

HIGHWAY POLICIES

A PAPER DELIVERED BY MR. THOS. H. MACDONALD,
CHIEF OF THE BUREAU OF PUBLIC ROADS,
BEFORE THE
THIRTEENTH ANNUAL MEETING OF THE AMERICAN ASSOCIATION
OF STATE HIGHWAY OFFICIALS, HELD AT DENVER, COLO.,
FROM
OCTOBER 3 TO 6, 1927.

THE HIGHWAY SITUATION IS CONSTANTLY CHANGING IN DETAIL AND IN ITS BROAD TRENDS. AS THE OPPORTUNITY HAS COME EACH YEAR TO ME TO ADDRESS THIS CONFERENCE OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS, IT HAS BEEN APPROACHED WITH THE THOUGHT OF PLACING BEFORE THE HIGHWAY EXECUTIVES OF THE NATION A DEFINITE, FORWARD LOOKING, BUT NOT RADICAL EXPRESSION, UPON SOME OF THE MATTERS WHICH APPEAR AT THE MOMENT TO BE OF MAJOR IMPORTANCE BOTH FOR THE PRESENT, AND FOR THE FUTURE, WHICH, NOTWITHSTANDING CHANGING CONDITIONS, WILL BE SO MATERIALLY INFLUENCED BY WHAT WE DO NOW. EVEN MORE IT HAS BEEN APPROACHED WITH THE HOPE OF CORRECTLY INTERPRETING THE BUREAU OF PUBLIC ROADS TO YOU THAT THE PRESENT CORDIAL RELATIONSHIPS MAY BE GUARDED AGAINST MISUNDERSTANDINGS. PERHAPS THIS IS TOO MEAGERLY PHRASED TO INDICATE THE FULL SIGNIFICANCE TO HIGHWAY PROGRESS OF HARMONIOUS AND CONCENTRATED EFFORT BY THE STATE AND FEDERAL HIGHWAY FORCES. HIGHWAYS ARE CHARACTERIZED BY, AND INSEPARABLE FROM, THEIR COMMUNITY INTERESTS. WHETHER CONSIDERED FROM THE STATE, NATIONAL, INTERNATIONAL OR LOCAL VIEWPOINT, WHETHER FROM THAT OF THE ROAD BUILDER OR THE ROAD USER, THE COMMON INTERESTS MUST FIRST BE SERVED, SINCE, TOGETHER, THEY ARE THE MOST IMPORTANT. TO ME, THIS "COMMUNITY OF INTERESTS" ASPECT OF HIGHWAYS CONTAINS A CONSTANTLY GROWING APPEAL AS NOT ONLY THEIR DIRECT, BUT EVEN MORE, THEIR INDIRECT, INFLUENCES BECOME MORE AND MORE APPARENT. THROUGH THESE INFLUENCES WE ENJOY THE REAL OPPORTUNITY TO LIFT THE DEAD LEVEL OF THE DAY'S WORK TOWARD THE HIGHER OBJECTIVE OF PROGRESS IN GOVERNMENT AND THUS CONTRIBUTE, EACH ONE AS HE IS ABLE, TO THE COMMON GOOD. THIS GENERAL THOUGHT MAY BE MORE CLEARLY EXPRESSED BY REFERENCE TO MORE SPECIFIC MATTERS.

THE PROPOSED 1930 INTERNATIONAL CONFERENCE.

THIS YEAR THERE HAS BEEN A NOTABLE INCREASE OF OFFICIALS AND STUDENTS FROM FOREIGN COUNTRIES TO STUDY AND TO EXAMINE CRITICALLY OUR HIGHWAYS AND HIGHWAY POLICIES. THEY ARE NOT THE FIRST TO COME FOR LIKE PURPOSES FROM OTHER LANDS. PRIOR YEARS HAVE BROUGHT

INDIVIDUALS, BUT NOT UNTIL THE LAST YEAR OR TWO HAVE WE BEEN ABLE TO VISUALIZE BY THEIR NUMBER, THEIR FAR DISTANT JOURNEYS AND THEIR INTIMATE DESCRIPTIONS OF HOME CONDITIONS, THAT THIS PROBLEM OF HIGHWAYS AND HIGHWAY TRANSPORT, WITH WHICH WE ARE CONFRONTED, IS AN ACUTE WORLD PROBLEM AND THAT THE UNITED STATES HAS BECOME THE PROPONENT OF METHODS AND POLICIES OF NEW CONCEPT AND, MORE IMPORTANT, A LEADER IN THEIR EFFECTIVE USE. WITHIN THE TWELVE-MONTH PERIOD, GOVERNMENTAL OFFICIALS, ENGINEERS, BUSINESSMEN AND STUDENTS FROM CHINA, JAPAN, AUSTRALIA, INDIA, MEXICO, NORWAY, SWEDEN, CHILE, ARGENTINE, BRAZIL, COLOMBIA, ECUADOR, VENEZUELA, BOLIVIA AND PERU HAVE SPENT FROM A FEW DAYS TO AN EXTENDED PERIOD INSPECTING AND GATHERING DATA FOR THE DIRECT PURPOSE OF TRANSPLANTING TO THEIR OWN COUNTRIES SUCH OF OUR HIGHWAY EXPERIENCES AS THEY FIND APPLICABLE. THE WIDE VARIATIONS TO BE FOUND HERE IN CLIMATE, TOPOGRAPHY, TRAFFIC, POPULATION DENSITY, SOILS AND MATERIALS OFFER SOMEWHERE CONDITIONS CLOSELY PARALLEL AND PROBLEMS QUITE TYPICAL OF THEIR OWN COUNTRIES. SOME HAVE BEEN CHIEFLY INTERESTED IN TECHNICAL DETAIL. OTHERS HAVE SOUGHT GOVERNMENTAL AND ADMINISTRATIVE POLICIES. WHETHER THE ONE OR THE OTHER, THERE HAS BEEN UNANIMITY OF AGREEMENT IN THEIR EXPRESSED APPRECIATION OF THE COURTESY AND INFORMATION FURNISHED BY THE STATE AND FEDERAL HIGHWAY OFFICIALS.

