16/72

SUPREME COURT OF TASMANIA

KNIGHTS v COOK

Burbury CJ

29 June 1972 — [1972] Tas SR 74

MOTOR TRAFFIC – DRINK/DRIVING – BREATHALYSER READING OF .10%BAC – INSTRUMENT CHECKED AND FOUND TO BE WORKING PROPERLY – ANALYST CALLED TO GIVE EVIDENCE – RELIABILITY OF THE INSTRUMENT DISCUSSED IN DETAIL – WHETHER MAGISTRATE COULD BE SATISFIED BEYOND REASONABLE DOUBT THAT THE CHARGE WAS PROVED – CHARGE DISMISSED – WHETHER MAGISTRATE IN ERROR: *ROAD SAFETY (ALCOHOL AND DRUGS) ACT* 1970 (Tas), SS6, 23(4).

HELD: Appeal dismissed.

1. The notion must wholly be rejected that there is any burden on a defendant in a breathalyser charge to prove that the reading made by the instrument is an inaccurate measurement of the concentration of alcohol in his blood. It is for the prosecution to prove beyond reasonable doubt that the measurement is accurate, and to exclude all reasonable hypotheses that it may not be accurate. If, therefore, on the evidence (and not as a matter of speculation unsupported by any evidence) a defendant can show that the reading made by the instrument of the concentration of alcohol in his blood may, as a reasonable possibility, have been an over-estimate, he is entitled to the benefit of the doubt so engendered.

2. The ultimate conclusion having regard to the analyst's evidence was that where a breathalyser test produced a reading of .10 per cent of alcohol in the blood (being a conversion from measured alcohol in the breath based on an assumed fixed ratio between alcohol in the breath and in the blood) it was impossible to exclude as a reasonable hypothesis that due to some unknown physiological factor peculiar to the individual that the reading of .10 per cent may be an over-estimate of the concentration of alcohol in the blood by at least .02 per cent.

3. It followed that a charge that the concentration of alcohol in the blood of a particular individual exceeded .08 per cent was not established beyond reasonable doubt upon a breathalyser reading of .10 per cent. To say that it was so established would be to equate the defendant to the "average" person and to deny his right as an individual to be acquitted if the evidence did not in his particular case, prove the charge beyond all reasonable doubt.

BURBURY CJ: The respondent was charged before a Stipendiary Magistrate under s6 of the *Road Safety (Alcohol and Drugs) Act* 1970 with driving a motor vehicle while alcohol was present in his blood in a concentration of .10 per cent., being greater than the prescribed concentration of .08 per cent. The Stipendiary Magistrate dismissed the charge and the appellant as prosecutor brings this appeal by way of re-hearing *de novo* against that dismissal.

The respondent, shortly before 11pm on 25 March 1971, was driving his car on the Main Road Glenorchy when he was involved in a collision with another vehicle. Sergeant Reginald Webb, who attended the scene of the accident and spoke to the respondent, smelt alcohol on his breath and observed that his speech was heavy and that he was a little confused. Having, therefore, reasonable grounds for suspecting the respondent had consumed intoxicating liquor he requested him to submit to a breath test at the Traffic Office in Hobart, and this the respondent agreed to do.

The respondent was given a breath test at the Traffic Office at 12.28am on 26 March on an approved breath analysing instrument by Constable Leo Maxwell Hutchings, an approved operator. The instrument gave a reading of .10 per cent. Constable Hutchings gave evidence that he checked the instrument before and after taking a sample of the respondent's breath and that it was in proper working order, and that he operated the instrument in the prescribed manner.

This evidence was not challenged, and satisfies the provisions of s25(1) of the Act. The

reading of .10 per cent, therefore, becomes, under s23(2) of the Act, *prima facie* evidence that that was the actual concentration of alcohol in the respondent's blood at 12.28am. Then by virtue of the Statutory presumption in s23 (4) of the Act, .10 per cent, is deemed to have been the concentration of alcohol in the respondent's blood at the time of the accident (being within four hours of the time of the breath analysis) "unless it is shown that the concentration of alcohol in his blood at that time was not greater than the prescribed concentration."

