Introduction

In Northern Ireland the Ministry of Development is responsible for legislation, planning and all general matters concerning roads, other than road traffic and safety which are the responsibility of the Ministry of Home Affairs.

A recent report issued by the Ministry of Development indicates that on 30th September, 1968, there were 358,232 licensed mechanically propelled vehicles operating on the 14,011 miles of public roads in Northern Ireland.

During 1968 a total of 5,213 road accidents occurred resulting in 216 deaths and 7,305 persons being injured. The accident and injury figures were the highest on record and follow the now familiar pattern of more traffic more accidents.

Prior to 1968 to establish proof of driving under the influence of alcohol or drugs to such an extent as to be incapable of having proper control of a vehicle, the courts, under the provisions of Section 39 of the Road Traffic Act (Northern Ireland) 1955 had to be satisfied on three main counts. Firstly the police had to show that the vehicle was being driven in a dangerous and erratic manner and that the general demeanour and the actions of the driver indicated that he was under the influence of alcohol or drugs.

Secondly, that following a medical examination, the examining doctor should be satisfied that the person examined was not fit to have proper control of a vehicle due to having consumed alcohol. Thirdly, an analysis of blood or urine taken at the time of the medical examination indicated some degree of impairment. In assessing the significance of the analytical results the courts frequently took note of the views expressed in the publications of the British Medical Association entitled "Recognition of Intoxication" (1958) and "Relation of Alcohol to Road Accidents" (1960). The following extract was referred to on many occasions:-

"the Committee considers that a concentration of 50 mg. of alcohol in 100 ml. of blood while driving a motor vehicle is the highest that can be accepted as entirely consistent with the safety of other road users. While there may be circumstances in which individual driving ability will not depreciate significantly by the time this level is reached, the Committee is impressed by the rapidity with which deterioration occurs at blood levels in excess of 100 mg./100 ml. This is true even in the case of hardened drinkers and experienced drivers. The Committee cannot conceive of any circumstances in which it would be considered safe for a person to drive a motor vehicle on the public roads with an amount of alcohol in
the blood greater than 150 mg./100 ml."

The general effect of this action on the part of the courts was that in the majority of convicted cases the blood level was in excess of 150 mg./100 ml. Few motorists were prosecuted below this level of alcohol in the blood and the histograms show the distribution of blood alcohol levels in blood samples received for analysis in 1967, and the increase in the number of samples referred for laboratory analysis between the years 1958 and 1968.

A further publication of the British Medical Association entitled "The Medico-Legal Investigation of the Drinking Driver" (1965) modified the statements quoted from the previous publications as follows: - "the Committee feels that its previous conclusions concerning driving performance at blood alcohol concentrations of 100 mg./100 ml. and 150 mg./100 ml. must now be qualified. There can be very few persons in whom impairment of the ability to drive properly and increased risk of being involved in accidents are not present to a significant extent at blood alcohol concentrations in excess of 80 mg./100 ml."

It was largely in recognition of the views expressed in this last publication that the figure of 80 mg./100 ml. was adopted as the statutory limit in the Road Safety Act 1967 passed by the U.K. Parliament. This Act, which applies to England, Scotland and Wales, but not to Northern Ireland, makes it an offence for a person to drive or attempt to drive a motor vehicle on a road or public place when the blood alcohol concentration is in excess of the prescribed limit of 80 mg./100 ml. It also gives the police authority to request motorists, suspected of having consumed alcohol, to provide a sample of breath for a breath test. The breath test is a screening test and the device used is the well known "Alcotest" device. If the screening test indicates to the police that a driver has a blood alcohol level in excess of the prescribed limit, then he may be required to provide a sample of
At this point in time (1967) although facilities existed in Northern Ireland for the estimation of the alcohol content of blood and urine samples through the Forensic Science Division of the Department of Industrial and Forensic Science, and in fact during the period 1958 - 1968 more than 5,000 such cases were referred to the laboratory there was no statutory limit and all the courts had for guidance were the opinions expressed in the British Medical Association publications to which reference has already been made.

**New Legislation**

The Road Traffic Act (Northern Ireland) 1968 was passed by the Northern Ireland Parliament and became effective in September 1968. This Act differs in several respects from the Road Safety Act 1967, but it has the same basic purposes, namely to provide new measures, including a breath test to enable the police to deal more effectively with motor vehicle drivers suspected of being under the influence of alcohol.

It introduced a two tiered type of legislation making it an offence to:

1. drive or attempt to drive, or be in charge of a motor vehicle while under the influence of drink or drugs to such an extent as to be incapable of having proper control of the vehicle contrary to Section 39 of the Road Traffic Act (Northern Ireland) 1955 as substituted by the Road Traffic Act (Northern Ireland) 1964. This is known as the "major offence".

2. drive or attempt to drive, or be in charge of a motor vehicle, having consumed alcohol in such a quantity that the proportion thereof in a specimen of blood provided by the accused exceeds 80 mg./100 ml. or in the case of urine 107 mg./100 ml. This is known as the "minor offence".

For the "major offence" a person is deemed to be incapable of having proper control of a motor vehicle if the amount of alcohol in a sample of his blood is in excess of 125 mg./100 ml. or in the case of urine in excess of 167 mg./100 ml. If, however, the blood or urine alcohol content is less than the above levels the motorist may still be convicted, but in this event incapability must be proved by evidence of witnesses in the normal way including medical evidence if this is available.

