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CONTENTS

DIGEST OF RECENT DECISIONS OF THE U. S. SUPREME COURT RELATIVE TO INTERSTATE MOTOR VEHICLE TRAFFIC

(The first three of the seven rulings were published in the August, 1927, News Letter, Vol. 2, No. 10)

Frost and Frost
vs.
Railroad Commission
of the State of California
271 U.S. 583

The Frost and Frost Trucking Company were engaged under a single private contract in transporting, for stipulated compensation, citrus fruit over the public highways of California between fixed termini. They were brought before the Railroad Commission of the State charged with violating the act (Auto, Stage and Truck Transportation Act of California, C. 213, Statutes of California, 1917, p. 330) - which provides for the supervision and regulation of transportation for compensation over public highways by automobiles, auto trucks, etc., by the Railroad Commission - for the reason that they had not secured from the commission a certificate of public convenience and necessity. The commission, while agreeing that Frost and Frost were, in fact, private carriers, held that they were subject to the provisions of the act and directed them to suspend their operations under their contract unless and until they should secure a certificate that public convenience and necessity required the resumption or continuance thereof. The commission's order was upheld by the State supreme court. (70 Cal. Dec. 457)

The attorneys for Frost and Frost contended before the lower court that, in its application to private carriers, the act has the effect of transforming them into public carriers by legislative fiat. The attorneys for the State, however, held that the sole purpose of the legislation "is to impress upon such private carriers certain regulations so long as they desire to use the publicly built and owned highways as the chief situs of their business of hauling goods for compensation," and that "they are not, and can not be, forced, directly or indirectly, to become common carriers".

The State supreme court rendered an adverse decision to Frost and Frost who then appealed the case to the United States Supreme Court and questioned the constitutional validity of the State act. The specific challenge was that, as construed and applied by the Railroad Commission, it takes their property for public use without just compensation, deprives them of their property without due process of law, and denies them the equal protection of the laws, in violation of the Fourteenth Amendment

TO THE FEDERAL CONSTITUTION. BRIEFLY, THE STATE ACT (AUTO, STAGE AND TRUCK TRANSPORTATION, ACT OF CALIFORNIA, C. 213, STATUTES OF CALIFORNIA, 1917, P. 330) PROVIDES FOR THE SUPERVISION AND REGULATION OF TRANSPORTATION FOR COMPENSATION OVER PUBLIC HIGHWAYS BY AUTOMOBILES, AUTO TRUCKS, ETC., BY THE RAILROAD COMMISSION. THE TERM "TRANSPORTATION COMPANY" IS DEFINED TO MEAN A COMMON CARRIER FOR COMPENSATION OVER ANY PUBLIC HIGHWAY, BETWEEN FIXED TERMINI OR OVER A REGULAR ROUTE. UNDER SECTION 3, NO CORPORATION OR PERSON IS PERMITTED TO OPERATE ANY AUTOMOBILE, AUTO TRUCK, ETC., "FOR THE TRANSPORTATION OF PERSONS OR PROPERTY AS A COMMON CARRIER FOR COMPENSATION ON ANY PUBLIC HIGHWAY IN THIS STATE BETWEEN ANY FIXED TERMINI * * * * * UNLESS A PERMIT HAS FIRST BEEN SECURED AS HEREIN PROVIDED". PERMITS ARE ISSUED UPON APPLICATION BY THE INCORPORATED CITY OR TOWN, CITY AND COUNTY, OR COUNTY WITHIN OR THROUGH WHICH THE APPLICANT INTENDS TO OPERATE. UNDER SECTION 4, THE RAILROAD COMMISSION IS EMPOWERED TO SUPERVISE AND REGULATE SUCH TRANSPORTATION COMPANIES AND TO FIX THEIR RATES, FARES, CHARGES, CLASSIFICATIONS, RULES AND REGULATIONS, AND, GENERALLY, TO REGULATE THEM IN ALL MATTERS AFFECTING THEIR RELATIONSHIP WITH THE TRAVELING AND SHIPPING PUBLIC. SECTION 5 REQUIRES, IN ADDITION TO THE PERMIT, THAT THE APPLICANT MUST OBTAIN FROM THE RAILROAD COMMISSION A CERTIFICATE DECLARING THAT PUBLIC CONVENIENCE AND NECESSITY REQUIRE THE EXERCISE OF SUCH RIGHT OR PRIVILEGE; AND IT PROVIDES THAT THE COMMISSION MAY ATTACH TO THE EXERCISE OF THE RIGHTS GRANTED SUCH TERMS AND CONDITIONS AS IN ITS JUDGMENT THE PUBLIC CONVENIENCE AND NECESSITY MAY REQUIRE. OPERATION UNDER A PERMIT WITHOUT SUCH CERTIFICATE IS PROHIBITED. IN 1919, THE ACT WAS AMENDED (STATUTES 1919, C. 280, P. 457), SO AS TO BRING UNDER THE REGULATIVE CONTROL OF THE COMMISSION AUTOMOTIVE CARRIERS OF PERSONS OR PROPERTY OPERATING UNDER PRIVATE CONTRACTS OF CARRIAGE; AND THE TERM "TRANSPORTATION COMPANY" WAS ENLARGED SO AS TO INCLUDE SUCH A CARRIER. IT WAS FURTHER PROVIDED THAT NO SUCH TRANSPORTATION COMPANY SHALL OPERATE FOR COMPENSATION OVER THE HIGHWAYS WITHOUT FIRST HAVING SECURED FROM THE COMMISSION A CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY TO DO SO.

IN COMMENTING UPON WHETHER OR NOT THE ACT MADE FROST AND FROST PUBLIC CARRIERS BY LEGISLATIVE FIAT, THE UNITED STATES SUPREME COURT IN ITS DECISION STATED THAT IT WAS UNNECESSARY TO INQUIRE WHICH VIEW IS CORRECT, SINCE THE ACT HAD BEEN AUTHORITATIVELY CONSTRUED BY THE STATE SUPREME COURT. THAT COURT, WHILE SAYING THAT THE STATE WAS WITHOUT POWER, BY MERE LEGISLATIVE FIAT OR EVEN BY CONSTITUTIONAL ENACTMENT, TO TRANSMUTE A PRIVATE CARRIER INTO A PUBLIC CARRIER, DECLARED THAT THE STATE HAD THE POWER TO GRANT OR ALTOGETHER WITHHOLD FROM ITS CITIZENS

THE PRIVILEGE OF USING ITS PUBLIC HIGHWAYS FOR THE PURPOSE OF TRANSACTING PRIVATE BUSINESS THEREON; AND THAT, THEREFORE, THE LEGISLATURE MIGHT GRANT THE RIGHT ON SUCH CONDITIONS AS IT SAW FIT TO IMPOSE. IN THE LIGHT OF THIS GENERAL STATEMENT OF PRINCIPLE, IT WAS HELD THAT THE EFFECT OF THE TRANSPORTATION ACT IS TO OFFER A SPECIAL PRIVILEGE OF USING THE PUBLIC HIGHWAYS TO THE PRIVATE CARRIER FOR COMPENSATION UPON CONDITION THAT HE SHALL DEDICATE HIS PROPERTY TO THE QUASI-PUBLIC USE OF PUBLIC TRANSPORTATION; THAT THE PRIVATE CARRIER IS NOT OBLIGED TO SUBMIT HIMSELF TO THE CONDITION, BUT IF HE DOES NOT, HE IS NOT ENTITLED TO THE PRIVILEGE OF USING THE HIGHWAYS.

THE UNITED STATES SUPREME COURT, THEREFORE, STATED THAT IT WAS VERY CLEAR THAT THE ACT, AS THUS APPLIED, WAS IN NO REAL SENSE A REGULATION OF THE USE OF THE PUBLIC HIGHWAYS. IT WAS A REGULATION OF THE BUSINESS OF THOSE WHO WERE ENGAGED IN USING THEM. ITS PRIMARY PURPOSE EVIDENTLY WAS TO PROTECT THE BUSINESS OF THOSE WHO WERE COMMON CARRIERS IN FACT BY CONTROLLING COMPETITIVE CONDITIONS. PROTECTION OR CONSERVATION OF THE HIGHWAYS WAS NOT INVOLVED. THIS, IN EFFECT, WAS, IN THE OPINION OF THE UNITED STATES SUPREME COURT, THE VIEW OF THE LOWER COURT PLAINLY EXPRESSED. (70 CAL. DEC. PP. 464-465, 466)

THUS, THE SUPREME COURT CONTINUED, IT WILL BE SEEN THAT, UNDER THE ACT AS CONSTRUED BY THE STATE COURT, WHOSE CONSTRUCTION IS BINDING UPON US, A PRIVATE CARRIER MAY AVAIL HIMSELF OF THE USE OF THE HIGHWAYS ONLY UPON CONDITION THAT HE DEDICATE HIS PROPERTY TO THE BUSINESS OF PUBLIC TRANSPORTATION AND SUBJECT HIMSELF TO ALL THE DUTIES AND BURDENS IMPOSED BY THE ACT UPON COMMON CARRIERS. IN OTHER WORDS, THE CASE PRESENTED WAS NOT THAT OF A PRIVATE CARRIER, WHO, IN ORDER TO HAVE THE PRIVILEGE OF USING THE HIGHWAYS, WAS REQUIRED MERELY TO SECURE A CERTIFICATE OF PUBLIC CONVENIENCE AND BECOME SUBJECT TO REGULATIONS APPROPRIATE TO THAT KIND OF A CARRIER; BUT IT WAS THAT OF A PRIVATE CARRIER WHO, IN ORDER TO ENJOY THE USE OF THE HIGHWAYS, MUST SUBMIT TO THE CONDITION OF BECOMING A COMMON CARRIER AND BEING REGULATED AS SUCH BY THE RAILROAD COMMISSION. THE CERTIFICATE OF PUBLIC CONVENIENCE, REQUIRED BY SECTION 5 OF THE ACT, WAS EXACTED OF A COMMON CARRIER AND WAS PURELY INCIDENTAL TO THAT STATUS. THE REQUIREMENT DID NOT APPLY TO A PRIVATE CARRIER AS A PRIVATE CARRIER, BUT TO HIM IN HIS IMPOSED STATUTORY CHARACTER OF COMMON CARRIER. APART FROM THAT SIGNIFICATION, SO FAR AS HE WAS CONCERNED, IT DID NOT EXIST.

That, stated the Supreme Court, consistently with the due process clause of the Fourteenth Amendment, a private carrier can not be converted against his will into a common carrier by mere legislative command, was a rule not open to doubt and was brought into question here. It was expressly so decided in Michigan Commission v. Duke, 266 U.S. 570, 577-578. See also, Hissem v. Guran, 112 O.S. 59; State V. Nelson, 35 Utah 457, 462. The naked question which the highest court had to determine, therefore, was whether the State may bring about the same result by imposing the unconstitutional requirement as a condition precedent to the enjoyment of a privilege, which, without so deciding, they assumed to be within the power of the State altogether to withhold if it sees fit to do so. Upon the answer to this question depended, in the Supreme Court's opinion, the constitutionality of the statute under review.

The decision of the United States Supreme Court continued as follows: "There is involved in the inquiry not a single power, but two distinct powers. One of these - the power to prohibit the use of the public highways in proper cases - the State possesses; and the other - the power to compel a private carrier to assume against his will the duties and burdens of a common carrier - the State does not possess. It is clear that any attempt to exert the latter, separately and substantively, must fall before the paramount authority of the Constitution. May it stand in the conditional form in which it is here made? If so, constitutional guaranties, so carefully safeguarded against direct assault, are open to destruction by the indirect but no less effective process of requiring a surrender, which, though, in form voluntary, in fact lacks none of the elements of compulsion. Having regard to form alone, the act here is an offer to the private carrier of a privilege, which the State may grant or deny, upon a condition, which the carrier is free to accept or reject. In reality, the carrier is given no choice, except a choice between the rock and the whirlpool, - an option to forego a privilege which may be vital to his livelihood or submit to a requirement which may constitute an intolerable burden.

