Mr. Grimes, distinguished guests, friends. That elaborate introduction was more than I had anticipated and I still do not know where he got the goods on me in past years because I assure you that I did not give it to him. It reminds me of an introduction down in Little Rock, Arkansas sometime ago, one of my other good friends at that time started in to tell some nice things about me and he ended up by saying, “You know, there is one section of Arkansas where they think so much of Bob Brooks that they named a town after him” and I was all agog to hear where he was going to say, and he paused for a moment and he said that the name of that town is Bald Knob.

When our host of this Conference invited me to come over here, I was very much in the fix of a man who was bringing in a load of potatoes with his truck over a bumpy railroad and he was not paying too much attention to his load and the end gate became unfastened and his potatoes gradually rolled out. Pretty soon he got into a section of road that was rather muddy and he hit a particularly deep stretch of mud and the truck stopped. He looked around and saw that his potatoes were gone and he said: “Here I am, in a helluva fix, stuck in the mud and nothing to unload”.

You know, you engineers and officials probably represent one of the oldest professions in the world. I mentioned to some of the engineers this morning that there was a doctor and a lawyer and an engineer who were discussing which was the oldest profession. The doctor said, “Of course, the medical profession is the oldest profession because it has been in existence since the beginning of the world.” The engineer said, “Well, he was sure that the engineering profession was older than that because somebody had to bring order out of chaos”. The lawyer said, “Who the hell do you think created the chaos?” There are several definitions for engineers, one of them we are familiar with because engineering has been defined as the utilization of forces and materials of nature for the benefit of mankind. However, day before yesterday, I ran into a different sort of definition which rather appealed to me and I am going to give it to you just as it is printed here: He said that “An engineer is one who poses as an exacting expert on the
strength of being able to turn out with prolific fortitude strings of incomprehensible formulae calculated with micrometric precision from extremely vague assumptions which are based on debatable figures applied from inconstant and quite incomplete experiments carried out with instruments of problematical accuracy by persons of doubtful reliability and rather dubious mentality”.

