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TRAFFIC SPEED REPORT No. 60

SEPT., 1956

No. 34

Joint  
Highway  
Research  
Project

by

R.J. HENNING

PURDUE UNIVERSITY  
LAFAYETTE INDIANA

TRAFFIC SPEED REPORT NO. 60

TO: K. B. Woods, Director  
Joint Highway Research Project

September 26, 1956

FROM: Harold L. Michael, Assistant Director

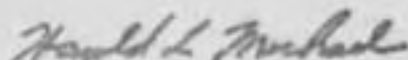
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C-36-10

The attached traffic speed report #60 is a summary of the semi-annual speed studies that are conducted at six locations in the vicinity of Lafayette. The speed study and the report has been prepared by Mr. Robert Henning, a member of our staff.

Average speeds for passenger cars are almost the same in the report as they were during the previous study. The average speed of trucks, however, has increased from two to three miles per hour.

As has been customary, this report will be distributed to the Bureau of Public Roads and Indiana State Police.

Respectfully submitted,



Harold L. Michael, Assistant Director  
Joint Highway Research Project

HLM:hb

cc: D. S. Berry  
J. R. Cooper  
J. T. Hallett  
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Lloyd Poindexter  
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J. L. Waling

TRAFFIC SPEED REPORT NO. 60

by

Robert J. Henning

Research Assistant

Joint Highway Research Project

File: 8-1-1

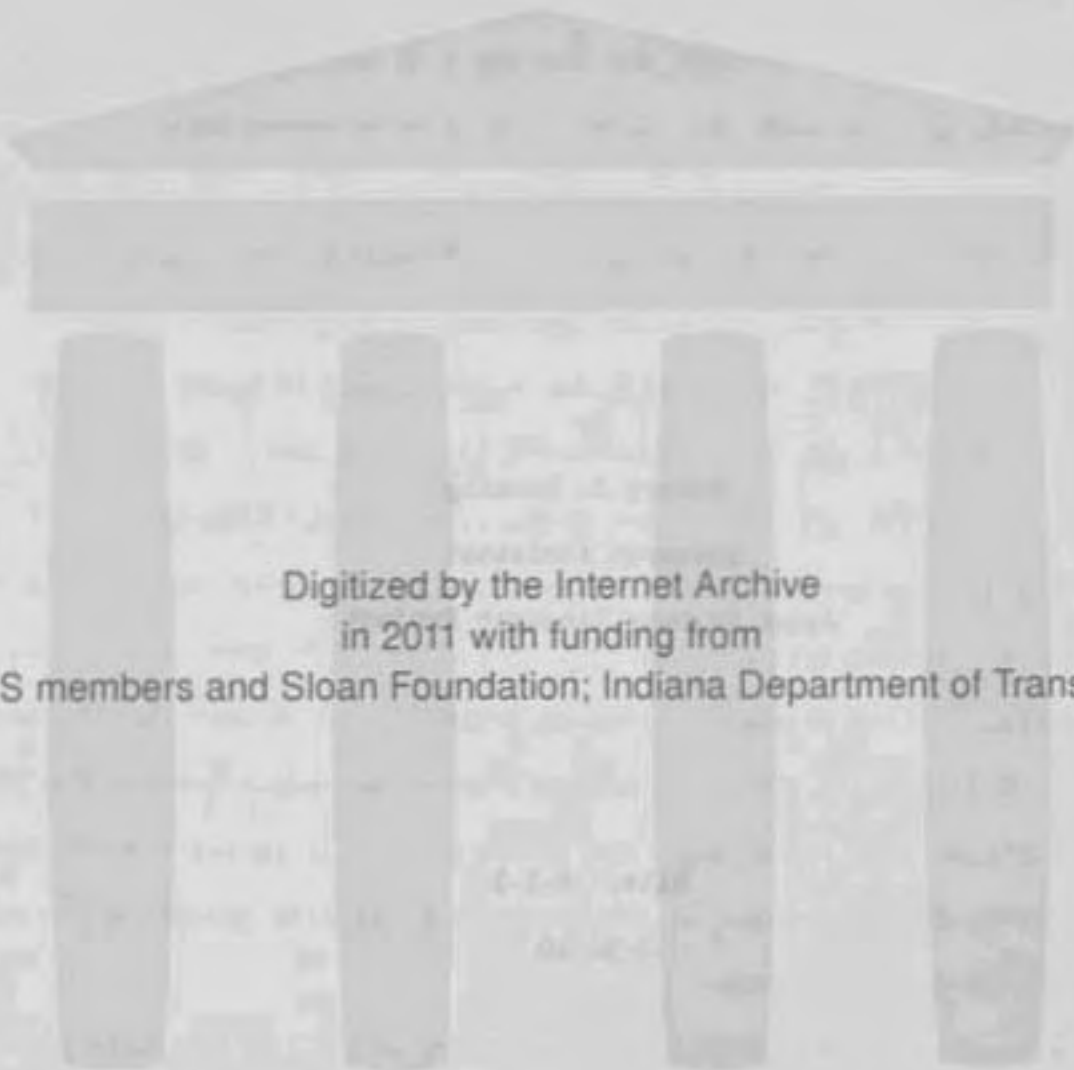
C-36-10

Purdue University

Lafayette, Indiana

September 26, 1956

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TRAFFIC SPEED REPORT NO. 60

This report covers spot speed observations made during August and September 1956. These data were collected by K. R. Lauer, J. K. Flingo, and the writer. All observations are for free-moving vehicles on level, tangent sections of rural highways. Locations observed were:

1. U.S. 52 - 1.0 miles South of Jct. of S.R. 28 (Dual lanes)
2. U.S. 52 - 1.0 miles West of Elwoodike (Dual lanes)
3. U.S. 52 - 2.2 miles Northwest of Templeton (2 lane)
4. U.S. 41 - 1.0 miles North of Boswell (2 lane)
5. U.S. 31 - 7.2 miles North of Perrysburg (2 lane)
6. S.R. 25 - 1.0 miles South of Americus (2 lane)

Because the Purdue speed indicator was out of order during this study, a radar meter was borrowed from Mr. R. G. Groves, Engineer of Traffic Regulations, State Highway Department of Indiana, and used for the entire study. Before using the radar meter, it was thoroughly checked for accuracy in the field. The speed meter was calibrated until it was clearly indicated that speeds could be observed and adjusted to correct speeds in the range of 20 to 80 miles per hour.

A summary of the results of this study, as well as the last six studies, is given in Table I. Indiana state law limits the speed of passenger cars and trucks weighing less than 5,000 pounds to 65 miles per hour, while trucks weighing more than 5,000 pounds are limited to 45 miles per hour. For this reason the truck speeds are divided into three groups, light trucks, heavy trucks, and all trucks. Because it is impractical to accurately ascertain the exact weight of each truck, panel and pick-up types are classed as less than 5,000 pounds, while dual tired and semi-

trailer types are classed as weighing over 5,000 pounds.

In order to facilitate comparison between the present and the last previous observation at a given location, the results are presented in tabular form in Tables II through VII. All speed observations were taken at the same locations for this study as for the last.

With the exception of light trucks, the average speeds of all types of vehicles changed only slightly since the last study. Indiana passenger cars increased their average speed only 0.1 mph. on two-lane highways, 54.9 mph. to 55.0 mph., while on four-lane highways it decreased from 58.1 mph. to 57.4 mph. Out-of-state passenger cars decreased their average speeds on both types of highways by dropping from 58.0 mph. to 56.3 mph., and from 60.1 mph. to 58.8 mph. on two-lane and four-lane highways respectively.

