



COLORADO HIGHWAYS BULLETIN ~

July, 1919

Should Highways Be Federalized?

The New Roads Budget

Roads Keep Pace With State's Development

The Denver Tractor Show

Commission Transacts Important Business

Federal-Given Road Equipment Coming

Colorado the Hunting and Fishing Mecca

Issued by the
State Highway Department

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This is not exactly a good roads picture, but the Rocky Mountain canaries always manage to get there. A tourist pack in the Rocky Mountain Forest.

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Work Booms in District 2.	Roosevelt Military Highway.
Highways Benefit City.	Proposed Federal Commission.
Ancients Paved Roads Deep.	Property Owners Should Pay.
Public Should Watch Roads.	Higgins Is F. A. Deputy.

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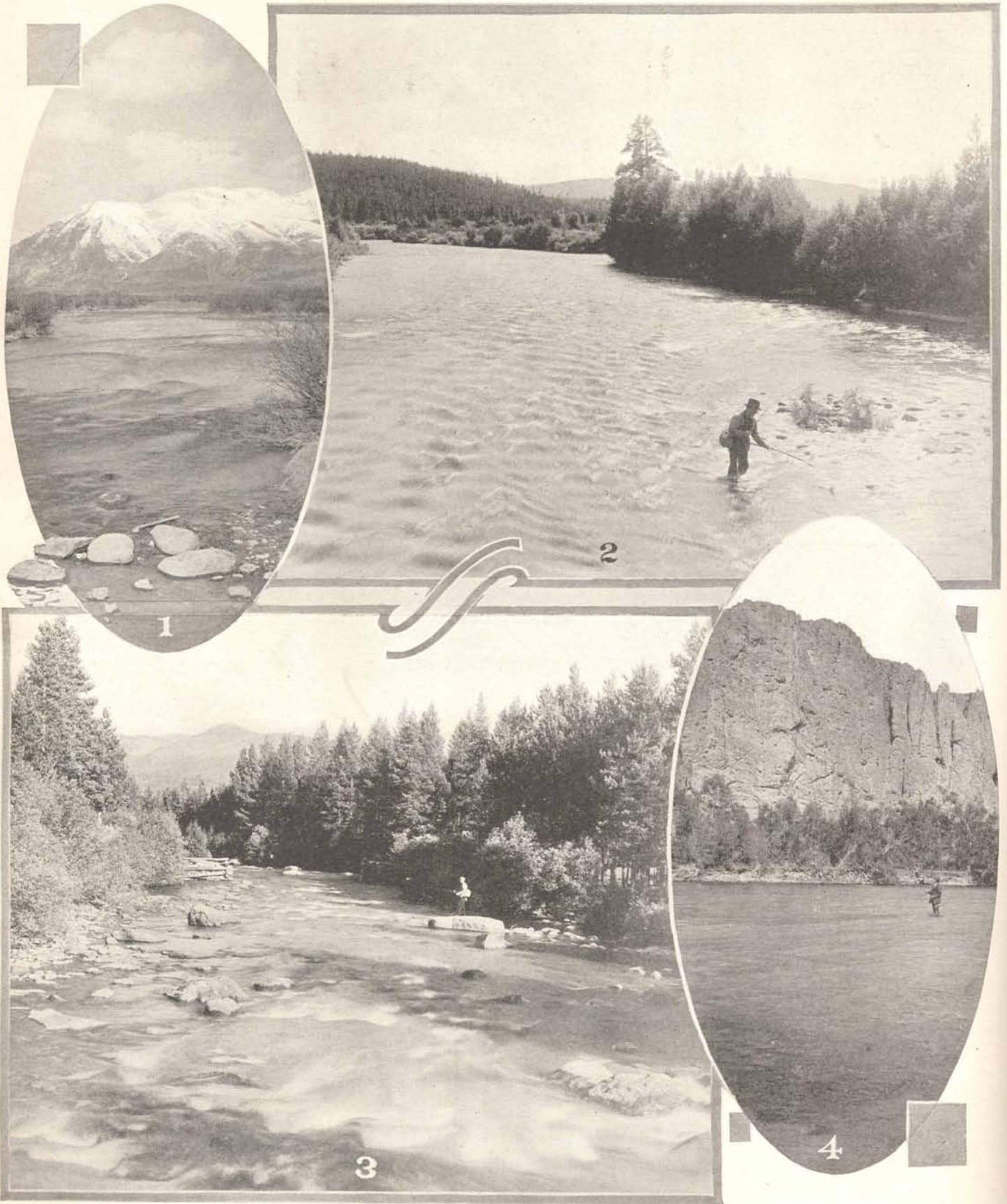
Colorado Highway
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Denver, Colorado.

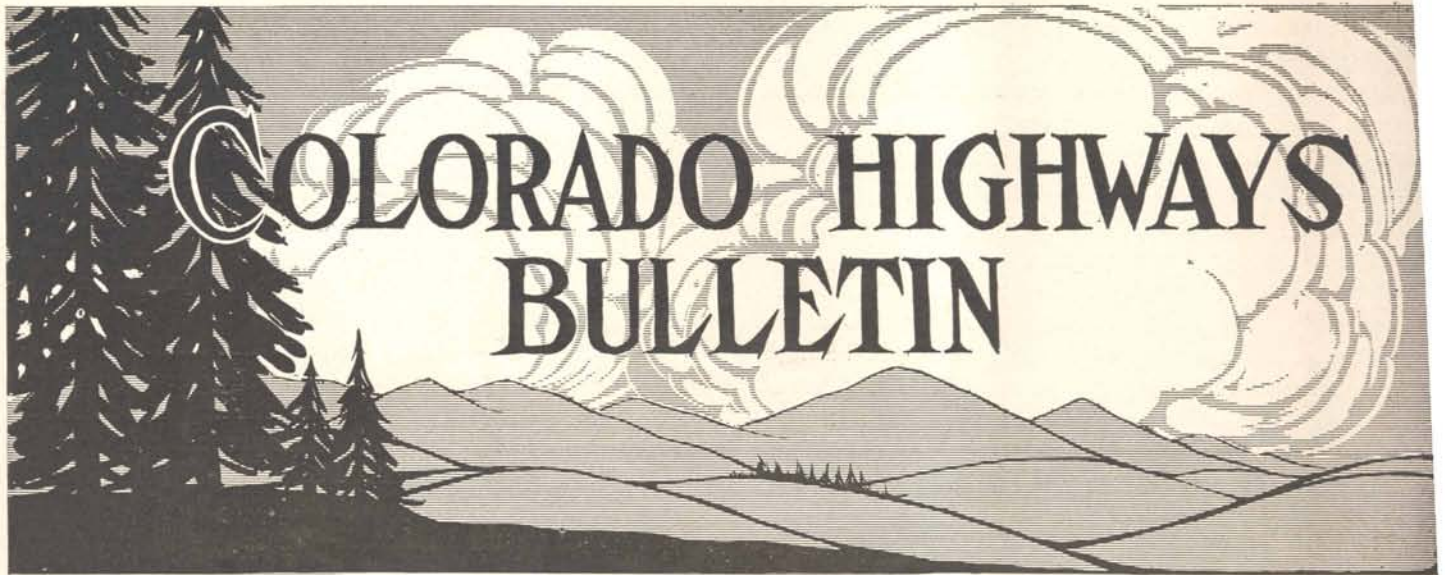
With the approval of the Colorado State Auditing Board.
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attention J. G. Hilliard, editor, Colorado Highways Bulletin.

Owing to the necessarily limited edition of this publication it will be impossible to distribute it free to any persons or institutions other than state and county officials actually engaged in the planning or construction of highways, instructors in highway engineering, newspapers and periodicals and civic associations. Others desiring to obtain Colorado Highways can do so by sending 10 cents for each number desired. Associations desiring to distribute the magazine can obtain it at cost in lots of from 500 copies up.

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Some of the larger of Colorado's wonderful streams, which are a lure to sportsmen the world around. 1. Lake Creek and Mt. Elbert, Colorado, taken from Holy Cross Way. 2. Fishing Scene on the Grand River above Granby, Grand County. 3. Fishing on the Grand just below Grand Lake, Grand County. 4. Fishing scene on the greatest of all trout streams, the Gunnison River, Gunnison County.



VOL. II

JULY, 1919

NO. 7

Should Highways Be Federalized? Two Views

Secretary Houston of the Department of Agriculture is in Favor of Carrying Out Present System of Federal Aid. Dr. Rowe Would Like to See Proposed Federal Commission Created. Is it a Case Where Well Enough Should Be Let Alone?

SECRETARY HOUSTON, in response to a communication from a city chamber of commerce requesting his views regarding the creation of a federal highway commission and the wisdom of taking the federal supervision of highways from the Department of Agriculture and placing it under such a commission, has sent the following reply:

"I have your letter of May 2, in which you state that your chamber of commerce has been asked to adopt a resolution calling on the Congress of the United States to create a federal highway commission and that you note that such resolution has been adopted by a number of commercial organizations, including the United States Chamber of Commerce. You ask for an expression of my views on the matter and particularly whether, in my opinion, it would be wise to take the federal supervision of highways from the Department of Agriculture and place it under such a commission as that proposed.

"Before expressing my views, it might be well for me to point out certain fundamental considerations which should be borne in mind in determining any sound policy of highways administration and development: (1) The roads in each section of the country are of varying degree of importance in the service which they render or may render to that particular locality, to the state and to the Nation as a whole. (2) This is a big country and the traffic conditions and needs vary greatly from section to section. (3) The state highway departments, being in immediate touch with local conditions, are best able to classify the roads properly on the basis of the economic purpose which they may serve. (4) The federal government, under

the present Bankhead Federal Act, is co-operating in the improvement of the roads of greater importance, the classification of which is fixed by the state highway departments; and (5) when this classification has been carefully made and by agreement between the highway departments of adjoining states, the roads of first importance generally meet at state boundaries and, therefore, become interstate highways of nation-wide utility. The federal government, under the present law, is aiding the state highway departments in the classification of their roads on the basis of importance and needs, and federal aid is rapidly being extended for their improvement, on projects submitted by the states and approved by this department.

"Having these points in mind, I have been unable to see the need for the creation of a separate federal highway commission or the wisdom of substituting for the present co-operative program a plan which would commit or limit the federal government to the construction of two federally owned and maintained trunk lines in each state of the Union. There was a bill introduced in the Senate of the United States on February 13, 1919, embodying these suggestions. This proposed legislation provides for a federal highway commission of five, each receiving a salary of \$10,000 a year, whose duty, among other things, would be to establish, construct and maintain a system of highways 'to compromise not less than two main trunk line roads in each state and joining the national highway system in the adjacent states and countries.' The commission is given the power to select the trunk line roads to be constructed after having requested the state highway departments to recommend routes. The federal government is to assume

the maintenance of these roads. The commission is furthermore empowered to take over the work of all existing federal agencies relating to highway transportation, and to purchase, lease, rent, operate and maintain such motor and other transportation facilities as it may deem necessary in performance of its duties under this act."

"In July, 1916, the Bankhead Road Act was passed. It provided appropriations out of the federal treasury, to be matched by equal sums from the states, for the construction of roads, and provided further that no state should receive any of the money appropriated unless it had a highway department with adequate powers. The law placed the administration of the act in the hands of the Secretary of Agriculture, in co-operation with the forty-eight state highway departments. It was enacted only a short time before we entered the European war and its operation was necessarily greatly interfered with by the disturbed conditions. There were also certain features of the law that made its smooth administration difficult. After the cessation of hostilities, with the approval of the President, I requested Congress to make a large additional appropriation to aid the states in highway construction and also to make certain amendments to the law, the necessity for which experience had demonstrated. Congress, through the Bankhead amendment to the Post Office Appropriation Bill, provided an additional appropriation of \$209,000,000 and substantially made the amendments suggested.

"Under existing legislation, there is no special obstacle, so far as I can see, to the construction, in the different states of the Union, of these roads to serve the greatest economic needs. In the first place, the definition of the kind of roads that can be constructed has been greatly broadened and, in the second place, the limitation on the federal contribution for any one road has been increased from \$10,000 to \$20,000 a mile. Following this legislation, the regulations governing the administration of the act and the standards for plans, specifications and estimates have been modified and one of the most successful former state highway engineers in the country has been placed in immediate charge of the federal aid road work. He has at his disposal a considerable staff of local and district engineer aids and no pains will be spared to provide any further federal assistance that may be needed. The machinery provided by the Bankhead amendment includes not only the Federal Bureau of Public Roads, one of the largest and most effective organizations of its kind in the world, but also the forty-eight state highway departments, the two agencies working in close co-operation. It is also a part of the plan to have an advisory committee composed of representatives of the state highway departments, selected by the American Association of the State Highway Officials with due regard to geographic consideration, work in intimate touch with the federal bureau, meeting with its officers at stated periods and at such other times as may be necessary. This machinery, in effect, is an expert national commission intimately in touch through its various parts with all sections of the Union, having no other purpose than that of serving the public interest. It is difficult to see what need there can be for additional machinery.