In the case of the "minor offence" the question of the motorist's incapability does not arise and all that is required is evidence that the quantity of alcohol in the blood or urine sample exceeds the statutory limit.

A person prosecuted for the "major offence" and found not guilty may still be found guilty by the court of the "minor offence" if the level of alcohol in the blood or urine exceeds the statutory limit. The converse, however, does not apply.
The Act also authorises the use of a breath test to serve as an indication of the proportion of alcohol in the blood or urine.

An unusual feature of the legislation is the inclusion of a clause which permits a person providing a sample of breath to consent to the blood alcohol level as indicated by the breath test being treated as if it had been the proportion ascertained from a laboratory test on a specimen provided by the accused.

The Act also includes provisions which make it an offence to fail, without reasonable cause, to give a sample of breath, blood or urine when requested.

In brief, therefore, the new legislation makes provision for breath, blood and urine samples to be taken and sets up statutory limits for the alcohol content of blood or urine samples above which an offence of varying seriousness is deemed to have been committed.

**Enforcement**

In considering the enforcement of the new legislation the Minister of Home Affairs indicated his desire that every effort should be made in the case of the "minor offence" to avoid samples of blood or urine being taken unless there was a high degree of probability that the blood alcohol level would be above the prescribed level.

It was, therefore, necessary to find a system for screening persons suspected of the "minor offence" which would be sufficiently accurate to avoid false positives and at the same time provide a quantitative estimation of the equivalent blood alcohol level on a sample of breath. Accordingly after a review of all the available methods the Ethanographe was selected as the instrument of choice.

At the present time there are seven instruments in operation in Northern Ireland and more may be introduced in the future. Each instrument is used in a mobile van referred to as an Accident Prevention Unit. These units carry out patrol duties throughout Northern Ireland which has a territorial area of 5,452 square miles and a population of 1,491,000 of which over 500,000 reside in Belfast and the immediate surrounding area.

The Accident Prevention Units are not used exclusively for breath testing. They are part of a much wider programme of measures designed to reduce accidents on the roads. The units are manned by police personnel qualified to examine vehicles for mechanical defects and road worthiness by the Road Traffic Act (Northern Ireland) 1964, and the Motor Vehicles and Road Traffic Act (Northern Ireland) 1934.

If in the process of carrying out examinations required by these Acts the police officer considers that the driver has consumed alcohol he may require him to provide a sample of breath for test purposes and this sample is taken in the Ethanographe.
The accident prevention units have been built in two forms, the first based on a Ford Thames 3 ton chassis originally designed and constructed for Civil Defence purposes, consists of a sheet metal box-like structure entered by a door at the rear. The interior arrangements provide toilet and washing facilities and space heating by bottled gas. One side accommodates the equipment necessary for vehicle inspections, and there is a bench running along the opposite side under which ancillary equipment for the Ethanographe is stored. The instrument itself is positioned on top of the bench, and it can be fastened firmly in position when the van is moving. The person being examined is seated beside the instrument.

Originally the vehicle was equipped with a portable generator to provide electric power, but operational experience has shown that it is much more satisfactory to use a heavy duty accumulator which is recharged during the normal running of the vehicle.

The vehicle is also provided with facilities for doctors to take samples of blood and urine, and is manned by a crew of four.

This arrangement has proved to be very satisfactory in practice and five such vehicles are now in service. However, it has been found that these vehicles are rather large and difficulties arise in find suitable parking areas from which to operate, especially in built up areas. Two smaller vehicles based on the Bedford 17 hundredweight motor caravan have now been adapted for accident prevention duties. These smaller vehicles are manned by a crew of two.

The responsibility for carrying out breath tests with the Ethanographe rests with members of the Royal Ulster Constabulary designated as "authorised constables". Authorised constables are policemen who have had the normal police training and have qualified to carry out the mechanical inspection of vehicles to establish road worthiness.

Additionally they are given an intensive five days course in the practical operation of the Ethanographe. The course also includes lectures on the construction of the instrument and basic information on drinking and driving and the effects of alcohol on the human body. Authorised constables, however, are not required to deal with any maintenance or calibration problems all of which are undertaken by the Forensic Science Division of the Department of Industrial and Forensic Science.

Each trainee is given a specially prepared manual which includes the subject matter of the lectures given during the training course, together with explicit instructions in the operation of the instrument. During the course as many tests as possible are carried out by the trainees on volunteer subjects who have consumed alcohol. During training particular care is taken to ensure that the tests are carried out under conditions which simulate as closely as possible those which will be encountered in practice.

A breath test record form is completed for each test carried out and when
Large Accident Prevention Unit.

Interior of Large Accident Prevention Unit
properly filled in ensures that no undesirable procedure or short cuts are introduced by the operator.

At the end of the course all trainees are required to pass a written examination and a practical test which includes the examination of a volunteer subject who has consumed alcohol. Only on passing both these tests is a trainee classified as an authorised constable.

Results

Breath tests have now been in use in Northern Ireland since October 1968, and although it was anticipated that there would be initial teething troubles these have surprisingly been absent. The breath testing procedure as described now appears to be operating effectively and has been accepted by the general public.

During the four months period from January to April 1969, the Accident Prevention Units stopped 16,993 motorists. Of these 272 were considered to have consumed alcohol and asked to take a breath test, 109 were found to have a blood alcohol level in excess of the prescribed limit of 80 mg./100 ml. as indicated by the Ethanographe, and 97 agreed to accept this reading and accordingly it was not necessary to take blood or urine samples.

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