



COLORADO HIGHWAYS BULLETIN ~

Colorado to Vote on \$5,000,000
Bond Issue.

Highway Commission Organized
for Year's Work.

State Forests Get \$800,000 This Year.

Digest of Townsend Road Bill.

Issued by the
State Highway Department

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FRED J. RADFORD, District No. 3, Trinidad.

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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.

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

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

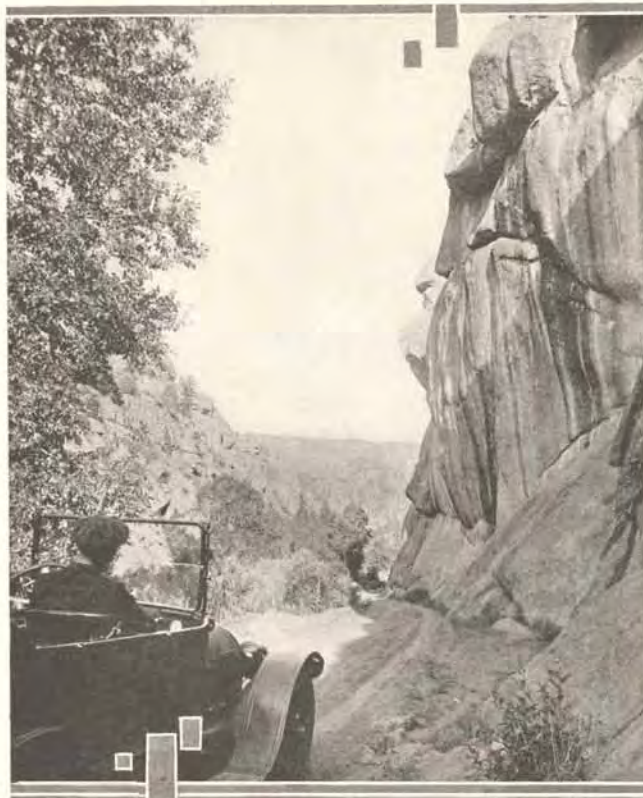
SUMMIT—Geo. F. Forman, Breckenridge; James D. Galloway, Breckenridge; A. Listrom, Dillon; W. H. Hampton, Fraw; Eli Fletcher, Breckenridge.

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

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

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



Moslem Gate, entrance to the South St. Vrain, an exceptional fishing stream in Larimer County.

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COLORADO HIGHWAYS BULLETIN

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by the



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Department

Denver, Colorado.

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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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On the edge of the abyss. On the Blue Mesa in Gunnison County, one thousand feet above the magnificent Blue River.



Legislature Passes \$5,000,000 Bond Bill

Half Mill Levy, Gasoline and Motor License Laws Adopted

A bond issue proposition for the issuance of \$5,000,000 in bonds, an additional one-half mill levy for road purposes, an automobile license bill, a gasoline tax and segregation of a portion of the inheritance tax for road purposes, were the results of the legislative session in the interest of better roads this year in Colorado.

The proposition for a \$20,000,000 bond issue failed of passage, much to the regret of the better roads advocates, who firmly believe that Colorado is far behind many other states in her appreciation of the road situation, and also has failed to take proper action to meet the requirements of the federal aid program. For illustration, the state's apportionment of Federal Aid funds for 1919 is in round figures, \$867,000. Probably half-a-million dollars, or more, will be available for the newly created sources of revenue to meet this appropriation. During 1920 there will be available for Colorado from the federal government \$1,600,000; and during 1921 an additional \$1,700,000. The bond issue cannot be made available until 1921, as the people will not vote upon the proposition until the fall of 1920.

To meet these funds satisfactorily the additional one-half mill levy, the gasoline tax, inheritance tax and automobile license bills will have to yield more than the state highway commission can conservatively figure upon. However, the commission, by adopting a federal aid program each year for the next year or two, will be able to keep the government appropriations alive, so that the money will not lapse back into a common fund. In this way Colorado will not lose the money and probably will be able to fulfill all the conditions imposed upon the state by the Federal Aid act. The highway commission will meet again on April 14, and this subject will then come before that body for action. In the meantime the highway commissioner and chief engineer of the commission are busily at work laying

out a program for federal aid projects, which will be submitted to the commission for its approval or reection.

A complete digest of the laws passed by the legislature will be printed in the succeeding issue of the Colorado Highways Bulletin, but a brief summary of their provisions may be given at this time.

In passing the legislature certain restrictions were imposed upon the highway commission in the matter of the bond bill and the gasoline tax. The bill for submission of the bond issue provides that one-half of the issues shall be reserved to meet federal aid appropriations and one-half or \$2,500,000, shall be distributed by the commission among the various counties of the state, according to the road mileage in each county. If passed by the people, the money would not be available until 1921, but the highway commission may, if it so desires, adopt a plan of expenditure so that the people may know for what they are voting at the next general election in 1920.

The commission already had a one-mill levy for road purposes, but this is regarded as no more than sufficient to meet the maintenance and repair cost of the existing system of state roads, some 7,000 miles in all.

The second half-mill levy has no restrictions upon it, and may be applied at the discretion of the commission. The amount raised by a half-mill levy in Colorado is approximately \$700,000.

The gasoline tax bill provides that a tax of one cent per gallon shall be paid on all gasoline used by motor vehicles operating upon the roads of the state. This excludes motor tractors and other motorized apparatus used on the farm for strictly agricultural purposes.

The bill provides that one-half of the fund so raised shall be distributed among the counties of the state on a mileage basis.

According to the legislative committee appointed by the Good Roads association to further road measures, the gasoline tax will raise approximately \$625,000 per year, but it is not expected that more than \$300,000 will be raised from this source during the remainder of 1919.

The motor license law provides for a license fee on touring cars of one-half per cent of the cost of any vehicle weighing more than 1,000 pounds, and for automobiles weighing less than this amount the tax is a flat \$5 per year.

Trucks are handled upon a different system. A one-ton truck is required to pay a license of \$10 a year; two-ton truck, \$17.50 a year; three-ton truck, \$25 a year; four-ton truck, \$37.50 per year; five-ton truck, \$50 per year. An additional charge of \$25 per year is made for each additional ton, but no trucks with a carrying capacity of

more than ten tons will be allowed on the roads at all.

The inheritance tax bill provides that all money raised by the state inheritance tax, after \$200,000 has been set aside for general revenue, and after the expenses of administration have been paid, shall go to the highway commission, one-half to be expended at the pleasure of the commission and one-half to be distributed among the counties on the basis already mentioned.

The highway commission, however, will be reimbursed this year to the amount of \$200,000 for a loan made from its funds to the state capitol building fund, so that it will be seen that the estimate of one-half million, available to meet the \$867,000 Federal Aid allotments for this year, is a conservative one and possibly the commission will be able to meet the entire amount.

Highway Commission Is Reorganized

E. E. Sommers, District No. 1, Named Chairman

The State Highway Commission, which met on April 1, inaugurated a new custom that is expected to keep the commissioners of the various districts in more direct and frequent touch with their constituents. Instead of meeting quarterly as heretofore the commissioners will meet on the second Monday of each month because of the increased business of the commission. All petitions, remonstrances and agreements are to be presented at these meetings through the members of the commission, and all petitions presented through the several boards of county commissioners, or commissioner, or through a member of the State Highway Commission or the highway commissioner.