Light trucks showed larger changes in their average speeds than other types of vehicles, over the study made in February 1956. They increased from 47.1 mph. to 50.6 mph. on two-lane highways, and from 47.8 mph. to 49.6 mph. on four-lane highways. An increase was also noted for heavy trucks. On two-lane highways an increase from 44.4 mph. to 46.6 mph., and on four-lane highways from 45.8 mph. to 47.4 mph.

The change in speed of all passenger cars on all highways amounted to a decrease of only 0.4 mph. from 56.8 mph. to 56.4 mph. An increase of 2.0 mph. was recorded for all trucks on all highways. The average speed of all trucks was found to be 46.9 mph. during this study.

TABLE I

## SUMMARY OF SPOT SPEED OBSERVATIONS ON INDIANA HIGHWAYS

(Free-Moving Vehicles on Level, Tangent Sections)

		Passenger		Cars		Trucks		
		Ind. Mean	Non-Ind. Mean	All Mean	All 85-Per.	Light Mean	Heavy Mean	All Mean
Two-Lane Highways	Dec. '53	51.5	55.9	53.2	61.6	44.0	42.2	43.0
	Apr. '54	53.6	56.5	54.8	63.6	44.8	42.9	43.7
	Aug. '54	55.0	56.8	55.7	63.8	49.9	46.0	47.1
	Dec. '54	52.0	54.1	52.8	58.8	48.2	44.4	45.2
	July '55	53.8	55.7	54.5	64.8	46.2	45.5	45.6
	Feb. '56	54.9	58.0	55.9	63.2	47.1	43.2	44.4
	Aug. '56	55.0	56.3	55.5	63.4	50.6	45.5	46.6
Four-Lane Highways	Dec. '53	52.1	55.8	53.4	61.5	44.7	40.1	41.6
	Apr. '54	56.4	58.8	57.3	66.0	43.7	41.7	42.2
	Aug. '54	55.5	58.2	56.6	65.0	52.1	45.6	47.1
	Dec. '54	54.2	55.7	54.7	60.4	47.1	43.6	44.3
	July '55	54.5	56.6	55.2	63.7	47.5	43.9	44.8
	Feb. '56	58.1	60.1	58.7	65.7	47.8	45.2	45.8
	Aug. '56	57.4	58.8	58.2	66.8	49.6	46.0	47.4
All Highways	Dec. '53	51.7	55.9	53.3	61.6	44.2	41.4	42.6
	Apr. '54	54.6	57.3	55.6	64.4	44.5	42.5	43.3
	Aug. '54	55.1	57.3	56.0	64.2	50.5	45.9	47.1
	Dec. '54	52.7	54.5	53.4	59.3	47.8	44.0	44.8
	July '55	54.1	56.6	55.2	64.3	46.9	44.7	45.2
	Feb. '56	56.0	58.6	56.8	63.8	47.3	44.0	44.9
	Aug. '56	55.7	57.3	56.4	64.5	50.2	45.6	46.9

## APPENDIX

Truck types are classified as follows:

- 2P 2 Axle panel or pickup
- 2S 2 Axle, 4 tired other than 2P
- 2D 2 Axle, 6 tired
- 3 3 Axle Single Unit
- 2S1 2 Axle tractor-truck with 1 axle semi-trailer
- 2S2 2 Axle tractor-truck with 2 axle semi-trailer
- 2-2 2 Axle tractor-truck pulling 2 axle full trailer
- 2S1-2 2 Axle tractor-truck with 1 axle semi-trailer and a 2 axle full trailer
- 3-3 3 Axle truck pulling 3 axle full trailer
- 3S2-2 3 Axle tractor-truck with a 2 axle semi-trailer and a 2 axle full trailer

Body type code:

- CO Covered, box, closed, delivery, panel, screen, top, van.
- PL Platform, flat bed.
- ST Stake, crate, rack
- TA Tank
- OP Open, pickup
- REF Refrigerator
- AC Autocarrier
- DP Dump
- LI Lime spreader
- EL Not reportable in any of the above classifications.





Table III

TEST DATA

Station U.S. 52 1.0 Miles West of Klondike

Surface 241 Portland Cement Concrete (Divided Lanes)

Weather clear

Test observation (Joint Report No. 3d)

Date August 20, 1956

Date February 23 and 29, 1956

Time 1:45 PM - 4:15 PM

Time 8:30 - 10:40 AM; 1:40-3:30 PM

Description	Indiana			North Carolina			Ohio			Totes			Remarks
	Weight	Volume	Yield	Weight	Volume	Yield	Weight	Volume	Yield	Less than 500 pounds	500 pounds or more	Other	
Base of 20' concrete slab	352	394	all	74	204	all	66.7	47.5	41.3	47.0	46.7	38.0	all
1" concrete	60.4	57.1		62.5	57.3		64.2	61.1	60.7	60.7	69.8	61.3	6
2" concrete	92.6	91.0		94.6	81.3		39.1	25.9	33.3	65.5	37.3	22.7	0
3" concrete	77.3	69.8		46.5	71.6		7.9	6.5	21.2	14.2	5.1	0	0
4" concrete	63.6	45.2		75.7	47.1		1.3	2.8	9.1	12.1	0.8	0	0
5" concrete	32.4	17.3		4.5	23.5		1.3	1.8	3.0	3.0	0.8	0	0
6" concrete	7.4	3.8		12.2	5.9		0	0.9	3.0	3.0	0	0	0
7" concrete	0.9	1.5		2.7	1.0		0	0	0	0	0	0	0
8" concrete	189	201		40	114		65	51	12	12	53	40	0
9" concrete	51.9	55.9		62.4	56.3		46.9	46.5	64.9	64.9	65.5	66.2	0
10" concrete	74	57		71	78		68	54	54	68	65	52	0
11" concrete	36	35		111	111		27	27	27	27	20	20	0
12" concrete	129	107		35	37		36	33	33	36	34	35	0
13" concrete	62.2	58.5		36	46		27	27	27	27	20	31	0
14" concrete	34	35		47	46		86	39	21	28	65	35	1
15" concrete	61.5	57.3		65.1	59.3		45.6	45.8	45.9	49.5	46.7	49.3	38.0
16" concrete	78	72		75	76		60	76	76	76	54	53	0
17" concrete	34	35		47	46		27	27	27	27	20	20	0
18" concrete	36	35		47	46		27	27	27	27	20	20	0

Table

IV

Station U.S. 52 2.0 Miles North of Templeton

Surface 22' Rock Asphalt

Weather clear

This Observation

Last Previous Observation (Speed Report No. 58)

