In my county it would be a financial impossibility to maintain our winter road service if it were not for our sheltered areas. We have definite proof of this statement because all the taxes combined that are raised in one of my townships do not even pay for the snowplowing service in that district.

Wide rights-of-way cost a great deal; but the terrible catastrophe where entire farms were blown away in the great dust bowl would never have happened with adequate sheltered areas for windbreak protection. Windswept farms are costing the farmers of the nation millions of dollars, and windswept roads are costing the entire nation millions of dollars.

Summarizing, we should have sheltered roads:

1. For general windbreaks.
2. For moisture retention in summer and winter.
3. For wild-life protection. It is said that farms could not exist one year if the birds were not our friends.
4. For stock shelter.
5. For ultimate timber crops from mature trees.
6. For military protection in emergencies.
7. For a perpetual yearly saving in actual road maintenance both in winter and in summer.

DISCUSSION OF COUNTY ROAD ORGANIZATION

H. J. Schnitzius,

Landscape Supervisor, State Highway Commission of Indiana

I am not qualified to discuss the county-road-organization comparison revealed by Mr. Koronski's discussion—but any set-up that permits a qualified engineer or technical expert to be protected in his work has elements of common-sense government.

In reference to the snow problem, Mr. Koronski discussed an annual snowfall of 150 inches. The average at Indianapolis is 22 inches and that at LaPorte, the area of our greatest snowfall, about 50 inches.

On the subject of "loose-surface" road, our maintenance department has proved one point beyond all doubt—that the program of raising secondary roads from the status of "drag-surface" maintenance to a stabilized-surface road by a well-planned, long-term "stage-construction" program has been the reason why, on an increasing mileage, maintenance can be carried on with the same amount of funds each year.

In talking of the economy of a primary or secondary road, one is usually discussing only the paved strip. The greater the length to which a false economy of limited right-of-way and stunted design of grade is carried out, the greater becomes the amount of maintenance money needed to maintain that road.
Build a cheap cross-section in this part of the country and increase your maintenance—or build a cross-section right to start with, and use your maintenance dividends to build more good roads.

The engineer who Mr. Koronski felt was lucky in having money enough to take care of his roads is not really the lucky one. The lucky man is the taxpayer of the county which has an engineer capable of administering his roads so that he does have money enough for them.

Granting that outlying roads belong to the research department and that there is often red ink in research, I disagree with the theory that roads that continually show a deficit can be long maintained, unless the land tapped by that road can show a future. This might be true in a pioneer stage, but not today in Indiana. The farmer back on that isolated road bought his land cheaply because it was not on a good road. His neighbor on the good road has paid more for his land—and gets more in return.

Trying to make a submarginal road pay out is like trying to make a poor farm pay—it will eventually starve its owner. We have lately been faced in Indiana with townships that could not produce enough income to pay for a school that would give the children an education, let alone paying for the political services, roads, and other elements of government. It was cheaper to move the farmer out than to subsidize his existence.

Subsidization of local government by state or national agencies is the real threat to local self-government. But local self-government has a responsibility of its own—a responsibility to be able to take care of itself. Responsible mortgages, private or political, that can be repaid are an investment. But if there is not income enough to justify the loan, the outsider moves in.

No one is more jealous of his personal prerogatives than the speaker; but injudicious expenditures of income would be the surest road to loss of his personal freedom of action.

PARKS

I have been in Mr. Koronski's county on two occasions, and no descriptions of its charm do justice to its actual beauty. Here is a county capitalizing on its scenic values, storing them up for future wealth. Here is a county road engineer, mind you, speaking of a county park acreage greater than the combined area of the 80 roadside park systems of the Indiana State Highway Commission. And I will venture to say that, before too long a time, the few acres of virgin forests he is preserving will be bringing to that county more wealth than all the thousands of acres of exploited timber lands that county originally contributed to the greed of the timber "barons." They were the so-called democratic government,
the defenders of free enterprise, in that only-recently-passed era. Responsible local administration will either prove its worth by preserving this scenic wealth, or leave a path, so familiar in that county, of exploitation and devastation in its wake.

We have little of the spectacular type of scenery, as described by Mr. Koronski, left in Indiana. So we must content ourselves with the things we have when we think of county parks: fine, shady groves, a few beautiful views, a wealth of lakes and streams. There is legal procedure available for county commissions to set up park facilities in Indiana. It has been rarely used. During a recent traffic count at a roadside park, one of the groups using the park that Sunday was a local officials' association from an adjoining county. They were welcome—but they were there because they, in their official capacity, were neglecting a chance to serve their own county in their fullest capacity by developing local county parks.

**Trees**

The tree population of our roads is gradually dwindling until a good, whole tree on a road right-of-way is becoming hard to find. The recent devastation on our county roads by R.E.M.C. is a monument to public lethargy in this matter. Because no official made it his duty to protect these trees, tens of thousands of trees have been mutilated and left as monstrosities, or to die because of the ruthless hacking they received. I grew up on a farm—and no one knows the value of electricity on the farm better than I—but eight years in the State Highway Department has also taught me that 90 per cent of the tree destruction in Indiana is entirely unnecessary. It is not a matter of budget money; it is a matter of someone's realizing and caring about what happens.

**Rights-of-way**

Public opinion in Indiana is not reactionary in considering wide rights-of-way. A review of our neighbors east and west shows a much greater reluctance on the part of the public to part with land for highway purposes than in Indiana.

If acreage values were the only items concerned, there would be little or no opposition. The problem of improvements, built up on the older roads, makes the real problem. For that reason the citizens of Indiana should begin to educate themselves to think of preventives instead of cures, of regulation or zoning of rural roads instead of tremendous removal and damage costs on improvements. Demands have steadily increased for the needs of the road, and will likely continue to do so for some time to come. These factors apply to all roads and are worth some study.
Mr. Koronski has the courage to see new horizons; he has
given you something to think about. All his Michigan problems
do not apply to Indiana, but the same amount of serious
thought by each county and state road engineer in Indiana
would make this state the envy of the world. The public sup­
port is here, the soil is here, the trees are here, the grasses are
here. Try putting them to work for you. Then you won't have
to worry quite so much about changes of administration.

GRAVEL ROAD STABILIZATION WITH
CALCIUM CHLORIDE
L. B. Griffin,
Johnson County Road Supervisor

The use of calcium chloride for base stabilization was first
undertaken in Johnson County in 1940 as a result of efforts
to improve bad road conditions caused principally by ex­
tremely dry weather. The gravel roads had become rough and

able conditions to residents along the roads, and the replace­
ment cost of the lost material was increasing each year. All
roads were rather heavily traveled and we had a constant
flow of complaints both from drivers and from those living
along the roads who were compelled to keep doors and
windows closed on account of the dust.

Most of the roads were those for which bituminous paving
being thrown out by traffic immediately after grading. Con­
siderable gravel was thrown into the ditches by traffic or
ground into dust and blown away. This dust created intoller­
corrugated in spite of constant blading, the loose materials
was not contemplated for several years, if at all. Others were