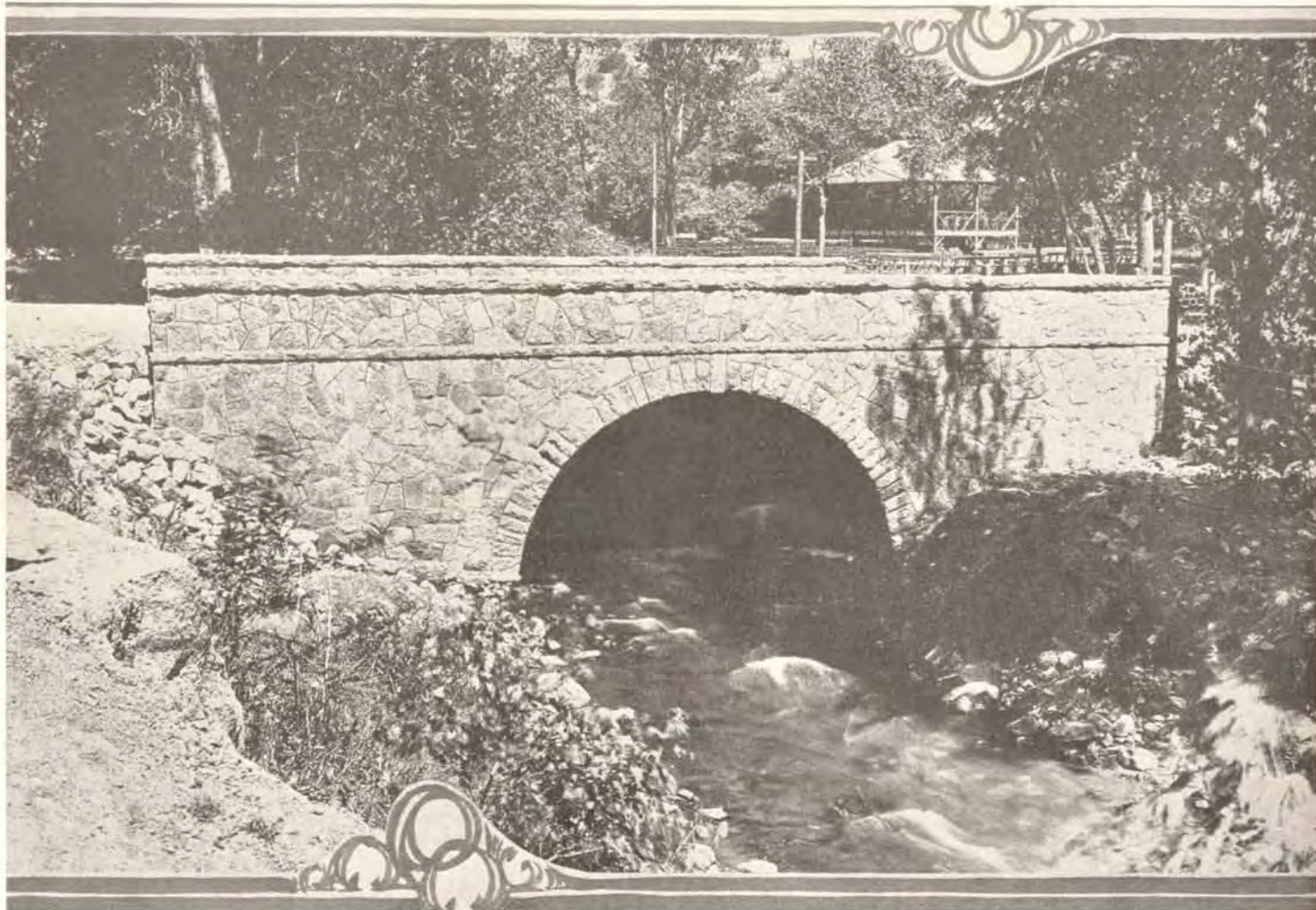
From Saguache County came Commissioner A. V. Shippey and Road Supervisor Spencer; from Montrose came County Clerk T. W. Monell; from Gunnison, Commissioner W. H. Whalen and Road Overseer Elmer Wiley; from Mesa, John A. Spratt, county road supervisor, and from Delta, Commissioners J. E. Beckley and Charles T. Rule. They drove away with seven new trucks, two to Grand Junction (Mesa County), two to Gunnison (Gunnison County) and one each to Delta, Montrose and Saguache.

The big machines for the Western Slope started away on their long journey from the state Capitol, averaging 350 miles each, Saturday morning, July 19. At the wheel of one of the Mesa County cars was pretty Miss Marguerite Spratt, daughter of the commissioner from that county. The entire Western Slope shipment was driven up Seventeenth Street in the heart of Denver from the car barn "garage" on the North Side to the state Capitol, where it was photographed before starting on its long trip westward.



Colorado's new road truck body, of which 100 have been ordered; a "Horizontal Hoist."

While in Denver the commissioners from the five counties included in the first allotment of war motor trucks discussed the road building program for their district with the Highways Commission thoroughly, and exhibited the best kind of enthusiasm over the prospects for development of their Western empire through the medium of new and improved highways.



The City of Manitou builds a fine stone bridge across Fountain Creek for less than \$2,300, showing how a great deal can be accomplished with little outlay if the money is properly applied.

Manitou Builds Good Bridge

A splendid bit of municipal enterprise is exhibited by the town of Manitou, the home of Commissioner E. E. Nichols of District No. 2, in the recent completion of an artistic, though substantial, bridge within the city limits at exceedingly low cost.

The Manitou bridge, which crosses Fountain Creek in the heart of the city, is of stone on cement foundation laid three feet below the bed of the creek. The distance from the bed of the creek to the under surface of the arch at top is 11 feet 9 inches. Other dimensions of the bridge are as follows:

- Length of parapet, 48 feet;
- Span of arch, 18 feet;
- Width of bridge, 40 feet;
- Thickness of arch at base, 28 inches;
- Thickness of arch at top, 24 inches.

The cost of this handsome, serviceable bridge, exclusive of architect's fee and the gravel and sand used in construction, was only \$2,297.85. T. P. Barber of Colorado Springs was the architect. A picture of the Manitou bridge is published in this issue of the Highway Bulletin.