Date August 21, 1956

Date February 20, 1956

Time 9:30 AM - 11:45 AM

Time 9:00 AM - 12:10 PM

Classification	PASSENGER CARS										TRUCKS				BUSES			
	All			Indiana			Non-Indiana			All		Less than 5000 pounds		5000 pounds or more		All		
	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present	Last Present
No. of Vehicles Obs.	362	424	176	177	186	247	139	75	27	11	112	64	112	64	112	64	112	64
Avg. Speed (m.p.h.)	56.8	57.7	55.7	56.7	57.8	57.6	44.1	47.0	47.7	56.0	43.3	45.4	37.5	32.3	10.7	9.4	0	0
45 m.p.h.	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
50 m.p.h.	36.2	32.1	81.2	73.5	90.9	84.6	43.2	42.7	66.7	72.7	0	0	0	0	0	0	0	0
55 m.p.h.	67.7	50.9	61.9	52.5	71.1	49.3	5.0	10.7	25.9	36.4	0	0	0	0	0	0	0	0
60 m.p.h.	39.8	22.4	35.2	19.3	44.1	24.3	2.9	1.3	14.3	9.1	0	0	0	0	0	0	0	0
65 m.p.h.	10.2	5.9	6.3	5.1	13.4	6.5	0.7	1.3	3.7	9.1	0	0	0	0	0	0	0	0
70 m.p.h.	1.7	0.5	2.3	0.6	0.5	0.4	0	0	0	0	0	0	0	0	0	0	0	0
75 m.p.h.	0	0.2	0	0	0	0.4	0	0	0	0	0	0	0	0	0	0	0	0
No. of Vehicles Obs.	150	184	95	97	65	87	88	42	17	7	71	35	71	35	71	35	71	35
Avg. Speed (m.p.h.)	56.2	56.6	55.7	56.5	56.3	56.6	43.2	45.6	46.6	55.6	43.3	43.6	43.3	43.6	43.3	43.6	43.3	43.6
Max. Speed (m.p.h.)	—	—	73	78	68	72	—	—	63	70	53	53	53	53	53	53	53	53
State or Type	—	—	—	—	Ill.	Ill.	—	—	2P	2P CO	2D	2D BL	2D	2D BL	2D	2D BL	2D	2D BL
Min. Speed (m.p.h.)	—	—	32	40	35	38	—	—	26	52	35	38	35	38	35	38	35	38
State or Type	—	—	—	—	Ill.	Ill.	—	—	2P	2P CP	2S1	2D, 2S2	2S1	2D, 2S2	2S1	2D, 2S2	2S1	2D, 2S2
No. of Vehicles Obs.	212	240	91	80	121	160	51	33	10	4	41	29	41	29	41	29	41	29
Avg. Speed (m.p.h.)	57.3	57.3	55.3	56.3	53.4	50.1	45.0	48.3	49.7	56.3	44.9	47.7	44.9	47.7	44.9	47.7	44.9	47.7
Max. Speed (m.p.h.)	—	—	72	73	69	80	—	—	65	63	51	64	51	64	51	64	51	64
State or Type	—	—	—	—	Ill.	Ill.	—	—	2P	2P CO	2S2	2D BL	2S2	2D BL	2S2	2D BL	2S2	2D BL
Min. Speed (m.p.h.)	—	—	31	32	44	40	—	—	34	53	35	40	35	40	35	40	35	40
State or Type	—	—	—	—	Ill.	Ohio	—	—	2P	2P CP	2D	2S2	2D	2S2	2D	2S2	2D	2S2

TABLE V SPEED DATA

Station U.S. 41 1.0 Miles North of Roswell

Surface 22.5' Portland Cement Concrete

weather clear

This Observation

Last Previous Observation (Spec. Report No. 58)

Date August 23, 1956

Date February 10, 1956

Time 2:00 - 4:30 PM

Time 10:30 AM - 2:30 PM

OBSERVATION	PASSENGER CARS						TRUCKS						BUSES	
	All		Indiana		Non-Indiana		all		Less than 5000 pounds		5000 pounds or more		Least Present	All
	Least Present	Last Present	Last Present	Last Present	Last Present	Last Present	Least Present	Last Present	Least Present	Last Present	Least Present	Last Present		
No. of Vehicles Obs.	360	395	176	193	184	202	140	105	59	20	81	85	0	1
Ave. Speed (m.p.h.)	58.0	54.4	56.7	53.8	59.4	54.9	45.0	45.6	45.0	43.2	45.1	44.9	-	42.0
Max. Speed (m.p.h.)	86.9	75.2	80.1	72.5	93.5	77.7	49.3	76.2	44.1	80.0	53.1	75.3	-	0
Min. Speed (m.p.h.)	73.7	46.3	65.3	43.0	77.7	56.5	24.3	39.0	30.5	60.0	19.8	34.1	-	0
No. of Vehicles Obs.	48.9	23.3	43.7	22.8	53.3	24.3	7.1	14.3	11.9	25.0	3.7	11.9	-	0
Ave. Speed (m.p.h.)	20.3	6.8	21.0	6.2	19.6	7.4	0.7	1.9	3.7	5.0	0	1.2	-	0
Max. Speed (m.p.h.)	1.9	3.0	1.7	4.1	2.2	2.0	0	1.0	0	0	0	1.2	-	0
Min. Speed (m.p.h.)	0.3	1.0	0	1.6	0.5	0.5	0	0	0	0	0	0	-	0
No. of Vehicles Obs.	142	213	75	97	67	116	63	45	27	9	36	36	-	1
Ave. Speed (m.p.h.)	57.7	52.9	56.7	52.2	58.9	53.6	45.1	43.6	45.3	47.9	44.6	42.5	-	42.0
Max. Speed (m.p.h.)	-	-	70	75	69	71	-	-	56	62	58	58	-	42
State or Type	-	-	-	-	Ill.	Ill.	-	-	2P	2P OP	2P	2P ST	-	-
Min. Speed (m.p.h.)	-	-	34	38	42	40	-	-	31	40	32	29	-	42
State or Type	-	-	-	-	Ill.	Ill.	-	-	2P	2P OP	2P	2P DP	-	-
No. of Vehicles Obs.	218	182	101	96	117	86	77	60	32	11	45	49	-	0
Ave. Speed (m.p.h.)	58.3	56.0	56.7	55.4	60.0	56.7	45.0	47.0	44.4	43.5	45.4	46.7	-	-
Max. Speed (m.p.h.)	-	-	71	89	88	85	-	-	61	58	56	65	-	-
State or Type	-	-	-	-	Ill.	Tenn.	-	-	2P	2P OP	2P	2P DP	-	-
Min. Speed (m.p.h.)	-	-	34	34	36	40	-	-	25	39	29	36	-	-
State or Type	-	-	-	-	Ill.	Ill.	-	-	2P	2P CO	2P	2P ST	-	-

All Vehicles

NORTH BOUND

SOUTH BOUND

Station U.S. 31 7.2 Miles North of Perrysburg

Surface 22.5' Portland Cement Concrete, Resurfaced with Bituminous Material weather clear

This observation last Previous Observation (Spec report No. 58)  
 Date September 4, 1956 Date February 15, 1956  
 Time 10:30 AM - 1:45 PM Time 11:00 AM - 3:00 PM