"Very properly the Bankhead Act places on the highway authorities of the several states responsibility, in large measure, for selecting the roads to be constructed. Obviously, the local authorities are in a better position to judge what roads would serve the largest economic needs than any group of men sitting in Washington would be. It is the duty of the federal bureau, with its district engineers, to see that the provisions of the law are complied with. It is giving, and will continue to give, all possible assistance to the state authorities in all their technical problems, as well as in the planning of state systems and in the classification of roads. It has been the policy of the department from the outset, in order to prevent haphazard action, to have the state highway authorities prepare and present tentative state systems of roads. It was apparent that a rigid system, not subject to modifications as conditions might require, would be impossible. Each state authority has worked out a system and, in general, it is being followed in the development of projects and the construction of roads. In a number of instances systems in general terms have been adopted by state legislatures. Of course, in formulating these systems the engineers gave due regard to interstate connections, that is, to roads connecting the system of one state with that of another, and it is difficult to see why, as progress is made, the construction of through roads will not follow as a matter of course.

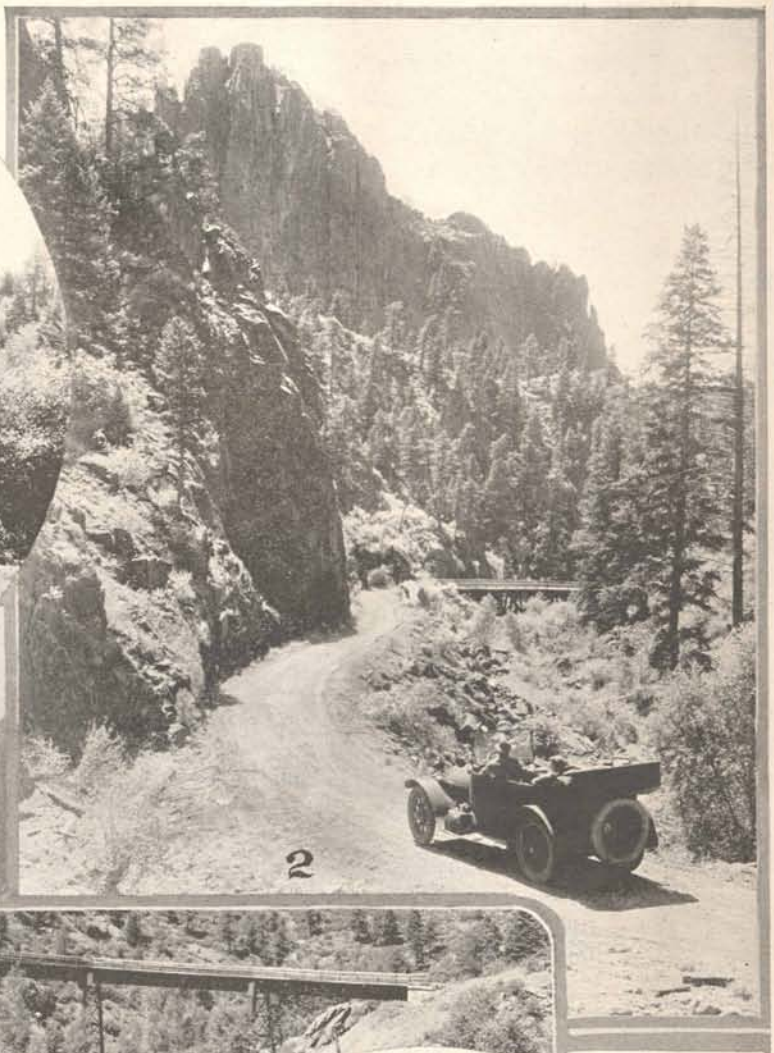
"It seems scarcely likely, in view of the fact that nearly \$300,000,000 are now available out of the federal treasury, that the Congress, in the light of the financial situation, will make additional large appropriations, and it would be impossible, without creating many complications, to divert the existing appropriations from the purpose and plans already under the co-operative arrangements with the states. A considerable part of the available appropriations has already been formally tied up under agreements with state departments and contracts for large sums have been let. Additional large amounts are being pledged monthly. Every state has accepted the federal act and many of them have by law directed its agencies to co-operate with the Secretary of Agriculture. A number of the states have large sums available for co-operation, in many instances much in excess of what is necessary to meet the requirements of the federal act, and other states are preparing greatly to increase their appropriations. These state laws and arrangements cannot easily be changed and perhaps would not be. After the original act was passed, more than a year elapsed before many of the states were able to secure legislative action which would enable them to comply with the federal law and to begin the construction of roads. With the passage of the amendment carrying a large additional appropriation, there arose a necessity for further legislative action in some of the states. It seems to me that, instead of asking for more or different legislation, we should now proceed actively and vigorously with the construction of roads under existing arrangements.

"I am convinced that nothing material would be gained by the proposed change. Much would be lost. As has been pointed out, many complications would be introduced. The creation of a commission would entail un-

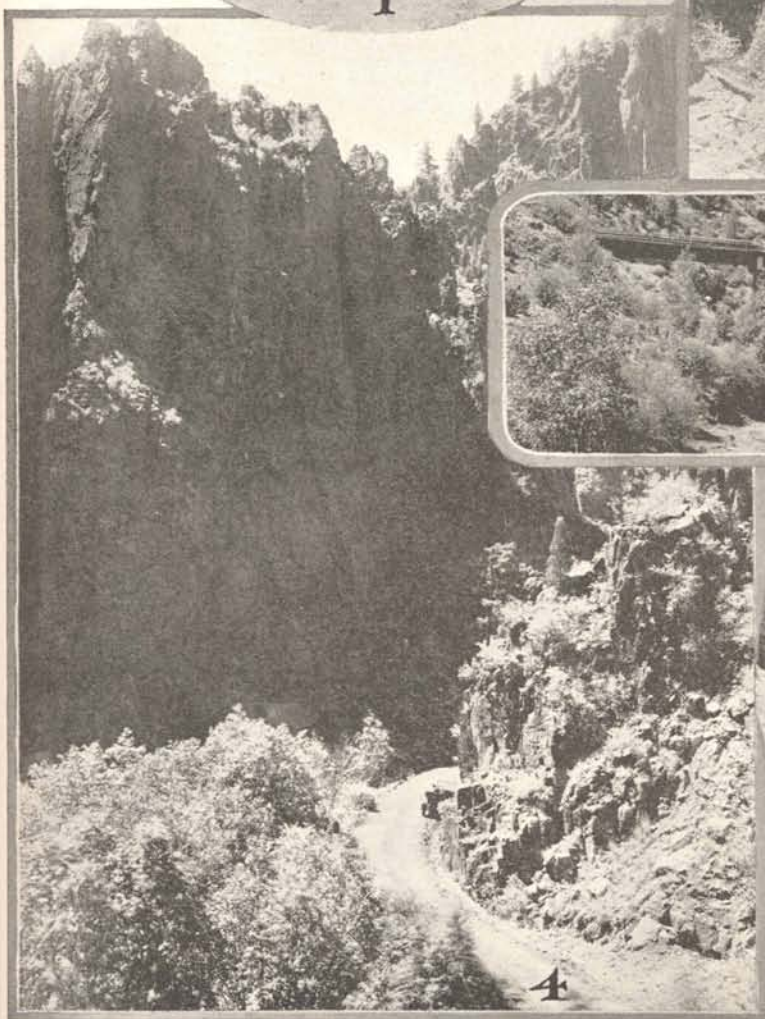
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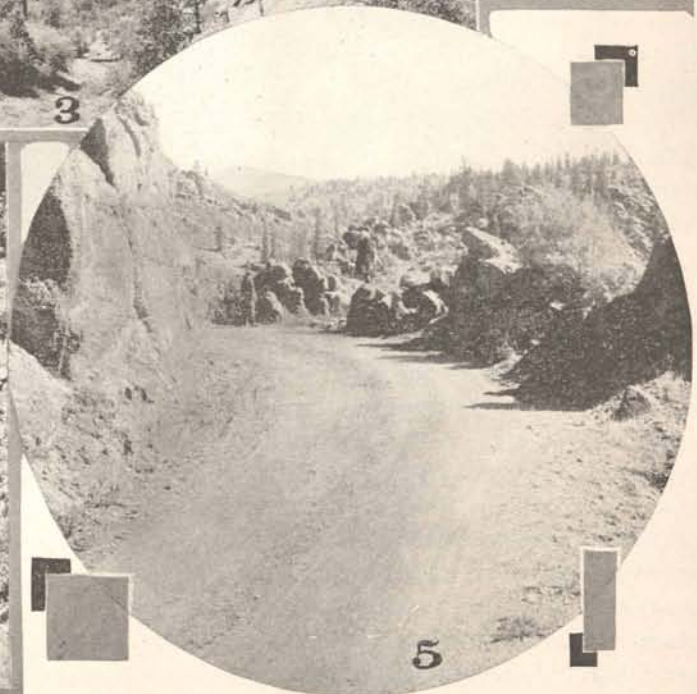
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Picturesque Phantom Canon Road, built on a former railroad grade, with steel railroad bridges intact, through which Commissioner E. E. Nichols of District No. 2 piloted the Rocky Mountain Hotel Association, of which he is president, June 11. 1. Delicate mountain flowers vie with stern cliffs. 2. Cliff, road and bridge. 3. A solid steel auto road bridge, formerly a railroad trestle. 4. A castle rock, between Cripple Creek and Florence. 5. Motoring at railroad grade through the heart of the Rockies.

Work Booms in District No. 2

Work is booming in District No. 2, with big crews of men and many pieces of equipment on the roads that are being built or improved there. The allotment to that district is \$357,000 for the year, and practically this entire sum is to be spent for grading and draining.

Roads to be improved in District No. 2 are the following:

Cherry Creek road to Colorado Springs Junction, a distance of forty-eight miles, the Burlington road in Kit Carson county for ten miles north, east and west, the Limon east road for ten miles, the Colorado Springs-Canon City road, the Colorado Springs-Cripple Creek road, the Castle Rock river road, the Cheyenne Wells, either north or west; Woodland Park to Cripple Creek in Teller county; Buena Vista-Salida road in Chaffee county; Buena Vista to Divide in Chaffee county; the Peyton-Ramah road in El Paso and Park counties and the Farmers' highway in Lincoln county.