"It would be a palpable incongruity to strike down an act of State legislation which, by words of express divestment, seeks to strip the citizen of rights guaranteed by the Federal Constitution, but to uphold an act by which the same result is accomplished under the guise of a surrender of a right in

EXCHANGE FOR A VALUABLE PRIVILEGE WHICH THE STATE THREATENS OTHERWISE TO WITHHOLD. IT IS NOT NECESSARY TO CHALLENGE THE PROPOSITION THAT, AS A GENERAL RULE, THE STATE, HAVING POWER TO DENY A PRIVILEGE ALTOGETHER, MAY GRANT IT UPON SUCH CONDITIONS AS IT SEES FIT TO IMPOSE. BUT THE POWER OF THE STATE IN THAT RESPECT IS NOT UNLIMITED; AND ONE OF THE LIMITATIONS IS THAT IT MAY NOT IMPOSE CONDITIONS WHICH REQUIRE THE RELINQUISHMENT OF CONSTITUTIONAL RIGHTS. IF THE STATE MAY COMPEL THE SURRENDER OF ONE CONSTITUTIONAL RIGHT AS A CONDITION OF ITS FAVOR, IT MAY, IN LIKE MANNER, COMPEL A SURRENDER OF ALL. IT IS INCONCEIVABLE THAT GUARANTIES EMBEDDED IN THE CONSTITUTION OF THE UNITED STATES MAY THUS BE MANIPULATED OUT OF EXISTENCE. * * * * *

"WE HOLD THAT THE ACT UNDER REVIEW, AS APPLIED BY THE COURT BELOW, VIOLATES THE RIGHTS OF PLAINTIFFS IN ERROR AS GUARANTEED BY THE DUE PROCESS CLAUSE OF THE FOURTEENTH AMENDMENT; AND THAT THE PRIVILEGE OF USING THE PUBLIC HIGHWAYS OF CALIFORNIA IN THE PERFORMANCE OF THEIR CONTRACT IS NOT AND CAN NOT BE AFFECTED BY THE UNCONSTITUTIONAL CONDITION IMPOSED. (WESTERN UNION TEL. CO. V. KANSAS, SUPRA, P. 48)"

IN REVERSING THE DECISION OF THE LOWER COURTS, THE UNITED STATES SUPREME COURT CONCLUDED WITH THE FOLLOWING STATEMENT: "THE COURT BELOW SEEMED TO THINK THAT, IF THE STATE MAY NOT SUBJECT THE PLAINTIFFS IN ERROR TO THE PROVISIONS OF THE ACT IN RESPECT OF COMMON CARRIERS, IT WILL BE WITHIN THE POWER OF ANY CARRIER, BY THE SIMPLE DEVICE OF MAKING PRIVATE CONTRACTS TO AN UNLIMITED NUMBER, TO SECURE ALL THE PRIVILEGES AFFORDED COMMON CARRIERS WITHOUT ASSUMING ANY OF THEIR DUTIES OR OBLIGATIONS. IT IS ENOUGH TO SAY THAT NO SUCH CASE IS PRESENTED HERE; AND WE ARE NOT TO BE UNDERSTOOD AS CHALLENGING THE POWER OF THE STATE, OR OF THE RAILROAD COMMISSION UNDER THE PRESENT STATUTE, WHENEVER IT SHALL APPEAR THAT A CARRIER, POSING AS A PRIVATE CARRIER, IS IN SUBSTANCE AND REALITY A COMMON CARRIER, TO SO DECLARE AND REGULATE HIS OR ITS OPERATIONS ACCORDINGLY."

JUSTICE HOLMES, WITH JUSTICE BRANDEIS CONCURRING, DISSENTED FROM THE MAJORITY OPINION OF THE UNITED STATES SUPREME COURT. IN A SEPARATE OPINION JUSTICE MCREYNOLDS ALSO DISSENTED. THESE THREE JUDGES BELIEVED THAT THE STATE ACTED WITHIN ITS RIGHTS AND THAT THE JUDGMENT OF THE LOWER COURT SHOULD BE AFFIRMED.

Interstate Busses Corporation
vs.
Holyoke Street Rwy. Co., et al.
273 U.S. 545

For many years, the Holyoke Street Railway Company had been a common carrier of passengers by street railways in Massachusetts through Holyoke, South Hadley, Granby, Amherst, and into Sunderland. Then there was formed the Interstate Busses Corporation which became engaged in the business of transporting passengers for hire by motor vehicle. They began operating busses between Hartford and Springfield on December 1, 1924, and north of Springfield to Greenfield since about December 15, 1925. Their route in Massachusetts passed through Springfield, West Springfield, Holyoke, Granby, Amherst, Sunderland, Deerfield, and Greenfield. With certain exceptions not here material, all their busses ran the whole distance between Hartford and Greenfield. They transported persons from one State into the other, and also those whose journeys begun and ended in Massachusetts. Both classes of passengers - intrastate and interstate - were carried in the same vehicles. The intrastate passengers constituted a very substantial part of the whole number carried in Massachusetts: The Interstate Busses Corporation maintained an office and garage at Springfield and advertised its route and rates. The busses were operated between fixed termini in Massachusetts. They operated regularly on public ways parallel to and alongside the tracks of the street railway company and afforded means of transportation similar to those furnished by that company. They stopped regularly and also on signal to receive and discharge passengers. The operation of the busses in competition with the street railway resulted in substantial loss to the latter. The bus corporation had not received a license from any of the cities or towns served by the street railway company. And that company, through its president and counsel, caused the employees of the bus corporation to be arrested and prosecuted for operating without obtaining the licenses and certificate required by the State.

Sections 45, 48A and 49 of C. 159, General Laws of Massachusetts, as amended by C. 280, Acts of 1925, provided that: No person shall operate a motor vehicle upon a public way in any city or town for the carriage of passengers for hire so as to afford a means of transportation similar to that afforded by a railway company by indiscriminately receiving and discharging passengers along the route on which the vehicle is operated, or

AS A BUSINESS BETWEEN FIXED AND REGULAR TERMINI, WITHOUT FIRST OBTAINING A LICENSE. THE LICENSING AUTHORITY IN A CITY IS ITS COUNCIL, IN A TOWN IS ITS SELECTMEN; AND, AS TO PUBLIC WAYS UNDER ITS CONTROL, IS THE METROPOLITAN DISTRICT COMMISSION. NO PERSON SHALL OPERATE A MOTOR VEHICLE UNDER SUCH LICENSE UNLESS HE HAS ALSO OBTAINED FROM THE DEPARTMENT OF PUBLIC UTILITIES A CERTIFICATE THAT PUBLIC CONVENIENCE AND NECESSITY REQUIRE SUCH OPERATION. ANYONE OPERATING UNDER A LICENSE FROM LOCAL AUTHORITY AND A CERTIFICATE FROM THE DEPARTMENT IS DECLARED TO BE A COMMON CARRIER AND SUBJECT TO REGULATION AS SUCH. VIOLATIONS OF SECTIONS 45 - 48 OR OF ANY ORDER, RULE OR REGULATION MADE UNDER THEM ARE PUNISHABLE BY FINE OR IMPRISONMENT OR BOTH. AND THE ACT GIVES THE STATE SUPREME JUDICIAL AND SUPERIOR COURTS JURISDICTION IN EQUITY TO RESTRAIN ANY VIOLATION UPON PETITION OF THE DEPARTMENT, ANY LICENSING AUTHORITY, THE CITIZENS OF A CITY OR TOWN AFFECTED BY THE VIOLATION, OR ANY INTERESTED PARTY. NEITHER LICENSE NOR CERTIFICATE IS REQUIRED IN RESPECT OF SUCH CARRIAGE AS MAY BE EXCLUSIVELY INTERSTATE.

THE STATUTORY PROVISIONS IN QUESTION HAVE BEEN SUSTAINED BY THE HIGHEST COURT IN MASSACHUSETTS. THESE DECISIONS WERE FOLLOWED BY THE DISTRICT COURT IN REACHING A DECISION IN FAVOR OF THE STREET RAILWAY COMPANY IN THIS CASE.

THE PRINCIPAL CONTENTION OF THE BUS CORPORATION IN ITS APPEAL TO THE UNITED STATES SUPREME COURT WAS THAT THE ACT CONTRAVENES THE COMMERCE CLAUSE. THE DECISION OF THE SUPREME COURT, AFFIRMING THE DECREE OF THE LOWER COURT, READS, IN PART, AS FOLLOWS:

"IF AS APPLIED IT DIRECTLY INTERFERES WITH OR BURDENS APPELLANT'S INTERSTATE COMMERCE, IT CAN NOT BE SUSTAINED REGARDLESS OF THE PURPOSE FOR WHICH IT WAS PASSED. SEE SHAFER V. FARMERS GRAIN CO., 268 U.S. 189, 199; REAL SILK MILLS V. PORTLAND, 268 U.S. 325, 336; COLORADO V. UNITED STATES, 271 U.S. 153, 163; DI SANTO V. PENNSYLVANIA, - U.S. -. THE ACT EXISTED IN SOME FORM BEFORE INTERSTATE TRANSPORTATION OF PASSENGERS FOR HIRE BY MOTOR VEHICLE WAS UNDERTAKEN. ITS PURPOSE IS TO REGULATE LOCAL AND INTRASTATE AFFAIRS. BARROWS V. FARNUM'S STAGE LINES, SUPRA. NO LICENSES FROM LOCAL AUTHORITIES OR CERTIFICATE OF PUBLIC CONVENIENCE AND NECESSITY IS REQUIRED IN RESPECT OF TRANSPORTATION THAT IS EXCLUSIVELY INTERSTATE. CF. BUCK V. KUYKENDALL, 267 U.S. 307; BUSH CO. V. MALOY, 267 U.S. 317. THE BURDEN IS UPON APPELLANT TO SHOW

THAT ENFORCEMENT OF THE ACT OPERATES TO PREJUDICE INTERSTATE CARRIAGE OF PASSENGERS. THE STIPULATED FACTS DO NOT SO INDICATE. THE THREATENED ENFORCEMENT IS TO PREVENT APPELLANT FROM CARRYING INTRASTATE PASSENGERS WITHOUT LICENSE OVER THAT PART OF ITS ROUTE WHICH IS PARALLEL TO THE STREET RAILWAY. ITS RIGHT TO USE THE HIGHWAYS BETWEEN SPRINGFIELD AND HARTFORD IS NOT IN CONTROVERSY. WHILE IT APPEARS THAT IN MASSACHUSETTS BOTH CLASSES OF PASSENGERS ARE CARR'ED IN THE SAME VEHICLES, IT IS NOT SHOWN WHAT PART OF THE TOTAL NUMBER ARE INTRASTATE OR INTERSTATE. THE RECORD CONTAINS NO INFORMATION AS TO THE NUMBER OF PERSONS, IF ANY, TRAVELING IN INTERSTATE COMMERCE ON APPELLANT'S BUSSES OVER PART OF THE ROUTE COMPETING WITH THE STREET RAILWAY. IT IS NOT SHOWN THAT THE TWO CLASSES OF BUSINESS ARE SO COMMINGLED THAT THE SEPARATION OF ONE FROM THE OTHER IS NOT REASONABLY PRACTICABLE OR THAT APPELLANT'S INTERSTATE PASSENGERS MAY NOT BE CARRIED EFFICIENTLY AND ECONOMICALLY IN BUSSES USED EXCLUSIVELY FOR THAT PURPOSE OR THAT APPELLANT'S INTERSTATE BUSINESS IS DEPENDENT IN ANY DEGREE UPON THE LOCAL BUSINESS IN QUESTION. APPELLANT MAY NOT EVADE THE ACT BY THE MERE LINKING OF ITS INTRASTATE TRANSPORTATION TO ITS INTERSTATE OR BY THE UNNECESSARY TRANSPORTATION OF BOTH CLASSES BY MEANS OF THE SAME INSTRUMENTALITIES AND EMPLOYEES. THE APPELLANT RELIES ON WESTERN UNION TEL. CO. V. KANSAS, 216 U.S. 1 AND PULLMAN CO. V. KANSAS, 216 U.S, 56. BUT THERE THE STATE WAS USING ITS AUTHORITY AS A MEANS TO ACCOMPLISH A RESULT BEYOND ITS CONSTITUTIONAL POWER.