Two new members were present, Mr. E. E. Nichols of Manitou and Mr. Robert E. Norvell of Hayden. The commission reorganized, Mr. E. E. Sommers of Denver, representing the first road district, being chosen chairman, and Mr. Frederick Goble of Trinidad, being elected vice chairman. N. A. Ballou was appointed secretary of the commission.

Representatives of the United States Forestry Service appeared before the commission to notify it that the forestry service projects for the Rabbit Ears Pass road, the Sedalia road, the Decker Springs road, the Silverton-Durango road and the Monarch Pass road were ready for the letting of contracts. The commission voted the following sums for work on forestry projects, as follows: Bardine-Redstone road, \$2,250; Red Mountain road, \$1,050; Hard scrabble project, \$1,250. Twenty-two counties have failed to send in their recommendations for their state apportionments and the secretary was directed to notify the county commissioners of these districts to send in these recommendations so that the commission may take action at the next meeting, April 14.

New Roads Official Named

Thomas H. MacDonald, Chief Engineer of the Iowa State Highway Commission, has been appointed by the Secretary of Agriculture as Engineer in immediate charge of the work under the Federal Aid Road Act, which provides for co-operation between the states and the federal government in the construction and improvement of roads. Mr. MacDonald will assume his new duties as soon as he can close up his work in Iowa. In the meantime he will continue to keep in close touch with the Federal Aid Road work of the department, as he has done during the past two or three months. Steps already have been taken to expedite the resumption and extension of highway construction under the terms of the federal law, as amended by the Post Office Appropriation Act, and nothing will be omitted to facilitate the vigorous prosecution of the work. The regulations have been carefully revised in the light of past experience and of suggestions offered by the State Highway Departments, the standards of plans, specifications and estimates have been modified to meet special conditions existing in some of the states, and other changes in practices and procedure have been made, all with the definite object of speeding up the work.

National Highway System for Japan

Mr. Makino and Mr. Zhalakeyama, engineers, sent over to this country by the Japanese Government to make a study of road administration and construction, were in consultation with the Highway Industries Association on March 15th, seeking information as to the establishment of a national highway system and the methods of construction and maintenance of roads. Traffic has become very much congested in Japan, the railroads being unable to handle the large volume of products necessary to be moved.



Under the imposing Palisades of the Gunnison River, Gunnison County. A fishing scene on the greatest of all Colorado trout streams, which draws sportsmen from all parts of the country.

A NUMBER of practical suggestions, intended to solve the reconstruction problems now before the country, were made at the governors' and mayors' conference, held in the White House on March 3 and 4, at the invitation of President Wilson, although, generally speaking, the conference was without definite, concrete results. Among the resolutions made and referred to a committee for further consideration, however, was one by Lieutenant-Governor George Stephan of Colorado, who proposed that the federal government immediately should begin construction of two ocean-to-ocean cement highways, as the most practicable way in which to furnish labor to all industries. In this the government would have the co-operation of the states, which would all improve the lateral roads radiating from this system. The suggestion is of so much interest to the nation's road builders that Governor Stephan's speech is reprinted in full in the Bulletin. The speech is as follows:

"As the Government has to some extent outlined a policy, it seems to me the most important matters to be considered are:

"First, are the various states and municipalities co-operating with the Federal Government in carrying out its policies? And second, has the Federal Government anticipated the requirements of the various states and municipalities?

Ocean-to-Ocean Cement Highways Are Urged

"If the Federal plan falls short in any particular, it should be our privilege at this time to call the matter to the attention of the proper department, in order that the Government may be advised of

the conditions and be prepared to render the necessary assistance.

"So far as the State of Colorado is concerned, the question of unemployed labor is not a serious one, as we have been able to furnish employment to the returning soldiers. I feel, however, that we are confronted by a much more serious problem, being that of the spirit of unrest caused by the Bolshevik propaganda and tendencies, and, as a matter of fact, I consider this the greatest menace to civilization and one which must be confronted and overcome during our period of reconstruction.

"Colorado is furnishing employment to men by resuming work on all public improvements, such as public buildings of every nature, streets, sewers, roads, etc., and if the constitution of the State of Colorado permitted us to aid railroads, we would undoubtedly assist some of our struggling roads by giving them financial assistance to enable them in the construction of needed extensions, etc.

"Our Legislature is in session and there are bills now pending, providing for money to be used in the further construction of roads. Among these measures is one providing for a tax of one cent per gallon on gasoline; one

(Continued on page 16.)

Million-and-Quarter for Colorado-Wyoming National Forest Roads Appropriated This Year

SECRETARY Houstons' approval of the National Forest road building program for Colorado, Wyoming and South Dakota, involving the expenditure of a million and a quarter dollars this season, is announced by the Denver office of the U. S. Forest Service. Of this total, which includes co-operative funds subscribed by states and counties, \$800,000 will be spent in the National Forests of Colorado; \$320,000 in Wyoming, and \$93,000 in the Black Hills of South Dakota.

This fund is the largest ever appropriated for road work in the National Forests of the Rocky Mountain district, and will do much toward opening up inaccessible localities, and it makes it easier to protect the forests from fire. Recreation uses of the National Forest playgrounds will also be stimulated.

The principal road projects to be constructed this season, together with the funds allotted, are as follows:

COLORADO: Durango-Silverton, \$350,500; Rabbit Ears Pass, \$16,800; Monarch Pass, \$173,000; Sedalia-Deckers Cut-off, 39,500; Nederland-Ward, \$45,700.

WYOMING: Wind River, \$154,000; Buffalo-Tensleep, \$105,000.

BLACK HILLS, SOUTH DAKOTA: Deadwood-Hot Springs, \$72,500.

Over \$125,000 will also be spent by the Forest Service on minor road and trail projects in the various states.

Road work on all projects, which will be in charge of the Bureau of Public Roads, will start as soon as weather conditions permit. Honorably discharged soldiers, sailors and marines will be given preference in securing the required labor.

FOREST SERVICE ROAD PROGRAM (Season of 1919)

Project	Amount to be Expended COLORADO			Remarks
	Forest Service	Co-operators	Total	
Durango-Silverton Durango National Forest	\$242,700	\$107,800 (State)	\$350,000	Const. 46 mi. 4 mi. built by Forest Service in 1918.
Rabbit Ears Pass Routt National Forest	\$ 13,500	\$ 3,300 (State)	\$ 16,800	Improvement on 6 mi. from Benton Saddle to Divide. 3 mi. built by Forest Service in 1918.
Sedalia-Deckers Cut-off Pike National Forest	\$ 39,500	\$	\$ 39,500	Project to be completed. 7½ mi. to be constructed on Sugar Creek and Jarr Canyon section to be improved.
Monarch Pass Cochetopa National Forest	\$134,000	\$ 39,000 (State)	\$173,000	Construction of 27¾ mi. from Sargents to Maysville.
Nederland-Ward Colorado National Forest	\$ 36,700	\$ 9,000 (Boulder County)	\$ 45,700	Construction 11 miles, Lakewood to Ward.
Mt. Evans Pike National Forest				It is proposed to co-operate with the City of Denver in constructing a portion of the Mt. Evans road.

In addition to the above projects, \$70,000 will be spent on Minor Road and Trail Projects.

Location Surveys will be made on the following projects during the 1919 season: Bardine-Redstone, 30 mi.; Red Mountain 9½ mi., Hardscrabble, 18 mi.

The total road program for Colorado calls for the expenditure of \$800,000 this year, of which amount \$180,000 will be co-operative funds furnished by State and County officials.

