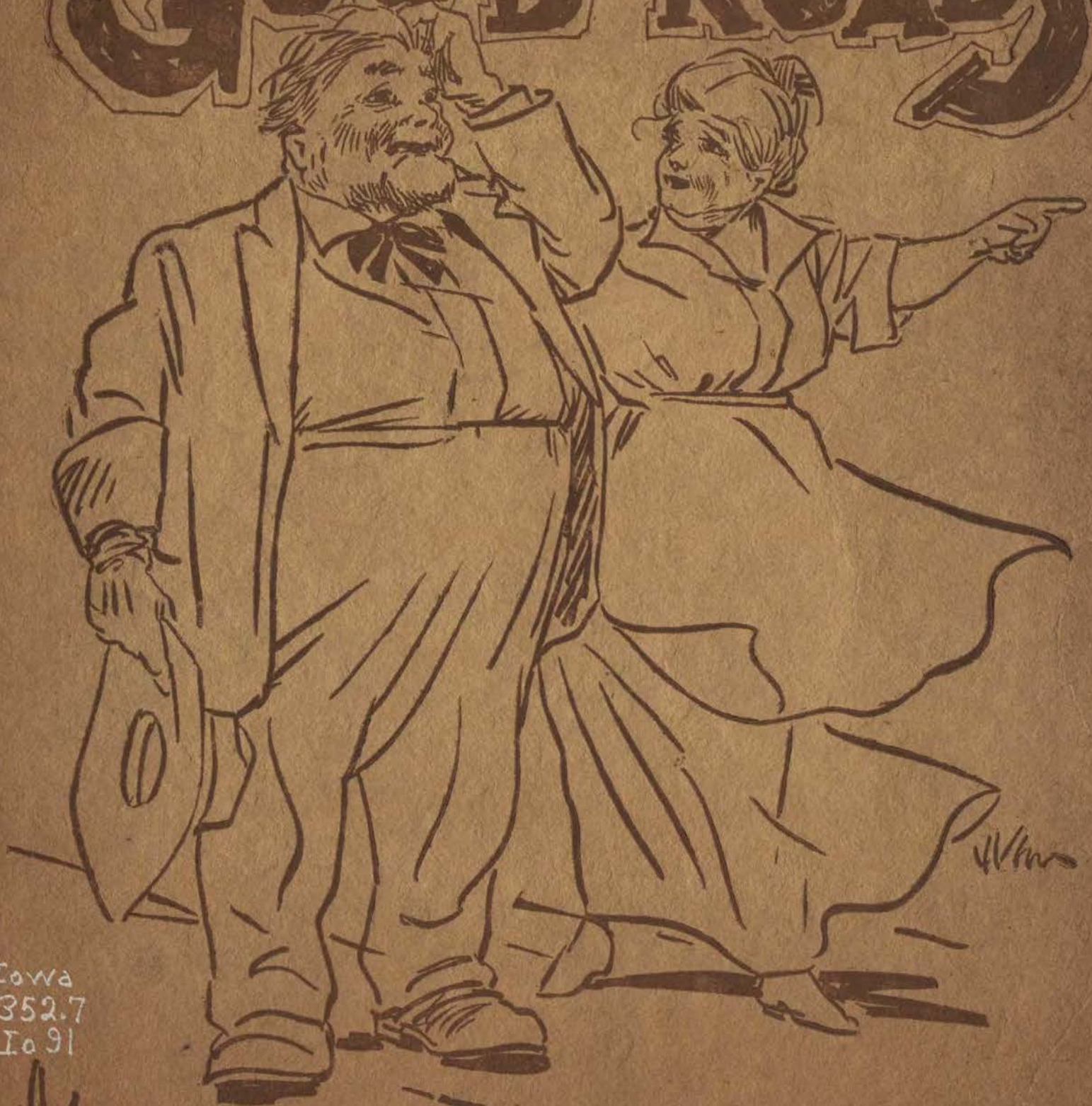


THE WAY TO GOOD ROADS



Iowa
352.7
Io 91

Sh

Sh

Iowa
352.7
1091

Iowa Highway Comm.
Iowa and her roads
(on cover: The way to good
roads)

P.A.M.

TRAVELING LIBRARY
OF THE STATE OF IOWA

To communities, and schools, books for re-
loaning are loaned for a three month's period. To
individuals and to clubs for study use, books are
loaned for two to four weeks.

Borrowers are requested to return the books as
soon as the need for them is passed, and *always*
when books are due. Where books are re-loaned,
fines may be charged by the *local* library and re-
tained when the books are returned.

DAMAGES. The pages of these books must
not be marked and librarians are required to note
the condition of books when loaned to borrowers
and when returned by such borrowers and to re-
port damages beyond reasonable wear to the State
Traveling Library.

10M-SE-98



Good Roads Committee, Iowa Federation of Womens' Clubs

Mrs. Henry Taylor, Bloomfield, Chairman.
Mrs. Harvey Ingham, Des Moines.
Mrs. W. C. Burleson, Webster City
Mrs. E. H. Spaulding, Grinnell.

Iowa Highway Commission

A. Marston, Chairman, Ames.
J. W. Holden, Scranton.
H. C. Beard, Mt. Ayr.

"One of God's real women can arouse more interest for a
decent undertaking than twenty of us men."

—W. E. Hopkins.

OCT 24 45

MAY 18 1973

23924-1
MAY 1918

Iowa and Her Roads

Short Study Course Prepared by the Iowa Highway
Commission for the Good Roads Committee of
the Iowa Federation of Women's Clubs

CONTENTS

Ding's Cartoon	Frontispiece
The Romance of the Road..... Gustav Stickley	3
The Happiest Man in Iowa..... Rupert Hughes	5
Good Roads and Community Life..... Prof. John E. Brindley	6
The Supervisor	17
Tentative Plan for Working Committees.....	18
Street and Roadside Planting..... P. H. Elwood, Jr.	19
The Iowa Road Law.....	22
Questions on the Road Law.....	29
The Old and the New.....	30
The Club Woman's Creed.....	31
Local Road Officials	32

STATE OF IOWA
DEPARTMENT OF GEOLOGY

June 7
1903
H. C. ...



SIXTH STREET BRIDGE, MASON CITY, IOWA



On the Waubonsie Trail

The New Romance of the Road

BY GUSTAV STICKLEY

It may be that romance, like sun spots and panics, has its law of periodicity, although the fact has not yet found a place on the textbooks of any of the exact sciences. It is at least certain that the recorded story of man's life on this spinning planet is marked at intervals by "purple patches" of intenser meaning, periods of expansion during which the adventurous spirit forced new doors of experience in response to the lure of strange landfalls and the glimmer of more distant horizons. Sometimes the dominant motive, the vital force which blossomed to leave us the splendid heritage of a romantic period, was the sane and hardy spirit of commerce. This was the genius which filled the sails of the Phoenicians and guided their prows across unknown seas to intercourse with stranger peoples. It was this, together with the glint of legendary gold and the splendid spur which the voice of adventure drove the oaken keels of Queen Elizabeth's day westward toward the beckoning possibilities of the New World, as well as south and east toward the jewels and spices and ivory of Africa and India. On the other hand, it was an abstract idea of religious loyalty which drew the flower of Europe's chivalry into the long and arduous adventure of the Crusades, enriched history with another period of romance, and widened intercourse and understanding between alien branches of the human family. And the history of literature, like the history of life, records its periods of romantic revival, eras when the heart of man seems to live more intensely, to surge more resistlessly toward new spiritual experiences, to demand of its surroundings room for a fuller and more complete existence. Backward toward these various Golden Ages of our story turn the longing

thoughts of many a poet who lacks the virility of vision to see that for all the splendor of past sunsets there is ever a more glorious day breaking in the east.

The past, of course, is our splendid and stimulating heritage, but in the future lie the promise, the inspiration, the fulfilment of the dream. We look backward, and, thanks to the elimination time effects, the more vivid and glowing incidents in the long tale of human passions and aspirations, of sometimes blind and sometimes inspired gropings and stumblings, fall easily into the colors and pattern of romance. Or we look far forward with the eye of speculative imagination and recognize romance in an age of man's complete mastery over the forces of nature, when Science shall have won the final battle in that warfare with time and space in which the telephone, wireless telegraphy and the aeroplane already mark the capture of commanding positions. But in the present in which we love and work and dream, a multitude of details fills our field of vision, so that romance may be weaving on a world-wide scale and our eyes fail to recognize the pattern.

So it is with us today in these United States of America. In this case the shuttle that weaves the unseen pattern, the warp and woof being our city and our country communities, is nothing more than a mechanical invention, already a commonplace feature of our highways and byways, whose scurrying to and fro the country has watched now for years with observant and interested and sometimes hostile, but withal uncomprehending, eyes. For ever since the motor car became, in this country, not a curiosity and an experiment, but a practical vehicle—the press has been garrulous in regard to it. But the topics discussed have been such

minor ones as the dangers and evil of "joy-riding," the automobile as an incentive to the making of good roads, its tendency to bring to the surface the latent arrogance and selfishness of its driver, or its probable disruption of the long-established relations between man and the horse.

Hitherto the chief physical link between town and country has been the indispensable but at best impersonal bond afforded by the railroads. Now the automobile is bringing the successful city man, with his restless dreams and ambitions, back into the country for the living of his real life and the rearing of his children. Although the problem presented by the constant drift of the unemployed and inefficient into the fiercer struggle of the cities remains to baffle the political economist, we see on the other hand a tide setting country-ward among the overemployed, highly trained, resourceful and efficient heads of city families, men of fertile ideas, keen-eyed for the passing opportunity, and not blind to the finer values and the pleasures of life when their affairs give them a chance to perceive these.

The man of affairs, who thinks far enough into life to wish that his children should have of it the real best rather than the false best that it has to give—is building his real home in the country—the country beyond the immediate circumference of the railway station, now for the first time made vastly and quickly accessible by the automobile—and some of his interest is being diverted from his desk to take root in the soil. Thus, if he brings to the country-side the tonic influence of his enterprise and ambitions, he learns also to ask of it advice and help in meeting the problems of his new life which are strange to him, and he learns to accept silently and understandingly the spiritual sustenance and solace that the wind-swept stars, the winding road, and the widespread meadows have to give.

The fact that what this type of city man gains consciously and thankfully from the new life thus opening up to him is at least the equivalent of what he unconsciously gives in the way of general stimulus only strengthens the ground of our optimism. For that is a bargain after the finest pattern by which both parties are benefited, and it is by such spiritual commerce that life enlarges its boundaries. And if this contact stings the country into keener interests and new activities, it also guarantees to the children of those city parents who follow this summons Edenward a heritage of treasures incorruptible in the impregnable storehouse of Memory. For no garden of wonders revealed to Aladdin ever bore fruitage of joys more many-colored and unfortable, no shadowed paths of fairyland ever shimmered through an atmosphere of magic more enthralling, than do the remembered fields and streams and woodlands of our childhood, and the pathways once familiar and forever alluring. Will the scattered brood from one gray old farmhouse ever forget the hard rolling roadway that led past the willows at the bubbling spring to

the upland pastures and the maple groves, the graveled walks among the jeweled currant bushes and tapestried flower-beds of the old-fashioned garden, or the trail worn by the cattle down through the alders to the lush green solitudes of the wild meadow?

Not only is the automobile teaching us what England long ago learned, namely that only in the country is home life in the best sense possible, but it is also bringing back to travel something of the intimacy and romance which characterized the old days of the stage-coach and wayside inn. Already the purposeless lolling life of the summer hotel feels its unhealthy calm ruffled by a rising wind of change, and the desire to go somewhere and do something is cutting into the daylong inertia induced by the hammock and novel. Now, after a meal at a wayside inn—a meal to which we bring appetites blown keen by the buffeting air—we return to our car and take up the trail of new adventures, following a road with the same loving excitement with which a canoeist explores a new stream. Thus the road to the true automobilist, like the stream to the born canoeist, is always a thousand times more than a mere available way of reaching the next stopping place. It becomes the pathway of adventure, the thread along which may be strung who knows what passing but memorable human encounters, what sudden responses to Nature's moods of beauty, what unforeseen possibilities of interest and stimulation! The most matter-of-fact highway, when we make its acquaintance through the good auspices of the automobile, may well be followed with confident expectancy of new beauties to be revealed at every turn and dip and rise. And that we can know our country by the hundreds of miles as intimately as we formerly knew it by the mile, the "lure of the road" becomes a phrase of new force and meaning, concerning which the millionaire may be able to compare notes with the tramp.