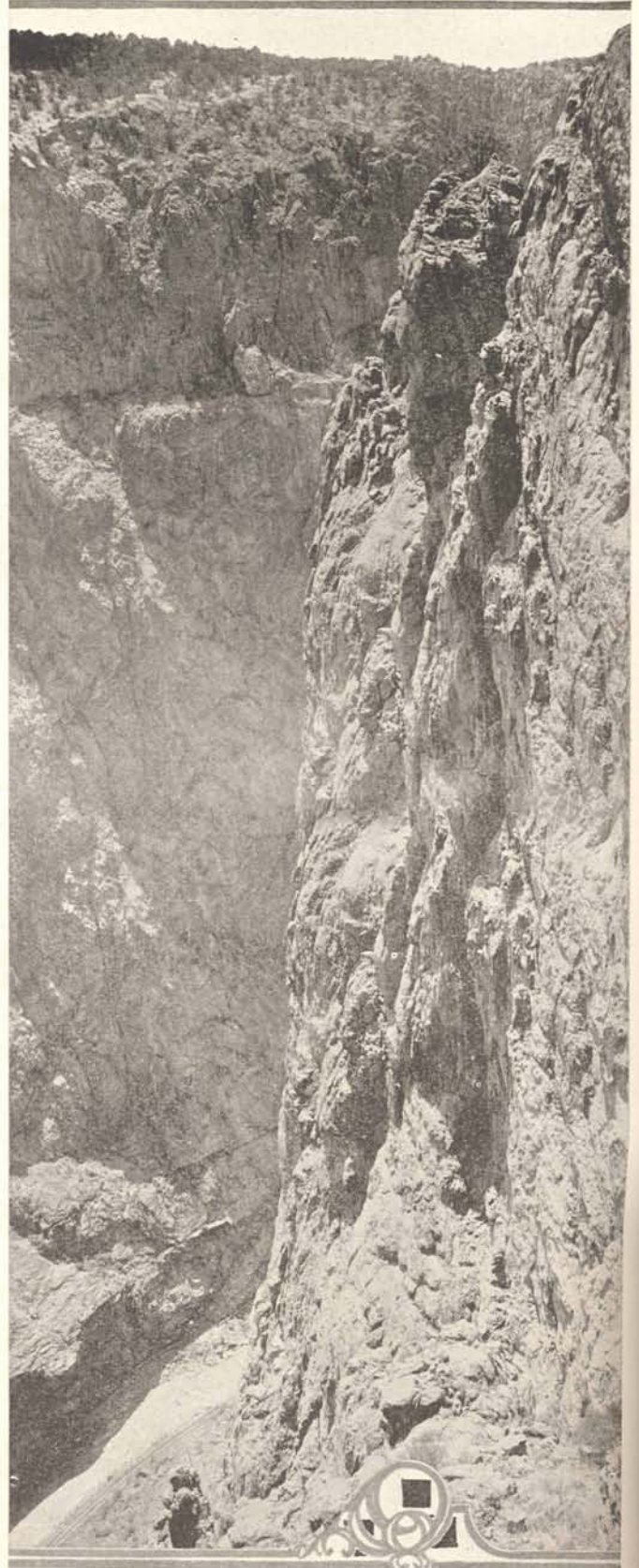
Commissioner E. E. Nichols of District No. 2 declared, following the announcement of the allotment for his district, that this money will effect some very much needed changes and improvements. Commissioner Nichols made a motor trip to Roswell, N. M., for the purpose of bringing his son home and found the New Mexico roads in good shape. He passed and met many motorists who said, "Wait till we get to the Colorado line; then we'll find good roads."

"These people may have exaggerated the condition of our Colorado roads," declared Mr. Nichols, "but it is up to us to make good, and we will. I found the most active work I have seen in Colorado for a long time when I struck the outfits working for Commissioner Fred J. Radford of District No. 3 on the Walsenburg-Trinidad road, on the main Highway which connects New Mexico with Colorado."

Highways Benefit City, Too

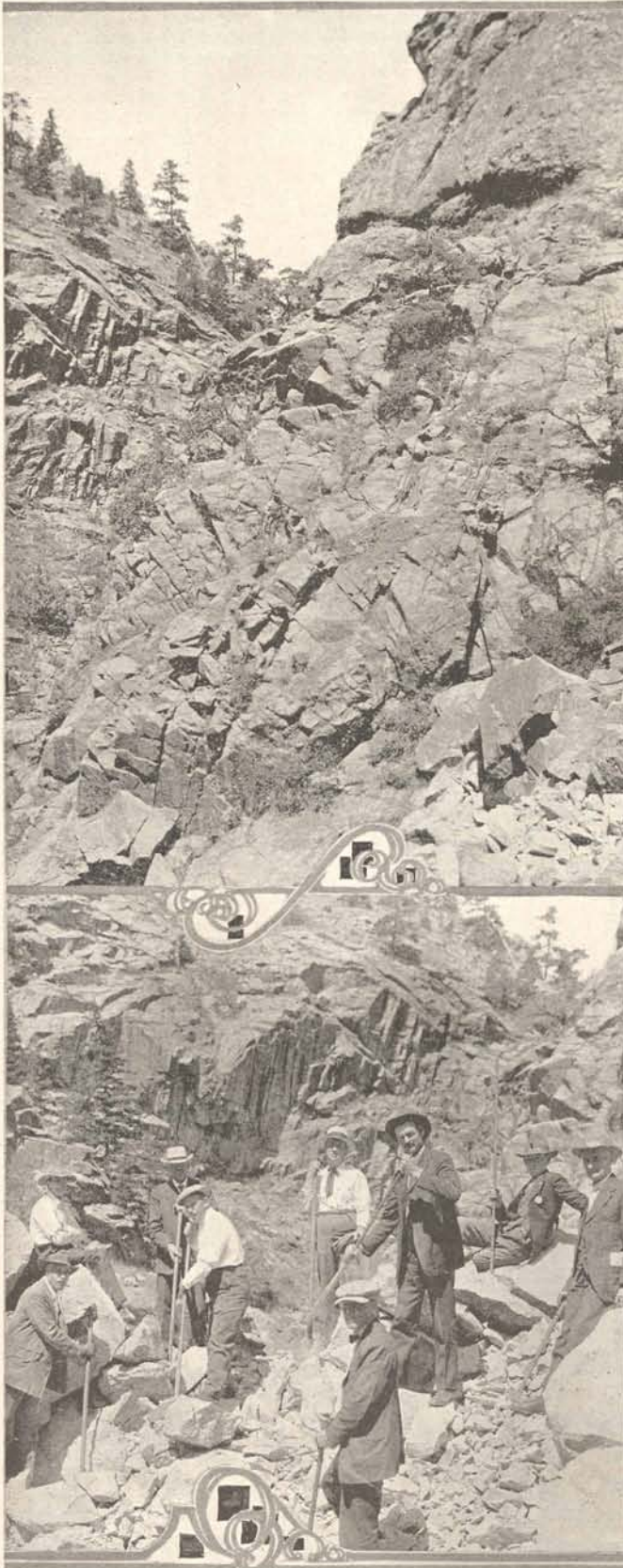
"Improved highways of a permanent type providing motor express and passenger transportation facilities spell opportunity today to the city which intends to lay the foundation for a healthy, permanent future growth. For, if we but admit that hope lies in a more even distribution of the population over the acres lying within a city's sphere of influence, then we are committed to the task of arranging facilities to permit that adjustment to take place in a natural way. Improved highways that make possible rapid motor transportation 365 days out of every year will just as certainly permit and stimulate our people to move out on to the surrounding country acres as a fast and free flowing stream will deliver at its mouth the piece of bark flung in at its source."—W. O. Rutherford, Vice President Goodrich Rubber Co.

The Royal Gorge



The Royal Gorge, Colorado's most famous chasm. An auto road has been built to the top, 2,600 feet sheer above the D. & R. G. Railroad and the Arkansas River.

Poudre Canyon Road



Heavy work to be done by contractors on the Poudre Canon Road, which they will complete on force account this year. Highway commissioners and state engineering "gang" on the ground.

Ancients Paved Roads Deep

Road-building is not a modern science, according to an automobile enthusiast attached to one of the government departments who states that although modern methods have done much to simplify and popularize road-building in all parts of the world, the science itself dates back to the days of ancient Babylon.

"The earliest systematic road-making is credited to the Carthaginians," said this official, "but the greatest road-builders of ancient times were the Romans.

"In general, Roman roads were built in straight lines, regardless of ordinary grades, and were paved deeply, the several layers of stone and concrete sometimes being three feet in thickness. The Appian way, built in 312 B. C., is the earliest notable piece of permanent road work. It still is an excellent highway.

"France appears to have been the leader in modern road construction. In 1556 a stone road fifteen feet wide was built from Paris to Orleans, with about twenty feet of unpaved public way on each side. In 1775 Tresaguet, a French engineer, had evolved a system of improved road construction similar to that widely used today throughout the world.

"On an earth foundation parallel with and about ten inches below the surface of the proposed road Tresaguet laid large stones on edge and covered them with a layer of smaller stones with their top surface smoothed as much as possible. On top of this he put on a third layer of hard stones broken to the size of an English walnut and spread by a shovel. This general system was continued in France until 1820, when Macadam, the great English highway engineer, introduced his plan to the French, who officially adopted it in 1830. Macadam's system was not greatly different. His most notable departure was the raising of the stone bed above the earth at each side to facilitate drainage.

"The modern macadam road is simply an elaboration of the engineer's early plan to insure perfect drainage by grading, and binding the broken bits of hard stone into a solid mass."

French Highways

The French have three classes of highways. The first class are fine roads for heavy traffic, the second class are narrower, and the third are trails or by-ways. Any one of these types would be to us a fine road, as they are substantially built of water-bound macadam, usually starting with a Telford base. These roads form a vast network, reaching every place. Some of the old roads are very deep and were started in the time of the Romans. They are mostly the result of a long period of cheap and hard hand labor.

New Roads Budget Amounts to \$2,322,500

Colorado Highways Commission Contemplates Expenditure of About Two and One-Third Millions of Dollars This Year in the Five Districts of the State as the Beginning of a Program Which Will Put the State in an Entirely New Class in Transportation Realization

A BUDGET of practically two and one-third millions of dollars has been prepared by the Colorado Highways Commission for this year's work on the roads of the state. The exact amount to be expended in the five districts is \$2,322,500. The largest amount allotted to any district is to No. 1, for which the amount is \$922,000. This district comprises a greater population and present road mileage than any other district, from and including Denver northward, and some exceedingly interesting work is planned there. Following are the working plans, with points and mileages for the various districts:

PROPOSED WORKING PLAN

DISTRICT NO. 1

(Total \$922,000.00)

Project No.		
30	Denver-Morrison, 3 miles	\$ 75,000.00
31	Denver to Hospital east, 2 miles.....	44,000.00
32	Denver-Brighton, 10 miles	230,000.00
33	Ft. Collins, 3 miles	75,000.00
34	Greeley, 3 miles	75,000.00
35	Platteville south, 2 miles.....	50,000.00
36	Longmont south, 2 miles.....	45,000.00
9	Loveland-Estes Park-Big Thompson.....	30,000.00
37	Boulder east, 2 miles.....	45,000.00
38	Morgan-Brush, 2 miles.....	45,000.00
39	Akron-Brush	48,000.00
40	Wray-Schramm	30,000.00
29	Morrison-Baileys	60,000.00
41	Sterling to Merino.....	70,000.00
		\$922,000.00

DISTRICT NO. 2

(Total \$357,000.00)

Project No.		
42	Cherry Creek Road to Colbrado Springs Junction (about 48 miles).....	\$ 35,000.00
43	Burlington north, 10 miles.....	15,000.00
44	Burlington west	10,000.00
45	Burlington east	5,000.00
46	Limon east, 10 miles.....	15,000.00
47	Colorado Springs-Canon City Road.....	30,000.00
48	Colorado Springs-Palmer Lake.....	30,000.00
49	Colorado Springs-Cripple Creek.....	10,000.00
50	Castle Rock-River Bend.....	50,000.00
51	Cheyenne Wells, north or west.....	25,000.00
52	Woodland Park to Cripple Creek.....	25,000.00

53	Buena Vista-Salida	35,000.00
54	Buena Vista to Divide.....	40,000.00
55	Peyton-Ramah	17,000.00
56	Farmer's Highway, 18-s to Boyero.....	15,000.00
		\$357,000.00

DISTRICT NO. 3

(Total \$404,600.00)

Project No.		
2	Trinidad-Walsenburg	\$240,000.00
57	Prowers and Baca.....	50,000.00
58	Baca	10,000.00
59	Las Animas City east.....	35,000.00
60	La Junta west.....	11,000.00
61	Rocky Ford east.....	11,000.00
62	Manzanola west	23,600.00
63	Fowler east	24,000.00
		\$404,600.00

DISTRICT NO. 4

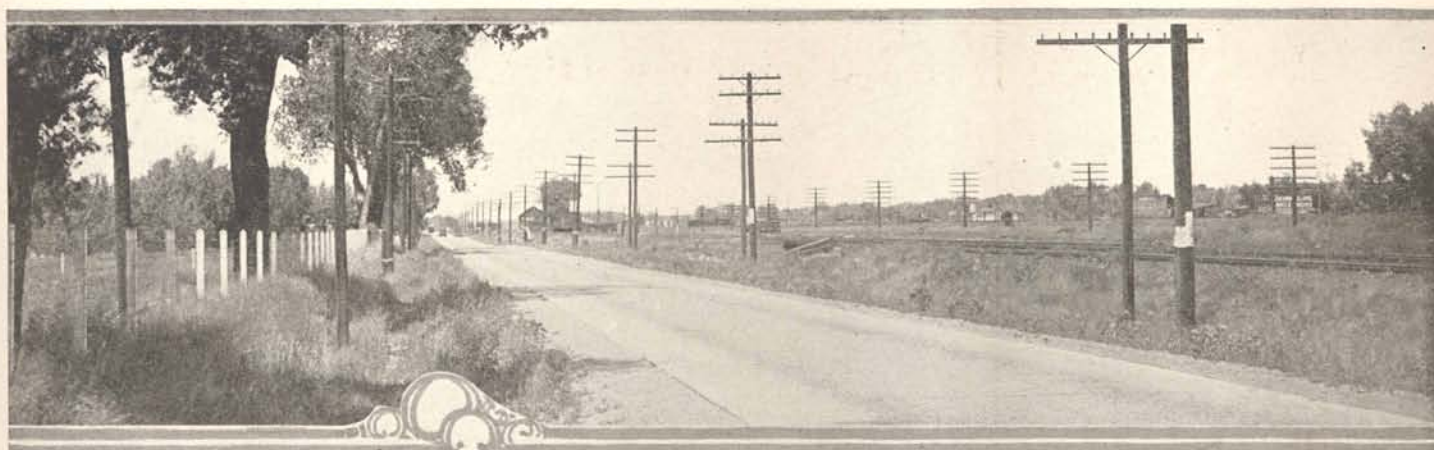
(Total \$357,000.00)