When Good Roads Were Begun

The advent of the middle classes to power was prepared by a series of material improvements by which they were especially benefited. The canals made in the beginning of the reign of George III no longer sufficed to carry the increased traffic to the country. Attention was therefore paid to the improvement of the roads. Telford, a Scotchman, taught road-makers that it was better to go round a hill than to climb it, and, beginning in 1802, he was employed for eighteen years in improving the communications in Scotland and Wales by making good roads and iron bridges. The Menai suspension bridge, his best known work, was begun in 1819. He and another Scotchman, Macadam, also improved the surface of the roads, which had hitherto been made of gravel or flint, thrown down at random. Telford ordered the large stones to be broken and mixed with fine gravel, and Macadam pursued the same course round Bristol. He declared that no stone should ever be used in mending roads which was not small enough to go into a man's mouth. Through these improvements travel became more easy and coaches flew about the country at what was considered to be the wonderful rate of ten miles an hour.—Green's "History of English People."

Will Build Road Connecting National Parks

Meeting is to be Held at Yellowstone Park August 10-12 to Determine Best Method of Constructing a Highway That Will First Connect Rocky Mountain, Yellowstone and Glacier Parks, Afterward Extending to Rainier, Yosemite and Others. Denver is Established as Gateway from East.

Connection of several national parks of the West by a fine highway will be planned at a meeting of federal, state and county roads officials and representatives of chambers of commerce of several Western states to be held at the Mammoth Hotel, Yellowstone Park, August 10-12. At that time and place a party of roads authorities and builders will be formed to motor over a route connecting Glacier, Yellowstone and Rocky Mountain National Parks to sow the seed for an automobile system connecting these playgrounds.

Horace M. Albright, former assistant director of the National Park Service and now superintendent of the Yellowstone National Park and special representative of Stephen T. Mather of the National Park Service, was in Denver July 21, after blazing a trail from Yellowstone to the Colorado capital for the purpose of escorting back to the park with him 125 members of a party of employes of the Brooklyn Eagle. This party is traveling from park to park at the special invitation of Secretary Franklin K. Lane of the Department of the Interior.

The trip of Mr. Albright to Denver marked the actual official opening of the Park-to-Park Highway, so far as Yellowstone and Rocky Mountain Parks are concerned. Now all that remains to be done is to build the road. That it will be built in time there is no doubt, for a favorite pastime of the motorist of the near future will be to flit from park to park.

"This is the greatest year for tourist travel to the West in the history of the country," Mr. Albright said. "I predict that 650,000 people will have visited our parks before the season closes. The highest number before was 480,000.

"Now is the time to make this tourist business permanent. I believe that the establishment of adequate transportation lines between the various parks will solve the problem.

"Unless we do something of this kind we are going to suffer a loss of the flood of tourists who will turn toward the battlefields of France next year. By improving our roads and our facilities for taking care of our guests we can hold the traffic that is now turned our way. The Western playgrounds are becoming better advertised every year, and the present season promises to be the best of all.

"The automobile is the basis of our success. Denver is the logical gateway to the national parks. She must, therefore, take a great responsibility for the success of the project. She must co-operate with Wyoming in maintaining a highway between the Rocky Mountain and Yellowstone Parks. Montana has promised to take care of the section between Yellowstone and Glacier. It therefore

devolves upon Colorado and Wyoming to meet us up there."

With Mr. Albright in his scouting were Harry W. Child, president of the Yellowstone Park Transportation Company; Roe Emery, president of the Glacier and Rocky Mountain National Park Transportation Companies, and M. Max Goodsell, secretary of the Helena, Mont., Commercial Club. They made the 800-mile run from the Mammoth Hotel to Denver in thirty hours and forty-five minutes of driving time.

"Montana wants to connect up with Colorado on the tourist business. We are glad to co-operate in any way we can and we appreciate the services tendered us thus far by the Colorado men. Before the war tourists from this country spent \$500,000,000 a year in Europe. Right now Europe is building hotels and roads to make capital of the battlefields."

The itinerary of the Yellowstone-Brooklyn party while in Denver included Golden, Lookout Mountain, Buffalo Bill's grave, Squaw Pass and Bear Creek Canon. The Denver Motor Club served a trout dinner to the guests at Idledale, the mountain home of the club.

The party went to Boulder, Lyons, over the South St. Vrain route to Allen's Park, Copeland Lake and the Rocky Mountain National Park to Long's Peak Inn, July 23.

Rebuild French Mountain Roads

Four great mountain roads are to be relaid and rebuilt in the upper Vosges, leading from France into Alsace. The *commission des routes*, of the district of the Vosges, is looking to the near future when tourists will pass that way. Largely the roads existed as strategic military mountain roads, and the present effort is in line with making them available for pleasure automobiles. Taken together, they will form a new approachable circuit and entrance into upper Alsace.

Must Have Warning Signs

The Youker Bill calling for uniform warning signs at railway crossings has been signed by the governor of New York and thus becomes a law. This bill was introduced and passed upon the request of the New York State Motor Federation's legislative committee. The warning sign is to be a circular metal disc 34 inches in diameter with a white field, and a black border line one inch wide and with black perpendicular and horizontal lines 2½ inches wide with a black letter "B" five inches high in each of the upper quarters. It is to be installed on each side of the crossing at a distance of not less than 300 feet.



Build Beyond the Last House

A great and concrete object lesson is contained in the fact that Colorado's cultivated agricultural area is increasing at the rate of nearly ninety per cent per decade, which is proved by new and sworn statistics which have been gathered by county assessors of the state for the Immigration Board in accordance with a law passed by the last legislature.

It is not a mere coincidence that Colorado's agricultural development is contemporaneous with her first really constructive good roads program. There would be no farms without roads, and the better the roads the better the farms and the more rapidly the farms are developed. It is just about ten years since "Bob" Higgins, Elmer Sommers, John Kuykendall and "Ed" Nichols first made their good roads propaganda really understood. It soon became a living, breathing thing.

These exhorters have never ceased shouting, and the results are more and more apparent each year. It is a question whether the tourist, whose allurements to Colorado was the prime objective, is, after all, a bigger crop than our agriculture. Who would have dreamed ten years ago that Colorado would be in 1919 a greater producer of beet sugar than any other state—even than California or Michigan, her nearest rivals? Who would have prophesied that we would have in 1919 a cultivated area as large as the entire state of Massachusetts?

