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APRIL, 1927 A. C. ROSE, EDITOR

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STATUS OF FEDERAL AID IN TEXAS OUTLINED BY THE CHIEF OF BUREAU

ON ACCOUNT OF THE INTEREST NOW CENTERING AROUND THE STATUS OF FEDERAL AID FOR HIGHWAYS IN TEXAS, MR. MACDONALD HAS MADE PUBLIC THE FOLLOWING STATEMENT:

"THERE HAS BEEN SOME MISUNDEPSTANDING AS TO PREVIOUS ACTION OF THE BUREAU WITH REFERENCE TO FEDERAL-AID PARTICIPATION IN TEXAS. FEDERAL AID, IN THE STRICTLY LEGAL SENSE, HAS NOT BEEN WITHDRAWN. ON ACCOUNT OF EXISTING CONDITIONS, AMONG WHICH WAS THE LACK OF STATE FUNDS FOR NEW CONSTRUCTION, THE BUREAU CEASED TO APPROVE PROJECTS. THE TEXAS HIGHWAY DEPARTMENT HAS NOW REQUESTED A RESUMPTION OF THE APPROVAL OF PROJECTS FOR NEW CONSTRUCTION. MR. R. S. STERLING, CHAIRMAN OF THE TEXAS HIGHWAY DEPARTMENT, CONFERRED WITH THE BUREAU ON APRIL 7. THE AIMS OF THE TEXAS HIGHWAY DEPARTMENT AND THE BUREAU ARE APPARENTLY IN COMPLETE HARMONY. THE BUREAU IS NOW ENGAGED IN A VERY CAREFUL SURVEY OF BOTH THE FINANCIAL AND THE PHYSICAL ASPECTS OF THE FUTURE PROGRAM, AND THERE IS LITTLE DOUBT THAT THE APPROVAL OF PROJECTS WILL BE RESUMED AT AN EARLY DATE."

MR. E. W. JAMES LEFT WASHINGTON ON APRIL 13 TO REPRESENT THE HEADQUARTERS OFFICE OF THE BUREAU AND TO WORK WITH THE STATE HIGHWAY DEPARTMENT AND THE DISTRICT OFFICE OF THE BUREAU IN FORMULATING THE FUTURE PROGRAM BETWEEN THE STATE AND THE FEDERAL GOVERNMENT.

MR. MACDONALD LEFT WASHINGTON FOR TEXAS ON APRIL 20.

VIEWS ON TRAFFIC CONGESTION AND ITS RELIEF EXPRESSED BY MR. MACDONALD

WHILE IN PORTLAND, OREGON, ON THE BRIDGE HEARING MR. MACDONALD GAVE PUBLIC EXPRESSION TO HIS VIEWS CONCERNING METHODS FOR RELIEVING TRAFFIC CONGESTION. REFERRING TO THE TRAFFIC STUDIES MADE BY THE BUREAU IN CONGESTED AREAS, HE SAID, "IT QUICKLY DEVELOPED THAT THE MAIN CAUSES FOR CONGESTION, IN SO FAR AS IT WAS AFFECTED BY RURAL ROAD TRAFFIC, WERE: FIRST, LACK OF CONTINUITY OF ROUTES, SUCH AS STATE HIGHWAYS AND URBAN ARTERIES NOT CONNECTING PROPERLY; SECOND, LACK OF BY-PASSES BY WHICH THROUCH-TRAFFIC COULD ESCAPE CONGESTED PARTS OF THE CITY; AND THIRD, THE LARGE NUMBER OF JUR'SDICTIONS SOMETIMES EXISTING IN THE COUNTY IN WHICH THE CITY IS SITUATED."

CONTINUING, HE STATED HIS VIEWS WITH REGARD TO THE RELIEF OF CONGESTION EPIGRAMMATICALLY AS FOLLOWS:

"Congestion results not from a large amount of traffic Moving, but from a large amount of traffic stopping.

"MOST REGULATION RETARDS MOVEMENT AND INCREASES HALTING, WHILE THE ONLY RELIEF POSSIBLE LIES IN FACILITIES FOR UNINTER-RUPTED FLOW.

"IT IS IMPOSSIBLE TO RELIEVE TRAFFIC CONGESTION BY SIMPLY BUILDING WIDE HIGHWAYS IF THE TRAFFIC IS INTERRUPTED AT OTHER HIGHWAYS, STREETS OR GRADE INTERSECTIONS. IN FACT, THIS PRO-CEDURE PROBABLY RESULTS IN GREATER CONGESTION. RELIEF DOES NOT LIE IN WIDTH, BUT LIES IN DOING AWAY WITH INTERRUPTIONS.

"IT MAY SEEM IMPOSSIBLE, BUT IT IS A FACT THAT A HIGHWAY WILL DISCHARGE TRAFFIC AT 15 to 20 Miles an Hour Just as FREELY AS AT 30 MILES AN HOUR. AT THE GREATER SPEED DRIVERS TAKE MORE ROOM FOR SAFETY.

"ONE OF THE BEST WAYS OF OBTAINING TRAFFIC RELIEF IN CON-GESTED CENTERS IS TO DIVERT FROM THESE CENTERS TRAFFIC THAT DOES NOT BELONG THERE."



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# HEARINGS HELD ON PROPOSED PRIVATELY-OWNED TOLL BRIDGE OVER THE COLUMBIA RIVER BELOW PORTLAND, OREGON

(NOT FOR RELEASE)

PUBLIC HEARINGS WERE HELD IN PORTLAND, OREGON, AND LONGVIEW, WASHINGTON, BETWEEN MARCH 15 AND 19, BY A TRIBUNAL, OF WHICH MR. MACDONALD WAS A MEMBER, REPRESENTING THE SECRE-TARIES OF WAR, COMMERCE AND AGRICULTURE, TO OBTAIN EVIDENCE AS TO THE FEASIBILITY, NECESSITY, AND PRACTICABILITY OF A PROPOSED PRIVATELY-OWNED TOLL BRIDGE OVER THE COLUMBIA RIVER IN THE VICINITY OF RAINIER, OREGON, AND LONGVIEW, WASHINGTON.

THE HEARINGS WERE HELD IN ACCORDANCE WITH THE PROVISIONS OF THE ACT (PUBLIC - NO. 574) PASSED BY THE LAST CONGRESS GRANT-ING CONSENT TO W. D. COMER AND WESLEY VANDERCOOK TO CONSTRUCT, MAINTAIN, AND OPERATE A TOLL BRIDGE AT THIS LOCATION. THE ACT PROVIDED THAT THE \*\*\*\* "CONSTRUCTION OF SUCH A BRIDGE SHALL NOT BE COMMENCED NOR SHALL ANY ALTERATIONS OF SUCH BRIDGE BE MADE EITHER BEFORE OR AFTER ITS COMPLETION UNTIL THE PLANS AND SPECI-FICATIONS FOR SUCH CONSTRUCTION OR ALTERATIONS HAVE BEEN FIRST SUBMITTED AND APPROVED BY THE SECRETARY OF WAR, THE SECRETARY OF COMMERCE, AND THE SECRETARY OF AGRICULTURE, ACTING JOINTLY, AND THEY, ACTING JOINTLY, SHALL DETERMINE WHETHER THE TYPES, DESIGNS, AND SPECIFICATIONS THEREOF ARE ADEQUATE, BASED UPON THE PROPOSED USE, VOLUME, AND WEIGHT OF TRAFFIC PASSING OVER SUCH BRIDGE, AND WHETHER THE HEIGHT AND CLEARANCE OF SUCH BRIDGE ARE ADEQUATE TO PROTECT THE COMMERCE ON SAID COLUMBIA RIVER, AND WHETHER THE LOCA-TION SELECTED IS FEASIBLE FOR THE ERECTION OF SUCH BRIDGE WITHOUT OBSTRUCTIONS IN NAVIGATION AND WITHOUT BEING DETRIMENTAL TO THE DEVELOPMENT OF INTERSTATE AND FOREIGN AS WELL AS DOMESTIC COMMERCE MOVING TO AND FROM THE PACIFIC OCEAN ON THE COLUMBIA RIVER TO THE INLAND WATERS OF THE STATES CONCERNED, AND WHETHER PUBLIC CONVEN-JENCE WILL BE SERVED BY SUCH A BRIDGE AS A CONNECTING LINK BETWEEN THE FEDERAL-AID HIGHWAY SYSTEMS OF THE STATES OF OREGON AND WASHINGTON."

REPRESENTING THE SEVERAL CABINET OFFICERS AT THE HEARING WERE THE CHAIRMAN, MAJOR R. T. COINER, IN CHARGE OF THE PORTLAND DISTRICT OFFICE OF THE U. S. ENGINEERS, FOR THE SECRETARY OF WAR; COLONEL E. LESTER JONES, DIRECTOR OF THE U. S. COAST AND GEODETIC SURVEY, FOR THE SECRETARY OF COMMERCE; AND MR. MACDONALD FOR THE SECRETARY OF AGRICULTURE.

EVICENCE FOR AND AGAINST THE PROPOSED STRUCTURE WAS SUB-MITTED TO THIS TRIBUNAL BY MUNICIPAL, COUNTY, STATE, SHIPPING, INDUSTRIAL, MOTOR VEHICLE, COMMERCIAL, AND OTHER INTERESTS IN-VOLVED. THE ENGINEER FOR THE BRIDGE PROPONENTS WAS JOSEPH E. STRAUSS OF THE STRAUSS BASCULE BRIDGE COMPANY OF CHICAGO, WHO ADVOCATED THE CONSTRUCTION OF THE BRIDGE AND DEFENDED THE PLANS WHICH CALL FOR A 750-FOOT MAIN CHANNEL SPAN AND A 155-FOOT CLEARANCE ABOVE MEAN LOW WATER.

A SUMMARY OF THE ARGUMENTS ADVANCED BY THE PROPONENTS AND OPPONENTS OF THE PROPOSED 135-FOOT-ABOVE-MEAN-HIGH-WATER TOLL BRIDGE FOLLOWS.

### PROPONENTS

THE BRIDGE WOULD:

PRODUCE STREET CONTINUITY ON BOTH SIDES OF THE RIVER BY CONNECTING A STREET IN LONGVIEW, WASHINGTON, WITH ONE IN RAINIER, OREGON.

PROVIDE A SHORTER CONMECTION BETWEEN THE PACIFIC COAST-HIGHWAYS IN WASHINGTON AND OREGON AND THUS STIMULATE AUTOMOBILE TRAVEL.

SERVE AS A PUBLIC CONVENIENCE AND ASSIST IN THE DEVELOP-MENT OF THE LOCAL COMMUNITIES.

PROVICE A LARGE AMOUNT OF WORK FOR LABORING MEN.

Relieve congestion on the Kelso-Portland section of the Pacific Highway in Washington and furnish a shorter route.

THE BRIDGE WOULD:

### OPPONENTS

PREVENT THE FULL AND FREE USE OF THE RIVER TO COMMERCE WHICH NOW MOVES WITH AN ANNUAL VOLUME OF 5,000,000 TONS INTO AND OUT OF PORTS SITUATED ABOVE THE PROPOSED BRIDGE SITE AND WHICH IS INCREASING RAPIDLY IN VOLUME.

