Colorado Highways

BULLETIN

Issued by the State Highway Department

One of Nature's Masterpieces Framed by a Tunnel's Wall, on the Cache la Poudre Highway Out of Fort Collins in Larimer County. The Road Plunges Straight Thru the Heart of a Granite Cliff at this Point.

September, 1918

STATE OF COLORADO HIGHWAY DEPARTMENT. NIL SINE NUMINE

Roads Necessary to State's Development

By Charles H. Leckenby, Auditor of State of Colorado

THE progressive spirit of Colorado has never been exemplified in a more striking and effective way than in its determination some half dozen years ago to place its road building upon a scientific basis. Since then rapid and substantial progress has been made and the system and policy so thoroughly established that it assures a continued advance until the highways of the state will be noted throughout the land.

This guarantees to those who want to settle in Colorado, be they farmers, miners or manufacturers, a more economical and speedy distribution of their products. It promises easy and pleasant access to the beautiful scenic attractions of the state.

The world is in a state of transition and changes come rapidly. It is difficult to realize that only a few years ago the $100,000 annual road fund derived from the sale and rental of state lands was at the mercy of political "log rolling." It was "pork barrel" methods in its worst form and led to many scandals. A legislator was gauged by the number of road and bridge bills he could get through the legislature and the contracts often went to political favorites who were more interested in getting their hands on the money than in providing the state with a good highway.

With the establishment of the Colorado Highway commission with a limited authority over the distribution and expenditure as between counties of the Internal Improvement Fund, real progress was made, and the people showed their confidence in the new system by largely increasing the amount of money available for highways. A half-mill road levy was adopted by the people by an overwhelming majority. This year the levy will bring in $650,000. The internal improvement fund will add $100,000 more, while the motor vehicle tax, in 1917 amounting to $134,982 and very considerably increased this year, will bring the aggregate of state road funds well along toward the $900,000 mark. With Colorado's rapid increase in population and wealth it will not be long until the million mark will be reached annually. The United States government also is assisting very materially in the work, while the counties are required in a majority of instances to put up dollar for dollar, which brings the total which Colorado is expending for good roads into a class with the most advanced states in the Union.

While it is not to be expected that Colorado, little more than forty years old, should have a road system that will compare with the nations of the old world, or of the old settled states of this country, yet this state is rapidly developing such a system. Its highway department has mapped out a comprehensive system and keeps steadily and consistently to roadways leading to points of greatest attraction and importance. It is building over passes, blasting roadways from solid granite walls, seeking out the paths of beauty over the mountain tops.

Switzerland, with one-sixth the area of Colorado, has 9,000 miles of road that is highly improved, and every mile is of great commercial value by reason of the tourists. The Swiss government expends $1,500,000 a year on the repair and maintenance of the highway system. It is estimated that Switzerland in peace times derives an annual income of $15,000,000 from tourist travel.

Colorado has forty-one mountain peaks above 14,000 feet; Switzerland has eight. Colorado has 125 peaks above 10,000 feet; Switzerland less than one-fifth that number.

The one point in which the older country excels is in good highways and, as stated, this handicap is being lessened rapidly. In the last few years Colorado has more than doubled its mileage of state roads to scenic points, so that hundreds of miles of panoramic views unfold before the ever-wondering eyes of the automobilist as he twists about through forests and valleys, makes turns about wild granite crags and reads, as from a book, the story of silver peaks, rugged canons, sheer cliffs and gorges thousands of feet deep. Colorado's roads now offer pleasant rides through jeweled orchards, along lazy rivers, or skyline drives over the tops of the mountains with hundred-mile vistas of the Rockies and the plains on every side.

We want to lure people to Colorado by the beauty of our scenery and the magnificence of our highways for we believe a large percentage of them will join their fortunes with the Centennial state and become permanent residents.

The remarkable character of the soil, the unexcelled climatic conditions, the proximity to the great Rocky Mountain chain, the marvelous diversity of resources, the lure of grassy parks and sparkling streams, the character of the people, the wide-spread and unique movement for the upbuilding of a great and magnificent empire—these are the outstanding things that make up Colorado. Progress—splendid and enduring progress—permeates the very air we breathe, and even though one might be blind and deaf he could feel the promise, the optimism, that is characteristic of Colorado.

A mighty, irresistable movement is under way for the development of this state. We who live in Colorado believe it is the best part of the world. We believe its future is so brilliant, so evident, so fascinating, that soon it will be the center of the greatest industrial activity in the West. Her snow-clad mountains, her verdure, her rivers and her smiling valleys with untold wealth, all inspire an affection that will keep the tourist as a permanent resident when once he is induced to come. And the lure that will bring him quickest and in greatest numbers are the splendid highways that are beginning to ribbon mountain and plain and valley in every portion of the state.

"East Is East and West Is West" But the Twain Meet On Berthoud Pass

View Taken On Summit of Pass, 11,300 Feet Above Sea Level, Clear Creek County, August 5th, 1918.

Good Roads Men Urge Increase In Highway Funds

EMERGENCY legislation which will serve to relieve the present financial stringency in highway work coupled with the initial steps looking forward to a vast system of road development in Colorado, will be asked of the legislature this fall by the Colorado State Good Roads association. Three major changes will be requested in highway statutes as follows:

1. An increase in the automobile tax which will bring this charge up to an average with that now levied by the other states of the Union.

2. Transference of the inheritance tax from the general to the state highway fund.

3. Passage of an enabling act which will pave the way for a vote by the people of the state upon a highway bond issue either two or four years hence.

In addition changes in traffic rules and regulations which will permit regulation of the weight of loads carried by motor trucks, the speed of travel and the width of tire used, will be asked in order that the rapid deterioration of the present roads of the state, may be checked to some extent.

The program was decided upon at a meeting of the executive committee of the Good Roads association and of the legislative committee of the State association of County Commissioners held in Denver last month.

It was pointed out by President Charles R. McLain in his introductory speech that $500,000 damage has been caused by abnormal water fall in the state this year, the amount exceeding the funds on hand in the state department by close to $450,000.

It was further stated that of the $850,000 now appropriated to the state highway department, $400,000 must be set aside annually to meet the dollar for dollar aid given the state on post roads by the U. S. government. The fund is further cut in half by the increase in cost of labor and of material and this in turn cut into by the decrease in efficiency of such labor as it is possible to secure.

The entire state fund under the most favorable conditions only amount to $80 per mile for maintenance, improvement and construction, whereas the lowest maintenance costs now reach more than $100 per mile.

In the meantime a large program of actual construction together with imperative need of improvement, awaits funds in all sections of the state.

In view of the war conditions it was thought unwise to ask for an increase in the levy but the changes asked will net the department approximately $350,000, or almost enough to take care of Federal aid projects all over the state, leaving free most of the present fund for work on main arteries of travel and construction.

Commercial associations thruout the state, the newspapers the highways transport committee of the State Council of Defense, automobile clubs and similar bodies will be asked to co-operate in the preliminary campaign.

It was the keynote of the meeting that the increase should be asked as a wartime necessity since it is imperative that roads be kept open for motor truck travel in order that foodstuffs and other essentials may be transported rapidly and efficiently.

Keeping the Highways Open In War Times

By James E. Maloney, Chief Engineer, State Highway Department

IN these times it is extremely important that the highways be properly maintained, in order that the products of the farms may be hauled to the railroads, and also to have the roads always ready to transport troops, guns and munitions over them

How to keep our roadways, bridges and culverts in a good, travelable condition, at a reasonable cost per mile, is one of the important problems connected with highway work.

Methods of construction affect the maintenance. Temporary types of culverts and bridges are very expensive to maintain, and it is economy to build such structures of the more permanent types, when possible, even if the roadway is not to be surfaced.

Maintenance means the keeping of the road in the condition in which it was when construction was completed, involving such repairs and resurfacing as are necessary for that purpose.

Under ordinary conditions we have depended for the maintenance of our roads upon hiring for a few days such men and teams as were required to make the necessary repairs; and for dragging and grader work, we have depended upon contracts with residents mainly along the road. At any time, both of these methods are open to very serious objections; and at this time particularly we are not able to rely upon them.

In this state the immediate supervision of the work is by the Board of County Commissioners, and the State co-operates with the county in the maintenance of the State Roads and Highways. The State also takes up the maintenance of State Roads when the county is unable or neglects to do the work.

In the last two years it has been impossible to secure such men and teams at the time they were needed for special work and for general construction work it has become increasingly difficult to get the labor needed.

In the dragging the situation was not satisfactory, as the residents had so much work of their own to do that they neglected the road work.

To remedy this condition, a great many of the counties have provided themselves with tractors which will pull the graders, and drag or plow and wagon, and with a crew of two or three men do the necessary work. Some counties have in addition purchased five-ton trucks for hauling material and doing light dragging.

In fact the tendency is to put in a machine wherever it seems practicable to do so, to take the place of teams and labor.

The State has undertaken the maintenance of some of the roads in the vicinity of Denver in the counties of Adams, Arapahoe, Jefferson and Douglas, and is using the following equipment:

One Caterpillar gas tractor of 40 horsepower, drawber capacity, weight 28,000 pounds, costing $6,000.00; one grader with scarifier and blade attachment, costing $800.00; and two light drags; two trucks, 5-ton capacity, costing $6,000.00 each; sand elevator, screen and loader, costing $1,500.00.