THIS OUTSIDE VIEWPOINT OF WHAT THE UNITED STATES IS DOING WITH HER HIGHWAYS AND HIGHWAY TRANSPORT FOUND A MOST ENCOURAGING AND COMPLIMENTARY EXPRESSION IN JUNE OF THIS YEAR WHEN THE EXECUTIVE COMMITTEE OF THE INTERNATIONAL ASSOCIATION OF ROAD CONGRESS-ES VOTED TO HOLD, IN 1930, THE NEXT INTERNATIONAL ASSEMBLY IN THIS COUNTRY IF AN OFFICIAL INVITATION IS FORTHCOMING. SUCH AN INVITATION CAN ONLY BE ISSUED BY THE UNITED STATES CONGRESS. THIS OPPORTUNITY TO BRING TOGETHER IN THE UNITED STATES THE FOREMOST HIGHWAY OFFICIALS AND BEST QUALIFIED ENGINEERS OF ALL THE NATIONS OF THE WORLD WILL NOT COME AGAIN FOR MANY YEARS. THE FAR-REACHING NATIONAL AND INTERNATIONAL INFLUENCES OF, AND THROUGH, SUCH AN EVENT ARE NOT EASILY EXAGGERATED AND MUST NOT BE LOST TO US. THIS ASSOCIATION OF STATE HIGHWAY OFFICIALS WOULD BE A RANKING HOST TO THESE WORLD REPRESENTATIVE GUESTS.

THIS COUNTRY DOES HAVE MUCH THAT MAY BE OF THE GREATEST VALUE TO OTHER NATIONS IN THE DEVELOPMENT OF HIGHWAY TRANSPORT WITH ITS MANY, AS YET, NEW PROBLEMS. A VERY WRONG IMPRESSION EXISTS THAT IN THE UNITED STATES, HIGHWAYS ARE NOT ADVANCED TO STANDARDS OF SERVICE COMMENSURATE WITH THOSE OF OTHER COUNTRIES.

STATISTICS ARE NOT COMPARABLE. PERHAPS THE REAL PICTURE MAY BE VISIONED, BUT NOT WELL, BY SKETCHING IN A DETAIL OR TWO.

THE LARGEST CONCENTRATION OF POPULATION ABROAD IS IN THE LONDON METROPOLITAN AREA. WHEN THE RIGHT OF WAY WAS SECURED ABOUT 1920 FOR THE NEW RADIAL TRUNK ROADS, THE COST OF GOOD AGRICULTURAL LAND WITHIN SIX OR SEVEN MILES OF THE VERY HEART OF THE CITY WAS LESS THAN THE ACRE PRICE OF FARM LAND IN THE MISSISSIPPI VALLEY WELL AWAY FROM EVEN A LARGE TOWN. COMPARE THIS FACT WITH THE PER ACRE PRICE OF SUBURBAN ACREAGE IN ANY METROPOLITAN DISTRICT IN THIS COUNTRY TO REALIZE ONLY A LITTLE OF THE MORE EXTENDED USE HERE OF HIGHWAY TRANSPORT IN JUST THIS ONE FIELD. OR READ WHAT COL. BRESSY, CHIEF ENGINEER OF THE MINISTRY OF TRANSPORT HAS WRITTEN, 1923, OF HIGHWAY CONDITIONS AS THEY HAVE EXISTED AND TO A LARGE EXTENT STILL EXIST IN THE LONDON DISTRICT IN WHICH THERE IS SUCH VERY HEAVY HIGHWAY TRAFFIC.

IN SOME OTHER COUNTRY THEN? ING. PURICELLI, OF MILAN, BUILT THE AUTOSTRADA, THE HIGHWAY EXCLUSIVELY FOR MOTOR TRAFFIC, FROM MILAN TO THE ITALIAN LAKES, IN ALL A LENGTH OF ABOUT FIFTY MILES. THE DESIGN INCORPORATES THE BEST OF MODERN STANDARDS. ITS ACTUAL ACCOMPLISHMENT IS AN EVEN GREATER ACHIEVEMENT. HIS AUTHORITY AND EXPERIENCE IN THIS FIELD ARE UNQUESTIONED. WHAT IS HIS TESTIMONY AS TO THE ADEQUACY OF THE ROADS OF ITALY - THESE HIGHWAYS WHOSE FOREBEARS WERE THE ROMAN ROADS OF ANTIQUITY? HE AND HIS ASSOCIATES, IN COOPERATION WITH THE MINISTRY OF PUBLIC WORKS AND THE ITALIAN TOURING CLUB, HAVE UNDERTAKEN TO PREPARE A COMPREHENSIVE SCHEME FOR THE GENERAL OVERHAUL OF THE FIRST CLASS ROADS OF THE COUNTRY. HIS PRELIMINARY ESTIMATES BASED ON AS YET INCOMPLETE DATA INDICATE A NEEDED EXPENDITURE OF ROUGHLY 14,000,000 DOLLARS FOR ABOUT 13,000 MILES TO BRING THESE MAIN ROADS TO A CONDITION ADEQUATE FOR THE TRAFFIC. IN THE AREA OF THE HEAVIEST TRAFFIC, HIS ESTIMATE OF UNIT COSTS RANGES FROM ABOUT 12,800 TO 23,000 DOLLARS PER MILE. THE NUMBER OF PASSENGER CARS AND MOTORCYCLES REGISTERED IN 1926 IS 197,970. TO THE HIGHWAY GROUP THESE FACTS NEED NO INTERPRETATION. THEY ILLUMINATE ITALY'S ROAD PROBLEM AS WELL AS THEIR CONDITION.

HIGHWAY POLICIES DEVELOPED IN THE UNITED STATES

SURELY THIS NATION DOES HAVE MUCH OF VALUABLE EXPERIENCE IN HIGHWAY MATTERS TO SHARE WITH OTHER COUNTRIES AND WE SHOULD. AS A NATION WE HAVE PROFITED MUCH FROM THE EXPERIENCES OF THE OLDER NATIONS. HOW MUCH OF OUR PRESENT CULTURAL, SOCIAL, RELIGIOUS, EDUCATIONAL FABRIC HAS BEEN WOVEN FROM THREADS SPUN OUT OF THE EXPERIENCES, SACRIFICES AND ADVANCEMENTS OF THOSE WHO AS INDIVIDUALS OR AS NATIONS BUILT PAINSTAKINGLY AND SLOWLY THROUGH THE CENTURIES THE ENDURING AND WORTHWHILE CONCEPTS WE CALL CIVILIZATION. LANGUAGE, RELIGION, ARCHITECTURE, ART, MUSIC, LITERATURE, MEDICINE, LAWS, WHERE IN THE WHOLE LIST CAN WE FIND ONE IN WHICH WE HAVE IN THE PAST SURPASSED ALL OTHERS IN THE ELEMENTS WE BELIEVE TO BE ENDURING. BUT THE UNITED STATES HAS MADE HER GREAT CONTRIBUTIONS TO CIVILIZATION. IN FORM OF GOVERNMENT? IN THE POLITICAL FIELD, YES. WE BELIEVE AND HOPE IT IS SO. BUT THE TIME ELEMENT IS TO BE CONSIDERED. OTHER FORMS OF GOVERNMENT ARE OLDER. OUR NATION IS YET YOUNG. AT LEAST THE POINT IS DEBATABLE BY THOSE WHO DEMAND MORE CENTURIES OF SUCCESSFUL DEMONSTRATION.