You know, I do not want to forget to tell you of the fine work that was done by Dean Terrell as a member of the Board of Direction of the American Society of Civil Engineers for three years in representing all the engineers of Kentucky and Indiana for this section of the country. He made a splendid record and his colleagues liked him very much because he had that natural way of talking that gets across. He did not have to stand on his dignity – they knew that he had what it takes, and we were all proud to be associated with him then. I think that your Kentucky record in the highway work has been remarkable. We can all remember when things were not going so well in Kentucky, when you had some nine Highway Departments, each one more or less an entity to itself and I was considerably impressed to learn this morning the factual information that the State of Kentucky, according to Commissioner McDonald, of the Bureau of Public Roads, was second in the whole United States in the number of miles of road under contract among all the states and sixth in the dollar value of contracts awarded last year. It was amazing to me that you all, according to this report, had placed 2,926 miles of highways under contract and forty-five major bridges and numerous smaller structures. One of the things that I can congratulate you on is the passage of that salary amendment to the Kentucky Constitution that will help make possible a better standard of living for you who are of such great service to the people of your State. I was just talking to Senator Reynolds a while ago as to how it was that engineers will hide their light under a bushel and do the work that is of so great service to their fellowmen and still not get the credit that is due to that engineer. So I certainly hope that here in Kentucky the Legislature carries out the provisions of that amendment and gives you something of what you have been entitled to for the fine work you have done all these years. I also want to congratulate a department in working out this research cooperation with the University in order to get the best talent that is available in Kentucky and at the same time coordinate the activities of the University of Kentucky professors and the research laboratory with the actual working out in the field. I think it is a fine job, Mr. Bray, and I think that other states should go along and do likewise.
You all are probably conversing with the bill that was just introduced by Mr. Will Whittington of Mississippi who is a chairman of the House Committee on Public Works which would give an additional fund for Federal Aid for '52 and '53. I think the bill was only put in within the last week or ten days and in addition, if my memory is correct, we have Federal Aid of $450 million a year. This brings in $500 million, plus $70 million,—the $500 million, of course, is on a fifty-fifty basis, but this additional $70 million for interstate highways is on a seventy-five-twenty five; that is, the State puts up twenty-five percent and the government puts up the seventy-five percent, and lest anybody have an idea that Uncle Sam is giving us anything, he is simply giving us a part of what we turn over to the government in motor vehicle fuel tax during the past years. You know, a month ago, there was an economic report made to the President of the United States and in that, it was brought out that the highways actual needs of this United States for the next ten years is $41 billion dollars. That sounds like a lot of money. On the other hand, if we took the forty-one billion miles of travel and saved one cent a mile in the cost of running your automobile, that would be four billion dollars a year that would be saved from the better highway system. It is said that a nation advances in proportion to its intercommunication system and that means, of course, in addition to highways, railroads, waterways, and airways. In making a comparison, I am not sure whether these figures came from the Bureau of Public Roads, but at any rate, they are authentic. The whole continent of Africa has a population of 175 million people. The State of North Carolina has a population of 360 thousand people and the state of North Carolina has 619 more motor cars than the whole continent of Africa. China, with a population of 460 million people as compared with Nevada's 110 thousand, has 10,000 less cars than the State of Nevada. Russia, this United Socialistic Soviet Republics with its population of some 250 million, operates less cars than the State of New York with thirteen-and-a-half million population. In fact, the State of New York has seven percent more cars than all of Russia. Any country that is progressive and highly developed is necessarily supplied with good roads. I do not think there is a person here that has not seen our own United States move forward in our own lifetime. You know, we had a north, south, east and west and people were suspicious of each other. Why? because we did not know each other. But since the advent of the motor car, and you might say since 1905 or '06, we have been moving around so that we do know each other so that we are now one country and not the north, east, south and west.
I never had that so forcibly impressed on me as on an assignment by the Mexican government some years ago. There was a little town on that section of the road about 150 miles north of Mexico City. The closest I could get to pronouncing it was Thomas and Charlie. A lot of those people could not speak Spanish much less English and yet within one year of the time they started working on the highway down there, you could buy ice cream cones on the street of that little village. Now whether that was an advance in the cultural civilization, I do not know, but at least, those people knew the advantage of automobiles and they did get around and visit each other and when you realize that, in order to build those concrete structures prior to that time, you would see these little 115 pound men carrying a sack of cement on their shoulders twenty and twenty-five miles a day as the only method of transportation to get that cement to the structure and sometimes to bring that cement great distances in canoes, you realize what the highway system meant to those people. And it meant that they were living better and that is what highways mean to everybody.

I was thinking about Mexico particularly when Mr. Grimes mentioned Tom Cutler because Tom and I were invited down to Mexico at the dedication of the first link in the Inter-American system which was built by Mexico from Laredo, Texas to Mexico City, some 765 miles. Dean Terrell rode over that last summer and now on May 5 of this year, they are going to dedicate the last section in Mexico, another link about 175 miles south of Mexico City to the Guatemalan border so that now you will be able to drive down through Mexico into Guatemala, through Guatemala to Honduras, and to all of the rest of the Central American Republic with the exception of Costa Rica, (you cannot go through Costa Rica), on down to Panama City, a distance of some 3,100 miles. And all that within the last quarter of a century.