Of course, tourists are increasingly glad to come to Colorado, for not only are the roads taking them farther and farther each year into the hitherto impenetrable fastnesses of the Rockies, but they are privileged to witness the development of a great agricultural empire at the mountains' feet. The combination is an irresistible one and, unless the tourist is ready to die anyway, he wants to come here to live.

Thus do our good roads perform triple service. They take the tourist near to Nature in her grandest form, they develop our agriculture and they populate and colonize our state. It is the business of the State Highway Commission to see to it that the realization of the good roads problem does not lag behind the development of the state. Said development will be twice as fast if the proper kind of roads are pushed just a little ahead of colonization, just as an enterprising street railway company stimulates home-building when it extends its track a little farther than the last house.

Western Slope Takes Lead

JUST as to Colorado fell the honor of being one of the very first states of the Union to take advantage of the federal government's offer to distribute free to the various commonwealths surplus war material for road-building purposes, so to the enterprise of far-western slope counties of the Centennial came the distinction of securing the first trucks of the big consignment from Washington and marching, or rather driving, proudly away with them.

It is a far cry from Denver to Washington, where Chairman E. E. Sommers of the State Highway Commission hurried to be in the van of all states in getting his war material, and it is, furthermore, as far proportionally from Grand Junction, Delta, Montrose, Saguache and Gunnison to Denver, as compared with other counties of the state, as the trip across the continent measured, as compared with the distance of most other states to the national capital.

In either instance, typical Colorado enterprise won. The coveted trucks had to be obtained from Washington and transported hither before they could be distributed or used within the state. The eagerness with which county commissioners from all the state took advantage of the opportunity to gain possession of the road-making machinery and material offered by the federal government presages nothing but good for the roads of Colorado.

Glory to the Western Slope commissioners, who are up to the times, and entirely in earnest in their desire to lead the state in good roads building. A small matter like a Continental Divide is a bagatelle when trucks are on the other side for the asking. And those hardy commissioners and supervisors from the nether side of the backbone of the continent know that they will have to pay the freight and equip their new cars with dumping bodies. But when Uncle Sam and the state meet them half way, they're more than willing to cover the rest of the distance, even if it is twice or three times as far as the other fellows have to go.

We may of a truth confidently anticipate the hardest kind of work at good roads building on the Western Slope.

Governor Vetoes Bond Issue

The \$20,000,000 highway bond issue recently authorized by the New York State Legislature was vetoed by Governor Smith.

Three Montana counties will vote on bond issues, Sept. 2, as follows: Fergus, \$700,000; Blaine, \$100,000; Madison, \$150,000.

Rebuilding Federal Boulevard

One of the most important roads in Denver and vicinity, Federal Boulevard, from the city limits north to a point two miles south of Broomfield, will be put in first-class shape before September 1, according to announcement made by Chairman E. E. Sommers of the State Highway Commission and commissioner for Colorado District No. 1.

This road, which has for several years been in worse condition than almost any other in the neighborhood of Denver, is a link in the north and south highway and is part of the direct route from Denver to the Rocky Mountain National Park. The tarvia surface on the road has buckled, due, for the most part, to the fact that there are many irrigation ditches and reservoirs in the vicinity and that the water seeps under the road.

The contractor who put down the tarvia is now removing the surface. He will put on crushed gravel and, after rolling it down, will rebuild the whole road. The contractor understands that he must furnish a road in good condition. While the new work is proceeding, motorists should use the road through Arvada to reach the main highway at Broomfield.

It is a fact that motorists residing in Boulder, when driving for pleasure, have been unable to reach Denver in comfort by the Westminster Road for several years. It has been their custom, when driving in the direction of Denver, which they can do for twenty miles southeast from Boulder, to travel almost to the Denver city limits, then turn around and go back. The road through Boulder County to the city of that name is usually very good, but the contrast when nearing Denver has been so marked that comment has reflected most unfavorably on the larger city. Now, Chairman Sommers declares, this sad condition is about to be remedied.

Twin Lakes Work Accepted

State Highway Commissioner Thomas J. Ehrhart, in company with Engineer Paul H. Everett, superintendent of the U. S. Bureau of Public Roads, made an inspection on June 14 of four and one-half miles of construction then just completed on the west end of Federal Aid project No. 3, extending around beautiful Twin Lakes, and accepted the work as being up to requirements.

The Twin Lakes Road work was in charge of E. B. Harlan, representing the State Highway Commission, and was declared by Mr. Everett to be exceptionally well done. According to Mr. Ehrhart it is a conspicuous example of what can be done by efficient superintendence. Another gratifying feature of this work is that the cost is below the estimate made by the state engineer, something unusual.

Pictures of this road and of the exceptionally beautiful scenery which it makes accessible, such as Mt. Elbert, Mts. Faith and Hope and portions of Twin Lakes, are to be found on another page of this magazine.

Roads Determine Truck Loads

Motor truck operators must bear in mind, points out the Goodrich Company, the amount of load which a truck can haul behind it in trailers depends upon the conditions of the road and grade met with. For instance, a three-ton truck loaded to capacity ascending a 20 per cent grade could hardly haul a single empty trailer behind it, so nearly has its capacity for drawbar pull been reached. But this same three-ton truck spinning along the level street could haul probably twenty-four or even thirty tons.

Many experiments have been conducted to determine the resistance offered by various kinds of pavement and road surface to show the effect on the operation of the motor truck.

The effect of grade or incline is determined mathematically. A 1 per cent grade requires a 1 per cent pull. For example, a truck with a gross weight of ten tons driven up a grade of 6 per cent will require a force of six-tenths of a ton, or 1,200 pounds. For each per cent of grade to be encountered a drawbar pull of 1 per cent of 2,000 pounds is required, or a drawbar pull of twenty pounds for each ton. When road resistance and resistance due to grade have been computed, they must be added together in order to give the total resistance offered by the given haulage condition. Say a three and one-half ton truck, weighing seven and one-half tons loaded, must climb a 4 per cent grade over an ordinary clay road. The resistance is computed as follows:

(1) Road resistance, 100 pounds per ton for seven and one-half tons, 750 pounds; (2) 4 per cent grade resistance at 150 pounds for each 1 per cent, 600 pounds; total, 1,350 pounds.

In other words, it requires nearly 1,400 pounds of drawbar pull to carry the truck up this incline over a country clay road. Compare this condition with that of the level asphalt street, where the total resistance would have amounted to 150 pounds.