OBSTRUCT NAVIGATION BECAUSE OF THE 135-FOOT-ABOVE-MEAN-HIGH-WATER CLEARANCE WHICH WOULD PREVENT MANY VESSELS FROM REACHING PORTS ABOVE THE BRIDGE.

OBSTRUCT NAVIGATION BECAUSE OF THE INADEQUATE HORIZONTAL CLEARANCE OF THE PIERS IN FOGGY OR STORMY WEATHER.

CAUSE INCREASED ANNUAL SHIPPING COSTS DUE TO THE INCREASE IN THE OBSTRUCTION TO RIVER TRAFFIC.

ADVERSELY AFFECT THE PRODUCERS OF THE REGION BY REASON OF THE ADDED SHIPPING COSTS AND PREVENT THEM FROM COMPETING WITH PRODUCERS OF OTHER REGIONS.

MPAIR THE DEVELOPMENT OF THE REGION BY READON OF THE ADDED SHIPPING COSTS.

COUNTERACT THE REDUCTION OF RATES AND MARKETING COSTS MADE POSSIBLE BY LOCAL PRODUCERS AFTER YEARS OF FFFORT.

NULLIFY THE EXPENDITURES MADE BY THE PORT OF POPTLAND AND THE FEDERAL GOVERNMENT IN IMPROVING A CHANNEL 500 FEET WIDE BY 30 FEET DEEP, FROM PORTLAND TO THE BEA, THAT COST MORE THAN \$20,000,000 EXPENDED OVER A PERIOD OF 60 YEARS.

PREVENT THE COLUMBIA RIVER BASIN FROM RECEIVING THE FULL BENEFITS MADE POSSIBLE BY THE TOPOGRAPHY OF THE REGION.

CLASH WITH THE NATIONAL POLICY OF UTILIZING TO THE FULL-EST EXTENT THE INLAND WATERWAYS OF THE UNITED STATES.

INCREASE TRANSPORTATION COSTS BY DECREASING THE CISTANCE OF LOW-COST SHIP HAUL FROM THE OCEAN TO A RIVER PORT.

COMMERCE.

CLASH WITH INTERNATIONAL COMMERCIAL INTERESTS BY PLACING AN OBSTRUCTION BETWEEN THE FOREIGN AND COLUMBIA RIVER PORTS.

CLASH WITH THE CEMANDS OF NATIONAL PREPAREDNESS BY PLACING AN OBSTRUCTION TO RIVER NAVIGATION IN TIME OF WAR.

PERMIT PRIVATE INTERESTS TO REAP PROFITS FROM BRIDGE TOLLS MADE POSSIBLE BY HIGHWAYS CONSTRUCTED WITH PUBLIC FUNDS.

SERVE ONLY AS A LOUAL CONVENIENCE TO THE DETRIMENT OF THE REGIONAL AND NATIONAL PUBLIC NECESSITY.

LINK TWO HIGHWAYS EQUALLY DISTANT FROM PORTLAND AND BOTH ADEQUATE TO ACCOMMODATE HIGHWAY TRAFFIC.

ESTABLISH A PRECEDENT FOR BRIDGES BETWEEN MAJOR PORTS AND THE SEA WHICH MIGHT RESULT IN UNTOLD DAMAGE TO OTHER PORTS SO SITUATED.

THE TRIBUNAL WILL MAKE A REPORT OF ITS FINDINGS TO THE THREE DESIGNATED CASINET OFFICERS BY WHOM A DECISION WILL BE RENDERED ON THE BASIS OF THE EVIDENCE ADDUCED.

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## GOVERNOR AL SMITH OFPOSES TOLL BRIDGES IN NEW YORK STATE VETO MESSAGE

REPRINT FROM THE ENGINEERING NEWS-RECORD Vol. 98, No. 14, PAGE 580, APRIL 7, 1927

"N.Y. GOVERNOR THINKS TIME PAST WHEN STATE SHOULD INCORPORATE SUCH COMPANIES

"ON APRIL I GOV. SMITH OF NEW YORK VETOED THE LEGISLATIVE ACT AUTHORIZING THE THOUSAND ISLAND INTERNATIONAL BRIDGE CORPORA-TION TO BUILD A BRIDGE ACROSS THE ST. LAWRENCE RIVER MEAR COLLINS ISLAND, JEFFERSON COUNTY, OVER WELLESLEY ISLAND TO ONTARIO, CAN. IN HIS VETO MESSAGE THE GOVERNOR PRONOUNCED HIMSELF AGAINST FURTHER PRIVATE TOLL BRIDGE AUTHORIZATIONG, AND EXPRESSED THE BELIEF THAT WHEN TOLL BRIDGES ARE DESIRABLE OR NECESSARY THEY SHOULD BE BUILT BY PUBLIC FUNDS. HE SAID IN HIS MESSAGE:

### GOVERNOR SMITH'S OBJECTIONS

"| THINK THE TIME IS PAST WHEN THE STATE SHOULD INCORPORATE COMPANIES OF THIS KIND. SUCH BRIDGES SHOULD BE BUILT EITHER FROM PUBLIC FUNDS OR THROUGH, AN AGENCY SUCH AS THE PORT AUTHORITY OF NEW YORK, AUTHORIZED TO ISSUE BONDS AT A LOW RATE OF INTEREST AND LIMITED IN TOLLS TO THE AMOUNT NECESSARY TO RETIRE AND PAY INTEREST ON THE BONDS. EXPERIENCE WITH PRIVATE BRIDLES IS THAT THEY RESULT IN LARGE PROFITS TO STOCKHOLDERS AND OTHER PRIVATE PARTIES AND THE MAINTENANCE OF HIGH TOLLS. BEAR MOUNTAIN BRIDGE AT PEEKSKILL IS A GCOD EXAMPLE. THIS ERIDGE WAS INCORPORATED BY PRIVATE INDIVIDUALS WHO WERE GENUINELY INTERESTED IN AFFORDING A NEW MEANS OF ACCESS TO THE BEAR MOUNTAIN SECTION OF THE PALISADES STATE PARK AND THE SUR-ROUNDING TERRITORY. THE MAX: MUM TOLLS WERE FIXED IN THE ACT. INTEREST ON PREFERRED STOCK WAS LIMITED TO 8 PER CENT BUT THE COM-PANY WAS PERMITTED TO ISSUE SHARE FOR SHARE OF COMMON STOCK. THE BRIDGE WAS TO REVERT AT THE END OF THIRTY YEARS TO THE STATE AND THERE WERE PROVISIONS FOR RECAPTURE AT A GREATLY LOWERED PRICE IN THE COURSE OF THE THIRTY YEARS. IT IS ALREADY APPARENT THAT THE BRIDGE WILL NOT ONLY PAY THE 8 PER CENT ON THE BASIS OF TOLLS LESS THAN THE MAXIMUM PERMITTED TO BE CHARGED, BUT WILL PAY'A LARGE RETURN ON THE STOCK, AND THAT IT WOULD BE A GOOD BUSINESS PROPOSI-TION, IF THE STATE HAD THE MONEY TO TAKE ADVANTAGE OF THE RECAPTURE THE FACT IS THAT THE STATE DOES NOT HAVE THE MONEY AVAIL-CLAUSE . ABLE BECAUSE OF DEMANDS FOR OTHER PUBLIC IMPROVEMENTS, AND AS A RESULT A PROFIT WHICH OUGHT TO GO TO THE PUBLIC EITHER IN THE FORM OF REDUCED RATES OR IN THE FORM OF RETURNS WHICH COULD BE USED FOR OTHER IMPROVEMENTS NOW GOES INTO THE POCKETS OF PRIVATE OWNERS.

ere andre sin prist  "PRIVATE BRIDGES OF THIS KIND BRING WITH THEM APPROACH AND TRAFFIC PROBLEMS WHICH IN THE END FALL ON THE STATE AND THE MUNICIPALITIES AND WHAT LOOKS AT FIRST LIKE A PURELY PRIVATE BUSINESS PROPOSITION BECOMES A PUBLIC PROBLEM OF TRAFFIC AND PLANNING AFFECTING ALL THE SURROUNDING TERRITORY. (BYIOUSLY, THESE RELATED PROBLEMS WHICH GO WITH SUCH A STRUCTURE CAN ONLY BE PROPERLY SOLVED BY A FUBLIC AUTHORITY.

"| HAVE JUST SIGNED A MEASURE SETTING UP A PUBLIC NON-PROFIT-MAKING BI-GTATE AUTHORITY SIMILAR TO THE PORT AUTHORITIES OF NEW YORK AND ALBANY, TO BUILD THE CHAMPLAIN BRIDGE, AND ALSO A MEASURE PROVIDING FOR A STUDY OF A NIAGARA PORT AND FRONTIER AUTHORITY, WHICH, IF IT IS ESTABLISHED, WILL HAVE THE POWER TO PLAN JUST SUCH BRIDGES AS THIS WITHOUT PRIVATE PROFIT AND SOLELY IN THE PUBLIC INTEREST. I THINK THIS PROJECT AND SIMILAR ERIDGES, SUCH AS THE GRAND ISLAND BRIDGES, CAN WAIT UNTIL A PUBLIC AUTHORITY IS ESTABLISHED FOR THE PURPOSE. I SEE NO MORE REASON FOR A FRAN-CHISE TO A PRIVATE CORPORATION TO BUILD A BRIDGE OVER THE ST. LAWRENCE THAN I DO FOR A FRANCHISE OR LICENSE TO A PRIVATE CORPORA-TION TO DEVELOP THE STATE'S WATER POWER ON THAT ETREAM,"

"THE PRIVATE BILLS COMMITTEE OF THE CANADIAN PARLIAMENT, AT A RECENT SITTING REFUSED TO SANCTION THE APPLICATION OF THE PROMOTERS OF THE THOUSAND ISLAND INTERNATIONAL BRIDGE CORP. TO CONSTRUCT A BRIDGE OVER THE ST. LAWRENCE RIVER BETWEEN ROCKPORT, ONTARIO, AND COLLINS LANDING, NEW YORK. THE APPLICATION WAS STRENUOUSLY OPPOSED BY MAJOR GRAHAM BELL, DEPUTY MINISTER OF PAILWAYS AND CANALS, WHO POINTED OUT THAT WITH THE COMPLETION OF THE WELLAND CANAL IT WOULD BE NECESSARY TO HAVE A BRIDGE ACROSS THE ST. LAWRENCE AT PRESCOTT OR BROCKVILLE, SO THAT IN WINTER ACCESS COULD BE HAD TO BOTH CANADIAN AND AMERICAN BOATS, OTHERWISE THE GRAIN WOULD GO TO OGDENSBURG AND SUILD UP AN AMERICAN PORT, AND SO AN EXPENDITURE OF \$110,COO,OOO ON THE WELLAND CANAL WOULD BE LOST. CHARLES B. HIBBARD, NEW YORK BANKER, AND DR. C. E. STEINMAN, ENGINEER, WERE THE CHIEF SPOKESMEN FOR THE PROPOSED PROJECT."