"THERE IS NO SUPPORT FOR THE CONTENTION THAT THE ENFORCEMENT OF THE ACT DEPRIVES IT OF ITS PROPERTY WITHOUT DUE PROCESS OF LAW. UNDOUBTEDLY, THE STATE HAS POWER IN THE PUBLIC INTEREST REASONABLY TO CONTROL AND REGULATE THE USE OF ITS HIGHWAYS SO LONG AS IT DOES NOT DIRECTLY BURDEN OR INTERFERE WITH INTERSTATE COMMERCE. PACKARD V. BANTON, 264 U.S. 140, 144; KANE V. NEW JERSEY, 242 U.S. 160; HENDRICK V. MARYLAND, 235 U.S. 610. CF. OPINION OF THE JUSTICES, 251 MASS. 594, 596. THE TERMS OF THE ACT ARE NOT ARBITRARY OR UNREASONABLE. APPELLANT HAS NOT APPLIED FOR AND DOES NOT SHOW THAT IT IS ENTITLED TO HAVE A LICENSE FROM THE LOCAL AUTHORITIES OR A CERTIFICATE OF PUBLIC NECESSITY AND CONVENIENCE FROM THE DEPARTMENT. PLAINLY, IT HAS NO STANDING TO ATTACK THE VALIDITY OF THE STATUTE AS A VIOLATION OF THE DUE PROCESS CLAUSE."

MORRIS, ET AL., VS. DUBY, ET AL. 47 SUP. CT. REPORTER 548

MORRIS AND LOWTHER, H. M. HEWITT AND LEW NUNAMAKER, ETC., ET AL., OWNED AND OPERATED FOR HIRE, UNDER PROPER LICENSE, MOTOR TRUCKS ON THE COLUMBIA RIVER HIGHWAY IN OREGON, FROM THE EAST BOUNDARY OF MULTNOMAH COUNTY TO THE WEST LIMITS OF THE CITY OF HOOD RIVER, A DISTANCE OF 22.11 MILES. THE HIGHWAY EXTENDS FROM PORTLAND TO THE DALLES, ORE., AND IS A RURAL POST ROAD. THE MOTOR-TRUCK OPERATORS HAD COMPLIED WITH ALL THE STATE RULES AND REGULATIONS RESPECTING THE OPERATION OF MOTOR TRUCKS UPON THE HIGHWAY, AND UNDER PREVIOUS REGULATIONS CARRIED A COMBINED MAXIMUM LOAD OF NOT EXCEEDING 22,000 POUNDS. THE STATE HIGHWAY COMMISSION UNDER A LAW OF OREGON REDUCED THE MAXIMUM LOAD TO 16,500 POUNDS BY AN ORDER, IN WHICH THE COMMISSION RECITED THAT THE ROAD WAS BEING DAMAGED BY HEAVIER LOADS. THE MOTOR-TRUCK OPERATORS FILED A BILL TO ENJOIN THE ENFORCEMENT OF THE ORDER ON THE GROUND THAT IT INVADED THEIR FEDERAL CONSTITUTIONAL RIGHTS.

THE CASE WAS HEARD UNDER SECTION 266 OF THE JUDICIAL CODE AS AMENDED BY THE ACT OF FEBRUARY 13, 1924, C. 229, 43 STAT. 926, BEFORE A COURT OF THREE JUDGES ON AN ORDER TO SHOW CAUSE WHY A PRELIMINARY INJUNCTION SHOULD NOT ISSUE RESTRAINING THE COMMISSION FROM ENFORCING THE ORDER. A MOTION TO DISMISS WAS INTERPOSED TO THE COMPLAINT BY THE STATE AND SUBMITTED AT THE SAME TIME. THE DISTRICT COURT DENIED THE APPLICATION FOR A PRELIMINARY INJUNCTION, AND GRANTED THE MOTION TO DISMISS THE MOTOR-TRUCK OPERATORS' AMENDED BILL, ON THE GROUND THAT IT DID NOT STATE FACTS SUFFICIENT TO CONSTITUTE A CAUSE OF ACTION OR TO ENTITLE THE MOTOR-TRUCK OPERATORS TO THE RELIEF DEMANDED. AS THE MOTOR-TRUCK OPERATORS REFUSED TO PLEAD FURTHER, THE CAUSE WAS DISMISSED, AND THE CASE CAME TO THE UNITED STATES SUPREME COURT DIRECTLY FROM THE DISTRICT COURT BY VIRTUE OF PARAGRAPH 3 OF SECTION 238 OF THE JUDICIAL CODE AS AMENDED BY THE ACT OF FEBRUARY 13, 1925, C. 229, 43 STAT. 936.

THE ORDER COMPLAINED OF, SET FORTH AS AN EXHIBIT TO THE AMENDED BILL OF COMPLAINT, RECITES THAT THE COMMISSION, AS A RESULT OF DUE INVESTIGATION, FINDS THAT THE ROAD IS BEING DAMAGED AND INJURED ON ACCOUNT OF THE KIND AND CHARACTER OF TRAFFIC NOW BEING HAULED OVER IT, AND THAT THE LOADS OF MAXIMUM WEIGHT MOVED AT THE MAXIMUM SPEED ARE BREAKING UP, DAMAGING AND DETERIORATING THE ROAD, AND THAT IT WILL, THEREFORE, BE FOR

THE BEST INTERESTS OF THE STATE HIGHWAY THAT THE MAXIMUM WEIGHT BE REDUCED FROM 20,000 TO 16,500 POUNDS AND THAT CHANGES BE MADE WITH RESPECT TO TIRES AND THEIR WIDTH.

THE AMENDED BILL GIVES A HISTORY OF THE HIGHWAY AND ITS CONTINUED USE FOR A WEIGHT OF 22,000 POUNDS FOR FOUR YEARS, WHICH HAS BEEN AVAILED OF BY THE APPELLANTS AS COMMON CARRIERS AND AS MEMBERS OF AN AUTO FREIGHT TRANSPORTATION ASSOCIATION OF OREGON AND WASHINGTON, WITH COSTLY TERMINALS IN PORTLAND ESTABLISHED BY REQUIREMENT OF THAT CITY; THAT THE 22 MILES IN LENGTH OF THE COLUMBIA RIVER HIGHWAY HERE INVOLVED IS A PART OF THE INTERSTATE HIGHWAY FROM ASTORIA, ORE., INTO THE STATE OF WASHINGTON AND ALL SUBJECT TO THE FEDERAL HIGHWAY ACTS, AND THAT THIS ORDER WILL INTERFERE WITH INTERSTATE COMMERCE THEREON. THE AMENDED BILL DENIES THE DAMAGE TO THE ROAD AS FOUND BY THE HIGHWAY COMMISSION, AND SAYS THAT THE REDUCTION OF THE LIMIT WILL BE UNREASONABLE, ARBITRARY AND DISCRIMINATORY. IT AVERS THAT THE MOTOR-TRUCK OPERATORS HAVE BEEN ENGAGED IN ACTIVE COMPETITION WITH STEAM RAILROADS PARALLELING THE COLUMBIA RIVER HIGHWAY AND CHARGING RATES OF TRAFFIC WHICH UNLESS THE APPELLANTS CAN USE TRUCKS COMBINED WITH LOADS OF 22,000 POUNDS WILL PREVENT THEIR DOING BUSINESS EXCEPT AT A LOSS. IT ALLEGES THAT THE ACTS OF CONGRESS AND OF OREGON CONSTITUTE A CONTRACT BY WHICH THE PERMISSION FOR THE USE OF A FIVE-TON COMBINED WEIGHT OF TRUCK AND LOAD IS A TERM WHICH CAN NOT BE DEPARTED FROM BY THE STATE HIGHWAY COMMISSION, AND CONSTITUTES A PROTECTION TO THE PLAINTIFFS OF WHICH THEY MAY AVAIL THEMSELVES IN THIS ACTION.

IN ITS DECISION THE UNITED STATES SUPREME COURT STATED "AN EXAMINATION OF THE ACTS OF CONGRESS DISCLOSES NO PROVISION, EXPRESS OR IMPLIED, BY WHICH THERE IS WITHHELD FROM THE STATE ITS ORDINARY POLICE POWER TO CONSERVE THE HIGHWAYS IN THE INTEREST OF THE PUBLIC AND TO PRESCRIBE SUCH REASONABLE REGULATIONS FOR THEIR USE AS MAY BE WISE TO PREVENT INJURY AND DAMAGE TO THEM. IN THE ABSENCE OF NATIONAL LEGISLATION ESPECIALLY COVERING THE SUBJECT OF INTERSTATE COMMERCE, THE STATE MAY RIGHTLY PRESCRIBE UNIFORM REGULATIONS ADAPTED TO PROMOTE SAFETY UPON ITS HIGHWAYS AND THE CONSERVATION OF THEIR USE APPLICABLE ALIKE TO VEHICLES MOVING IN INTERSTATE COMMERCE AND THOSE OF ITS OWN CITIZENS. HENDRICK V. MARYLAND, 235 U.S. 610, 622, ET. SEQ.; KANE V. NEW JERSEY, 242 U.S. 160, 167. OF COURSE THE STATE MAY NOT DISCRIMINATE AGAINST INTERSTATE COMMERCE. BUCK V. KUYKENDALL, 277 U.S. 307. IN THE KUYKENDALL CASE THIS COURT SAID, P. 315:

'With the increase in number and size of the vehicles used upon a highway, both the danger and wear and tear grow. To exclude unnecessary vehicles - particularly the large ones commonly used by carriers for hire - promotes both safety and economy. State regulation of that character is valid even as applied to interstate commerce, in the absence of legislation by Congress which deals specifically with the subject: Vandalia R.R. Co. v. Public Service Commission, 242 U.S. 255; Missouri Pacific Ry. Co. v. Larabee Flour Mills Co., 211 U.S. 612. Neither the recent Federal highway acts, nor the earlier post road acts, Rev. Stat., par. 3964; Act of March 1st. 1884, C. 9, 23 Stat. 3, do that.'

"The mere fact that a truck company may not make a profit unless it can use a truck with a load weighing 22,000 or more pounds does not show that a regulation forbidding it is either discriminatory or unreasonable. That it prevents competition with freight traffic on parallel steam railroads may possibly be a circumstance to be considered in determining the reasonableness of such a limitation, though that is doubtful, but it is necessarily outweighed when it appears by decision of competent authority that such weight is injurious to the highway for the use of the general public and unduly increases the cost of maintenance and repair. In the absence of any averments of specific facts to show fraud or abuse of discretion, we must accept the judgment of the highway commission upon this question which is committed to their decision as against merely general averments denying their official finding.