With the romance of the road thus revived, with the men of the cities and the men of the country rediscovering one another on their human and spiritual sides, there has followed, of course, a period of better road-making, of more scientifically constructed highways for the facilitation of this intercourse. A great book which still awaits an author will tell the story of the roads man has builded for his needs, and this, when written, will be the history of human civilization. The indestructible causeways Rome laid for the feet of her armies, the trails blazed by our own pioneers between settlement and settlement, and the impersonal but potent ribbons of steel and timber by means of which our railroad builders link ocean to ocean and whisk their millions back and forth across the continents, are all factors in the great process by which the human race will at last emerge through many misunderstandings upon the table-lands of sane brotherhood and quiet wisdom. And not least will be the part played by the automobile.

The Happiest Man In I-o-way

BY RUPERT HUGHES

(Reproduced, by permission, from Everybody's Magazine.)

Jes' down the road a piece, 'ith the dust so deep
It teched the bay mare's fetlocks; an' the sun
So b'ilin' hot, the peewees dassn't peep
Seemed like midsummer 'fore the spring's begun!
An' me plumb beat an' good-fer-nothin'-like
An' awful lonesome fer a sight o' you . . .
I come to that big locus' by the pike,
An' she was all in bloom, an' trembly, too,
With breezes like drug-store perfumery.
I stood up in my stirrups, with my head
So deep in flowers they almost smothered me.
I kind o' liked to think that I was dead . . .
An' if I hed 'a' died like that today,
I'd 'a' be'n the happiest man in I-o-way.

For whut's the us't o' goin' on like this?
Your pa not 'lowin me around the place . . .
Well, fust I knowed, I'd give them blooms a kiss;
They tasted like Good-Night on your white face.
I reached my arms out wide, an' hugged 'em—say,
I dreamp' your little heart was hammerin' me!
I broke this branch off for a love-bo'quet;
'F I'd be'n a giant, I'd 'a' plucked the tree!
The blooms is kind o' dusty from the road,
But you won't mind. And, as the feller said,
"When this you see remember me"—I knowed
Another poem; but I've lost my head
From seein' you! 'Bout all that I kin say
Is—"I'm the happiest man in I-o-way."

Well, comin' 'long the road I seen your ma
Drive by to town—she didn't speak to me!
An' in the farthest field I seen your pa
At his spring-plowin', like I'd ought to be.
But, knowin' you'd be here all by yourself,
I hed to come—for now's our livin' chance
Take off yer apern, leave things on the shelf—
Our preacher needs what th' feller calls "romance."
Ain't got no red-wheeled buggy; but the mare
Will carry double, like we've trained her to.
Jes' put a locus'-blossom in your hair
An' let's ride straight to heaven—me an' you!
I'll build y' a little house, an' folks 'll say:
"There lives the happiest pair in I-o-way."

Good Roads and Community Life

- CHAP. I: Indian Trails Become Pioneer Roads.
- CHAP. II: Iowa's Road Legislation Natural Outgrowth of Road Development.
- Model Law for Other States.
 - Commission System Logical Outgrowth.
 - Duties of Township Trustees.
 - Naming of Road Superintendent.
 - Making Road Levies.
 - Jurisdiction over Township Road Superintendent.
 - Duties of County Supervisors.
 - Naming of County Engineer.
 - Classifying County Road System.
 - Jurisdiction over County Road System.
 - Building of all Culverts and Bridges.
 - Levying of Road and Bridge Taxes.
 - Duties of Highway Commission.
 - To Devise Plans for Highway and Bridge Construction.
 - Disseminate Information.
 - Make Report to Governor.
 - Make Investigations.
 - Supervise all Bridge and Highway Improvements.
 - Make Railway Crossings Safe.
 - United States Office of Public Roads.
- CHAP. III: Road and Bridge Finance Under the New Law.
- Township Road Levies.
 - Road Poll Tax.
 - Repairs.
 - Maintenance.
 - Dragging.
 - Drainage.
 - Install and Maintain Temporary Culverts.
 - County Road Levies.
 - Drainage.
 - Road Building.
 - Permanent Road Districts.
 - Floating Indebtedness.
 - County Bridge Fund.
 - No State Aid Tax Ever in Iowa.
 - New Road Law Protects the Taxpayer.
 - Equitable Distribution of Road Tax Moneys.
 - All Expenditures of Road Tax Moneys.
 - Highway Commission Must Supervise.
 - High Standard of Work Assured.
 - Engineers Must Approve County Bills.
 - Engineer Liable on His Bond.
 - Superintendent Must Approve Township Bills.
 - Officials Debarred from County Contracts.
 - Uniform System of Reports.
- CHAP. IV: Good Roads Necessary to Improved Community Life.
- Rural District and Consolidated Schools.
 - Rural Social Center and Country Churches.
 - Wagon Roads Are Farmers' Railroads.
 - Beautifying the Roadside.
 - Weeds Actual Detriment to Roads.
 - Cost of Hauling Decreases Profits.
 - Hundred Thousand Miles of Wagon Roads in Iowa.
- CHAP. V: Commission Supervisory System Definitely Place Responsibility.
- Township Officers' Powers Increased.
 - County Supervisors Have Greater Jurisdiction.
 - Uniform Statewide Policy of Road Improvement Possible.
 - Commission Costs Fraction of 1% of Total Road Expenditure.



Boone and Story Post Road

Good Roads and Community Life

BY J. E. BRINDLEY

Professor of Economic Science at Iowa State College

WHEN the pioneers of Iowa appropriately referred to improved highways as "Farmers' Railroads," they expressed in a concrete and striking manner a truth of general and far reaching application. The builders of the first rural communities in this state were sturdy, practical men, who cared little for nice distinctions and well balanced phrases, much preferring to go at once to the very heart of the problem which at the time demanded solution. What they had in mind, therefore, by saying that the graded and plank roads, which were in some cases owned and operated by private corporations, served the same purpose to the farmers that the railroad did to the people of the towns and cities, was the cold economic fact that it is a waste of time and energy to produce surplus crops which must "rot in the field" because of poor transportation and what logically follows, impossible marketing conditions. In this connection it might be suggested that contemporary newspapers for the period 1840-1856, on file at Des Moines, Iowa City and Burlington, contain a thorough discussion of highway economies, which, in clearness of statement and breadth of view, compare very favorably with the voluminous current literature on that subject.

Indian Trail Became Pioneer Road

Moreover, the student of Iowa history knows that what the early settlers desired, after supplying the bare physical wants of a simple pioneer life, was first a rural church in which to worship and a rural school for the education of their children. In order thus to lay the economic and social foundations of progressive local communities, the "Indian trail" was converted into some kind of a wagon road through the forest and across the prairie and the fording of streams was gradually superseded by the crude log stringer bridge—a type of practical engineering which in 1914 is not wholly a thing of the past. While these roads and bridges would probably not pass muster if judged by

the "standard plans and specifications" of any efficient State Highway commission at the present time, the fact remains that they were in harmony with the economic conditions which then prevailed and in this as in other things the pioneers of Iowa builded well.

II

ROAD LEGISLATION NATURAL OUTGROWTH OF ROAD DEVELOPMENT

With reference to the supervision and control of road and bridge work, it may be said that, until the creation of a State Highway commission in 1904, all powers of this character were vested in properly constituted local authorities. This means that, outside the limits of incorporated towns and cities, the civil township and the county had exclusive jurisdiction over the building and maintenance of roads, culverts and bridges. Indeed the powers of the State Highway commission, until the enactment of the new road law in 1913, were simply advisory, advice and assistance being given only on the request of some local board or official. Thus the history of road legislation and administration in Iowa from the very beginning of the territorial period until April, 1913, is a logical and important part of the history of township and county organization.

Model Law for Other States

When the Thirty-fifth General Assembly, therefore, made a thorough revision of road and bridge legislation by enacting a comprehensive administrative measure, which, for clearness of statement, logical and systematic arrangement, and proper distribution of power and authority, may well serve as a model for sister commonwealths, a vast group of important functions were reserved to the township trustees and county supervisors, only a few general powers rendered necessary by changed economic and social conditions being delegated to



OLD MILITARY ROAD NEAR DUBUQUE

This is one of the oldest established roads in this section of Iowa. In the early days it was used for military purposes. A few years ago a macadam surface of the native limestone was placed on the road.

the State Highway commission. The lawmakers of Iowa by thus showing their confidence in the wisdom and integrity of properly constituted local officials, and their ability to bear the larger share of the burden and responsibility of highway administration did the natural and right thing. Local institutions that have become well established should not be subject to radical and sudden changes, but any modifications that may be required to meet new conditions should be brought about gradually and only after a thorough investigation of facts.

Commission Logical Outgrowth

The fact that the supervisory power and authority conferred upon the State Highway commission in 1913 has not in any real sense subtracted from the duties of county and township officials, but was, on the contrary, the logical result of the more technical knowledge along economic and engineering lines now being demanded by the good roads movement, becomes evident the moment one takes the trouble to make a brief analysis of the respective functions of the civil township, the county and the state as outlined in the present highway law. For the purpose of this preliminary statement, only a mere summary of these functions will be attempted. As his work in the important field of highway economics progresses, the author may undertake a more detailed comparative study of this and other phases of road and bridge administration.

Duties of Township Trustees

The principal highway functions of the township trustees or governing board of the civil township, are as follows:

NAMING OF ROAD SUPERINTENDENT

(1) To appoint township road superintendents who "shall have the general supervision of all dragging and repair work on the township road system." Acting under the direction of the trustees the township road superintendent is held responsible for thorough and efficient work on the township roads and is further required to certify bills for "dragging, maintenance, or repair work" before warrants in payment of the same can be drawn against the funds of the township road system.

The elimination of the small road district with its roadmaster or overseer and the substitution of a consolidated district following township lines with its road superintendent has been brought about by a long process of historical evolution. Existing in a somewhat different form during the time when the Iowa country was a part of the territory of Michigan, 1834-1836, and firmly established in 1853, the so-called sub-district system remained mandatory until 1884, was not abolished by law until 1902 and was not abolished in fact until 1913. Thus by acquiring the extensive duties formerly exercised by a group of sub-district roadmasters, the trustees of the civil township acting through an appointive road superintendent attained a dignified position of power and authority such as they had never before enjoyed in the history of Iowa.

MAKING ROAD LEVIES

(2) To levy taxes for road purposes as outlined below. In this connection it should be stated that the amount of road taxes levied by the trustees was not reduced by the Thirty-fifth General Assembly, which means that more funds have been available for the improvement of township roads than was the case under the old system where the larger part of the tax was expended on what are now included in the so-called County Road System. Thus the farmers of those communities not directly tributary to the main traveled highways—and they are in the majority—receive more benefit from the taxes they pay than was the case prior to the classification of roads, a fact which was carefully considered and had great weight with the sub-committee, while preparing the first draft of the bill, which, with some minor amendments, finally became the present Iowa road law.

JURISDICTION OVER TOWNSHIP ROAD SYSTEM

(3) To exercise jurisdiction over not less than 85 and not more than 90 per cent of the highways which constitute the so-called Township Road System. Provision is made, however, under certain conditions for the addition of township roads to the County Road System providing the same have been constructed according to plans and specifications furnished by the county road engineer. In other words the township road superintendent is directly responsible to the trustees for repair work and the dragging of township roads but all permanent construction must be done in co-operation with the county engineer.



THE LONGEST BRIDGE IN IOWA

The Eldora Viaduct over the Iowa River is 960 feet in length. The floor of the bridge is 80 feet above low water level. It is a steel structure with a concrete floor, concrete abutments and piers.

Duties of County Supervisors

The functions of the county board of supervisors as outlined by the new road law include:

NAMING COUNTY ENGINEER

(1) The appointment of a county engineer holding office at the discretion of the board, said official being required to make surveys, and prepare plans and specifications under the dual supervision of the county board and the State Highway Commission, and also to audit bills for road and bridge work before warrants can be drawn in payment of the same. Needless to say the section requiring the appointment of county engineers is one of the most important provisions of the road law, for without the assistance of a competent highway engineer, appointed by the county board, the thorough supervision and control of the County Road System rendered necessary by present economic conditions would be impossible unless, through a more centralized plan of administration an equal number of field agents were employed by the State Highway Commission. In other words, the county engineer acting as the trained servant of the county board of supervisors and, under certain conditions, of the township trustees, prevents the necessity of creating that more bureaucratic form of highway administration which, from what the author believes to be good reasons, is objectionable to the people of Iowa.