IN WHAT FIELD, THEN? THE ONLY ONE WHICH WILL BE EASILY CONCEDED IS THAT OF ENGINEERING ACHIEVEMENT. NOT ENGINEERING IN FINE DETAIL. OTHER COUNTRIES PRODUCE FINE ENGINEERS, HIGHLY TRAINED. THE MEASURE OF THE ACHIEVEMENT IS NOT THAT OF THE PERSONAL EQUATION. RATHER IT IS THE ENGINEERING ACHIEVEMENT OF ORGANIZATION AND MASS PRODUCTION. AVAILABILITY IS MADE POSSIBLE BY THE COMBINATION OF CHEAP TRANSPORTATION, MECHANICAL POWER AND EQUIPMENT, AND GREAT ENGINEERING VISION OF CONSUMPTION. THIS IS THE GREAT CONTRIBUTION THE UNITED STATES HAS MADE TO CIVILIZATION, MEASURED BY STANDARDS OF LIVING.

THIS GENERAL IDEA IS BOTH PROVED AND ILLUSTRATED BY THE SERVICES OF TRANSPORTATION, OF COMMUNICATION AND OF SANITATION. EACH HAS LARGE AND INTRICATE REQUIREMENTS OF FAR-SPREAD PLANNING AND OPERATING ORGANIZATIONS, OF FINANCIAL SUPPORT, OF RESEARCH OF CONSTANTLY CHANGING DEVICES AND IMPROVED PROCESSES. YET WITH ALL THESE AND MANY OTHERS, THESE TYPICAL SERVICES UPON WHICH DEPEND IN SO LARGE A DEGREE THE EVERY-DAY-LIVING STANDARDS OF OUR PEOPLE, ARE MADE AVAILABLE THROUGHOUT THE NATION AND FOR A RELATIVELY LOW COST TO THE INDIVIDUAL.

WHAT IS COMMONPLACE AND POSSIBLE OF ENJOYMENT TO THOSE WITH VERY MODERATE INCOMES HERE ARE FREQUENTLY LUXURIES OR IMPOSSIBLE TO SECURE ELSEWHERE. SO, BY THIS REASONING, WE REACH SOME FUNDAMENTAL CONCEPTIONS:

FIRST, THERE IS NO NATION TODAY WHICH HAS HIGHWAYS ADEQUATE TO ITS PRESENT, MUCH LESS ITS FUTURE RAPIDLY DEVELOPING HIGHWAY TRANSPORT NEEDS,

SECOND, THAT THE SAME PRINCIPLES OF ENGINEERING ORGANIZATION AND QUANTITY PRODUCTION WHICH HAVE BEEN SO SUCCESSFULLY DEMONSTRATED IN THE UNITED STATES MUST BE APPLIED UNIVERSALLY TO PRODUCE ADEQUATE MILEAGES OF SERVICEABLE HIGHWAYS AT THE LOWEST COST,

THIRD, THAT THE MOST IMPORTANT PROGRESS HAS BEEN MADE IN PROCESSES AND METHODS WHICH HAVE MADE POSSIBLE INCREASED PRODUCTION.

FOR EXAMPLE, CONSIDER THE STAGE CONSTRUCTION POLICY. IN HIGHWAY BUILDING THE TIME ELEMENT IS IMPORTANT IN THE FIRST STAGES OF IMPROVEMENT, WHERE, AS IN MANY STATES, THERE HAS NECESSARILY BEEN MUCH RELOCATION AND REALIGNMENT. DELAYS ARE INEVITABLE WITH LOSS OF TIME AND THERE HAS BEEN FREQUENT CRITICISM OF THE PROGRESS MADE TOWARD AN ADEQUATE MAJOR-HIGHWAY SYSTEM IN THOSE STATES WHICH HAVE SHOWN A LARGE PERCENTAGE OF FIRST-STAGE CONSTRUCTION ONLY. YET THE REAL PROGRESS HAS PROBABLY BEEN AS GREAT AS IN THOSE STATES WHERE LESS ATTENTION WAS GIVEN TO THE FUNDAMENTALS OF LOCATION, DRAINAGE STRUCTURES AND GRADING. AS FUNDS ARE NOW BECOMING AVAILABLE IN LARGER AMOUNTS IN A NUMBER OF THESE STATES, THEIR PROGRESS IN SURFACING WILL BE RAPID. IT IS TRUE THAT THE SERVICE FOR THE PAST SEVERAL YEARS HAS NOT BEEN FIRST CLASS BY ANY MEANS, BUT THE POLICY OF LAYING THE FOUNDATION WHEN FUNDS FOR THE COMPLETED IMPROVEMENT WERE NOT AVAILABLE, HAS JUSTIFIED ITSELF A THOUSAND-FOLD.

THERE ARE OTHER OUTSTANDING EXAMPLES OF THIS PRINCIPLE OF QUANTITY PRODUCTION AT THE LOWEST CONSISTENT COST. STATE HIGHWAY MAINTENANCE, THE USE OF POWER EQUIPMENT FOR GRADING, THE USE OF MECHANICAL EQUIPMENT THROUGHOUT FOR BUILDING CONCRETE ROADS, THE FINE CRUSHED ROCK SURFACES OF THE WEST, THE BITUMINOUS PROCESSING OF THESE AND THE RECLAIMING OF THE OLD MACADAMS OF THE EAST, ARE ALL OF THIS ORDER. MEASURED BY THE

IMPORTANT STANDARDS OF THE TIME GAINED IN MAKING THE ROADS AVAILABLE, THEIR COST AND THE QUALITY OF THEIR SERVICE, IT IS EVIDENT THAT THESE NEWER PRINCIPLES OF ADMINISTRATION DEFINE THE ONLY POSSIBLE APPROACH TO A MEETING OF THE DEMAND FOR HIGHWAY SERVICE NOT ONLY AT HOME BUT ABROAD AS WELL. SO IN THE DEVELOPMENT OF SOUND PRINCIPLES OF ENGINEERING AND FINANCIAL ADMINISTRATION THIS COUNTRY HAS MUCH TO CONTRIBUTE AND SHOULD PLACE GREATER EMPHASIS ON THEIR FUTURE DEVELOPMENT, MAKING ENGINEERING DETAIL AND TECHNIQUE THE SERVANT, AND NOT THE MASTER OF THESE PRINCIPLES. IF IT BECOMES THE GOOD FORTUNE OF THIS NATION TO HAVE AS ITS GUESTS IN 1930, THE LEADING ENGINEERS AND OFFICIALS OF ALL THE OTHER COUNTRIES OF THE WORLD, WE, SPEAKING PARTICULARLY FOR THE STATE AND FEDERAL ADMINISTRATIVE OFFICIALS, MUST BE IN A POSITION TO JUSTIFY THE PRINCIPLES OF ADMINISTRATION UPON WHICH WE ARE RELYING, BY THE RESULTS PRODUCED. A SACRIFICE OF SOUND TECHNIQUE OR QUALITY OF PRODUCT IS NOT A NECESSARY COMPANION OF QUANTITY PRODUCTION. THIS IT WILL BE POSSIBLE TO DEMONSTRATE THROUGH A CRITICAL EXAMINATION OF THE RESULTS AND A GENEROUS COOPERATION TO REMEDY DEFECTS.