"Nor is there anything either in the Federal or State legislation to support the argument that the agreement between the National and State government requires that the weight of truck and load which was permitted by the State when the agreement was made binds the State contractually to continue such permission. Conserving limitation is something that must rest with the road supervising authorities of the State not only on the general constitutional distinction between National and State powers but also for the additional reason having regard to the argument based on a contract that under the convention between the United States and the State in respect to these jointly, aided roads, the maintenance after construction is primarily imposed on the State. Regulation as to the method of use therefore necessarily remains with the State and can not be interfered with unless the regulation

IS SO ARBITRARY AND UNREASONABLE AS TO DEFEAT THE USEFUL PURPOSES FOR WHICH CONGRESS HAS MADE ITS LARGE CONTRIBUTION TO BETTERING THE HIGHWAY SYSTEMS OF THE UNION AND TO FACILITATING THE CARRYING OF THE MAILS OVER THEM. THERE IS NO AVERMENT OF THE BILL OR ANY SHOWING BY AFFIDAVIT MAKING OUT SUCH A CASE".

IN AFFIRMING THE DECREE OF THE LOWER COURT THE SUPREME COURT CONCLUDED:"THE TEMPORARY INJUNCTION WAS RIGHTLY REFUSED AND THE MOTION TO DISMISS THE BILL WAS PROPERLY GRANTED".

CLARK, ET AL.,
VS.
POOR, ET AL.
47 SUP. CT. REPORTER 702

CLARK AND RIGGS OPERATE AS COMMON CARRIERS A MOTOR-TRUCK LINE BETWEEN AURORA, IND., AND CINCINNATI, OHIO, EXCLUSIVELY IN INTERSTATE COMMERCE. THE OHIO MOTOR TRANSPORTATION ACT OF 1923 AS AMENDED (GENERAL CODE, SECTIONS 614-84 TO 614-102) PROVIDES THAT A MOTOR TRANSPORTATION COMPANY DESIRING TO OPERATE WITHIN THE STATE SHALL APPLY TO THE PUBLIC UTILITIES COMMISSION FOR A CERTIFICATE SO TO DO AND SHALL NOT BEGIN TO OPERATE WITHOUT FIRST OBTAINING IT; ALSO, THAT SUCH A COMPANY MUST PAY, AT THE TIME OF THE ISSUANCE OF THE CERTIFICATE AND ANNUALLY THEREAFTER, A TAX GRADUATED ACCORDING TO THE NUMBER AND CAPACITY OF THE VEHICLES USED (SECTIONS 614-87, 614-94). CLARK AND RIGGS IGNORED THE PROVISIONS OF THE ACT, AND OPERATED WITHOUT APPLYING FOR A CERTIFICATE OR PAYING THE TAX. THEN THEY BROUGHT THIS SUIT, IN THE FEDERAL COURT FOR SOUTHERN OHIO, TO ENJOIN THE COMMISSION FROM ENFORCING AS AGAINST THEM THE PROVISIONS OF THE ACT. THE CASE WAS HEARD IN THE DISTRICT COURT BEFORE THREE JUDGES ON FINAL HEARING, UNDER SECTION 266 OF THE JUDICIAL CODE AS AMENDED BY THE ACT OF FEBRUARY 13, 1925. IT APPEARED THAT WHILE THE ACT CALLS THE CERTIFICATE ONE OF "PUBLIC CONVENIENCE AND NECESSITY", THE COMMISSION HAD RECOGNIZED, BEFORE THIS SUIT WAS BEGUN, THAT, UNDER BUCK V. KUYKENDALL, 267 U.S. 307 AND BUSH V. MALOY, 267 U.S. 317, IT HAD NO DISCRETION WHERE THE CARRIER WAS ENGAGED EXCLUSIVELY IN INTERSTATE COMMERCE, AND WAS WILLING TO GRANT TO PLAINTIFFS A CERTIFICATE UPON APPLICATION AND COMPLIANCE WITH OTHER PROVISIONS OF THE LAW. SEE CANNON BALL TRANSPORTATION CO. V. PUBLIC UTILITIES COMMISSION, 113 OHIO ST. 565, 567. THE BILL WAS DISMISSED BY THE LOWER COURT AND THEN A DIRECT APPEAL WAS MADE TO THE UNITED STATES SUPREME COURT. THE LATTER COURT HAD JURISDICTION AS AN INTERLOCUTORY INJUNCTION HAD BEEN APPLIED FOR AND A RESTRAINING ORDER ISSUED. MOORE V. FIDELITY AND DEPOSIT CO., 272 U.S. 317, 320-321; SMITH V. WILSON, NO. 648, DECIDED FEB. 21, 1927.

THE UNITED STATES SUPREME COURT AFFIRMED THE DECREE OF THE LOWER COURT WITH THE FOLLOWING REASONING: "THE PLAINTIFFS CLAIM THAT, AS APPLIED TO THEM, THE ACT VIOLATES THE COMMERCE CLAUSE OF THE FEDERAL CONSTITUTION. THEY INSIST THAT, AS THEY ARE ENGAGED EXCLUSIVELY IN INTERSTATE COMMERCE, THEY ARE NOT SUBJECT TO REGULATION BY THE STATE; THAT IT IS WITHOUT POWER TO REQUIRE THAT BEFORE USING ITS HIGHWAYS THEY APPLY FOR AND OBTAIN A CERTIFICATE; AND THAT IT IS ALSO WITHOUT POWER TO IMPOSE, IN ADDITION TO THE ANNUAL LICENSE FEE DEMANDED OF ALL PERSONS USING AUTOMOBILES ON THE HIGHWAYS, A TAX UPON THEM, UNDER SECTION 614-94, FOR THE MAINTENANCE AND REPAIR OF THE HIGHWAYS AND FOR THE ADMINISTRATION AND ENFORCEMENT OF THE LAWS GOVERNING THE USE OF THE SAME. THE CONTRARY IS SETTLED. THE HIGHWAYS ARE PUBLIC PROPERTY. USERS OF THEM, ALTHOUGH ENGAGED EXCLUSIVELY IN INTERSTATE COMMERCE, ARE SUBJECT TO REGULATION BY THE STATE TO ENSURE SAFETY AND CONVENIENCE AND THE CONSERVATION OF THE HIGHWAYS. MORRIS V. DUBY, NO. 372, DECIDED APRIL 18, 1927. USERS OF THEM, ALTHOUGH ENGAGED EXCLUSIVELY IN INTERSTATE COMMERCE, MAY BE REQUIRED TO CONTRIBUTE TO THEIR COST AND UPKEEP. COMMON CARRIERS FOR HIRE, WHO MAKE THE HIGHWAYS THEIR PLACE OF BUSINESS, MAY PROPERLY BE CHARGED AN EXTRA TAX FOR SUCH USE. HENDRICK V. MARYLAND, 235 U.S. 610; KANE V. NEW JERSEY, 242 U.S. 160; HESS V. PAWLOSKI, NO. 263, DECIDED MAY 16, 1927. COMPARE PACKARD V. BANTON, 264 U.S. 140, 144.

"THERE IS NO SUGGESTION THAT THE TAX DISCRIMINATES AGAINST INTERSTATE COMMERCE. NOR IS IT SUGGESTED THAT THE TAX IS SO LARGE AS TO OBSTRUCT INTERSTATE COMMERCE. IT IS SAID THAT ALL OF THE TAX IS NOT USED FOR MAINTENANCE AND REPAIR OF THE HIGHWAYS; THAT SOME OF IT IS USED FOR DEFRAYING THE EXPENSES OF THE COMMISSION IN THE ADMINISTRATION OR ENFORCEMENT OF THE ACT; AND SOME FOR OTHER PURPOSES. THIS, IF TRUE, IS IMMATERIAL. SINCE THE TAX IS ASSESSED FOR A PROPER PURPOSE AND IS NOT OBJECTIONABLE IN AMOUNT, THE USE TO WHICH THE PROCEEDS ARE PUT IS NOT A MATTER WHICH CONCERNS THE PLAINTIFFS.

"PLAINTIFFS URGE THAT THE DECREE SHOULD BE REVERSED BECAUSE OF THE PROVISION IN THE ACT CONCERNING INSURANCE. THE ACT PROVIDES THAT NO CERTIFICATE SHALL ISSUE UNTIL A POLICY COVERING LIABILITY AND CARGO INSURANCE HAS BEEN FILED WITH THE COMMISSION. SECTION 614-99. THE LOWER COURT HELD THAT, UNDER MICHIGAN PUBLIC UTILITIES COMMISSION V. DUKE, 266 U.S. 570,

THIS PROVISION COULD NOT BE APPLIED TO EXCLUSIVELY INTERSTATE CARRIERS, RED BALL TRANSIT CO. V. MARSHALL, 8 FED. (2D) 635, 639; AND COUNSEL FOR THE COMMISSION STATED IN THIS COURT THAT THE REQUIREMENT FOR INSURANCE WOULD NOT BE INSISTED UPON. PLAINTIFFS URGE THAT BECAUSE THIS WAS NOT CONCEDED AT THE OUTSET, IT WAS AN ERROR TO DENY THE INJUNCTION. THE CIRCUMSTANCES WERE SUCH THAT IT WAS CLEARLY WITHIN THE DISCRETION OF THE COURT TO DECLINE TO ISSUE AN INJUNCTION; AND SINCE AN INJUNCTION WAS THE ONLY RELIEF SOUGHT, IT PROPERLY DISMISSED THE BILL. COMPARE CHICAGO G.W. RY. CO. V. KENDALL, 266 U.S. 94, 100-101. THE PLAINTIFFS DID NOT APPLY FOR A CERTIFICATE OR OFFER TO PAY THE TAXES. THEY REFUSED OR FAILED TO DO SO, NOT BECAUSE INSURANCE WAS DEMANDED, BUT BECAUSE OF THEIR BELIEF THAT, BEING ENGAGED EXCLUSIVELY IN INTERSTATE COMMERCE, THEY COULD NOT BE REQUIRED TO APPLY FOR A CERTIFICATE OR TO PAY THE TAX. THEIR CLAIM WAS UNFOUNDED. MOREOVER, THE ACT MADE EACH SECTION AND PART THEREOF INDEPENDENT AND DECLARED THAT 'THE HOLDING OF ANY SECTION OR PART THEREOF TO BE VOID OR INEFFECTIVE FOR ANY CAUSE SHALL NOT AFFECT ANY OTHER SECTION OR PART THEREOF.' SECTION 614-102. AND THE ACT ALSO PROVIDED THAT IT SHOULD APPLY TO INTERSTATE COMMERCE ONLY IN SO FAR AS SUCH REGULATION WAS PERMITTED BY THE FEDERAL CONSTITUTION. SECTION 614-101.

"IT IS NOT CLEAR WHETHER THE LIABILITY INSURANCE, FOR WHICH THE ACT PROVIDES, IS AGAINST LOSS RESULTING TO THIRD PERSONS FROM THE APPLICANT'S NEGLIGENCE IN USING THE HIGHWAYS WITHIN THE STATE, OR IS FOR LOSS TO PASSENGERS RESULTING FROM SUCH NEGLIGENCE, OR FOR BOTH PURPOSES. WE HAVE NO OCCASION TO CONSIDER WHETHER, UNDER ANY SUGGESTED INTERPRETATION, LIABILITY INSURANCE, AS DISTINGUISHED FROM INSURANCE ON THE INTERSTATE CARGO, MAY BE REQUIRED OF A CARRIER ENGAGED WHOLLY IN INTERSTATE COMMERCE. COMPARE HESS V. PAWLOSKI, SUPRA. THE DECREE DISMISSING THE BILL IS AFFIRMED, BUT WITHOUT PREJUDICE TO THE RIGHT OF THE PLAINTIFFS TO SEEK APPROPRIATE RELIEF BY ANOTHER SUIT IF THEY SHOULD HEREAFTER BE REQUIRED BY THE COMMISSION TO COMPLY WITH CONDITIONS OR PROVISIONS NOT WARRANTED BY LAW".