In operating this outfit, the tractor, grader and one drag are generally used together and can be operated by two men. If the work is simply dragging, or smoothing with the grader, a distance of twenty miles might be covered, that is if one round trip is made they would cover ten miles of road; if two round trips were necessary, then five miles of road would be covered. This might be taken as an average in all kinds of materials for the dragging, say five miles of road per day.

In many places it is necessary to scarify the surface in order to reshape it and remove the chuck holes and waves. On work of this latter class the tractor and grader is used very successfully, except on macadam or very solid gravel roads, where it is found that the scarifier is too light and it is necessary to use the heavy-toothed scarifier. On scarifying and reshaping it has been found that about one-half mile per day would be an average day's work.

We have taken $50.00 per day as the cost of the operation of this particular outfit. Our figures are obtained as follows: Caterpillar Tractor, expense per day:

Gas and oil	$17.00	
Maintenance	9.50	
Operator	5.00	
*Depreciation	8.50	
		$40.00

*Note: Depreciation is based upon the assumption of a life of 4 years for the engine and 180 working days in each year.

Grader and Scarifier—Expense per day:

Maintenance	$3.00	
Labor	4.50	
*Depreciation	2.50	
		$10.00
Total		$50.00

*Based on 180 working days per year.

Our experience with this tractor so far this season confirms the figures given above.

Some unsatisfactory features should be noted: The tractor is very heavy and an unsafe load on many of the old bridges. It is unwieldy, requiring a cross road intersection or a full width road for turning. The lighter size tractor of 25 horsepower at the drawber is free from these objections, and will do most of the work that can be done with the larger size.

The two trucks and screening and loading plant have been used in resurfacing some pieces of road with sand and gravel, and the trucks have used the drags occasionally. The use of the trucks on anything but the lighter forms of drags has not been entirely satisfactory, so we are employing them largely on hauling and spreading materials for repairs of surfacing. The trucks are both of the dumping and spreading type and are working satisfactorily.

In charging up the work to the various roads the following has been adopted:

Cost of Truck, $6,000.00.

Expense for the year:

Operator, 10 months, at $100	$1,000.00
Maintenance, oil and gas	2,000.00
Depreciation, 25 per cent of cost	1,500.00
Overhead and incidental	900.00
Total	$5,400.00

For 180 working days this equals $30.00 per day, charge the road upon which the truck is operating $30.00 per day.

Screen and Loader—Cost, $1,500.00.

Operator, 180 days, $3.50	$ 630.00
Gas and oil, 180 days, $1.50	270.00
Repairs and Maintenance	450.00
Depreciation, 20 per cent of cost	300.00
Overhead, labor, teams and incidentals	2,850.00
Total	$4,500.00

For 180 working days this equals $25.00 per day, and this rate is to be charged to the road upon which the work is being done.

Some of the 600 Delegates Who Enjoyed the Spanish Trail Trout Feast

Spanish Trail--Mesa Verde Holds Great Convention

THE Spanish Trail highway association convention, which was held in Durango, Colorado, on August 5, 6, 7, 1918, was one of the largest good roads meetings ever held in Colorado, and probably more enthusiasm was manifested than at any previous good roads meet ever held in the State. It was attended by delegates from nearly every community of southern Colorado, and northwestern New Mexico, on a line from Pueblo to Gallup, and demonstrated beyond any doubt that two of the leading sections of Colorado—the San Juan basin and the San Luis Valley—were unmistakably committed to a program of aggressive, permanent road construction. The towns of Monte Vista and Del Norte sent over more than 150 enthusiasts, while numerous other communities were well represented.

The convention opened in Durango's new auditorium at 1:30 in the afternoon, and the program took up the entire time until nearly six o'clock. Over 600 people listened to the full program, which consisted of excellent addresses and a number of very fine musical selections, both vocal and instrumental. Mayor Harry Jackson happily tendered the keys of the city to the visitors, and introduced Hon. L. B. Sylvester, of Monte Vista, the association president, who briefly stated the purposes of the meeting and interestingly talked on good roads, and their necessity in upbuilding this wonderful southwestern Colorado country.

A number of recommendations were presented by the committee on resolutions, all of which were unanimously acted upon by the delegates present. The first of importance was one recommending the changing of the name of the Spanish Trails association, to the Spanish Trail-Mesa Verde Highway association. The addition of the words "Mesa Verde" immediately places the location of the Spanish Trail-Mesa Verde route in the mind of the stranger, and the convention no doubt acted wisely in making the change.

Another resolution embodied the request that the State highway commission expend the sum of $50,000 on the Spanish Trail-Mesa Verde route, declaring that the major portion should be expended on the Wolf Creek pass portion of this highway. It seemed to be the unanimous opinion of all delegates that the Spanish Trail-Mesa Verde route was destined to become one of the most heavily traveled highways in the country and that it should receive every financial assistance possible until it was made a perfect highway. It is generally regarded as one of the very important assets of southwestern Colorado, for it has opened to auto traffic an immense area with an aggregate acreage in excess of 20,000,000 acres, permitting the tourist to get into the very heart of some of the most attractive scenery in the Rocky mountain region. The convention further favorably acted upon a resolution, providing for the employment of Federal prisoners on the roads of Colorado and other States. It was stated that more than 14,000 prisoners were in the Leavenworth penitentiary alone, 80 per cent. of whom could be used in profitable road construction in various sections of the country.

Probably the most important business transacted by the convention was the acceptance of a proposition made by the National Old Trails Road Association to this association, wherein the former offered to place upon its maps and in its road guide, the route of the Spanish Trail-Mesa Verde highway, and to declare it the summer route for all transcontinental automobile traffic between New York and Los Angeles along their national line. The Old Trail route touches the Spanish Trail-Mesa Verde route at Pueblo, where the latter begins, and instead of passing down thru New Mexico, would traverse the La Veta Pass, the San Luis valley, Wolf Creek Pass and the San Juan basin, again touching its former line at Gallup, New Mexico.

Life memberships in the Old Trails were offered at $5.00 each, and since the date of the convention in Durango, the membership campaign has been vigorously pushed, and 1,000 members will be secured during the present month. Thru this action, the Spanish Trail-Mesa Verde route will have as additional backing, the influence of one of the strongest good roads associations in the United States, and it is expected that the time is not far distant when the entire route will be hard surfaced, and become a part of a great transcontinental route, leading from New York to Los Angeles.

The election of officers for the ensuing year resulted in the re-election of President Sylvester, while the Secretaryship went to L. A. Ruark, of Del Norte. An aggressive administration is sure to result from these selections.

Not the least attraction of the big meeting was a free fish dinner given the visitors at beautiful Brookside Park in Durango. Six hundred plates were piled high with good things to eat, and six hundred people thoroly enjoyed an excellent meal, while the Monte Vista and Durango bands rendered blood-tingling

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Highway Maintenance and Repair Problems

By R. E. Pratt, District Engineer, U. S. Forest Service

PERHAPS the biggest road problem which the Counties, the State and the Forest Service is facing in the mountain sections of Colorado today is this: "How shall we keep up our existing roads under increased traffic conditions, during the period that adequate highways are being constructed?"

With increased traffic, high mileage and increased cost of labor and materials and insufficient funds, all highway agencies of the State are finding it increasingly difficult to finance new construction work of standard character because the greater portion of available funds are being expended in the maintenance and repair of our existing roads. Our highways must be reconstructed and improved to meet modern traffic conditions, but since travel cannot wait, it is necessary first of all that present needs be satisfied.

What is the answer? Two remedies suggest themselves: First, increased appropriations. These will come in time, there is no doubt of that, but our problem is immediate. The second and only available remedy is increased efficiency. The writer wishes in this article to describe briefly the effort being made this year in cooperation with the Board of County Commissioners of Park county to demonstrate the economy of the light tractor, grader and wagon outfit in the maintenance and repair of roads under average mountain conditions.

The large tractor and heavy grader outfits being used so successfully on plains maintenance and construction work for many reasons do not lend themselves readily to average mountain conditions. After considerable study of the special conditions under which the outfit would be used, a Wallace Cub, Jr. tractor and a Russell Junior grader, with offset engine hitch, were purchased. This outfit is light, can turn in a small radius, and yet possesses sufficient power and strength for the purpose. It has been clearly shown that one of the largest leaks incident to the periodic system of road maintenance and repair is the cost of going to and from the job. To obviate this a trail wagon was added to the outfit, thus enabling the crew to carry their camp equipment with them and to camp at points most convenient to the work. The wagon is stoutly constructed and is also used to advantage in transporting materials needed on the work, such as rock, culverts, lumber and the like.

The outfit left Denver May 10, and since that time has been in the field continuously. Our original plan for the season contemplated the maintenance and repair of about 150 miles of road, with the idea of covering it thoroughly three times during the travel season. Later, on account of some much needed construction and repair work in the vicinity of Lake George, it was decided to cover this mileage only twice.

It is still too early to forecast accurately the costs for the season's work. These will be tabulated at the close of the season and if practicable published in the Bulletin. Data are being accumulated which will show clearly the work accomplished as well as a fairly detailed analysis of costs.

Operations up to the end of July indicate a season's cost of about $15 per season mile. Considering that a large percentage of the mileage is on roads not of standard construction, and therefore with excessive grades, poor alignment and inadequate drainage, also that there has been an exceptionally heavy rainfall this season resulting in bad washouts, and several lost bridges causing delays to the crew, the cost so far is encouraging.