## 1926 MOTOR VEHICLE REGISTRATION FEE TABLE REVISED

THE TABLE (M.V.-2-1926) ON PAGE 24 OF THE MARCH, 1927, News Letter, showing the motor vehicle revenue receipts and their cisposition for 1926, has been revised in certain minor details relating to the disposition of the gross receipts. The corrected table will be published in the May issue of Public Roaps.

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### PRESENT STATUS OF UNITED STATES HIGHWAY ROUTES I AND IO-N

CONTRIBUTED BY F. W. MILLS OF THE DIVISION OF DESIGN

(THIS ARTICLE IS THE BEGINNING OF A SERIES OF CONDITION SUMMARIES OF THE UNITED STATES HIGHWAY ROUTES. SUBSEQUENT INFORMATION WILL BE PUBLISHED FROM TIME TO TIME IN THE NEWS LETTER AS IT BECOMES AVAILABLE)

UNITED STATES HIGHWAY ROUTE | IS 76 PER CENT IMPROVED WITH GRAVEL OR THE HIGHER TYPES OF SURFACING OR PAVEMENT. LESS THAN 16 PER CENT CONSISTS OF EARTH OR UNIMPROVED ROAD. THIS ROUTE IS THE EXTREME EASTERN HIGHWAY OF THE COUNTRY AND FOLLOWS THE ATLANTIC SEABOARD PRACTICALLY THROUGHOUT ITS ENTIRE LENGTH, THE ONLY EXCEP-TIONS WORTHY OF NOTE BEING IN NEW JERSEY AND IN THE CENTRAL ATLANTIC STATES. THE ROUTE EXTENDS FROM THE CANADIAN BOUNDARY AT FORT KENT, MAINE, FOR A DISTANCE OF 2,321 MILES TO MIAMI, FLORIDA. IT PASSES THROUGH BANGOR, PORTLAND, BOSTON, PROVIDENCE, NEW LONDON, NEW HAVEN, NEW YORK, TRENTON, PHILADELPHIA, BALTIMORE, WASHINGTON, RICHMOND, RALEIGH, COLUMEUS, AUGUSTA AND JACKSONVILLE.

	ROUTE						
STATE	: CITY OR DWN	: TYPE	MILES				
	CANADIAN BORDER	:GRAVEL	65.40				
	: TO HOULTON	:GRAVEL UNDER					
	:	: CONSTRUCTION	6.33				
	:	:EARTH	49.59				
	:	CITY PAVEMENT	:,20	122.52			
	:HOULTON	:					
	: TO CALAIS	:EARTH	90,00	90.00			
	:CALAIS	:GRAVEL	42.03				
	: TO MACHIAS	:BIT.MACADAM	7.9				
	:	:Earth	8.87				
	:	CITY PAVEMENT	1.7	60.50			
MAINE	:MACHIAS	: CONCRETE	.76				
	: TO ELLSWORTH	:GRAVEL	50.01				
	:	:EARTH	13.89				
	:	CITY PAVEMENT	.2	64,86			

A DETAILED STATEMENT OF THE CONDITION OF THE ROAD AS DETER-MINED BY THE BUREAU SURVEY FOLLOWS:

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ROUTE | (CONTD.)

STATE	: CITY OR DOWN	: TYPE :	MILES	
MAINE	;ELLSWORTH	:CONCRETE	1.16	
(CONTD.)	: TO BANGOR	: GRAVEL	23.72	
	:	CITY PAVEMENT	2.0	26,88
	:BANGOR	CONCRETE	.33	
	: VIA BELFAST	GRAVEL	79.50	
	: THOMASTON	BIT.MACADAM	53.75	
	: WISCASSET	:EARTH	.5	
	: TO PORTLAND	CITY PAVEMENT	5.01	
	•	BIT.CONCRETE	.13	
	:	BRIDGE	.62	139.84
	:PORTLAND	CONCRETE	32,53	
	: TO KITTERY	BIT MACADAM	11.85	
	•	CITY PAVEMENT	9.1	
	•	:CUAL PAVEMENT	1.20	54.68
NEW HAMPSHIRE	PORTSMOUTH	:		
	: TO NEWBURYPORT	BIT. CONCRETE	17.00	17.00
MASSACHUSETTS	S:N.H. STATE LINE	:Concrete	4.62	
	: VIA BOSTON	BIT MACADAM	21.68	
	: TO R.I. STATE	REINF, CONCRETE	30.20	
	LINE	CITY PAVEMENT	19.00	
	:	BIT CONCRETE	5.20	80,76
RHODE ISLAND	MASS. STATE LINE	REINF.CONCRETE	6.09	
	: VIA PROVIDENCE	:0!TY PAVEMENT	10.15	
	: TO WESTERLY	BIT.CONCRETE	26.41	
	:	ASPH.MACADAM	18.20	60.85
CONNECT ICUT	R.I. STATE LINE	:Concrete	78.39	
	: TO PORT CHESTER	BIT, MACADAM	15.13	
	: AT N. Y. STATE	:CITY PAVEMENT	14.96	
	LINE	BIT.CONCRETE	10.63	
	:	:BRICK	.14	119.25
NEW YORK	CONN. STATE LINE	:		
	: TO N. J. STATE	:		<b>0</b> - <b>0</b>
	LINE	CITY PAVEMENT	27.00	27.00

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STATE	: CITY OR TOWN	: TYPE :	MILES	
NEW JERSEY	:N. Y. STATE LINE	:CONCRETE	19.323	
	: VIA BRUNSWICK	BIT. MACADAM	1.11	
	: TO TRENTON	REINF.CONCRETE AND	C	
	:	: SHEET ASPHALT	9.221	
	:	CITY PAVEMENT	25.68	
•	:	BIT.CONCRETE	14.296	70.630
PENNSYLVANIA	N.J. STATE LINE	CITY PAVEMENT	24.00	
	· TO MARYLAND	BLACK TOR AND		
	: STATE LINE	: CONCRETE	59.00	83.00
MARYLAND	PENNSYLVANIA STATE	BLACK TOP		
	: LINE VIA BALTO.	: AND		
	: TO D. C.	: CONCRETE -	94.00	94.00
VIRGINIA	:D. C. LINE	:GRAVEL	74.00	
	VIA FREDERICKS-	:		
	: BURG AND RICHMONE	· · · · ·		
	: TO N.C.STATE LINE	PAVEMENT	141.00	215.00
NORTH CAROLIN	NA VIRGINIA STATE	:CONCRETE	51.91	
	: LINE VIA RALEIGH	:GRAVEL	15.7	
	: TO S.C.STATE LINE	BIT.CONCRETE	29.5	
	:	CITY PAVEMENT	7.5	
	:	SAND ASPHALT	19.9	
	:	TOP SOIL, OIL		
	:	: TREATED	53.3	
	:	GRADED AND		
	:.	: DRAINED	4.5	182.31
SOUTH C. BOLINA	NO STATE LINE	COAVEL .	17 71	
DOULL OTHORING	· VIA CHESTERFIELD	SAND CLAY	131 942	
	· CAMPEN	CITY BAVEMENT	6 84	
		ASDHALT	15 09	
	• AIKEN	· AUFRALI	14 945	
	. TO GEORGIA STATE		11.040	
	LINE	:Boldges	.80	187.33
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ROUTE I (CONTD.)

STATE	: CITY OR TOWN	: TYPE :	MILES	
GEORGIA	:N.C. STATE LINE	:CONCRETE	36.197	
	: VIA AUGUSTA	BIT MACADAM	7.023	
•	: SWAINSBORD	EARTH	55.07	
	: LYONS	SAND CLAY	55.133	
	: BAXLEY	CITY PAVEMENT	4.850	
	: WAYCROSS	:BRIDGE	.135	
	: TO FLORIDA STATE	E:SAND CLAY AND		
	: LINE	: GRAVEL, SURFACE		
	•	: TREATED	48.738	
	:	GRADED AND		
	;	: DRAINED	13.295	220,44
FLORIDA	:GEORGIA STATE LINE	E:CONCRETE	29.835	
	: VIA JACKSONVILLE	BIT.MACADAM	136.04	
	: ST.AUGUSTINE	:EARTH	112.21	
	: DAYTONA	CITY PAVEMENT	23.8	
	: MELBOURNE	BRICK	18.7	
	: FORT PIERCE	:SHEET		
	: PALM BEACH	; ASPHALT	68.26	
	MIAMI	BRIDGES	7.46	396.31

# SUMMARY OF TYPES ROUTE |

.

	MILES	PER CENI
CONCRETE	595.97	25.7
GRAVEL	496.38	21.4
BITUMINOUS MACADAM	356.03	15.4
EARTH	347.93	15.0
SAND CLAY	194.95	8.4
CITY PAVEMENT	183.97	7.9
BITUMINOUS CONCRETE	103.17	4.4
B <sub>R</sub> 10K	18.7	0.8
UN IMPROVED	14.95	0.6
BRIDGES	9.02	0.4
TOTAL	2321.14	100.0





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UNITED STATES HIGHWAY 10-NORTH is 66 per cent improved With gravel and the intermediate and high-type pavements. The UNIMPROVED and Earth ROAD SECTIONS OF this route total 34 per cent. This is not a trans-continental route but begins at Detroit and runs to Ludington, Michigan, where Lake Michigan is crossed by a ferry to Manitowoc, Wisconsin, and then across Wisconsin, Minnesota, North D<sub>A</sub>kota, Montana, Idaho and Washington to Seattle on Puget Sound. The total length is 2,398 miles.