CLASSIFYING COUNTY ROAD SYSTEM

(2) The classification of the public highways into the so-called "Township Road System" and "County Road System." Many authorities on road matters have suggested that the classification of roads alone, which work was completed on March 1, 1914, is worth vastly more to the taxpayers than the entire cost of the State Highway Commission since the date of its organization. By drawing a clear line of demarcation between township and county functions, greater efficiency has already been the result, and as indicated above, farmers who live at some distance from the main traveled

highways can now have the satisfaction of knowing that a substantial part of their taxes will be expended on neighborhood roads.

JURISDICTION OVER COUNTY ROAD SYSTEM

(3) Exclusive jurisdiction over the County Road System, which embraces from ten to fifteen per cent of the highways of the county. Subject to the general supervision of the State Highway Commission, the county board of supervisors not only has charge of maintenance and repair including the dragging of county roads, but is also clothed with power and authority to make the permanent improvements required by law.

BUILDING OF ALL PERMANENT CULVERTS AND BRIDGES

(4) The building of all permanent culverts and bridges. Prior to 1913 it had become the custom to have the larger culverts constructed by the county boards and therefore this provision of the law was the logical outcome of the new conditions that have required more costly standards of construction. Indeed it should be stated that the larger expense of bridge building as compared with pioneer road making rendered necessary the creation of a county bridge fund during the territorial period. Moreover, the exclusive control of bridges and permanent culvert work by the county boards results in economy, efficiency and uniformity of standards.

LEVYING OF ROAD AND BRIDGE TAXES

(5) The power to levy taxes for road and bridge purposes as required by law.*

Duties of State Highway Commission

The State Highway Commission as constituted by the Thirty-fifth General Assembly possesses the following power and authority:

(1) To devise and adopt plans of highway construction and maintenance suited to the needs of the different counties of the state, and furnish standard plans to the counties.

(2) To disseminate information and instrue-

*See Part III.



Greene County Gravel Road

tion to county supervisors and other highway officers, answer inquiries and advise such supervisors and officers on questions pertaining to highway improvements, construction and maintenance and of reasonable prices for materials.

MAKE REPORT TO GOVERNOR

(3) To keep a record of all important operations and to annually report the same to the governor by the first day of December, which report shall be printed as a public document.

TO EMPLOY NECESSARY ASSISTANTS

(4) To appoint such assistants as are necessary to carry on the work of the commission, define the duties and fix the compensation of each, and terminate at will the terms of employment of all employes; provide for necessary bonds, and fix the amount of the same.

TO MAKE INVESTIGATIONS

(5) To make investigation as to conditions in any county, and to report any violation of duty, either of commission or omission, to the attorney general, who shall take such steps as are deemed advisable by him to correct the same.

SUPERVISE ALL BRIDGE AND HIGHWAY IMPROVEMENTS

(6) To have general supervision of the various township and county officers engaged in the work of highway and bridge administration. The approval or modification of the County Road System as established by county boards of supervisors, the approval of all plans and specifications for permanent road and bridge work including contracts for bridges costing more than two thousand dollars, the preparation of forms and blanks for the use of local officials in making their reports, the working out in co-operation with the Auditor of State of a uniform system of accounting, and numerous other duties might be enumerated.

(7) To make plans for making railway crossings safe.

U. S. Office of Public Roads

With reference to the national government only a word can be said at this time. The office of Public Roads at Washington, D. C., under the supervision of Logan W. Page, has served as a general bureau of information along economic and engineering lines for the good road movement throughout the nation. Experimental work, public lectures of both a popular and a technical character, and the publication of bulletins from time to time have no doubt served a useful purpose.

III

ROAD AND BRIDGE FINANCE

The subject of road and bridge finance is broad enough, if presented in a thorough manner, to require a special volume in the field of highway economics. In this preliminary study, the author will attempt merely to summarize the different taxes levied for road and bridge purposes, outlining at the same time the methods provided by the present highway law whereby the definite financial responsibility of township, county and state officials may be assured.

Township Road Levies

Aside from the road poll tax, which may be paid in labor, and the work of the poor to whom the township is granting relief, the township road fund consists of a levy of not more than four mills for repair and maintenance and one mill for a non-divertible dragging fund. The trustees may also levy not more than five mills for a township drainage fund.

County Road Levies

County levies are as follows: A one mill tax on all the taxable property of the county; a one mill tax for drainage purposes; ninety per cent of the motor vehicle tax; a two mill levy on all property outside incorporated cities and towns, the same being used as a county road building fund, a so-called permanent road district tax of two mills levied under certain conditions, and a millage tax to pay the interest and principal of bonds issued to take up floating indebtedness in excess of \$5,000. Convict labor and surplus bridge funds should also be included. Finally, a levy of not more than five mills on all the property outside of cities of the first class is made to create a county bridge fund.

No State Aid Tax Ever in Iowa

No state tax for road and bridge purposes is now levied in Iowa nor has such a tax ever been levied during the history of the commonwealth. The work of the State Highway Commission is supported out of a fund obtained by setting aside five per cent of the motor vehicle license tax. Public sentiment, however, is coming more and more to favor a definite plan of state aid for the building of permanent high-



WAPELLO COUNTY BLADE GRADER ROAD

This road was shaped up by a tractor pulling two blade graders. This method is used in many counties for building roads where there is little or no hill cutting or extensive filling. The average cost is from \$40 to \$60 per mile. A tractor outfit will average under good conditions about two-thirds of a mile per day.

ways and a levy for that purpose may be expected in the near future.

New Road Law Protects the Taxpayer

With reference to the vital problem of financial responsibility, one of the first considerations in any branch of the public service, it should not be forgotten that the new road law protects the interests of the taxpayer by the following definite requirements:

EQUITABLE DISTRIBUTION

(1) The classification of roads as already outlined makes possible a financial line of demarcation between the functions of the township and county respectively, taxes levied by the township trustees being expended on township roads and those levied by the county board of supervisors being expended on the County Road System including the construction of culverts and bridges on the township road system. The logical result of this arrangement is to guarantee a more equitable distribution of public funds on the one hand and a greater uniformity and simplicity of accounting methods on the other.

ALL EXPENDITURES MATTER OF RECORD

(2) A clear statement regarding the character of expenditures which may be legally authorized out of the different township and county funds. A reasonably safe rule of administration is that public money levied by law for one purpose should not be diverted into another fund except in special cases which should always be well understood and made a matter of record. Judged from this important standpoint the new road law is superior to any similar legislation enacted by the General Assembly of Iowa not so much because of changes in the content of highway statutes, but rather as a result of a more direct and effective plan of administration.*

*Service Bulletin No. 1 of the Iowa Highway Commission contains detailed information regarding the different road and bridge funds and how the same may be legally expended.

HIGHWAY COMMISSION MUST SUPERVISE

(3) The approval of the County Road System by the State Highway Commission, also the approval by the same body of all surveys, profiles, plans and specifications for permanent highway construction including the letting of contracts for bridges costing more than two thousand dollars. As a result of these wise provisions of law the taxpayers can feel assured that they will receive the maximum of permanent benefit judged from the economic and engineering standpoint at the minimum of cost. In other words, unreasonable prices for a poor quality of work have become a thing of the past.

HIGH STANDARD OF WORK ASSURED

(4) The requirement that the State Highway Commission must "devise and adopt plans of highway construction suited to the needs of the different counties of the state, and furnish standard plans to the counties," is the best possible guarantee to the people of that high standard of engineering service without which an economical and wise expenditure of road and bridge funds is not only impossible, but unthinkable. Financial responsibility and engineering service are inseparable parts of the good road movement.

(5) The approval by the county engineer of bills against the funds of the County Road System, except in certain special cases, before warrants can be issued by the county auditor in payment of the same. Any violation of this requirement renders the county auditor liable on his bond for the amount of the warrants. Needless to say this is also a very just and effective provision of law considered from the standpoint of locating financial responsibility.

(6) In case the county engineer attaches his certificate to bills for work which has not been done "in accordance with the plans and specifications," and the same has not been made good with additional cost, the full cost may be recovered from said engineer's bond. Hence a double guarantee is given the taxpayers that their money will be expended only for approved standards of road and bridge construction.



BROME GRASS RETAINING A GRADE BANK

Grasses with strong root systems not only add to the appearance of the banks on cuts but are a decided economy in preventing the washing away of the bank.

SUPERINTENDENT MUST APPROVE TOWNSHIP BILLS

(7) The township road superintendent is required to approve bills for dragging, maintenance and repair work before the same can be allowed by the township trustees and warrants in payment therefore be drawn by the township clerk upon the funds of the township road system. A violation of this section renders the township clerk liable on his bond.

OFFICIALS DEBARRED FROM COUNTY CONTRACT

(8) All township, county and state officials charged with the administration of road and bridge laws are prohibited from being either directly or indirectly interested in any contract for road, bidge or culvert work. Manifestly this is a necessary provision of law for the obvious reason that it is against public policy to permit an official to be a party to both sides of a contract. In no other way can we be assured that a public office will be regarded as a public trust and not as a private graft.

UNIFORM SYSTEM OF REPORTS

(9) The uniform system of making reports and accounting for the proper expenditure of the public funds. No other provision of the new highway law is of greater importance than this, for, in the absence of such a requirement, the supervision of the State Highway Commission could not be made effective. Scientific accounting methods are now considered essential by the larger private business corporations and in the near future they will be so regarded in every branch of the public service.

IV

COMMUNITY LIFE DEPENDENT ON ROADS

As already suggested, the early settlers of Iowa were obliged to give serious thought to the problem of transportation; first, to afford

a market for their agricultural products, and second, to make possible the growth of their most cherished institutions, the rural church and the rural school. Indeed the economic, social and educational advantages of improved highways and bridges were thoroughly appreciated many decades before the need of technical engineering service so apparent at the present time was even suggested to the public mind. The emphasis now being placed on more efficient rural organization service or what in the press of the day is generally referred to as the country life movement is therefore not the discovery of a new truth but on the contrary is simply the restatement and popularization of ideas and ideals well understood by thinking men since the first laws of the territory of Iowa were drafted at Burlington in 1838.

Rural District School

Consider for a moment the all important question of the rural district school. Needless to say no other institution has exerted a greater influence on the progress of the commonwealth, and there is none of which the people are more justly proud. Yet it will be generally admitted that, if the boy and girl living in the country are to receive the educational advantages required by the higher standards of the present day, the rural district school is in sad need of improvement, perhaps even of reorganization, along modern lines of thought. In some progressive communities of Iowa and other states the consolidation of rural schools is already an established fact, and with substantial results that are fully appreciated by the taxpayers. But every well informed person knows that the reorganization of the country schools in the larger part of Iowa is now impracticable on account of bad roads, which is only another way of saying that improved highways and bridges and more efficient rural schools are different phases of the same complex educational and economic problem.

Rural Social Center

Again we may call attention to the rural social center movement including the rehabilia-



SOD BURIED WHERE IT DOES NO HARM

It is impossible to make a good road by piling sod and rubbish in the middle of the road. It takes skill to bury sod where it will do no harm.

tion of the rural church. In some cases the country church, perhaps, however, in the majority of communities the rural school, is the most convenient meeting place of the people. Here they can form an agricultural club which, in addition to its social functions, will serve as a forum for the discussion of political and economic questions. Good roads, however, are again the basis of any permanent improvement of the rural organization service. The efficient organization of any economic class or group as every trained economist well knows is the segregation of population in towns and cities on the one hand or the cheap and rapid transportation of economic goods including the rapid transmission of ideas on the other. The rural mail delivery and the rural telephone have solved the problem of bringing the country districts in touch with the thought of the world; but bad roads still prevent that easy movement of people and economic goods so essential to the working out of any efficient plan of rural organization.