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Nederland-Ward Colorado National Forest	\$ 36,700	\$ 9,000 (Boulder County)	\$ 45,700	Construction 11 miles, Lakewood to Ward.
Mt. Evans Pike National Forest				It is proposed to co-operate with the City of Denver in constructing a portion of the Mt. Evans road.

In addition to the above projects, \$70,000 will be spent on Minor Road and Trail Projects.

Location Surveys will be made on the following projects during the 1919 season: Bardine-Redstone, 30 mi.; Red Mountain 9½ mi., Hardserabble, 18 mi.

The total road program for Colorado calls for the expenditure of \$800,000 this year, of which amount \$180,000 will be co-operative funds furnished by State and County officials.



No state in the union can equal Colorado in the variety of its trout streams. Whipping the Grand River, near Hot Sulphur Springs, for speckled beauties.

Over the Hills to Health in Colorado

"Say, Nett, I'm all in!"

"I know, John, you have overworked on your increased war acreage and no help. I, too, am at the end of my physical endurance."

"Yes, Nett, if you had not made a man of yourself, besides the cook, it would have been impossible to have saved that wheat."

This story opens on a farm near Lincoln, Nebraska, one evening about the 15th of July, 1918.

The Harveys had done their bit to increase production and felt tired and worn out after the extra effort to save the wheat crop.

"Did we get any mail today, Nett?"

"Yes, a letter from Brother Jim. He says it has been awful hot in Oklahoma for the past week and that Mary and he are going somewhere soon to get away from the worry of it all for a month. Mary isn't any too well and Bobby has been sick all summer. Here's something from Alice Ward, Boulder, Colorado. You know, John, she is out there for her health—The Colorado Highways Bulletin. Oh, my, look at that cover picture—such an immense mountain with evergreen timber half way up, and the snow on top. Doesn't it look cool and inviting? Then a mountain river, and a road leading right up that

canon into the spruce and pine. Say, wouldn't you like to be there right now? I'll bet there's fish in that creek."

"Here's a story about a trip in an automobile and a whole bunch of scenery and road pictures. Do you suppose there's that many out there? I guess they like to brag on themselves."

"By George, Nett, if it wasn't so blamed far—how far is it, anyhow? Why here's a table giving distances from Tulsa to Pueblo, Kansas City to Colorado Springs, from Omaha to Denver—and it's 120 miles from Omaha to Lincoln, that is 410 miles to Denver, how long would it take to drive old 'Betsy' over there? Why, say, Nett, we can drive twenty miles an hour if the roads are good, say eighteen miles for an average eight hours a day, for we'd want to take it easy—that would be 144 miles a day. By Jove, we could be there in three days. I wonder how much further it is to that mountain. Why, here it is, right here—157 miles from Denver. That would be another day—only four days to that snow and those pines."

"Let's go, John."

"I don't see how we can, Nett."

"Oh, yes we can. You can have everything taken care of, except the beets and corn, in ten days, and we can get ready and leave home the first of August. If Mutt

(Continued on page 16.)



A view of the historical mining town of Silverton, San Juan County, nestling at the foot of Sultan mountain.

Digest of the Townsend Federal Highway Bill

THE most important good roads legislation that will come before the next Congress of the United States is the Townsend bill for the creation of a Federal Highway Commission. This bill, which was introduced during the closing days of the Sixty-fifth Congress, embodies the suggestions of the Chicago Road Congress held last year and will have the support of the leading road and automobile associations of the United States at the next session. Senator Townsend will be the chairman of the Senate Committee on Postoffice and Post Roads at that time, and the bill stands every chance of becoming a law.

The purpose of the bill is stated in Section 1 as follows: "To provide a connected system of main highways adequate to sustain the demands of interstate commerce, to provide adequate roads for the transportation of United States mails and parcel post and to provide for the common defense and promote the general welfare of the people of the United States."

The bill provides for a Federal Highway Commission, to be appointed by the President, by and with the advice and consent of the Senate, each to receive a salary of \$10,000 per year, and serve, after the initial term, for seven years. Commissioners are to be chosen from

the different geographical sections of the United States, and shall choose their own chairman from their membership.

The Commission is given power to employ a chief engineer, engineers, special experts, and such clerks as it may find necessary. The Commission also is given authority to select the highways to be comprised in the national highway system, and to determine the order in which such highways shall be constructed, reconstructed and improved. It shall request state highway departments to recommend routes to be followed in their respective states.

The national highway system shall not include any highway in a place having a population, as shown by the latest available Federal census, of five thousand or more, except that portion of any such highway along which

the houses average more than two hundred feet apart. The Commission is also given full power to determine the types of construction, and to control the making of surveys and preparation of plans. Only such durable types and adequate widths of surface shall be adopted for any highway as will effectively meet the traffic conditions thereon, and the probable future traffic needs. The Secretary of War may turn over to the commission, at his discretion, any equipment suitable for its needs.

No money may be expended in any state under the federal act until its legislature shall have assented to the



Human ant hills, left by the seekers for gold at Victor, Teller County.

provisions of the act, or until the governor, during an interim, shall have given his assent. The states also are requested as a condition present to the construction of any such highways to furnish to the United States without any expense to it the right of way therefor, not less than sixty feet in width. The bill provides for the improvement, maintenance and administration of the national highway system at the expense of the United States, except as to state police powers, and the commission is authorized to prescribe regulations governing the use of the highways. Violation of these regulations may be punished by a fine not more than \$1,000 nor imprisonment for more than one year, or both. The act is not to effect jurisdiction of the state, either civil or criminal, over persons and property upon such highways, except so far as the regulations of their use is concerned.



Ringed by the giants of the range, the little mining town of Ouray, as seen from the Silverton road.

The duty is imposed upon the Commission to ascertain by experiment and collection of data on new developments in highway transportation, construction and maintenance, and to publish the same for the benefit of the people at large. It shall be the further duty of the Commission to take over and perform all duties, powers, functions and other obligations of all federal agencies having jurisdiction and control of highway and experimental road work, and of federal agencies of educational and investigative character relating to highway

transportation, except those used solely for military or naval purposes.

The bill makes an appropriation of \$50,000,000, available July 1, 1919; \$75,000,000 beginning July 1, 1920, and \$100,000,000 for each of the three succeeding fiscal years; in all \$425,000,000, which shall be available until expended. These amounts also may be used for the erection and maintaining of buildings, operation of housing and subsistence facilities. The commission is authorized to purchase, lease, rent, operate and maintain all modern and transportation facilities necessary.

Further power is given the Commission to issue permits, licenses and franchises, for the use of any portion of the right of way, and it may regulate payment from the beneficiaries thereof.

Distribution of the federal appropriation is authorized by the bill on the following basis: One-third in the ratio which the area of each state bears to the area of all the states; one-third in the ratio to the population each state bears to the total population of all the states as shown by the latest federal census; one-third in the ratio which the highway mileage of each state bears to the total mileage of all the states as shown by the official bulletin issued by the Secretary of Agriculture for 1914; provided, that if any state desires immediately to improve any section of the national highway within the state, designated by the commission, the commission may enter into an agreement with the state highway department of such state to finance the construction or reconstruction of said highway or section thereof; provided, however, that the amount so advanced



A view of the greatest mining camp in the world, Cripple Creek, Teller County,

(Continued on page 16.)