Project No.		
64	Ft. Garland to San Luis.....	\$ 30,000.00
68	Monte Vista-Saguache	85,000.00
65	Silverton-Ouray	30,000.00
66	Top Norwood Hill to No. 7.....	50,000.00
67	Rico north	20,000.00
69	Delta-Montrose to Ouray County line.....	40,000.00
70	Delta-Hotchkiss	30,000.00
71	Durango-Mancos	40,000.00
72	Bayfield-Dyke	27,000.00
		\$352,000.00

DISTRICT NO. 5

(Total \$309,400.00)

Project No.		
80	Steamboat Springs north, 15 miles.....	\$ 59,400.00
73	Walden-Rand	30,000.00
74	Craig west to Maybell, 30 miles.....	75,000.00
75	Kremmling north	30,000.00
76	Meeker-Rifle	22,500.00
77	Grand Junction-Palisade	50,000.00
78	Battle Mountain	40,000.00
		\$306,900.00



A handsome stretch of concrete between Littleton and Denver, built in 1919.

- Whitewater to Gateway.
- DeBeque to Colbran.
- Grand Junction-Fruita.
- Craig west.
- Walden-Willow Creek Road.
- State Bridge-Wolcott.
- Grand Junction-Delta.
- Glenwood to Aspen.
- Glenwood to Wolcott.
- Craig north.

It may be that some of the roads suggested for improvement will not be within the classification required for federal aid, so provision should be made, when passing the apportionments, that in the event of any project not coming within the provisions of the Federal Aid Road Act, then the amount apportioned for that work shall pass into the contingent fund to be reappropriated by the commission to other roads.

Respectfully submitted,
 J. E. Maloney,
 Chief Engineer.

Roosevelt Military Highway

That the Roosevelt military highway will be of great value to Oregon and to Portland by providing a means of bringing produce into the market at reasonable cost, as well as creating a highway which for wonderful beauty will not be excelled in the world, are but a few of the points emphasized by S. C. Pier, president of the Oregon Highway Association, who has written personal letters to Portland city officials asking their support of the bond issue at the coming election in the state. In addition to the great need of a government highway for national defense, this proposed road along the coast of Oregon will open up to development one of the most productive sections in the state. The coast counties have been practically isolated commercially. As a scenic road also it will even outclass the Columbia River highway, which is one of the finest in the United States. The proposed highway will connect Portland with the Mexican line. By unanimous vote of both houses a bill was authorized to issue bonds to the amount of \$2,500,000 for its construc-

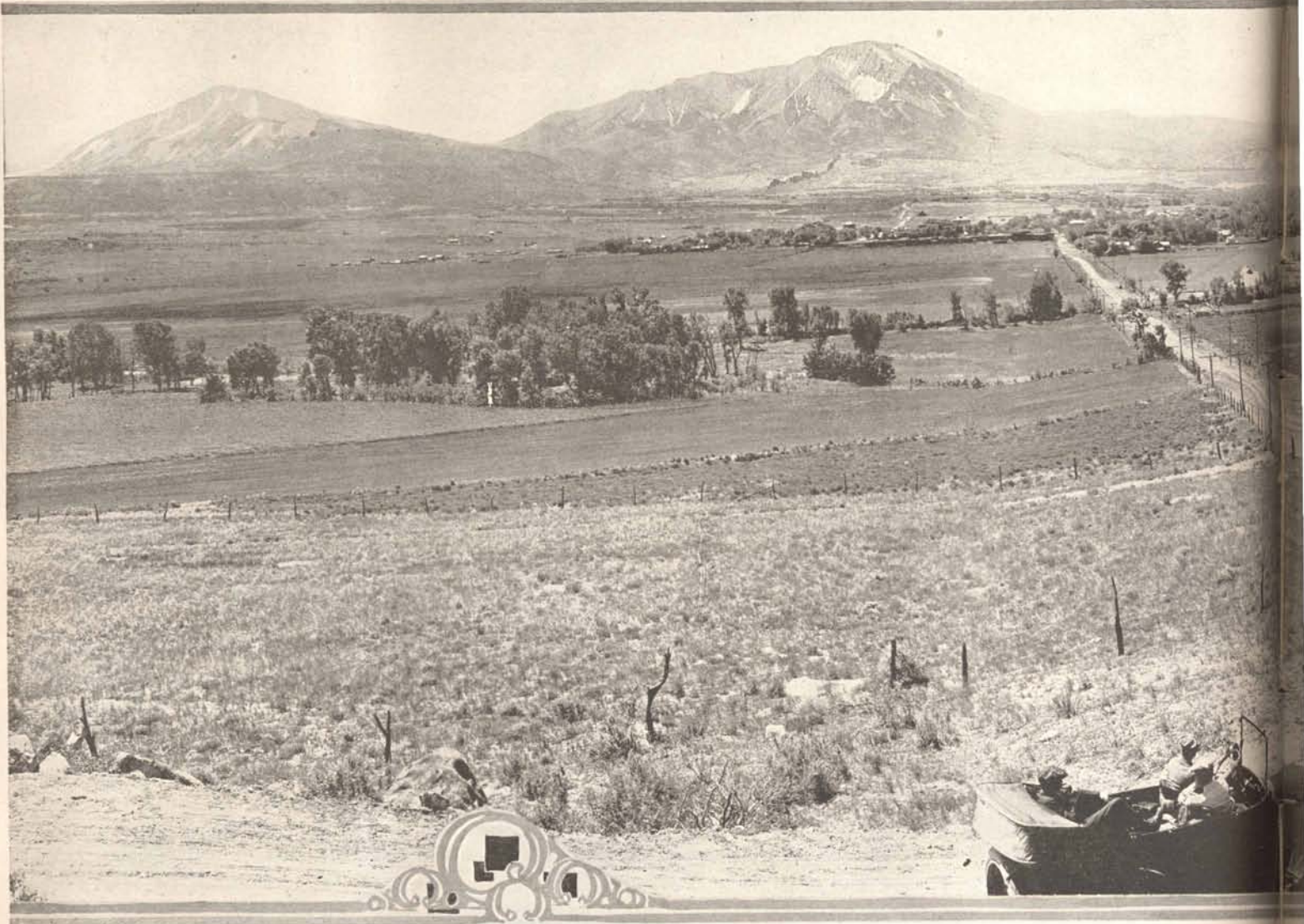
tion, providing, however, the federal government appropriate an equal amount for the same purpose. After the highway has been constructed it will be maintained by the government without cost to Oregon, thus taking the burden of taxation from the shoulders of the people of the state.

Public Should Watch Roads

One of the things the public should take an interest in is the preservation of roads. Many states have laws to prevent the destruction of roads by improper use of them. Instances of such injurious use should be reported to the proper officials. Nobody hesitates to report attempts to break in and steal on his neighbor's property, or, in most cases, to offer physical interference with the marauders. The man who knocks a good road to pieces with a traction engine or damages it by driving heavy loads on narrow tires on wet days is damaging public property unnecessarily and should be held to account just as much as housebreakers. The state and county officials cannot be everywhere all the time; they have to rely on the public spirit of private individuals to keep them informed of transgressions of the kind named.

The public can also render great help by reporting lax work by the small gangs sent out to make repairs, by giving prompt information concerning defective road conditions as they develop, and informing the authorities of the location of good road-building materials. Road-building is not such a simple matter as it seems to many persons who have not taken an active part in it, and probably a good many ill-advised suggestions concerning road work will be made by individuals through ignorance of all the facts relating to it but the right kind of road officials are glad to have such suggestions because they afford an opportunity of showing to interested persons what is really involved in building and maintaining good roads.

The education of highway engineers by the colleges to provide capable construction men is urged by Senator Bankhead of Alabama as a subject of prime importance to the future of highway development.



Spanish Peaks and town of La Veta as viewed from La Veta Pass Road, in Commissioner Radford's district. These mountains

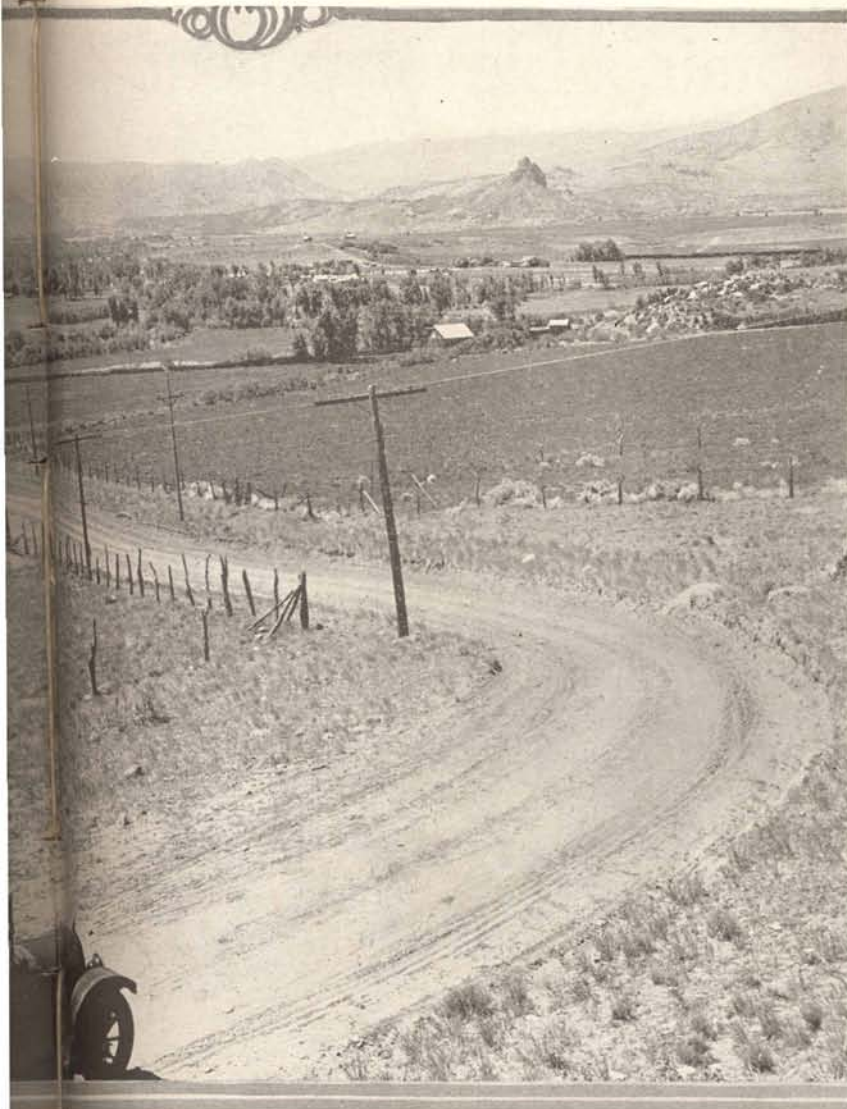
Commission Transacts Important Business

ALL members were present at the meeting of June 9, also Commissioner Ehrhart and Secretary Bal-lou. The meeting was called to order by Chairman E. E. Sommers.

The sum of \$5,000.00 was appropriated to be used for surfacing road No. 70 in Las Animas County under the direction of Commissioner Radford.