OBSERVATION	Precedent Data						TODAY						TOTALS	
	all		Indiana		Non-Indiana		All		Less than 500 pounds		500 pounds or more		All	
	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present	Last	Present
1) No. of Vehicles Obs.	348	413	323	323	73	90	109	86	41	19	69	67	2	2
2) Ave. Speed (m.p.h.)	53.8	56.3	53.7	53.7	55.2	56.3	46.7	45.9	46.1	48.5	43.1	45.1	52.5	55.5
3) Max. Speed (m.p.h.)	74.7	75.1	73.1	73.1	85.3	82.7	36.9	58.1	43.9	68.6	79.4	55.2	50.0	100.0
4) Min. Speed (m.p.h.)	42.0	54.2	46.7	51.1	58.9	65.6	16.7	20.1	31.7	52.6	4.4	22.4	50.0	100.0
5) No. of Vehicles Obs.	27.8	23.8	26.3	26.9	34.2	35.6	2.8	7.0	7.3	16.8	0	4.5	50.0	100.0
6) Ave. Speed (m.p.h.)	4.9	6.5	4.8	5.9	5.5	8.9	0	0	0	0	0	1.5	50.0	0
7) Max. Speed (m.p.h.)	0.8	1.4	0.3	0.9	3.7	3.3	0	0	0	0	0	0	0	0
8) Min. Speed (m.p.h.)	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9) No. of Vehicles Obs.	195	190	164	149	31	43	57	41	24	9	33	32	1	1
10) Ave. Speed (m.p.h.)	53.6	54.6	53.2	54.4	56.0	55.7	43.7	45.1	44.8	47.4	42.9	44.5	44.0	56.0
11) Max. Speed (m.p.h.)	—	—	70	72	71	69	—	—	59	57	51	54	44	56
12) Min. Speed (m.p.h.)	—	—	—	—	Mich.	Mich.	—	—	2P OF	2P OF	281	282	—	—
13) State of Type	—	—	30	30	44	37	—	—	34	43	29	20	44	56
14) State of Type	—	—	—	—	Ill.	Mich.	—	—	2P OF	2P OF	282	282	—	—
15) No. of Vehicles Obs.	193	223	151	174	67	49	52	45	17	10	35	35	1	1
16) Ave. Speed (m.p.h.)	54.0	54.0	53.3	53.2	56.3	56.9	44.8	46.6	47.8	49.5	43.4	45.7	61.0	55.0
17) Max. Speed (m.p.h.)	—	—	67	70	74	74	—	—	63	54	50	64	61	55
18) Min. Speed (m.p.h.)	—	—	—	—	Ill.	Mich.	—	—	2P OF	2P OF	282	282	—	—
19) State of Type	—	—	30	30	40	38	—	—	35	40	34	30	61	55
20) State of Type	—	—	—	—	Ill.	Mich.	—	—	2D ST	2P OF	281	282	—	—

Station S.R. 25 I.O. Files South of American surface 221 Bituminous Resurfaced Concrete

weather clear

Last Previous Observation (Speed Report No. 58)  
 Date February 16 and 21, 1956  
 Time 11:30 - 11:00 AM and 9:10-9:45 AM

This observation  
 Date August 23, 1956  
 Time 9:00 AM - 11:30 AM

No.	Description	All				Previous CARS				Trucks				WASCS	
		Least	Exposure	End dia	Imp-Indicators	Least	Exposure	Imp-Indicators	Least	Exposure	Imp-Indicators	Least	Exposure		Imp-Indicators
1	No. of Vehicles obs.	359	406	171	132	38	76	146	95	20	28	106	67	0	1
2	Ave. speed (m.p.h.)	55.0	56.0	55.0	56.1	55.3	55.7	46.8	47.1	50.8	51.6	41.8	46.6	-	54.0
3	Max. speed (m.p.h.)	79.7	81.8	73.2	84.6	81.2	78.4	21.2	16.8	77.5	78.5	23.6	51.2	-	100.0
4	No. of vehicles obs.	51.1	57.8	57.8	60.2	55.3	53.1	8.2	16.8	57.5	60.7	7.5	26.9	-	0
5	Ave. speed (m.p.h.)	30.2	34.0	31.1	34.0	21.1	33.8	4.8	3.6	15.0	21.4	0.9	3.0	-	0
6	Max. speed (m.p.h.)	71.5	77.1	71.7	77.0	15.4	12.2	2.1	3.2	7.5	10.7	0	0	-	0
7	No. of vehicles obs.	1.9	4.7	2.9	4.8	0	4.1	1.4	0	5.0	6	0	0	-	0
8	Ave. speed (m.p.h.)	0.6	1.0	0.6	0.9	0	1.4	0	0	0	0	0	0	-	0
9	No. of vehicles obs.	192	213	176	173	16	40	60	50	15	14	45	36	-	0
10	Ave. speed (m.p.h.)	55.7	57.2	54.9	57.4	53.8	56.4	43.1	49.4	47.4	51.3	41.0	47.7	-	0
11	Max. speed (m.p.h.)	-	-	80	77	65	74	-	-	70	66	61	64	-	0
12	No. of vehicles obs.	-	-	23	40	Ill. Mich.	Mich.	-	-	2F OP	2P OP	2D ST	2D CO	-	-
13	Ave. speed (m.p.h.)	-	-	23	40	Ill. Mich.	Mich.	-	-	35	30	27	14	-	-
14	Max. speed (m.p.h.)	-	-	23	40	Ill. Mich.	Mich.	-	-	2P OP	2P OP	2D ST	2D ST	-	-
15	No. of vehicles obs.	167	193	145	159	22	34	46	43	25	14	61	31	-	1
16	Ave. speed (m.p.h.)	54.7	54.9	51.9	54.9	56.4	54.9	43.8	47.8	51.6	51.9	42.4	45.9	-	54.0
17	Max. speed (m.p.h.)	-	-	75	78	64	73	-	-	70	69	53	58	-	84.0
18	No. of vehicles obs.	-	-	34	29	Ohio Mich.	Mich.	-	-	OP OP	2P OP	2D CO	2D CO	-	-
19	Ave. speed (m.p.h.)	-	-	34	29	Ohio Mich.	Mich.	-	-	36	41	26	31	-	84.0
20	Max. speed (m.p.h.)	-	-	34	29	Ohio Mich.	Mich.	-	-	2P OP	2S ST	2D IF	2D CO	-	-