Counsel for the appellant at the request of Counsel for the respondent called Mr James Wessing Wishart, the Assistant Government Analyst and Supervising Analyst appointed under s3 of the Act. He was extensively cross-examined by Counsel for the respondent as to the reliability of the approved breathalyser as a measuring instrument for determining by breath analysis the concentration of alcohol in a person's blood. The respondent also gave evidence (after I had over-ruled a submission that there was no case to answer).

Counsel for the respondent submitted that upon the whole of the evidence I should not be satisfied beyond reasonable doubt that the charge is proved.

Counsel for the appellant went so far as to submit that on a prosecution for driving a motor vehicle with a blood alcohol concentration exceeding .08 per cent, the standard of proof applicable is not the criminal standard of proof beyond reasonable doubt, but the civil standard of proof upon the balance of probabilities. He based this submission on the provisions of s23(4). That subsection is as follows:—

> "(4) Where in any proceedings for an offence under subsection (1) of section six it is shown that the concentration of alcohol in the blood "of a person who became liable to submit to a breath analysis was, at any time within four hours after the time of the relevant occurrence, equal to or not less than a particular concentration (being a concentration not less than the prescribed concentration), that particular concentration shall be deemed to have been the concentration of alcohol in his blood at the time of the relevant occurrence unless it is shown that the concentration of alcohol in his blood at that time was not greater than the prescribed concentration."

The emphasis is mine. He submitted that the expression at the end of the sub-section —

> "unless it is shown that the concentration of alcohol in his blood at that time was not greater than the prescribed concentration"

imports the civil standard of proof to be discharged by a defendant and that it follows that the expression at the beginning of the sub-section —

> "where...it is shown that the concentration of alcohol..."

must be taken to import the same standard of proof. The argument is plainly untenable. The sub-section is only speaking of what must be "shown" (i.e. proved) to exist. It says nothing about the standard of proof applicable to "show" it. There is nothing in this legislation which in any way excludes the well established principle that when a penal statute casts the burden of proof upon a defendant to establish some matter of exculpation he is only required to discharge that burden upon the balance of probabilities, while the Crown must prove its case beyond reasonable doubt.

The words of Adamson JA in *R v Peleshaty* (1949) 96 CCC 147, at p152, are apt —

> "The doctrine of reasonable doubt is the very cornerstone of our criminal jurisprudence and it is not to be whittled away, cut down or modified except by explicit words."

Counsel for the respondent submitted that under s23(4) all that a defendant need do to displace the statutory presumption that the concentration of alcohol in the blood at the earlier time was the same as at the time the test was taken is to adduce evidence (or point to evidence in the prosecutor's case) which is sufficient to show that it may reasonably have been the fact, and that there is no burden on him to establish affirmatively that it was the fact.

The literal interpretation of the sub-section would seem to be that the statutory presumption as to the concentration of alcohol in the blood at the earlier time prevails unless that is proved not

to be the fact. The question however is by no means free from difficulty. The issue with which the sub-section is concerned is not a substantive defence raising a matter of exculpation analogous to a defence by way of confession and avoidance (as in *R v Martin* (1963) Tas SR 103) in which case the defendant must prove the affirmative of the issue upon the balance of probabilities. It is the very issue which the prosecution has to prove, ie. the concentration of alcohol in the blood at the relevant time.

There is, therefore, room for the argument that the sub-section only casts an evidentiary burden on the defendant and that no legal burden finally rests on him of satisfying the tribunal in case of doubt (See the discussion on this difficult problem in my judgment in *R v Martin* (*supra*) at pp123 to 133). (Cf. *R v Konkin* (No.2) 6 CCC (2d) (1972) p318, a Canadian case where it was held in relation to breathalyser legislation that a provision that the "evidence made by the chemical analysis is, in the absence of any evidence to the contrary, proof of the proportion of alcohol in the blood of the accused", the accused need only raise a reasonable doubt to displace the statutory presumption and he does not have to prove the issue affirmatively.)

It is, however, at least clear that no burden of proof of any kind is thrown on a defendant unless the prosecution proves beyond reasonable doubt that the concentration of alcohol in his blood at the time of the breath test exceeded .08 per cent., and, as my ultimate conclusion is that the prosecution in the case has failed to do so, it is unnecessary for me to consider further the interpretation of s23(4).