PROGRESS IN FEDERAL-AID HIGHWAY CONSTRUCTION.

FOR THE FISCAL YEAR ENDING JUNE 30 UNDER THE FEDERAL-AID PROGRAM, 9,683 MILES OF PROJECTS WERE COMPLETED. EIGHT THOUSAND, THREE HUNDRED AND SEVEN MILES WERE NEW CONSTRUCTION, AND 1,376 MILES ADDITIONAL CONSTRUCTION OF PROJECTS ON WHICH PRELIMINARY WORK HAD ALREADY BEEN DONE, THAT IS, THAT WERE ADDITIONAL STAGES OF CONSTRUCTION. WHILE 2,537 MILES OF GRADED AND DRAINED ROADS WERE BUILT AS ORIGINAL CONSTRUCTION DURING THE YEAR, THE MILEAGE IN THIS STAGE INCREASED BY ONLY 1,145 MILES. THIS WAS THE RESULT OF THE FURTHER IMPROVEMENT OF PREVIOUSLY GRADED ROADS AS STAGE CONSTRUCTION. THIS IS A DECIDED ADVANCE WHICH INDICATES THE TURNING TOWARD THE MORE ADEQUATE IMPROVEMENT.

THREE THOUSAND, TWO HUNDRED AND NINETY-NINE MILES OF GRAVEL WERE BUILT, A DECREASE OF 862 MILES BELOW THE PREVIOUS YEAR, AND 2,971 MILES OF PAVEMENTS OF BITUMINOUS AND CEMENT CONCRETE, A DECREASE OF 518 MILES BELOW THE PRECEDING YEAR.

IN THESE FIGURES THE EVIDENCE IS CLEAR THAT THE FEDERAL HIGHWAY FUNDS ACCUMULATED DURING THE WAR AND IMMEDIATELY FOLLOWING HAVE BEEN LARGELY USED AND WE ARE APPROACHING THE ANNUAL PRODUCTION THAT WILL BE POSSIBLE WITH THE CURRENT AUTHORIZATION.

THE TOTAL OF FEDERAL-AID PROJECTS COMPLETED, UNDER CONSTRUCTION, OR APPROVED FOR CONSTRUCTION AS OF JULY 1, WAS 76,708 MILES, DIVIDED AS FOLLOWS:

1. STAGE CONSTRUCTION, GRADED AND DRAINED	15,500 MILES
2. SAND CLAY AND GRAVEL	34,474 "
3. WATERBOUND MACADAM	1,431 "
4. BITUMINOUS MACADAM	4,307 "
5. CEMENT CONCRETE	18,009 "
6. BRICK	832 "
7. BITUMINOUS CONCRETE AND ASPHALT	1,923 "
8. BRIDGES	232 "

STAGE CONSTRUCTION.

THERE HAS BEEN IN THE MINDS OF MANY, CHIEFLY THOSE NOT DIRECTLY CONNECTED WITH HIGHWAY IMPROVEMENT, THE QUESTION AS TO THE USE OF FEDERAL FUNDS FOR THE LOWER TYPES OF CONSTRUCTION, PARTICULARLY THE FIRST STAGE OF GRADED AND DRAINED EARTH ROADS. THIS YEAR WE HAVE THE ANSWER TO THESE CRITICS. A MATERIAL ADVANCE HAS BEEN MADE IN THE APPLICATION OF THE SURFACING OR SECOND STAGE OF IMPROVEMENT TO A CONSIDERABLE MILEAGE, AND THIS WILL CONTINUE AT AN ACCELERATED RATE. THE POLICY IS ONE OF THE MOST VALUABLE TENETS OF ADMINISTRATION THAT CAN BE RECOMMENDED TO OTHER COUNTRIES IN THE EARLY STAGES OF THEIR HIGHWAY DEVELOPMENT.

AS A MATTER OF FACT, TO A LARGE EXTENT ALL HIGHWAY CONSTRUCTION MUST BE STAGE CONSTRUCTION, AND THERE CAN BE NO JUST CRITICISM OF WHATEVER IS UNDERTAKEN IF IT BE UNDERTAKEN INTELLIGENTLY WITH A WELL DEFINED CONCEPTION OF THE FUTURE DEVELOPMENT AND IF THE EXECUTION OF THE IDEA IS EFFICIENT.

NATIONAL HIGHWAYS AND METROPOLITAN AREA ROADS.

AS LITTLE AS FIVE YEARS AGO IT WAS THOUGHT THAT THE NATIONAL HIGHWAY PROBLEM LAY IN THE NECESSITY FOR THE BUILDING OF TRANSCONTINENTAL ROUTES. OUR KNOWLEDGE OF TRAFFIC FLOW AND HIGHWAY UTILIZATION HAS CHANGED MATERIALLY IN THAT TIME, AND TODAY TRANSCONTINENTAL TRAFFIC IS FAR BETTER PROVIDED FOR THAN IS THE WEEKLY PEAK TRAFFIC, PARTICULARLY IN METROPOLITAN AREAS. THIS IS NOT BOASTING ABOUT TRANSCONTINENTAL ROUTES. A GREAT DEAL REMAINS TO BE DONE, AND NOW THAT WE HAVE AGREED UPON A SYSTEM OF INTERSTATE ROUTES WE NEED TO DEMONSTRATE THAT THE PRINCIPLE OF COOPERATION BETWEEN THE STATES AND THE NATION WHEN ASSISTED BY FEDERAL-AID FUNDS, CAN EXPEDITE THE IMPROVEMENT UP TO AN ADEQUATE UTILITY STANDARD OF EACH MAJOR NATIONAL TRAFFIC ROUTE FROM EAST TO WEST AND FROM NORTH TO SOUTH. WEAK LINKS IN THE EAST-TO-WEST TRANSCONTINENTAL HIGHWAYS LIE LARGELY BETWEEN THE 90TH AND 117TH MERIDIANS OR, ROUGHLY, BETWEEN THE MISSISSIPPI RIVER AND THE EASTERN BOUNDARIES OF CALIFORNIA, OREGON AND WASHINGTON. NORTH TO SOUTH THERE IS A POTENTIAL TRAFFIC BETWEEN THE GREAT LAKES AND THE GULF COAST WHICH IS NOW HELD BACK BY WEAK LINKS ON THE U. S. SYSTEM, LARGELY SOUTH OF THE OHIO RIVER.