Force Account in New Mexico

The Highway Department of the State of New Mexico is having difficulty in finding contractors and getting reasonable bids for road work, similar to that which is being experienced in Colorado. Bids were opened at Santa Fe, July 15, for the construction of Federal Aid Project No. 4 in Valencia County and all bids were rejected. Accordingly the work will be done by force account (day labor), according to a communication received from State Highway Engineer L. A. Gillett of New Mexico.

Graham on National Board

President Clifton of the National Automobile Chamber of Commerce has appointed George M. Graham (Pierce Arrow Motor Car Company) a member of the highways committee, of which Roy D. Chapin is chairman.

Winds Build Roads in New Mexican Desert

District Superintendent of Four Counties is Author of a Scheme Whereby Roads are Built by Making a Trench Through the Sand, Extending It Down to the Clay Bottom and Letting the Winds Finish the Job. "Jones" Plan, Here Described, Now Adopted in Eight Other Counties.

In the New Mexican deserts county roadbuilders are enlisting the aid of the winds in their work with notable success, declares an article in the *Compressed Air Magazine* (New York). The ingenious author of this method is said in this magazine to be D. W. Jones, district highway superintendent of Curry, De Baca, Guadalupe and Roosevelt Counties. Ignoring all conventional methods of road-building across sand wastes, he has constructed about eighty miles of highway simply by making a trench through the sand, extending it down to the clay bottom and then letting the desert winds finish the job. We read:

"First, tests of the Jones system were made on the Delphos Road in Roosevelt County. This experimental strip included a nine-mile sand stretch, seven miles of which consisted of sand more than thirty inches deep, with pockets of unknown depth. The work was handled by a state highway crew under Jones' supervision.

"Following the clearing of the right of way of grass and weeds, the first step in the experiment, the sand was taken out down to hard-pan. Removal was accomplished with Fresno scrapers and deposited in waste stacks at some ten feet from either edge of the cut. Bottom width of the cut was approximately twelve feet. Between high walls of loose sand a narrow strip of clay road was constructed and left to wind action. Spring and fall winds swept away the sand remaining on the surface of the clay and widened the strip from its original twelve-foot span to thirty-five feet over all for the entire nine-mile length.

"Unusual irregularity marked the clay surface, while sand pockets ranged from thirty inches to five feet in depth. Grading of the surface was delayed until the waste stacks by the roadside had disappeared and the widening of the surface by wind action had taken place. Where pockets were less than thirty inches deep they were left to wind action and vehicle travel to eradicate. Where pockets greater than thirty inches in depth existed, clay was hauled to fill them.

"After three years' test the Delphos Road experiment proved so successful that the Jones plan was adopted on a dozen different sand beds in eight other counties of the state. Two stretches included more than thirty miles of sand beds, sand hills and sand dunes, and other obstacles of this nature. At present all of these roads are open to traffic and in almost every instance the worst stretches previous to the Jones treatment now are the best."

Ward Road Being Completed

Four miles of the Nederland-Ward Road, an important link of the Denver-Estes Park all-mountain road, have been completed, according to A. E. Palen, senior engineer of the

Federal Bureau of Public Roads, with indications that the entire eleven miles will be completed this summer and fall.

Initial tests of TNT in mountain road building have proved satisfactory on this road, declared Mr. Palen. "The results have been excellent," Mr. Palen said, "both in blasting rocks and grubbing stumps. In both cases the explosive leaves a clean crater and breaks rocks into small sizes fit for use on other sections of roads. Highly satisfactory results can be obtained with TNT once the powdermen have become acquainted with it."

Two million pounds of TNT were given to the Western roads district for road building uses after the war ended, and through a recent postal bill an additional million pounds were made available. Mr. Palen said the tests now made show that the government "will not be called to sink any TNT because of lack of use for it."

Application for allotments of the explosive have been made by numerous contractors on building projects under way this summer.

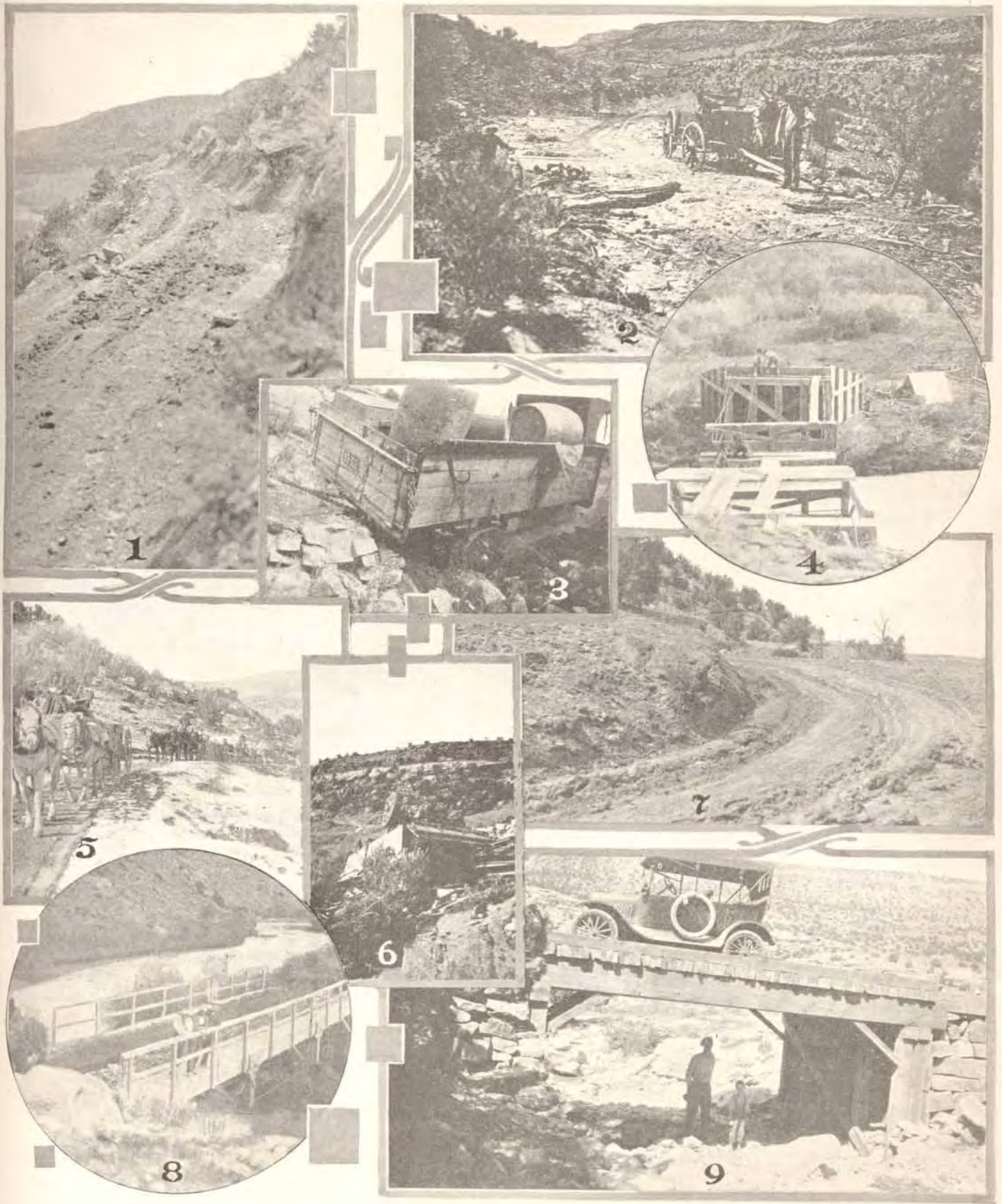
Serious shortage of all classes of labor and also of station contractors is handicapping the work of the federal bureau of public roads in building the new highway over Monarch Pass between Salida and Gunnison on the Rainbow Route, Mr. Palen said. This is virtually the first piece of road building which the bureau has undertaken on the combination day labor and station contract plan, though the highway over Cochetopa Pass, paralleling the Monarch Pass Route, was constructed largely by such a system.