The effect of s23(2) is that the evidence led by the prosecution that the concentration of alcohol in the respondent's blood was recorded by the breathalyser as .10 at the time of the breath test is *prima facie* evidence that that in fact was the concentration. But all that means is that it provides sufficient evidence for the prosecution to launch its case and, in the absence of other evidence, a Court would be entitled to convict. But once other evidence is given (either through prosecution witnesses or through defence witnesses) which tends to show that the concentration of alcohol in the defendant's blood may have been less than .08 per cent, then the tribunal of fact may not convict unless, upon the whole of the evidence, it is satisfied beyond reasonable doubt that the concentration in fact exceeded .08 per cent. (See *Saxe v Kellett* [1970] VicRp 79; [1970] VR 600 per Anderson J at p602. That was a case under the Victorian breathalyser legislation providing that a certificate as to an analysis made by a breathalyser is *prima facie* evidence of the concentration of alcohol in the blood of the defendant, and it was held that once there was evidence other than the certificate the defendant could not be convicted unless the tribunal was satisfied beyond reasonable doubt of his guilt on the whole of the evidence).

It follows that the law in Tasmania is now substantially as I stated it to be in *Richardson v Shipp* [1970] Tas SR 105; Serial No.25/1970 under the *Traffic Act* 1925 before the amendment to s41C(12) made by the *Traffic Act* 1969, which expressly cast the onus of proof on the defendant to establish that the reading made by the breathalyser was inaccurate. The effect of the provisions of the *Road Safety (Alcohol and Drugs) Act* 1970 is substantially to restore the law to the position it was before the *Traffic Act* 1969 was enacted. The expression "prima facie evidence" adds very little. As I have said, all this means is that the prosecution can rely on the certificate or the formal evidence of the test as *prima facie* evidence to launch its case and, in the absence of any other evidence, a Magistrate would be entitled to find the charge proved beyond reasonable doubt. (See *Samuels v Floegel* (1970) SASR 251 per Mitchell J at p254).

The ultimate burden is, therefore, on the prosecution to exclude all reasonable hypotheses consistent with innocence. (See *Luxton v Vines* [1952] HCA 19; (1952) 85 CLR 352 at 358; [1952] ALR 308 in the joint judgment of Dixon, Fullagar and Kitto JJ). The words of Dixon J (as he then was) in *Wright v Wright* [1948] HCA 33; 77 CLR 191; 2 ALR 565 are in point. In discussing the question whether the civil and not the criminal standard of persuasion applies to matrimonial causes, as to the issue of adultery, he said at p210 —

> "But an important difference may well exist, if the Court of Appeal means that the principles of criminal proof are to be applied in full, so that if there is some reasonable hypothesis compatible with innocence that is not convincingly excluded by the proofs advanced the party is to be acquitted of adultery notwithstanding that the court has no belief in the hypothesis."

The *Road Safety (Alcohol and Drugs) Act* 1970 is a penal statute involving the liberty of the

subject. The cardinal principle that in the administration of criminal justice it is a defendant's right to go free if upon the evidence any reasonable hypothesis consistent with his innocence appears (even if the Court has no positive belief in his innocence), applies in full force and vigour to this Statute. The principles as to the onus of proof in penal proceedings to which I have referred are, of course, trite. But they are fundamental, and their proper understanding and application to the evidence in this case, in my view, must inevitably lead to the defendant's acquittal. Having regard to some of the submissions made on behalf of the prosecution on this appeal it has become necessary in this case to restate these principles with some emphasis.

It is perhaps all the more necessary for the Courts to remind themselves of these principles and vigorously uphold them in the circumstances where there are heavy social pressures to punish drunken drivers. The famous aphorism *inter arma leges non silent* applies to road carnage as well as the clash of arms. The notion must wholly be rejected that there is any burden on a defendant in a breathalyser charge to prove that the reading made by the instrument is an inaccurate measurement of the concentration of alcohol in his blood. It is for the prosecution to prove beyond reasonable doubt that the measurement is accurate, and to exclude all reasonable hypotheses that it may not be accurate. If, therefore, on the evidence (and not as a matter of speculation unsupported by any evidence) a defendant can show that the reading made by the instrument of the concentration of alcohol in his blood may, as a reasonable possibility, have been an over-estimate, he is entitled to the benefit of the doubt so engendered.

As I have said, Mr Wishart, the Supervising Analyst appointed under the Act, was called by the appellant at the respondent's request; and was extensively cross-examined. Mr Wishart is well qualified both academically and empirically to give expert evidence on the functioning of the breathalyser and its reliability as an instrument by analysing a sample of breath to determine the concentration of alcohol in the blood. He gave his evidence convincingly, completely objectively and with great fairness, and I have no hesitation in accepting the opinions he gave.