Wagon Roads Are Farmers' Railroads

Thus it appears that the wagon roads of the present day are, or at least ought to be, "Farmers' railroads." From the all important standpoint of organized effort, good roads are to the farmers what highways of steel are to the great commercial, mining, and manufacturing interests of society. While the same degree of co-

operation that exists in the world of capitalistic industry on the one hand and organized labor on the other may not be practicable in the rural districts on account of the sparse distribution of population and the economic character of the farmers' occupation, the so-called country life movement is none the less a reality and promises definite and substantial results in the near future. In working out these ideals, however, improved rural transportation is a recognized necessity. The Rural Organization Service of the United States Department of Agriculture and the Departments of Applied Economics and Social Science of the Land Grant Colleges in their efforts to solve the economic and social problems of country life will meet with greater success as the good road movement becomes a reality under the capable supervision and leadership of State Highway Commissions.

Consolidation of Rural School

At the present time the author is engaged in preparing a much more extensive bulletin on "Highway Economics," which will include a thorough and detailed study of the educational and social aspects of improved public highways. For example, a complete list of the rural consolidated school of Iowa will be prepared, and the relationship of the same to the building and maintenance of improved roads considered. During the last decade, especially during the last year, great progress has been made in the



GRADE CROSSINGS COST THE LIVES OF FIFTY IOWANS DURING 1914

The Highway Commission has a department devoted entirely to the elimination of danger at grade crossings. Approximately 100 crossings were surveyed the first year and plans for the elimination of danger made for approximately seventy-five.



Typical Tractor Blade Grader Outfit

consolidation of rural schools, which have also been used as social centers. The taxpayers of Iowa will be interested to know to what extent the good road movement has been responsible for this development.

Beautifying the Roadside

Much has been said in recent reports of state highway commissions and good road associations regarding the importance of beautifying the public highways. A great deal has been done in some states along this line on the initiative of women's clubs and similar organizations. It is universally recognized that one of the essentials of road maintenance is the destroying of weeds along the road side. The growing of blue grass, red, white or alsike clover, together with the planting of shrubs and certain kinds of trees are not only important from the standpoint of maintenance, but add beauty to the landscape. In my judgment, the Iowa Federation of Women's Clubs could render no better service than by organizing a campaign for transforming our present unsightly public highways into veritable parks or pleasure drives.

In this connection the following statement from the December, 1908, Monthly Bulletin of the Missouri State Board of Agriculture, will be instructive:

"Until within eighteen months I did not fully comprehend the importance of the low weeds as a factor in destroying roads. I mean low weeds and grass along the wheel tracks. They are an unobtrusive but powerful agent of destruction. There has been an active campaign against the tall weeds and we are compelled to mow them, but the little fellow has been getting in his work unnoticed. It is this way: In the spring the big grader smooths the road from ditch to ditch, then we all drive down the center. After the first shower the weeds spring up and in a few days are ready for business. Their business is a four-in-one combination, i. e., to prevent the rain water from running to the side ditches, thus holding it in the wheel tracks, even when no ruts exist; in dry weather to catch and hold the dust; in wet weather to catch and hold the mud that hoofs and wheels splash; and at all times to keep the surface moist and loose and therefore soft. Is it not clear that if one inch of dust and mud is removed from the center and caught by the weeds on one side, that their relative levels

have been changed two inches? When we mow these weeds we aggravate the difficulty by adding their tops to the accumulation. Dragging kills the weeds in the seed leaf and allows the water to find its way unobstructed to the side ditch."

Cost of Hauling Decreases Profit

Finally it may be alleged that the same general facts hold true of the purely economic side of rural life. The surplus products of the farms of Iowa must be hauled over wagon roads an average distance of six or eight miles and exchanged for the finished products of the mine and the factory, which in turn must be hauled back to the farm. The cost of transportation of both the raw material and the finished products is subtracted from the profits of the farmer. The higher the cost of transportation the smaller will be the net profits of the tiller of the soil. Hence the cheap and convenient marketing of agricultural products depends directly upon the efficiency of the public highways, which is only another way of saying that the expense of building and maintaining roads and bridges is more than cancelled by the increased value of the land.

Hundred Thousand Miles of Wagon Roads

Iowa now has ten thousand miles of railroad and more than a hundred thousand miles of wagon roads. Practically all the products of the farm must be hauled over the latter but as a general rule only surplus products are transported over highways of steel. If an increase of five per cent in freight rates is a thing devoutly to be feared and is worthy of serious and prolonged discussion and the liberal shedding of printers' ink, it follows logically that the practicability of saving a vastly greater amount by supporting the good road movement is a problem for the sober honest thought of the taxpayers of Iowa. When the people came to fully realize the obvious fact that the cost of good roads and bridges is amply repaid by increased profits and therefore enhanced values of property, much prejudice and more ill considered criticism will disappear and the new road measure enacted in 1913 will be justly regarded as one of the most epoch making laws enacted by the General Assembly of Iowa during the last quarter of a century.

V.

NEW LAW DISTRIBUTES AUTHORITY

In conclusion the author desires to call special attention to the following important considerations:

Township Officers' Powers Increased

(1) The new road law did not decrease the power and authority vested in the board of township trustees. While exclusive jurisdiction over the construction of culverts and the building and maintenance of the County Road System was transferred to the county board of supervisors, it is also true that the extensive functions performed or supposed to be performed for more than half a century by sub-

district road officials were at the same time transferred to the board of township trustees. Indeed so great has been the additional power and authority given to this board that it was found necessary to provide by law for the appointment of a township road superintendent which official has already proved to be a necessary and important part of the comprehensive state-wide plan of highway administration. Acting under the supervision and control of the board of township trustees he is the logical successor of the sub-district road masters.

Supervisors Have More Authority

(2) Nor has the power and authority of the county board of supervisors been decreased by the road law under consideration. On the contrary the functions to be performed by this important board have been substantially increased as follows: First, the building of all culverts, whereas, under the old system, the smaller culverts had been constructed under the supervision of the township trustees; second, exclusive jurisdiction over the County Road System, subject to the general supervision of the State Highway Commission; and third, the expenditure of a much larger amount of public funds rendered necessary by the policy of building permanent roads and more expensive bridges. So great, in a word, has been the increase of authority vested in the county board of supervisors that it has been found desirable to confer upon that board the power to appoint one or more county engineers who are obliged to give all their time to the work.

Statewide Policy of Road Improvement

(3) It follows logically therefore that the functions of the State Highway Commission outlined above are primarily, in fact almost entirely, the result of new economic conditions which are demanding a statewide policy of permanent highway improvement including uniform and more expensive standards of culvert and bridge construction.

Commission Costs Fraction of One Per Cent

Only a few years ago the total annual expenditure for road and bridge purposes in the state of Iowa was from \$3,000,000 to \$4,000,000 while the current fiscal year will probably show an expenditure of \$10,000,000. Nor is the State Highway Commission responsible for this increase, the road and bridge levies being entirely of a local character, provided for by statute, and not determined in any sense by a central administrative body. Said levies would have been just the same had no commission been created. Indeed the total cost of the State Highway Commission—about \$80,000 per annum—is only a fractional part of one per cent of the entire sum—\$10,000,000—expended for highway and bridge purposes.

The fact, however, that this enormous increase of expenditure for the construction and maintenance of the public highways is not only a reality but a necessary reality, means of proportionate enlargement of administrative functions, the same being distributed on a just and rational basis between township and county officials on the one hand and the State Highway Commission on the other.



BUCKHORN HOTEL

The "Buckhorn Hotel," a famous old landmark of the early days in Iowa, is located on the Waubonsie Trail in Lee county. It was built in 1853 and occupied by the present owners for 52 years. It is 10 miles out of Keokuk at Charleston, Iowa.



GRAVEL ROAD AT PERRY, DALLAS COUNTY, IOWA.

The Supervisor

The Supervisor is the man who gets the cuffs and kicks,
For all of his constituents are good at throwing bricks.

Folks never stop to realize he 'tends the Public's "biz,"
And looks after their interests so well you'd think they're his.

He spends the people's taxes, enough to run a bank,
To hold it all in silver would take a water tank.

The Supervisor is the man who surely knows his game,
He saves the county treasurer and auditor from blame.

He keeps the poor from starving and the sick from out the grave,
He neglects his private business the public wealth to save.

He builds the roads and bridges of material to last,
These bridges have a future while the others had a past.

He does this with an engineer who furnishes the skill
And figures out the structures and levels down the hill.

He has a county engineer who's worth his weight in gold,
Who doesn't mind the summer sun nor yet the winter cold.

With engineering contracts and special plans to view,
The supervisor does more work than you expect him to.

Before you start to knock a man just watch the way he works,
Your eyes may thus discover it's the other man who shirks.

What Caesar Did

When Caesar took an eastern trip and grabbed the Gauls for Rome,
What was the first thing that he did to make them feel at home?
Did he increase the people's load and liberty forbid?
No. He dug in and built good roads, that's what old Caesar did.

Did Caesar put the iron heel upon the foeman's breast?
Or did he try to show the folks that Roman rule was best?
What did he do to make them glad he'd come their midst amid?
He built good roads in place of bad, that's what old Caesar did.

He built good roads from hill to hill, good roads from vale to vale.
He ran a good roads movement till old Rome got all the kale.
He told the folks to buy a home, built roads their hills amid.
Until all roads led right to Rome, that's what old Caesar did.

If Iowa would make this state the center of the map,
Where folks would come and settle down and live in plenty's lap.
If Iowa its own abode of poverty would rid,
Let us get out and build good roads just like old Caesar did.

Yes, every man could own his home in Iowa, my boy,
And ride a fine new auto and many things enjoy.
As he met strangers on the road each one would tip his lid,
If we dug in and built good roads just like old Caesar did.

Yes, Iowa could have good schools, no better in the land,
Where boys and girls could learn to live and work to beat the band.
Why, Iowa could have her schools and teach a million kids,
If we set out and built good roads just like old Caesar did.

Tentative Plan For Working Committee

Officials of the Women's Department of the American Highway Association have outlined a plan for organizing the good roads workers of any community in a campaign for road improvement. The method as outlined may prove of value to the club women of Iowa. It is as follows:

As soon as sufficient interest in the roads has been aroused in a community a meeting should be held by invitation which should include all of the most influential and energetic women of the neighborhood. Organization should be effected by the election of a chairman, a vice-chairman, a secretary, a treasurer, and various committees. The principal committee should have their duties defined somewhat as follows:

1. **Committee on road administration**—This committee should ascertain the laws upon which the road management of the state and county is based; learn the names of all local road officials, the amount of their salaries, their qualifications for the work and the reasons for their appointment; learn the amount of money available for the roads, how it is obtained, how expended, how accounted for and what the results of the expenditure; and ascertain the mileage of the county roads and their order of importance in accordance with the amount of traffic.

2. **Committee on finance**—This committee should endeavor to raise funds for postage, stationery, etc., and to carry on the local association along educational lines; and later to provide for actual improvement of roads by obtaining appropriations from public funds and the use of convict labor. Application for contributions could be made to civic associations, chambers of commerce, farmers' unions and granges, automobile clubs, etc.

3. **Committee on road construction and maintenance**—This committee should make a close study of road maintenance from bulletins and pamphlets obtained from the Woman's Department; should learn the classifications of roads according to the amount of traffic carried; should study the usefulness of earth roads, when properly constructed, drained and maintained; should ascertain the various kinds of road equipment and urge the county authorities to secure what is needful and should especially investigate the split log drag and learn the effect of its use on earth roads; and should ascertain the location, character, quantity, and availability of all road materials in the county and submit samples of local road material to the U. S. Office of Public Roads for free analysis and tests. This committee should endeavor by every means possible to have the road administration of the whole county placed in the hands of one trained and competent man who would appoint his own assistants and be responsible for their work and who would also employ a sufficient force of laborers with horses, carts and tools, and necessary materials to patrol the roads and make immediate repairs

as needed. If the county road laws do not provide for this arrangement, it can often be accomplished by mutual agreement among the road officials. This committee might consider the advisability of the purchase of quarries and gravel pits; the arrangement of special rates with the railroad companies; the preparation of the materials by county prisoners, etc. Requests should be made of the Woman's Department for application forms showing how engineering and other assistance and information may be obtained without expense from the U. S. Office of Public Roads, the American Highway Association and the different state road associations. If the free assistance of government engineers is granted, the committee should obtain the engineering report made after the investigation of the local conditions and should endeavor to have its recommendations carried out.