A Step Forward

Although Colorado better roads advocates were disappointed in the failure of the state legislature to submit the \$20,000,000 bond issue proposition to a vote of the people they are finding considerable consolation in a comparison of the probable results to be obtained during the next three years, with those obtained in the state during the last fifteen years.

Including federal aid money, more funds will be spent on Colorado roads during the three years now opening than has been spent by the state highway commission and all counties together since 1906. This is encouraging, for it will send motor visitors to sections of Colorado heretofore untouched by them. Tourist travel from the East has flowed westward to the Rocky Mountains and there expended its force. The Rocky Mountain National Park, the regions around Denver and Colorado Springs have received the greatest benefits from this great industry, and perhaps, for that reason, members of the legislature from outlying districts believed that a \$5,000,000 bond issue would be sufficient. The expenditure of this money and additional funds awarded the state highway commission, however, will serve to lead the visitors into all sections of the state and convince all sections of the value of better roads.

More than any other state in the union Colorado needs a thorough, modern road system. The more roads that are built the more visitors will come, for, from a tourist standpoint, Colorado has the greatest tributary territory of any state in the country. No other state is located so conveniently to the center of population. Some persons regard the tourist as a transitory visitor of little real value to a state, but this is an entirely erroneous attitude. Not only does the tourist benefit the cities where he may stop, but he creates a better market for the farmer, by increasing the demand for food products. Furthermore, of the millions who come to the state to enjoy its climate and scenery, hundreds and thousands will become so charmed with it that they will locate here permanently.

State Engineer Max L. Cunningham advises that Oklahoma is planning at present the issue of \$50,000,000 for building hard surfaced roads. A law calling for this has passed each House, but they are different in form and it will be necessary for the two houses to get together before a definite statement can be given.

COUNTY VALUATION AND ROAD LEVY.

County	Assessed Valuation	County Road Levy (Mills)	County Road Fund
Adams	\$ 28,473,925.00	2.0	\$ 56,940.00
Alamosa	8,544,005.00	1.75	14,952.00
Arapahoe	19,420,432.00	1.4	27,188.60
Archuleta	5,276,227.00	2.5	13,190.56
Baca	7,512,356.00	1.0	7,512.36
Bent	12,127,275.00	2.5	30,318.19
Boulder	44,153,000.00	2.4	106,570.34
Chaffee	11,088,055.00	1.75	19,474.10
Cheyenne	11,614,995.00	1.45	16,945.74
Clear Creek	5,561,650.00	5.5	30,627.98
Conejos	9,741,958.00	3.0	29,225.87
Costilla	5,700,687.00	3.5	19,952.40
Crowley	9,532,360.00	1.1	10,485.60
Custer	2,552,531.00	2.5	6,381.33
Delta	16,535,150.00	2.4	39,684.36
Denver	348,055,410.00 (To State)	.5	174,027.71
Dolores	1,774,125.00	2.0	3,548.00
Douglas	11,486,720.00	2.6	29,865.47
Eagle	7,610,319.00	4.01	31,278.41
Elbert	15,246,642.00	3.5	53,441.31
El Paso	67,066,460.00	1.5	100,514.69
Fremont	20,001,690.00	2.5	50,005.23
Garfield	19,341,985.00	5.0	96,709.92
Gilpin	3,103,275.00	3.5	11,110.69
Grand	5,035,455.00	2.4	12,085.09
Gunnison	16,082,935.00	2.2	35,382.46
Hinsdale	1,010,545.00	4.0	4,014.18
Huerfano	13,792,111.00	2.5	34,480.28
Jackson	5,645,665.00	3.0	16,936.99
Jefferson	23,348,880.00	2.49	58,138.71
Kiowa	10,866,530.00	1.0	10,866.53
Kit Carson	21,132,783.00	2.0	42,365.56
Lake	10,857,295.00	0.8	8,705.00
La Plata	15,877,705.00	2.25	35,724.86
Larimer	43,181,550.00	2.52	108,817.50
Las Animas	39,701,754.00	1.25	49,639.69
Lincoln	19,147,025.00	2.5	47,867.81
Logan	37,746,887.00	5.21	195,681.27
Mesa	28,897,603.00	2.786	80,508.75
Mineral	1,531,625.00	5.0	7,658.12
Moffat	6,714,199.00	6.0	40,285.19
Montezuma	6,463,107.00	7.0	45,241.82
Montrose	16,839,360.00	2.9	48,834.14
Morgan	25,825,480.00	2.2	56,817.16
Otero	28,863,930.00	2.0	57,727.86
Ouray	5,493,696.00	5.0	27,468.48
Park	9,041,250.00	4.0	36,565.00
Phillips	15,840,788.00	1.25	19,802.23
Pitkin	5,750,370.00	2.5	14,378.42
Prowers	20,104,700.00	2.0	40,209.40
Pueblo	70,178,990.00	1.3	91,232.69
Río Blanco	6,198,010.00	3.88	21,408.28
Río Grande	11,072,250.00	2.0	22,144.50
Routt	15,766,550.00	3.23	50,925.96
Saguache	12,518,707.00	3.0	37,556.12
San Juan	4,578,081.00	3.0	13,734.24
Sedgwick	10,783,172.00	1.391	14,999.40
Summit	6,499,040.00	3.0	19,497.12
Teller	13,876,890.00	2.5	34,692.22
Washington	20,208,310.00	3.0	60,624.93
Weld	96,306,880.00	2.52	260,028.56
Yuma	18,610,210.00	2.42	45,036.71
Grand Total	\$1,422,113,275.00	2.747 Average Co. Levy	\$2,625,834.00



The Sunnyside concentrating plant at Eureka, one of the most modern plants of its kind in the world.

Motor Transportation Spreads Over Nation

Rural motor express, that method of transportation over the highways by motor trucks, linking rural America with the rest of the world, and operating from fifteen to one hundred miles each, is gradually forming a transportation system which eventually will spread over the entire United States. During the war such a system was created in Chicago in connection with Interurban Street Car lines, and resulted in delivery of material as speedily as it could be shipped by express, and at a cost little higher than the ordinary freight rate.

A highways motor transport company of Cleveland, Ohio, also has been operating rural motor express lines out of that city to Sandusky on the west, and Ashtabula on the east, taking in all railway stations. When fruits and vegetables began to come in, these trucks transported twenty thousand crates of berries and twenty thousand bushels of tomatoes from the farming districts to the Cleveland markets. These shipments were followed by

twenty thousand bushels of apples, peaches and beans. During the grape season this company hauled eighty-four thousand baskets of grapes, part going to the wine presses and part to the markets. Seven hundred baskets were carried to the load, which made one hundred and twenty truck loads of grapes alone. The average hauling distance was 37½ miles and the charge was approximately \$7.00 per ton. The trucks hauled approximately seven loads each. Empty baskets were carried on the return trip.

Out of the thousands of baskets of fruits and vegetables hauled by this line not a basket was damaged or broken open. The farmers, used to rail haulage, which usually results in considerable loss, were amazed at the record made, and will patronize the service to a greater extent next summer.

This winter mangoes, onions, apples, cabbage, etc., will be hauled. These vegetables should not stand in freezing cars or on freight platforms, but should be hauled to destination as rapidly as possible. The trucks will, if necessary, be heated.

At Johnstown, Pennsylvania, another motor truck line is hauling potatoes thirty-five miles over mountain roads. These trucks carry one hundred and fifteen bushels to the load, in a little over three hours. It formerly took a two-horse team over a day to haul that number of bushels over the same road.