The offence created by s6 of the Act is, of course, driving a motor vehicle while the concentration of alcohol in the blood exceeds .08 per cent. It is, therefore, important to understand that the breathalyser does not directly measure the concentration of alcohol in the blood. It makes a measurement of the proportion of vapourised alcohol in a sample of breath from the lungs. That is the extent of its actual function as a measuring device. But the dial on the instrument is calibrated to convert the proportion of vapourised alcohol discovered by the instrument to be present in the sample of breath into an assumed equivalent proportion of alcohol in the blood of the subject. This conversion is made upon the basic assumption that the concentration of alcohol in the blood is 2100 times that in alveolar breath. This is assumed to be a fixed constant distribution ratio or coefficient applicable to all individuals. Mr Wishart explained that this correlation between concentration of alcohol in the breath and the blood had been generally accepted since about 1934, although it still has its critics. An earlier coefficient adopted was 1300 to l. The breathalyser instrument as used throughout the world is calibrated in accordance with that assumed coefficient.

The comparative ratio of alcohol to breath and alcohol to blood is a biological relationship, and the present case raises in a sharp form the validity of the assumption that this is a fixed constant ratio present in all individuals for the purpose of proving beyond reasonable doubt that a particular concentration of alcohol in the blood of a particular individual in fact exists. Section 23(4) of the Act provides that where a direct blood analysis is made the evidence of the result is to prevail over a breathalyser reading. The legislature, therefore, itself recognises the greater accuracy of the direct measurement obtained by a blood analysis. It is not without point that in the UK a breath test (on the Alcotest and not the breathalyser) is only adopted as a screening test which, if not passed, leads to a compulsory direct blood test, which is then made conclusive evidence.

Mr Wishart gave evidence that some scientifically controlled tests on groups of individuals had been carried out where samples of breath and samples of blood taken at the same time were analysed and compared. He conceded that the results of these comparative tests show that it is rare that a breathalyser reading and a direct blood analysis are precisely equivalent; that a breathalyser reading may be higher or lower than a blood analysis result; and that there may be many reasons for the variations. The tests with which Mr Wishart seemed most familiar were

tests on 52 subjects carried out by McCallum and Bailey in Melbourne. There were some cases where the breathalyser reading was higher than that of the direct blood analysis, and some less. The range of variation was from .067 less than the direct blood analysis to .028 exceeding it. The average of all results was .01 below the blood analysis.

Mr Wishart also referred in his evidence to similar tests carried out by Caldwell and Smith in Canada, which showed a variation in individuals tested on the breathalyser between .025 in excess of direct blood analysis and .045 under. On the other hand, Mr Wishart himself carried out a test of 14 individuals where the breathalyser reading was uniformly less than the direct blood analysis. His firm opinion is that on the <u>average</u> the breathalyser reading is likely to be lower than the direct blood analysis.

From the evidence before me it would seem that an insufficient number of controlled comparative tests have been carried out to establish with any degree of scientific satisfaction the limits of variation in individuals of the distribution ratio of alcohol to breath and alcohol to blood. But Mr Wishart's expert evidence shows that variations between individuals do exist.

Counsel for the appellant submitted this part of his evidence should be discounted because Mr Wishart is not a medical expert. But a lack of detailed expert knowledge of the possible differential physiological factors between individuals which may cause variations from the distribution ratio norm in no way invalidates his opinion that such variations as a matter of scientific knowledge are recognised — whatever their cause may be.

Mr Wishart explained that where a breathalyser reading is taken at a stage after the subject has drunk alcohol, but before it is fully absorbed in the body, the breathalyser reading may be higher than a direct blood analysis because the alcohol is absorbed into the venous blood (which is blood from which a sample for direct analysis is taken) at a later stage than it is absorbed into the arterial blood (which is indirectly measured by the breathalyser). However, in the controlled tests of which Mr Wishart spoke, the sample of blood was taken at "equilibrium" (i.e. when complete absorption was reached), Mr Wishart said that, excluding that explanation, the recognised variations between breathalyser readings and direct blood analyses must be due to some variation in the distribution ratio peculiar to the individual, or to some other unknown physiological factor.