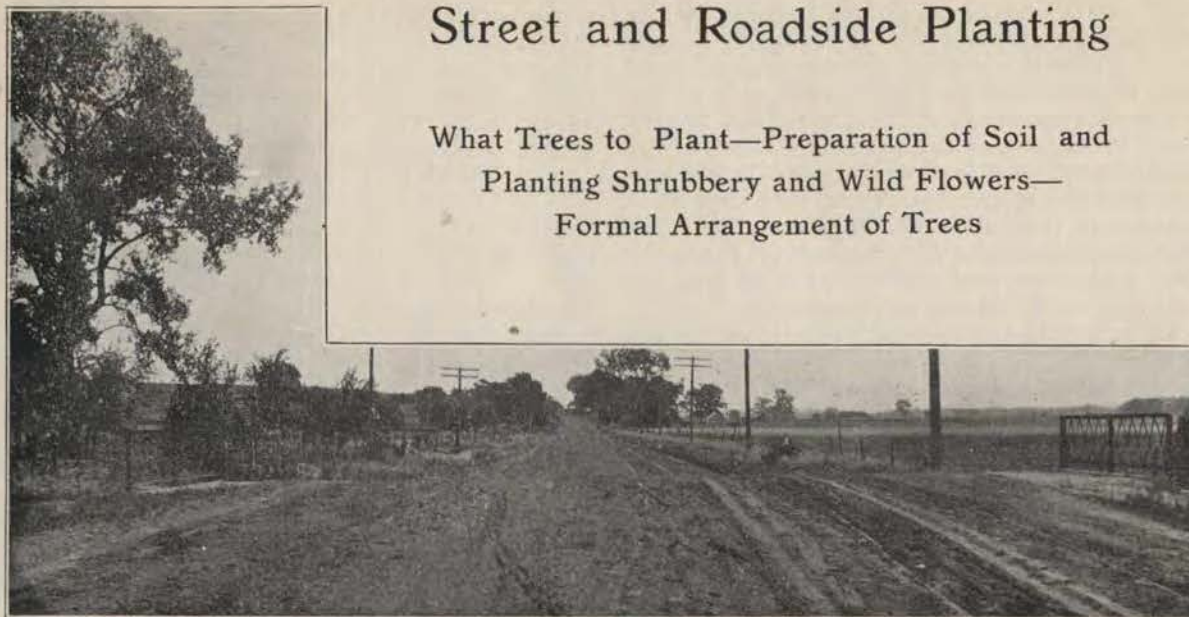
4. **Committee on publicity**—This committee should obtain papers and addresses through the Woman's Department showing the benefits of road improvement and the best means of obtaining better roads. Lantern slides can be obtained without cost from the Woman's Department and illustrated lectures can be arranged for. This committee should stimulate public sentiment in sending articles to the newspapers on road improvement, by addresses in schools and by offering prizes for the best essays on road improvement, by posters and voiceless speeches, public meetings, by contests inaugurated in the use of the split log drag and by prizes offered for the best results. Records should be kept of the number of drags in use and the miles of road dragged as a result of women's efforts and numerous articles on this subject sent to papers. As the working committee assembles information and accomplishes results, meetings of the county association or section should be called to receive reports.

5. **Committee on state legislation**—This committee should obtain the necessary reforms in the road laws of the state. A special committee of the American Bar Association is now at work drafting a code of road laws for the use of the different states. The Woman's Department hopes that all women interested in better roads will bring all possible influence to bear to have these laws, as far as they are applicable to the climatic and other local conditions in their state, passed by the legislature. The fact must never be lost to sight of that reforms in administration and maintenance are necessary almost everywhere before any real improvement in the general road situation is possible; and that to obtain these reforms, through the education of the public to the great need for them is the object of this organized effort on the part of American women.

*Iowa women in communities where enthusiasm for road improvement is not well developed will do well to follow the plan outlined.

Street and Roadside Planting

What Trees to Plant—Preparation of Soil and
Planting Shrubbery and Wild Flowers—
Formal Arrangement of Trees



OTTUMWA-EDDYVILLE ROAD

Wapello County has banished the wooden bridge and the narrow culvert from her county road system. Note the wide culvert—full width of road. This piece of road extends seventeen miles.

P. H. ELWOOD, JR.

Prepared for Massachusetts Agricultural College. Plants for Iowa Conditions revised
by F. H. Culley.

There are many soils not adapted to the growing of any kind of trees and it would be useless to attempt planting in such locations unless such planting were preceded by a thorough renovation and preparation of the soil. In towns this is often advisable, but usually the expense would not be warranted in rural neighborhoods.

If not at least forty feet wide, the streets should not be planted at all except where the building line is a considerable distance from the sidewalk. Often in localities where intensive agriculture is practised, it is not practicable to shade the adjoining land to any extent. No general rule in regard to artistic planting of country roadways can be laid down as each section offers its own peculiar problems.

INFORMAL PLANTING

In roadside planting it is often desirable not to confine one's self to the formal arrangement of trees in rows, but to break this monotony by more or less irregular grouping of the trees as expressed by H. Inigo Triggs in his book on Town Planning and as advocated so strongly by Prof. F. A. Waugh. Very often attractive results can be obtained in this way. In this informal street and road planting native shrubs and wild flowers can be brought into these groupings with very effective results. Such native shrubs are: Red Osier (*Cornus sanguinea*), Red Barked Dogwood (*Cornus stolonifera*), Witch Hazel (*Hamamelis virginica*), Black Alder (*Slex verticillata*), Smooth Sumach (*Rhus glabra*), Staghorn Sumach (*Rhus typhina*), Flowering Raspberry (*Rubus odoratus*), Elder-

berry (*Sambucus canadensis*, *Sambucus racemosa*), Black Haw (*Viburnum prunifolium*), False Indigo (*Amorpha fruticosa*), Hazelnut (*Corylus americana*) and many others.

Among the best of the native wild flowers to use are, Monk's Hood (*Aconitum*), Anemone, Aquilegia, Milkweed (*Asclepias*), Aster Campanula, Centaurea, Coreopsis, Golden-rod (*Solidago*), Hepatica, Iris, Lobelia, Monarda, Pentstemon, Phlox, Ranunculus, Tradescantia, Trillium, Dogtooth Violet (*Erythronium*) and Veronicas.

With proper attention to massing, variations in texture, color, variety, fruit, and season of bloom, wonderful combinations can be secured and roadsides so planted will give continuous pleasure throughout the year. Such vines and creeping plants as Bittersweet (*Celastrus scandius*), Virginia Creeper (*Ampelopsis quinquefolia*), Japanese Honeysuckle (*Lonicera halena*), Chinese Matrimony vine (*Lycium sinensis*).

FORMAL ARRANGEMENT OF TREES

Main streets in towns and many country avenues should be planted with trees in some orderly manner except where traffic is too great to allow adequate protection to the roots or when the width of the street is not sufficient to permit adequate circulation of air and sunlight both for the trees themselves and the abutting buildings.

One row of trees on each side of the traffic way upon a parking strip not less than four feet wide is all that should be attempted on streets less than seventy feet wide.

In country towns where the building line is usually some distance from the property boundary it is possible to plant one row of small trees such as American lindens on each side of the street even where the width is as narrow as fifty feet. In business sections the total width of the street should be at least seventy feet before any tree planting is attempted. In very important business or residential neighborhoods the roadway itself should be wide enough to accommodate four streams of traffic that is 32 feet, before any parking strip is attempted.

In regard to the spacing of the trees in the row the distances vary with the kinds of trees used. Elms for example could not be planted less than forty feet apart to give the best results. Maples can be planted as close as twenty-five feet, but 40 feet in the end is better both for the trees themselves, the streets and the property they shade and embellish. Where such trees as American lindens, catalpas, or poplars are used the distance between trees may be reduced to twenty feet, or in special cases to even less.

In spacing trees either in the parking space or in paved areas care should be taken to give them plenty of room both for their branch and root system. When ample distance between the trees is provided the shade is less dense, making it possible to grow grass beneath. The street itself will then also be more sanitary because of good air circulation and plenty of sunlight.

Not all country roads should be planted with trees, or bordered with shrubs, yet there are often long stretches of road which are well adapted to regular planting. Too much space is often allowed between the rows of trees which results in the shading of the abutting land instead of the road itself.

In residential and business streets in town as much space as possible should be given the trees. In a narrow street, say fifty feet wide, it is best to have the sidewalk immediately adjoining the property line, thus giving all the space possible to the parking strip on which the trees are planted.

KINDS OF TREES TO USE

The following is a selected list of desirable species from the more elaborate collection of trees recommended by Solotaroff. These trees are all hardy and do well in our climate under ordinary conditions: (*Acer plantanoides*) Norway maple; this tree is very hardy and is especially good as it retains its leaves until late and withstands city conditions very well. (*A. saccharum*); this is a fine tree for country towns where a well drained loamy soil exists. (*A. rubrum*) red maple; this is a very fast grower, requiring rich, moist soil, and is good for narrow streets. (*Quercus palustris*) pin oak; this is a rapid grower and is of very symmetrical habit and does well in a variety of soils, but is especially fond of moist conditions. (*Tilia Americana*) American linden; this tree is especially adapted to narrow streets; it grows rapidly and has an abundance of showy flowers in July. (*Ulmus Americana*) American

elm is best adapted to wide streets where spraying facilities are possible. (*Platanus orientalis*) oriental plane; this is one of the best trees for street planting and is being used in some cities abroad more than any other tree; it is of rapid growth and exceptionally long lived.

TREES FOR SPECIAL PURPOSES

It has often been suggested that a considerable amount of revenue might be derived by the planting of nut and fruit trees along our roadsides. This proposition commercially, however, seems hardly practicable, yet from an aesthetic point of view there is no reason why fruit trees, especially apple trees, would not be most attractive along our country roads. Nut trees on the other hand require peculiar conditions of soil and environment, making their use along the roadsides impossible except where the soil is very deep, rich and well drained.

In manufacturing communities care should be taken to use the kind of trees which will survive the trying conditions of smoke, gas and dust. Those most adaptable to these conditions are the Norway maples (*Acer platanoides*), Ash Flaximus Americana, Populars, *Pouulus deltoides*, and *Populus nigra fastigiata*.

Plane trees or lindens should not be placed in very exposed positions.

PREPARATION OF SOIL AND PLANTING OF TREES

As a general rule it is best to plant deciduous trees during the months of April and May. Evergreens can be planted as late as June if the growth is not too far advanced, but the best time of year to plant them is August or early September.

The ideal soil for tree growth is a rather light sandy loam, and where natural conditions vary much from this composition it is best to make the soil conform as nearly as possible to the needs of the trees.

The hole for each tree should be three feet deep and six feet wide with perpendicular sides. If drainage is poor a layer of broken stones should be placed in the bottom; these should be covered with fine soil mixed with about two inches of well rotted manure. The holes should then be filled with eighteen inches of the top and the soil packed firmly. The tree may then be planted.

In planting trees, especially the nuts and evergreens, great care should be taken not to allow the roots to become very dry. In the special cases noted the loss of the tree will surely follow a failure to observe this rule.

Care should be taken to see that the tree is placed correctly both in regard to depth and position. Usually it is best to plant the tree one inch deeper than it was in the nursery row. The most symmetrical side of the tree should be placed where it will be most in view and if there is any tendency for the branching to be one-sided, the tree should be reversed so that it can develop a normal, symmetrical shape. Ordinarily where the trees are more or less flat shaped, the long way of the branching should be placed parallel to the street or roadway.

Never try to plant too many trees at the same time and do not rush the planting job thinking that it is economy to do so, for a little extra care at the start will often save many dollars worth of stock in the end. Where the trees are more than eight feet high the tops should be pruned before the tree is planted. The objects of this pruning are both to balance the branching and root systems, and to promote a symmetrical development of the tree. All bruised or broken roots should be cut off clean with a knife before the tree is planted.

After placing the tree and carefully spreading out the small roots, fine soil should be sifted over these roots and pressed firmly about them. It is very well to shake the tree gently to allow the particles of soil to settle thoroughly about the roots. This soil should not only be pressed firmly with the foot, but the hand or a stick should be used to firmly pack the soil beneath the crown to avoid formation of air spaces.

After the hole is filled a cup or ring of each should be formed of the surface dirt to retain the water which should be at once poured about the tree. Then mulch thoroughly with manure and cover this with a thin coating of soil to eliminate the unsightly appearance of the strawy manure. This mulch should be spaded into the soil immediately about the tree the following spring.