FREE LIST FOR PUBLIC ROADS FILLED

IT IS NO LONGER POSSIBLE TO ENTER NEW NAMES ON THE FREE SUBSCRIPTION LIST FOR PUBLIC ROADS. THE NUMBER OF NAMES NOW ON THE FREE LIST EQUALS THE NUMBER OF COPIES AVAILABLE FOR FREE DISTRIBUTION. PERSONS REQUESTING THE MAGAZINE ARE NOW BEING ADVISED THAT IT CAN BE SECURED ONLY BY PLACING A SUBSCRIPTION WITH THE SUPERINTENDENT OF DOCUMENTS, GOVERNMENT PRINTING OFFICE, WASHINGTON, D. C., AT $1.00 PER YEAR.

BUREAU OF PUBLIC ROADS

STATUS OF CURRENT FEDERAL AID ROAD WORK

FOR THE FISCAL YEAR ENDING JUNE 30, 1928

AS OF AUGUST 31, 1927

S-P.R.-F.A.-A-1
M - AUGUST 1927 - A-1

STATES	BALANCE OF FEDERAL AID FUND AVAILABLE FOR NEW PROJECTS	* UNDER CONSTRUCTION			APPROVED FOR CONSTRUCTION			AMOUNT PAID STATES DURING FISCAL YEAR	COMPLETED AND PAID DURING FISCAL YEAR			AGREEMENTS NOW IN FORCE			P. S. & E. RECOMMENDED FOR APPROVAL BY DISTRICT ENGINEER			STATES
		FEDERAL AID	MILES ORIGINAL	MILES STAGE	FEDERAL AID	MILES ORIGINAL	MILES STAGE		FEDERAL AID	MILES ORIGINAL	MILES STAGE	FEDERAL AID	MILES ORIGINAL	MILES STAGE	FEDERAL AID	MILES ORIGINAL	MILES STAGE	
ALABAMA	2,869,621.76	3,330,293.16	407.1	1.9	81,760.14	2.9		293,634.09				3,210,396.64	392.1	1.9	201,656.66	17.9		ALABAMA
ARIZONA	2,918,272.42	1,274,975.98	81.9	4.4	17,264.44			94,963.79	16,560.89			1,274,975.98	81.8	4.4	17,264.44			ARIZONA
ARKANSAS	1,630,934.58	1,417,449.00	211.3		284,001.03	19.5		18,654.41	26,122.64	0.1		1,535,116.83	228.2		166,333.20	2.6		ARKANSAS
CALIFORNIA	4,073,487.82	3,080,296.40	127.3	0.4	5,836.71			458,228.72	429,604.25	29.8		3,029,836.23	126.5	0.4	56,296.88	0.7		CALIFORNIA
COLORADO	2,599,478.13	3,100,010.98	279.0	9.1	20,057.34	2.9		114,450.64	48,486.64	0.9		2,943,973.73	261.8	9.1	176,094.59	20.1		COLORADO
CONNECTICUT	384,672.62	1,469,869.22	63.4		409,628.62	18.0		19,556.61	98,205.00	6.5		1,627,321.71	67.6		252,166.13	13.7		CONNECTICUT
DELAWARE	4,318.29	312,891.57	32.9	1.9	176,900.72	15.5						291,954.57	32.8		187,837.72	15.5	1.9	DELAWARE
FLORIDA	844,788.07	3,446,923.06	170.0		330,574.49	24.2		435,554.69	734,206.79	32.7	24.7	3,084,940.68	169.8		692,556.96	24.4		FLORIDA
GEORGIA	667,732.38	3,787,930.52	311.2	93.6	273,585.08	6.8	11.1	320,221.84	680,681.62	54.6	29.1	3,582,556.08	292.3	90.2	478,959.52	25.7	14.4	GEORGIA
IDAHO	330,448.17	1,659,220.02	186.8	29.3	386,689.28	37.3	37.1	250,941.83	42,935.37	17.5		1,496,521.98	168.6	16.6	549,387.32	55.5	49.8	IDAHO
ILLINOIS	2,563,574.06	5,152,862.61	379.0		2,488,673.74	175.9						5,617,987.85	414.8		2,023,548.60	140.1		ILLINOIS
INDIANA	359,157.52	7,469,350.55	470.9		872,781.70	72.5	0.6	304,490.12	191,269.03	13.3		7,547,415.71	478.8		794,716.54	64.6	0.6	INDIANA
IOWA	121,606.59	6,834,664.15	593.9	236.0	102,748.66	33.4		865,144.20	75,938.85	3.8	3.6	6,905,595.81	605.0	226.4	31,817.00	22.2	9.6	IOWA
KANSAS	407,176.75	5,877,122.37	762.7	14.5	293,921.87	74.0		568,055.26	223,892.53	32.6		5,418,760.43	732.4	8.4	752,293.81	104.3	6.1	KANSAS
KENTUCKY	52,042.64	4,616,249.91	448.1	62.2	323,080.81	17.2	17.6	383,053.95	128,687.99	9.4		4,439,487.97	429.9	57.7	498,842.75	35.3	22.1	KENTUCKY
LOUISIANA	759,984.62	1,470,080.34	96.6	7.6	519,442.72	0.9		116,456.66	442,316.21	37.9		1,470,080.34	95.6	7.5	519,442.72	0.9		LOUISIANA
MAINE	1,108,494.78	943,327.06	69.6		188,307.01	16.6		27,127.11	47,040.48	5.2		987,283.06	75.1		144,351.01	11.1		MAINE
MARYLAND	8,352.09	427,585.64	40.7		599,300.00	63.9		44,918.56				637,485.64	59.1		389,400.00	45.5		MARYLAND
MASSACHUSETTS	2,069,385.69	1,616,342.26	97.9		35,235.00	2.4		50,955.00	50,955.00	3.4		1,516,290.69	91.3		135,286.57	9.0		MASSACHUSETTS
MICHIGAN	1,798,003.17	6,575,930.08	376.0	12.6	817,335.00	46.5	6.6	717,760.45	37,302.76	2.0		5,043,857.85	360.3	12.6	1,349,407.23	62.2	6.5	MICHIGAN
MINNESOTA	640,476.43	2,119,898.90	380.2	115.7	6,000.00	13.5		43,951.69				2,115,898.90	389.4	115.7	10,000.00	4.3		MINNESOTA
MISSISSIPPI	581,012.74	3,317,202.43	378.2	29.5	321,822.72	33.9	12.0	362,252.96	111,564.49	16.8		3,064,347.83	336.6	14.7	574,577.32	75.6	26.8	MISSISSIPPI
MISSOURI	698,609.22	3,757,174.09	279.0	34.8	687,133.78	46.0	11.8	291,399.84	367,667.43	34.1	2.6	3,467,555.49	277.0	34.8	976,752.38	48.0	11.8	MISSOURI
MONTANA	4,342,271.99	1,601,095.38	166.6	7.5	1,603,276.31	255.4		297,323.49	142,451.63	21.0	1.6	3,098,376.46	406.2	7.5	105,995.23	15.8		MONTANA
NEBRASKA	671,579.09	6,172,789.05	1,292.3	483.5	843,512.86	109.9	267.1	556,767.42	793,106.62	150.8	213.4	6,145,110.31	1,291.7	544.1	871,191.59	110.5	196.5	NEBRASKA
NEVADA	582,607.55	1,433,635.76	188.7	26.2	55,873.24	5.0		99,322.29	82,449.77	27.4		1,216,110.11	155.3	26.2	273,388.89	38.4		NEVADA
NEW HAMPSHIRE	48,676.80	665,795.45	43.8		33,780.00	2.3		7,936.70	7,936.70	0.7		598,153.97	39.5		101,421.48	6.5		NEW HAMPSHIRE
NEW JERSEY	12,707.96	1,670,638.56	109.3		104,940.00	7.0		118,380.00	118,380.00	7.9		1,603,033.56	104.8		172,545.00	11.5		NEW JERSEY
NEW MEXICO	1,661,001.79	2,483,534.45	242.9					452,745.12	77,004.69	10.0		2,158,328.88	222.6		325,215.58	20.3		NEW MEXICO
NEW YORK	3,543,893.56	10,099,818.96	622.6		2,028,212.50	131.4	8.6	695,851.08	314,531.34	22.1		11,462,173.95	713.2		665,857.50	40.8	8.6	NEW YORK
NORTH CAROLINA	787,652.37	1,397,664.82	90.4	7.2	546,443.50	29.0	21.6	368,243.14	179,898.15	14.7		1,441,515.52	89.4	12.2	502,592.80	30.0	16.6	NORTH CAROLINA
NORTH DAKOTA	132,255.61	3,333,502.85	874.0	316.2	677,648.31	269.8	174.8	299,363.38	53,909.55	24.4		3,399,792.36	909.0	394.3	611,358.80	234.7	96.7	NORTH DAKOTA
OHIO	3,205,052.77	4,473,265.47	331.1	4.2	1,399,510.00	59.2		350,954.21	83,800.00	6.0		4,341,515.47	325.1	4.2	1,531,260.00	65.2		OHIO
OKLAHOMA	968,368.00	1,507,493.78	244.8	9.9	875,840.65	114.1	10.8	155,270.68	342,386.36	6.8	17.9	1,643,043.69	265.9	20.7	740,290.74	92.9		OKLAHOMA
OREGON	686,871.00	1,307,528.26	62.4	35.8	25,696.80	9.9		67,674.93				1,244,220.01	67.5	35.8	89,005.05	4.8		OREGON
PENNSYLVANIA	1,681,830.30	5,553,350.65	356.7	2.9	1,063,241.56	59.7		305,216.97	58,373.17	8.0		5,474,742.71	352.7		1,141,849.50	62.7	2.9	PENNSYLVANIA
RHODE ISLAND	616,922.53	338,055.00	22.5		179,737.41	10.1						491,393.74	31.8		26,398.67	0.8		RHODE ISLAND
SOUTH CAROLINA	181,579.22	2,385,630.90	256.7	55.6	99,650.31	15.5	23.6	381,665.30	662,662.77	24.8		2,151,143.61	214.1	19.3	334,137.70	58.0	59.8	SOUTH CAROLINA
SOUTH DAKOTA	171,152.74	2,375,933.74	730.5	79.3	274,416.99	77.4	111.7	93,507.77	57,825.99	29.1		2,139,901.13	710.9	88.4	510,448.50	97.0	102.6	SOUTH DAKOTA
TENNESSEE	1,389,950.33	3,369,108.96	227.3	45.1	285,912.71	31.6		150,619.76	298,927.46	7.8	15.2	3,001,986.35	195.3	27.5	653,035.31	63.6	17.6	TENNESSEE
TEXAS	4,748,938.59	6,045,332.07	447.3	196.2	1,735,376.90	187.5	63.2	722,425.66	1,007,095.99	81.3	29.1	6,099,490.38	445.4	210.8	1,681,217.59	169.4	48.6	TEXAS
UTAH	253,112.02	1,587,703.62	159.2		860,648.51	73.1	14.5	207,129.19	207,142.90	22.6		1,524,038.40	167.0		914,311.73	75.3	14.5	UTAH
VERMONT	2,075.85	1,217,792.09	68.6		24,735.00	1.7		104,916.33	40,673.05	1.3		1,131,755.50	63.8		110,771.59	6.5		VERMONT
VIRGINIA	16,846.98	2,034,434.29	113.0		238,252.10	9.3	4.0	412,929.37	117,551.38	8.2		2,084,372.35	113.2	4.0	138,314.04	9.1		VIRGINIA
WASHINGTON	1,215,156.05	1,675,600.00	63.4		65,000.00	10.2		121,533.10	75,000.00	4.8		1,740,600.00	73.6					WASHINGTON
WEST VIRGINIA	25,071.47	2,929,734.05	238.2	12.0	617,593.47	48.8	7.0					2,841,704.96	237.1	12.0	705,622.56	49.8	7.0	WEST VIRGINIA
WISCONSIN	2,237,750.41	4,960,732.80	402.6	48.8	55,780.00	5.6		190,346.07	207,137.89	23.4		4,655,683.80	368.8	48.6	359,929.00	39.4		WISCONSIN
WYOMING	473,973.37	1,779,413.89	205.3	108.5	52,225.88	21.5		48,003.81	55,762.81	9.4		1,585,493.64	187.5	101.9	246,145.13	39.3	6.6	WYOMING
HAWAII	805,975.36	562,362.64	29.7					133,030.98				562,362.64	29.7					HAWAII
TOTALS	57,755,892.94	145,019,587.77	13,831.5	2,092.0	22,979,381.86	2,248.8	793.6	12,122,849.17	8,737,446.19	812.1	337.1	144,146,575.30	13,937.8	2,157.9	23,852,394.33	2,141.5	727.6	TOTALS

* INCLUDES PROJECTS REPORTED COMPLETED (FINAL VOUCHERS NOT YET PAID) TOTALING - FEDERAL AID $40,992,005.25 - MILEAGE, ORIGINAL 3,826.7, STAGE 610.7

TAR USED TO PROTECT ARKANSAS BRIDGE PIER AGAINST ALKALI

CONTRIBUTED BY THE DIVISION OF CONSTRUCTION.
COMPILED FROM A REPORT SUBMITTED BY T. J. LOUGH,
ASSOCIATE HIGHWAY ENGINEER, DISTRICT 5.