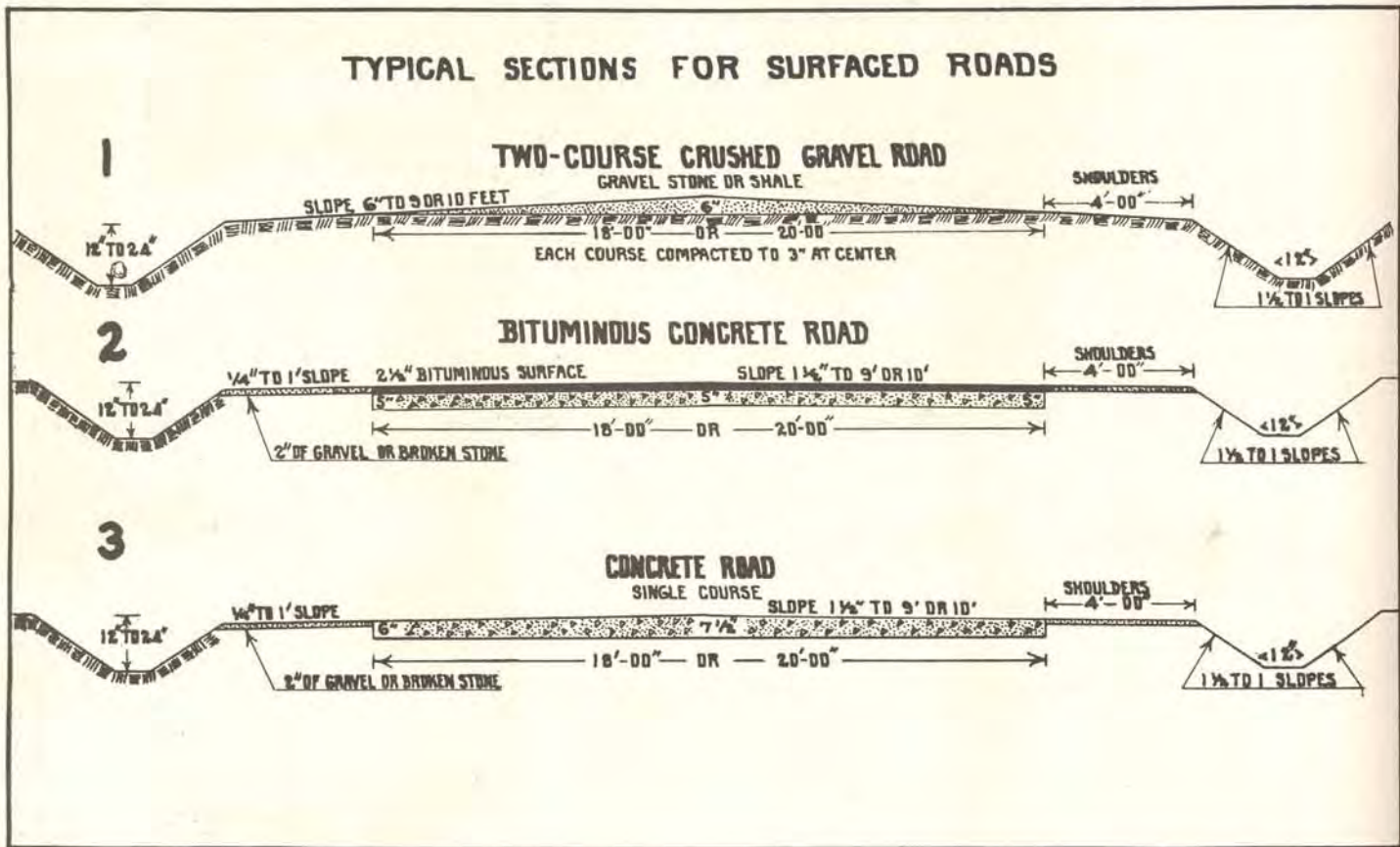
A Canadian motor express line, running out of Toronto to surrounding towns, operates twenty-five motor trucks.

An organization of business men in Spokane, Washington, operates sixteen large trucks on runs varying from 18 to 91 miles. This company handles a minimum of 68,000 tons per year.

A majority of these lines are not in competition with the railroads, but serve sections that have never been served except by horse and wagon.



One of the immense fields of boulders left by the dredging scows at Breckenridge, Summit County.



Typical Sections of Surfaced Roads

By J. E. Maloney, Chief Engineer, Colorado Highway Department

The graveled road (of screened or crushed gravel, stone or shale) now constitutes the major part of our surfaced roads. This will continue to be the case, as even when the ultimate development of our system is attained, it is likely that 80 per cent of the surfaced mileage will be of the so-called graveled type, with the other 20 per cent of the hard surface type.

The importance of this type of surfacing is therefore apparent.

The plate shows the general features covering the placing of this character of road surfacing.

One general requirement for all roads is that they shall be properly located and that the county shall have a good title to the right-of-way. It happens at this time that many counties have no record or apparent title to their roads, even to some main state highways. It will be seen that the proposed improvements will be delayed unless the title to the right-of-way is cleared up. It is poor business to go on spending money for the improvement of roads to which the county has either no title at all, or at best a very questionable one. On all types of roads the grading should be thoroughly done in every case and ample drainage structures provided of good construction.

The bridges should be of a permanent type.

The graveled surfaced type shown is to be constructed in two courses of three inches each at the center, running to a feather edge at the sides. This three inches is the compacted thickness, each course being rolled with a road roller weighing not less than 300 pounds to the lineal inch of roller.

The bottom, or base course, to be stone ranging from screenings to 2 1/2 inches.

The top course to be of stone ranging from screenings to 1 1/2 inches.

This surfacing will require approximately 1,200 cu. yds. of material measured in the wagon box per mile of road for the 18-foot width.

The ordinary gravel or sanded road is built by dumping and spreading the material upon the road, relying upon the traffic to compact it. This may work out all right if the material is put on in not over a 3-inch layer and is gone over with a drag often enough to keep the ruts filled up, so that the surfacing will "iron out" evenly.

When work is done under the Standard Specifications, however, it must be spread and rolled. The cost of this type of road will vary greatly and may run from \$2,500.00 to \$12,000.00 per mile, depending upon the grading and structures necessary, and upon the location of the surfacing material.



1—Earth road, 5.78 mi. per gallon. 2—Fair gravel road, 7.19 mi. per gallon. 3—Good gravel road, 9.39 mi. per gallon. 4—Bituminous macadam, 9.48 mi. per gallon. 5—Fair brick road, 9.88 per gallon. 6—Good brick road, 11.44 per gallon. 7—Concrete road, 11.78 per gallon.

How Much Do You Spend for Gasoline in Your County?



Tests recently made at Cleveland, Ohio, to determine the gasoline consumption of two-ton motor trucks over various types of roads resulted in some interesting conclusions. The pictures at the top of this page show the types of roads upon which the tests were made.

On road No. 1 the truck made 5.78 miles per gallon. The number of miles made per gallon on each road is indicated in the captions. The following table shows the number of gallons of gasoline needed for 100-mile run by a two-ton truck and the cost of the run figured at 25 cents per gallon of gasoline:

Road	Gallons Used	Cost
No. 1	17.30	\$4.33
No. 2	13.90	3.48
No. 3	10.63	2.66
No. 4	10.54	2.64
No. 5	10.12	2.53
No. 6	8.75	2.19
No. 7	8.49	2.12

The saving that may be made on a concrete road in comparison to an ordinary dirt road for the same load is shown by this table to be more than 50 per cent, an unanswerable argument for the hard-surfaced road.