A SUMMARY OF THE BUREAU SURVEY FOLLOWS:

	ROUTE	O-NORTH			
STATE	: CITY OR TOWN	: TYPE	c •	MILES	
MICHIGAN	:DETROIT	:CONCRETE		84.74	
	: VIA PONTIAC	:GRAVEL		114.30	
	: FLINT	:MACADAM		1.07	
	: SAGINAW	CITY PAVEMENT		.5	
	: CLARE	BIT CONCRETE		18.57	
	: REED CITY	:UN IMPROVED		12.00	
	: TO LUDINGTON	9 •			231.18
	FERRY FROM LUDING	-:			
	: TON TO MANITOWOC	:			
WISCONSIN	:MANITOWOC	:CONCRETE		131.4	
	: VIA APPLETON	GRAVEL		150.5	
	: WAUPACA	CITY PAVEMENT		10.9	
	: STEVENS POIN	г:			
	: NEALVILLE	•			
	EAU CLAIRE	•			
	: TO HUDSON	:UNIMPROVED		27.7	320.5
MINNESOTA	WISCONSIN STATE	8 0			
	: LINE VIA ST. PAU	L:			
	: MINNEAPOLIS	:			
	: ST. CLOUD	:			
	: LITTLE FALLS	:			
	: MOTLEY	:			
	: WADENA	:CONCRETE		125.03	
	: DETROIT	:GRAVEL		75.22	
	: TO MOORHEAD AND	EARTH -		63.97	
	: THE N. D. STATE	CITY PAVEMENT		17.71	204 07
	LINE	BIT.CONCRETE		12.10	294.05

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	ROUTE 10-	NORTH (CONTD.)			
STATE	: CITY OR TOWN	TYPE	:	MILES	
NORTH DAKOTA	:MINNESOTA STATE	:			
	: LINE AT FARGO	:			
•	: VIA VALLEY CITY	:			
	: JAMESTOWN	CONCRETE		4.83	
	BISMARCK	:GRAVEL	6	114.69	
	: DICKINSON	:EARTH		270.11	
	: TO BEACH AND THE	:CITY PAVEMENT		4.42	
	: MONTANA LINE	:ASPHALT		2.89	397.00
MONTANA	NORTH DAKOTA STATE	:			
	: LINE VIA GLENDIVE	:			
	: MILES CITY	;			
	: BILLINGS	:			
	: LIVINGSTON	:			
	: BUTTE	:CONCRETE		17.00	
	: ANACONDA	GRAVEL		375.8	
	DEER LODGE	BIT.CONCRETE		4.32	
	: GARRISON	UNIMPROVED		324.1	
	: DRUMMOND	GRADED AND			
	: MISSOULA	: DRAINED	-	76.80	798.02
IDAHO	:MONTANA STATE LINE	CONCRETE		18.18	
	: VIA WALLACE	:GRAVEL		9.39	
	: KELLOGG	:CR.STONE		37.79	
	COEUR D'ALENE	GRADED AND			
	: TO WASHINGTON	: DRAINED	•	11.02	
	: STATE LINE	UNIMPROVED		7.70	. 84.08
WASHINGTON	IDAHO STATE LINE	:			
	: VIA SPOKANE	:			
	: DAVENPORT	:			
	: COULEE	:CONCRETE		93.00	
	: WATERVILLE	:GRAVEL		211.85	
	: BLEWETT	CITY PAVEMENT		23.75	
	: TO SEATTLE	:UN IMPROVED	-	28.7	. 357.30
	_	_			
	SUMMA BOUT	RY OF TYPES F 10-North			
	_		MIL	ES PE	R CENT
	CONCRETE	•••••••	474.	.26	19.1
	GRAVEL		090.	.61	44.0
	EARTH	•••••	421.	.90	17.1
	CITY PAVEMENT		57	.28	2.3
	BITUMINOUS CONC	RETE	37.	.88	

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# GENERAL PRACTICE IN THE SELECTION OF BRIDGE TYPES AS INFICATED BY A REVIEW OF FEDERAL-AID PROJECTS

CONTRIBUTED BY THE BRIDGE SECTION OF THE DIVISION OF DESIGN

A STATEMENT OF THE GENERAL PRACTICE IN THE SELECTION OF BRIDGE TYPES IN THIS COUNTRY, AS INDICATED BY A RECORD OF FEDERAL-AID PROJECTS, WAS RECENTLY COMPILED IN RESPONSE TO A REQUEST FOR INFORMATION MADE BY SIR E. OWEN WILLIAMS OF LONDON, ENGLAND, AND IT IS PRESENTED BELOW IN THE BELIEF THAT IT MAY BE OF INTEREST TO THE BRIDGE ENGINEERS OF THE BUREAU.

"BOTH CONCRETE AND STRUCTURAL STEEL ARE USED TOGETHER ON NEARLY ALL MAJOR BRIDGES. THE SUBSTRUCTURE IS USUALLY MADE OF CONCRETE EITHER PLAIN OR REINFORCED, THE SHORT APPROACH SPANS AND THE FLOOR SLAB ON THE MAIN SPANS OF REINFORCED CONCRETE, AND THE MAIN SPANS OF STRUCTURAL STEEL. WHERE AN ARCH STRUCTURE IS SUITABLE, REINFORCED CONCRETE IS GENERALLY USED. REINFORCED CON-CRETE TRESTLES ARE GENERALLY USED FOR LONG LOW STRUCTURES AS CROSSINGS OVER SWAMPS AND WIDE SHALLOW FLOOD PLAINS WHERE ICE DOES NOT CONSTITUTE A MENACE, ALTHOUGH TREATED TIMBER TRESTLES ARE ALSO USED IN SUCH LOCATIONS.

"THE GENERAL PRACTICE MAY BE SUMMARIZED AS FOLLOWS:

- 1. FOR SMALL OPENINGS 7 TO 8 SQUARE FEET AND LESS.
  - A. REINFORCED CONCRETE BOXES
  - B. REINFORCED CONCRETE SLABS ON PLAIN ABUTMENT WALLS
  - C. SEMI-CIRCULAR OPENINGS OF PLAIN OR REINFORCED CONCRETE
  - D. REINFORCED CONCRETE PIPE
  - E. CAST IRON PIPE
  - F. VITRIFIED CLAY PIPE ENCASED IN PLAIN CONCRETE
  - G. GALVANIZED METAL PIPE (WHERE ROAD IS NOT TO BE HARD SURFACED)
  - H. TREATED TIMBER CULVERTS (VERY LIMITED USE ONLY)
- 2. OPENINGS GREATER THAN 7 TO 8 SQUARE FEET AND UP TO 12-FOOT SPAN.
  - A. REINFORCED CONCRETE BOXES
  - B. REINFORCED CONCRETE SLAB ON PLAIN OR REIN-FORCED CONCRETE, OR STONE MASONRY ABUTMENTS
  - C. IN WARM REGIONS NOT SUBJECT TO DRIFT, MULTI-PLE BOX CULVERTS OF REINFORCED CONCRETE

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- 3. SPANS FROM 12 FEET TO 20 FEET.
  - A. REINFORCED CONCRETE SLABS, ON PLAIN OR REINFORCED CONCRETE ABUTMENTS
  - B. REINFORCED CONCRETE T-BEAMS, ON PLAIN OR REINFORCED CONCRETE ABUTMENTS
  - C. LIMITED USE OF REINFORCED CONCRETE SLABS ON STEEL 1-BEAM: STRINGERS WITH PLAIN OR REINFORCED CONCRETE ABUTMENTS
  - D. IN WARM REGIONS NOT SUBJECT TO DRIFT, MULTIPLE BOX CULVERTS OF REINFORCED CONCRETE.
- 4. SPANS FROM 20 FEET TO 50 FEET.
  - A. REINFORCED CONCRETE T-BEAMS, ON PLAIN OR REINFORCED CONCRETE ABUTMENTS
  - B. REINFORCED CONCRETE SLAB ON ROLLED STEEL 1-BEAMS, WITH PLAIN OR REINFORCED CON-CRETE ABUTMENTS

5. SPANS FROM 50 FEET TO 100 FEET.

- A. LOW RIVETED TRUSSES, WITH REINFORCED CON-CRETE FLOOR SLABS
- B. PLATE GIRDERS WITH REINFORCED CONCRETE FLOOR SLABS
- 6. SPANS OVER 100 FEET. RIVETED THROUGH OR DECK TRUSSES WITH REIN-FORCED CONCRETE FLOOR SLABS

"THE USE OF ARCHES IS LIMITED TO LOCATIONS WHERE AMPLE HEADROOM AND WHERE ROCK OR OTHER UNQUESTIONABLE FOUNDATION MATERIAL IS AVAILABLE. THEY ARE GENERALLY OF REINFORCED CONCRETE AND ARE BUILT IN PRACTICALLY ALL SPAN LENGTHS UP TO ABOUT 250 FEET.

"ON STRUCTURAL STEEL BRIDGES, TIMBER FLOORS WITH A BITUMI-NOUS WEARING SURFACE ARE SOMETIMES USED, BUT IN THESE CASES THE STRUCTURAL STEEL IS ALMOST ALWAYS SO DESIGNED THAT A CONCRETE FLOOR MAY BE PLACED ON THE STRUCTURE AT SOME FUTURE DATE WITHOUT OVER-STRESSING THE MEMBERS.

"FLOORS ON MOVABLE BRIDGES ARE GENERALLY OF TIMBER BUT IN A FEW RECENT CASES REINFORCED CONCRETE SLABS HAVE BEEN USED ON STRUCTURES OF THIS TYPE. A CARLON COLLECTION CO

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"THE FOLLOWING APPROXIMATE PROPORTIONS OF THE TOTAL COST OF BRIDGE CONSTRUCTION REPRESENTING RESPECTIVELY CONCRETE AND STEEL CONSTRUCTION ON FEDERAL-AID WORK HAVE BEEN PREPARED FROM THE COST DATA OF THE BUREAU FOR THE PAST YEAR.

"OF THE TOTAL VALUE OF BRIDGE PROJECTS COSTING OVER \$70,000 EACH, 30 TO 40 PER CENT REPRESENTED THE COST OF CONCRETE CONSTRUCTION, AND 60 TO 70 PER CENT STRUCTURAL STEEL CONSTRUCTION.

"OF THE TOTAL VALUE OF BRIDGE PROJECTS COSTING LESS THAN \$70,000 EACH, BUT MORE THAN \$10,000 EACH, 60 TO 70 PER CENT REPRESENTED CONCRETE CONSTRUCTION, AND 30 TO 40 PER CENT STEEL CONSTRUCTION.

"OF THE TOTAL VALUE OF BRIDGE PROJECTS COSTING LESS THAN \$10,000 EACH, FROM 80 TO 90 PER CENT REPRESENTED CONCRETE CON-STRUCTION, AND 10 TO 20 PER CENT STEEL CONSTRUCTION."

STATES WITH CONTINUOUSLY IMPROVED TRANS-STATE HIGHWAYS

CONTRIBUTED BY THE DIVISION OF DESIGN

A RECENT STUDY OF THE CONDITION LOGS OF THE FEDERAL-AID HIGHWAY SYSTEM INDICATES THAT 28 STATES WILL HAVE COMPLETED BY SEPTEMBER, 1927, CONTINUOUSLY IMPROVED TRANS-STATE HIGHWAYS IN TWO DIRECTIONS. THESE WILL BE: CALIFORNIA, CONNECTICUT, DELAWARE, FLORIDA, IDAHO, ILLINOIS, INDIANA, MAINE, MARYLAND, MASSACHUSETTS, MISSISSIPPI, MISSOURI, MICHIGAN, NEW HAMPSHIRE, NEW JERSEY, NEW YORK, NORTH CAROLINA, OHIO, OREGON, PENNSYLVANIA, RHODE ISLAND, SOUTH CAROLINA, TENNESSEE, VERMONT, VIRGINIA, WASHINGTON, WEST VIRGINIA AND WISCONSIN. TEN OTHER STATES SHOULD BE USING BY NEXT SEPTEMBER A SINGLE TRANS-STATE HIGHWAY IMPROVED THROUGHOUT THEIR ENTIRE LENGTH OR BREADTH. THESE WILL BE: ALABAMA, ARIZONA, ARKANSAS, COLORADO, GEORGIA, IOWA, KENTUCKY, LOUISIANA, MINNESOTA AND UTAH.