Bids for constructing the entire strip of road from Maysville to Sargent were not received when the department advertised for them.

The bureau is building on the bad sections of the route first. The first work is being carried out near the top of the pass on the east portion of the survey. About twenty men and ten teams are now employed there. Estimates call for an expenditure of \$175,000 in building the road.

And another thing that all the visitors from other states, including the tractor manufacturers, found at the big June show: They discovered that Colorado and Denver have climate and scenic attractions unsurpassed by any other places on the face of the globe.

To stimulate interest in the art and science of road dragging, the Public Works Department of the Province of Manitoba, Canada, last year instituted an annual contest with two handsome trophies as prizes,—one, a silver cup for the best results from dragging a gravel road, and the other, a shield for the best results obtained on an earth road.



Photographs showing construction difficulties on a Southwestern Colorado road. 1. A heavy grade and a muddy road. 2. An old-fashioned truck. 3. A modern truck perilously near a precipice. 4. Building the new bridge. 5. "Percheron" trucks hauling material. 6. A truck that went over. 7. Ruts that will be eliminated. 8. Where a new bridge will embellish old scenery. 9. An old bridge and natives in its shade.

Prospects for Lincoln Highway Are Better

No less an authority than Vice-President Henry B. Joy of the Lincoln Highway Association makes the statement that the dream of a paved transcontinental road is about to be realized. Furthermore, Mr. Joy, who is spending the summer at Long's Peak Inn, stated while in Denver, July 17, that the Lincoln Highway will be built across Eastern Colorado to Denver. The original survey of this road carried it across Wyoming by way of Cheyenne.

Mr. Joy pins his faith in early construction of the Lincoln Highway to the passage of the Federal Highway Bill now before Congress. He is former president of the Packard Motor Company. Seven years ago he visited Denver with Carl Fisher, now president of the Lincoln Highway Association, and several others of the organizers, on a transcontinental tour which had for its object the determination of a route for the proposed Lincoln road. The building of the great proposed highway then seemed fairly imminent, but it was not sufficiently well under way when the war began five years ago to be carried through at that time.

The Lincoln Highway is already virtually complete from New York and Washington to the western boundary of Ohio, according to Mr. Joy. There remain to be built highway sections across Indiana, Illinois, Iowa, Nebraska and Eastern Colorado, before the road, paved, will reach

the capital of Colorado, which is now recognized as the gateway to all the national parks of the West. That the road, with numerous branches, will then be extended on westward to the Pacific Coast, is not doubted by Mr. Joy.

Mr. Joy declares that literally hundreds of thousands of automobile owners in the East are awaiting the chance to visit Colorado and the West.

"You have a billion dollar show here, with a series of ten-cent roads upon which to travel to it," he said with a smile. "I recently made an inspection of the highways through Iowa and Nebraska, and they are simply impossible. The farmers of Iowa, who have persistently opposed the idea from its inception, have suddenly changed front and are now boosting it. So far as Iowa is concerned there remains only the question of ways and means to construct the road and maintain it.

Mr. Joy believes that Colorado is making a mistake in spending so much money at this time in the improvement of her highways.

"What Colorado should do is to spend its money to help bridge those 'mud-gaps' back in Illinois, Indiana, Iowa and Nebraska," he declared. "Bring the tourists to the gateways of the state first. Then there will be time to improve your own roads."

Board Appropriates Funds for Many Roads

(Continued from Page 8)

stone quarry, this material to be used for surfacing Road No. 26. The consideration is \$500.

The sum of \$50,000 was set aside for the purpose of taking care of freight charges and other expense incidental to war surplus equipment.

The sum of \$25,000 was appropriated to the equipment and operating fund.

The main street in the town of Craig from the eastern boundary line of said town to the western boundary line was declared a part of State Highway No. 41.

The proposition submitted by A. R. Young to put in a 6-inch concrete floor in the old car barn for \$1,675 and build an office in front part of said barn for sum of \$550 was accepted. Motion adopted by unanimous vote of commission.

Commissioner Ehrhart was instructed to purchase a portable rock crusher at a cost of not to exceed \$3,000.

Wm. Williams was appointed superintendent of construction on the road between Floyd Hill and Bergen Park, the salary to be \$200 per month. He is to be allowed 10 per cent of his payroll for use of his equipment. Said appointment is subject to rules and regulations of Civil Service Commission.

The salary of C. E. Whitescarver, district inspector, was increased from \$150 per month to \$200 per month.