TRANSCONTINENTAL TRAFFIC HAS BEEN THOUGHT ABOUT FROM THE EARLIEST DAYS IN TERMS OF EAST-TO-WEST TRAFFIC. THERE IS A POTENTIAL NORTH-TO-SOUTH TRAFFIC THAT WILL DEVELOP QUICKLY INTO NOW UNGUESSED DIMENSIONS FOLLOWING THE COMPLETION OF ADEQUATE ROUTES. WHY NOT AGREE BETWEEN OURSELVES UPON A POLICY OF USING AT LEAST 50 PER CENT OF THE FEDERAL-AID ALLOTMENTS IN THE CLOSING UP OF THE GAPS IN THESE MAIN THOROUGHFARES, AND REALIZE WITHIN THE NEXT TWO OR THREE YEARS A CONSUMMATION OF THE REPRESENTATIONS THAT HAVE BEEN CONTINUALLY MADE BY BOTH THE BUREAU OF PUBLIC ROADS AND THE STATES THAT IT IS POSSIBLE UNDER THE PRESENT PLAN TO SECURE AN ADEQUATE NATIONAL SYSTEM OF HIGHWAYS MORE QUICKLY THAN IN ANY OTHER WAY.

AS HIGHWAY OFFICIALS WE DO NOT WANT TO CONFESS AT THE CLOSE OF ANOTHER YEAR THAT WE DO NOT HAVE AS YET A COMPLETELY IMPROVED HIGHWAY ROUTE ACROSS THE COUNTRY. BY A RECOGNITION ON THE PART OF ONLY A FEW STATES THAT THEY DO HAVE AN OBLIGATION TO THEIR SISTER STATES AND TO THE NATIONAL PLAN OF HIGHWAYS, SUCH CONFESSION WILL NOT BE NECESSARY. POLITICAL DIFFERENCES OUGHT TO BE ADJUSTED IN A FEW STATES SO THE HIGHWAY SITUATION WOULD NOT BE IN CONTINUAL JEOPARDY FROM IMPROPER ADMINISTRATION. HOW EACH STATE ADMINISTERS ITS OWN FUNDS AND

INTERNAL AFFAIRS IS VERY MUCH ITS OWN AFFAIR, BUT HOW ANY STATE ADMINISTERS THE FEDERAL HIGHWAY FUNDS IS QUITE A DIFFERENT MATTER. THE BUREAU IS NOW PREPARED, FAILING TO OBTAIN COOPERATION FOR THE COMPLETION OF THESE IMPORTANT THOROUGHFARES, TO INSIST UPON A RECOGNITION OF THE REQUIREMENTS OF THE LAW WHICH PROVIDES FOR EXPEDITING THE COMPLETION OF THESE ROUTES. THE ATTORNEY GENERAL OF THE UNITED STATES HAS RULED WITH SPECIAL REFERENCE TO THE RECONSTRUCTION OF THE INTERSTATE BRIDGE AT MEMPHIS THAT IN ORDER TO EXPEDITE THE COMPLETION OF INTERSTATE ROUTES, THE SECRETARY OF AGRICULTURE HAS FULL AUTHORITY TO WITHHOLD HIS APPROVAL OF OTHER PROJECTS.

IN CONNECTION WITH THE INTERPRETATION AND ENFORCEMENT OF THE FEDERAL HIGHWAY LEGISLATION, THE THOUGHT IS CONTINUALLY BEFORE THE BUREAU OF THE COMMUNITY OF INTERESTS BETWEEN THE STATES WHICH ARE TIED TOGETHER BY THEIR HIGHWAYS. THUS, IN INSISTING UPON THE COMPLETION OF GAPS, THE BUREAU IS ENDEAVORING TO BRING ABOUT IN FULL MEASURE A COMPLIANCE WITH THE COMMUNITY INTERESTS. IT REQUIRES NO BOLDNESS TO ASSERT THAT A TWISTED PERSPECTIVE OF STATES' RIGHTS EXISTS. THE RIGHTS IN THIS INSTANCE ARE ALL WITH THE STATES WHICH HAVE MET THE NEEDS OF THE PUBLIC SERVICE AND ALL AGAINST THE TARDY AND RELUCTANT STATES. THERE CAN BE NO RIGHTS WHICH ARE WRONGS TO THE MAJORITY OF THE WHOLE COMMUNITY.

THE GREATEST PROBLEM IN THE HIGHWAY FIELD IS THE NUMBER AND CHARACTER OF THE ROADS REQUIRED IN THE METROPOLITAN AREAS. BOTH THE STATES AND THE FEDERAL BUREAU ARE LESS ABLE TO CONTRIBUTE IN A MAJOR WAY TO THE SOLUTION OF THIS PROBLEM THAN ELSEWHERE. HERE THE ROUTES OF THE STATE SYSTEM, OR THE FEDERAL HIGHWAY SYSTEM, CONSTITUTE THE MAIN TRAFFIC ARTERIES, BUT WITHIN A 50-MILE RADIUS THERE ARE MANY OTHER ROUTES WHICH MAY FOR LOCAL TRAFFIC BE ALMOST OF EQUAL IMPORTANCE.

WHAT MAY BE CALLED THE CITY GATEWAY PROBLEM, FALLS UPON THE SHOULDERS PARTLY OF THE STATE, BUT LARGELY UPON THE COUNTIES AND SMALLER SUBDIVISIONS. IT IS A PROBLEM LARGELY RESULTING FROM MULTIPLE AND INTERFERING JURISDICTIONS. HIGHWAY TRAFFIC IN QUANTITY HAS VERY SIMILAR CHARACTERISTICS TO THE FLOW OF LIQUIDS. IT HAS BEEN POSSIBLE IN THE LABORATORY TO DETERMINE THE LAWS GOVERNING THE FLOW OF LIQUIDS. THE GREAT DECREASE IN THE FLOW OF LIQUIDS CAUSED BY OBSTRUCTIONS OR ABRUPT CHANGE OF DIRECTION IS KNOWN AND DETERMINABLE BY MATHEMATICAL COMPUTATION. WE WILL DETERMINE THESE RULES FOR HIGHWAY TRAFFIC, EVEN THOUGH IT IS A LONG AND TEDIOUS PROCESS. BUT THE TECHNICAL KNOWLEDGE OF WHAT TO DO IS FAR IN ADVANCE

OF THE PROBABILITY OF ITS BEING DONE, DUE TO THE MULTIPLICITY OF CONFLICTING AND OVERLAPPING JURISDICTIONS. IN COOK COUNTY, IN THE CHICAGO METROPOLITAN AREA, THE TRANSPORT SURVEY QUICKLY DEVELOPED THE FACT THAT WITHIN A RADIUS OF 30 MILES THERE WERE 89 CIVIL JURISDICTIONS CONTROLLING SECTIONS OF THE TRAFFIC ROUTES AND, WITH THE EXCEPTION OF THE STATE AND COUNTY, THESE DIFFERENT UNITS WERE LARGELY WORKING INDEPENDENTLY OR NOT AT ALL. AS THE SURVEY PROCEEDED, IT BECAME APPARENT THAT THE GREATEST OBSTRUCTION TO TRAFFIC EXISTED IN THIS MULTIPLICATION OF OVERLAPPING JURISDICTIONS.