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UNITED BTATES DEMITMENT OF AGRICULTURE BUREAU DF PUBLID RDADS BTATUS OF CURRENT FEDERAL ALD ROAD WORK

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FOR THE FISCAL YEAR ENDING JUNE 30. 1927

AS OF MARCH 31, 1927

STATES			ALABAMA	ARIZONA	CALIFORNIA	COLORADO	CONNECTIONT	FLORIDA	GEORGIA	1 DAHO	INDIANA	IOWA	KAN5A5 KEN THICKY	LOUISIANA	MAINE	MARY LANO	WASSACHUSETTS	MICHIGAN	MISSISS(PPI	M1550UR1	MONT ANA	NEBRA5KA	NEW HAMPSHIRE	NEW JERSEY	NEW MEXICO	NORTH CAROLINA	NORTH DAKOTA	OHIO	OKLAHOWA	PENNSYLVANIA	RHOLE ISLAND	SOUTH CAROLINA	TENNESSEE	TEXAS	VERMONT	VIRGINIA	WASHINGTON	ALST VIRGINIA	WYCWING	HAMAII	TCT ALS	
E ER	ø	STAGE			Ī		1	13.0	33.8	11.0		24.1	ς.α ο	2				6.5	10.3	7.9		109.2		Ī	0	0.01	237.1		12.5			16.4		64.3	Ī	4.C		05.0	1		644.3	
AENOED BY	WILE	BIGINAL	81.2	17.8	16.8	56.6	1.1	26.6	49.8	23.4	129.5	42.1	94.2	3.0			9°6	6 10	105.9	111.2	12.2	26.6	4.00	8.5	34.0	- C	20.9	22.0	68.7	15.6		58.2	36.9	107.1	0.10	75.7		33.8	16.7		1950.4	
P.S.& E. RECOM APPROVAL BY DISTRI	FEDERAL A(D		\$ 521,063.84	18,482.27 237.483.17	302,850.16	622,676.40	234,694.87	530,706.64	777.193.71	462.253.26	1.852.706.91	896,574.79	831,192.20 050 705 50	10.780.54			157,871.35	1.067.365.00	754 799 53	1.145,524.73	73,099.35	644,200.10	314, 335-81	127,545.00	527,285.81	217 189 75	375,024.20	509.134.07	467,760.49	246.236.23		311,729.71	328,851.80	1,319,994.67	401.212.144	1.338,901.00		399.808.10	42.256.00		\$ 24,424.178.83	
RCE		STAGE			0.4	9.1		11.8	85.7	6,4	11.6	216.7	5.0				1	38.3	0.10	36.0	5.7	602.2	Q Q2				114.9	10.9	29.1	20.65		6.2	46.7	183.7				12.0	33.7		1727.5	
DW IN FO	MILE	RIGINAL	302.4	236.0	145.5	238.9	69.6	17.71	375.7	169.0	426.0	635.4	654.8	183.7	69.0	42.4	93.7	386.9	1000	288.9	211.7	1229.0	19.761	61.9	211.3	604.4	721.9	326.0	235.4	430.7	18.7	183.7 FOF 1	199.0	582.4	30.0	83.7	68.2	210.1	114.1	29.7	2,835.1	
AGREEMENTS N	Fencesi Ain		2,621,010.99	856,274.89	3,518,079.70	2,602,563.07	1,444,212.28	3,201,768.78	4,185,009.26	1,2.7,429.10	4.082,898.93 7.195.112.70	6.304,923.41	4.907.001.33	2.184.774.43	865.300.43	455.368.54	1,572,853.49	6,015,679.44	1 476 676 61	4.207.059.22	1.734.0'7.85	5,587,301.65	303.802.51	960, 133.56	1,844.343.65	9, 775, 658, 95	2.731.144.84	4,227,590.15	1,717.022.78	6.381.413.87	279,840.00	2.230.760.24	3, 225, 153, 27	6,933,909.80	1.365.U35.68	1,327.542.34	1,750,600.00	2.589.372.07	1,110,813.63	562,362.64	\$ 133,725.308.14	
		5TAGE	4.6		17.3		Ť		44.0	13.1	0.2	50.6		0.7		-			114.0	22.9	62.6	175.0	0.1			37 C	362.9	6.7	1.7			15.4	15.2	27.2	T			t	32.8		1199.3	
PAIO YEAR	MILEB	RIGINAL	101.9	39.7 206.3	231.2	66.8	13.6	112.2	280.5	103.7	137.8	298.1	247.6	77.0	54.0	46.0	10.0	74.3	401.0 BG 5	310.5	96.7	395.2	200.5 26.4	26.0	56.2	196.6	506.1	145.5	62.3	97.1 226.8	29.3	75.3	78.5	438.4	4-2H	128.4	42.5	26.5	172.5	6.5	7028.7	
COMPLETEO AND DURI VG FISCAL	Cenceral Ain		889,114.85	426,049,45	3,451,010.85	715,537.14	245,719.74	1.803.560.28	2,421,299.18	1,075,121.31	2,117,281,93	2,101,069.80	1.467,396.11	62.150,015	665,945,28	334.258.01	332.778.92	1,245,647,96	2,460,029.11 200,646,71	4.558.081.01	953,822,80	1.837,751.60	2.351.683.67	2.397.022.27	386.992.83	3.052.582.04	1.669.801.95	1.832.932.11	758,973.69	1,156,191.52	439.650.00	711,908.31	1.183.577.64	3,231,149.65	75. 658, 639.27	1.736.445.95	463.642.49	432.685.36	1.016.214.00	97,440.00	68,889,861.74	
AMOUNT	FISCAL YEAR		\$ 1,067,508.74	508,096.50 863,223,29	2.481.005.15	970,703.14	559,643.59	767.812.15	1,969,322.96	1,094,067.97	2,287.893.40 1 810 918.46	2,239,791.49	2,100.399.71	832.342.26	863.450.78	557, 790.03	284,854.42	2,289,419.75	2,347.3/6.26	3.264.003.52	799,514.37	2,147.453.13	794,976.94 414,921.59	732.592.69	750,657.11	4,128,147.51	2.256.091.30	2.352,870.92	1,159,583.75	1,129,676.98 2 795 115 46	466,586.24	871,091.97	1.638.920.72	3.723,749.17	610.034.37 EAE 105 EA	1.628.835.12	1.057.959.01	64,155.60	2,336,345.39 688.026.42	124,275.80	68,227,766.26	
N		BTAGE			T				33.8	1.1		31.8	4.4	מי				6.5	2.29	3.7		113.2		l		8.6	2.21		20.7			6.0	- Ind	50.8	T	4.0	2		22.52		761.9	
NSTRUCT	MILE	IGINAL	2,3	50.6	3	26.8		24.5	2.6	23.0	151.1	123.2	80.3	3.6	5.6		24.7	51.5	131.6	8.72	101.8	55.2	39.4	15.5	7,9	83.2	20.1 84.1	16.2	114.0	5.55	5.0	31.9	2.2	68.7	9-11	33.6		39.7	16.7	6.6	2023.4	
APPROVED FOR CC		LEDERAL ALD	21,103.32	664 576.12	*******	367,739,24	234,086.57	359,552,23	382,640.04	246,879.31	2,110,694.14 1 501 000.00	1,878,372.08	483,802.72	69. 698. BB	43.956.00		377,019.05	943,575.00	786,600.00	776.083.54	473,618.96	582,033.94	312.536.81	232.455.00	389,782.29	1,485,877.50	550.650.54 636.475.82	276,998,22	720,320.96	1 128 798 64	74,175.00	227.507.31	35,000.00	813.238.16	91.454.82	571.492.05		348,827.13	42.256.00	98,010.00	23,147,846.20	
		STAGE	**		0.4	9.1		8.42	85.7	16,3	11 6	0.60	4.2	48.1				38.3	46.1	40.2	6.7	5.86	26.2	t		t	61.4	10.9	20.9	35.8		8,0	46.7	97.2	t			12.0	33.7		\$ 6.903	
ALC T I ON	MILCO	TANIOI	381,3	81.9	12.3	268.7	69.6	179.8	422.9	169.4	310.0	554.3 2	668.7	181.1	63.4	42.4	78.6	383.3	255.7	302.3	122.1	1200.4 5	167.6 18.7	54.9	237.4	562.9	19.7 658.7	331.8	210.1	179 B	13.7	210.0	235.6	613.8	161-9	30.0 125.8	68.2	204.2	1.14.1	23.1	2.762.0	
UNDER CONSTR		FEDERAL AID	3.120,971.51	974,757.16	3 820 929 86	2,857,490.23	1,444.820.58	241,765.90	4,679,562.93	1,442,803.05	4, 123, 404.18	5,323,126.12	5,254,390.81	3.868.025.81 2 125 856.09	821.344.43	465,368,54	1,353,705.79	6,139,469.44	1,301,198.90	4.576.500.41	1,333,488.24	5.649,467.81	1.001,369.39	855.223.56	1,981,847.17	9,031,203.95	2.469.601.22	4.459.726.00	1,464,462.31	1.362,664.70 5 408 861 46	205,665.00	2,314,982.64	3.619.005.07	7,440,666.31	1.701.500.30	2.094.951.29	1.750.600.00	2,640.353.04	3, 141, 355, 09	464.352.64	\$ 135,001,640.77	
BALANCE OF FEOERAL AID FUND	AVAILABLE FOR NEW PROJECTS		\$ 3,139,500.23 \$	3,509,664.04	2 280,718,99	2,634,277.21	781,153.31	234,628.82	1,363,421.99	847.903.63	4,161,359.80	301,691.90	1,736,864.11	1 254 135 25	1.421.868.90	657,558.23	2,477.061.62	2,401,311.30	578,576.43	1 544 931.19	5,881,988.11	2,676.917.13	847 210.54 467 726 97	818.987.96	2,060,869.33	6,198.791.32	1,535,412.57	4,552,561.64	1,707,921.89	349,677.99	754.874.94	835,790.81	1.881.150.27	6,178,394.16	771 024 02	155.610.60	1,280,156.05	583.218.82	3.130,472.32	805,975.36	\$ 91,281.947.71	
61 ATES			ALABAMA	ARI ZONA	AKKANSAB PALIFORNIA	COLORADO	CONNECTICUT	DELAWARE	GEORGIA	0HINO I	ILLINOIS	IOWA	KANBAS	KENTUCKY	MAINF	MARYLAND	MAGSACHUSETTG	MICHIGAN	MINNESOTA	MISSISSIPTI	MONT ANA	NEBRAGKA	NEVADA NEW HANDOULDE	NEW LERSEY	NEW MEXICO	NEW YORK	NORTH CAROLINA	OHIO	OKLAHOMA	OREGON DEMNEVE VANIA	RHODE ISLAND	SOUTH CAROLINA	TENNESSEE	TEXAB	UTAH	VIRGINIA	WASHINGTON	AEST VIRGINIA	MYCMING	HAMAII	TOT ALS	

• INCLUDIS PRDJECTS REPORTED COMPLETED (FINAL VOUCHERS NOT VET PAID) TOTALING FEDERAL AID \$34.552,347.62 MILES: ORIGINAL 3129.6; STADE 398.6

RESISTANCE OF FRANKI CONCRETE PILES TESTED IN FRANCE (FROM LE GENIE CIVIL, DEC. 4, 1926, PAGE 543)

> CONTRIBUTED BY THE DIVISION OF DESIGN TRANSLATED AND ABSTRACTED BY C. S. JARVIS

THE NEED FOR PILES OF HIGH BEARING POWER IN TREACHEROUS SOIL HAS DEVELOPED A SPECIAL KIND OF CAST-IN-PLACE CONCRETE PILE THAT HAS WITHSTOOD VERY SEVERE TESTS IN FRANCE.