LeRoy F. Edwards, Harry Littlefield and John Green were promoted from assistant field engineers to field engineers at salaries of \$175 per month, commencing August 1.

A classification for field engineers was created, to be known as Class "A" Engineers, to be paid a salary of \$200 per month. This class shall not exceed five in number, and promotion to this class shall be made by the State Highway Commission on recommendation by chief engineer.

The salary of Assistant Engineer E. R. Montgomery was increased to \$225 per month, commencing August 1, subject to the rules and regulations of the Civil Service Commission.

The petition asking that the road from Tolland to Apex be declared a state road was denied and petition was referred to the county commissioners of Gilpin County.

The Mountain Motors Company was awarded a contract to furnish the State Highway Department with 50 steel auto truck bodies and horizontal hoists. H. W. Moore & Co. was also awarded a contract to furnish 50 steel auto truck bodies and horizontal hoists, with prices on sizes as per written proposition on file.

Commissioner Ehrhart, Chief Engineer Maloney and Commissioner Sommers were selected as a construction committee representing the commission to provide ways and means for the early completion of a certain stretch of concrete road on Road No. 49 between Denver and Brighton.

The board adjourned to August 11, 1919.

Maloney Discloses Department Activities

(Continued from Page 6)

and with the scarcity of contractors the prices naturally run higher than would otherwise be the case. With the increasing amount of road work, the lack of contractors' organizations sufficient to take the work in hand will present a serious obstacle to getting the work well under way.

This scarcity of contracting firms seems to be general and not confined to any particular section of the United States. In this connection I would suggest that the commission consider the advisability of purchasing the materials needed in construction, such as cement, steel, culverts, etc., and the carrying on of the work by force account or day labor, the contractor to receive a certain maximum sum based upon the estimated cost of the work instead of a percentage based upon the total cost.

The federal fund available July 1, 1919, to July 1, 1920, is \$1,301,356.36, and the next working plans can cover twice this amount, or \$2,602,712.72. This amount divided in the same proportions as the last well give the following amounts:

District No. 1	\$1,041,085.09
District No. 2	390,406.91
District No. 3	442,461.15
District No. 4	390,406.91
District No. 5	338,352.66

Total\$2,602,712.72

I suggest that a working plan be adopted as early as possible in order that we may start the surveys.

Respectfully submitted,

J. E. MALONEY,
Chief Engineer.

Colorado Roads Were Best

"The best roads I found between Lansing, Mich., and Denver were in Colorado," declared C. P. Geen, technical manager of the Olds Motor Works at Lansing, who drove to this state in July to attend the annual meeting of Oldsmobile dealers in Denver.

Geen drove all the way from Lansing to Denver in a 1920 eight-cylinder Oldsmobile. "Through Iowa, Illinois and Michigan the roads are in frightful condition," he said. "The heavy rains of the last few weeks made them almost impassable in many places. They are not so bad through Nebraska, but I did not strike any good roads until I got into Colorado. I came by way of the Lincoln Highway from Omaha to Big Springs, then branched off to Julesburg and came on in by way of the Omaha-Lincoln-Denver route through Fort Morgan, Hudson and Brighton. I found this road in fine condition all the way."

Geen drove from Lansing to Denver, 1,464 miles, in sixty-four and three-quarters hours, according to his trip record. He said he averaged eighteen miles to the gallon of gasoline. On the last day he drove 398 miles in twelve hours and thirty minutes actual driving time. He was not trying to make fast time, but averaged twenty-two and

one-half miles an hour, he declared. He made a trip to Estes Park, and declared the scenery was the most inspiring he had ever seen.

Good Roads Develop Farms; Some Statistics

(Continued from Page 11)

reports 52,640 acres of raw land cultivated this year; Adams, 54,401 acres, and Weld, 40,597 acres.

These few figures will give anyone not familiar with Colorado's resources a fair idea of the rapidity with which the farm lands of the state are being developed, particularly in the non-irrigated areas east of the mountains. It might also be mentioned that the 50,000 farmers who have reported to county assessors this year state that they have in their farms 2,250,654 acres of land yet capable of cultivation, not including that land which is looked upon as more valuable for pasture than for any other purpose. It should be borne in mind that these figures include but little of the land held by non-resident owners, and most of the uncultivated arable land is held by this class of owners. It is safe to say that in the 12,388,970 acres of farm land reported there is fully 4,000,000 acres of arable land not yet broken. When we add to this the arable areas included in state land and government homestead land it will be seen that the Centennial State has not by any means reached the limit of its agricultural development.

Motor truck transportation, made possible by extensive highway development in the past two or three years, has been an important factor in bringing about this rapid increase in cultivated area in Colorado. Of course we need good roads for the tourists, but they are with us only a few weeks at the most. The farmer is with us always. He uses the roads the year round. His success depends to a very considerable extent upon his ability to get his crop to market with a minimum cost for transportation. The agricultural land reasonably close to railway lands in this state is well developed at the present time. Future agricultural development will be confined largely to areas now remote from railway lines, and will depend very materially upon further improvement of secondary and branch highways, which have been neglected to a considerable extent up to this time.

A number of cities in Wisconsin and Michigan have undertaken this summer to build concrete pavements by using city forces. In most cases the municipalities have been able to avail themselves of city equipment also. One such municipality is Grand Rapids, Mich., where city forces will lay some 25,000 square yards of concrete on a number of streets. Thickness of the pavement will be from seven to eight inches.

Governor Davis of Virginia has named a road construction board of prominent citizens to advise in the adoption of a good-roads program for Virginia. A highway bond issue of \$40,000,000 is recommended by the executive.

Schedules and Future Roads to Estes Park

The Most Popular of Parks, The Rocky Mountain National, and its Neighbor, Estes, are now Easily Reached by Auto or by Auto and Train From Denver. State Will Build Big Thompson Road to Parks This Fall.

EFFORTS of the Department of the Interior and of the U. S. Railroad Administration to popularize Rocky Mountain National Park, situated in Northern Colorado, from sixty to eighty miles northwest of Denver, have borne fruit, for this wonderful natural playground entertained more visitors last year and the year previous than any two other national parks in the Nation combined. This is all the more remarkable in view of the fact that the Rocky Mountain Park was only opened and "dedicated to the people of the world" in 1915.