It is amazing what our brethren have done in connection with highways but let us not forget, gentlemen, that the ancients also did a swell job of engineering. I have a book in my library written by a man who was Chief Engineer of Augusta Caesar’s, about the time of Christ, and he wrote down a lot of the specifications of some of the jobs he did. He also discussed a number of things that some of his predecessors had done. You know, when I went to grammar school, I thought that Columbus was the first man who thought the world was round. That was in 1492. And yet there was a man who lived in the year 276, Before Christ, who not only enunciated the theory in writing that the world was round, but actually measured the circumference of the earth and figured out that it was 28,970 miles in circumference. He did that be-
cause they knew the distance up the Nile River from Alexandria to some eleven or twelve hundred miles and they got the inclination of the sun at both places at noon, figured that portion of the circumference of the earth and then went on from there to give us his theory that the earth was round. We must not forget, too, that those engineers back there, even five hundred years before Christ, had dug the Suez Canal a long time before we thought of it in the past century. The Cretins used metal circular saws, they had ball bearings in those days, they had roller bearings, they had machine tools, metal faucets and jointed terracotta pipes. They also practiced electroplating in those days. They had seagoing vessels four hundred feet long and sixty feet wide that could go by manpower seventeen miles an hour. And, of course, they had to have harbors and docks and all the other things that engineers built. The only thing is this, that engineers in those days were just as modest as they are now. We often hear of the pyramid of Cheops. Cheops was not the engineer that built it. He was the man who furnished the money. It does not make any difference, but they had some darned good engineers in those days, too, because that thing which was 755 feet square at the base and 481 feet high and contained eighty-five million cubic yards of masonry was off, by a modern survey, only six-tenths of an inch in its dimensions. It is too bad we did not have the name of the engineer that designed it.

There is one thing about our Mexican brethren to the south of us that we could take a lesson from. On that highway as you drive down to Mexico City, you will see names on certain difficult portions of the highway; you will see names on bridges and they are the names of the project engineers at that particular place. Some of them possibly did not have college degrees but, incidentally, I was much surprised in talking to what would correspond to the Chancellor or President of the National University of Mexico some years ago, when I gave a series of lectures down there (incidentally, I did not speak in Spanish, I spoke in English because they told me all these boys learned their Civil Engineering out of American textbooks so I could talk in English and they could understand me). The Chancellor asked me what the oldest University in the United States is and I told him I was not sure whether it was Harvard or William and Mary. Well, he said he was not sure either, but when they were established, the National University had celebrated its 150th anniversary. So these folks had been thinking along engineering lines a good many years, too, and let us not forget then when it comes to roads, that the old Romans did a swell job.

As you go over the Appian Highway, either south of Rome or,
if you go on that highway from Rome up towards Genoa, by way of Pisa, and round the gold coast to Monte Carlo and Nice, France, you realize the roads that were built 2,000 years ago are still standing, and sometimes with very little maintenance and, south of Rome, with no topping whatsoever, but what they had 2,000 years ago. And the secret of that was one hundred percent drainage. I still think drainage is about eighty-five percent of a road. You can even have an over all weather highway today at a very secondary cost if you will keep your drainage at one hundred percent.

But it is amazing to me the progress we have made here. Not only in Kentucky but also over in Missouri. You know, in 1906, the principal travel was by horses and mules. As a matter of fact, George Washington did not travel any faster than they did thousands of years ago. We had some twenty-six million horses and mules in 1906 and an annual travel of thirteen billion miles a year averaging about five hundred miles a year with horses and mules. Today we have pretty close to forty-four million cars, trucks and busses here in this country and last year they covered a half trillion miles per year or an average of 9,800 miles per year as compared with the five hundred miles we traveled by the horse and mule system back in 1906.

You know you had shortages of material, equipment, and manpower during the war because you were held down. You know that a great many of your highways needed major repairs and you could not do the job. Now that has been alleviated to some extent but your main obstacle today is that sufficient funds must be made available. You have to have adequate financing for your major maintenance and, as I have said before, that has been figured out from 41 to 47 billion dollars in the next ten years. I mentioned 41 billion because that is the latest report of The Committee on Economic Research that was turned over to the President on January 28, just a little over a month ago and, at that time, President Truman and, may I mention this — President Truman probably knows more about highways than any president I have known in the last thirty-five years. I say that from a knowledge of what he did in Jackson County, Missouri where he devised a system of parkways that have been a model for similar parkways in that section of the country. I talked to his Chief Engineer, and there were no politics that had anything to do with the layout of those highways from an engineering standpoint. In talking to Mr. Truman, I find he still knows more about highways even than President Hoover with whom I talked about highways many years ago. I am going to quote from Mr. Truman who made this statement not over five or six weeks
ago: “Highway traffic has increased faster than total production, population growth or highway capacity. An annual increase of three percent and output of transportation would require an annual expenditure of at least four billion dollars a year for maintenance, repair and new construction of our road system. About one-third of this should be assigned to city streets and expressways, one third to primary roads, and one-third to secondary and local roads. Expenditures 1949 were not equal to even half our annual long-run needs”. Now while he recommends four billion dollars a year, annually, please note he thinks that is not equal to even half of our annual long-run needs.