If the trees are of any considerable size they should be stayed by three wires running from the same point six or eight feet from the ground to short pegs driven about six feet from the tree. These guy wires should be left on throughout the first season or longer. The ob-

ject of this wiring is to prevent swaying of the tree during heavy winds, which would cause the formation of air spaces and would have a tendency to kill the younger rootlets as they start their growth.

A large part of the shrub and flower plantings along roadsides could be of collected native material. This stock of course may well be supplemented by nursery grown plants.

In collecting shrubs for planting care should be used not to allow the roots to be too long exposed to the sun and winds. Attention should also be paid to the character of the soil from which the plants are taken, and the new location should conform as closely as possible to the old conditions.

It does not pay to skimp shrubs either in the quantity of rich soil or in the fertilizer mulch as they will readily respond to good treatment and will not require the attention in the future which would be necessary if half-hearted methods were employed at the outset. The following general hints in the planting of shrubbery and flower groups should be carefully followed:

1. Select perfect specimens.
2. Plant in large masses.
3. Use many plants of one variety.
4. Space the shrubs four to five feet apart.
5. Provide for continuous interest throughout the year in foliage, flower, fruit and branches.
6. Plant the tallest growers in the rear.
7. Let one variety predominate in a locality giving individuality to that neighborhood.
8. Alternate groupings with open spaces for vistas of the surrounding country.
9. Fertilize and mulch heavily at planting time.

The Road Drag

What made our roads so bad last Fall,
 What made the crops so hard to haul,
 What made us close the country school,
 And boys forget the golden rule?
 No dragging.

Last Winter in the stormy blast,
 What made the auto go so fast,
 What made the roads as smooth as glass,
 Two loads of hay could even pass?
 Road dragging.

Last Spring when blossoms filled the air,
 What made the busy farmer swear,
 And rave and rant and tear his hair,
 Because he wanted that repair?
 No dragging.

What is the genius gives the call,
 And says no more in Spring and Fall,
 We'll have to lighten up the loads,
 Because we have such rotten roads?
 Road dragging.

Road dragging paves the way to town,
 The man who drags should wear a crown.
 And have his picture on the wall,
 In every school made big from small,
 By dragging.

And on that final clean-up day,
 The man who gets the biggest pay,
 Will be the man who drives the gray,
 And doesn't loiter by the way,
 While dragging.





An Iowa Gravel Road

The Iowa Road Law

(The following pages give the text of the Iowa road law creating a Highway Commission and providing for a system of county and township road, bridge and culvert construction and maintenance. The full text of all the Iowa laws relating to roads, bridges and culverts would comprise a volume of the ordinary size of two hundred pages. There is here only the text of the laws passed by the Thirty-fifth General Assembly as amended and added to by the Thirty-sixth General Assembly and establishing the present Highway Commission and the system of state supervision and control of highways of which the Commission is the authoritative body. The text of the law as passed by the Thirty-fifth General Assembly appears in the 1913 Supplement to the Code, Chapters 1-A and 2-B. The amendments and additions made by the Thirty-sixth General Assembly, which appear in italics in the following pages, have so far had no official publication other than the publication in the daily newspapers, May 8, which made them effective.)

Section 1. Location—organization—vacancy—attorney general—bonds. The office of the state highway commission is hereby located at the state college of agriculture and mechanic arts. Said commission shall be composed of three members, one of which shall be the dean of engineering of said college, and the other two (2) members of the commission shall be appointed by the governor immediately upon taking effect of this act, from different political parties for the period of two (2) and four (4) years, from July 1, 1913, and terms of office shall thereafter be four (4) years. *Each commissioner shall give bond in the penal sum of five thousand dollars (\$5,000.00) for the faithful performance of his duties as hereinafter provided, which bond shall be approved by the executive council and filed with the secretary of state.* Each commissioner shall be subject to removal from office as provided by chapter seventy-seven (77), laws of the Thirty-third General Assembly. If for any reason, a vacancy occurs in the membership appointed by the governor, he shall fill such vacancy for the remainder of the unexpired term, from the same political party from which the vacancy occurred. The attorney general shall act as attorney

for the commission, and shall advise them upon all legal questions arising with reference to the duties of said commission.

Sec. 2. Salary. Each of the commissioners appointed by the governor shall receive for his services the sum of ten (\$10.00) dollars per day for each day actually employed in the work of the commission *and each of the three commissioners shall receive all necessary traveling and other expenses incurred while in the performance of his duties as such commissioner, but the commission shall not incur any expense to the state by sending out road lecturers.* The total compensation to such commissioner shall not exceed one thousand (\$1,000.00) dollars per annum.

Sec. 3. Duties. The duties of said commission shall be:

1st. **General plans.** To devise and adopt plans of highway construction and maintenance suited to the needs of the different counties of the state, and furnish standard plans to the counties in accordance therewith.

2d. **Information.** To disseminate information and instruction to county supervisors and other highway officers, answer inquiries and advise such supervisors



THE PARKERSBURG BRIDGE

The foundations of this bridge in the Butler county metropolis go down to solid rock. The total length of the structure is 238 feet. It consists of three 60 foot spans. The roadway is 24 feet wide. The bridge cost \$12,327.

and officers on questions pertaining to highway improvements, construction and maintenance and of reasonable prices for materials and construction.

3d. **Records.** To keep a record of all important operations of the highway commission, and to annually report the same to the governor by the first day of January, which report shall be printed as a public document; but the summary report of the county highway engineers shall be reported not later than February first.

4th. **Assistants.** To appoint such assistants as are necessary to carry on the work of the commission, devne the duties and fix the compensation of each, and terminate at will the terms of employment of all employes; provide for necessary bonds, and fix the amount of same.

5th. **Investigations.** To make investigation as to conditions in any county, and to report any violation of duty, either of commission or omission, to the attorney general, who shall take such steps as are deemed advisable by him to correct the same.

6th. **General supervision.** The state highway commission shall have general supervision of the various county and township officers named in this act in the performance of the duties here enjoined, and shall have full power and authority to enforce the provisions of this act.

7th. **Railroad crossings.** To make surveys, plans and estimates of cost for the elimination of danger at railroad crossings on highways and streets, and to confer with local officials, railroad officials and the Iowa railroad commission in the elimination of such dangers at railroad crossings.

8th. **Patent suits.** The state highway commission shall assist the county board of supervisors and the attorney general in the defense of patent suits relative to road or bridge construction, make surveys for the state board of control when so requested, and perform all other duties required by law.

9th. **Meandered lakes.** The highway commission is also charged with the survey and administration of all meandered lakes in the state.

Sec. 4. County engineer—bond—county road system. The board of supervisors of each county shall employ a competent engineer or engineers for such length of time, not exceeding one year, and at such compensation, to be paid out of the county funds, as may be fixed by the board of supervisors. Said engineer or engineers shall work under the direction and instructions of the board of supervisors in the performance of the duties hereinafter provided, and each shall give bond for the faithful performance of his duties in a sum not less than one thousand dollars (\$1,000.00) nor more than five thousand dollars (\$5,000.00). The tenure of office of any engineer may be terminated by the board of supervisors for cause or by the state highway commission for incompetency. The highways now designated as county roads by the plans and records now on file in the county auditor's office of each county and all county highways from time to time added thereto, shall be known as the county road system. All other highways in the county shall be known as the township road system. The system of road construction herein provided shall

apply only to highways outside of the limits of cities and towns; provided, however, that whenever any public highway, located along the corporate line of any city or town, is partly within said city or town and partly without the same the said highway or any part thereof, may be included in and made a part of the county road system, and when so included it may be improved by the board of supervisors as are other parts of the county road system. The system of bridge and culvert work herein provided for shall apply to all highways throughout the county outside the limits of cities of the first class; provided, however, that when any part of any public highway located along the corporate line of a city of the first class is included in the county road system, as herein provided, the board of supervisors and the city council shall meet jointly and adopt plans and specifications with the approval of the highway commission for the construction of bridges and culverts, one-half of the cost of the same to be paid by the city and one-half by the county, and in case the city council and the board of supervisors are unable to agree upon any question or questions involved in the construction of the same it shall be referred to the state highway commission, whose decision therein shall be final and binding upon each party.

In matters involving highway improvements upon or across state lines or in determining continuous routes for interstate roads, the state highway commission shall be authorized to confer with authorities of bordering states and to agree upon proper connections or plans and the apportionment of cost of such improvements.

Sec. 5. County map—notice of hearing petition—map sent to commission. As soon as said county roads are so designated, the board of supervisors shall cause said county roads to be plainly marked on a map, to be furnished by the state highway commission. Said map, after being so marked, shall be deposited with the county auditor, and shall be open to public inspection. At once, upon filing said map, the county auditor shall fix a date of hearing thereon, which shall not be more than twenty (20) days distant from the date of filing same; and ten (10) days' notice of the filing of said map with the county auditor and the date of hearing fixed, shall be published in one issue of each of the official county papers. At any time before said hearing is concluded, any ten (10) freeholders of the county may file a petition with the county auditor, asking for any change in said designated roads which may be deemed advisable, which petition shall set forth their reasons for the proposed change, and shall be accompanied by a plat correctly showing such proposed change. If no agreement is reached between the county board and the petitioners at the hearing above provided for, the county auditor shall forward said map, together with all petitions and plats, if any, showing the proposed changes, to the state highway commission. If no objections are filed and no hearing had, or if agreements have been reached, the map shall nevertheless be forwarded to the state highway commission.

Sec. 6. Commission—preliminary map—final approval—change in system. The state highway com-



COLUMBUS JUNCTION CONCRETE ROAD

mission shall, upon receipt of said maps, petitions and plats, proceed to examine the same, with a view of determining the correct lines to be followed by the county highway, having regard for volume of traffic, continuity and cost of construction. Such portions of said map as meet with the approval of said commission, may be approved and returned as a preliminary map for immediate use and the original map, when completed in accordance with the decisions of said commission (which decisions shall be final) shall be returned to the county auditor not later than March 1, 1914, and a copy of same retained in the office of the highway commission. *Provided that the board of supervisors of any county may at any time make application to the said commission for a change or modification of the established county road system when such change is proposed for the purpose of eliminating from such road dangerous crossings or curves, or when such change would materially decrease the cost of improving or maintaining the road, and in such case the commission may reopen such matter and authorize such change as may seem advisable.*

Sec. 7. Commission may select county roads—cost of designation charged to county. Should any county fail to make the designation of county roads, as herein provided, and fail to forward the same to the state highway commission within the time herein provided, said commission shall have the power to make a proper designation of said county roads for said county, and the designation so made shall be final and of the same force and effect as if made by the board of supervisors, and when so made by the commission, said commission shall certify to the county auditor of said county the actual cost of making said designation, and said county auditor shall thereupon issue warrant on the county road funds therefor.

Sec. 8. Survey and report—length of culvert—bench marks—existing permanent bridges—final survey and report—government corners—penalty. As soon as any part of said approved map is returned to the county auditor, showing the final designation of county roads, the engineer shall, in writing, divide said roads into sections, designating each section by some appropriate number, name or letter and clearly designating the starting point and terminus of each such sections, and such designation shall be recorded at length in the county road book, whereupon the engineer shall proceed to survey said roads and report to the board of supervisors the plan for the road, bridge, tile and culvert work thereon. Such survey and report shall be on the basis and with the object in view of the permanent improvement of said county roads, both as to bridge, culvert, tile and road work. Said survey and report shall consist of an accurate plan and profile of said roads, showing cuts and fills and outline of grades, with careful attention to surface, and lateral drainage and sub-drainage, and shall show the location of all lines of tile and size thereof and of all bridges and culverts, their length, height and width, and foundation soundings, and an estimate of the watershed relating to each bridge and culvert. Culverts constructed under the provisions of this act shall have a clear roadway of not less than twenty (20 ft.) feet. Proper bench marks shall be established on each permanent bridge and culvert, which shall be duly recorded on both profile and plan of road, for future reference. The engineer shall clearly designate and credit on said plan and profile all existing permanent bridges, culverts and grades. The board may cause all sections to be fully surveyed and a report made thereon before proceeding with the improvement contemplated by this act, or, in order to enable the board to proceed with the most necessary and urgent work, said board may designate the order in which the different sections shall be surveyed and planned, and may order the engineer to survey and report on certain named sections before completing the survey and report on all sections.