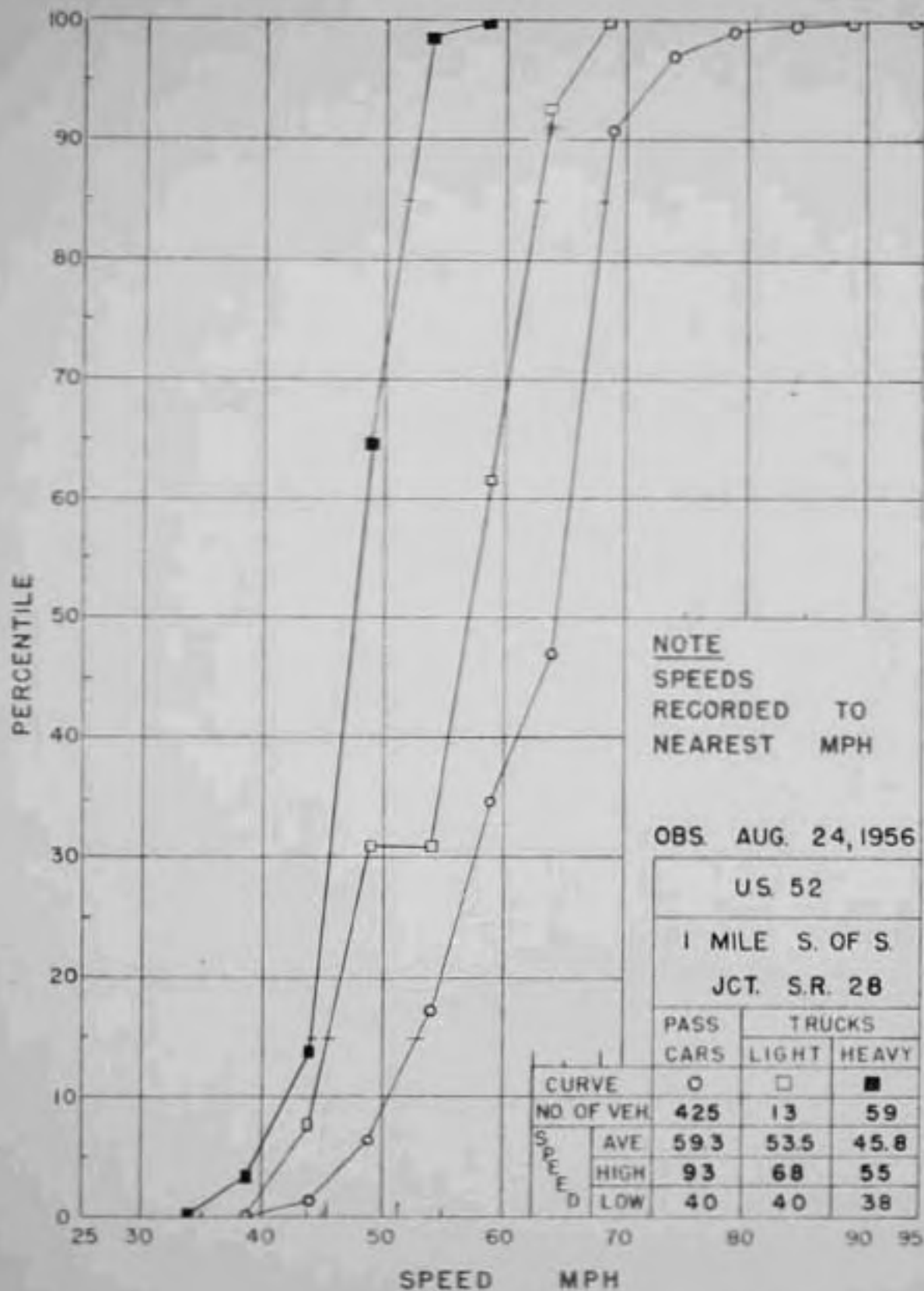


FIGURE 1

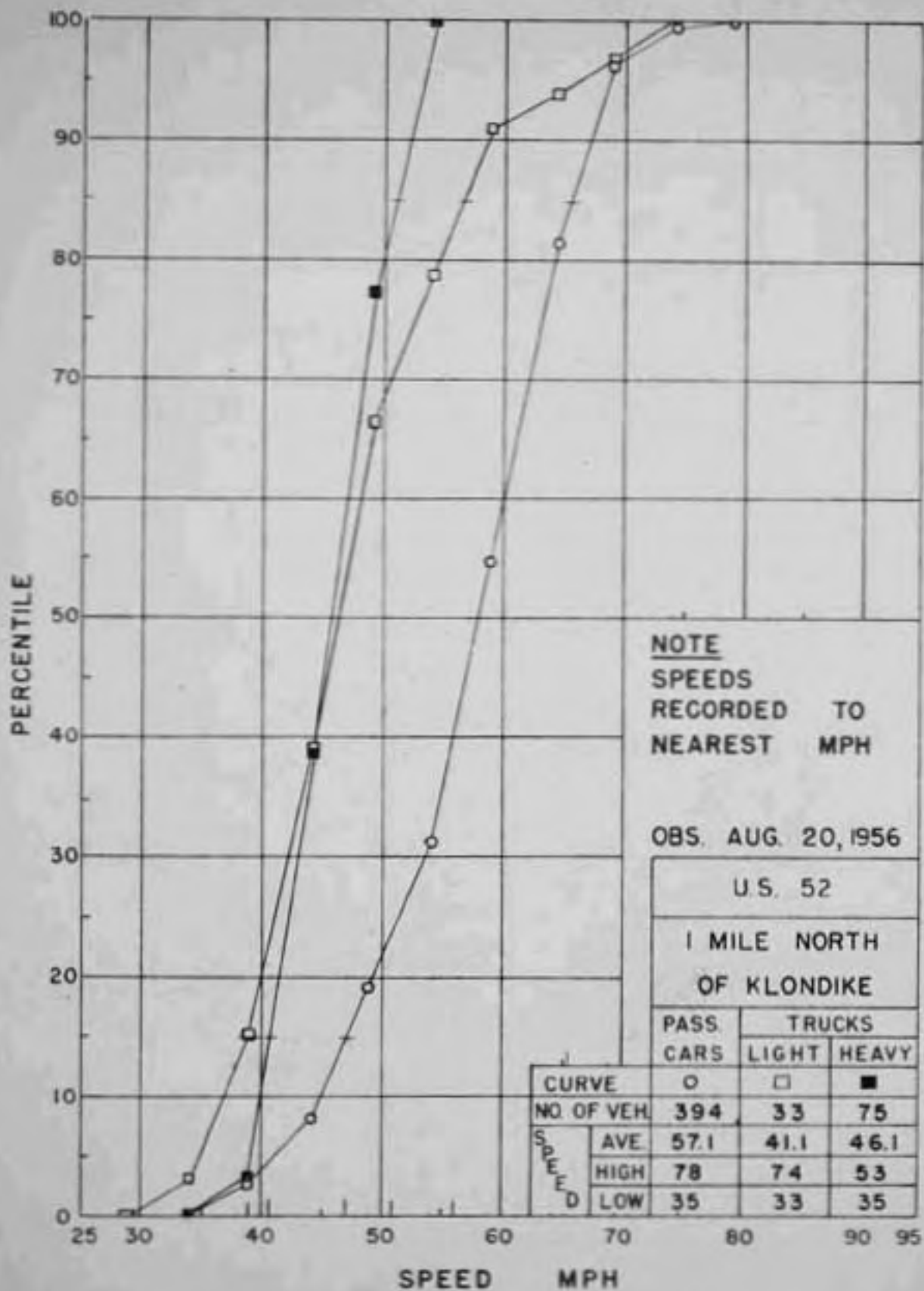


FIGURE 2