In talking to Dean Terrell, he suggested that you all might be interested in making a brief trip with me over some of the countries in Europe, mentioning some of the construction work which is done and some of the local economic things I have personally observed. The last time I was over there was about a year ago and, the time before was 1947. Remarkable even in that one year period—a year and a half period—how much things have changed. I was over various times before the war. In fact, I was in Vienna when the Nazis moved into Austria in 1938. Conditions have changed a lot. As a matter of fact, you can now go into Germany and Austria without too much trouble providing you make arrangements with the War Department to go into Austria. Then you get your passport into Germany without much trouble at all. In going from London, it would have taken two days and two nights to go over to Paris and then through the Netherlands and Belgium into Germany, but it was rather simple to take one of our American overseas Constellation planes from London and in three hours land over on the Continent. Our military Government has help set up hotels in some seven or eight German cities to take care of American businessmen and now American tourists for this year who want to go into Germany. And they take care of you very nicely. You can get about as good food over there as you could at home because most of it comes from this country. The eggs and butter might come from Norway and some of the supplies, like cheese, from Holland. Now the people did not wear particularly good clothes but I did notice that they were rather well dressed. I never saw but one child who did not have on shoes and they looked well and they looked healthy. Of course, it is a fact that those people out in the small towns did not suffer as much as those in larger towns because they could have small gardens where they could grow the necessary food and they could also have the fresh air that they need, whereas you get into a town like Frankfurt and you run into streets filled with the rubble of
bombed houses — a lot of it still lying there — some of the ruins still standing up and you want to be kind of careful as you go by because sometimes those things fall down for no seeming reason at all. While the people are in better shape now than they were, they still look thin, they are dissatisfied, and there is an atmosphere of hate and bitterness still existing. If you talk to some of those people, you will realize they still think that they were a lot better off under Hitler and democracies to them means that they are an occupied country. My three boys fought overseas more than three years apiece. Their viewpoint of Germany is we have taught them one thing, if there is going to be a third war, they have to win it. So let us be careful in our enthusiasm to get out from under the load of furnishing supplies and money to Germany that they don’t come back so quickly they get in shape to take another crack at us. We have to feed them because hungry people do not care anything about politics. All they realize is that self-preservation is the first law of nature and we simple throw them into the arms of Communists. I had an opportunity to study and restudy conditions along the Reich Audubon System, the State Road System in Germany. You remember that they had marvelous roads over there. Of course, they claimed they did it all. As a matter of fact, they got the idea from our own highway system in Wayne County, Michigan, and also from our splendid highway system just north of New York before they started. But they did a swell job. They had these roads, if you will remember, 24'-8" wide, two lanes, each one that width, separated by a minimum of 161/2" of parkway. They had railroad grades and it was possible to drive ninety to one hundred miles an hour in perfect safety if your automobile was good enough. Now they have cut that down to forty-five miles an hour because they were killing too many people since the war. Compare that with the seventy miles an hour which is allowed on the Pennsylvania Turnpike. But every main bridge was destroyed on the main roads, not by our bombers, not by the British, but by the order of Hitler to his Black Shirts when he knew Germany was licked. And the reason that he had those bridges destroyed, he told the German people that they did not deserve all these modern improvements he had given them because they had shown they were not as big as he thought they should be. They evidently put a charge of dynamite and collapsed in between spans. They did not tear up the piers and you will see they had stiff leg derricks on either side of those collapsed spans to lift them up in the middle and then built a pier where those spans have broken in the middle and thus put them back in shape. In some cases they have been rebuilt. Of course, it is not our business, the United States. Men who were on the staff had
worked there before. Pat's done a swell job. He has gotten these Germans to realize they have to clean up their own mess and get rid of the debris and the rubble but nevertheless their sulky faces and sulky dispositions, and I do not know that you can blame too much, because after all, they were licked. I hope to God they stay that way so they do not get a chance at our children and grandchildren later on. But Pat has done a swell job and he has gotten those folks to work, so we have to support them less than any other state in Germany. It is rather interesting to look at the highway system over in Austria. They did not get very far with it during the war but Austria, the same as Germany, is governed by the quartet, that is, by England, the United States, France, and Russia. And the town of Vienna is just exactly like Berlin. It is divided into five zones: American, British, French, Russian and International. The Austrians asked the powers — the occupation forces — to permit them to go ahead with the road which would give their people something to do and at the same time give them a better road on which to drive. England, the United States and France agreed. Russia said no. The reason being that they claimed that actual Austrian territory, just like you own your own house, they said that the Germans had either bought it or had taken it by force and therefore it belonged to Russia as a spoil of war. They also claimed every piece of property and every house in which a German lived or owned as spoils of war for Russia. It is rather interesting to go into the Russian territory of Austria. I was told not to, but being an American as soon as they told me that, I wanted to see what it was like and I also wanted to see some folks that I had known before and find out whether the Austrians were really Communists or not. So I did go over into the occupied section and I was not worried about the Austrians being Communists because the answer of those people, some of whom I knew and some of whom I had help feed during the last several years, said they either had to join the Communist party or starve. And the rest of us did not need to worry about what they are doing. As soon as they could get rid of that all-powerful Russian influence which is just as totalitarian as Hitler was.