Each mile of road is covered from three to six times depending on conditions. In addition to smoothing the road and bringing it to its proper section, considerable work has been done in assisting in placing culverts and repairing bridges. Ditches are also cleaned and all roads where side drainage has been installed, and considerable hand work has been done at times in repairing washed shoulders and removing rocks from the road.

During the greater portion of time, two men have been employed on the crew, one for the tractor and one for the grader. Three men, however, also make a very economical crew, since a certain amount of hand work is necessary and the additional man enables the tractor to proceed with fewer interruptions. The choice between the two and three man crew depends on local conditions. While work done has greatly improved the standard of a considerable portion of the mileage covered, and has kept it in a reasonably good condition, it is realized that one outfit of this kind cannot properly maintain 150 miles of highway, subject to heavy travel.

The roads covered this season, notwithstanding this season's heavy rains, are, generally speaking, better than in former years, but on the heavier traveled sections, however, additional maintenance work has been done by Park county.

In general it is believed that an outfit of this kind with three men can properly maintain from 50 to 75 miles of standard double-tracked earth road in good material under reasonably heavy traveled conditions at a cost of from $25 to $40 per season mile, allowance for depreciation of equipment being included.

As above mentioned, in addition to the maintenance and repair work, the outfit has been tried out to a certain extent on construction work, at the request of Park county. About 1½ miles of State highway was constructed. This work was done in accordance with the relocation made by Park county. Culverts were installed by the County, the tractor being used for grading. The road is 24 feet wide, ditch to ditch, and includes one 6-ft. fill, about 75 ft. long, one 4-ft. fill of the same length and

one 4-ft. fill about 40 feet long. The work was completed in nine effective crew days.

Since a yardage estimate is not available nor exact expenditures yet determined, no unit cost can be stated. The cost of the job, however, was less than $200. After the completion of this short stretch of road, the tractor was employed on the reconstruction and repair of the road northward from Florissant toward West Creek, where it is now working.

The conclusions drawn from approximately 3 months use of the tractor outfit are as follows:

(1) That a light outfit is needed for mountain work.

(2) That such an outfit is adapted not only to the maintenance of constructed roads, but is exceptionally efficient in general repair work on average mountain roads not of standard construction.

(3) That it is more economical than horse drawn equipment.

(4) That whenever necessary, it can be used for grading, grubbing, hauling material, and filling wheel scrapers on construction work.

The writer believes that the use of light tractors and graders of standard manufacture on the maintenance and repair of mountain roads will not only greatly decrease the cost of the work, but will give us better results than we have been securing in the past with less efficient methods and equipment. If this is true, is it not then the answer to the maintenance and repair question? Increased appropriations may assist later, but in meeting the problem of immediate traffic needs the methods briefly described are believed to be worth considering.

1. Surface and Soil Conditions Where Crew Has Started Work, Park County. 2. Camp of Crew, Pike N. F. 3. A Stretch of Road, Shoshone N. F., Wyoming. 4. A Type of Region in Which Tractor Crew Started Work May 16. 5. Tractor Pulling Trees from Right of Way. 6. Road Maintenance Crew Equepped With Tractor Instead of Team.—Photos by Smith Riley, U. S. Forest Service.

Texans Support Interstate Military Highway

By T. W. Ross, of the Colorado to Gulf Highway Association

THE organization of a "military division," extending from Waco, Tex., south through Austin, San Antonio, Corpus Christi and Brownsville, and connecting many of the important cantonments, aviation fields and other military establishments of the United States army in Texas, which was accomplished at the recent annual meeting of the Colorado to Gulf Highway association, held in Dalhart, Tex., is considered by D. P. Talley of Wichita Falls, the new president of the association, as the first real step taken in the creation of an interstate military highway running from the Canadian border, down along the eastern range of the Rockies south to the Gulf. Active work on the details of this military branch now is being done by committees of prominent Texas road enthusiasts. This branch, which will bring the various Texas military establishments together on a highway that is to be logged and marked, will be of great benefit to the government, according to Mr. Talley.

Plans for the marking of the entire Colorado-to-the-Gulf road from Denver to Galveston are being made by Mr. Talley, who is spending his vacation in Colorado Springs. The recent convention authorized this work and painting crews will be on the highway this fall to complete the job.

A new log, covering all divisions of the highway, is to be published early in 1919 for the touring season of next year. Traffic over the Colorado to Gulf highway this season has broken all past records, according to towns enroute. The sweltering heat of July and early August has driven hundreds of car owners to Colorado's cool resorts and the Texas and New Mexico license tag is a familiar sight on the streets of Colorado Springs or Denver and on the many fine mountain boulevards in the state.

Further action on the military highway project was taken at a meeting of the Gulf division held in Hillsboro, Tex., during the week of August 25, while the Mountain division will hold a meeting for similar discussion at Trinidad, Colo., in October.

The divisions of the Colorado to the Gulf are as follows:

Gulf division, Galveston to Fort Worth, 355 miles.

Panhandle division, Fort Worth to Texline, 495 miles.

Mountain division, Texline to Denver, 118 miles in New Mexico and 227 miles in Colorado, making a total for the division of 345 miles. The total mileage of the highway is 1,200 miles.

The Mountain division of the Colorado-to-the-Gulf, connecting Colorado's principal cities, leading into the wonderland of scenic attractions, fishing streams and fine mountain boulevards, is, of course, a portion of other highways, such as the Santa Fe trail, the Spanish Trail, the D. C. D. highway, the Park-to-Park highway, as well as the still proposed Rocky Mountain Military highway.

Colorado's road authorities have constantly been improving this tremendously important link within the last six years. At least 75 per cent. of the mileage of 227 miles is graded and graveled, with permanent concrete bridges and culverts and with a surface that permits of comfortable travel in all kinds of weather. Work is now being done on the remaining 20 per cent.

Notable development work has been done in every one of the counties: Las Animas, Huerfano, Pueblo, El Paso, Douglas, Arapahoe and Denver, but probably none has excelled the work done in Pueblo county, where the road extends for miles on a straight stretch and has been called the finest highway in the state. Parts of the highway cross counties of small population and low assessed valuation with little interest in or benefit from through travel. For these sections the state highway commission has made special appropriations, recognizing the necessity of connected, improved highways. The work in progress near Littleton of hard surfacing the road, is the first of its kind undertaken in Colorado and is expected to lead to greater projects of this kind. It is proposed to add hard surface units to the highway from year to year, as rapidly as county, state and federal funds justify. The good condition of this road is attested to by the hundreds of motorists who make trips over it daily and beat train time in many instances.

It is easy to draw a line on a map, name a route and paint poles along the way. The real test comes when the acid of common sense and public opinion is applied. And when that is done the logic of the alignment of the Colorado-to-the-Gulf, as a section of the interstate military route, becomes increasingly apparent. Great systems of transportation are not those that connect communities of like interests and resources but those which make possible the exchange of products and the intermingling of peoples of different climes. Think of a road that connects the metropolis of the vast trans-Mississippi region with some of the world's greatest seaports, stretching like a ribbon from the snow-capped peaks of the Rockies, thru great fruit orchards, past coal mines and steel works, across the wide plains with their great herds of cattle, sheep, and their successful dry farms, thru cotton fields, large oil-producing sections, thru regions that produce richly of wheat and rice and other foodstuffs to the very shores of the Gulf of Mexico.

A highway fit for interstate travel is better fitted for local hauling, motor trucks are replacing railroad transportation and the future demands of war and industry will increase this use. The Colorado-to-the-Gulf is a practical route for military purposes to connect the heart of the west.

From Mountain Breezes to Wind-Swept Coasts of Southern Texas

Scenes on the Colorado-to-Gulf Highway. 1. A View of Pike's Peak Near Colorado Springs, El Paso County. 2. A Portion of the Road Between Colorado Springs and Pueblo. 3. A Twenty-Mile Straightaway North of Pueblo. 4. A Pretty Stretch in Southern Texas. 5. Live Oaks and Farm House Near Amarilla, Texas. 6. One of the Many Beautiful Shell Roads Entering Houston, Texas. 7. At the Gulf.

Finances Chief Topic At Commission Meeting

CONFRONTED by an unparalleled call for assistance from the counties of the state coupled with an almost exhausted contingent fund, the members of the State Highway Commission assembled in quarterly meeting, August 12 and 13, voted to rate all requests for aid in the order of their importance and to make appropriations payable in the order of priority so established, as and when the money becomes available in the contingent fund.

Abnormal water fall in the eastern counties, and an unusually protracted hot spell in the mountain districts early in the summer, have resulted this year in high waters which have caused close to $500,000 damage on the roads, bridges and culverts of the state highways. The contingent fund for the year is only slightly more than $50,000 while most of the counties have exhausted their road funds in extra maintenance demands. As a result much of the meeting was devoted to a discussion of the needs of the counties.

Presented in tabloid form, the time of the commission was devoted to the following discussions and resolutions:

A petition from the commissioners of El Paso county in regard to the definite location of State Route No. 76, was adopted.

A resolution that the proposed re-location of the Main North and South highway, approved by commissioner Ehrhart and Engineer Maloney, be made near Husted and that the county commissioners of El Paso be requested to proceed by condemnation proceedings to secure the required right of way (such proceedings to be included in cost of construction and maintenance) was carried.