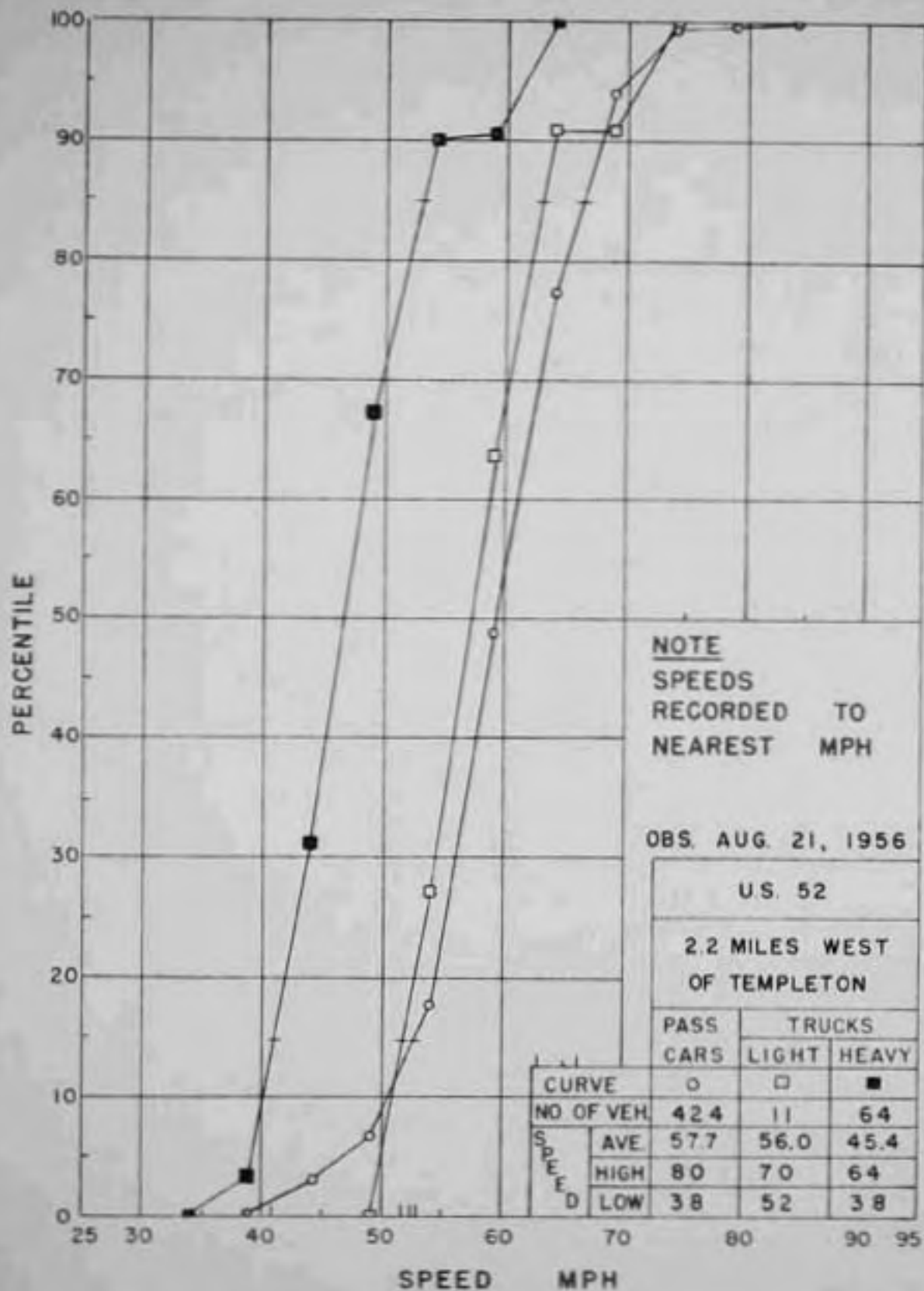


FIGURE 3

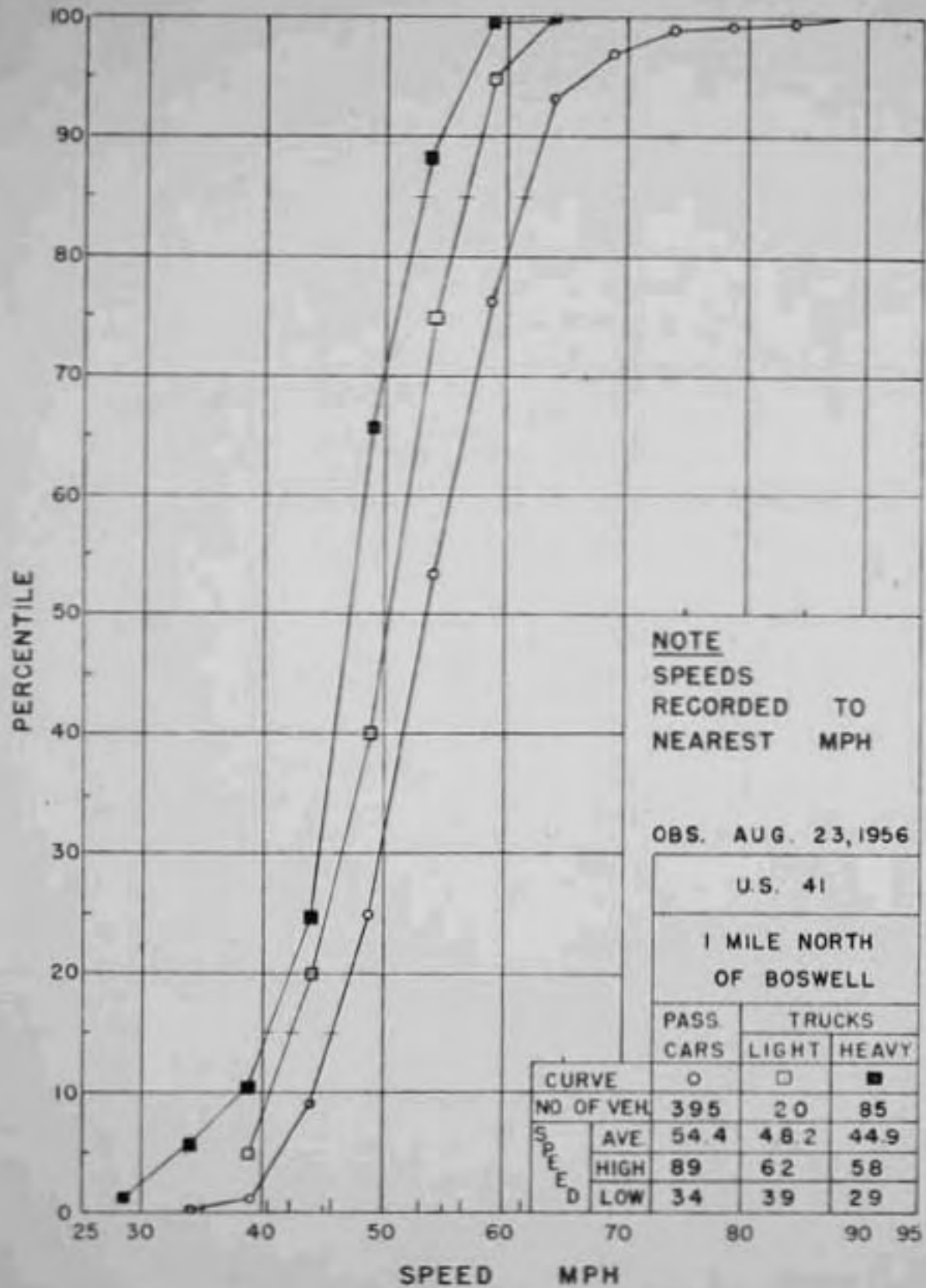


FIGURE 4