THERE ARE TWO METHODS THAT MAY BE USED FOR HANDLING THE HIGHWAY PROBLEM IN THESE METROPOLITAN AREAS: FIRST, THE PLAN OF SECURING LEGISLATION WHICH SETS UP A BOARD WITH SUPER AUTHORITY OVER ALL ESTABLISHED AUTHORITIES; AND SECOND, THE PLAN OF SECURING VOLUNTARY COOPERATION BETWEEN THE EXISTING AUTHORITIES. IT IS NOT POSSIBLE TO DISCUSS THE RELATIVE MERITS AND DEMERITS OF THESE TWO METHODS, SINCE UP TO THE PRESENT TIME NEITHER PLAN HAS BEEN IN OPERATION LONG ENOUGH TO DETERMINE WHETHER IT WILL SUCCEED OR FAIL. IT IS CERTAIN, HOWEVER, THAT THE FIRST PLAN WILL ALWAYS MEET WITH HOSTILITY WHICH MAY BECOME SO VIGOROUS AS TO DELAY ACTION FOR A LONG PERIOD. THE SECOND PLAN CONTAINS THE VALUABLE ELEMENT OF BEING AT ONCE AVAILABLE AND, AT WORST, IT CAN ONLY PARTIALLY FAIL TO SUCCEED.

IT IS MY JUDGMENT THAT THE PLAN OF COOPERATION CAN BE MADE TO WORK. ON THE REQUEST OF THE BOARD OF COUNTY COMMISSIONERS OF CUYAHOGA COUNTY, OHIO, THE BUREAU HAS UNDERTAKEN IN COOPERATION WITH THAT BOARD, A SURVEY IN THE METROPOLITAN AREA OF CLEVELAND TO INCLUDE A RADIUS OF UPWARDS OF 50 MILES - A SIMILAR STUDY TO THAT IN COOK COUNTY. HOWEVER, IN THIS INSTANCE, BEFORE AGREEING TO PARTICIPATE IN THE SURVEY WHICH HAS FOR ITS PURPOSE THE FORMATION OF A PLAN OF HIGHWAYS FOR THE WHOLE METROPOLITAN DISTRICT, ALL OF THE COMMUNITIES INTERESTED WERE INVITED TO ATTEND A CONFERENCE AT WHICH THE PURPOSES WERE EXPLAINED AND A REQUEST MADE THAT THE VARIOUS JURISDICTIONS JOIN TO FORMULATE A PLAN AND TO CARRY INTO EFFECT THEIR PARTS OF THE PLAN WHEN IT WAS MADE. SO, BEFORE THE SURVEY STARTED, ALL OF THE JURISDICTIONS, WHETHER CITY, COUNTY OR TOWNSHIP, HAD SIGNED A DEFINITE AGREEMENT TO MAKE THE PLAN TO BE AGREED UPON, EFFECTIVE. NOT MUCH FAITH IS NECESSARY TO BELIEVE THAT THIS DOCUMENT WILL BECOME A HISTORICAL ONE, BECAUSE THE AGREEMENT ON THE PART OF THE VARIOUS GOVERNING BODIES WITHIN THE METROPOLITAN AREAS, FIRST, TO PLAN, AND SECOND, TO BUILD ACCORDING TO PLAN,

WILL PROBABLY BECOME THE MOST EFFECTIVE METHOD OF HANDLING THE HIGHWAY PROBLEM IN THE METROPOLITAN AREAS. IT MAY MEAN, OF COURSE, THE TRANSFER OF JURISDICTION OR THE BROADENING OR RELINQUISHING OF JURISDICTION, IN ORDER TO ACCOMPLISH THE PURPOSE. WHEN IT COMES TO THE FINANCING, UNDOUBTEDLY RELIEF MUST COME TO THE SMALLER UNITS FROM THE LARGER ONES. THE PLAN OF FINANCE IS EQUALLY IMPORTANT WITH THE PHYSICAL PLAN. THE BIG POINT IS THAT THE OFFICIALS POSSESSING THE LEGAL AUTHORITY TO ACT HAVE AGREED TO WORK TOGETHER. IN SIMILAR MOVEMENTS, THE STATE AND PERHAPS, TO A CERTAIN EXTENT, THE FEDERAL BUREAU OF ROADS, CAN BE OF CONSIDERABLE HELP AND THIS IS A PART OF THE RESPONSIBILITY WHICH THEY MUST UNDERTAKE.

BALANCING HIGHWAY BUDGETS WITH HIGHWAY NEEDS.

IT HAS BECOME MORE AND MORE APPARENT, PARTICULARLY AS THE DISCUSSION OF ANNUAL BUDGETS HAS BECOME COMMON, THAT THERE ARE TWO KINDS OF BUDGETING; THE BUDGET THAT IS PREPARED WITH REFERENCE TO THE EXPECTED INCOME, AND THE BUDGET THAT IS PREPARED WITH REFERENCE TO THE PHYSICAL CONDITION AND NECESSITIES OF THE HIGHWAYS. THEY MIGHT BE TERMED, THE FISCAL BUDGET AND THE PHYSICAL BUDGET. THE FIRST TYPE OF BUDGET IS OPEN TO A GREAT DEAL OF MISMANAGEMENT NO MATTER HOW CORRECT THE FISCAL INFORMATION. THE SECOND TYPE OF BUDGET IS THE ONLY PLAN THAT EVENTUALLY WILL WORK FOR ECONOMY. IT IS APPARENT THAT A GREAT MANY STATE HIGHWAY DEPARTMENTS DO NOT HAVE THE INFORMATION IN SUFFICIENTLY ACCURATE FORM, RELATIVE TO THE PHYSICAL CONDITION AND NECESSITIES OF THE HIGHWAYS, TO PREPARE THE KIND OF A BUDGET THAT WILL EVENTUALLY LEAD TO A SYSTEM OF ROADS UNIFORM WITH THE NECESSITIES OF TRAFFIC. THIS LACK OF INFORMATION IS EVIDENT IN BUDGETS IMPROPERLY BALANCED BETWEEN RECONSTRUCTION AND NEW CONSTRUCTION OR EXTENSIONS. IT WILL ALWAYS BE A TEMPTATION TO ADD TO THE MILEAGE OF STATE ROUTES. DURING THE YEAR 1926, 13,000 MILES OF ROAD WERE ADDED TO THE STATE SYSTEMS, AND IT IS THIS TENDENCY THAT DEFINITELY POINTED OUT TO THE BUREAU THE NECESSITY FOR REQUESTING THAT THE FIRST STAGE-CONSTRUCTION PROJECTS BE LIFTED TO A HIGHER DEGREE OF IMPROVEMENT AT A RATE TO WIPE OUT THE ROADS OF THIS CLASS WITHIN A VERY FEW YEARS. THE POLICY OF APPROVING STAGE-CONSTRUCTION PROJECTS WILL BE LIMITED IN THE FUTURE TO A DEFINITE PERIOD, AND MORE FOR THE PURPOSE OF HANDLING THE FIRST STAGE OF CONSTRUCTION EFFICIENTLY THAN FOR THE PURPOSE OF DEFERRING THE GREATER EXPENDITURE NECESSARY TO PROVIDE A UTILITY SURFACE.