Whenever it may become necessary in grading the highways to make a cut which will disturb or destroy, or a fill which will cover up a government or other established corner, it shall be the duty of the engineer to establish permanent witness corners, and

make a record of the same, which shall show the distance and direction the witness corner is from the corner disturbed or covered up.

A failure to perform this duty shall subject the engineer to a fine of not less than ten (\$10.00) dollars, nor more than fifty (\$50.00) dollars, to be collected on his bond.

Sec. 9. Approval—board of supervisors—work according to plan—culverts classified—county fund—township fund. *The survey and report of each section, as soon as completed and approved by the board of supervisors, shall be submitted to the state highway commission, and the board of supervisors may designate to the said commission what section, in their estimation, should be first passed upon by said state highway commission. The said commission is hereby charged with the duty of passing upon such reports and plans, and in so doing, shall take into consideration the thoroughness, feasibility and practicability of such plans, and may approve or modify the same. After such survey and plan for each section is passed upon by the state highway commission, they shall be returned to the county auditor with full and explicit directions as to modifications, if there be any. The county auditor shall, upon receipt of the approved and modified survey and plans, record the same at length in a county road book, and the board of supervisors shall thereupon proceed to the construction of the road, bridge, tile and culvert work in accordance therewith, and as herein provided. The duty to construct and maintain all bridges and permanent culverts throughout the county is imposed upon the board of supervisors. All culverts and bridges shall be paid for out of the county bridge fund, except as provided in section thirteen (13) of this act. Where conditions are such as to warrant or necessitate the same, the board of supervisors shall furnish township trustees metal or other temporary culverts authorized by the state highway commission to be placed by them on their township road system. Said culverts to be purchased by the board of supervisors and paid for out of the county bridge fund and shall not exceed in size thirty-six (36) inches in diameter, or its equivalent. The county, however, shall be at no expense for placing, filling or transportation of said temporary culverts other than delivery at a railroad station to be designated by the board of supervisors. Immediately upon the completion by the board of supervisors of any bridge or culvert situated upon the township road system, or the installation of a temporary culvert furnished to the township by the board of supervisors, it shall be the duty of the township trustees to properly fill over with dirt all such culverts and fill in and uniformly grade the approaches to all such bridges. Should the trustees fail for a period of two weeks after notification to make such fill or fail to fill in and grade over such culvert, as herein provided, the board of supervisors shall proceed to do so, and the engineer shall report the actual cost of so doing and such amount, not exceeding one hundred fifty dollars (\$150.00), for any such bridge or culvert, shall be certified by the board of supervisors to the county treasurer who shall transfer said amount to the county road cash fund from the first collection of road funds belonging to said township.*

The county road fund, the county road building fund, the county drainage fund, and all other moneys received by the board of supervisors for road purposes, except as otherwise provided, shall be placed in the county road cash fund, and shall be paid out on order of the said board of supervisors, for the purchase of tools, machinery and equipment, or for tile and tiling, or for filling on culverts and bridge approaches as herein provided, or for work done on the county road system, or for the elimination of dangers at railroad crossings on both county and township roads, at the discretion of the board of supervisors on an adjustment of such dangerous conditions by negotiations between the railroad and the board of supervisors, or upon an order and finding of the railroad commission. All money received by the township trustees for road purposes shall be expended for and upon the township road system, or for the elimination of dangers at railroad crossings on the township roads, at the discretion of the township trustees, on

an adjustment of such dangerous conditions by negotiations between the railroad company and the township trustees, or upon an order and finding of the railroad commission.

Sec. 10. Adding township roads to county system. Whenever all the roads of the county road system have been improved according to the plans herein provided, the board of supervisors shall add such roads from the township road system as have been improved by the township in accordance with the general plans and specifications furnished by the engineer and in accordance with the requirements of this act, and if the township roads so improved be not sufficient to use all county funds available for that purpose, the board of supervisors may select additional county roads, but no increase shall be made in the mileage of the county road system until that system is completed, except that the board of supervisors may at any time add such roads from the township road system as will materially shorten the direct lines of travel between market towns. In all cases of additions the same proceedings shall be followed in all regards as herein provided for the original selection and improvement of county roads.

Sec. 11. Itemized bills—engineer's certificate—partial payment on contracts—repair work—violation. All bills for road work, tile and tiling culvert and bridge construction or for repairs designated by the engineer, shall be filed in itemized form and certified to by the engineer before being allowed by the board and before warrants in payment therefor are drawn by the county auditor. Before any warrant shall be issued by the county auditor upon the funds of the county road system in payment for any work or construction of highways, except for dragging, maintenance or repairs not designated by the engineer, he must secure on this bill the certificate of the engineer employed by the board of supervisors, that such improvement has been made in accordance with the plans and specifications as herein provided, and when so endorsed, warrants may be drawn for the amount so certified by the county engineer; but if said engineer make said certificate when said work was not done in accordance with the plans and specifications, the same be not properly made good without additional cost, then the full cost of making same good may be recovered upon said engineer's bond, and his bond shall be liable therefor.

Partial payments may be allowed by the board on contract work on the basis of the engineer's certified estimates and the percentages specified in the standard specifications of the state highway commission.

Repair work shall be known as work not designated by the highway engineer, all road construction work costing not in excess of sixty dollars per mile, work of a temporary character or of immediate necessity, and work necessary to maintain finished roads completed under this act. A violation of this section shall render the county auditor liable on his bond for the amount of said work.

Sec. 12. Standard specifications—manner of letting contract—bids—contract exceeding \$2,000 approved by commission—plans and specifications—permanent records—pay roll for day labor. Standard specifications for all bridges and culverts, railroad overhead crossings or subways shall be furnished without cost to the counties and railroad companies by the state highway commission, and work shall be done in accordance therewith, and when said bridge and culvert work is completed and approved a duplicate statement of the cost thereof shall be filed at once with the state highway commission by the county auditor. All culverts and bridge construction, tile and tiling and repair work or materials therefor, of which the engineer's estimated cost shall be one thousand dollars (\$1,000.00) or less, may be advertised and let at a public letting, or may be let privately at a cost not to exceed the engineer's estimate, or may be built by day labor. All culvert and bridge construction, grading, tile and tiling and repair work, or materials therefor of which the engineer's estimated cost shall exceed one thousand dollars (\$1,000) shall be advertised and let at a public letting, provided, that the board shall have the power to reject all bids, in which event they may readvertise, or let

privately by submitting contract to the state highway commission for approval, or build by day labor, at a cost not to exceed the lowest bid received. All bids received shall be publicly opened, at the time and place specified in the advertisement, and shall be recorded in detail, in a book kept for that purpose, by the county auditor; said book shall at all times be open to the public for inspection. Any proposed contract which shall exceed the sum of two thousand dollars (\$2,000.00) for any one bridge or culvert, or repairs thereon, shall be first approved by the state highway commission before the same shall be effective as a contract. Before beginning the construction of any permanent bridge or culvert by day labor or by contract, the plans, specifications, estimate of drainage area, estimates of cost and their specific location shall be filed in the county auditor's office by the engineer. Bridges erected over the drainage ditches shall, where necessary, be so constructed to allow the superstructure to be removed for cleaning said ditches with as little damage to the removal and permanent parts of said bridge as practicable. On completion a detailed statement of cost, and of any additions or alterations to the plans shall be added to the above records by the engineer, all of which shall be retained in the county auditor's office as permanent records, and when said work is completed and approved, a duplicate statement of the cost thereof shall be filed at once with the state highway commission by the county auditor. The board of supervisors may authorize the county auditor to draw warrants for the amount of pay rolls for labor furnished under the day labor system, when said pay rolls are certified to by the engineer in charge of the work. Said bills shall be passed upon by the board at the first meeting following said payment.

Sec. 13. Limiting extensive hill cutting. In all cases wherein plans, specifications and profiles are submitted to the state highway commission, proposing and setting forth the plans and specifications for improving any portion of a road system, if, except as to cuts, fills, and decreases in inclines such plans and specifications meet with the approval of the state highway commission, the said commission shall not refuse to approve such plans and specifications in full if the proposed cuts, fills, or decreases in inclines set forth in such plans propose to decrease the hills or inclines at least 20 per cent of the existing incline...

Sec. 14. Trustees to select druggable roads—road superintendent—township road system—one mill drag fund—annual report—transfer of drag fund balance. At every February meeting, or as soon thereafter as possible, the township trustees of each township shall select from its township road system the roads to be dragged, for the year, to be known as druggable roads, which shall include all roads in consolidated school districts and all mail routes, and shall employ a superintendent or superintendents, not exceeding four in number, for the township road system, who shall give bond for the faithful performance of their duties in such sum as the township trustees may direct. Said superintendent or superintendents shall have general supervision of all dragging and repair work on the township road system, including the placing of temporary culverts, and the term of office and compensation of such superintendent or superintendents shall be at the discretion of the township trustees. The superintendent shall see that the approaches to all bridges on the said roads are maintained in such manner as to present smooth and uniform surfaces, and keep the openings to all culverts and ditches free from weeds, brush and other material that will in any manner prevent the free discharge of surface water. He shall have charge of all druggable roads of the township road system and make contracts for dragging, and shall see that all druggable roads of the township road system are properly dragged at such times as are necessary to maintain such roads in smooth condition, at such price as is reasonable and necessary to secure such contracts, to be fixed by the township trustees. For this purpose there shall be expended, under the direction of the township trustees, through the road superintendent, upon the township road system not less than the one (1) mill drag tax now authorized by law. The

township trustees shall not allow any bills for dragging, maintenance, or repair work, nor shall warrants in payment therefor be drawn by the township clerk upon funds of the township road system until itemized bills therefor have been certified to by the township road superintendent. A violation of this section shall render the township clerk liable on his bond for the amount of said warrant. The compensation of such superintendent for all duties except any dragging actually performed by him, and the cost of all equipment for dragging, shall be paid for out of the township road funds. He shall at least once a year, or on demand, furnish the township trustees a report of all work done under and by him.

If, at the February meeting, a balance remains in the drag fund for the preceding year or years, the said balance may be transferred to the general township road fund provided the draggable roads of such township have been regularly dragged in compliance with the law during the preceding year and said transfer approved by the board of supervisors.

Sec. 15. Township work—plans and specifications—contracting with supervisors. Before beginning any work upon the township road system, other than hereinbefore described as repair work, the trustees shall make application to the board of supervisors, who shall furnish them with an engineer, to be paid out of the county fund, who shall survey and lay off such roads according to the plans and specifications as hereinbefore provided for the county road system, and the work shall be done in accordance therewith. *Providing the trustees may contract with the board of supervisors for the construction of any work on the township road system, provided the county shall not make any charge for the use of the county's road equipment except the actual cost of operating the same.*

Sec. 16. Repair and dragging county road system—officers not interested in contracts. The county board of supervisors and the engineer are charged with the duty of repairing and dragging the county road system as is required to keep same in proper condition, and shall adopt such methods as are necessary to maintain continuously, in the best condition practicable, the entire mileage of this system.

No member of the highway commission, their deputies, or assistants, or any other person in the employ of the commission, no county supervisor, township trustee, county engineer road superintendent or any person in their employ or one holding an appointment under them, shall be either, directly or indirectly, interested in any contract for the construction or building of any bridge or bridges, culvert of culverts or any improvement of any road or parts of road coming under the provisions of this act.

Sec. 17. Township clerk—duties county engineer reports—blanks. *Not later than the first day of January, or at any time upon the demand of the township trustees, the township clerk shall report the work accomplished on the township road system in his township, including number of culverts installed, location thereof and the number and size of culverts on hand and not installed. Said township trustees shall, as nearly as practicable, recommend what is to be done upon the township road system for the succeeding year, and shall also prepare a list of the culverts and bridges which in their judgment shall be constructed by the board of supervisors in their township during the succeeding year, giving the proposed location of such culverts, the material of which such culverts should be constructed, and the approximate size of same, together with any and all recommendations concerning such culverts as the board of township trustees see fit to give, which list, report and recommendation shall be filed on or before the first day of January of each year, or oftener if the emergency requires, in the office of the county auditor, and a copy of the same shall be forthwith mailed by the township clerk to each member of the board of supervisors.*

Sec. 18. Removal of obstructions—telegraph and telephone lines—expense. County and township boards, charged with the duty of improving public highways, shall have power to remove all obstructions

in the highways under their jurisdiction, but fences and poles used for telephone, telegraph or other transmission purposes, shall not be removed until notice, in writing, of not less than ten days has been given to the owner, occupant, or agent of the land enclosed in part by such fence or to the owner or company operating such lines. The notice to any owner or operator of any such telephone, telegraph or transmission line may be served on any agent or officer of such line, and all such fences and poles shall, within the time designated, be removed to such line on the highway, and as designated by the engineer, and if not removed by the date fixed in such notice, same may be forthwith removed by the proper officials. Any new lines, or parts of lines hereinafter constructed, shall be located by the engineer, and shall be removable according to the provisions of this section.