In the second type of pavement shown, a bituminous surface is placed upon a concrete base. The sub-grade is shaped and compacted, and upon this is placed the concrete for a foundation course. The material for this concrete base is to be of screened material of a mixture of cement 1, sand 3, gravel or crushed stone 6.

The cement to be of Portland, meeting the standard tests. The sand or fine aggregate to be clean and meet the requirements for size of the Standard Specifications. The coarse aggregate to be graded from 2½ inches to ¼ inch. On the base of concrete is placed the bituminous surface 2½ inches in thickness; this may be of any of the following types:

- Amiesite in two courses,
- Topeka Mixture,
- Bituminous macadam.
- Warrenite Mixture.

This type of base and surface will run from \$1.75 to \$2.50 per sq. yd., and for an 18-foot roadway the paving

will cost from \$18,500.00 to \$26,400.00 per mile for the pavement. Including the grading and structures, the cost will be approximately \$21,000.00 to \$30,000.00 per mile.

Section 3 shows a section of the single course concrete pavement of a mixture of cement 1, sand 2, coarse aggregate 3. To be of Portland cement, clean sand, and the coarse aggregate either gravel or crushed stone, all of these to meet the requirements of the Standard Specifications.

The single course concrete will run from \$1.50 to \$2.00 per sq. yd. of pavement, or \$16,000.00 to \$21,120.00 per mile for an 18-ft. roadway. Including the grading and structures, the cost will be approximately from \$19,500 to \$25,000 per mile.

In both types, 2 and 3, a four-foot gravel shoulder is provided so that the full width of the roadway is 26 feet.

These sections are not absolute, rigid standards, but are subject to such modifications as may be found necessary for each particular case.

Digest of Townsend Highway Bill

(Continued from page 11.)

shall not exceed the amount appropriated to said state for construction of reconstruction.

For the purpose of carrying out the provisions of the act there is appropriated in addition to amount already set aside for it \$25,000,000, which shall become available for expenditure July 1, 1919, and \$25,000,000, which shall become available for expenditure July 1, 1920, these amounts to be expended along with and in the same manner and under the same provisions as directed by the federal road act.

Ocean-to-Ocean Cement Highway

(Continued from page 7.)

for an increased automobile license tax; one for doubling the present inheritance tax, the additional income from which will be placed in the road fund. In addition to which, a bill is pending by which the people will be asked to vote a twenty million dollar bond issue for road purposes.

"These are all in addition to a half-mill levy, which levy brings an income of \$700,000.00 or \$800,000.00 per annum. In addition to these provisions made by the state, the counties, cities and towns have almost without exception been increasing their levy for road purposes.

"We feel, therefore, that the State of Colorado, as well as the various municipalities, is doing all in its power to co-operate with the Federal Government in giving employment to men and a market for raw materials as well as manufactured products.

"While the various departments of the Federal Government deserve great credit for what they have already done, there are some matters which they seem to have overlooked, or have not yet reached. The greatest periods of development in the United States were brought about at a time when the Federal Government gave very material assistance to the railroads and to railroad construction. No new country can be developed except through the developing of its transportation facilities. Transportation at the present time is not limited to railroads, but must of necessity include hard-surface highways. We believe that the Federal Government should give greater assistance to some of the struggling railroads. Unfortunately, Colorado has one railroad that has been ordered junked; the failure of this road and its present condition being due largely to war conditions, and indirectly to Government control of competing railroads operated by the Government, and naturally entitled to all the through business from such Government controlled roads.

"Another road is in very bad financial condition, being unable to extend a complete system as originally planned and without which extension the limited business makes the road unprofitable.

"The question of highways, in my mind, is even more important than that of the railroads, and I believe the Government should at once proceed to the construction of

not less than two ocean-to-ocean cement highways, of a width of not less than 25 ft. and of sufficient thickness to permit of heavy traffic.

"If I did not misunderstand a statement made here yesterday by the head of one of the departments, the Government has let contracts for manufacturing torpedoes in order that factories may be kept running and men given employment, in addition to which, there seem to be thousands of chair-warmers in Washington and elsewhere drawing salaries from the Government.

"I therefore believe that by commencing the construction of these ocean-to-ocean highways, we will be offering employment to men throughout the land; will be making a market for some of the raw materials, as well as all classes of goods and merchandise ordinarily required by a prosperous people with an opportunity for work. And for that reason, Mr. Chairman, I now move you that the Chair appoint a committee of five to take up with the proper departments of Government the question of building such ocean-to-ocean highways, and that if possible the Committee report to this convention before final adjournment."

Editor's Note: To this motion an amendment was offered by Governor Walter E. Edge that the matter be referred to the Committee to be appointed later to consider the entire subject of questions and recommendations. Motion as amended was agreed to.

Over the Hills to Health in Colorado

(Continued from page 9.)

Gray is willing to just take it easy and look after things we needn't come back until September."

"All right, Nett, we'll talk it over in the morning. I'll bet I dream of falling off that peak kerplunk into that water."

The next morning at breakfast the trip did not seem so impossible, if it did not cost too much.

"Nett, hand me a pencil. Suppose we figure on the whole month of August, or thirty days. Now, it would be about 500 miles to Denver or Colorado Springs and 500 miles back. That's 1,000 miles, and suppose we drive another 1,000 miles in Colorado—that's 2,000 for the thirty days, which will give plenty of loafing time. 'Betsy' will average fifteen miles to the gallon of gasoline—say 135 gallons at 28c—that's \$37.80. Six gallons of oil at \$1.00—that's \$6.00; one extra tire, \$25.00; one extra tube, \$5.00, and \$10.00 for repairs, etc.—that's \$83.80. I believe that will do it. Now what will it cost you and I? We are going to camp part of the time, you know, so that I believe \$5.00 per day, even with the costs, will pay our expenses, or \$150.00—a total of \$233.80. I think we have both earned a good time and 120 bushels of that wheat will pay it all. We ought to have a small tent, folding bed, oil stove and two pairs of cover-alls. If we stayed at home it would cost us at least \$60.00, so, you see, we will only spend \$173.80, I am sure, for thirty days of pleasure and recreation. What do you think of it, Nett?"

"Oh, let's go!"

"All right, I'll see Mutt this evening,

New Commissioner Good Road Advocate

By J. G. Hilliard, Editor Rocky Mountain Hotel Bulletin

THE recent appointment by Governor Oliver H. Shoup of E. E. Nichols of Manitou as Highway Commissioner for Colorado District No. 2 is intensely pleasing to hotel operators of the Centennial State, as well as to that portion of the general public which is best acquainted with the new official.

Highway Commissioner Nichols has been identified with the development of Colorado in one of its most important particulars, good roads, practically all his life. It has always been one of his principal aims to make accessible to the tourist visitor as well as to the resident the matchless scenic beauty of the nearby Rockies. Situated as he is, at Manitou, with the seven wonders of the Western world almost within a stone's throw of his hotel, it is small wonder that he has been an ardent supporter of every worthy good roads movement.

When E. E. Nichols, Sr., father of the present Highway Commissioner, migrated to Colorado in 1874, he selected Manitou as his place of residence, foreseeing the great tourist possibilities of the wonderful place. He built the original Cliff House, the first hotel there, the following year, when E. E., Jr., was still a very small child. The young man eventually replaced his father as proprietor and the hotel has expanded until today it is one of the foremost resort hotels in the United States and one of the largest hotels, resort or commercial, in Colorado.