MOTOR TRUCK AND BUS REGULATION.

ONE OF THE MOST PECULIAR AND UNINTELLIGENT REACTIONS TO A PROGRESSIVE POLICY OF WEIGHT REGULATION WAS MANIFEST IN THE CONSIDERATION ACCORDED LEGISLATION PROPOSED LAST YEAR TO PERMIT THE USE OF 6-WHEEL TRUCKS. ONLY TWO STATES ADOPTED LEGISLATION PROVIDING FOR SUCH USE, AND IT WAS DEFINITELY TURNED DOWN IN OTHER STATES, IN ONE OR TWO CASES ON THE RECOMMENDATION OF THE HIGHWAY OFFICIALS. ALL OF THE AVAILABLE INFORMATION INDICATES THAT THE WAY TO APPROACH THE HANDLING OF THE HEAVIER LOADS ON THE HIGHWAYS IS BY MULTIPLYING THE WHEELS AND LIMITING THE CONCENTRATION OF LOAD PER WHEEL. THIS PRINCIPLE WILL UNDOUBTEDLY BE ACCEPTED EVENTUALLY, BUT IT IS A PRINCIPLE THAT SHOULD FIND VIGOROUS SUPPORT FROM THE HIGHWAY OFFICIALS WHERE SO FAR IT HAS FAILED TO RECEIVE JUSTIFIABLE SUPPORT. THE QUESTION OF WHAT WHEEL CONCENTRATION SHOULD BE PERMITTED IS, OF COURSE, DEBATABLE, BUT THERE IS NO ROOM FOR QUESTIONING THE PRINCIPLE OF INCREASE OF WHEELS AND DECREASE OF WHEEL CONCENTRATION. BY THIS IS MEANT, NOT SO MUCH THE MATTER OF WHEEL CONCENTRATION LEGALLY PERMITTED, AS THE ACTUAL CONCENTRATION WHICH EXISTS. WHETHER NATIONAL LEGISLATION TO REGULATE THE MOTOR BUS AND TRUCK WILL BE SERIOUSLY URGED BEFORE THE NEXT SESSION OF CONGRESS IS NOT NOW INDICATED. BOTH OF THESE SERVICES HAVE VERY QUICKLY FOUND THEIR RESPECTIVE FIELDS OF USEFULNESS BECAUSE THEY HAVE BEEN LEFT LARGELY FREE FROM ARTIFICIAL RESTRICTION. THIS HAS RESULTED IN A MORE COMPLETE OPERATION OF ECONOMIC REGULATION WHICH IS THE TO-BE-DESIRED STATUS. IT NOW SEEMS WELL PROVEN THAT THE PHYSICAL REGULATION IS CERTAINLY A FUNCTION OF THE STATES WHICH MUST MAINTAIN THE HIGHWAYS, AND THE INTRASTATE SERVICE, TO THE EXTENT LEGISLATIVE REGULATION IS NECESSARY TO PROTECT THE PUBLIC, IS LIKEWISE A STATE FUNCTION. THIS LEAVES ONLY THE INTERSTATE SERVICE OF COMMON CARRIERS FOR POSSIBLE NATIONAL LEGISLATION. BUT THIS INTERSTATE SERVICE IS IN FACT SO SMALL A PART OF THE WHOLE AND SO INTIMATELY CONNECTED WITH INTRASTATE OPERATION THAT IT SEEMS MOST DESIRABLE TO PERMIT THIS ALSO TO BE ADMINISTERED BY THE STATES, WITH UNIFORMITY ASSURED. THE CONSTITUTIONAL METHOD TO ACCOMPLISH THIS IS BELIEVED TO BE AVAILABLE.

HIGHWAY SAFETY.

THE PROBLEM OF HIGHWAY SAFETY IS ONE THAT CAN ONLY BE MET BY COOPERATION. THERE IS MUCH OVER-WORKING OF THE WORD, AND A GREATER DISREGARD OF ITS MEANING. THE LACK OF CORRELATION BETWEEN THE TRAFFIC OFFICERS AND THOSE RESPONSIBLE FOR STREET AND HIGHWAY IMPROVEMENTS, PARTICULARLY WITHIN THE CITY AREAS IS DISTRESSING IN THE EXTENT TO WHICH IT EXISTS. ALSO

THE GROWTH IN THE INSTALLATION OF AUTOMATIC STOP LIGHTS IS A TRIBUTE TO SALESMANSHIP RATHER THAN TO ENGINEERING INTELLIGENCE. THERE ARE LIMITED AREAS IN CITIES WHERE TRAFFIC IS EQUAL AND CONSTANT, WHERE THERE IS A LARGE AMOUNT OF PEDESTRIAN AS WELL AS VEHICULAR TRAFFIC, AND WHERE THE STOP-AND-GO CONTROL IS NECESSARY AND, SO FAR, THE ONLY DEVELOPED MEANS OF MEETING THE SITUATION. IT IS CERTAIN THAT A LARGE AMOUNT OF FUNDAMENTAL RESEARCH AND INVESTIGATION, AND PROBABLY TRIAL PLANS, MUST BE UNDERTAKEN IN ORDER TO PREVENT THE LOSS OF PERHAPS THE MOST VALUABLE ELEMENT WHICH THE MOTOR VEHICLE HAS BROUGHT; THAT IS, THE SAVING OF TIME TO THE INDIVIDUAL.