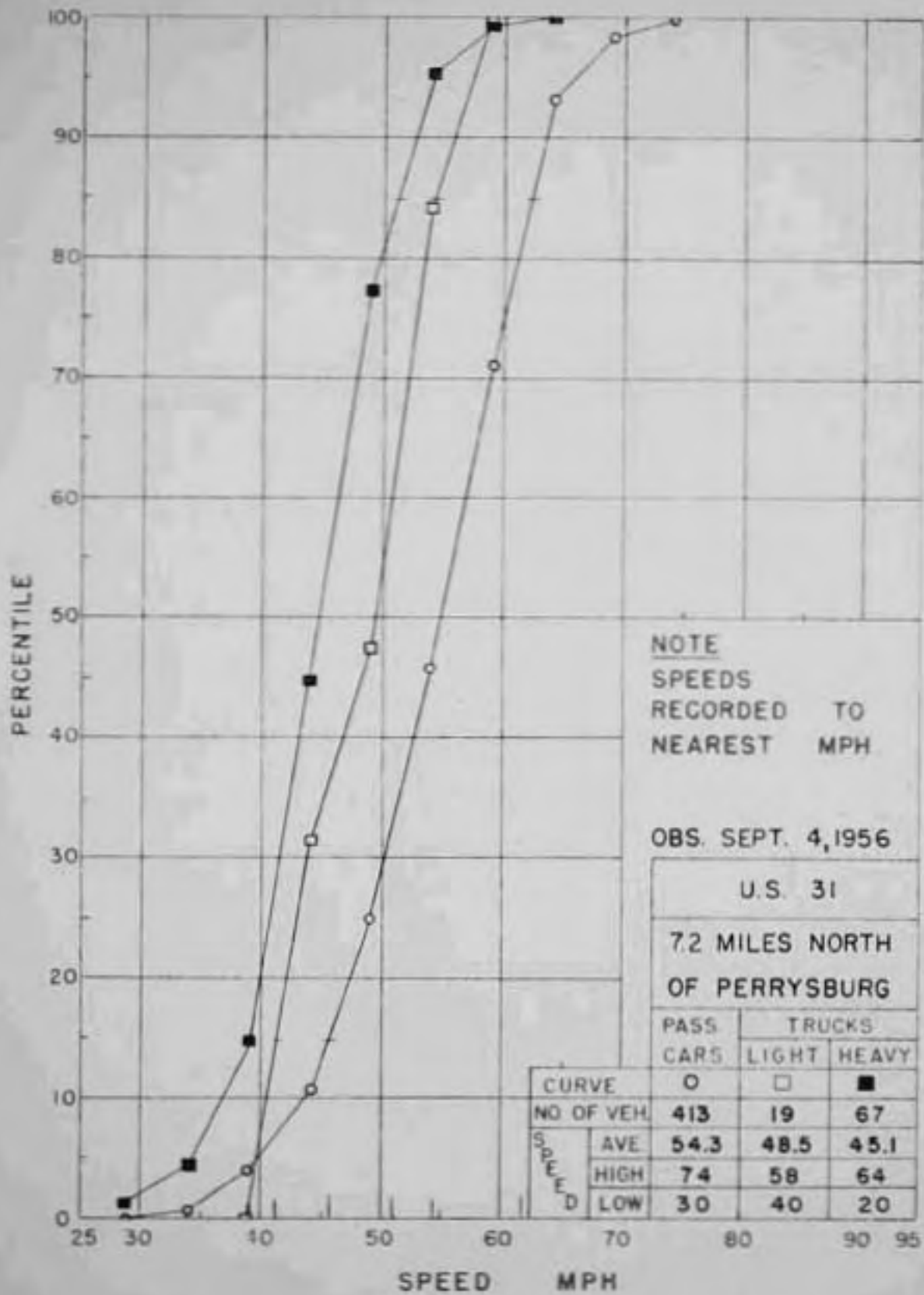


FIGURE 5

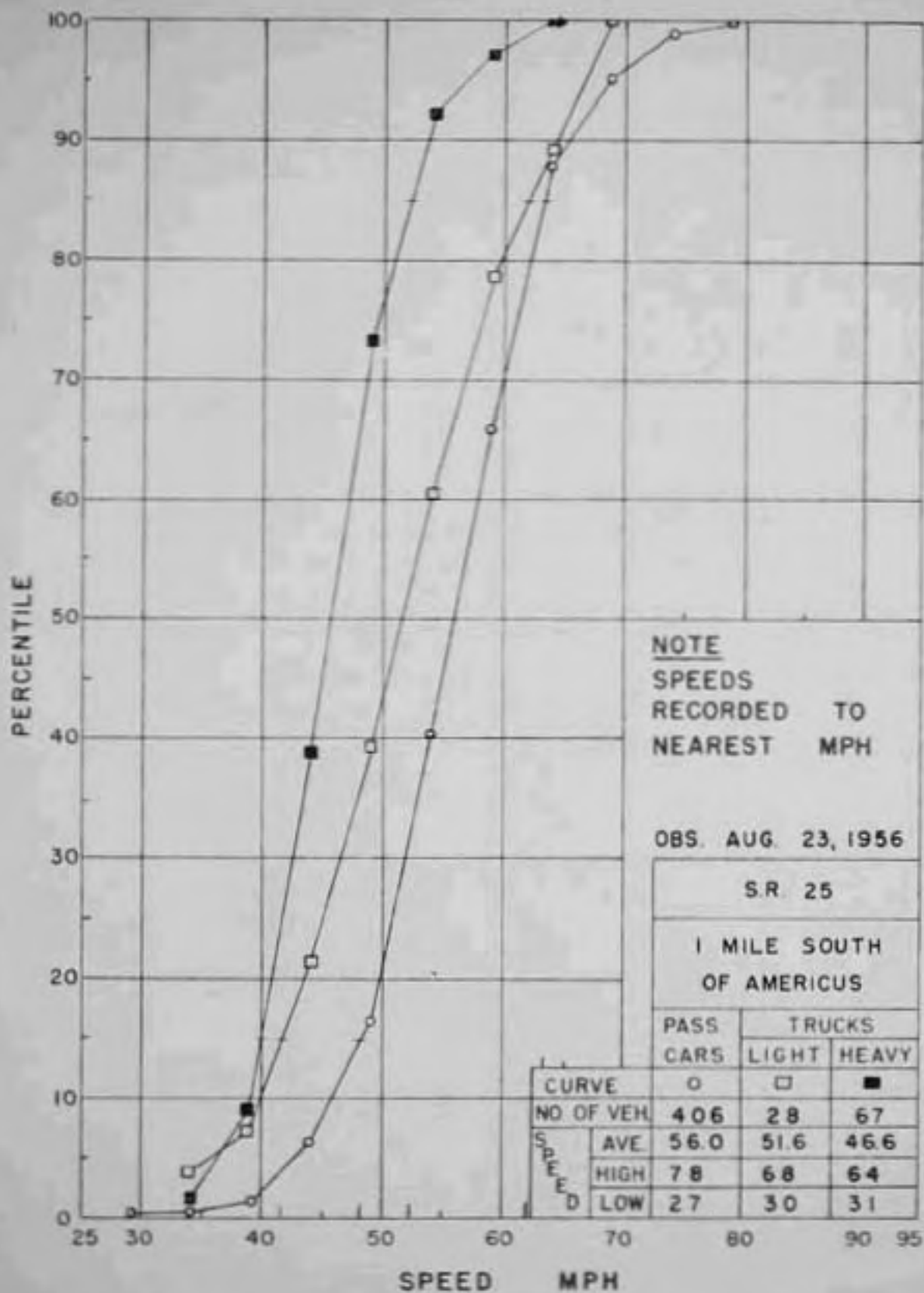


FIGURE 6