THE METAL CASING CONSISTS OF TELESCOPIC SECTIONS (T OF THE FIGURE) AND A CONICAL DRIVING POINT (C) WHICH ARE DRIVEN INTO THE SOIL BY A CYLINDRICAL DROP-HAMMER (M) OPERATING WITHIN THE LOWER SECTION. AFTER THE REQUIRED DEPTH HAS BEEN ATTAINED, THE DRIVING POINT AND HAMMER ARE HOISTED TO THE SURFACE, AND THE FIRST CON-CRETE IS DEPOSITED. A SPECIAL CYLINDRICAL TAMPING HAMMER (P) OPERATING ON SMALL GUIDE RODS WITH THEIR LOWER ENDS ALWAYS SUB-MERGED IN THE CONCRETE, DEVELOPS THE REQUIRED LATERAL PRESSURE BY SUCCESSIVE BLOWS AS THE CASING IS LIFTED. THE GUIDE RODS REMAIN IN THE CONCRETE AS REINFORCEMENT.

ENLARGED SECTIONS AT VARIOUS DEPTHS RESULT FROM THE UNEQUAL COMPRESSION OF THE SOIL LAYERS, DUE EITHER TO THEIR INHERENT WEAK-NESS OR TO THE AMOUNT OF TAMPING TO WHICH THE SUCCESSIVE LAYERS OF CONCRETE ARE SUBJECTED. AS A CONSEQUENCE, THE RESISTANCE OF THE PILE IS MULTIPLIED SEVERAL FOLD AS COMPARED WITH THE ORDINARY SMOOTH TYPE.

THE FIRST EXPERIENCE WITH THIS TYPE OF PILING WAS AT THE BANQUE DAUCHI GINKO IN TOKYO, JAPAN, DURING APRIL, 1926. ONE PILE 11 METERS LONG IN GOOD SOIL WAS TESTED UP TO 230 METRIC TONS.

THE FIRST SETTLEMENT OF I MILLIMETER OCCURRED AT 100 TONS; AT 160 TONS THE TOTAL SETTLEMENT WAS 3 MILLIMETERS; AT 200 TONS IT BECAME 5 MILLIMETERS; AND AT 230 TONS IT WAS 8 MILLIMETERS.

IN THE CONSTRUCTION OF THE CHURCH OF THE SACRED HEART AT KOEKELBERG, NEAR BRUSSELS, INVESTIGATIONS WERE CONDUCTED TO COM-PARE VARIOUS TYPES OF BEARING PILES. THE FOUNDATION SOIL WAS VERY UNSTABLE, COMPRISING THE FOLLOWING LAYERS PROGRESSIVELY FROM THE SURFACE: SANDY CLAY, 5 METERS; FINE SAND, 0.5 METER; SOFT CLAY, 4 METERS; THENCE PLASTIC CLAY TO AN INDEFINITE DEPTH.













PILING SUCCESSIVE STAGES IN THE CONSTRUCTION OF FRANKI CONCRETE















SUCCESSIVE STAGES IN THE CONSTRUCTION OF FRANKI CONCRETE PILING



IN SPITE OF THE UNFAVORABLE CONDITIONS THE APPLIED LOAD ON A FRANKI PILE 11.65 METERS IN LENGTH WAS GRADUALLY INCREASED FROM 47 TO 212 TONS WITHOUT ANY SETTLEMENT. AT A LOADING OF 250 TONS A TOTAL DISPLACEMENT OF 3 MILLIMETERS WAS OBSERVED; AT 301 TONS, 4 MILLIMETERS; AND AT 335 TONS, THE MAXIMUM LOADING, 6 MILLIMETERS. THE PILE ROSE 3 MILLIMETERS AFTER THE LOAD WAS REMOVED.

AS A CONSEQUENCE OF SUCH TESTS, A TOTAL LENGTH OF 11,000 METERS OF THIS TYPE OF PILING WAS USED, WITH A DESIGNED WORKING LOAD OF 60 TO 80 TONS GENERALLY, OR 100 TONS FOR THE FOUNDATIONS OF THE CENTRAL DOME.

ON VERY BOGGY LAND NEAR ANTWERP, BELGIUM, THIS SAME TYPE OF PILING WAS TESTED IN A 5-METER LENGTH, PLACED IN SOIL DESCRIBED -BEGINNING AT THE SURFACE - AS I METER OF EARTH FILL, I METER OF BLACK PEAT, 2 METERS OF WATER-BEARING GREEN SAND, 4 METERS OF FINE SAND, AND I METER OF ALLUVIUM. THE SETTLEMENT INCREASED FROM I MILLIMETER AT 62-TONS LOADING TO 2 MILLIMETERS AT 98 TONS, 4 MILLI-METERS AT 133 TONS, 5 MILLIMETERS AT 152 TONS, AND FINALLY 8 MILLI-METERS AT 133 TONS. 5 MILLIMETERS AT 152 TONS SUSTAINED FOR 310 HOURS FAILED TO PRODUCE ANY ADDITIONAL SETTLEMENT, BUT WHEN THE ENTIRE LOAD WAS REMOVED THE PILE ELEVATION INCREASED 3 MILLIMETERS, INDI-CATING A PERMANENT NET SETTLEMENT OF 5 MILLIMETERS.

(Note by translator: The ordinary practice as defined by the standard highway bridge specifications of the A.A.S.H.O. Limits the loading on concrete piles to from 25 to 35 tons, and settlement to 1/4 inch (6-1/3 millimeters) in 48 hours under double the designed loading)

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UNITED STATES DEPARTMENT OF AGRICULTURE BUREAU OF PUSLIC ROADS

# SOURCES OF INTERNAL REVENUE

R.P.R.-MIS0-A-1 A - 1926 - 0

# FISOAL YEAR 1926

TAKEN FROM THE ANNUAL REPORT OF THE COMMISSIONER OF INTERNAL REVENUE.

