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## Four Hundred Drunken Drivers

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## FOUR HUNDRED DRUNKEN DRIVERS

T. U. MARRON

During the past several years in this state it has not been compulsory for persons under arrest to submit to chemical tests to determine the concentration of alcohol in their body fluids. Generally, however, law enforcement officers have asked arrested motorists who showed signs of intoxication to submit to a blood or urine test. Charges of driving while intoxicated have usually been filed if the alcohol concentration of the blood was 150 mg. per 100 cc. or over.

A sufficient number of persons have been tested under this routine to give a cross section of the drivers on the highways of this state. From the records of this laboratory for a two year period just ended we have summarized the results of blood tests on 402 drivers in central Iowa who have submitted to the test. Deductions from these tests are presented in this paper.

### DISCUSSION

The National Safety Council has widely publicized the consensus from research on the condition of drinking persons. When the alcohol concentration of the blood is 0.05% or less the subject generally is not appreciably influenced; from 0.05% to 0.15%, a large percentage are under the influence; above this all persons are influenced through degrees of dizziness and daze to dead drunkenness.

Since liquor is apparent in the breath after the first drink it might be suspected that officers would bring in many drivers unnecessarily for chemical tests. Table I shows that this has not been the case, inasmuch as only 8.4% of the blood specimens have shown less than 150 mg. % alcohol. Some of these were arrested for highway conduct not attributable to alcoholic intoxication. The effects of overdoses of insulin or barbiturates have been responsible in a few cases. In these instances the alcohol test has cleared the arrested of a serious charge. Many of those below 100 mg. % were involved in accidents and requested the test to prove they had not been drinking excessively. No doubt, quite a few of these were well under the influence of alcohol at the time of arrest. County attorneys, however, have established the practice of filing lesser charges on low blood tests, so these escaped prosecution for driving while intoxicated.

One-fifth of the blood tests showed an alcohol content between 0.15% and 0.20%. This stage of intoxication is definitely noticeable, and the person's reaction time is slowed to such an extent that he is an unsafe driver; he is unable to cope with rapidly changing situations. It is significant that no person who had a blood alcohol content above 150 mg. % was ever considered, when observed by the arresting officers or ourselves before the analysis was made, to be other than definitely intoxicated.

Over 57% of the arrested drivers had blood alcohol concentrations between 200 mg. % and 300 mg. %. This concentration produces an obvious state of functional impairment. Drivers with this quantity of alcohol in them are practically unable to escape arrest.

When the blood alcohol concentration passes 300 mg. % a person is generally not able to walk. This explains the low percentage of intoxicated drivers with higher blood tests.

Many objections are raised to the 150 mg. % criterion for judging intoxication because someone is always known who can take a large quantity of liquor without showing intoxication. These objections are not valid. Some explanation is apparent from the facts that small persons require less alcohol than do large persons to acquire a given concentration in their body fluids; and alcohol is absorbed more slowly when there is food in the stomach. Nevertheless, all persons who have absorbed sufficient alcohol to have a blood concentration of 150 mg. % are equally in an intoxicated state with respect to their nervous reactions.

When it is pointed out that moderate drinking does not raise the blood alcohol level very high, the lay person becomes more reasonable in considering the accepted standard for intoxication. Moreover, calculations of the quantities of alcohol consumed by some persons who still insist on driving make us wonder why even more severe penalties are not imposed. Table II gives the minimum quantities of common drinks that have been absorbed by the average sized driver at each of the average alcohol concentrations found in Table I. The alcohol in the body fluid, hence, the minimum that had to be drunk, is calculated from the blood concentration by the following formula:

$$\text{Minimum intake (oz.)} = \frac{0.7 \times \text{body wt. (Kg. x } \left( \frac{\text{blood alcohol mgm. \%}}{80} \right)}{0.8 \times 30}$$

This is equivalent to:

$$\frac{\text{Kg. of H}_2\text{O in body} \times \text{alcohol per Kg. of body water}}{\text{Wt. of 1 cc. alcohol} \times \text{cc. in an ounce}}$$

The average man according to insurance data weighs between 142 and 175 lbs., depending upon his height. Weight in excess of 175 lbs. is usually weight of fatty tissue, which must be subtracted to get a body weight suitable for the above formula.

The drivers of the class whose average blood alcohol reading was 86 mg. %, not high enough for a court to hold as intoxicating, drank at least 4 to 5 bottles of beer or 4 to 5 highballs. The average driver in one of the other classes must have consumed a minimum of one-half to one and one-fourth pints of whiskey or 9 to 19 bottles of beer or the equivalent in any alcoholic beverage. Furthermore, it is physically impossible for him to be classified in these intoxicated states by the blood alcohol criterion unless he has actually consumed this amount.

The average man in 402 of those listed had a blood alcohol concentration of 226 mg. %. This means he was driving on the highway after having consumed no less than 5.3 to 6.6 ounces of pure alcohol or its equivalent, which would be 11 to 14 bottles of 3.2 beer or eleven-sixteenths to seven-eighths pint of whiskey or gin.

The foregoing facts should serve to eradicate the popular contention that blood alcohol evidence penalizes the drinking driver along with the drunken driver. Rather, alcohol tests furnish a scientific way of filing appropriate charges in the public interest. The highly favored "social drinker" escapes criminal charges while those who are unquestionably intoxicated can be more easily prosecuted.

The prosecution of cases with the use of blood test evidence has shown that legislation defining intoxication in terms of the concentration of alcohol in body fluids is a desired expedient. Jury instructions could be simplified. It would be less possible for a defense attorney to depend upon confusing a jury to win a case. The state would be saved the expense of trying many cases because the accused would be counseled to enter guilty pleas when their blood tests were above the legally defined standard for intoxication.

About three percent of the cases in this survey have come to trial. Many of the rest above 150 mg. % entered guilty pleas. A number of charges were ignored by grand juries for reasons best known to themselves. Two of the cases tried resulted in acquit-

tals, probably because of lack of legislation coordinating the instructions that can be given juries with testimony of a scientific nature.

*Table I. Distribution of Drivers into Classes by Blood Alcohol Levels.*

Classes of drivers (blood alcohol mg. %)	Number of persons tested	Percent of total cases	Blood alcohol of average man in class (mg. %)
0 - 387	402	100.0	226
0 - 149	34	8.4	86
150 - 199	81	20.2	177
200 - 299	232	57.7	242
300 - 387	55	13.7	321

*Table II. Minimum Amounts of Common Drinks That Were Absorbed by the Average Man in the Five Classes.*

Blood alcohol concentration	Straight alcohol	3.2 Beer (8 oz. glasses)	3.2 Beer (12 oz. bottles)	Whiskey or gin
226 mg. %	5.3-6.6 oz.	18-21 glasses	11-14 bottles	11-14 ounces
86 mg. %	2.1-2.5 "	7-9 "	4½-5 "	4½-5½ shots
177 mg. %	4.2-5.2 "	13-16 "	9-11 "	9-11 shots
242 mg. %	5.7-7.0 "	18-22 "	12-15 "	¾-1 pint
321 mg. %	7.6-9.3 "	24-30 "	16-19 "	1-1¼ pints

### SUMMARY

A discussion of the intoxicated driver is given from data accumulated in 402 voluntary blood tests from persons under arrest.

More than seventy percent of those submitting to the test had been driving while their blood alcohol concentration was greater than 200 mg. per 100 cc.

The average person of those tested had consumed the equivalent of nearly one-half pint of straight alcohol.

The value of further legislation is cited.

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