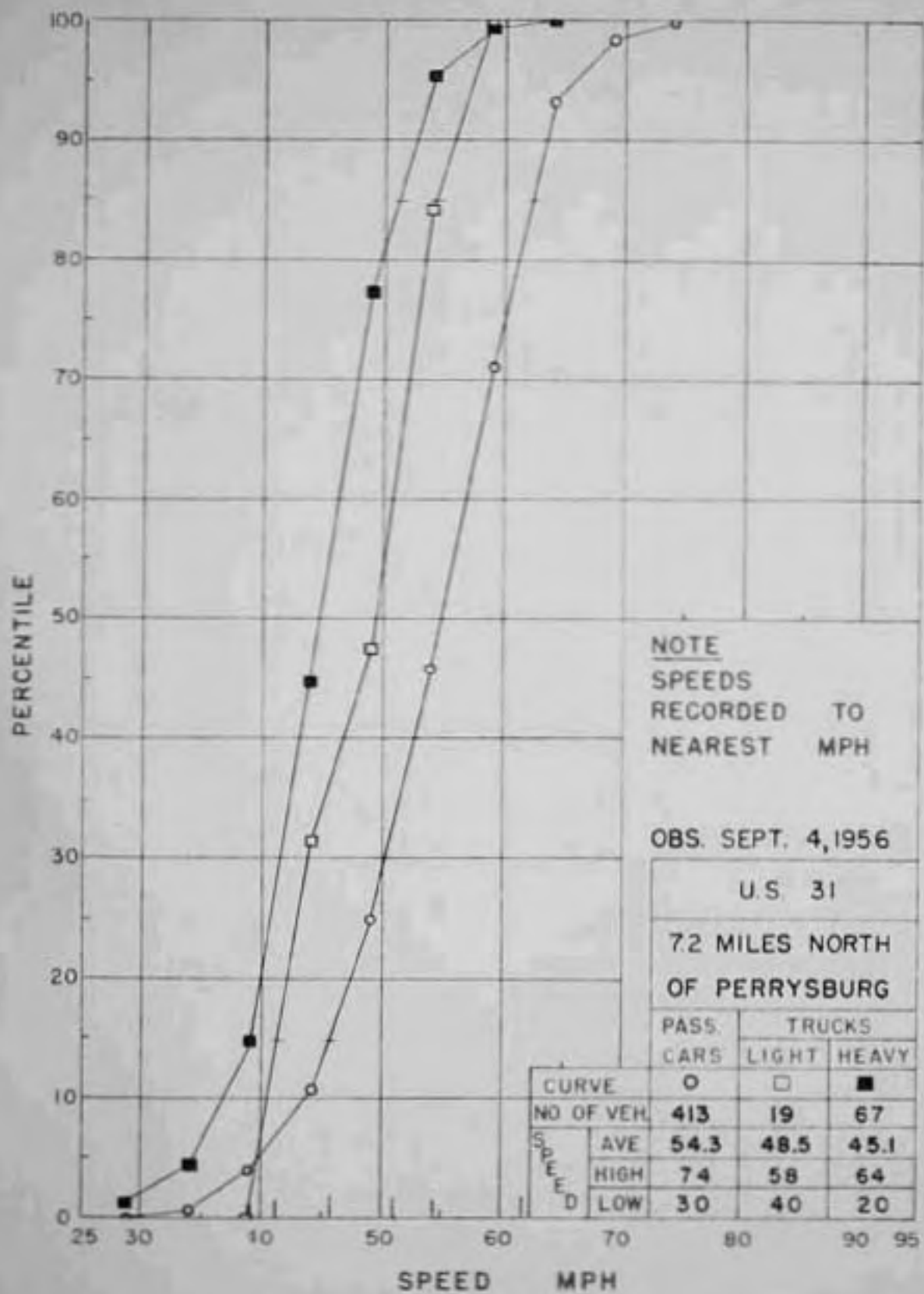


FIGURE 5

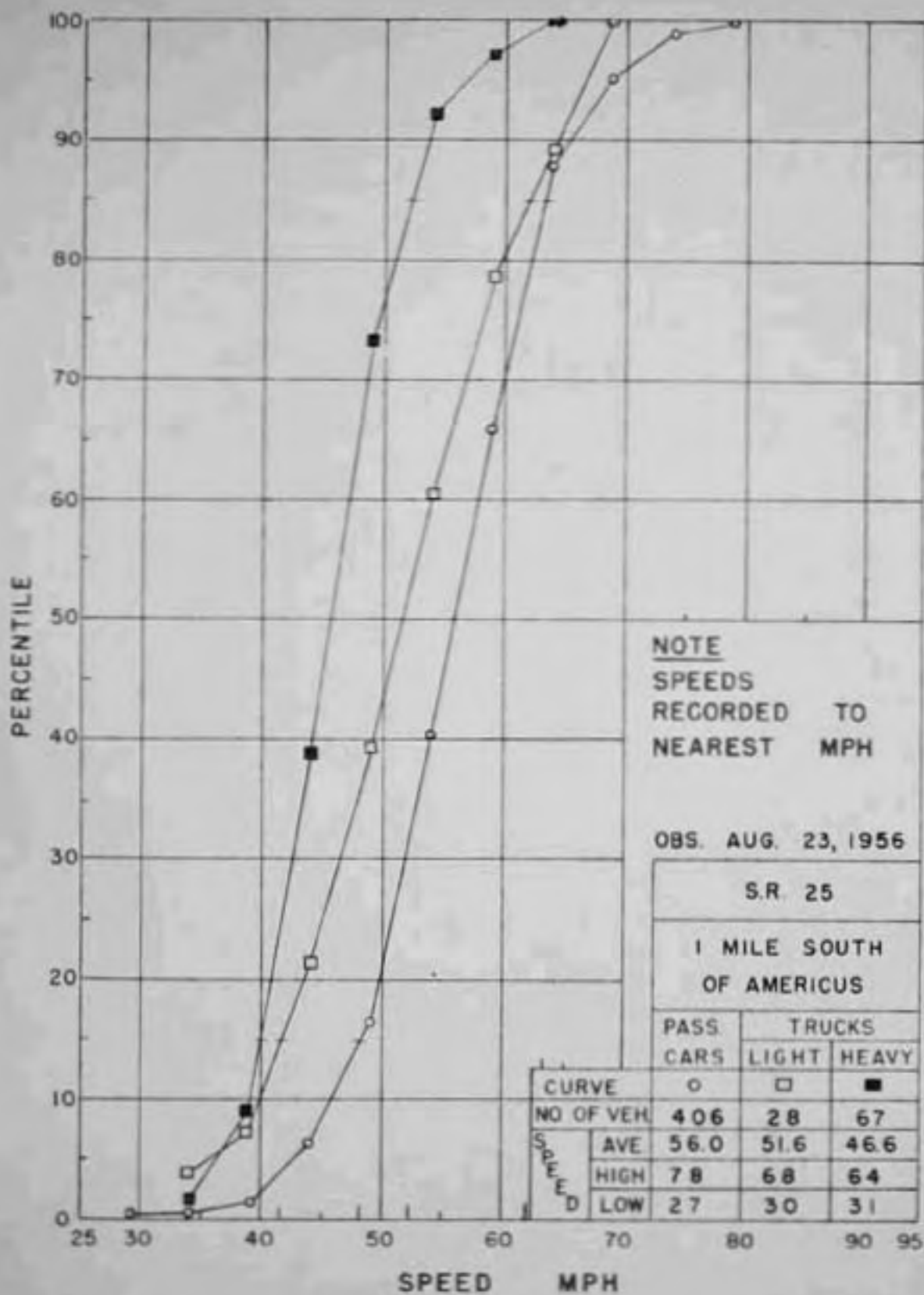


FIGURE 6