ENGINEERING PERSONNEL

THE DEMAND UPON THE HIGHWAY FIELD FOR ENGINEERS WHO HAVE HAD TRAINING AND EXPERIENCE CONTINUES TO POINT TO THE NECESSITY FOR THE SPECIAL TRAINING OF YOUNG ENGINEERS WHO HAVE ATTENDED THE TECHNICAL SCHOOLS. IT IS ALSO EVIDENT THAT THE UNITED STATES IS TO BECOME THE MECCA OF A GREAT MANY FOREIGN STUDENTS SEEKING EXPERIENCE AND KNOWLEDGE IN THIS FIELD. RECENT COMMUNICATIONS IN WHICH THE POSSIBILITY OF THE USE OF A FEW FOREIGN STUDENTS WAS BROUGHT TO THE ATTENTION OF THE STATE HIGHWAY DEPARTMENTS HAVE ELICITED A WONDERFUL RESPONSE. IT WOULD AFFORD ME GREAT PLEASURE TO READ BEFORE THIS ASSOCIATION THE REPLIES RECEIVED FROM THE STATE HIGHWAY DEPARTMENTS UPON THIS SUBJECT. IT IS MY OPINION, BASED ON OBSERVATION IN MANY FOREIGN LANDS, THAT THROUGH THE INTERCHANGE OF OPINIONS AND EXPERIENCE AND THE PERSONAL CONTACTS BETWEEN THOSE CONNECTED WITH THE HIGHWAYS IN THIS COUNTRY AND THOSE IN OTHER LANDS, THAT A SOUND COMMUNITY OF INTEREST CAN BE BUILT THAT WILL HELP INTERPRET THE UNITED STATES TO OTHERS AND HELP US TO UNDERSTAND THEM. A FEW DAYS AGO, ONE OF THE FOREIGN ATTACHES OF THE DEPARTMENT OF COMMERCE MADE THE AMAZING STATEMENT IN MY OFFICE, THAT DUE TO THE CONDITIONS OF TRANSPORTATION IN TURKEY IT WAS ACTUALLY POSSIBLE TO LAY DOWN FLOUR MILLED IN THE UNITED STATES, FROM WHEAT GROWN IN MINNESOTA AND OUR NORTHWEST, AT SAMSUN ON THE BLACK SEA, 6000 OR 7000 MILES AWAY, AT A LESS COST THAN FLOUR MILLED FROM WHEAT GROWN IN THE INTERIOR OF TURKEY, PERHAPS 250 MILES AWAY. COUNTRIES WHICH HAVE LONG GONE WITHOUT ANYTHING LIKE ADEQUATE TRANSPORTATION BECAUSE OF THEIR INABILITY TO FINANCE RAILROAD CONSTRUCTION, CAN FIND IN MOTOR TRANSPORTATION EITHER THE FINAL SOLUTION OF THEIR TRANSPORTATION PROBLEM OR A DEFINITE STEP TOWARD THE POSSIBLE COMBINATION OF

HIGHWAY AND RAILWAY TRANSPORT THAT WILL ADEQUATELY SERVE THEIR NEEDS. THE EXPRESSION OF THE INTEREST OF THE HIGHWAY DEPARTMENTS IS ONE OF THE MOST CONVINCING EVIDENCES THAT I HAVE RECEIVED OF THE BROADMINDED OUTLOOK AND PUBLIC SPIRIT OF THE MEN WHO ARE AT THE HEAD OF THE HIGHWAY WORK THROUGHOUT THE UNITED STATES. THERE IS A SINCERE FEELING OF APPRECIATION THROUGHOUT THE VARIOUS FEDERAL AGENCIES, SUCH AS THE DEPARTMENT OF STATE, THE DEPARTMENT OF COMMERCE, THE PAN AMERICAN UNION AND THE DEPARTMENT OF AGRICULTURE, FOR THE COURTESIES, HELPFULNESS AND ATTENTION THAT HAVE BEEN EXTENDED TO THOSE FROM OTHER COUNTRIES SO GENEROUSLY BY THE STATE HIGHWAY DEPARTMENTS WHENEVER THEY HAVE HAD THE OPPORTUNITY. THE FACT THAT THERE WILL APPARENTLY BE CONSTANT DEMANDS IN THE FUTURE, AND UNDOUBTEDLY GROWING DEMANDS OF THE SAME CHARACTER, LEADS ME TO EXPRESS THE HOPE THAT WHEN SUCH REQUESTS ARE MADE THEY WILL BE MET IN THE SAME SPIRIT AS IN THE PAST. THEY ARE ONLY MADE BY THIS BUREAU, AND ANY OTHER AGENCY OF THE GOVERNMENT, IN THE BELIEF THAT, WHENEVER IT IS POSSIBLE TO GIVE THE OPPORTUNITY TO THOSE FROM THE OUTSIDE TO UNDERSTAND AND SEE THE UNITED STATES AND TO OBTAIN INFORMATION OF VALUE, IT IS A REAL ADVANTAGE TO THE UNITED STATES.

HIGHWAY RESEARCH.

THE PROBLEMS OF DESIGN AND CONSTRUCTION ARE PERHAPS BECOMING MORE SIMPLIFIED AND THEIR PROPER HANDLING BETTER UNDERSTOOD BY THE RESEARCH AND INVESTIGATION WHICH GO FORWARD CONSTANTLY. IT IS DOUBTFUL IF THERE IS A SUFFICIENTLY RAPID ASSIMILATION OF THE RESULTS OF RESEARCH IN ACTUAL DESIGN AND CONSTRUCTION. AT LEAST IT SEEMS WORTHWHILE TO CALL TO THE ATTENTION OF THE HIGHWAY OFFICIALS THE DESIRABILITY OF CHANGING OR MODIFYING PRACTICES ALONG THE LINES WHICH APPEAR TO BE SOUND TECHNICALLY AND SUPPORTED BY REAL EVIDENCE. THE PROBLEM OF THE SECONDARY HIGHWAY IS ACUTE AND MUST BE MET IN A GREATER DEGREE THAN NOW. SO THE FIELD AHEAD FOR THIS ORGANIZATION AND ITS MEMBERS IS GROWING LARGER RATHER THAN SMALLER. UNQUESTIONABLY THE STATE HIGHWAY ORGANIZATIONS COULD NOW BE OF THE GREATEST BENEFIT BY EXERCISING AT LEAST GENERAL ADMINISTRATIVE AND ENGINEERING DIRECTION OVER THE MORE IMPORTANT LOCAL ROADS, BUT WE MUST FIND THROUGH RESEARCH AND EXPERIMENT MORE EFFECTIVE METHODS AND PROCESSES THAN HAVE YET BEEN DEVELOPED. IN THE NECESSITY FOR THE IMPROVEMENT OF THE SECONDARY ROADS EXISTS AN ALMOST

LIMITLESS FIELD FOR EXTENDING THE USEFULNESS OF THE STATE HIGHWAY DEPARTMENTS.

IN CLOSING MAY I EXPRESS THE THOUGHT THAT IN MY CONTACTS WITH THE STATE HIGHWAY OFFICIALS I AM CONSTANTLY IMPRESSED WITH THE FINE ATTITUDE TAKEN TOWARD THIS GREAT PUBLIC WORK AND THE MAGNITUDE OF THE YEAR-AFTER-YEAR ACCOMPLISHMENT.