There is no class more intimately concerned with the rapid development of good roads than the hotel keepers, and this is true especially in Colorado. Hotel managers know that with the increasing accessibility of Colorado's scenery will come the motorist in annually increasing numbers. He can now reach the summit of Pike's Peak by a splendid road, with the conception and realization of which Mr. Nichols had a great deal to do. This road project is in Mr. Nichols' immediate vicinity, but he is determined that both commercial and tourist roads in his district shall get all that is coming to them during his term of office. He also is broad enough to realize and declare that Colorado is a unit in so far as the necessity for good roads exists and that what benefits the state will advance the interests of any part of the Commonwealth.

Mr. Nichols' standing in his own specialized line of activity, the hotel industry, the fourth in volume and im-

portance in the Nation, is very high. When the Rocky Mountain Hotel Association was organized, 18 years ago, he was its first president, and is again its chief executive, having been elected its 1918 president, and again appointed by its board of governors for the present year. The organization includes the states of Colorado, Wyoming, Utah and New Mexico, and is grateful to Governor Shoup, not only for reaching into its ranks for a representative in a department of government which is of necessity one of the most important of all to the state, but for making such a wise selection in the man.

The new Highway Commissioner is an ardent motorist himself. He is familiar with every road—mountain and plain—in the diversified Pike's Peak country, and can drive the tortuous canyons in his big touring car as well as can the best experienced mountain chauffeur. He knows what the roads need, and he is going to try to see that they get it. He is a man of liberal education and splendid business ability, and will prove a credit to the administration of Governor Shoup and the essential department of it which he represents.

Mr. Nichols believes that it will be necessary to utilize for construction of roads all the money which it will be possible to obtain by state bond issue, and that maintenance is something to be provided for when needed. He realizes that the tourist industry is bound to be Colorado's greatest asset and that good roads will so pay for themselves that the people will be more than able and willing to keep up the highways when they once get them.

ASK LOWER RATES ON SAND AND GRAVEL.

The state highway department has made a formal request upon the Director General of Railroads at Washington for a reduction of freight rates on road building material, especially sand and gravel. This is in conformity with the action taken by road builders of the United States, in general, in an endeavor to meet the wishes of President Wilson in regard to the country's reconstruction program. Unless a reduction in rates is granted, however the road builders of the nation will be seriously handicapped in their effort to co-operate with the national government in furnishing work to the unemployed.



E. E. Nichols of Manitou, Colorado, State Highway Commissioner for district No. 2.

Road Work and Road Builders the State Over

The maintenance force of the State Highway Department has been at work for a week graveling the two and one-half mile stretch on Federal Boulevard beyond the Tarvia pavement. When this work has been completed the road will then be surfaced all the way from Denver to Broomfield.



Advertisement has been made and bids asked for the five-mile stretch of road between Walsenburg and Trinidad, known as Federal Aid Project No. 2. Bids will be received at the State Highway Commission on April 7. Completion of this work will give a hard-surface road from Pueblo to the New Mexico State line.

The Weld County Commissioners have about completed the work of graveling the two-mile stretch on the Denver-Greeley road near Evans.

County Commissioners from Lake County met at the State Highway Office last month, and took up the question of beginning work on the roads from Leadville to Climax and also over Tennessee Pass.

The State Highway Department has bought a new six and one-half ton Packard truck, which will be used for dragging and hauling in connection with maintenance work. The maintenance crew is now using three trucks and a stone crusher.

Boulder County Commissioners have notified the State Highway Commission that the county is willing to assist the state to meet the Federal Aid appropriation in the construction of a bridge necessary on the hard-surface stretch near Longmont. Boulder County officers are much interested in the proposed road to Ward. They expect to receive assistance from the Forest Service. While in Denver the officials of the State Highway Department, and County Commissioners Francis Beckwith and Arthur J. Boase, called upon S. A. Greenwood, chairman of the Boulder County Commissioners, who has been ill in St. Luke's Hospital. Mr. Greenwood has left the hospital by this time, and is well on the road to recovery.

Contractors are ready to start work on the completion of the concrete bridge between Greeley and Kersey over Platte river. The County Commissioners of Weld County and officers of the State Highway Department are conducting an investigation to determine the character of the concrete used in the piers of this bridge. They have heard rumors that poor material has been used in the construction.

Grading work has been finished on the road from Petersburg to Loretto Heights, an extension of Federal Boulevard. Graveling is now being done on this stretch.

Road Surveyor Harlan of Lake County is getting his plans and equipment ready to start work on the Denver-Twin Lakes road to Independence Pass. He expects to start work in a week. This is known as Federal Aid Project No. 3.

Engineer Roy Randall of the State Highway Commission is now in charge of the surveying work on the road from Wray to Idalia. This will include grading and surfacing and graveling on a stretch of fifteen miles.

The Montezuma County Commissioners have let two contracts for construction of a bridge to the Denver Steel and Iron Works Company. One of the bridges will span McElmo Creek, while the other will be thrown across an irrigating canal near Dolores. The entire cost of the two bridges will be approximately \$8,000.

For Better Roads

Surfacing has been completed and plans made for the two-mile stretch of concrete road running east from Pueblo, and for the one-half mile concrete stretch, including a bridge, that is to run south from the Town of Longmont. Surveys have been made for the one-half mile hard stretch of road at La Junta, Rocky Ford, Boulder, and Fort Morgan, as well as a one-mile stretch near Greeley.

The Colorado Highways Bulletin is published by the State Highway Commission of Colorado in the interest of better roads. There is no profit derived from its publication, as the State pays the cost of publication and advertisements are not taken. The subscription price is \$1.00 a year. Will you not subscribe and help give the road situation the publicity that it needs so badly?

Fill out the blanks and send this coupon to the Editor, Colorado Highways Bulletin, State Museum Building, Denver, Colorado.

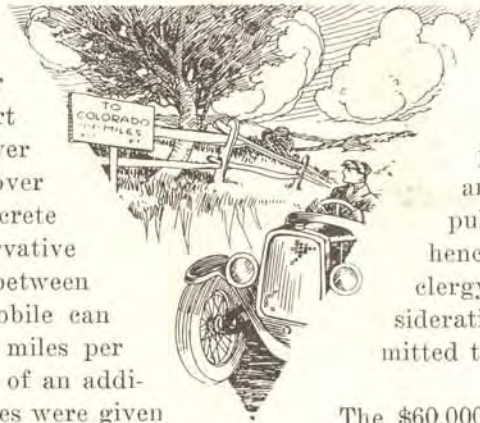
Enclosed find \$1.00 in payment for one year's subscription for the Colorado Highways Bulletin. Mail to

Preliminary statements have been approved for the two-mile concrete stretch on the Brighton road an extension of the present hard-surface road.

.....Name.
.....Address.

Sign Posts Along The National Highway

ONE can travel over a hard-surfaced highway with an automobile for three cents per mile less than he can travel on dirt highways. With the same horse power required to travel ten miles per hour over a dirt highway, he can travel on concrete forty miles per hour. To be conservative one cent per mile can be saved as between dirt roads and concrete. An automobile can travel an average of three thousand miles per year, making a saving on automobiles of an additional ten million dollars. These figures were given by the highway transport committee of the state council of defense at Des Moines, Iowa.



addressed an open letter to the ministers of the state, containing these words: "I have a deep seated conviction that every additional mile of improved highway serves to strengthen and increase the splendid influence of the pulpit and broaden the sphere of education, hence, I am moved to suggest that the clergymen of Michigan give thoughtful consideration to the road issue which will be submitted to the people at the polls on April 7."