The petition from Larimer and Boulder counties that the road from Lyons, via the South St. Vrain, be declared a State route, was carried.

The North River road between Pueblo and the junction of State Route No. 33 in Crowley county was declared a state route on petition from Pueblo and Crowley counties, subject only to definite location approved by the commissioner and state engineer and the securing of right of way by the counties referred to.

The road from Leadville via Fremont Pass to Dillon in Summitt county was declared a State route.

The amount of $300 was appropriated to Lincoln county for building a bridge over Horse Creek on State Route No. 33 provided the county will appropriate $200.

A transfer of funds from State Route running thru El Paso county to other state routes within the same district, requested by the El Paso board, was granted.

After a conference with R. E. Pratt, district engineer, U. S. Forest Service, it was resolved that the commissioner should be authorized to execute a co-operative agreement with the Secretary of Agriculture on behalf of this department for the survey and construction of the Bardine-Redstone project with the understanding that only a section of six miles, needed for hauling farm produce, be constructed at this time.

The board requested definite estimates from the commissioner and engineer on the cost of construction of a bridge just south of Castle Rock to replace the present structure, represented as in bad and unsafe condition by Douglas county commissioners. Definite action will follow these estimates.

The commissioner was instructed to obtain a full report from Kiowa county commissioners on their request for $6,000 for a bridge on Route No. 33 and to report further on this to the commission.

The sum of $2,400 was appropriated for maintenance of the convict crew on State Route No. 51 on petition of Larimer county commissioners with the proviso that the county contribute a similar amount.

A request for the transference of funds from certain state roads to others within Las Animas county by the board of commissioners was granted. A request also received from Las Animas for $4,000 aid on bridges now under way could not be granted at this time because of shortage of funds.

The State routes included in Federal Aid projects No. 2 and No. 7 were approved, as well as resolutions authorizing the commissioner to sign the usual agreements.

The sum of $2,005.05 was set aside to meet the State's proportionate increase in the final estimate of Project No. 7, the sum to be paid out of revenues of 1919. Similar action was taken on Federal project No. 2.

Upon the statement of District Engineer R. E. Pratt of the U. S. Forest Service, that owing to the difficulty of obtaining men and teams his department would probably have to discontinue work on Monarch pass for the year, it was voted to consent to the postponement and the commissioner was instructed to place funds so released in the contingent fund upon definite notice of stoppage of work by the Forest service.

The commissioner called the attention of the board to the matter of the Sidney bridge in Routt county, which county commissioners desire to have replaced. The commissioner was instructed to get more details about this.

It was voted that publication of The Colorado Highways Bulletin should be continued indefinitely.

Gilpin county commissioners requested $1 500 aid on State route No. 54 expressing willingness to appropriate $2,500 on the road from their fund. Placed in priority budget.

Petition from County commissioners of Boulder that State route be declared from connection with State route No. 11 S, up lefthand creek to Jamestown, thence up Jim Creek to Ward, denied.

Where the Big Game Has Its Rendevous

THE day of the hunter of big game has almost passed in the United States. Stories of the big kills with which sportsmen were wont to thrill their hearers in the past are now heard only as echoes from an age of pioneers and in most sections of the country the wild animal is known to the present generation only as a curiousity to be viewed from the vantage point of heavily barred cages.

Yet among the other attractions which Colorado has to offer to the visitor there still remains a big game country and those who know the keen zest of tracking the bear to his lair, of trailing the swiftly moving deer, can testify to the rare sport which may be had in the wilder sections of the northwestern end of the state.

Not a great many years ago the northwestern end of the state was a desert as far as most of the people were concerned. Inaccessible, off of all of the main lines of travel, little was known about it and the stories of big hunts only tended to confirm the opinion that the country was unfitted for anything else.

With the advent of the railroad and a subsequent opening up of the highways that opinion vanished. Fortunes were made in coal in the district, the stock grown there is as fat and fine as any found in the United States, while the crops of hay, barley, vegetables that are raised in this district will astound the traveler who has been accustomed to think of high-altitude, short season lands as devoid of value from an agricultural standpoint.

Northwestern Colorado presents a mighty empire of vast and varied resources and only partially developed as the country is today, it is yet a region of tremendous production of all kinds.

There are three or four different ways in which the country may be reached, but from the standpoint of the traveler, the best is probably the circle which takes the route via Berthoud pass, thru the Middle Park, over Parshall pass, thru the Grand Valley, along the Rabbit Ears pass, which is one of the finest highways in the state, down into the Yampa and so on to Steamboat, Craig and Meeker.

From Denver the highway leads out thru Golden on over the famous Lookout mountain highway, down Floyd Hill with its bends and turns to Idaho Springs, home of the oldest mining camp in the state and today famed for its curative springs and mineral waters.

Beyond Idaho Springs the road takes its way to Empire and thence to Berthoud pass where the first stiff climb into the range begins.

Berthoud pass is one of the most rugged roadways over the mountains in the state, but it is negotiated daily by an ever-growing stream of machines without difficulty. The road climbs at a steady grade thru the heart of the mountains, first plunging into long lanes of pines and spruce, next fringing the edge of a hill as it bends on its way to the higher altitudes. The summit is reached at 11,306 feet and from this point a striking view of the Continental range may be obtained in all directions, famous old "Jim" and the Arapahoe Peaks appearing in clear relief against the blue of the Colorado sky.

Once in the Middle Park fast time can be made across the flat lands to Frazer and so on to Tabernash, fertile farm lands bordering the way with the smoke of the lumber mills rising in the background.

Beyond Tabernash the highway bends around following the river course to Granby over a road of gumbo. In dry weather the stretch is of the best, in wet successful passage over it requires chains and caution since the bed becomes a slithering, slipping mass of mud which affords little hold for the traction.

At Granby the junction is made with the Grand Lake highway and with the western terminal of the famous Fall River pass road. The diversion is one which is worth the time of every traveler and the trip to Grand Lake today is one of the finest in the state. There may be found the immense blue body of water on which motor boats may be seen speeding along or yachts careening under a heavy sail.

Behind Grand Lake stretch the peaks of the Continental divide and twelve miles into the range begins the actual construction work now under way of the western side of the Fall river pass. Here Contractor McQueary and Engineer Frank Huntington may be found perched high on the mountain sides with crews of road men who have spent the summer months blasting a road from the hill sides. The most difficult part of the work has now been completed and broad turns and a solid road bed on easy grade up the mountain side will make this highway one of the most famous in the world once the connecting links are completed.

Like the eastern slope the western presents countless views. Rich meadowlands are linked in with heavily mantled hills and beautiful bodies of water. At points glimpses of the jagged corners of the range appear. Trails run in every direction from the road to the innumerable scenes of interest in the range and another decade will unquestionably see this one of the most famous trips in the world.

Today, however, the road from Grand Lake to the construction work, a distance of twelve miles, is only a trail and it is not recommended to travel.

Returning to Granby the road from that point leads on to Hot Sulphur Springs with its fine water and beyond the highway makes the climb over Parshall hill. From the crest and for a distance of miles as the car speeds on its way to Parshall the great hills of the range are constantly in view and there are few rides more pleasant than this one. At Parshall the highway dips down into

(Continued on page 14.)

Rugged Mountains Cutting Into the Skies O'ershadow Fertile V

Scenes which will catch the gaze of the most blase traveler as he wends his way thru the northwestern section of the state. 1. Waist-deep in one of the rich wheat fields of the Yampa valley in Routt county. 2. The famous Rabbit Ears which guard the pass thru Grand county. 3. Looking out to the Continental Range from the crest of Hoosier pass, Summit county. 4. A section of the western slope of

's Ribboned by Crystal Streams Throuout Northwestern Colorado

Fall River pass road, Grand county. 5. Tonopas (finger) Rock, a ous Routt county landmark. 6. Cattle grazing in Eagle county bend in the road on Floyd hill, Clear Creek county. 8. The Trough, Grand county. 9. Dredging scow in operation in Summit county, where millions of dollars in gold have been taken out.—Photos by Bruce Wiswall, August, 1918.

A Circle Trip Thru Northwestern Colorado

(Continued from page 11.)

the valley and for a considerable distance travels along the waters of the Grand river where may be met fishermen testing their luck in the waters heavily laden with fish.

Again there is a sweep upward and the sharp points of the Saw Tooth range come into view with the Blue Ridge in softer relief before them. To the west the corners of Gore canon may be seen and then the town of Kremmling, yearly a shipping point for immense herds of cattle.

Beyond and now to the northwest, evading the Gore cliffs, the road strikes on to the Kremmling flats which present one of the knottiest problems with which the state highway engineers have yet to wrestle. The flats are adobe, cut and distorted by arroyas and the highway climbs and dips, twists and turns in all directions to make its destination. For several miles the stretch provides its problems for the traveler, too, in wet weather and how a highway is to be provided which will avoid these factors is yet unseen on account of the topography of the country.

As the Rabbit Ears loom into sight, however, a firmer road bed is found and fast time can be made thru the valley and on to the Routte National Forest, where the government work begins over the pass.

