CHANGES IN DRIVER PERFORMANCE WITH TIME IN DRIVING

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PROCEDURE

It was decided to make the "fatigue" runs on an expressway where the physical features of the road would be practically constant. The drivers were all college students. No attempt was made to make sufficient runs to achieve statistical stability. It was anticipated from the findings of others already referred to that there would be little or no consistency in the times at which drivers would show the effects of driving fatigue.

The data from a number of "runs" or trips will be plotted and analyzed to give an indication of the differences in individual driving behavior. The data will then be summarized in tabular form.

The data for a typical "fatigue" trip are shown graphically in Figure 2. The physical and mental condition of the driving at the beginning of the run could be described as normal. Each driver at the beginning of a trip filled out a questionnaire giving his own estimate of his condition.

Figure 2

![Graph showing driving behavior data]
Four variables are shown: (1) the speed in miles per hour for each 10 minutes of driving, (2) the number of accelerator reversals per 10-minute interval, (3) the amount of speed change for each one minute interval, and (4) the number of steering wheel reversals for each one minute interval. The number of brake applications was found to be insignificant and was not plotted.

The numbers at the frequency peaks of steering wheel reversals refer to the events that could have caused the fluctuations in the frequency of steering wheel reversals.

List of Events Corresponding to Numbers Shown in Figure 2

1. Adjusted sun visor and car window.
2. Slowed for car in passing lane.
3. Lit cigarette
4. Used horn – talking.
5. Put out cigarette-slowed for truck.
6. Adjusted heat control
7. Slowed for car in passing lane.
10. Slowed for one lane traffic.
11. Adjusted heat control.
12. Adjusted heat control.
15. Stretched-adjusted heat and vent.
17. No observed reason
18. Noted cross winds.
19. Changed to left foot for accelerator.
20. Lit cigarette.
21. Used horn.
22. Slowed for lane traffic
23. Put out cigarette-adjusted heat.
24. Slowed for truck.
25. Driver stated he was drowsy-noted cross winds.
27. Slowed for pedestrian on highway.
29. Driver watched counters.
30. Changed back to right foot on accelerator.
31. Put out cigarette.
32. Noted cross wind.
33. Passed two trucks.
34. Road repair zone.
35. Driver seems to be over steering.
36. Changed position of hands on steering wheel.
37. Passing.
38. Changed position of hands on steering wheel.
39. Lit cigarette.
40. Wind from passing truck made car sway.
41. Stretched right foot.
42. Seemed to be over steering.
43. Changing grade.
44. Changing grade.
45. Changed position of hands on steering wheel
46. Applied brakes to avoid slow car in passing.
47. Burning car on roadside.
48. Changed hands on steering wheel.
49. Again changed hands on steering wheel.

ANALYSIS OF GRAPH

An examination of Figure 2 reveals that the accelerator reversals per 10 minute period decrease in frequency at about the end of the first hour and then increase at about the end of the third hour.