The notice of removal may designate to which side of the highway the said poles shall be removed. Any removal made in compliance with this section shall be at the expense of the owners thereof, without liability on the part of any officer ordering or effecting the removal.

Sec. 19. Contractors' bonds—limitation to action. The board of supervisors shall require all contractors to give a bond for the faithful performance of the contract, in such sum as the board of supervisors may deem necessary. The surety on any bond given to guarantee the faithful performance and execution of any work shall be deemed and held, any contract to the contrary notwithstanding, to consent without notice:

1. To any extension of time to the contractor in which to perform the contract when each particular extension does not exceed sixty days.

2. To any change in the plans, specifications or contract when such change does not involve an increase of more than twenty per cent of the total contract price, and shall then be released only as to such excess increase.

No contract shall be valid which seeks to limit the time to less than five (5) years in which an action may be brought upon the bond covering concrete work nor to less than one year upon the bond covering other work.

Sec. 20. Exclude all other procedure. The procedure herein provided for the designation and selection of county roads by the board of supervisors and the approval or modification of such selection by the state highway commission, shall exclude all other procedure. And the decision of the board of supervisors and the state highway commission in the designation and selection of the county road system shall be final.

THE LAW RELATIVE TO DISTRIBUTION OF AUTOMOBILE TAXES

Division of auto tax money—five per cent for support of highway commission. *Ninety (90) per cent of all moneys paid into the state treasury pursuant to this act shall be apportioned among the several counties in the same ratio as the number of townships in the several counties bear to the total number of townships in the state, said apportionment to be made by the state treasurer on the first day of April and the first day of August of each year. When such apportionment has been made the state treasurer shall forthwith remit to the county treasurers of the several counties of the state the amount of money so apportioned to the respective counties, and the county treasurer of each county immediately upon receipt of such money shall charge himself therewith and forthwith give notice to the county auditor of the amount of money so received. The county treasurer shall pay into the treasury of the cities and incorporated towns in such county a portion of said motor vehicle fund to be determined as follows: Each city or incorporated town shall receive a share to be determined by the ratio of miles of unpaved streets within the limits of said city or incorporated town to the total number of miles of public roads and unpaved streets within the county; provided, however, that in no case shall the aggregate amount apportioned to the various cities and towns exceed ten (10) per cent of the total*

amount apportioned to the county. And such apportionment to cities and towns shall be expended by them only for the purpose of improving the unpaved streets and roads connecting directly with the county or township road systems, or by order of the city or town council or commission the apportionment may be transferred to the county road cash fund and be expended on the county road system. For the purpose of making such apportionment the city or town clerk shall file in the office of the county treasurer ten days before the date of the apportionment from the state treasurer a certified statement of the number of miles of unpaved streets within such city or town, and the county auditor shall make a like statement of the number of miles of highway in such county outside the limits of cities and incorporated towns. The treasurer of each city or town shall charge himself with the sum received from said apportionment and shall forthwith give notice to the city or town auditor or clerk of the amount of money so received. The total amount of funds so received by the county treasurer, less the amount apportioned to the various cities and towns, as herein provided, shall constitute the county motor vehicle road fund and shall be expended for the following purposes only: the crowning, drainage, dragging or graveling of public highways outside the limits of cities and towns, and for the building of permanent culverts on such highways. Such fund shall be paid out on warrants drawn by the county auditor, duly authorized by the board of supervisors and entered of record. The same procedure shall apply to the expenditure of this fund as to the expenditure of other road and bridge funds. Five (5) per cent of all moneys paid into the state treasury on and after the taking effect of this act and pursuant to its provisions, shall be set aside and shall constitute a maintenance fund for the state highway commission. Said five (5) per cent shall be used for no other purpose than as a maintenance fund for said state highway commission, and shall be drawn out only on warrants drawn by the auditor of state on itemized vouchers approved by the state highway commission, the expenditures of which commission shall be audited by the executive council, and a full and complete report of all said expenditures shall be published in the annual report under the act creating the state highway commission. At the end of each biennial period ending January 1, 1917, the funds remaining in the highway maintenance fund shall be placed to the credit of the general fund.

DESTRUCTION OF WEEDS

Sec. 1565-a. It shall be the duty of each owner, occupant, person, company or corporation in control of any lands within the state of Iowa, whether the same shall consist of improved or unimproved lands, town or city lots, lands used for railway right of way or depot grounds, lands in which the

public has an easement for road, street or other right of way, or lands used for any other purpose whatsoever, to cut, burn, or otherwise entirely destroy all noxious weeds as defined in section two (2) hereof at such times in each year and in such manner as shall prevent the said weeds from blooming or coming to maturity, and to keep the said lands free from such growths of other weeds as shall render the streets or highways adjoining the same unsafe for public travel or shall interfere in any manner with the proper construction or repair of the said streets or highways, and shall cause to be cut, near the surface, all weeds on the streets or highways adjoining said lands between the fifteenth day of July and the fifteenth day of August of each year. But nothing herein shall prevent the land owner from harvesting the grass grown upon the roads along his land in proper season.

Sec. 1565-b. The following weeds are hereby declared to be noxious weeds; namely, quack grass, Canada thistle, cocklebur, wild mustard, sour or curled dock, smooth dock, buckhorn or ribbed plain-tain, wild parsnip, horse nettle, velvet weed or button weed, burdock, shoo fly, wild carrot, and Russian thistle.

Sec. 1565-c. If any such owner, occupant, person, company or corporation in control of any such land shall fail or neglect to do the things necessary to prevent the said noxious weeds on any such land from blooming or coming to maturity, or shall permit weeds thereon contrary to the provisions of section one, the said board of trustees, town council or commissioners, as the case may be, shall make an order fixing the time within which the weeds shall be prevented from maturing seed or the said weeds shall be destroyed, and if the order so made is not substantially complied with by the time fixed in the order the board of trustees, town council or commissioners, as the case may be, forthwith to cause said order to be fully performed, and the expense of the same, they shall assess against the said land and the owner thereof.

Sec. 1565-f. All of the provisions of this section relating to the duty of the owner of the lands to prevent the blooming and maturing of noxious weeds thereon and to destroy such growths of other weeds thereon as may interfere with the use of highways shall apply also to cities and towns and the proper officers there as to all streets, highways and lands of any kind within their borders the fee of which shall rest in the public.

Sec. 1565-i. Any township trustee or road officer or other officer who neglects or fails to perform the duties incumbent upon him under the provisions of this act shall be guilty of a misdemeanor and shall be punished by a fine not exceeding one hundred dollars (\$100.00).



Questions Upon Iowa Road Law

Where is the State Highway Commission office located? Who are the members? How appointed? How long do they hold office? How removed? What salary do they receive?

Name the duties of the Highway Commission. What are the regulations governing the employment of the County Engineer?

What is the county road system? Can it be changed? How?

Who has charge of roads along or across state lines?

Does the county road system apply to roads inside of cities and towns?

Who has charge of all permanent bridge and culvert work outside of cities of the first class?

In what office is the county road map on file?

What is the value of a careful road and bridge survey? Is this required before permanent work is started? What is included in this survey?

What is the minimum width of roadway required for culverts?

How can township roads be added to county road system?

Are public officers permitted to participate in contracts for public work?

What reports are required of the different road officials? When is each required?

What are obstructions in the highways? Who is charged with the duty of removing them?

Why are contractors required to give bonds for faithful performance of work?

What percentage of the automobile license fund is returned to the counties? How is this determined? For what is it used? What per cent of this fund is used by the Highway Commission?

How is the correctness of all bills for road and bridge work assured?

What is repair work?

Who furnishes the standard plans and specifications for road and bridge construction?

What contracts must be approved by the Commission?

What work must be advertised for? What is the advantage of advertising for bidders on public work?

Who has charge of the township work?

Who makes the contracts for dragging?

Who must cut the weeds along roadsides? Who must cut the weeds on vacant lands? What are some of the noxious weeds?

Must the township road work be surveyed by the county engineer?

Are trustees allowed to use the county road machinery?

Who must keep the county roads in good condition?

TRAVELING LIBRARY
STATE OF IOWA



HEAD MEMORIAL BRIDGE ON LINCOLN HIGHWAY

This new concrete arch takes the place of an old style steel truss over Butterick's creek east of Jefferson in Greene county. It consists of two arches each 55 feet in length. It cost \$6,186. A change in the roadway approaching and leaving the bridge wipes out a dangerous corner on the famous transcontinental highway. This bridge was built on dry land and a new channel cut for the creek. This was done to turn the creek channel so that it would have a straight approach to the bridge and to prevent the washing of the grade. This was one of the finest improvements made on the Lincoln Highway in Iowa during 1914.

The Old and the New

(Adapted from "Successful Farming," Des Moines.)

Old Bings lived on the Tully place
A dozen miles from town,
It took him just a solid day
To make the journey down.

He didn't care. Sez he, "What's time
When crops will sprout an' grow?
I've never seen no need why men
Should try to hustle so."

Now Bings lived on a roadway that
Was thick with oozy slush.
He wallowed homeward with his nags
And floundered in the mush.

Old Bings he had a single boy,
He sent him off to school.
"That boy hain't got a bit o' sense,
He acts jes' like a fool."

One day the boy to home returned—
His father sez, "See here,
You'd better go right back to school
An' stay another year

An' fill yer head with common sense
Till you can use yer face
An' tell me one improvement
I can make aroun' th' placee."

The boy was game. Said he, "See here,
You go to town a while
I'll make this place look different
Before you've gone a mile."

Old Bings drove off. Young Bings pitched in
And on the morrow night
When old Bings to the farm returned
He saw a wondrous sight.

A gravel roadway led to town
As smooth as polished glass
And rigs and autos sped along
'Twas fun to see them pass.

Where once the rustic wooden bridge
A new steel structure stood.
Designed and planned to carry loads
And looking mighty good.

The house had two new coats of paint
The yard was neat and trim.
And neighbors looked and said there ain't
No flies on little Jim.

A concrete barnyard slick and clean
Saved every ear of feed.
The hogs and cattle feasted fine
And satisfied their need;

The barn was all cemented round
To tease the rowdy rat—
A concrete walk extended down
To where the hogs were fat.

Old Bings he looked and looked again.
Sez he, "Wal, this ain't bad.
It beats all how a right smart boy
Is always like his dad."

Club Woman's Creed

I believe in good roads.

I believe in systematic road work.

I believe good roads will lead us to better schools.

I believe good roads will make better living conditions in the town and in the country.

I believe the women of Iowa should enlist in the fight for better roads while we are here to use them.

I believe that the last fifty dollars spent upon the proper finishing of a road will do more good than any hundred that preceded it.

I believe that no road should be built and allowed to take care of itself. There should be a system of road patrol.

I believe that the weeds should be cut along the roadside and will use every effort in my power to see that the proper road officials have this done if the land owner neglects to do it.

I believe no road work should be commenced that cannot be finished in better shape than it was when it was started.

I believe in building roads not working them.

I believe in **ROADS FOR WOMEN.**

I WILL WORK FOR BETTER ROADS FOR IOWA.

Our Local Road Officials

(To be filled out by each club member.)

Supervisors—

(Name)	(Address)
.....
.....
.....

Trustees of the Township in which I live—

.....

.....

.....

County Engineer—

.....

Township Road Superintendent (from one to four)—

.....

.....

.....

Road Officers of my town—

Mayor

Councilmen

.....

.....

.....

State Highway Commission—

Chairman

.....

.....

Highway Engineer

.....

Commercial Club of my town—

President

Secretary

Organized Roads through my town—

Name

Officers

.....

Name

Officers

.....