A communication was read from Mr. Delph Carpenter, attorney for the La Poudre Valley Irrigation District, entering a protest against the construction of state highway up the Poudre Canon in accordance with the contract as entered into between Dooling Brothers and the Crook Construction Company and the County of Larimer. Mr. Lee, county attorney of Larimer County, appeared before the board, explaining Larimer County's position in the matter and claiming a priority of right-of-way for the highway. Mr. E. E. Sommers made the statement that he investigated the matter as above referred to and that it appeared to him that the whole question should be taken

up by the Board of County Commissioners of Larimer County and the officers of the Poudre Valley Irrigation Company and that some determination should be finally made between them. Upon information by telephone to Mr. Ehrhart, Mr. Carpenter, attorney for the irrigation district, asked that the board hear his statement in regard to the question before any final determination. Later Mr. Carpenter appeared before the board and stated that he had endeavored to obtain some satisfactory arrangement with the Board of County Commissioners whereby they would jointly agree to make a survey for the road above the water line of the proposed reservoir, and that the county commissioners had refused to co-operate with him; and for that reason he was making his appeal to the State Highway Commission, as he did not want the solid formation of rock at the mouth of the Poudre Canon disturbed, as it would cause them unnecessary expense in building their dam at some future time. The commission informed Mr. Carpenter that they would have Mr. Ehrhart take the



mountains are plainly visible from Denver, over 100 miles distant.

whole proposition up with the Board of County Commissioners of Larimer County and endeavor to use their influence in order that the matter might be arranged satisfactorily to both parties.

Upon motion by Mr. Radford, seconded by Mr. Norvell, Mr. E. E. Sommers was delegated to go to Washington to see if he could not speed up the distribution of motor trucks, air compressors and road working machinery which has been assigned to the State Highway Department by the Agricultural Department. Also to endeavor to obtain a lower railroad freight rate on crushed stone for use in surfacing Federal Aid Project No. 2.

The sum of \$3,000 was appropriated for the payment of a certain piece of work on the North Fork Road in Grand County, said work now being under construction by R. W. McQueary. The appropriation of \$2,000 to \$1,000 heretofore made to Grand County under appropriation resolution No. 125 was cancelled.

It was ordered that \$1,000 be transferred from Road No. 27 to Road No. 21 in Jefferson County as per the request of commissioners of Jefferson County.

The State Highway Commission was instructed to purchase one gasoline operated air compressor outfit at a

cost of not to exceed \$3,500, for the use of N. I. Jacobson on the east end of the Fall River Road, with the understanding on the completion of this contract the compressor shall be delivered by Jacobson at the cost of the State Highway Department to some railroad point as designated by the highway commissioner.

The State Highway Commissioner was instructed to purchase a gasoline operated air compressor drilling outfit at a cost not exceeding \$3,500 for the use of E. B. Harlan on the Independence Pass work.

One thousand five hundred dollars was appropriated to Alamosa County on a two to one basis.

The sum of \$4,000 was appropriated to Park County on Road No. 35 on the one state and two county basis.

The State Highway Commissioner was instructed to expend for the improvement of road over Trout Creek Pass in Chaffee County the sum of \$1,000.

The sum of \$400 was appropriated to Prowers County for the improvement of Road No. 34.

\$1,000 was appropriated to Larimer County on the one to one basis, for use on road from Loveland to the mouth of the Big Thompson Canyon, State Route No. 51.

The sum of \$750 was appropriated for the use of Delta County on Road No. 12, the same on the basis of one to one.

The sum of \$300 was appropriated to Montrose County on a one to one basis, to be expended on improving the Black Mesa Road.

Hinsdale County was appropriated the sum of \$2,000 on the basis of 100 per cent, and the appropriation formerly made to Hinsdale County on the basis of \$2,000 to \$1,000 was cancelled.

The road from Delta to Nucla was declared a state highway, subject to satisfactory maps and plats being filed with the Highway Department.

The sum of \$750 was appropriated to repair bridge on Route No. 18 over Fountain Creek between Manitou and Colorado Springs, and the State Highway Commissioner instructed to have repairs made under his supervision.

Mr. Fred Boyer was employed as assistant bookkeeper for the Highway Department at a salary of \$150 per month.

Commissioner Ehrhart was authorized to approve the personal bond as offered by J. Fred Roberts Construction Company, provided J. Fred Roberts and two other good and sufficient sureties sign said bond, and that the said J. Fred Roberts should deposit in escrow deeds to his property to the amount of \$100,000. This bond for the purpose of covering contract of the J. Fred Roberts Construction Company on Federal Aid Project No. 2.

Commissioner Ehrhart was authorized to approve bonds of Allen & Lafferty and J. A. Osner Construction Company on the same or similar basis as provided for in the resolution covering the Roberts Construction Company's contract.

Mr. W. B. McQueary was appointed superintendent of construction on the west end of the Fall River Road at a salary of \$200 per month, and he is to be paid in

Roads Keep Pace with State's Development

Colorado's 25,000 Miles of Highway in 1909 Have Grown to 45,000 in 1919. Improved Roads Show Increase of From 4,000 to 8,000 in Decade. This Extraordinary Progress Has Made Possible the Wonderful Agricultural Showing the State is Making--By Howard D. Sullivan

MOST of us are accustomed to measuring our progress from day to day or from year to year, comparing what we accomplished today with the results of yesterday's efforts, or the achievements of this year with those of last year. It is only occasionally that we look back over the records of a decade to get a comprehensive idea of the speed with which we are actually going forward.

The United States census makes a survey of industrial progress for us every tenth year. The latest census survey was for 1910. The next one will be made next year. It will show a percentage of growth and development in Colorado and other states of the Rocky Mountain west that will surprise most of us, for the reason that we have been accustomed to measuring the position we occupy this year on the industrial development route with that which we occupied last year.

The biggest advance made by any industry in this state in the past decade has been in agriculture; road building, perhaps, stands second. The former has been the result of bringing under cultivation hundreds of thousands of acres of fertile land in nearly all sections of the state and of the introduction of better methods in eastern Colorado. The latter has been largely the result of the agricultural growth of the state, for new and better highways have been required to transport the immensely increased products of our farms to market.

The census of 1910 showed 46,170 farms in Colorado, comprising a total of 13,532,113 acres. Reports now being made to the state board of immigration by county assessors indicate that there are approximately 60,000 farms in the state at this time, with a total area of more than 22,000,000 acres.

The census of farm production is always for the year preceding that in which the census figures are compiled; so that the 1910 census gives data on agricultural production for 1909. That year the area in cultivation in Colorado, exclusive of orchards, was 2,614,312 acres. This year, according to the indications from the partially complete reports of county assessors, the area in cultivation will be about 4,500,000 acres, an increase of more than 70 per cent. Final figures from county assessors may show an even larger increase.

In 1909 the area devoted to wheat in Colorado was 340,729 acres. This year more than twice that area is devoted to winter wheat alone and winter and spring wheat combined account for more than 1,000,000 acres of the cultivated area of the state, or more than 35 per cent of the total acreage cultivated in 1909. There were 15,715 acres of rye raised in the state in 1909. This year the acreage is approximately 120,000 acres, an increase of more than

600 per cent. There were 326,559 acres of corn reported to the census bureau for 1909. This year, according to the incomplete returns in the hands of the Immigration Department, there are in excess of 600,000 acres of corn in the state.

There has been some increase in the acreage cultivated to other crops, with the possible exception of oats and potatoes. There has been a very large percentage of increase in the acreage of dry beans and broom corn, though the acreage devoted to each crop this year will be less than that of last year. Hay has always been Colorado's biggest crop. The acreage, however, has shown but slight increase since 1909, compared with the increase in other crops.

These figures are given to illustrate in a measure the agricultural development of Colorado in the past ten years. The value of all crops grown in 1919, according to the estimates of the census bureau, based upon prices current at that time, was \$50,974,958. The value of all crops last year was slightly above \$150,000,000, and with favorable weather conditions this year should show a considerable increase over last year.

The increases in acreage cultivated are not confined to any particular section of the state, though the heaviest increases have been in the non-irrigated sections of eastern Colorado and in Moffat county. The increase in road building has touched every county in the state.

In 1909 there were perhaps 25,000 miles of highway in Colorado, though such records as are available placed the mileage somewhat above that figure. Of this amount only 25 miles were classed as "improved" by the Bureau of Public Roads of the United States Department of Agriculture. The Colorado State Highway Commission was organized in January, 1910, under an act of the legislature approved May 5, 1909. That body estimated the expenditures on roads in Colorado in 1910 at "close to \$1,250,000," but did not vouch for the accuracy of the figures.

There are approximately 45,000 miles of highways in Colorado at the present time, of which 8,000 miles may properly be classed as "improved," that is, properly graded and surfaced with some special surfacing material. In 1919 there is approximately \$2,500,000 available from the counties for road construction and improvement, while approximately \$1,000,000 is available from all sources to be spent under the direction of the Highway Commission in the various counties.

The rapid increase in road construction in Colorado has been one of the most important factors in making possible the agricultural development shown above. The cost of transportation to shipping points is one of the big

(Continued on Page 21)



Kenosha Pass. One of the highest and most important passes over the Rockies. Road is being rebuilt here.

Denver Tractor Show Was Biggest Ever

Colorado Showed Itself to be Tractor Hungry, so That it Appears Probable That the Sentiment for Good Roads Will Grow Accordingly, for Good Roads are the Tractor's Big Brother, so Helpful

GOOD roads bear a strong relationship to tractors, paradoxical as the expression may seem. The good road is not the mother of the tractor, for these uncanny products of the automobile factory can go most anywhere, in war or peace, whether there are roads to run on or not. But good roads might honestly be called the big brother of the tractor, for the former is such a big help to the latter.

When the Denver Civic and Commercial Association and the Denver Tractor Club proposed several months ago to organize and hold a tractor show in this city, they little dreamed that they were laying the foundation of the biggest event of the kind in history. But Colorado's capital city and her broad plains were attraction sufficient to bring here the biggest display of up-to-date farm motive power and interesting demonstrations ever assembled or staged. The exhibition was known as the Rocky Mountain National Tractor Show and was held at Denver June 8-13.

For the farmers it was a thorough, comprehensive and convincing demonstration of the fact that successful, economical and efficient farming today is automotive farming.

For the demonstrators it was a record-breaking week of business. More tractor and implement sales were made

that week than ever have been made at previous tractor demonstrations, according to all the exhibitors.

From the standpoint of the Denver public it was an educational and entertaining exhibition never paralleled by events of this kind in the past. The variety of exhibits and the breadth of scope of the entire affair have never before been equaled.

From the standpoint of Denver business generally, it was a tremendous boon of prosperity, for it brought at least 150,000 people from all parts of the country into the city.

And as for the tractor and implement manufacturers, it was a revelation of the virgin prairies of the West. For in many respects this event was a greater demonstration for the tractor and implement manufacturers than it was for anyone else.

The demonstrators, including the manufacturers, are unanimous in a remarkable discovery—the discovery that soil that had never been touched by plows before, was ideal for the purposes of the demonstration. It put the tractors to the severest test they ever had. And the big, fine thing about it is that every machine in the field stood the test and conquered the vast expanse of hard, unyielding prairie in a manner to make every manufacturer

(Continued on Page 21)



The Proposed Federal Commission

THE question of advisability of the creation of a Federal Commission for the building of a national highway system has been taken up, for and against, by leading authorities and is attracting no end of attention. Two of the most interesting expressions have come from Secretary David Houston of the Department of Agriculture and Dr. H. M. Rowe, past president of the American Automobile Association and a member of the special committee of the A. A. A. Good Roads Board, which is devoting much time to federal highway legislation.

The arguments of these two leaders are well worthy of careful thought. That of Secretary Houston, wherein he advocates a policy that will not interfere with the present comprehensive system, which is now being carried on practically without interruption and is giving splendid results where the states are properly organized along highway lines, seems plausible indeed. It is certainly true that the states themselves know what they need and that it would be little trouble to connect up the principal intra-state and transcontinental highways so as to serve every purpose.

It is also true that different kinds of roads are needed for different communities. New federal regulations permit the government to contribute as its share of the cost of state roads as high as \$20,000, as against the former maximum of \$10,000 per mile. T. H. MacDonald, former chief engineer for the Iowa Highway Commission, has been made director of the U. S. Bureau of Public Roads at Washington, and he has a staff of former successful state and district engineers. It is to be presumed that the Department of Agriculture takes as much interest in the matter of good roads, the administration of which is vested in that department, as it says it does. Secretary Houston declares that he has "no prejudice against any sort of a road but a bad road."

The states seem to be co-operating very heartily with the federal government in the matter of good roads. The State of Colorado is doing so, at least, and big things are being accomplished or are projected. "Why at this stage introduce complications and embarrassments, and why should not the friends of the movement for roads to serve the people co-operate?" is a pertinent inquiry of the Secretary of Agriculture.