This portion of the trip rapidly dispels any gloom caused by the stretch before. Aligned on an easy grade with easy turns and superb road the highway goes up the hills with the famous old landmark of the Ears ever in front as a goal. Just before they are reached the road swerves sharply to the West, the summit is reached and the slope down begins again. If the eastern side has caught the fancy of the traveler, the western will even more hold his eye. There is nothing rugged about the scenery. The undergrowth is of the heaviest and often one is reminded of scenes in some eastern section of the country. Black-eyed Susans nod their heads from the roadways, grove upon grove of asps bend down the sides of the hill and behind them battalions of pines stand in silent array.

The road is well kept and fast time can be made, but every traveler will want to slow down as he reaches the eastern heights for there spread before the eye lies the checkered valley of the Yampa far below with its fine farms and grazing lands, its streams and prosperous towns.

Steamboat Springs is quickly made and the traveler finds himself in a well-kept city which serves as the distributing point for a huge country which is rapidly adding materially to the wealth of the state.

From this point the machine may go due West to Craig where it may divert north to Wyoming, continue on to Utah or go south to Glenwood Springs.

For the present article, however, Steamboat will be the terminus. Retracing the road for four miles, the turn is made at the Yampa road junction and after a trip along the river, the car noses its way into the mountain and up the Yellow Jacket pass. Beyond this the roadway enters the coal district, one junction taking the traveler to Oak Creek, the other proceeding over a rolling country thru Phippsburg and on to Yampa. The Tonopas (finger) rocks loom up as the car leaves this point and the highway cuts across mesquite flats to the crooked course of the Rock Creek, which travels some five miles to attain a distance of one.

As the contour of the country changes there is a perceptible rise in the thermometer and the highway makes its way thru red lands covered with sage bush, with little ranches here and there in gulch pockets and the raucous cry of the magpie as the only note penetrating the silence.

The highway over the hills follows a tortuous course which finally brings the road down to the Grand river at the old State Bridge where connection can be made with the main east and west highway via Wolcott.

The Midland Trail follows the river, however, proceeding along a narrow shelf road, crossing the stream and working back into the hills traveling northwest toward Gore canon. The ascent is a long one, the road narrow most of the distance and much of the time proceeding along points which look far down into the valley.

At Gore canon a sheer view downward of some 1,000 feet is obtained which will take the breath of even the seasoned driver while to the right appears The Trough, a valley or rather wide gulch extending to the top of the range. The road climbs steadily at this point to the very crest. Dipping down a fine view may be had of the range and the road goes for miles thru the hills meeting an occasional ranch until the Kremmling junction to Breckenridge is reached.

From this point the road cuts across the flats into Summit county. From there on to Breckenridge the highway runs a major part of the distance on a series of old railroad grades along the Blue river. Fine views, superb road bed, and the bracing air from the hills make this trip a delightful one and the change from farm lands to the huge dredging fields of the mining camp, will interest all who make the trip. Taken as a link in a three-day trip Denver to Kremmling to Breckenridge to Denver, the journey should be made by all who have not time for the more extended trip.

From Breckenridge the highway climbs thru Hoosier pass, one of the most famous gateways thru the range as well as one of the best, thence dropping down the placer mining district to Fairplay and so on back to Denver via the Hard Pan Triangle route or on to Buena Vista as the traveler may decide.

D. C. D. One of Best Highways Into State

A Description of the Route, by F. R. Jamison

THE D. C. D. Highway Association, which recently held its annual meeting in Lamar, Colorado, bears out the statement made for it "That it was born in earnestness and conceived in mature deliberations."

In November of 1916, following the completion of a highway bridge over the Canadian River at the city which bears its name, a meeting was called at Shamrock, Texas, for the purpose of opening a highway south from Canadian to an intersection with the Gulf to Colorado Highway. So much enthusiasm was expressed at this meeting that upon return to Canadian, its Chamber of Commerce advanced the idea of an intersection on the north with the Santa Fe Trail, thus linking the southeast with the northwest by a highway leading through a country beset by the least resistance to land transportation and at the same time, wonderful in its teachings of history and nature and yet more wonderful in its revelations to the human eye.

To go to the mountains over a plains road is a task worthy of accomplishment and few indeed are the inclines along the D. C. D. that cannot be negotiated on high gear. As the details of the early ambitions of the organizers began to unfold, the field of usefulness spread offering territory heretofore undiscovered by a south or north road. Accordingly, after an expedition had been made to the south and to the north, the towns between Childress, Texas, and Lamar, Colorado, assembled in Canadian, February 9, 1917, to induct the Dallas-Canadian Denver Highway into existence and to discuss its further extension and final territory.

Briefly told, this is the history of this organization and upon this foundation has been built the superstructure which now touches Oklahoma City, Okla., on the east, Dallas, and through its Henry Exall connection, Galveston on the south, and Denver, Colorado, on the north, coming via Lamar, Pueblo and Colorado Springs.

Map of D. C. D. Highway, Which Cuts South Thru Prowers and Baca Counties.

This entire territory maintains a local D. C. D. organization in each community, composed of a vice-president, a local secretary and three committeemen. This system, original with this organization, has formed one of the most successful co-operative associations that ever existed. In addition to this, each state has a vice-president-in-chief which, together with the president and general manager, constitute an executive body.

The diversification of industry and climate and types of civilization along this route surpasses any other highway for the same or far excessive mileage. Did you ever stand upon the great seawall at Galveston, that wonderful governmental project that keeps the state of Texas from slipping into the sea? That is where this highway begins and by courteous invitation of the Henry Exall Association has use of that memorial highway to Dallas. As you withdraw from the gulf coast on a splendidly constructed road, you behold the greatest cotton fields in America On through the classic city of Dallas and on north through the marvelous agricultural region of north Texas, the richest natural farming country under the canopy of Heaven. Crossing into Oklahoma at once brings to view the red man, the first inhabitant of America. You will find him there in his blanket and you will see his various steps of advancement from that condition to a stock farmer, college professor, lawyer and politician. You will observe some of the richest oil fields in existence and visit some cities that are matchless in their development and enterprise.

Camp Doniphan is located at Lawton, which affords an exposition surpassing any attempt ever made by our country at spectacular feats to interest her people. Just above this cantonment is Medicine Park, where you can find rest and quiet tucked securely in the midst of the Wichita mountains.

Learn the history of the Yampa Thirska Pass, and the snake-eating tribe of Indians from which it obtains its name, as you proceed toward the Panhandle of Texas again. Come back into the state of Texas about 25 miles east of Canadian and cross this land of cattle and large ranches and people with ideas extended far and wide. Take another whirl at Oklahoma in what was once known as "No Man's Land." Visit Elkhart in the corner of Kansas as we nip at the Sunflower state and then enter into Colorado in the southeastern part of Baca county, where roams the countless herds over the splendid grass land.

At Lamar the traveler comes into the valley of the Arkansas, rich with its lanes of shade and sweet perfume. Interesting in its ingenuity and superior citizenship ,and you follow the D. C. D., which goes over the Santa Fe Trail to Denver.

All this and a thousand other things equally as good may be said of the D. C. D. and its organization. But with a string of co-operative organizations extending for more than a thousand miles on the lookout for the interest of the tourist, he is insured a pleasure no other system or organization can give. The character of people along this route makes the journey a pleasure. The absence of mountains takes away the drudgery of the trip. The signs keep you on the road continually, you save many miles and are continually in the hands of your friends. Every town along the line is interested and enthusiastic over the highway. It is not perfect, not by any means, but improvement is going on all the time.

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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 provided only that orders are sent in before type is re-distributed.

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GOVERNMENT CONTROL OF HIGHWAYS.

Many road authorities are of the opinion that the problem of maintenance of highways is one which is too big for the states to cope with as separate bodies. Good roads require huge sums for their construction and development and of late there has been an insistent demand for greater national aid. Federal control over main highways with the consequent national expenditures would free state funds for the development of "feeder" highways and would assist very materially in the progression toward a far spread network of roads.

Sooner or later the nation will take its part in road building on a large scale and the more quickly the day arrives, the more quickly will the country's resources be put to their full use.

MOTOR TRUCKS AND TAXATION.

The post office department of the United States has recommended the expenditure of $150,000,000 in the construction of 7,500 miles of highway east of the Mississippi river with a probable similar amount to be awarded to highways in the West at a later date.

In the argument for this resolution before a congressional committee, Mr. Blakslee, fourth assistant postmaster general, stated that the department could afford to expend 50 per cent of its gross earning from motor truck parcel post in this manner since the increased business resulting therefrom would more than offset the expenditure. In urging the appropriation, he says:

"The use of the highways by the government without compensation to the states is neither equitable or just and consequently the Federal government may be under a moral obligation to reimburse the state in some substantial manner and it is believed that this can be done with benefit to the states and at the same time further increase the profitable possibilities to the Federal government."

In effect this statement acknowledges that since the government is proposing to make a profit from the use of highways that it should pay for the maintenance of them.

If this point in equity holds good in the case of the government, how much more true is it in the case of the private individual operating his motor trucks for the sole purpose of gain.

The heavy truck operated at maximum capacity does more damage to the road than all of the rest of the traffic put together.

It is unjust to ask taxpayers to bear the full burden of maintenance so forced upon them and a reasonable tax should be placed upon motor truck traffic that it may bear some part of the costs of the road so incurred.

TOURISTS AND SETTLERS.

That the tourist of today is the settler of tomorrow is a a statement which has become axiomatic in the history of travel in Colorado. Fully 30 per cent of the travelers who come to this state each year are in search of land, mining claims or business opportunities of one kind or another.