There are a number of good roads into the Rocky Mountain National Park now, and there will be more within a year. The road up the famous Big Thompson Canon, probably the most used highway into the park, will be widened between September 1 and December 1 into a fine, double track highway. The Fall River Road, reaching the park from the opposite or western slope, across the Continental Divide, will be completed this fall. In fact,

contractors are now working toward each other from the Atlantic and Pacific slopes of the Backbone of the Continent, completing the last twelve miles of the road along Fall River, out of the park toward Grand Lake, and vice versa, from the lake toward the park.

Also, a connection from the Poudre Canon Road, now being built by Dooling Brothers, contractors, will be made with the Fall River Road, affording ingress to the park from Northwestern Colorado. It is said that the Forest Service will build this connecting link this summer and fall, and if this is the case, then the wonderful natural playground will be visited by double and treble the number of people who now go there annually.

The Department of the Interior has prepared a schedule of automobile routes into the park and of drives within the park which is instructive to the people of Colorado as well as interesting to travelers. The season this summer and fall will extend to November 1.

Estes Park Village, the eastern and principal entrance to Rocky Mountain National Park, is connected by automobile stages of Rocky Mountain Parks Transportation Company with the railroad stations at Fort Collins, Loveland, Longmont, Lyons and Ward, from which stations the fare to Estes Park is \$4.00 one way, \$8.00 round trip. Rocky Mountain Parks Transportation Company will also operate automobile stage service between Denver and Estes Park at \$6.00 one way, \$10.00 round trip.

The western side of the park may be reached by railroad from Denver to Granby, from which station stages run to Grand Lake.

AUTOMOBILE SCHEDULES:

2:00 P. M. Lv. Denver	Ar. 12:45 P. M.	2:00 P. M. Lv. Fort Collins	Ar. 11:55 A. M.
6:30 P. M. Ar. Estes Park	Ar. 7:45 A. M.	5:00 P. M. Ar. Estes Park	Lv. 9:00 A. M.
10:30 A. M. 3:45 P. M. Lv. Longmont	Ar. 9:30 A. M. 3:45 P. M.	10:45 A. M. 5:00 P. M. Lv. Loveland	Ar. 8:30 A. M. 3:45 P. M.
1:30 P. M. 7:00 P. M. Ar. Estes Park	Lv. 7:00 A. M. 1:00 P. M.	2:00 P. M. 7:30 P. M. Ar. Estes Park	Lv. 6:30 A. M. 12:30 P. M.
11:00 A. M. 5:30 P. M. Lv. Lyons	Ar. 8:30 A. M. 3:00 P. M.	1:30 P. M. Lv. Ward	Ar. 12:30 P. M.
1:30 P. M. 7:00 P. M. Ar. Estes Park	Lv. 7:00 A. M. 1:00 P. M.	5:30 P. M. Ar. Estes Park	Lv. 9:00 A. M.

PARK DRIVES.

Rocky Mountain Parks Transportation Company conducts the following regular automobile drives from Estes Park Village into Rocky Mountain National Park:

The Fall River Road Drive, 26 miles	\$3.50	The Fall River Road and High Drive, 30 miles	4.00
Long's Peak Inn or High Drive, 20 miles	2.50		

SUMMER EXCURSION TICKETS.

Summer excursion tickets will be sold through to Rocky Mountain National Park (Estes Park Village) via rail to Fort Collins, Loveland, Longmont, Lyons or Ward; thence Rocky Mountain Parks Transportation Company. Such tickets will be honored going via any of these junctions, returning via the same or any other of these junctions, or via Rocky Mountain Parks Transportation Company (automobile service), all the way between Denver and Estes Park Village.

Passengers visiting Rocky Mountain National Park as a side trip in connection with journeys to other destinations will find stop-over privileges available on both one-way and round trip tickets.

Thirty-six hotels, together with cottages, log cabins and camps, are situated in or near Rocky Mountain National Park.

BAGGAGE.

During the park season baggage may be checked through on tickets reading to Estes Park. Usual free allowance will be made by railroads, and a charge of \$1.25 per hundred pounds (minimum \$1.25), in each direction, will be made by the Rocky Mountain Parks Transportation Company for all weight in excess of 20 pounds of hand baggage. Baggage carried by auto all the way between Denver and Estes Park will be charged for on basis of \$1.75 per hundred pounds. Storage charges on baggage checked to Denver, Fort Collins, Loveland, Longmont, Lyons or Ward will be waived for actual length of time consumed by passengers in making Park trip.

The U. S. R. R. Administration has issued an illustrated booklet on Rocky Mountain National Park.



Commissioner Fred J. Radford

FRED J. RADFORD, Colorado Highways Commissioner for the third district of the state, has been well known in public life in Colorado for the past quarter of a century. When 27 years old, in 1894, he was elected sheriff of the important and growing county of Las Animas. He served his term as sheriff with credit and still lives at Trinidad, the county seat, where he is proprietor and manager of the Trinidad Foundry and Machine Works.

Commissioner Radford's record as sheriff in Las Animas was such that he was selected warden of the state reformatory at Buena Vista in 1896. He has been highway commissioner from his district, one of the most important in Colorado, for the past four years and has work on several projects more than humming at this time.

One of Commissioner Radford's favorite projects is the road from Trinidad to Raton, N. M., over Raton Pass, now building under his direction. As early as 1882 he

drove over this road, paying one dollar toll for the privilege, like every other traveler in those days. Commissioner Nichols of District No. 2 declares that some of the best work in the state is being carried on in District 3 by Commissioner Radford.

Oldfield to Visit Colorado

Barney Oldfield, veteran master driver, now president of the Oldfield Tire Company at Cleveland, will make an extensive tour of the country this summer, including Denver, according to word received by the Centennial Rubber Company, distributors of Oldfield tires and tubes in Denver and the surrounding counties.

"For nearly twenty years I have entrusted my life to automobile tires," writes Oldfield, in announcing his plans. "What has formerly been my hobby, the extensive study of tires, has now become my business."

Nearby Property Should Pay

A great deal of favorable comment has been heard on the article in the July Highways Bulletin which called attention to the propriety of contributions to the cost of new roads by owners of abutting and adjacent property. There is no farmer who wants to succeed who will not gladly pay a portion of the cost of a fine new road past his property. It actually means, in most instances, the adding of a handsome percentage to the money value of his property. The new law in Iowa, where there is one of the most elaborate good roads programs in the United States, is a model in the matter of charging to property a fair proportion of the cost of new roads.