In this issue of the Colorado Highway Bulletin are set forth the views of Secretary Houston and of Dr. Rowe. They should be read carefully by everyone who has the interests of the traveler and especially of the motorist at

heart. Dr. Rowe seems to fear that state highways might not meet properly at the boundaries of the respective commonwealths and that they might not be of sufficiently uniform construction. However, there are very few states in which the principal roads do not meet at the state lines with the important roads of the neighbor states, and there is no conceivable desire on the part of any of the states to alter this condition. Furthermore, every state wants the best sort of roads it can possibly get.

Colorado is as vitally interested in seeing its roads properly connected with those of surrounding states as is any other state of the Union, and there is no reason to think that present direct road connections with other states will ever be disturbed on north, south, east or west.

It may be just as well to let a good thing alone. In Colorado, which is, in many ways, typical of all the states, and in other particulars is in greater need of good roads than almost any, the highways are being administered in such manner as to promise easy ingress from other states and to make accessible the remarkable points of interest within the state. Other states also are doing their best, especially since the federal government has begun to lend its aid.

Property Owners Should Pay

COLORADO is in the best position in its history to realize its long cherished ambition to possess one of the best systems of highways in the nation. There are still tremendous problems to be met, however, and they must be faced squarely.

To complete the road construction necessary to place Colorado on the map as one of the most productive of states and as the playground of the nation necessitate the expenditure of considerable sums of money. Funds from several sources are now available, including taxation, gasoline tax and Federal aid. But there is one source of good-roads building revenue which is being drawn upon by other states which has never been touched in Colorado. That is the charge upon abutting property.

Especially in the farming districts is the property adjacent to the highways benefited by good roads. It would be a queer sort of farmer who would not be willing to pay a fair proportion of the cost of a hardsurface road running past his land. Yet where Colorado is building or is contemplating the construction of good roads the property nearest the road gets the benefit without a cent of cost to its owner.

In Iowa there was passed a law by the last legislature which is expected to solve the abutting property problem in that state. The law provides that County Supervisors shall name a board of three resident freeholders to apportion 25 per cent of the total cost of the improvement upon property close to the proposed road, giving due consideration to fair market value per acre, relative location and productivity, relative proximity and accessibility to the improvement. After the assessment is apportioned, the auditor sets a date for hearing before the board of supervisors at which interested parties may appear and be heard. Enlargement of the district to include benefited property may be recommended by the appraisers to the supervisors, but this recommendation must be approved by the State Highway Commission before it becomes effective.

The law prescribes no basis of assessment, but the Iowa Service Bulletin shows how 25 per cent of the cost of a road can be assessed against benefited property without entailing hardship on the land owner. For instance, on a hard surfaced road costing \$20,000 per mile, the adjacent property pays 25 per cent, or \$5,000. There is a benefit zone three miles wide, or one and one-half miles on either side of the road. It is suggested that the first quarter mile bear 32 per cent, the second quarter mile 25.6 per cent, the third quarter mile 19.6 per cent, the fourth quarter mile 12.8 per cent, the fifth quarter mile 6.4 per cent and the sixth quarter mile, comprising the last property in the benefited zone, 4 per cent of the \$2,500 assessed against the one side of the road.

This scheme would work out in the following fashion in an average farming district:

	Per cent	Per Acre	Per 40	Per 160
First quarter mile pays.....	32	\$5.00	\$200	\$800
Second quarter mile pays.....	25.6	4.00	160	640
Third quarter mile pays.....	19.2	3.00	120	480
Fourth quarter mile pays.....	12.8	2.00	80	320
Fifth quarter mile pays.....	6.4	1.00	40	160
Sixth quarter mile pays.....	4.0	0.625	25	100
	100.0			\$2,500

There is no economy in narrow roads. Traffic follows good roads. The tonnage soon increases beyond the capacity of a narrow pavement to carry it, with the result that the expense of maintaining macadam or gravel shoulders exceeds in a very short time what it would cost for a wider slab.

Carload shipments of automobiles from the factories for May will show more than 24,000 carloads, compared with 17,833 carloads in May, 1918, indicating that motor car production is on the increase to meet the demand caused by the shortage of cars last year, when the industry made approximately a million cars less than the original programs called for. For the year ending April 30, carload shipments were 189,429 compared with 224,805 carloads in the previous year.

Compile Highway Statistics

Compilation of statistical data designed to show railway, waterway and highway rates in detail will be undertaken at once by the highway transport committee of the Council of National Defense. At the request of officials of the council, Capt. A. G. Stevens, finance division of the war department, has been assigned to the work.

Captain Stevens was engaged in railroad tariff compilation for a number of years before entering the government service. During the period of America's participation in the war he was in charge of the section which issued vouchers on all railroad freight charges, the amounts frequently running as high as \$30,000,000 a month. He is considered one of the foremost authorities on the subject in this country.

The rate survey is planned as one of the features of the post-war program of the highways transport committee. Investigations conducted by that body have developed a surprising lack of definite information regarding highway transportation operating costs. Thus far little or no effort has been made to classify highway freight, while the range of charges even between units operating in the same districts has been remarkably wide, indicating an inexact knowledge of operating costs upon the part of the haulers.

U. of C. Tractor School

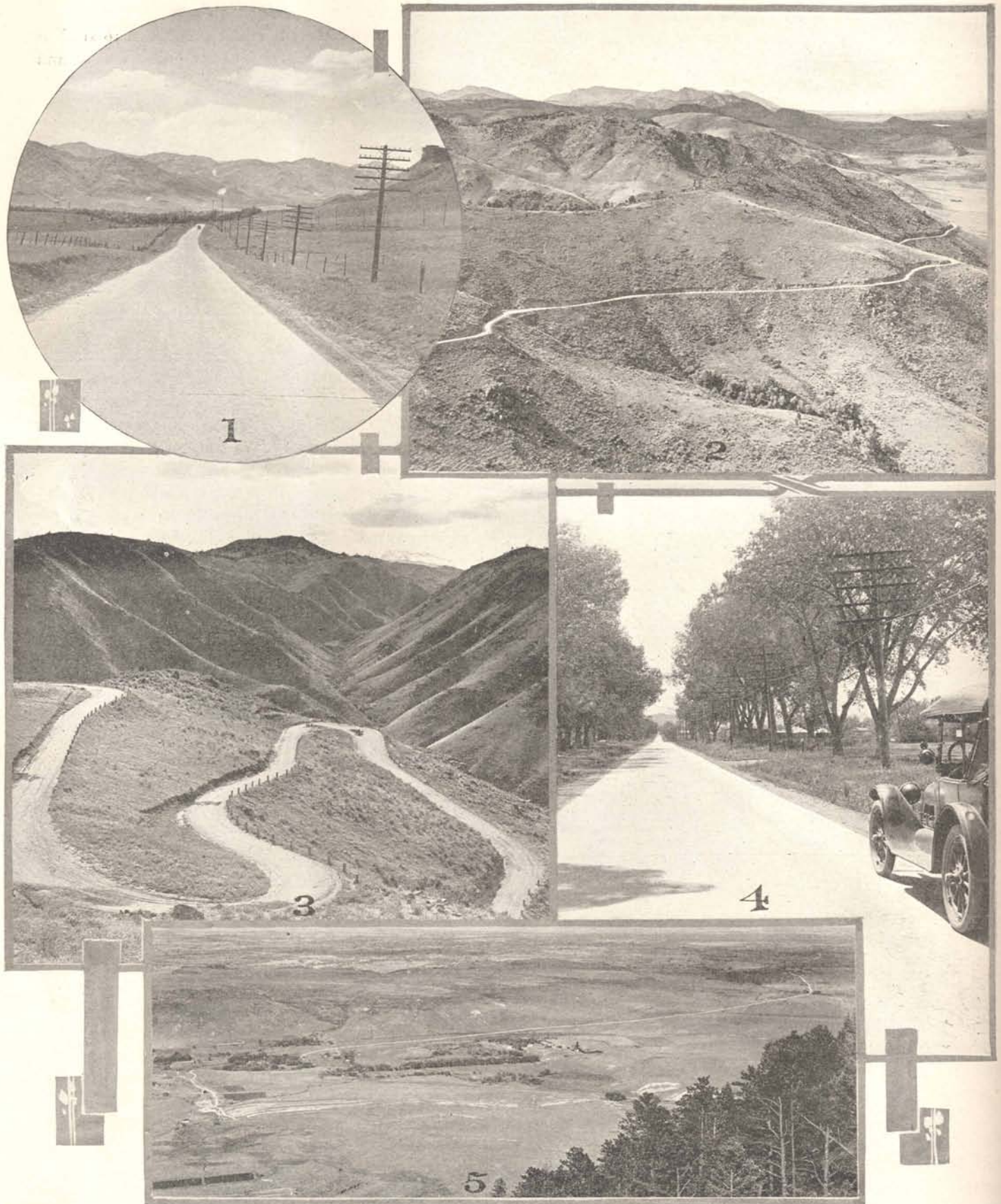
Director C. G. Sargent, in charge of vocational education at Colorado University, has launched a plan for short courses of instruction in the use of tractors. The first of these was held recently in connection with the Logan County High school at Sterling.

In this school the state and federal government are co-operating under the Smith-Hughes act in industrial arts. In this short course many farmers, as well as boys, who are taking the course in agriculture, were present and instructions were provided.

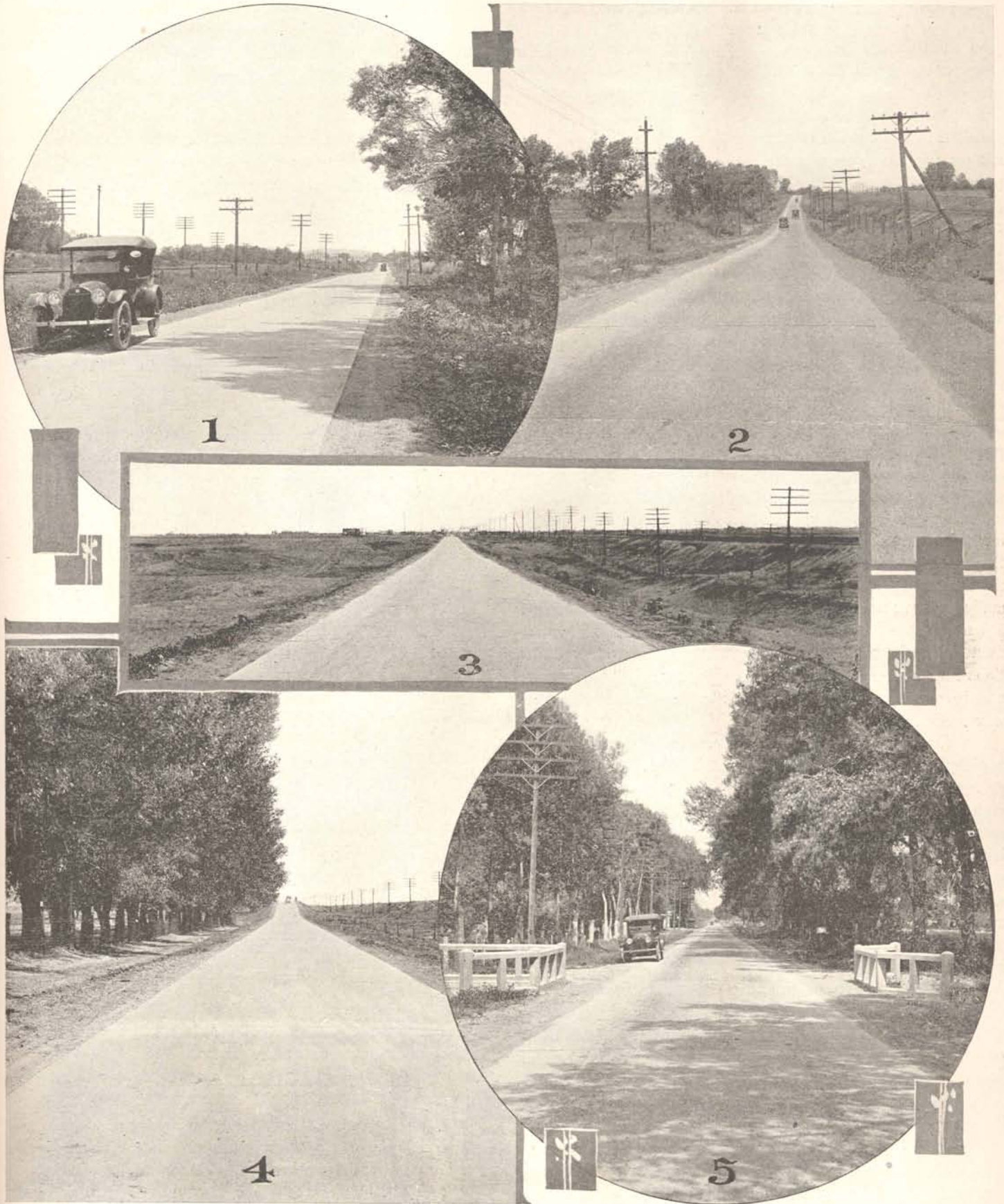
It is said that more than \$200,000 was expended in tractors in this county last year and there were eleven makes demonstrated at the short courses.