The \$60,000,000 road bond issue voted by Illinois is the subject of a friendly test suit to determine the constitutionality of the issue. The Sangamon circuit court has dismissed the injunction proceedings. The matter will now go to the Supreme court and it is expected that the matter will be decided at the June term.

Another way of figuring the cost of motor operation is given by Charles M. Babcock, Minnesota state commissioner of highways, as follows: "On an average mileage of five thousand miles a car each season, the total mileage of automobiles is one billion miles. Figuring the cost of operation at ten cents per mile, the cost of operating cars in the state of Minnesota totals one hundred million dollars a year. A saving of 10 per cent easily can be made by operating over well improved roads. This would mean a saving of ten million dollars a year."

New York State has appropriated \$5,000,000 for the maintenance and repair of state and county highways, with an additional \$5,000,000 that may be drawn upon to meet any emergency. Between \$18,000,000 and \$23,000,000 will be available for road work in New York State during 1919.

Road projects in Virginia, either already under contract or ready to be let, will cost more than \$3,100,000 for 1919. This does not include expenditures that may be made by counties on roads not included either in the state or county systems. The total is more than double any previous annual road budget of the state.

New oil fields of singularly regular formation have been discovered at Hurgada, Egypt, which are now yielding, according to consular reports, more than 15,000 tons of crude oil a month.

Over \$300,000 will be expended on road work in Jefferson county, Georgia, this year. Lawrence county, Pennsylvania, may issue road bonds amounting to \$500,000. The New Florence special road district has voted \$275,000 in bonds for road work. The road committee of the board of free holders, Essex county, N. J., has recommended a bond issue of \$605,000 for road work in that county. That county commissioners of Dallas county, Texas, have ordered an election on the question of issuing \$1,400,000 in road bonds to be held on April 1st.

According to American engineers, who have been serving in France, it would be a backward step for this country to adopt the type of water-bound macadam roads now used in France, for the reason that the damp climate there more successfully keeps the roads in shape than would be possible in this country.

In addition to the \$2,800,000 bond issue to be submitted at a special election the legislature of Wyoming has passed a bill that carries a road appropriation of \$300,000 annually for 1919 and 1920.

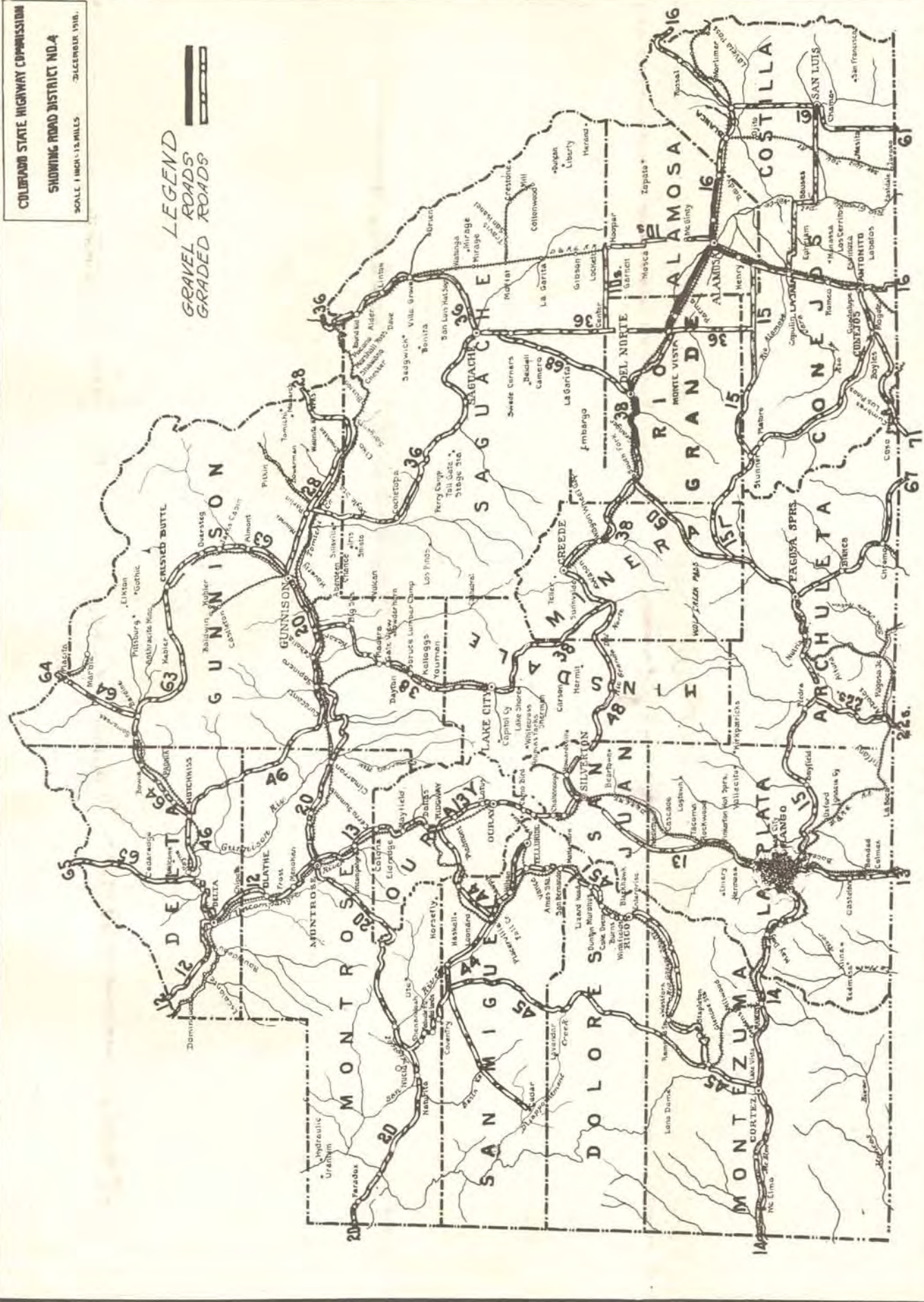
The State Highway commission of Pennsylvania has announced that no permanent pavement will be laid in the boroughs of that state until every pipe or sewer connection has been made on a thoroughfare to be improved, and that, after any pavement has been laid, local authorities will not be allowed to cut the pavement except in a case of extraordinary emergency.

Governor Albert L. Sleeper of Michigan is the first to appreciate the spiritual value of good roads. In urging the adoption of the \$50,000,000 bond issue, he has

Assistant State Highway Engineer L. J. Charles advises us that New Mexico has issued no road bonds since the \$500,000 issue of 1913. Efforts are being made at this session of the Legislature to authorize the issue of \$5,500,000 to be refunded from Auto revenues. A constitutional limitation restricts indebtedness of State to 1 per cent of assessed valuation which is \$380,000,000 this year.

COLORADO STATE HIGHWAY COMMISSION
 SHOWING ROAD DISTRICT NO. 4
 SCALE 1 INCH = 12.5 MILES
 DECEMBER 1918.

LEGEND
 GRAVEL ROADS
 GRADED ROADS



Map of road district No. 4, showing the gravelled and graded roads in this district.