In wanting to go down to Italy to look over the road system down there and the bridges, and what they were doing, it was necessary again to go through Russian occupied territory so I cleared with military intelligence and sent over an application to the Russian general for clearance through the Russian territory. I came back that night to military headquarters and there was the application which the Russian soldier dumped on the desk. It did not say yes, it did not say no. It did not give any reason for what should be done so, I asked
them to take it back the next day with the same results and the third
day and the fourth day it came back about 5:00. There was a little note
on it. They told me that this was unusual for they had not approved a
single military or civilian authority to go through this Russian territory
to the south for the last three weeks. So I got on the train going down
towards Trieste. About midnight there was a knock on the door andive of these Russian officers were out there—they were talking in
Russian—I did not know what they were saying. I handed them my
passport and this gray card that had come back with the clearance
papers from the Russian General. They handed me back my passport
but they did not give me that gray card. And I thought what the Sam
Hill am I going to do if some other Russian gets on and wants this
gray card so I reached over and jerked it out of his hand and stuck it
in my pocket and went on into the stateroom and shut the door. They
stood out there muttering awhile. There I was, scared to death that
they were going to take me off the train, but they didn’t. I am told
they do those things just to be a nuisance. It is rather interesting.
Colonel Gertz had a lot of trouble keeping the lights on the American
flag outside of our headquarters alight at night. Invariably a lot of the
bulbs would go out whereas over at the Russian headquarters they had
a big red star easily much higher than the height of this room. So
Colonel Gertz employed the Austrian contractor who was handling the
Russian electrical system to handle ours and, from that time on, the
American flag and the red, white and blue lights always stood out and
every once in a while the Russian red star would go out completely.
So it was a great achievement on our part, much to the disgust of
the Russians.

One of the loveliest roads I saw over there with Pat Van Wagner
was around Berchtesgarten, that Hitler built not very far from Munich.
Our boys called it Eagle’s Nest but it was the soldiers of our folks who
call it Eagle’s Nest and not the Germans. It is one of the loveliest spots
you have ever seen. Those of you who have seen it will agree with me.
They employed Italian engineers because the Italians were more used
to building mountain roads than the Germans. As I said, the policy of
the United States government was not to build anything in either
Austria or Germany of a permanent nature except where it was to our
own advantage.

Now over in France they have done a very good job in rebuilding
the roads since the war. A friend of mine is the chief engineer of
France and he gave me the latest information up until about six
months ago. They have 80,000 kilometres of national trunk lines and,
when you figure that a kilometre is 3/8 of a mile, that is about 50,000
miles and then they have three times that amount of departmental roads and about ten times the length in public roads we would call secondary roads.