Not only does existing traffic shift to paved roads, but what was once termed a theory has in practice proved to be a fact: the time saved in marketing on concrete roads results in greater production on farms and truck gardens, since more time is available for cultivating a larger acreage or for cultivating the same acreage more intensively. This adds to the tonnage which the roads must carry, and also to the profits of those who enjoy their time-saving advantages.

Road workers employed by Fairbanks & Hunt, contractors, at Nevada City, Calif., unearthed a quartz ledge bearing free gold and heavily mineralized while grading for the new highway south of that city. A company has been organized and \$30,000 already has been raised for the development of the property.



A concrete highway leading from Denver to Golden, and the finest of graveled mountain road, that up Lookout to Denver's Municipal Park. 1. Stretch and curve between Denver and Golden. 2. The gravel mountain road. 3. Lariat Loop on mountain road. 4. A shady stretch of the Denver-to-Golden road. 5. The concrete road viewed from top of Lookout, with Denver visible 16 miles away.



Views of three concrete roads near Denver, showing valiant work of Highway Commission in past two years. 1. Road to Littleton, paralleling two trunk lines of railroad. 2. Grade on same road. 3. Looking north on Denver-to-Brighton road. 4. Another view of same road. 5. Shady stretch on road from Denver to Golden.

Should Highways Be Federalized?

(Continued from Page 6)

sary additional administrative expenditures and the commission could not do anything that cannot now be done more effectively by the existing co-operative machinery. There would also be a radical change of policy. I do not think that the people of the states will be willing to substitute for the present policy of developing roads on the principle of serving the largest economic purposes that policy advocated by those whose interest is in two main or trunk line automobile roads in each state, nor do I think that they would be willing, even if it were legal or practicable, to have existing funds diverted from the present or contemplated projects, worked out with the aid of the state highway departments, solely to the construction of such roads. The largest service will be rendered, not only to farmers, but, in the long run, also to urban people, by following the principle of constructing roads of the greatest economic importance, selected after careful consideration by the state agencies having adequate knowledge and approval by the federal department. It seems to me clear also that, as the work proceeds, we shall have roads which will be equally serviceable not only to those interested immediately in long distance automobile travel and motor truck transportation, but also to those interested in getting their farm produce to the market in the easiest and the most effective manner and in the transportation of the mails. I have no prejudice against any sort of road except a bad road, or against any sort of construction except wasteful and unsubstantial construction. If traffic conditions require heavy construction, then I am in favor of it; and in any case, under the law, the construction must be substantial.

"The road construction movement is growing very rapidly. The Federal Aid Road Act has done much to promote it. It has stimulated financial aid and has caused many state legislatures to create central highway departments. Experience has brought about amendments to the law and helpful changes in administration. Comprehensive road programs have been inaugurated and are being used vigorously. They will result, in a shorter time than most people imagine, not only in a network of good, substantial roads in the various states of the Union, but also in the requisite interstate highways.

"Why at this stage introduce complications and embarrassments? Why should not the friends of the movement for roads to serve the people co-operate? It is difficult for me to see why all who are animated by high public spirit in their thinking concerning highways should not co-operate in the development of present programs and in the perfection of the existing processes, instead of attempting to overthrow them. I believe that many of those who are backing the proposed change do not know the facts and are not aware of existing conditions and possibilities. I believe also that their proposal stands very little chance of being enacted into law."

The opinion of Secretary Houston, as cited above, is not shared by some other experts. One who dissents is quoted herewith at some length:

DR. ROWE WANTS COMMISSION.

"That a commission, as contemplated by the Townsend-Bankhead Bill, will be the method of administration adopted by Congress for building a national highway system is indicated not only by public sentiment but by the weight of government precedent," says Dr. H. M. Rowe, past president of the American Automobile Association and a member of the special committee of the A. A. A. Good Roads Board, which will devote much time to federal highway legislation.

"Highways should be considered in the same class of public activity as railways, waterways, merchant marine, the national banking system, and, in fact, any of the great distinctly national undertakings," continues Dr. Rowe. "It seems a self-evident proposition that the building of a national system of highways will form an enterprise of such magnitude and such complexity as to put it entirely beyond the sphere of a single bureau or other subdivision of an executive department and if, therefore, it be considered in the class of these greater national enterprises I have named, we should naturally expect to see the same kind of administrative machinery established for highways.

"By way of precedent, therefore, we may point out that the railroads while under government control are managed by a director general who is not subject to the control of any cabinet officer and that in the absence of government operation of railroads the Interstate Commerce Commission functions independently of executive departments. When we turn to the great shipbuilding and merchant marine industry, we find these are managed by the shipping board and the emergency fleet corporation, both functioning apart from executive departments. If we turn to the national banking system, we find the federal reserve board instead of a bureau of the Treasury Department. Other examples might be cited. Bureaus of executive departments are principally engaged in investigative and educational work and in the routine performance of a government activity more or less inherently and continuously a part of the executive machinery.

"There is no existing department which could legitimately take over the entire task of building a national highway system. It might be contended that the Department of Agriculture should do the job because of the agricultural interests affected by highways, but immediately the counter contention might be made that the War Department should build the system because of the military and national defense needs of the Nation. The Postoffice Department might very logically claim that its rural delivery and parcel post service should entitle it to control.

"The Department of the Interior being almost entirely a public works department might contend that a constructive engineering task should fall in its domain.

"As an outcome of these various contentions must come the realization that highways are of such an all-embracing and of such general importance as to make it impracticable to entrust the task as a minor undertaking to any single government department. A commission would consider the needs of all of the departments.

Federal-Given Road Equipment Is Coming

Automobiles, Trucks, Tractors and TNT Donated by Uncle Sam for Use of His Bureau of Post Roads and the State of Colorado Ready for Shipment. Commissioner Sommers Goes to Washington to Arrange Transportation

THAT Colorado's good roads program will be given big impetus by the Federal Government's offer to give the state construction equipment and motive power is the opinion of the State Highway Commission.

In addition to 2,000,000 pounds of TNT supplied free, which is arriving as needed, over twenty light automobiles, thirty-five motor trucks and four Cleveland tractors are being shipped to Denver from Washington and Eastern army centers for the use of the state and the United States Bureau of Public Roads in the Denver District of post roads, comprising those in Arizona, New Mexico, Wyoming and Colorado, and of both forest and post roads in the Black Hills of the Dakotas and in Nebraska. Steam shovels also are to arrive shortly.

State Highway Commissioner E. E. Sommers of District No. 1 left Denver for Washington June 10 to arrange for the transportation of Colorado's new Federal-given equipment on the several consignments necessary to bring it here.

These machines and explosives, J. S. Bright of the engineering staff of the post roads bureau headquarters in Denver declares, are part of the bureau's 10 per cent share of the government's wartime equipment for the army. With hostilities ended, the War Department recently ordered this surplus material distributed free on the basis of 10 per cent to the Federal Bureau of Public Roads, and 90 per cent to state highway departments.

The Colorado Highway Department, T. J. Ehrhart commissioner, received notification some time ago that it would receive a number of gasoline-power machines, and has rented a warehouse in which to store them until they are needed. The New Mexico highway department has bought a five-acre field on which to build housing for its forthcoming "gifts."

The immensity of these supplies which are to be presented free to the states and bureau was indicated by Mr. Bright when he said: "There are two dumps in France, covering nine square miles, in which you can find anything from a locomotive to a screw driver, and there is an enormous supply station at El Paso."

The TNT is coming from Fort Wingate, N. M., where 13,000,000 pounds of this high explosive is said to be stored, and Venetia, Calif.—1,000,000 pounds from each station. No. 8 detonaters are supplied free with the explosive by the government.

"TNT in road construction work is practically as efficient as dynamite," said Mr. Bright, "and it is equal to the 40 per cent grade. Nitric acid is used in its composition. On that account it cannot be used to advantage in confined places, because of the nitric fumes it gives off, but in the open it is very satisfactory. It is more susceptible to moisture than dynamite, but when properly used and kept it is fully as safe and reliable as the better-known explosive."

Roads Keep Pace With Development

(Continued from Page 14)

factors in the total cost to the farmer of producing and marketing his crop. Improved highways and improved method of highway transportation which are possible only on good highways have made possible the production of large crops at considerable distance from railroads, which could not have been marketed at a profit except for the highway improvements made in the past ten years.

There has also been a very marked increase in land prices in Colorado in the past ten years. This increase has been apparent in every section of the state, but the largest advances have been in districts lying at considerable distances from railroads, along newly constructed and well maintained highways. Such increases are justified by the fact that farmers in these districts are able, by reason of the better roads and motor transportation, to market crops at a profit, where in the past their farming operations have been confined almost exclusively to the raising of livestock. The economic advantages of good roads for the farmer are now beginning to impress themselves upon the farmer and the general public, and the development of highway construction in the agricultural districts in the next ten years may be expected to be more rapid and extensive than it has been in the past decade.

Denver's Tractor Show Biggest Ever

(Continued from Page 15)

and every tractor and plow dealer proud. But the manufacturers discovered that plowing land in the West is NOT plowing land in Iowa, or even Kansas.

The farmers came and saw and were convinced that power farming is no longer an experiment. They saw tractors and cultivators and plows and automotive packers, discers, harrows and seeders, literally grinding and moulding that stubborn soil into condition for cultivation. And they learned their lesson well. How well they learned is demonstrated by the fact that they bought tractors and other automotive implements, as the dealers will testify, in greater numbers than they have ever purchased at tractor demonstrations before.

They found that a tractor demonstration in Denver is a glorious outing in God's own country, where the air is always sweet with the tang of the mountains, where the sun is bright, though the days are never uncomfortably warm, and where the nights are cool and exhilarating. The glorious trip they made through the Mountain parks as the guests of the Denver Tractor club before the demonstration began was enough to convince them that no other place in the country can vie with Denver for hospitality and for ideal outing facilities.

Colorado is Hunting and Fishing Mecca

State is Recognized as Sportsman's Paradise and for That Reason it Has Been Found Necessary to Pass Precise if Not Drastic Laws for the Protection of Fish and Game. A Symposium of the Laws Passed by the Last Legislature is Given, Including New Alien Law

COLORADO is a hunter's and fisherman's paradise. Good motor roads are available to all or nearly all favorite haunts of the nimrod or the Izaak Walton and there is no more ardent advocate of fine highways than the sportsman.

The popularity of the Centennial State as a hunting and fishing ground has made necessary the passage of carefully devised laws for the protection of fish and game. The trout season is now on, and the sport of angling for the speckled beauties is apparently more popular than ever this year.

R. G. Parvin, state game and fish commissioner, has prepared a summary of the fishing and hunting laws for 1919-1920, as amended by the last legislature and this synopsis is reproduced herewith for ready reference by Bulletin readers. It is as follows:

1919 COLORADO 1920 Game and Fish Laws, Condensed.

(As restricted by Federal Migratory Bird Treaty Act.)
Open Season—(Both Dates Inclusive)

Game Animals

Elk, Mountain Sheep, Antelope, Beaver—no open season.
Deer, having horns with two or more points on each horn, Oct. 1 to Oct. 4.

(Animals larger than coyotes classed big game.)

Game Birds

Wild Turkey, Quail, Pheasant, Partridge, Pigeon, Ptarmigan, Dove, Wood Duck, Swan, Crane, Curlew and all other waterfowl, wading, marsh and shore birds, except those specified below—no open season.

Duck, Goose, Brant, Coot, Gallinule, Black-bellied and Golden Plover, Wilson or Jacksnipe and Yellow-legged Snipe, Sept. 16 to Dec. 31; Rail (other than Coot and Gallinule), Sept. 16 to Nov. 30; Prairie Chicken, Mountain and Willow Grouse, Sept. 15 to Oct. 1; Sage Chicken, Aug. 15 to Sept. 1.

