Important amendments introduced into the law on drink and driving in Great Britain by the Road Traffic Act of 1962, facilitated the bringing of prosecutions, but convictions continued to depend largely on the evidence of the manner of driving, the behaviour and the appearance of the accused. Many courts continued to adopt the unreliable and misleading practice of asking for blood alcohol concentration to be related to the amount of alcoholic beverage consumed by the accused. No special construction seemed to have been placed on the new criterion of guilt viz. 'the impairment of the ability to drive properly', and the Act specified no blood alcohol concentration as presumptive evidence of impairment. The number of prosecutions continued to rise steadily but only at about the same rate of increase as they did in the years prior to the passing of the 1962 Act. Except in accident cases prosecutions were rare when the blood alcohol was below 150 mg./100 ml. and there was a considerable body of opinion that the changes brought about by the 1962 Act had had little effect on the problem of drink and driving.

New Law - Road Safety Act 1967

The new legislation now embodied in the Road Safety Act 1967 was drafted against the background of enforcement difficulties under existing law and the ever mounting scientific evidence that confirmed that at levels well below 150 mg./100 ml. a driver can be a serious risk to himself and others, without displaying any outward signs which could associate his manner of driving or behaviour with the effects of alcohol.

Part I of the Road Safety Act 1967 has created new offences of driving, attempting to drive and being in charge of a motor vehicle when the proportion of alcohol in a person's body exceeds a prescribed limit. This limit was fixed at 80 mg. of alcohol per 100 ml. of blood, and the new Act provided that 107 mg. of alcohol per 100 ml. of urine was to be treated as the equivalent of the blood alcohol concentration limit. This represented a significant change in English law and this new legislation is unique in that the analytical evidence given to the courts is not part of a total jigsaw of evidence but is the basis on which the prosecution proceeds and is the sole criterion of guilt.
Concurrently with the new offences created by the Road Safety Act 1967 the offences under the Road Traffic Act 1960 as amended in the Road Traffic Act 1962 remain in force, mainly to deal with cases (a) of persons whose ability to drive properly is manifestly impaired by drink but whose blood alcohol level does not exceed the prescribed limit, and (b) of persons driving while unfit through drugs other than alcohol.

The Breath Test

The new offences introduced in 1967 raised new problems in law enforcement. Simply to make it an offence to drive with a blood alcohol concentration in excess of 80mg./100ml. would have been insufficient to enable the police to arrest drivers with alcohol levels above this limit when there were no clear outward signs of impairment. It was desired to enable the police to take action at the roadside against persons whose condition was not so patent as to provide grounds for arrest upon suspicion of impairment. To make available to the police objective evidence as to whether or not a person probably has a blood alcohol concentration above the prescribed limit on-the-spot breath testing was introduced in Great Britain. The police officer is provided with a device which gives a prima facie indication if the concentration of alcohol in the blood is likely to be in excess of the prescribed limit.

It was not the intention that the new law should authorise the police to stop vehicles solely to discover if drivers had been drinking. But having stopped a vehicle for any reason a police officer in uniform can require the driver to undergo a breath test if he thinks that the driver has consumed alcohol sufficiently recently for there to be any of it in his body. In such a case the officer will need some specific indication that the driver has been drinking. On the other hand if the driver is suspected of having committed a moving traffic offence he can be required to take a breath test whether or not there is any suspicion of his having taken alcohol and the same applies when the police officer believes a person was driving or attempting to drive at the time of an accident in which he was involved.

No particular device or devices is specified in the Road Safety Act 1967 but any device used by the police must be approved by the Secretary of State. At the present time the Alcotest-80 device has been officially approved and is being used by the police forces.
If the police officer considers that a breath test result indicates that the prescribed blood alcohol limit has been exceeded, the driver may be arrested without a warrant. Upon arrival at the police station, he must be given the opportunity of taking a second breath test if he so wishes. If he declines, or if it indicates a blood alcohol level in excess of 80 mgm./100ml., the driver is required to provide a specimen of blood to be taken by a doctor, or alternatively is asked to provide two urine samples within an hour.

A driver who fails or refuses to take a roadside breath test may be arrested without a warrant if the police officer suspects he has alcohol in his body. Upon arrival at the police station, a breath test must be offered, with the same liability to provide a blood or urine specimen for analysis.

Laboratory Test

The results of breath tests are not used in court to provide the evidence that the prescribed blood alcohol level has been exceeded. For this purpose, the prosecution must rely solely on the results of the laboratory analyses of blood or urine.

The use of urine has been retained in the new legislation to cover the person who may object to giving a blood sample or for whom it might be medically inadvisable. It was decided that the use of force to compel a person to give a blood sample for purposes of the 1967 Act was unacceptable, but it is necessary, as far as possible, to prevent any person who suspects that his blood alcohol concentration is above the statutory limit, from evading the provisions of the Act by refusing to supply a specimen for analysis. Under the Road Safety Act 1967, therefore, a person who fails to provide a blood or urine specimen and cannot show reasonable grounds for such failure, is liable to the same penalties as if he had been tested and found to have more than the prescribed level of alcohol in his blood.