Of the other 70 per cent a large proportion buy or build summer homes here and come back to the state each year. The sums expended annually by them reach staggering figures.

Colorado's prosperity is bound up in the traveler to a very appreciable extent and every possible effort should be made by local and state authorities to make his stay here a pleasant one, for business reasons if for no other.

One way to insure permanent growth in travel in the state is the purchase of camping sites along every highway in Colorado to be held forever open free of all charge to the visitor.

Legislative action empowering county commissioners to take these steps should be taken at the coming session.

COUNTY ROAD SUPERINTENDENTS.

Under the present system of road building in Colorado, counties are often divided into three districts, each one under the supervision of one of the three commissioners. These districts are in turn sub-divided into as many as fifteen or sixteen sub-districts, each in charge of an overseer who has complete authority in his district under his commissioner.

As a result the county fund is distributed piecemeal and as each man has his own system a uniform result is not obtained.

The more modern plan entails the appointment of a county superintendent in charge of all roads under the three commissioners. The plan makes for greater flexibility and greater efficiency as those counties have found which have tried it.

County commissioners frequently have no time for thorough inspection of road work and centralized authority has achieved remarkable results where competent superintendents have been employed.

Denver Mountain Parks to Be Extended

By J. A. Burnett, Manager of Improvements and Parks, City and County of Denver

THE enormous increase in traffic to the Denver Mountain Parks during the last three or four years has convinced all that have been connected with the administration of these parks that further development must be systematized along two lines: an increase in the number of entrances to the parks, and in the number of spurs or detours leading to points now inaccessible to the average mountain park visitor.

During the first four years of mountain park development an area approximately four miles wide and nine miles long, lying between Clear Creek on the north and Bear Creek on the south, was opened to the automobilists, camper and picnicker. This region, which constitutes the keystone of all future mountain park development, may be divided into two sections. The Morrison gateway leads into the land of the picnicker and camper, for Bear Creek combines all the attractions of rugged mountain scenery with plentiful shade and water. The Golden gateway, leading up to the Lariat trail through Genesee and Fillius parks to Bergen park, carries more of a scenic appeal.

It is realized that this circle trip from Golden to Morrison by way of Bergen and Evergreen is approaching the stage where little further development in the way of added picnic grounds can be made. The City plans to acquire two or three small tracts between Corwina Park and Evergreen and has instituted condemnation suits for the purpose of acquiring these lands.

It has also newly completed a trail system starting at Beaver Brook on Clear Creek and running from there to Genesee Peak on the south and Colorow point on the east. The season of 1917 and 1918 showed that these main highways into the mountains were becoming crowded on Saturdays and Sundays to a point where it often causes inconvenience to the picnickers and campers themselves.

Scene on Lookout Mountain Road, Jefferson County

During the last two years a plan of expansion has been adopted that will relieve the traffic on the Golden-Morrison circle trip and, at the same time, give picnickers and campers access to more remote lands and to now what are practically unexplored creeks. Aside from the natural entrances into the front range at Golden and Morrison there are three additional canon mouths which may be utilized to draw people into the hills.

The first of these, Mount Vernon Creek, midway between Golden and Morrison, is nothing more than a subsidiary road or short cut to Genesee park. There is nothing in Mount Vernon canon that would attract the picnicker or camper. Throughout almost its entire length, from its mouth to the point where it joins the main Genesee Park road, the canon is denuded of trees, while the creek has no water of consequence in it during the hot summer months.

About four miles south of Morrison is the entrance to Turkey Creek canon. This could be developed into a mountain park gateway almost as popular as the Bear Creek gateway itself. Just beyond the west end of Corwina Park in Bear Creek the Parmalee gulch road branches off to the south, touches the corner of Dixie Mountain Park and connects with Turkey Creek.

Some three years ago the City began construction of a road up Myers Gulch to what are known as the Bear Mountain Tracks. These consist of two parks, Dixie and Bell park, lying on the slopes of Bear Mountain, which have never been developed by the City. Work was stopped on this branch road because title had not been acquired to the right of way, but the park authorities eventually expect to make this connection with Turkey Creek by way of Parmalee gulch and, at the same time, open for camping purposes these two unknown tracts south of Bear Creek.

Eight and one-half miles south of Morrison is the entrance to Little Deer Creek, a most attractive stream, well wooded and containing the finest waterfall within the Denver Mountain Park region. Within the last month Denver purchased forty acres at the mouth of Little Deer Creek, including some fine red rock formations. This purchase was made with the idea of development up Deer Creek and an eventual connection with Turkey Creek. Several more tracts of land in Little Deer Creek are under option by the City and will be acquired within a short time. County Commissioners of Jefferson county for some time have had under consideration the advisability of constructing a road up this creek, having been deterred by the problem of passing the waterfalls without too steep a grade.

Development of the Turkey and Little Deer Creek sections will open to the motorist some of the most beautiful scenery in the mountain park area and, at the same time, afford camp sites well supplied with shade and water.

While Clear Creek on the north will always remain the main railroad entrance into the Rocky Mountains west of Denver, so precipitous and continuous are the cliffs from Golden to Idaho Springs that development of this gateway for automobile or wagon traffic is entirely out of the question.

A second development work of prime importance is the construction of the road from Bergen Park to Squaw Pass or, as it

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Road Work and Road Builders the State Over

CAPTAIN Robinson of the Australian overseas contingent was in Denver last month and made an inspection of the mountain park system. He is going back to Australia to engage in road work and said before leaving that the roads here were surprisingly good.

L. M. Markham, county clerk of Prowers, was in Denver to attend the meeting of the legislative committee of the State association of county commissioners. Among others here at that time were R. G. Webster and H. G. Tiffany of Adams, S. H. Stream, G. F. B. Hood and James P. McInroy of Douglas, B. A. Banta of Colorado Springs, Robert Young of Huerfano, J. M. Graham, Harris Akin and C. M. Garret of Larimer, J. W. Thompson of Pueblo, and T. Elmer Rowe of Greeley.

A committee from the Civic and Commercial association of Denver waited upon Commissioner Ehrhart to discuss the construction of the Fall River road.

The August issue of Public Roads, the official organ of the U. S. Office of Public Roads, has a view of Mt. Hope, Colorado, as its frontispiece, together with a full page photograph of Turkey Creek on an inside page and an article on Maintenance, by Commissioner Ehrhart.

G. V. Hodgin of Fremont county, was in Denver recently, to confer with state highway department officials about plans for the opening of the Phantom Trail road August 30. Commissioners of Fremont county look upon this road as their masterpiece and are planning a great celebration for the formal opening.

Commissioner Lindstrom of Summit, was in Denver in regard to work on the roads in Summit county. The board is interested in improving the road from Dillon to Climax to take care of heavy ore shipments, while the Lake county commissioners are planning to improve the highway from Leadville to Climax.

Mr. Leonard E. Curtis of the Highway Commission, estimates that damage amounting to $50,000 has been done on the roads of El Paso county by heavy rains during the past few months.

James E. Maloney, chief engineer of the state highway department, made a trip of inspection on the roads of southern Colorado during the month.

Major Boyner of the Bureau of Military Information of the War Department, was in Denver recently to see Commissioner Ehrhart regarding war information which the department is collecting.

Plans for a branch extension of the Holy Cross way from Leadville to the mining camp of Climax have been taken up with the department by B. H. Martin, county commissioner from Lake. The heavy increase in molybdenum shipments for war purposes has made necessary improvement in the highway. The road will eventually be made a connecting link between Leadville and Breckenridge.

Road Superintendent F. S. Williams, representing Hinsdale county commissioners, was in conference with the commissioners during the past month to see about opening up the road from Creede to Lake City. It is estimated that $3,600 will make this highway travelable. The stretch referred to is a connecting link from Creed thru to Gunnison and would furnish the entire southwest with a northern outlet.

Commissioner Robert Young of Huerfano, is making arrangements for the widening of the road beyond La Veta toward Ojo. He is also working out plans for a better gateway into the town of La Veta from the west.

Thomas S. Reavis has been appointed county commissioner of Archuleta to succeed John L. Dowell, who died in July.

Boulder county commissioners have been kept busy making improvement on the main north and south highway during the past month. The road was badly cut by heavy rains.

Alfred Ogle of this department has accepted a position in the U. S. Reclamation service.

Chief Inspector W. W. Whitmore is recovering from an injury sustained when his machine was forced off the road by a fast moving car near Morrison.

A joint celebration commemorating the opening of the Grand Mesa roads was held at Alexander Lakes, August 24. The road extends from the junction with the Midland Trail at the Atwell bridge over Plateau creek to the junction with the Rainbow route at Delta.

The scenic attractions of this route are considered superior to those of Yellowstone park, and those who have motored from Maine to California are agreed that for an outing it is unexcelled by anything that they have seen along the entire route. While only a small portion of the remakable scenery of the Grand Mesa, dotted with more than a hundred lakes stocked with mountain and rainbow trout, can be seen, it is contemplated that a circle route may be constructed in the future making a skyline drive that will have few equals in the world, skirting the edge of the Grand Mesa and bringing into full view the Grand Valley in its entirety.

The program was in charge of the Delta and Mesa county commissioners and there was a large turnout.

Judge Carpenter of Montezuma county, was in to talk over contracts and finances concerning roads in his county.