Mr Wishart's evidence shows that scientific opinion is that in the case of the average individual in the community the breathalyser test is not likely to give an over-estimate of the concentration of alcohol in his blood, but that as applied to an unknown number of individuals in the community it may give an over-estimate because of some personal physiological idiocyncracies. Neither the probable maximum limit of such over-estimate, nor its probable incidence in the community is satisfactorily established, but scientific tests so far carried out suggest that the breathalyser may over-estimate the concentration of alcohol in the blood up to about .025 per cent, in a significant number of individuals in the community.

The following passages from Mr Wishart's evidence are pertinent:–

"WITNESS: Well your Honour I think that the average that has been found in all studies suggests that the breathalyser in fact under-estimates it, but in all cases of average there must be extremes either one way or the other and I don't think that anyone can state without a finite experiment on the person concerned just who or what they are going to give, what their result is going to be, there's such a variation between human beings that no one is ever considered to be the average so far as I can determine, there's always some reason as to why they shouldn't be average.

"HIS HONOUR: Yes, well you've got 52 subjects tested and out of the 52 you've got one at .028. Well of course if that pattern were repeated throughout the community I suppose it would be said well there is a reasonable scientific possibility that in one case out of every 50 you'll have this sort of thing.

WITNESS: Well I suppose this is always the problem your Honour; the only thing that has been established by the users of the breathalyser is that it usually or on the average I should say, under-estimates the result given by blood, but as to what it may do in a particular case I would submit that this can only be shown by simultaneous tests there and then.

Mr WISHART: If there is a variation and there may be in a particular single person, for some reason or other, the instrument has no chance whatsoever of doing anything about it, therefore it can only give the answer that it has been adjusted to give. The ultimate conclusion to which I have come on Mr Wishart's evidence is that where a breathalyser test produces a reading of .10 per cent of alcohol in the blood (being a conversion from measured alcohol in the breath based on an assumed fixed ratio between alcohol in the breath and in the blood) it is impossible to exclude as a reasonable hypothesis that due to some unknown physiological factor peculiar to the individual that reading of .10 per cent may be an over-estimate of the concentration of alcohol in the blood by at least .02 per cent.

It follows that a charge that the concentration of alcohol in the blood of a particular individual exceeded .08 per cent is not established beyond reasonable doubt upon a breathalyser reading of .10 per cent. To say that it was so established would be to equate the defendant to the "average" person and to deny his right as an individual to be acquitted if the evidence does not in his particular case, prove the charge beyond all reasonable doubt.

I would add that while, in the absence of corroboration, I am not affirmatively satisfied that the respondent drank only six 6 oz. beers up to 10.10pm, I am left in doubt whether he in fact drank more. Mr Wishart's evidence was that if he had only drunk six 6 oz. beers it is unlikely the concentration of alcohol in his blood would have reached .10 per cent., and this is a matter which adds to my doubt in this case as to the respondent's guilt.

It will be noted that the possible margin of error up to at least .02 per centum by way of over-estimate of the concentration of alcohol in the blood is <u>not</u> due to any unreliability of the breathalyser in its primary function of measuring the concentration of alcohol in the <u>breath</u>, but is due to the adoption of a fallible assumption that the conversion ratio to alcohol in the blood is valid for every individual. I accept Mr Wishart's evidence that as an instrument measuring the concentration of alcohol in the <u>breath</u> it is functionally reliable within a tolerance of .01 per cent. The instrument used in the present case in fact allows for an over-estimate up to .01 per cent because the point at which the needle is set before the test is made is .01 before the zero point.

Mr Hodgman also submitted that a further percentage of .003 should be deducted. This was based on Mr Wishart's evidence that it is proper to assume that the fermentation of some carbohydrates in the body may result in a small amount of alcohol up to .003 being naturally in the body. But if the total concentration of alcohol exceeds .08 per cent, the offence is committed irrespective of the source of the alcohol, and this contention must, therefore, be rejected.

In case this matter should go further I should add that upon the evidence given by the respondent and Mr Wishart I could not be affirmatively satisfied that the concentration of alcohol in the respondent's blood at the time of the accident was lower than at the time the breath sample was taken. There are too many unknown factors. However, the evidence does leave me in doubt whether this was so or not. For these reasons the prosecutor's appeal in this case is dismissed.