Blood Samples

Collection

Government publicity has always emphasised that blood was the most satisfactory fluid for laboratory tests under the new Act. It was anticipated that capillary blood from the thumb, finger or earlobe would be the usual sample taken, and blood collecting kits consisting of sterile disposable lancets for skin
puncture, small labelled polypropylene cups of 250-300 microlitre capacity fitted with airtight lids, and coated with preservative and anticoagulant, and a small sterile adhesive dressing, are provided by the forensic science laboratory. Blood is rapidly collected into three of the cups, each of which is filled to a half to two-thirds capacity, the lids are firmly replaced immediately and the cups shaken to ensure that blood, anticoagulant and preservative are thoroughly mixed. The motorist is entitled to take one of the cups and may obtain from the police the names of analysts who are equipped and prepared to analyse such small samples.

Soon after the provisions of the Road Safety Act 1967 became operative it was found that doctors were taking blood from the cubital vein in preference to capillary blood. This was a recognised procedure under the earlier law and sterile disposable syringes are made available to doctors at police stations. The great majority of blood samples now submitted to laboratories are of venous blood.

Urine Samples

Under the Road Safety Act 1967 a person may offer urine as an alternative to blood, in which case he is required to offer two samples, the first being taken to ensure, as far as is practicable, the voiding of the bladder. It is only the second sample which must be provided within one hour of the first one, which is submitted for analysis.

Laboratory Analysis

Blood and urine samples are sent to the forensic science laboratories in sealed containers carefully packed and labelled to prevent damage or loss. A complete record is kept of their movements and the names of the people through whose hands they pass.

At the laboratory detailed records are kept of the arrival of the specimens, their condition, etc. The analyses and the results in each case are entered on the appropriate work sheet before the next sample is processed. No official method of analysis is laid down in the Road Safety Act 1967. The size of the sample has restricted the use of some of the traditional methods and they have been superseded. The method of analysis used throughout the United Kingdom laboratories is basically the gas chromatographic system and technique developed by Dr. A. S. Curry and his colleagues which was reported at the Fourth Conference at Bloomington in 1965. Using N-propanol as an internal standard the method has overcome problems associated
with some earlier GLC work in this field and has resulted in a method which is suitable for routine analysis of large numbers of blood samples.

In practice using an automatic diluting device 20 microlitres of blood sample is diluted with ten times its own volume of the aqueous solution of internal standard before injection into the column of the chromatograph. The injected volume of approximately 2 microlitres need not be measured precisely since the factor that matters is the ratio of the unknown to the standard. The output signals from both the ethanol and N-propanol are integrated and the ratio ethanol to N-propanol is compared with standard ethanol/N-propanol ratios and the blood alcohol concentration determined.

A great advantage of the method is that several of the stages are automatically linked and operator errors cannot occur between injection and integrator print out. Because of the seriousness of the consequences of conviction to the motorists forensic science laboratories adopt extreme precautions throughout the time the blood or urine samples are in the laboratory. Each sample is identified by the label attached to the cup up to the time it is taken for dilution. Two analysts check that the work sheet particulars agree with the labels on the specimen. The diluted specimen is immediately injected into the apparatus. The figures relating to each case are entered on the appropriate work sheet before injecting the specimen related to the next case. The paper bearing the integrator print out figures is attached to the appropriate work sheet. In each case dilution and duplicate analysis is carried out by two operators working independently on separate sets of equipment, one using a P.E.G. packed column, the other a polystyrene packed column, so that at least four results in two pairs are obtained in each case. Agreement within each pair is a check for each operator and agreement between pairs is a check of the two operators and the two sets of equipment. Monitoring samples of known concentrations are put through the apparatus at very frequent intervals. At least two independent checks of the arithmetic are made in the final calculations. Disagreement of results between the two operators entails repeating the whole analysis and analyses are repeated when the blood alcohol concentration is between 80mgm. and 100mgm. per 100ml. of blood.

The authorised forensic science laboratory analyst provides a certificate which may be used in evidence in court of the alcohol content of the sample. The certificate on which the analytical result is quoted as "not less than x mg./100ml." (after allowance has been made for experimental error) is sent to the police who must serve a copy on the accused at least seven days before the hearing if it is intended to
use it in evidence. The analyst may be called into court at the request of either party to give oral evidence instead of, or in addition to, the evidence provided by the certificate, in which case his evidence will be limited to the custody of the specimen at the laboratory and the analysis made of it there.

The effect of this new Act on forensic science laboratories has been to substantially increase the number of alcohol analyses cases, and the proportion of blood samples to urine samples submitted. Over the country as a whole an increase of two to three times the number of cases was experienced in the early months after the provisions of the 1967 Act were introduced. The increase continues and some areas are now receiving five times as many samples as they were prior to October 1967. It is not surprising therefore that automated systems of analysis are being investigated in order to cope with the volume of work.

Summary

Changes in the law in Great Britain brought about by the Road Safety Act 1967, and their effect on enforcement and laboratory procedures and methods of analysis are outlined.