Gus Johnson of Jefferson, has taken up the question of the surfacing of the North Golden road and the grading of the road north of Arvada.

H. A. Edmonds, a leading member of the Good Roads association of Ft. Collins and Larimer county, and O. J. Watrous of the Fort Collins Commercial Club, are making arrangements for a Labor Day picnic in the Cache La Poudre canon, at which Governor Gunter will speak on the subject of "Highways." Members of the highway department have also been invited to attend.

The Road Maker of Chicago used the photograph of Mt. Evans printed in the August issue of The Bulletin, as their first page illustration last month.

Requests have been received from many trade publications for photographs and publicity matter about Colorado roads. These will be furnished gratis by the publicity department.

Route of the D. C. D. Highway

(Continued from Page 15.)

The recent meeting at Lamar decided to put its secretary and manager in the field for a year, starting August 1st, and for the purpose of giving out D. C. D. propaganda in the coming year a fund of $5,000.00 will be provided.

Mr. D. J. Young, president of the First National Bank of Canadian, Texas, is president of this association.

Mr. W. A. Palmer, lawyer, secretary of the Canadian Chamber of Commerce, was made secretary-promoter at the first organization meeting, the title being changed to secretary-general manager at the recent Lamar meeting. The president and secretary, together with Mr. R. A. Singletary of Oklahoma City, are now on this highway looking after its interests.

Road Program Far Exceeds Appropriations

Highways Must Be Lifted From Mind, Says Highways Industries Association

THE total public road mileage of the United States as shown by Bulletin No. 390, Department of Agriculture, January 1, 1915, was 2,445,760 miles; in 1909, 2,199,645 miles; an increase in five years of 246,115 miles, or an average increase of approximately 50,000 per annum. Taking the increase as uniform, which is not probable, the total mileage by January 1, 1919, will be 2,645,760 miles, or more likely 2,750,000 miles. There had been surfaced at the end of 1909, 190,476 miles and at the end of 1914, 257,291 miles. Appronimately 67,000 miles in five years or 15,000 miles per annum. This clearly shows that we are opening up new roads each year the mileage of which is three times greater than the mileage surfaced, and without making any provision for 2,500,000 miles of roads heretofore opened up and yet to be improved.

To improve the present road mileage and allowing for no increase, at the rate of construction as shown from 1909 to 1915, would require 166 2/3 years.

Granting that there are many miles in the total given that are not of a sufficient recreational or commercial value to justify a considerable expenditure for their improvement, no one can contradict that at least 20 per cent of the total mileage should be improved. At the rate per annum heretofore made, it would take 33 years to complete this 20 per cent, not providing for the improvement of the inevitable increase in mileage daily coming into importance, the improvement of which would so greatly affect the material welfare of our people.

Those who are interested in highway promotion improvement, and the use thereof, can profitably give some thought and time to this important subject which is the foundation of all successful highway industry.

The Blue River, Summit County.

Our highways must be lifted "*out of the mud,*" and we must be up and doing and add at least three times as much fuel as heretofore has been used to the smoldering embers.

The following is a copy of a resolution that was adopted at a meeting called by the Virginia Council of National Defense at which were present citizens from 24 counties and nine cities:

"RESOLVED, That this meeting hereby recommends the adoption by the National Government of a definite highway policy, and the establishment of a national highway system; this system to include only the main arteries of travel of the nation, and to be constructed and maintained by the National Government."

Below is a copy of a resolution adopted by the National Real Estate Board at their Eleventh Annual Convention held in St. Louis in June, 1918:

"WHEREAS, adequate and permanent highways are essential to the Nation, both in times of peace and in times of war;

"BE IT RESOLVED, That this Convention does strongly recommend the construction of one or more government built and government inspected transcontinental highways, from coast to coast, with adequate lateral highways, from the northern to the southern boundary of this country;

"BE IT FURTHER RESOLVED, That we recommend to the government the creation of a permanent Highway Commission, for the purpose of preparing plans for the construction of a National Highway System immediately after the termination of the world conflict, and

"BE IT FURTHER RESOLVED, That we hereby tender the service of the Realtors of America in assisting such National Highway Commission."

The History of Road Building in Colorado

By F. L. Bartlett, Chairman Good Roads Committee, Civic Association

(Continued from last month)

At this convention four road bills were drawn and presented to the legislature, the two most important ones being for a ten million bond issue and the turning over the Internal Improvement Fund to the Highway Commission. The ten million bond issue passed and was referred to a vote of the people, and was lost. The Highway appropriation bill was amended and after the Legislature had made 93 special pork barrel appropriations from the Internal Improvement Fund, the remainder of the fund was turned over to the Highway Commission under the well known Bill No. 200. Governor Shafroth vetoed the 93 special road bills, thus turning over the entire Internal Improvements fund to the Highway Commission. Immediately the validity of the bill was assailed and the bill was fought through the courts and finally pronounced invalid by the Supreme Court on a minor technicality. Thus again the State Highway Commission was left without funds and the money then amounting to over $800,000 was left in the banks. Bill No. 200 was then initiated and referred to a vote of the people and lost by only a few votes.

Meantime, the Good Roads Association of Colorado, having become a permanent association took up and by its various committees succeeded in finally securing in 1913 adequate road legislation, thus ending a fight which was waged for eight years by a mere handful of good road enthusiasts.

This history would not be complete without some reference to the convict labor question, which while it did not originate in this state, was worked out by us to completeness which is now an object lesson and an example for all other states to follow. I don't suppose that it is generally known that our present Highway Commissioner, T. J. Ehrhart, is responsible for the first bill for convict labor on our roads. This bill was passed in 1899 through his exertions, for a convict built state road between Pueblo and Leadville. Considerable work was done on the road by the convicts from the State Penitentiary and from the Reformatory at Buena Vista.

In the same legislature Senator Ed. Taylor got a similar bill through for a state road between Denver and Grand Junction. No work, I believe, was done under the Taylor Bill. In 1905, Senator Lewis from Fremont County got another bill through for convict work, and in 1907 Senator Barela got another one through for a convict built state road extending from the New Mexico State line south to the Wyoming state line north.

The Lewis Bill, however, with some amendments is the one under which our convicts are now successfully working. Work began under the Lewis Bill in the summer of 1905, on the famous "Sky Line" drive at Canon City, and to Warden John Cleghorn belongs the credit of developing the system of working convicts without gun guards. I quote from his letter dated September 18th, 1906, read at the Denver Good Roads Convention, of that year:

> "We have been working on an average of seventy-five convicts on the roads in this county (Fremont), under the provisions of the Lewis road law, for more than a year, without gun guard or other protection aside from the overseers in charge of the work. Not one attempt to escape has been made by any member of these road gangs during this period, and it seems to be the ambition of a large percentage of the inmates to attain a place on the road gang. In accordance with the terms of the Lewis law the penitentiary commissioners adopted rules allowing additional good time to each prisoner employed on the roads, and this fact, together with the change from prison conditions afforded by the outside work, seems to serve as a great incentive both for faithful service and good conduct."

Work on the "sky line" was followed by work on the state road between Trinidad and the New Mexico State Line in 1908, and today the camps are employed in five counties, the commissioners paying the expenses of the men while on the roads.

(This installment concludes Dr. Bartlett's interesting history. Next month, however, The Bulletin will print a supplementary article now in course of preparation by Dr. Bartlett, on "Road Work Under the Highway Commission.")

Mountain Parks of Denver to Be Extended In Future

(Continued from Page 17.)

is more commonly known, the Mount Evans road. In reality the Mt. Evans drive will not commence until Squaw Mountain has been passed, but the importance of this road lies in the fact that it will constitute the connection between the City Mountain Park system and the proposed Denver National Park, when Congress shall have created it by law.

The City has acquired the right of way along this road and proposes to buy from the government one or more tracts for the accommodation of campers and picnickers.

At present there is a rough mountain road running from Idaho Springs to Squaw Pass. From there it descends to Bear Creek by way of Vance Creek. While this road is frequently traveled by motorists it is not advisable to attempt the trip unless the driver is an experienced mountain traveler. Between Idaho Springs and Squaw Pass the road, in places, reaches grades of twenty-two percent, and it requires a skilled motorist with a cool head to negotiate this cutoff.

The City has completed a survey from Squaw Pass to some very picturesque cliff formations on one of the shoulders of Squaw mountain, at an approximate altitude of 10,300 feet. This spur, when constructed, will be three and one-half miles long and will give the traveler a more impressive mountain view than any that may now be found on the present mountain park roads. The United States Forestry Service has a tentative agreement with the City to construct this spur from the point where the Pike National Forest boundary line crosses the survey and, unless the war prevents the construction of any roads devoted to scenic purposes, the spur will probably be built next year.

The Colorado Highways Bulletin already has given an insight into what is meant by the Mt. Evans Drive. The construction of this, of course, is dependent upon whether the National Government will create from the Mt. Evans region the proposed Denver National Park. As the Denver Mountain Parks system is superior in scenic beauty and inspiring vistas to the city parks, so is the Mt. Evans area superior to the Denver Mountain parks. The construction of the Mt. Evans drive, however, is a project upon which one only may speculate.

The plan is well matured and, if the war is brought to a speedy conclusion, the next few years will see a development and an increased use of the mountain parks system that will fulfill the inspired dreams of those who originated the mountain park amendment.