OBSERVATION OF THE METHODS USED IN TREATING THE CONCRETE PIERS OF A FEDERAL-AID STEEL-TRUSS BRIDGE OVER THE ARKANSAS RIVER, IN COWLEY COUNTY, ARK., WITH TAR TO PROTECT THE CONCRETE AGAINST THE ALKALI WATER OF THE RIVER, LEAD TO THE FOLLOWING CONCLUSIONS:

1. -A 48-HOUR INITIAL DRYING PERIOD FOR THE UNTREATED CONCRETE IS SUFFICIENT UNDER FAVORABLE WEATHER CONDITIONS.

2. - ONLY TWO COATS OF WATER-GAS TAR SHOULD BE APPLIED IN ONE DAY, AND THE INTERVAL BETWEEN THE APPLICATIONS SHOULD BE AS GREAT AS WILL BE PERMITTED BY THE LENGTH OF THE WORKING DAY.

3. - THE WATER SURFACE SHOULD BE HELD AT LEAST ONE FOOT BELOW THE CONCRETE TO BE TREATED. TO ACCOMPLISH THIS WITH CERTAINTY, DUPLICATE PUMPING UNITS ARE ESSENTIAL.

4. - THE PENETRATION IS GREATLY AFFECTED BY THE DENSITY OF THE CONCRETE AND BY OCCLUDED MOISTURE. THE PENETRATION OF THE WATER-GAS TAR, AT THE TIME THE SEAL COAT WAS APPLIED, ON PIER 3, WAS 1/64-INCH; FOR PIER 1, THE PENETRATION OF THE SAME CLASS OF MATERIAL AT A SIMILAR TIME WAS 1/8-INCH. THIS WAS DUE, PERHAPS, PRINCIPALLY TO THE FACT THAT SAND ALONE WAS USED AS THE AGGREGATE IN PIER 3; WHILE SAND AND GRAVEL WERE EMPLOYED IN THE AGGREGATE, IN PIER 1.

5. - THE RATE OF ABSORPTION IS AN INDICATION OF THE UTILITY OF THE TREATMENT. GENERALLY SPEAKING, WHERE EXPOSED TO THE SUN'S RAYS, THE INITIAL COAT PENETRATES RAPIDLY; BUT UPON THE SHADED AREAS, THE ABSORPTION PROCEEDS MORE SLOWLY. ALSO, THE PENETRATION IS NOT ALWAYS UNIFORM, INDICATING VARIATIONS IN THE DENSITY OF THE CONCRETE. ON PORTIONS OF THE SURFACE WHERE THE CONCRETE HAD BEEN SPADED CAREFULLY, THE ABSORPTION PROCEEDED AT THE SLOWEST RATE. WITH EACH SUCCESSIVE COAT, THERE IS A DECREASE IN THE RATE OF THE ABSORPTION; WHICH MAKES DESIRABLE, INCREASES IN THE TIME INTERVALS BETWEEN THE APPLICATIONS. POSTPONEMENT OF THE SEAL COAT APPLICATION IS RECOMMENDED, TO PERMIT ALL POSSIBLE PENETRATION OF THE WATER-GAS TAR.

6. - It is considered desirable to thin the coal tar by heating in order to facilitate the thin spreading of the seal coat.

7. - The efficacy of the treatment can only be determined after a considerable length of time, and then only by comparing the condition of the treated concrete with the condition of untreated, but similar, concrete masonry exposed to the same stream.

The Piers Treated

The three piers treated are referred to hereafter as piers 1, 2, and 3. Pier 1 is situated on the southern shore of the river; pier 2 supports the central portion of the bridge; and pier 3 is near the northern shore. Piers 1 and 3 were treated in the presence of a Bureau engineer, but pier 2 was water-proofed without Federal inspection. The discussion of the treatment will be confined largely to pier 3, which was some distance away from the normal water line.

The treatment of the three piers was similar, although the tar materials were applied hot in some instances and cold in others. The coal-tar seal coat on pier 1 was spread, while cold, as thin as was practicable; since it was not considered necessary to increase the fluidity with heat. For pier 2, the tar for each coat was heated prior to the application. On pier 3, the water-gas tar was applied cold, while the coal tar was heated before being spread thinly over the surface of the concrete. The porosity of the concrete in piers 1 and 2 made 4 applications of water-gas tar necessary; while the indications were that the density of the concrete in pier 3 made it essential to use only 2 and a fraction coats of the preliminary treatment. The aggregate used in the concrete for pier 1 consisted of 2 parts of sand and 3-1/2 parts of washed flint gravel. The aggregate for pier 3 consisted of 3 parts of sand and no gravel.

General Description of Protective Treatment

The protective treatment on pier 3, consisted of the application of 2 and a fraction coats of water-gas tar which was sealed with one coat of coal tar. The coatings were applied, in a satisfactory manner, with ordinary kalsomine brushes. The zone of treatment extended for 2.5 feet above and below the mean-low-water line. The total area of the treated band - 5 feet in width - was 405 square feet.

Protective Water-proofing Materials

Materials for the water-proofing were supplied by the Barrett Company under the following specifications:

	Water-gas tar	Coal tar
General characteristics	Very thin liquid	Sticky semi-solid
Specific viscosity	3 to 8	
Float test at 50° C.		60 to 100
Total bitumen soluble in CS_2	Not less than 95%	Not less than 70%
Free carbon	Not over 2%	Not over 30%
Insoluble inorganic matter	" " 1%	" " 1%
Water	" " 3%	
Distillation		
to 170° C	" " 10%	" " 5%
to 300° C	" " 50%	15 to 25%
Residium (semi-solid)	Not less than 50%	
Specific gravity 25°C/25°C	" " " 1.00	Not less than 1.10
Specific gravity of distillate	" " " 0.940	

The specification further provided that the surface to be water-proofed should be kept free from water, until it became dry. The minimum time was to be 48 hours, and as much longer as was necessary to obtain a dry surface.

To the original dry surface, as many coats of water-gas tar were to be applied as the concrete would absorb. The number of coats were to be not less than 4, nor more than 10, and thirty minutes were to elapse between successive coats.

A final seal coat of coal tar was to be applied after the water-gas-tar treatment.

The materials as used were tested in the laboratory of the Bureau with the following results:

General characteristics	Water-gas tar Thin liquid	Coal tar Liquid
Specific viscosity, Engler 40°C	2.81	46.4
Total bitumen	99.49	87.70
Free carbon	0.45	12.23
Insoluble inorganic matter	0.06	0.07
Water	0.55	1.03
Distillation:		
to 170°C.	2.16	4.98
170-235 C.	13.50	7.91
235-270°C.	15.28	6.68
270-300 C.	9.77	5.43
Residue	59.44	74.95
Melting point of residue		62°C
Specific gravity 25°C/25°C	1.0856	1.169

Pumping

Two pumping units were employed, each of sufficient capacity to unwater the cofferdam. These were used, as a precaution, to prevent the water from wetting the concrete, in the event of the disablement of one of the pumps. This precaution, however, proved to be inadequate. On May 20, at 5:30 p.m., after the initial coat of water-gas tar had been in place for 2-3/4 hours, the first pump broke down and 1-1/4 hours were required to place the emergency unit in operation. Meanwhile the water rose in the cofferdam, and submerged the lower 18 inches of the treated band. It was not believed that any material damage resulted. Because of the presence of the coat of water-gas tar, the water did not penetrate into the concrete, and only a small amount of the initial coat was removed by the water.

After the water was lowered by the emergency pump, the initial coat was allowed to dry for 15 hours before the second coat was applied.

Prior to the application of the initial coat of water-gas tar, the water surface was held at a distance of 6 inches below the bottom of the area to be treated. To have increased this distance would have added considerably to the cost. Because of the proximity of the water, the lower 6 inches of the concrete to be treated, was damp when the initial water-gas-tar coat was painted on. It would have been futile, however, to have delayed the treatment; since the moisture on the lower portion of the area to be treated could have been reduced only by maintaining the water surface at a lower level.

Weather

During the period of the treatment the weather was favorable - alternately cloudy, and sunny, with a persistent strong wind. The temperature ranged from 63° F., at night to 86° F., during the day.

Treatment Procedure

Statistics relative to treatment procedure are given in Table 1.

The rate of application of the tar on pier 3 was considerably faster than on pier 1 for two reasons: (1) One of the workmen, who assisted in the treatment of pier 1, applied most of the tar on pier 3, and the experience gained on the original work increased his efficiency; (2) the working space on pier 3 was less restricted than on pier 1.

Although the coal tar was thinned by heating, its application required more time than the water-gas tar. Under similar conditions, a workman, of average ability, should be able to apply a coat, of water-gas or coal tar, at the rate of 250 or 210 square feet per hour, respectively.

Absorption

The amount of tar absorbed was small because of the richness of the concrete - 1:3 mortar mix. The penetration of the initial coat was only 1/64 of an inch (fig. 1-top).