The French people say that the republican form of government permitted them to save France, for it is the most flexible form, giving everybody an opportunity to be heard, and thereby arousing the people. The people once aroused, the authorities were able to carry the war to a successful conclusion. Without good highways for traffic, the Republic would have been overwhelmed. Over these arteries poured the great cannon trains and the huge armies with a dispatch which poor roads would not have permitted. Our own great Republic has before it the French example.

A good road means easy communication between business centers, so that the ratio of short-haul to long-haul tonnage will increase. The greater part of farm produce and of manufactured goods as well is consumed within the range of the short haul. This means prosperity and advancement for the inland town or small center of population, with its creamery, store, school, church, community hall and other local interests. The producer who lives on a good road is less dependent upon a transportation company. Back districts can move toward the front, as the good road is a great acquaintance-maker, and trade and every good thing grow on better acquaintanceship.

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STATE OF COLORADO STATE HIGHWAY COMMISSION

PLAN AND PROFILE OF PROPOSED STATE HIGHWAY

FEDERAL AID PROJECT
HUERFANO COUNTY AND LAS ANIMAS COUNTY
FROM APACHE CREEK TO NEW MEXICO STATE LINE

NET LENGTH
SECTION A 13.74
SECTION B 13.74
SECTION C 13.74
SECTION D 13.74
TOTAL 53.96

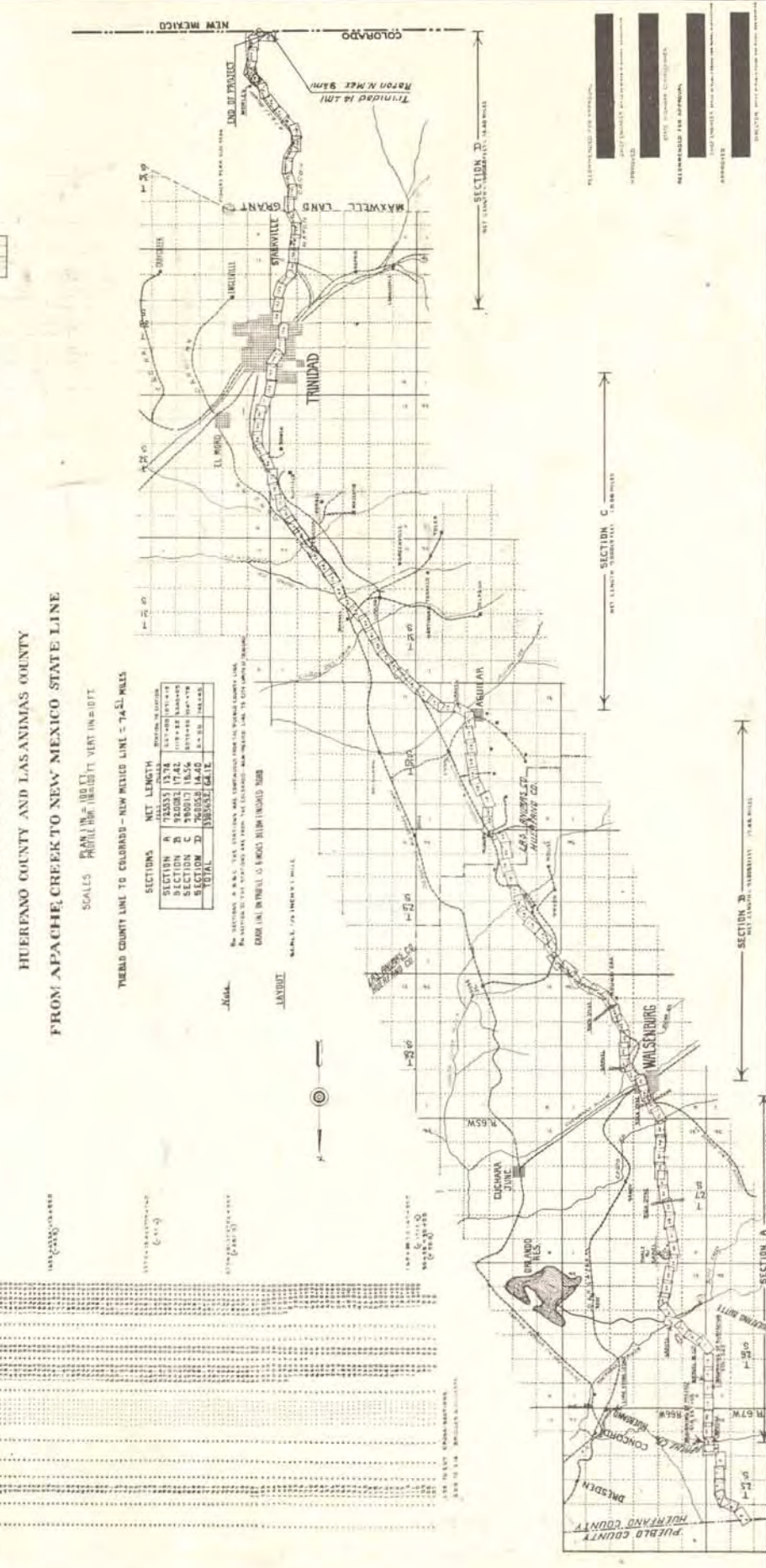
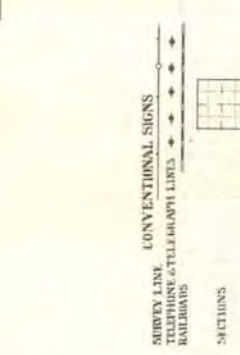
SCALE: HORIZONTAL 1" = 1 MILE
VERTICAL 1" = 10 FEET

NEW MEXICO STATE LINE - 74.51 MILES

SECTION	NET LENGTH	PERCENTAGE
SECTION A	13.74	25.48
SECTION B	13.74	25.48
SECTION C	13.74	25.48
SECTION D	13.74	25.48
TOTAL	53.96	100.00

DATE: JANUARY 1937
BY: J. W. BROWN, JR.
CHECKED BY: J. W. BROWN, JR.

SECTION A	SECTION B	SECTION C	SECTION D
13.74	13.74	13.74	13.74
25.48	25.48	25.48	25.48
53.96	53.96	53.96	53.96



SECTION A
SECTION B
SECTION C
SECTION D