The Blue Lodge of Colorado Road Builders

WHENEVER mention is made of a road project thru solid rock today, engineers begin to sharpen their pencils to a point which will enable them to bear up under the strain of hundreds of thousands of dollars. Tell them that you know of a nineteen mile stretch of road, most of it thru heavy rocks, all of it difficult, which was built for a total cost of $21,000 and you are likely to find your auditors registering incredulity, not to say some fear for their safety in your presence.

Yet there is today a stretch of road of just that character and length in the State of Colorado, which was constructed for precisely $21,000 down to the payment of the last water-carrier who worked on the job. And if you desire further particulars the Bulletin respectfully refers you to T. W. Monnell, sometimes and more popularly known as "Tony," under whose supervision and authority that piece of road was constructed. Further, as Mr. Monnell will tell you, the sum remains as the undoubted, undisputed world's record for cheap construction in road work.

T. W. Monnell

The road project from Montrose to Gunnison was first conceived by Mr. Monnell, Nicolaus Crome, Newt Davis, and John W. Lamb of Montrose county. At that time the insurmountable feature of the work appeared to be Blue canon because of its precipitous walls, and while Gunnison county officials were in favor of the project they were divided as to its feasibility.

Montrose was settled in its conviction, however, so a crew was organized, a camp started and the work was begun with Mr. Crome in charge of construction and Monnell handling the commissary. Popular subscriptions netted the cost of the road from the Montrose line to the Blue canon and so well was the work done that Gunnison asked the same officials to continue in charge and to push the work thru.

Inspired by a desire to be connected with the outside world, the county went to it. A majority of the men in the crew lived in Montrose or Gunnison with their families and they worked untiringly for long hours. Stockmen furnished meat for them at cost and farmers did the same for them with grain and produce. A carload of powder was used, the 19 miles were pushed thru and the road opened. Today it is in superb condition and today, were it to be duplicated, the cost would be something like $21,000 per mile.

Work on this road is only a part of the effort Mr. Monnell has given in his lifetime to roads.

He has been county clerk and recorder of Montrose county for 20 years as well as secretary-treasurer of the Colorado State association of County Commissioners. He was one of the leaders in the movement for a highway law and has always been to the forefront where road laws were under discussion.

Aside from his work on the Gunnison road he turned another almost impassable stretch into a highway from Paradox valley over the divide to La Salle creek, whence the highway joins the Utah state thru conections at a point now used for some thru travel which will be greatly increased as soon as the Utah end of the highway is placed in better shape.

He has made a beginning on the road from Naturita down the San Miguel river. This road will follow water grade into Paradox valley and on to Utah, escaping a 16-mile stretch of sand and opening up vast fields of carnotite ore. This highway is today used for hauling the product of 500 miners out and as 90 per cent. of the uranium used in the airplane industry comes from that point, the route may well be designated as one of the arteries of Uncle Sam's war industries.

Financial and labor conditions have been such as to make inadvisable final work on the road, but it will be pushed to completion once normal conditions are restored. Sixteen miles remain to be built and when finished they will open up one of the scenic wonders of the world. It was on this work, incidentally, that Nicolaus Crome lost his life, September, 1916, and a monument now marks the place where he was killed.

Finally, in 1917, when the heavy fall traffic of crops made the road from Montrose to Olathe impassable he secured funds for a heavy coating of gravel which was laid as the frost was coming out.

In all of these projects the funds of state and county alike were far from adequate and it was necessary to raise the funds for the work by subscription.

Mr. Monnell is a firm believer in the policy of no county lines in road work and in all of his activities has kept in mind the need of an uniform development of the entire western section of the state.

How well he has worked is best evidenced in the story of his accomplishments.

Highway News and Notes on Work in Field

CONTRACTS for a stretch of hard-surfaced road on the Brighton highway and three miles of improvement on the D. C. D. highway between Lamar and Springfield were let by the state highway department during the past month. A third job of approximately $60,000 was advertised, but not a single bid was received.

The Brighton road improvement consists of an 18-foot concrete pavement beginning at the Burlington subway and ending at the roadhouse, a distance of 1.71 miles. The road will have four-foot gravel shoulders on either side and the contract also calls for the repair of the Sand Creek bridge. The job was awarded to Arthur Hewitt, whose unit bid, amounting to a total cost of approximately $39,000, was several thousand dollars below the next bid.

The Lamar-Springfield contract is listed as Federal Aid project No. 6. It covers a stretch of road 3⅛ miles long and includes grading, culverts, bridges and surfacing. The contract was let to Ford and Filoon, who were the only bidders for the work. Their price was within the engineers' estimates.

The other contract was for Federal Aid project No. 3 and consisted of the grading of 11½ miles of road between Granite and Twin Lakes. The work included culverts, two bridges and about 8,000 yards of concentrated rock work. Under normal conditions there would be some ten or fifteen bids for the job. Today not a contractor wants the work because of unsettled labor and cost conditions.

No further effort will be made to handle the stretch pending a court decision in the junking of the Colorado-Midland railroad. Should it be decided that the right of way shall be abandoned it will be possible for the highway department to utilize a section of the road, which will save practically all of the rock work now contemplated.

Interest in the work on the Fall river road has been revived during the month by trips made up the Pass by representatives of the Civic and Commercial association of Denver, Governor Gunter, and others.

At the present time contractors on the eastern slope have roughed out the road to a point two miles from the summit. On the Western side Contractor McQueary has completed the more difficult three miles of his stretch of 5½ miles, and there still remains to be completed a stretch of six miles from this point (Milner pass at Poudre lakes) to Chapin creek.

Coincident with these trips, there has been a revival of the old discussion as to which route is the better, the so-called lower pass or Huntington line, or the upper or Tufts survey. The matter was thoroly investigated before final surveys for the road were made last year and at that time the lower pass was decided upon. Work is already under way on the lower pass road and any change made now would involve the loss of money, labor, and time expended on the work.

The lower line was decided upon for three reasons: (1) It is open for travel for a much longer period each year than the upper and is much freer from snow and electrical disturbances; (2) The cost is about $60,000 less; (3) Connections can be made from the lower pass with the Poudre valley road.

Work on the road could be completed this year if labor could be obtained, but to date neither contractor has been able to get anywhere near a full complement of men.

Total cost of the highway from Grand Lake to Estes Park is estimated at about $182,000, which includes the twelve-mile stretch from Grand Lake to the foot of the Western pass.

The concrete crew on the Denevr to Littleton road is now well beyond the Fort Logan junction and working ahead rapidly when weather conditions are favorable.

A new entrance to Rabbit Ears pass is being made by the U. S. Forest service. The road will eliminate a steep approach to the pass from the Western slope and will carry the traveler out on the front hills of the range, giving him a splendid view of the valley all the way to the crest.

The highway department has been asked to pass upon all requests for transportation of road materials whether in cities, towns or counties in the state, by the oil administration of the United States. No permits will be issued by the government for transportation of such materials without the "O K" of this department.

Contractor McDonald has completed 150 feet of concrete work on the new 600-foot concrete bridge across the Platte river out of Greeley. Work will be pushed as soon as needed steel shipments are received.

Bids will have been opened before the publication of this issue of The Bulletin for the 21-mile stretch of the road from Rifle to Meeker, which comes under the Federal Aid act. Engineering estimates are placed at $78,000.

Federal Aid project No. 5 on the San Miguel between Placerville and Norwood has been withdrawn as the road has been completed by state and county. Surveys have been completed and the state is now ready to submit plans and specifications for final approval on the road from Norwood to Naturita, a continuation of the other project.

Final plans and specifications have been submitted to the U. S. Office of Public Roads for approval on the Federal aid project from the Pueblo county line to the New Mexico border, a distance of 70 miles on the main highway.

The Phantom Trail canon, one of the finest roads in the country, is open for travel and as this issue goes to press the date for formal opening was set for August 30. The highway passes over 45 bridges in 20 miles on railroad grade. A complete account of it will be published in the October Bulletin.

Heavy rains kept road men busy in all sections of the state last month. All of the main arteries were cut up, but effective maintenance has kept the way open for traffic everywhere.

Spanish Trail---Mesa Verde Meeting

(Continued from Page 5.)

music. After dinner, the entire party motored 9 miles to Trimble Hot Springs, where dancing was indulged in until past midnight. Durango did herself proud in the entertainment of her visitors, while the visitors were all appreciative.

The next day, nearly every visitor and a large number of local people motored to the Mesa Verde National Park, the ancient dwelling place of the most famous of all pre-historic Cliff Dwellers, each year the mecca for thousands of interested sightseers. Returning, a considerable number journeyed to Electra Lake, on the new Durango-Silverton highway (now under construction) and enjoyed fishing and motor boating on Colorado's largest body of artificial water.

Both Secretary Chas. E. Hall of the Durango Exchange, and Secretary E. P. Wilson, of the San Juan Motor Club, the organizations under which the program and entertainment were staged, in speaking of the convention, stated that the follow-up results of this splendid meeting were certain to be the most far reaching of any similar meeting ever held in southwestern Colorado, for it brought together the virile forces of two aggressive sections of the southwest, each willing to assist the other in a comprehensive scheme of mutual community advancement, and those forces are certain to materially assist in bringing deserved recognition to this region.

The next annual convention will be held in Monte Vista.

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