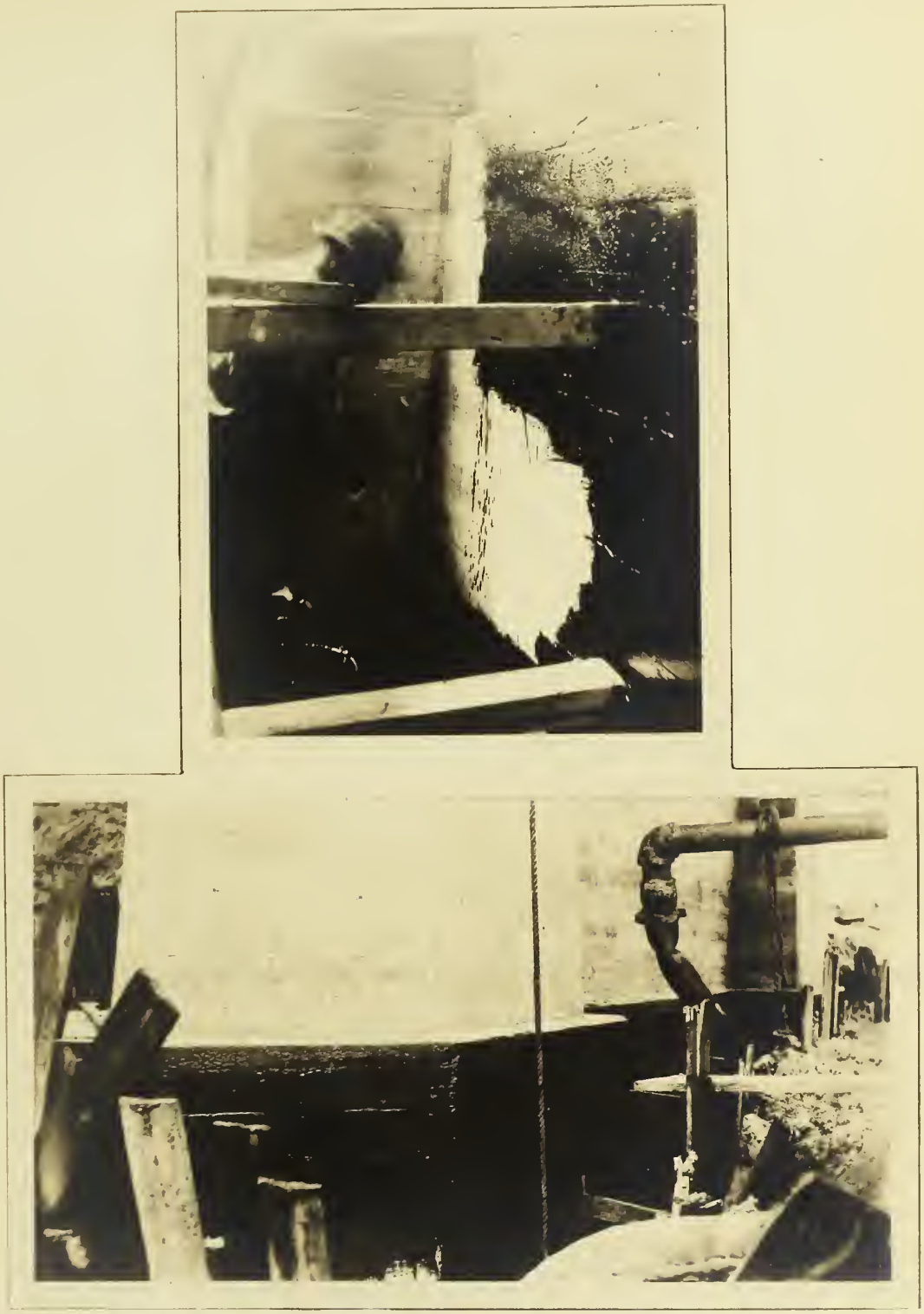

FIGURE 1. - (TOP) - APPLICATION OF FIRST COAT OF WATER-GAS TAR ON PIER 3
(BOTTOM) - THIRD (PARTIAL) COAT OF WATER-GAS TAR COMPLETED ON PIER 3

TABLE I. - DATA RELATIVE TO THE APPLICATION OF THE TAR TREATMENT ON PIER 3

1927	TREATMENT	APPLI-CATION	DRYING	NUMBER OF MEN	MAN-MINUTES PER 100 SQUARE FEET	TAR APPLIED ON 405 SQUARE FEET	TAR APPLIED PER 100 SQUARE FEET	
		HOURS	HOURS			GALLONS	GALLONS	
MAY 18	COFFERDAM UNWATERED		47					
MAY 20	FIRST COAT OF WATER-GAS TAR	3/4	*19-1/10	2	22	2	0.49	
MAY 21	SECOND COAT OF WATER-GAS TAR	7/12	6-3/4	2	17	1.5	0.37	
	THIRD COAT OF WATER-GAS TAR TO 20 PER CENT OF AREA	1/2	16-1/4	1		0.25	0.31	
MAY 22	COAL-TAR SEAL-COAT	1-3/4	24-1/4	1	26	2.71	0.67	
MAY 23	WATER ADMITTED TO COFFERDAM							
						3.75	0.93	WATER-GAS TAR
TOTALS	3.2 COATS	3-7/12	113 35/100			2.71	0.67	COAL TAR

* DURING THIS PERIOD THE PUMPS WERE OUT OF COMMISSION FOR 1-1/4 HOURS

About 50 per cent of this coat had been absorbed when the second coat was applied, and no increase in penetration occurred when the latter coat was added. As, evidently, no increase was to be expected from further coats, the third coat was painted over only those portions (about 20 per cent of the treated area) which, by their dull appearance gave evidence of absorption (Fig. 1-bottom). It may be said, therefore, that two and a fraction coats of the water-gas tar were applied; and about 90 per cent of the area was rather sticky, indicating incomplete absorption when the seal coat was painted on.

A comparison of the absorption of the more porous gravel-concrete in pier 1 with the dense sand-concrete in pier 3 is interesting.

Pier number	Total tar applied per square foot of surface		Total number of coats	Total penetration
	Water-gas Gallons	Coal Gallons		Inches
1	0.028	0.005	5	1/8
3	0.0093	0.007	3.2	1/64

Under normal conditions, where the concrete is thoroughly dry, it would seem that the amount and rate of the absorption is a direct indication of the necessity for the treatment. Dense concretes indicate by their resistance to absorption that they would possess a corresponding resistance to the penetration of alkali water; while the contrary would be the case with porous concretes.

Cost of Treatment

The average cost per square foot of the complete protective treatment was $0.74. This cost was segregated as follows:

Labor and equipment:		
Labor, 402 man-hours	$222.36	
Compensation insurance	4.42	
Pump rental, 121 pump-hours	68.20	
		$294.98
Material:		
Water-gas tar, 3.75 gallons @ $0.34	1.28	
Coal tar, 2.71 " @ $0.37	1.00	
1/3 of drayage costs (3 piers treated)	0.33	
10 per cent profit, as per specifications	0.26	
		2.87
Total		$297.85
Cost per square foot of surface treated		$ 0.735

Immediately after pier 3 was constructed, the cofferdam was removed for use on other work and then was redriven later for the water-proofing treatment. This procedure increased, considerably, the total cost of the treatment. Had the pier been water-proofed when the cribbing was originally in place, the total unit cost of the treatment would have been approximately 50 cents per square foot.

CREDIT LINE OMITTED

The credit line was inadvertently omitted as to the source of the material used in the compilation of the article on "The Effect of Calcium Chloride on Federal-aid Pavements" which was printed in the August 1927 News Letter. Corresponding to the asterisk after the title, the credit line at the bottom of the page should have read "This statement is based upon data submitted by the Division of Construction."

BUREAU BEGINS CUYAHOGA COUNTY, OHIO, HIGHWAY PLANNING SURVEY

Field work was begun on September 3 upon the Cleveland regional highway planning survey, embracing a territory within a radius of approximately 30 miles of Cleveland, Ohio. The survey will be carried on by the Bureau and Cuyahoga County as the principal cooperators. Information and assistance will also be rendered by the several administrative organizations responsible for highway development in the Cleveland region.

The preliminary work includes a comprehensive study of traffic density -- its distribution, origin, and destination -- on the various routes in the area. This will be followed by studies of the traffic capacity of the county highways and the principal entrances into the city of Cleveland; an analysis of the present highway system; an analysis of the factors influencing the location of new highways or the relocation of the present routes, such as topography, waterways, railroad terminals and yards, large industrial plants, suburban developments, and special use areas; a study of existing structures and the conditions governing probable future structures; an analysis of the jurisdiction and control over highway development and the financing of highway improvements in the regional area; a study of traffic accidents and safety; the development of a plan of highway improvement; and the development of an improvement budget for a period sufficient to carry the complete plan into effect.

The costs of the survey will be shared equally by the Bureau and Cuyahoga County.

NEW RESEARCH PROJECTS APPROVED

TITLE: INVESTIGATION OF YADKIN RIVER BRIDGE

LEADERS: L. W. TELLER AND G. W. DAVIS.

OBJECT: TO INVESTIGATE THE ELASTIC BEHAVIOR OF A REINFORCED CONCRETE OPEN-SPANDREL ARCH BRIDGE.

PROCEDURE: THE STRUCTURE IS TO BE LOADED BY MEANS OF TWO LARGE MOVABLE WOODEN WATER TANKS.

THE TENTATIVE TEST PROGRAM PROVIDES FOR THE FOLLOWING:

1. LOADS APPLIED AT SUCCESSIVE PANEL POINTS OF THE CENTER SPAN TO DETERMINE INFLUENCE LINES FOR STRESS. (DECK AS CONSTRUCTED AND WITH CONTINUITY DESTROYED)

2. LOADS APPLIED ON CENTER SPAN TO PRODUCE MODERATE UNIT STRESSES. (DECK AS CONSTRUCTED AND WITH CONTINUITY DESTROYED)

3. LOADS APPLIED ON CENTER SPAN TO PRODUCE HIGH UNIT STRESSES WITH CONTINUITY OF DECK DESTROYED.

4. LOADS APPLIED ON CENTER SPAN, WITH CONTINUITY OF DECK DESTROYED, TO PRODUCE FAILURE IF POSSIBLE.

5. LOADS APPLIED ON ONE SIDE SPAN TO DETERMINE EFFECT ON CENTER SPAN.

6. DEMOLITION WITH EXPLOSIVES OF PORTIONS OF BRIDGE NOT DESTROYED BY LOADING.

IN ADDITION TO THE ABOVE PROGRAM THE FOLLOWING TESTS MAY BE MADE IF TIME, MONEY, AND FACILITIES ARE AVAILABLE.

A. DISTRIBUTION OF LOADS TO T-BEAM GIRDERS OF APPROACH SPANS.

B. IMPACT TESTS ON ARCH SPANS AND T-BEAM APPROACH SPANS.

c. Tests of resistance of rail to shock caused by collisions of motor trucks.

Cooperation: The North Carolina State Highway Commission is actively cooperating in financing and executing the test program. An advisory committee has been organized to formulate the test program and assume the technical direction of the work. In addition to the two active cooperating agencies, the following organizations are cooperating through representatives on the advisory committee: University of North Carolina, North Carolina State College, American Association of State Highway Officials, American Society of Civil Engineers, American Railway Engineering Association, American Concrete Institute, Highway Research Board, American Society for Testing Materials, and U. S. Bureau of Standards.

The American Society of Civil Engineers has loaned an electric stress-recorder belonging to the society.

The Bureau of Standards will loan a similar instrument and arrange for the installation of both.

The Ohio State Highway Department will contribute the services of a man to analyze the arch span by the Beggs deformeter method.

The U. S. War Department will be invited to cooperate in the demolition of the structure.

Location: Yadkin River on North Carolina State Route No. 74 between Albemarle and Mt. Gilead.

Legal Authority: Section 21 of the Federal Highway Act, approved November 9, 1921 (42 Stat. 212) for administering provisions of Act and for carrying on necessary highway research and investigational studies. Appropriation designation: "Cooperative Construction of Rural Post Roads, Administrative Expenses."

Proposed Expenditures: A total expenditure not to exceed $20,000 is contemplated, to be divided equally between the Bureau and the North Carolina Highway Commission.

HISTORY: THE BRIDGE ON WHICH THESE INVESTIGATIONS ARE TO BE CONDUCTED IS A REINFORCED CONCRETE STRUCTURE BUILT IN 1922 AS NORTH CAROLINA FEDERAL-AID PROJECT NO. 116. THE BRIDGE IS COMPOSED OF THREE OPEN-SPANDREL ARCH SPANS OF ABOUT 150 FEET EACH AND FOURTEEN T-BEAM OR DECK-GIRDER APPROACH SPANS OF ABOUT 40 FEET EACH. THERE IS NOW UNDER CONSTRUCTION, A FEW MILES BELOW THE BRIDGE SITE, A DAM WHICH IS BEING BUILT IN CONNECTION WITH A POWER-DEVELOPMENT PROJECT AND WHICH, WHEN COMPLETED, WILL SUBMERGE THE EXISTING BRIDGE STRUCTURE, NECESSITATING ITS ABANDONMENT AND THE CONSTRUCTION OF A NEW BRIDGE IN ANOTHER LOCATION TO REPLACE IT. SINCE, IN ANY CASE, THE BRIDGE WILL BE DESTROYED EVENTUALLY SO THAT IT MAY NOT BE AN OBSTRUCTION IN THE RESERVOIR, THE OPPORTUNITY IS PROVIDED FOR CARRYING ON ANY TESTS WHICH MAY BE CONSIDERED DESIRABLE.