They were in pretty good repair prior to the war but during the German occupation, there was practically no maintenance so they more or less went to pieces. Those maintenance men have done a swell job and the serious damage which was done by air bombing has been repaired. They had some 2,500 bridge structures that were ruined and two thousand of them have been temporarily repaired within the last three years. But again, that was prior to 1945. Then Germany launched a tremendous lot of bombing over there and they wrecked some 6,500 bridges. Now that made 7,500 to be repaired altogether. In fact, all the bridges over the Seine River, which runs through Paris, were destroyed with the exception of very few. In France, it is not so easy to get asphalt as it would be over here because practically all of it has to be shipped in. They need 800,000 tons a year and they have only been able to import some 50,000 tons, although last year they did get 170,000 tons of tar and 230,000 tons of asphalt. Under the present plans, they are reconstructing 600 bridges a year and they hope to get them all back by 1955. They want to modernize the highways but while they are talking a lot about it, they are really not doing too much of a job. In fact, if I remember correctly, they have only about a twenty-five mile job of what we would call a good highway out of Paris. They are reconstructing the bombed streets of Paris. They are reconstructing some of the railroads and electrifying railroads to the south. They made a deal with Switzerland and Italy to build an international highway clear on down from Paris to Rome which will be a real modern highway for fast, safe traffic.

In Italy you would be surprised what a job those Italians have done. They are very good engineers. They have 8,200 kilometres of highways which were destroyed; that is 5,000 miles, which is a lot of main highway. Incidentally, they had in the Autostrata one of the first of the modern highways, four lanes, with all of the highway intersections separated. They have, in addition to those 5,000 miles, 4,000 which was slightly damaged, and 3,000 bridges destroyed. Incidentally, those bridges were destroyed by the accurate bombing of American and British boys during the war. They have reconstructed 1,900 of those bridges, not up to the same carrying capacity as they were before the war, but, at least, they are carrying the traffic. The main railroad lines are gradually rebuilding their steel bridges up to where they were before the war. And do not forget that down in Italy they had a deuce of a time to keep from going Communistic. Venice has a
communist mayor, Milan has a communist mayor. Had it not been for the dollars you all sent to Italy in that last election, about a year and a half ago, Italy would have been Communist. And let us not forget that, with our base at Dekar, Africa, we needed Italy in case any trouble should come up with our Russian former allies. Were it not for Italy as a friendly nation, with Italy gone, it would have been very simple for the Russians to take France and we would have been pushed down to either Portugal or Spain in case there should be future trouble which is on the lap of the gods.

In Rome, we saw the benefit of precision bombing. The only thing touched there, that I could see, was around stations where these Nazis used the railroads for their mass transportation. In Florence, they destroyed every bridge with the exception of the old covered bridge which is one of the oldest and most beautiful bridges in Europe. It dates back at least some 600 years and has marvelous shops of jewelry on either side of the roadway. The Nazis gave the people in the apartment houses on both entrances to the bridge an hour and a half to leave the place and then they blew up the apartment houses but they did not hurt the bridge at all. The seven bridges over the Arno River they did destroy simply delayed our American boys a matter of seven hours in getting across.

There are a lot of things we can learn from the situation over there. The main one is that we can learn how much better a country we have here than any other place in the world. When I look at you gentlemen here tonight, I think how wonderful God has been to us in the United States to have given us the great blessings we have. As a matter of fact, when I look at you, I think how much better we are here in the central part of the United States over those on the fringe over on the Atlantic coast or Pacific coast. You, who have been to both places, realize that you sometimes think you are almost in a foreign country. There are more Irish in Boston than in the City of Dublin. There are more Italians in New York City than in the City of Naples, Italy. There are more of the Israelites in New York City than in all of Palestine. Out on the west coast you almost think you are in Little Italy when you come to Los Angeles. But in this section of the country, there are the honest-to-goodness Americans who are the backbone of this nation and we realize that we, as individuals, are the grassroots of our government, that our government is the mouthpiece for you as individual men and engineers and officials, and as long as you keep it this way, the United States will always be the greatest nation on the face of the globe.