Nongame birds (except English or European House Sparrow, Sharp-shinned Hawk, Cooper's Hawk, Goshawk, Duck Hawk, Great-horned Owl, Pinon Jay, Magpie, Bluejay, Eagle), no open season.

FISH

Trout and Grayling (none shorter than 7 inches): In running streams, May 25 to Oct. 31; lakes, not exceeding 7,500 ft. altitude, May 1 to Oct. 31; over 7,500 ft., June 15 to Oct. 31. Whitefish, Bass, Catfish, Sunfish, Perch and Wall-eyed Pike, May 25 to Oct. 31.

Fishing permitted from 4 a. m. to 8:30 p. m., with line and rod held in hand.

Bag Limits and Possession

Deer—One during open season.

Game Birds: 20 Ducks, 8 Geese, 8 Brants, 20 in all of Rails, Coots and Gallinules, 20 Wilson or Jacksnipe, 15 in all of Plovers and Yellowlegs, 10 in all of Prairie and Sage Chickens, Mountain and Willow Grouse, in a day. Not more than aggregate of 20 Migratory Game Birds in a day.

Fish: 15 pounds in a day.

Permitted in possession: Prairie and Sage Chickens, Mountain and Willow Grouse, 15 in all; other Game Birds, 35 in all; Fish, 20 pounds; during open season and first five days of close season. Storage Permit issued by commissioner au-

thorizes storage, possession and use 90 days next ensuing open season (except Migratory Game Birds, 10 days).

Licenses

Must be in possession. Obtainable from commissioner, county clerks and other agents: Resident combined fishing and small game hunting license, \$1.00; resident big game hunting license, \$2.00; non-resident fishing license, \$2.00; non-resident bird hunting license, \$5.00; non-resident big game hunting license, \$25.00.

Fishing licenses not required by females or by males under 16. Children under 12 may not hunt except on own premises or those of parent or guardian nor take more than half bag limit of game or fish. Boys under 16 without fishing license entitled to only half bag limit. No person under 18 permitted to hunt big game.

Aliens not permitted to hunt, nor to own or possess firearms.

Reward

will be paid for evidence leading to conviction for killing: Elk, \$100; Mountain Sheep, Antelope, Deer, \$50; Pheasant, \$25.

Transportation

Shipments lawful during open season and five days thereafter, within state: Deer, when coupon is attached. Birds and fish, when bearing conspicuously attached a domestic certificate in following form:

"State of Colorado

I hereby certify that the (insert kind and number of birds or fish) to which this certificate is attached were lawfully taken by.....in.....county, Colorado, on the..... day of....., 19..... Signed....."

Shipments out of or into Colorado require transportation permit, issued by the commissioner.

R. G. Parvin,

State Game and Fish Commissioner,
Capitol Building, Denver, Colo.

ALIEN LAW

Provisions of House Bill No. 348, passed by the 1919 session of the Colorado General Assembly. Effective on and after June 19, 1919.

Unlawful for unnaturalized foreign-born resident to hunt, capture or kill in Colorado wild birds or game except in defense of person or property. Alien cannot own or possess firearm of any kind.

Penalty on conviction, fine not less than \$25, nor more than \$250, or imprisonment in county jail not less than ten days or more than three months, or both.

Guns found forfeited to state and sold by the game and fish commissioner. All officers of game and fish department, forestry and peace officers can arrest, without warrant, aliens found in possession of guns of any kind. Can also apply for search warrant when they suspect the concealment of guns by an alien.

Justice of the peace has jurisdiction. Any alien living in Colorado one day shall be considered a resident and amenable to the act. Money collected on fines: One-third goes to county, two-thirds to the game and fish commissioner. Justice must make report in writing within twenty days to commissioner.

For further information, or full text of the law, apply to

R. G. Parvin,
State Game and Fish Commissioner,
Capitol Building, Denver, Colo.

June 10, 1919.

Commission Transacts Business

(Continued from Page 13)

addition to his salary the sum of 10 per cent on his pay roll, said 10 per cent being remuneration to him for the use of his tools, tentage and camp equipment used on this work, it being further understood that the rate of wages shall be as follows: 50c per hour for laborers, 50c per hour for teams, 60c per hour for foreman and 60c per hour for powder man.

An appropriation of \$6,350 was made to cover the account of William Williams, said account being certified to the board by the state auditing board.

Mr. N. I. Jacobson was employed as superintendent of construction on the east end of the Fall River Road at a salary of \$200 per month. Mr. Jacobson will be allowed the sum of 10 per cent on his pay roll for payment for the use of his tools and camp equipment, it being further understood that the rate of wages shall be as follows: 50c per hour for laborers, 50c per hour for teams, 60c per hour for foreman and 60c per hour for powder man.

Upon adoption of this resolution Mr. Jacobson notified the commission that he would accept the terms as proposed by the commission in lieu of his contract and requested that the old contracts be cancelled and new contracts be drawn up.

Mr. Cowden, county commissioner of Crowley County, appeared before the board in reference to machinery heretofore purchased by Crowley County, asking that the commission grant them some relief by paying for part of this road machinery.

Crowley County was appropriated \$1,000 to be expended on Route No. 20-S on the basis of 100% state.

The Geo. W. Pierce Laboratories Company of Denver was employed to test all cement and metal culverts to be used by the State Highway Department on federal aid or other projects, at any time when in the opinion of the chief engineer of the highway department they deem said tests necessary.

Commissioner Ehrhart was authorized to employ Mr. R. H. Higgins as special agent of the State Highway Commission to assist in lining up federal aid projects in this state. His remuneration is to be \$200 per month and necessary traveling expenses.

Commissioner Ehrhart was authorized to employ two time keepers, one for Mr. McQueary's force and one for the force employed by N. I. Jacobson, said time keepers to report directly to Commissioner Ehrhart and to receive a salary of \$125 per month and expenses.

The sum of \$2,000 was appropriated for the use of Pitkin County to be expended under the direction of the State Highway Commission. Nothing to be paid by the county.

Two thousand dollars was appropriated to Ouray County, 100 per cent state, \$1,500 to be used on Road No. 13 and the \$500 on Road No. 44.

Five thousand dollars, 100 per cent state funds, were appropriated to Moffat County for the purpose of completing the work on State Primary Road No. 42 from Wise Hill to Hamilton Ranch.

The board adjourned until July 14, 1919, 10:00 a. m.

Higgins Is F. A. Deputy



Robert H. Higgins

Robert H. Higgins, former state treasurer of Colorado, was selected special Federal Aid Deputy to the State Highway Commission at the June meeting of that organization. There are many perplexing problems in the administration of the Federal Aid law, conjointly by Nation and State, and "Bob" Higgins is believed by the com-

mission to be the man to solve them.

The new deputy commissioner has been in Colorado twenty-nine years and for the past fifteen years at least of that time has been actively identified with what he terms the "road game." He has become such an authority on good roads and his opinions, recommendations and services along improvement lines have been so eagerly sought, that he has actually traveled 140,000 miles in Colorado and has driven but 100 miles of that distance himself. His duties in his new capacity will be to see that proper apportionments are made to the various counties, so that none is cheated and none gets too much.

Before he was elected state treasurer, Mr. Higgins was president of the Colorado Good Roads Association for six years and had been for almost as long president of the Colorado County Commissioners' Association. He is so well known nationally on account of his good roads achievements that he is now vice-president for Colorado of several transcontinental good roads organizations, such as the Pike's Peak Ocean to Ocean Highway and the Santa Fe Trail, and is Colorado director for the National Highways Industries Association, the object of which is to further the interests of the Townsend bill.

"Bob" Higgins is so used to road bills and appropriations that he can take a tabulated statement of Colorado's counties and work on it with two pencils, one in either hand, telling in a moment just how much too much or too little the respective counties have received or have been allotted.

The organization of the Colorado Good Roads Association in 1911 was due largely to the hard preliminary work of Mr. Higgins, who was elected its first president. This was the real beginning of the good roads movement in Colorado, as Mr. Higgins expressed it. He is given credit for securing the extension of the Santa Fe Trail from Hutchinson, Kan., to Pueblo, and later secured the Rainbow Route.

Robert Higgins, son of Robert H. Higgins, is in France with the 28th U. S. Engineers, and has been there practically ever since his enlistment in June, 1917, the same month in which he graduated from the State School of Mines at Golden.

The U. S. Department of Agriculture, through its Bureau of Markets, has offered its co-operation to the operators of motor express lines in establishing a system of rural transportation on regular schedule.

NEPESTA SHEET-PROGRESSIVE MILITARY MAPS

334-S.IV-E/2

Lat. 38°00' to 38°15' Long. 104°00' to 104°15'

May 1919 Reported by

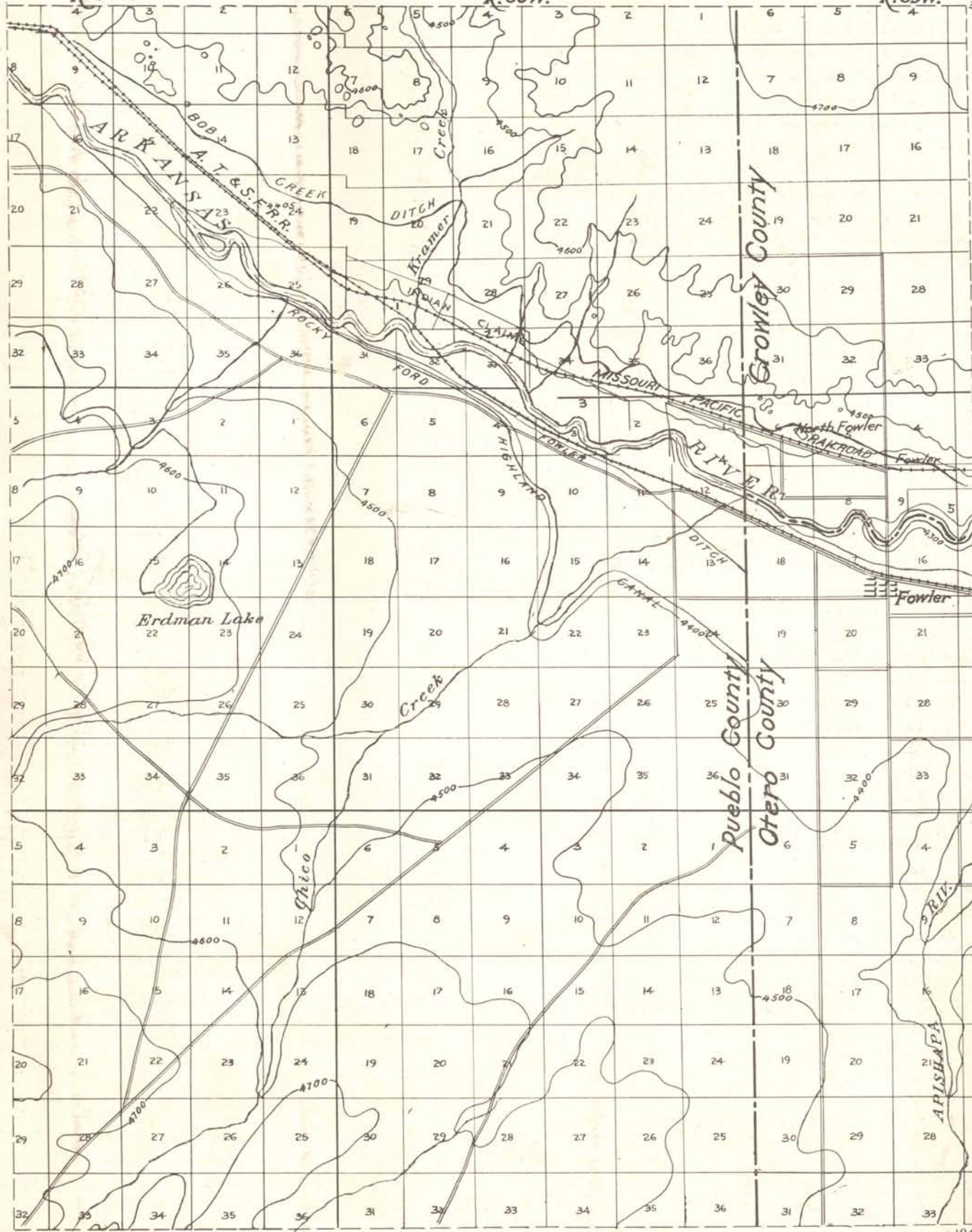
Scale 1:62500

R.61W.

R.60W.

R.59W.

38°15'



T.21S.

T.22S.

T.23S.

38°00'

104°15'

104°00'

L-20

State of Colorado
Highway Dept.