DATE EFFECTIVE: MAY 1, 1927.

TITLE: EFFECT OF TYPE AND GRADATION OF COARSE AGGREGATE UPON THE FLEXURAL STRENGTH OF PLAIN CONCRETE.

LEADER: W. F. KELLERMANN.

OBJECT: TO DETERMINE HOW THE QUALITY AND ECONOMY OF CONCRETE IS AFFECTED BY VARIATIONS IN TYPE AND GRADING OF COARSE AGGREGATE USED.

PROCEDURE: IT IS PROPOSED TO OBTAIN A NUMBER OF REPRESENTATIVE COARSE AGGREGATES SUCH AS TRAP ROCK, GRANITE, LIMESTONE, DOLOMITE; GLACIAL, SILICEOUS, AND CALCAREOUS GRAVELS, AND BLAST FURNACE SLAG; SELECTING A TOTAL OF 16 AGGREGATES IN ALL. THESE ARE TO BE PREPARED IN SIX DIFFERENT GRADINGS, AS FOLLOWS:

Coarse Aggregate Gradations

Grading No.	Total passing - square opening				
	1/8 -	1/4 -	3/4 -	1-1/4 -	2
1	0	0	15	40	100
2	0	0	30	55	100
3	0	5	45	70	100
4	0	5	45	100	100
5	0	10	65	100	100
6	0	10	100	100	100

Flexure tests are to be made on cantilever beams made of concrete with the above coarse-aggregate types and gradings as the only variables. Four mixes are proposed, as follows:

1. - 1:1⅓:3)
2. - 1:2:3)
3. - 1:2:3⅓) Actual dry volumes
4. - 1:2:4)

This will make a total of 384 combinations (16 x 6 x 4).

Accurate measurements of yield will be made on all combinations.

Compression tests will also be made, using the fractured prisms resulting from the flexure tests.

All tests will be made at 28 days and the concrete will all be of the same consistency (approximately that used in good paving practice).

In order to eliminate the effect of variations in temperature and humidity during the period of fabrication, a complete series of specimens using each type and gradation of aggregate and each mix will be made up and repeated four times, making a total of 1,536 (384 x 4) concrete specimens. The proportioning, mixing, fabrication, storing, and testing of the concrete specimens will be strictly in accordance with A.S.T.M. practice.

LOCATION: ARLINGTON EXPERIMENTAL FARM.

COOPERATION: NO FORMAL COOPERATION. THE ASSISTANCE OF THE THREE MAJOR MATERIALS ASSOCIATIONS WILL BE REQUESTED TO THE EXTENT OF THE FURNISHING OF SUFFICIENT MATERIALS FOR THE TEST.

LEGAL AUTHORITY: SEC. 21 OF THE FEDERAL HIGHWAY ACT, APPROVED NOVEMBER 9, 1921, (42 STAT. 212) FOR ADMINISTERING PROVISIONS OF ACT AND FOR CARRYING ON NECESSARY HIGHWAY RESEARCH AND INVESTIGATIONAL STUDIES. APPROPRIATION DESIGNATION: "COOPERATIVE CONSTRUCTION OF RURAL POST ROADS, ADMINISTRATIVE EXPENSES."

PROPOSED EXPENDITURES (BASED ON AN ESTIMATED TEST PERIOD OF 6 MONTHS AND INCLUDING ALL MATERIALS, SALARIES, ETC.; $8000.00, DISTRIBUTED APPROXIMATELY AS FOLLOWS: MATERIALS, INCLUDING FREIGHT, $1,000; SALARIES AND LABOR, $6400; MISCELLANEOUS, $600.

HISTORY: THERE IS GREAT INTEREST AND CONSIDERABLE CONCERN ON THE PART OF ENGINEERS AT THIS TIME AS TO THE RELATIVE TRANSVERSE STRENGTH OF CONCRETE MADE FROM TRAP ROCK AND GRAVEL. PRACTICALLY ALL DATA NOW AVAILABLE HAVE TO DO WITH THE CRUSHING STRENGTH OF CONCRETE AND THE VARIOUS FACTORS WHICH AFFECT IT. A SERIES OF TESTS WAS CONDUCTED LAST YEAR, IN COOPERATION WITH THE NEW JERSEY STATE HIGHWAY COMMISSION, THE RESULTS OF WHICH INDICATE THAT, FOR AGGREGATES COMPARABLE WITH THOSE USED IN THE TESTS, TRAP-ROCK CONCRETE HAS A MODULUS OF RUPTURE APPROXIMATELY 12 PER CENT GREATER THAN GRAVEL CONCRETE. BASED ON PAVEMENT SLABS OF EQUIVALENT TRANSVERSE STRENGTH, THIS DIFFERENCE IN MODULUS OF RUPTURE WOULD WARRANT A DIFFERENTIAL OF POSSIBLY 1/2" IN THE THICKNESS OF THE SLABS.

IT IS QUITE EVIDENT THAT ANY CONCLUSIONS RESULTING FROM THE NEW JERSEY TESTS WOULD BE APPLICABLE TO THESE PARTICULAR AGGREGATES ONLY. FOR THIS REASON, IT SEEMS DESIRABLE TO CONTINUE THIS INVESTIGATION, USING A NUMBER OF TYPICAL AGGREGATES, IN ORDER TO DETERMINE WHETHER THE INCREASED FLEXURAL STRENGTH SHOWN BY TRAP-ROCK CONCRETE IN THIS SERIES MAY BE CONSIDERED A GENERAL INDICATION THAT CONCRETE MADE FROM CRUSHED STONE HAS A HIGHER FLEXURAL STRENGTH THAN CONCRETE MADE FROM GRAVEL.

DATE EFFECTIVE: JULY 1, 1927.

MATERIALS TO BE INVESTIGATED

AGGREGATE NO.	TYPE	SOURCE
1.	TRAP ROCK	BOUND BROOK, N. J.
2.	SILICEOUS LIMESTONE	FREDERICK, MD.
3.	GRANITE	COLUMBIA, S. C.
4.	SANDSTONE (KETTLE RIVER)	MINNEAPOLIS, MINN.
5.	DOLOMITE	FOREST, OHIO.
6.	FLINTY LIMESTONE	BUFFALO, N. Y.
7.	ARGILLACEOUS LIMESTONE	ELDORADO, KANS.
8.	GLACIAL GRAVEL	SPRINGFIELD, MASS.
9.	QUARTZ GRAVEL (ROUNDED PEBBLES)	FREDERICKSBURG, VA.
10.	DOLOMITE GRAVEL	CHICAGO, ILL.
11.	RIVER GRAVEL	PHILADELPHIA, PA.
12.	LIMESTONE GRAVEL (CRUSHED)	COLUMBUS, OHIO.
13.	GRAVEL	MONTGOMERY, ALA.
14.	GRAVEL	WASHINGTON, D. C.
15.	BLAST FURNACE SLAG, 65 LBS.	YOUNGSTOWN, OHIO.
16.	DO. 85 LBS.	YOUNGSTOWN, OHIO.

ANNUAL MEETING OF THE COMMITTEE ON MATERIALS OF THE A.A.S.H.O.

Contributed by F. H. Jackson of the Division of Tests.

The annual meeting of the committee on materials, of the American Association of State Highway Officials, was held in Washington, D. C., on September 13 and 14. Representatives from 13 out of the 22 States, which hold membership on the committee, were present. A strenuous two-day session was devoted largely to consideration of suggested changes in the tentative standard methods of sampling and testing highway materials which are shortly to be reprinted by the Bureau. The committee recommended that the revised methods be printed as two bulletins - one covering nonbituminous highway materials and the other bituminous highway materials. These two bulletins will together replace U. S. Department of Agriculture Bulletin No. 121[illegible].

Numerous detailed changes in the methods of testing were adopted. Most of these were of a technical nature and were adopted solely for the purpose of more closely controlling test procedure and therefore increasing the accuracy of the test methods. Several new methods were also tentatively adopted, subject to final letter ballot by the committee and by the Association. These include new methods for testing gravel aggregates which permit the testing of smaller size aggregates than is possible by the present method. Other new methods adopted were for the determination of the quality of gravel fragments by means of a crushing test developed in the laboratory of the Iowa State Highway Commission, as well as methods for determining the apparent specific gravity, absorption, and moisture content of fine aggregates, developed in the same laboratory.

Various tentative standard specifications of the Association were also considered, in detail, and several revisions of a minor nature made. Two of the present tentative standard specifications, the one covering broken stone for bituminous macadam base and the other block for granite block pavement, were discontinued. The committee also adopted the so-called "five-clause" specification covering the chemical composition of base metal used in the manufacture of corrugated metal culverts, as well as specifications for white traffic-zone paint for pavements.

PROGRESS REPORTS WERE PRESENTED DEALING WITH SEVERAL INTERESTING RESEARCH INVESTIGATIONS WHICH HAVE BEEN CARRIED ON BY THE VARIOUS RESEARCH SECTIONS OF THE COMMITTEE DURING THE PAST YEAR. ONE OF THE MOST INTERESTING REPORTS PRESENTED WAS THAT DEALING WITH THE RELATION BETWEEN THE QUALITY OF PORTLAND CEMENT AS DETERMINED BY THE USUAL ROUTINE TESTS AND THE QUALITY OF THE CONCRETE IN WHICH THE CEMENT IS USED. TESTS MADE BY SIX COOPERATING STATE HIGHWAY LABORATORIES AND THE BUREAU, USING SEVERAL BRANDS OF CEMENT, SEEMED TO INDICATE THAT THERE IS A FAIRLY DEFINITE RELATION BETWEEN THE TENSILE STRENGTH OF PORTLAND CEMENT, AS DETERMINED BY THE USUAL BRIQUET TESTS, AND THE FLEXURAL STRENGTH OF THE CONCRETE IN THE USUAL PAVING MIXTURES. THIS REPORT WILL PROBABLY BE PUBLISHED IN PUBLIC ROADS IN THE NEAR FUTURE. OTHER PROGRESS REPORTS WHICH WERE SUBMITTED INCLUDED A REPORT ON THE EFFECT OF CALCIUM CHLORIDE AS AN ADMIXTURE IN CONCRETE, THE DEVELOPMENT OF A NEW TEST FOR THE DETERMINATION OF THE QUALITY OF CONCRETE SANDS TO REPLACE THE PRESENT STRENGTH-RATIO TEST, STANDARDIZATION OF METHODS OF TESTING FOR BITUMINOUS MIXTURES, PREMOLDED EXPANSION JOINTS, RECOVERY OF BITUMEN EXTRACTED FROM BITUMINOUS AGGREGATES, AND THE DEHYDRATION OF ROCK ASPHALT.

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NUMBERED U. S. HIGHWAYS SIGNS APPRECIATED

THE BUREAU IS IN RECEIPT OF A LETTER, FROM A PROMINENT CITIZEN OF NORTH CAROLINA, WHICH STATES AS FOLLOWS: "I JUST TOOK A TRIP BY MOTOR TO DETROIT AND FOUND YOUR SIGN NO. 25 CONTINUOUSLY FROM EAST TENNESSEE TO DETROIT AND I CAN HARDLY EXPRESS MY PLEASURE IN THE SERVICE WHICH THESE SIGNS RENDERED. A TWELVE-YEAR-OLD BOY COULD HAVE MADE THE TRIP." THIS IS TYPICAL OF A NUMBER OF LETTERS OF APPROVAL WHICH THE BUREAU HAS RECEIVED SINCE THE NUMBERED HIGHWAY MARKERS HAVE BEEN ERECTED BY THE STATE HIGHWAY DEPARTMENTS.