ß		A T					ET 18	-	186	> 0	OL INA DTA	<	AND DLINA DTA			< - 2	
STATE	ÅLABAMA År i zona Årkan bab	CALIFORNI COLORADO CONNECTIC	DELAWARE FLORIDA GEORGIA	IDAHO ILLINOIS INDIANA	IOWA Kanbab Kentucky	LOUIBIANA MAINE MARVLAND	MASSACHUS MICHIGAN MINNESOTA	MISSISSIP MISSOURI MONTANA	NEBRABKA Nevada New Hampbi	NEW JERBE NEW MEXIC NEW YORK	NORTH CAR NORTH OAK OHIO	OKLAHOMA OREGON PENNBYLVA	RHODE ISL South Car South Car	TENNEBBEE Texab Utah	VERMONT VIRGINIA WASHINGTO	WEST VIRG WISCONSIN WYOMING HAWAII	TOTALS
Total All Bources	\$ 9,454,996.31 1,982,780.46 4,933,495.25	135,060,004.93 14,830,350.29 35,536,825,43	11,632,050.05 43,207,085.75 14,231,497.01	1,390,981.54 216.719,787.43 39,637,359.49	13,952 083.79 17,435,523.37 26,845,209,73	16,347,128.89 9,783,009.21 47,535,948.42	118,847.761,41 225,629,148.44 33,898 182.67	3,956,459.11 67,928,754.54 9,100,561,41	7,458,138.42 586,348.84 4,125,793,78	112,371,336.01 739,604.64 733.729 533.66	192,403,633.34 1,017,975.84 155,755,622.72	18,053,775.04 7,490,097.69 252,317,837,72	16,895,181.29 4,897,504.76 1,115,893.04	17,258,133.90 42,879,048.94 4,063,259.66	3,401,391,16 60,785.037.66 14,371,528.88	15, 628, 356, 06 39, 595, 355, 83 1, 585, 846, 85 6, 797, 151, 80	\$2,835.211,352.46
MISCELLANEOUS (OLEOMARGARINE, NON-ALCOMOLIC BEVERAGES, NAROOTIOS, ETC)	\$ 33,918.31 10,371.77 29 561.31	236,311.97 46,432.22 36,831.17	13,094.68 76,165.01 47.769 97	8,689,66 854,490.32 224,911.46	83,629.46 276,499.67 40,764.42	63,480 11 19,479.35 304,720.13	107,261.55 138,009.77 78,650.49	14,586,14 247,355.95 15,926,44	61,818.48 3,191.53 10.345.68	248,664.31 2,964.04 551.607.09	20,300.00 7,777.40 330,847.85	126,593.02 37,848.24 260,440.85	15,195.11 26,043.59 12,348.34	91,647.06 252,163.05 10,696.79	5,874.26 47,701.25 74,072.02	35,520.29 98,307 12 5,048.39 16,237.49	\$5,361,254.43
ADWISSION To Theaters Olub Dues, Etc.	\$ 100,292,23 34,102.01 64,514.38	2,925,706.49 190,443.66 430,061.90	32,286.32 525,378.03 206,433,14	31,105.49 3,776 911.06 528,095.42	241,214.80 107 156 07 307,815.92	255,453.11 77,908.32 1.012,119.70	1,835,780.71 1,454,485.70 406,656.08	48,393.69 988,574.98 45 515 98	146,310.87 53.396.86 51.723.52	1,078,022.83 8,728.82 10,036,203.18	127,155.67 23,695.97 1,640,583.03	188,399.04 205,306 <b>,90</b> 2,781,963,83	190,005.99 41,839.17 31,533.22	147,350.43 483,191.41 89.538.78	33,627.29 175,114.59 350,963.73	77.915.32 382,851.39 24,979.50 45,687.42	\$34,064,515.05
SPECIAL TAXES (BROKERS, BOWLING ALLEVS AND MISCELLANEOUS)	\$ 523,907.72 165,284.93 255,166.41	5,646,684.93 1,029,829,94 1,383,885,05	949.920.63 737.581.63 731.928.95	159,743.04 8,389,819.61 1,261,897.07	742,637.01 1,052,994.94 793,444.79	855,872.75 455,659.28 1,490,271.78	4, 717, 961.22 4, 105, 067.44 2, 172, 811.10	190,823.60 2,665,265.43 244,206.12	418,048.11 41,036.51 217,968,45	3,068,517.31 69,043.38 28,325,822,75	1,094,609.33 97,135.92 5.798,010.39	970,890.25 513.013.83 10.850.830.96	683,317.99 336,346.65 98,925.17	519,641.72 2.093,751.19 335,390.78	124,031.38 1,166,270.56 1,119,144.79	1,013,410,93 1,643,315,23 145,003.05 353,801,92	\$101,932,733.82
EXOIBE TAX (AUTOMOBILES, CAMERAS. CANOY JEWELRY, ETO)	\$ 56,723.23 7,606.31 28,511.69	2,226,497.64 139,749.83 2,064,143,43	9,088.83 240.377.00 78.857.27	4,592.70 3.972,877.96 7,986,438.56	169,130.91 48,233.83 69,272.88	69,118,84 15,921.90 257,503,01	2,235,080.67 88,833,736.75 288,194.33	10,082.65 1,549,035.45 11,596.96	118,099.62 3,401.02 12,825,44	1,863,515.15 2,566 43 10,554 645.12	125,993.22 5,908.32 17,133,419,19	37,644.46 67,820.36 2.469 232.41	45,608.39 15,847.03 5.343.97	102,594.72 289,527.16 34,659.61	8,950.08 71,655.74 98,950.97	61,289.13 6,685,211.29 3.700.14 7,465.28	\$150,198,165.88
BTAMP TAXES (DOCUMENTARY AND PLAVING CARDB)	<pre>\$ 157,580.43 33.530.67 80.418.72</pre>	1,722,326.10 199,841.44 230,959.05	67,650.56 2,311,077.68 184,363.28	34,672.64 5,267,052.34 266,245.97	201,616.02 149,166.32 169,861,82	660,238.60 66,378.09 408,583.75	1,247,335.09 757,245.53 437,034.90	97,424.84 644,608.12 53.029.64	133,765.57 31,561.13 24,781.30	1,846,281.58 17,371.24 27,255,154,84	222,375.44 48,773.89 4,272,827.33	178,531.09 125,000.51 2.213 851.44	72,627.55 56,657.27 42,718.00	175,752.33 821,806.82 47,181,80	29,415.56 169,060.78 233,121.51	100, 113.73 382, 998.79 14,007.86 57, 254.65	\$54,011,333.61
TOBAGOO AND TOBACCO Manufaoture	\$ 16,131.24 272.92 5.202.66	10,009,208.18 90,818.54 237 757.27	828,403.80 4,155,964,30 105,839,52	4,509.28 6.710,504.81 1,138.090.70	305 930.50 35,985.02 8.332 947.70	618,783.61 48,912.68 811,412.39	879,308.22 4,959,389.43 197,851.60	1,601.34 10,767,822.06 12.751.46	75,522.60 1,350.79 498,931.87	28,672,336.72 481.20 35,359,424,05	172,503,186.60 1,992.71 12,233,152.40	12,835.49 19,105.74 22.322.302.04	84,360.94 126,120.75 29.878.84	3,908,669.11 143 310.67 13,802.89	4,430.62 40,815,049.41 19,651.73	2,315,385.95 535.081.07 3,318.74 5,722.73	\$369,880,814.89
DISTILLED SPIRITS AND ALODHOLIC BEVERAGES	\$ 250.00	1,979,343.28 43,317.56 12 060 39	325.00	5.282,395.42 2.154,483.09	50,708.54 250,00 2.109,145,21	1,104,029.54 - 932,718.37	1,190,885.07 432,518.15 72,501,56	200 00 652,512.56 5.722.88	950.00 967.76 1 807.14	67,595.27 4.810.530.85	325.00 2.148,256.21	375.00 150.00 3.187.775.27	5,158.67 350.00 138.67	1,050.84 18,157.18 150.00	1,602.93 8,119.00 504.18	441.80 171,822.70 1,801 05 211.25	\$26,452,028.63
ESTATES (TRANSFER OF NET ESTATES OF DECENDENTS) AND GIFTS	\$ 289,996.64 167,701.11 78,405,17	8,600,307.32 1,125,215.56 2,139,770,24	191,845.76 191,845.76 1,170,724.24 439,043.74	18,830.80 5,604,487.15 1,154,484.63	1,045,621.56 202 331,99 383 191.67	226.541.87 506.420.62 1,481,539.14	5,616,832.00 2,358,581.15 1,860,100.80	76,563.61 810,123.10 6.743,863.32	331,106.40 484.24 294.644.52	3,274,464.31 3,329.68 47.330.658.68	631,851.14 54,603.05 3,127,612.02	749,890.83 121,675.25 12.835,508.30	1,338.341.33 118,155.83 36,529.92	913,125.63 1,898,413.68 67 981.41	532.236.85 506,042.67 167,573.13	370,660,27 1,045,417 01 23,396.52 250,048.96	\$119,216,374.82
INCOME (INDIVIDUALE, PARTNERBHIPE ANO CORODRATIONE)	\$ 8,276,196.61 1,573 910.74 4.391.724.91	101,712,719.02 11,975,701.65 29,001,346,93	9,539,634,48 33,989,492,86 12,436,864,89	1,128,838.03 176,851,248.76 24,922,712.59	11,111,594.99 15 562.895.63 14 638 764.32	12,582,610.45 8.591,328.97 40,837,080.12	100.017,316.88 122.570,115.51 28.384.381.81	3,526,683.24 49,603,446.88 1.967.948.61	6,172,516.77 450,979.00 3.012.765.76	72,251,938.53 635,119.85 569,505,487,10	17,677,936.94 778,088.58 109,070,914.30	15,789,615.86 6,399,176.86 195.395 832.52	14.450,565.33 4,176,144.47 858,476.91	11,398,292 06 36,879,727.77 3,462,747.60	2,661.312.19 17,827,023.66 12,307,536.82	11,553,718.64 28,650 351.23 1,354,591 60 3 050,722.10	\$1,974,104,141.33
STATES	ALABAMA Arizona Arkanbar	CALIFORNIA COLORADO	CELAWARE FLORIOA	IDAMO ILLINOIS INDIANA	lowa Kanbas Kenticky	LOUIBIANA Maine Varyland	MASSACHUSETTS MICHIGAN MINNESOTA	Missigalool Missouri Montava	NEGRABKA Nevada New Hamighire	NEW JERBEV NEW MEXICO NEW YORK	NORTH CAROLINA NORTH DAKOTA	OKLAHOMA Oregon Pennsylvania	CHODE ISLAND SOUTH CAROLINA SOUTH DAKOTA	TENNESSEE TEXAS UTAH	VERMONT VIRGINIA WASHINGTON	WEST VIRGINIA MISCONSIN MYOMING MAWAII	TOTALS

NOTE: (\*) DOES NOT INOLUDE \$788.529.73 COLLECTED FROM THE PHILIPPINE ISLANDS.

UNITED STATES DEPARTMENT OF AGRIGULTURE BUREAU OF PUBLID ROADS

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TABLE SHOWING AMOUNTS COLLECTED FROM COPPOSATIONS AS INCOME TAX PY KINDS OF BUSINESS QALENDAR YEAR 1924

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INDUSTRIES	QUARRY I NO	MANUFACTURING	CONSTRUCTION	AND OTHER UTILITIES	IRADE	PROFEBEIONAL, AMUBEMENTS, HOTELS, ETC.	ING , INBURANCE , AND RELATED BUBINESS	PREDOMINANT INDUSTRY NOT ASCERTAINABLE	TOTALS	STATE
\$ 5,018	\$ 276,280	\$ 1,731,245	\$ 42,150	\$ 301,974	\$ 749,965	\$ 62,589	\$ 542,930	\$ 192,948	\$ 3,905,099	ALABAMA
1,712	2,316	19,722	- 111 00	102 882	158 526	27.197	42.653	7.328	776.072	ARIZONA
25 773	100, 22	828.072	11.034	151,224	534,072	41,761	222,717	4,965	1,864,449	ARKANSAB
717.731	2.944.188	15,096,273	1,205,489	4,712,803	7,362,604	1,895,783	9,815.736	410,835	44,151,442	CALIFORNIA
16,872	282,687	3,699,978	23,277	958,156	798,994	114,880	1,128,765	488	7,024,097	COLORADO
100,249	65,153	6,869,464	138,420	1,514,391	1,115 429	169,509	1,858,135	5,3/5	11,848,127	CONNECT I CUT
1,723	240,501	2,133,535	200 CC	1 219 008	79, 579	234 250	875 989	554	5.745.401	DIST. OF COL
128,0	10,410	AAT 070 1	199 190	1 173 045	1 640 839	176 152	2.465.808	6.745	7,006.389	FLORIDA
10,001	18 623	3 325 472	65.280	446.698	809.346	118,390	673,207	69,092	5,536,205	GEORG I A
886.447		1.598.892	71,386	238,568	419,167	3 565	238,179	169,215	3,625,419	HAWALI
7,539	278,053	128,246	8,695	16,392	200,050	11,695	28,213	1,508	680,401	0 HPO
82,670	1,019,793	43,914,162	1,692,151	11,629,761	14,084,425	2,849,256	7,125,941	69,515	82,467,674	ILL INOIS
19,144	376,315	7,776,860	292,054	780.334	1,783,135	243,809	1,596,449	62,167	12,930,267	NOIANA
21 245	81,426	2,566,417	237,495	586,863	904,208	52,839	820.840	7,568	5,284,901	AWC
14,750	421,375	985,798	12,777	7,517,013	553,006	22,402	304,369	1,483	9,832,973	KANSAS
21,303	339,764	1,788,371	91,067	2,251,818	1.715.856	234.677	865, 340	38,54	1.041.431	KENTUCKY
55,895	82,102	2,607,183	96,212	565,098	1,545,931	172,341	196,717	12,782	0, 304, 201	LOUISIANA
39,132	14,620	1,595,907	16,031	1,152,937	325,993	36,171	343,062	8,9,9	0,000,000	MAINE MAN
7,758	122,200	2,707,249	578,401	2, 334, /44	6 E 1 740	1 060 701	C1C. +11.1	16 202	40 796 074	MACCACHINGETT
all'110'2	103,103	13,011,313	530, 2UD		5 555 501	101,000,1	3 537 862	134 136	59,869,257	MICHIGAN
50.685	381.324	40,575,295	324.310	3.241.306	2.432.491	181.791	1,100,651	9,182	12,698,035	MINNESOTA
49.364	6,146	102,999	2,913	127,290	276,314	10,453	154,507	5,667	1,335,653	M1851881PP1
64,864	733,493	12,715,135	251,288	4,522,009	4,666,820	465,333	2,581,306	39,092	26,039,340	MISSOURI
17,650	20,088	80,846	2,896	339,506	202,538	111,938	64.261	1,286	841,019	MONTANA
55,099	62,457	740,908	89,704	472,676	888,127	45,913	436,595	4,286	2,752,856	NEBRASKA
12,590	17,503	4,877	9,216	8,982	49,902	6,121	35,231	2.736	147,158	NEVADA
464	621	528,618	3,317	182,031	115,954	5,296	89,183	3,356		NEW HAMPSHIR
90,629	103,570	16,963,363	457,990	2,656,593	4,802,989	460,142	5,135,425	112*11	30,088,913	NEW JERSEY
140.201	E 443 077	110 663 060	CO 101 C	120'21	121 102 00	2,04/ 8 741 347	13, 136 77 75 460	450 466	246 109 308	NEW WEXICO
40,081	07 020	F FED 010	50 770	00,400,C01	210 000 015	141,041	701 001	55 528	9 726 312	NOPTH CADOLI
	11 605	18 162	201.00	20 574	350 810	2 455	26.256	216	443 397	NORTH DAKOTA
59.204	1.059.312	32.261.599	698.925	5.084.374	6.210.665	859.099	4.849.550	47.145	51,129,974	0410
129,977	1,248,452	864,396	119,682	636, 136	688,660	68,512	203,798	9,654	3,959,257	OKLAHOMA
181,333	14.177	1,290,456	54,212	351,144	752,573	152,004	269,972	40,539	3,106,510	OREGON
99,416	5,354,642	44,481,001	2,265,169	15,154,458	7,943,486	1,058,870	10,918,020	237,190	87,512,252	PENNSYLVANIA
4,154	2,555	3,111.317	46,287	573,445	845,386	62,402	589,949	254	5,235,749	RHODE ISLAND
9°. °	2 376	50.023	6.430	42,452	201,113	1 905	27 911	1 898	355 445	SOUTH DAKOTA
45.720	172.142	2.870.411	34,508	694.128	1 008.993	136.630	823.923	2,649	5.789.104	TENNESSEE
226,385	2,287,529	5,796,670	180,666	2,492,512	3,960,454	285,912	1.581.271	27,781	16,819,180	TEXAS
32,855	647,841	315,063	64.373	300,517	375.869	64,540	296.546	207	2,098,811	Uтан
15,741	205,591	517,155	109	62,169	116,150	7,022	84,071	263	1,011,271	VERMONT
615,425	275,179	1,429,168	327,803	4 972,922	1,164,974	129,985	1,076,358	8,660	9,392,478	VIRGINIA
269,010	01, 223	2,108,342	50,454	641,702	1,228,403	240,583	710,108	4,955	5,850,652	WASHINGTON
112 129	3/b, 148	2,073,382	45,001	663,707	952,213	46,092	849,175	28,347	5,635,527	WISCOULT N
77,451	62,958	20.554	12,816	32.310	136.838	6.606	35.649	6,129	391,311	WYYOM NG

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UNITED STATES DEPARTMENT OF AGRICULTURE BUREAU OF PUBLIC ROADS

TABLE SHOWING AMOUNTS COLLECTED AS INCOME AND PROFITS FROM "MANUFACTURERS" AS SHOWN IN "6TATISTICS OF INCOME", CALENDAR YEAR 1924 - (INTERNAL REVENUE)

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		1	1	1				<u> </u>			1	1		•		1	r	
States	ALARAMA ALASKA ARIZONA	ARKANBAS Califdania Coldraod	CONNECTICUT DELAWARE DIST DE COL	FLORIOA GEORGIA HAWAII	I DAHO I LL I NO I S I ND I ANA	I OWA Kanbab Kentucky	L DU I STANA Maine Maryland	MASSACHUSETTS MICHIGAN MINNERDTA	MISSISSIPPI MISSOURI MONTANA	NESPASKA Nevada New Handshide	NEW JERSEY NEW MEXICO	NORTH CAROLINA NORTH DAKDTA OHID	OKLAHOMA OREGON PENNBYLVANIA	SOUTH CAROLINA SOUTH CAROLINA SOUTH DAKDTA	TENNESSEE Texas Utam	VERMONT	WEST VINGINIA MISCONSIN MYOMING	TOTALS
TOTALS	\$ 1,731,245 19,722 171,936	828,072 15,096,273 3,599,978	6,869,464 2,133,535 378,515	1,278,344 3,325,472 1,598,892	128,246 43,914,162 7,776,860	2.566,417 985,798 1,788.371	2 607,183 1,595,907 2.707,249	19,617,919 46,375,575 4 976 295	702,999 12,715,135 80,846	740,908 4,877 529,618	16,963,363 44,277 112 553 052	5,550,930 18,152 32,261,599	864,396 1,290,456 44,481,001	3,111,317 767,004 50.023	2,870,411 5,796,670 315,063	517,155 1,429,168 2,108,342	2,073,382 9,521,655 20,554	429,652,793
ALL OTHER Manufacturing Inoustries	\$ 23,467 -	10,682 426,486 20,827	1,332,754 327,190 2,153	• 43,923 52,160 83	2,275,262 399,427	101,682 5,772 159,292	16,563 25,830 58,885	1,312,411 908,176 359,906	7,096 734,889	17,374	1,084,327 5 898 657	35,443	12,638 5,423 3,495,084	44,371 4,946 187	31,654 187,250 3.286	18,246 51,882 29,625	4,90 <b>3</b> 695,853 64	23,580,175
METAL8 AND METAL Products	\$ •741,892 - 4.058	8,433 1,794,770 54,692	•3,927,958 90,706 2,594	22,094 175,231 50,245	13,119 •16,747,471 • 3,468,860	• 724,670 194,335 301,780	81,090 11,391 *992,575	•5,950,929 •38,207,172 457 513	45,218 1,937,078 935	53, 146 671 73 320	•6, 320, 456 250	38,581 38,581 907 •14,220,321	65,022 37,845 •15,434,430	776,388 7,240 2,399	290, 274 340, 103 12, 914	• 125,768 205,939 189 566	474,785 •4,242,160 266	162,978,504
GTONE CLAY AND GLASS PRDDUCTS	\$ 176,038 _ 159	7,946 1,390,370 403,033	157,087 1,520 38,570	24,012 232.017 1.126	1,444 2,313,450 801,718	242,440 115,112 206,788	1,270 60,495 243,675	156,158 660,720 201,307	3,343 625,668 1 124	14,870	614,569 28 2.348 958	70,392 443 2,343,333	22,081 68,518 4,089,958	12,348 6,770 468	331,914 338,334 27.100	31,540 34,965 184,612	<b>439,127</b> 101,746 222	19,151,889
CHEMI OALS AND ALLI ED SUBBTANCES	\$ 97,305 - • 92,953	43,430 •5,076,638 861,531	140,311 •1,194,756	111,242 107,091 75,093	- 6,660,922 479,325	163,021 201,055 74,439	129,328 58,364 379,632	1,515,455 1,897,156 659,365	59,223 1,127,829 21,545	8,084 - 945	887,510 1,515 24 182 285	115,342 - 2,752,515	•459,540 12,042 2,317,461	75,486 46,406 2,164	*3,371,793 *3,371,793 48,974	14,627 65,082 27,033	•632,924 168,887	56, 649, 624
PRINTING AND PUBLISHING	\$ 69,401 987 '8,560	37,019 761,549 244,751	248,631 24,544 *202,931	257,54 <b>3</b> 60,048 8,857	2,202 2,376,179 270,54 <b>3</b>	154,249 14,926 75,856	100,294 8,451 261,612	966,766 1,130,311 346,907	8,653 416,969 4,819	84,390 2,210 29,393	531,646 939 5 525 535	59,911 59,911 4,488 1 950,598	164,298 83,589 3,201,595	165,552 11,725 7,153	111,804 150.396 21.705	10,962 150,743 154,338	23,955 268,345 2,085	20,802,013
PAPER PULP AND PR ODUCTS	\$ - - 917	- 782,026 647	107,883 44,802 23,058	- 72,473 -	74 472,380 201,760	6,395 10,672 409	22,359 5,734 24,880	2,050,653 624,296 201,794	- 76,643 -	87,825	272,191 - 2 314 755	3,499 - 1,020,068	507 80,977 <sup>-</sup> 587,987	46,158 -	14,400 14,252 4,092	67,769 74,918 115,429	29,920 1,068,897 -	10,674,546
Lumeen AND Wood Producte	\$ 390,618 *12,885 4,392	<ul> <li>656,025</li> <li>465,572</li> <li>38,065</li> </ul>	65,151 148,523 8,218	• 661,196 261,162 6.376	101,320 1,788,475 794,577	439,805 10,861 428,521	•1,900,905 151,569 128,068	421,681 1,073,984 525,793	*515,410 1,428,580 15,977	15,349 - 35,082	311,540 *39,923 1 177 540	478,947 - 835,676	19,724 • 753,919 1,493,236	27,643 69,141 821	514,492 499,751 2,076	96,398 • 338,646 • 801 917	175,882 937,063 •11,613	21,090,098
Russen And Russer Godde	+ 1 1 49	- 341,081 15,934	36,604 - -	484 1,401 -	- 81,519 36,265	10,503 -	- 628 - 3.358	879,652 23,633 111	- 579	- - 3.540	259,030 - 1.236,875	2,528,539	- 469 161,830	38,245 - -	- 238		- 1,459 -	5,661,977
LEATMER AND LEATMER PR ODUOTS	\$ 2,414 -	- 79,508 4.785	6,589 22,680 -	- 11,270 -	- 583,982 19,547	8,309 407 4,102	2,363 268,104 68,315	1,016,565 45,952 35,792	2,383,603	3,634	280,776 1.284,846	830 2,247 517,793	107 2,715 639,499	8,308 - -	48,257 16,996	1,004 76,511 7,704	55 522,536 -	8,036,845
Техтіцев анd Техтіце Реориоте	\$ 123,923 - 92	3,974 255,159 9,839	687,136 204,197 8,545	1,802 1,155,951 30	900 1,772,249 436,359	63,760 1,307 107,738	56,140 •895,168 178,973	4,027,660 202,259 171,007	791 496,764	1,369	3,587,072 - 8.631.677	1,046,185 - 1,209,926	2,872 50,884 8,453,894	•1,889,109 • 576,960 -	403,798 93,442 6,620	106,320 111,466 29,450	52,827 430.502 -	37,650,962
FODD PRODUCTS BEVERAGES AND TOBACOO	<ul> <li>106,187</li> <li>5,850</li> <li>60,805</li> </ul>	60,563 3,723,114 • 2,045,874	159,360 74,617 89,485	156,048 •1,196,868 •1,457,082	9,187 8,842,273 868,478	653,583 • 431,351 • 429,446	296,243 100,801 367,276	1,319,989 1,601,916 •2.016,800	63,265 •3,486,533 •36,446	• 454,867 791 11,049	2,314,246 1,622 16,392,981	•3,700,800 10,077 1,587,319	107,607 194,073 4,605,027	26,711 43,816 • 36,831	•913,901 774,105 •188,296	44,521 309,116 568,668	240,004 1,184,207 6,304	63 <b>.3</b> 76 <b>,15</b> 9
STATES	AL ABAMA AL ABKA AR I ZDNA	ARKANSAS California Coldrado	CONNECTICUT DELAWARE DIST. OF COL.	FLORIDA ' Georgia Mawaii	1 DAHO 1 LL INDIS 1 NDIANA	IDWA Kanbas Kentuckv	LOUISIANA Maine Maryland	MASSACHUSETTS MICHIGAN MINNESDTA	MISSISSIPPI MISSOURI MONTANA	NESRASKA Nevada New Hawoshire	NEW JERBEY NEW MEXIOO NEW YORK	NDRTH CARDLINA NJRTH OAKOTA Ohio	OKLAHOMA Oreod n Pennsylvania	RHDDE ISLAND SOUTH CAROLINA SDUTH DAKOTA	TENNESSEE Texas Utam	VERMONT VIRGINIA MASHINGTON	WEST VIRGINIA MISCONSIN WYDMING	TOTALS

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