

BREATHALYSERS IN HISTORY

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BREATHALYZERS IN HISTORY

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Research into the possibilities of using breath to test alcohol in a persons body dates as far back as 1874. Drivers who drive while intoxicated have caused problems on the roads ever since the advent of the automobile. The first large scale production line which manufactured affordable automobiles in the world was the Oldsmobile company in Michigan, USA in 1902.

New York, USA was the first place in the world to adopt drink driving laws in 1910. Other countries and states soon followed suit as manufacturers of affordable automobiles rapidly spread throughout the world. Ford started manufacturing automobiles in the UK in 1911. It wasn't until [1925 that the UK made it an offence to be found drunk in charge of ANY mechanically driven vehicle](#).

Law enforcement officers of the past had to use subjective observations and tests to determine if a motorist was drink driving or not. A law enforcement officer would observe a driver and look for signs such as bloodshot eyes, slurred speech and the smell of alcohol. A motorist could have been asked to walk in a straight line, close his eyes and touch his nose and various other tests. Today these tests are known as field sobriety tests.

This was all about to change when an important milestone in breath testing history appeared in 1927. A [paper produced by Emil Bogen](#) who collected air in a football and then tested this air for traces of alcohol discovered that the alcohol content of 2 litre's of expired air was a little greater than that of 1cc of urine.

This revelation laid the foundations for many years of research into various scientific methods of calculating and comparing a persons **BrAC (breath alcohol concentration)** level compared to that of a persons **BAC (blood alcohol concentration)**.

Further research revealed that that 2100ml of alveolar air contains the same amount of alcohol as 1ml of blood. This meant that a persons BrAC (*breath alcohol concentration*) level could be used to give a precise indication as to a persons BAC (*blood alcohol concentration*) level.

Some of the earliest pioneers of using breath to measure the level of alcohol in a persons body include:

A physician by the name of **Francis Edmund Anstie** who first made the observation that alcohol was discreted in the breath as far back as 1874.

A **Dr E Bogen** who, in 1927, demonstrated that breath samples **BrAC (breath alcohol concentration levels)** could give a reliable indication to the corresponding **BAC (blood alcohol concentration levels)**.

A Professor **Robert F Brokenstein** (*forensic scientist*) of the Indiana state police who invented the **breathalyzer** in 1954.



A modern day breathalyser

FIRST GENERATION BREATHALYSERS

The Drunkometer



The Drunkometer

Developed by: Professor R. N. Harger

Date: 1938

Location: Indiana, USA

The first practical roadside breath testing device intended for use by the police was **the drunkometer**. The drunkometer was developed by Professor Harger in 1938, Professor Borkenstein (*inventor of the breathalyzer*) also collaborated with Harger and together they established a comprehensive 44 hour long training course for drunkometer operators, which consisted of practical usage and lectures.

The drunkometer collected a motorists breath sample directly into a balloon inside of the machine. The breath sample was then pumped through an acidified potassium permanganate solution. If there was alcohol in the breath sample, the solution changed colour. The greater the colour change, the more alcohol there was present in the breath.

The machine (*pictured above*) was quite cumbersome and was approximately the size of a shoe box. It was more reminiscent of a portable laboratory.

The Intoximeter



The Intoximeter

Developed by: Professor Glen Forester

Date: 1941

Location: St. Louis, Missouri, USA

1941 saw the development of the Intoximeter. This machine was developed by Professor Forester. The intoximeter also used an acidified potassium permanganate solution to detect the level of alcohol in a persons breath.

The Alcometer

No Image

Developed by: Professor Leon Greenberg

Date: 1941

Location: USA

Professor Leon Greenberg, associate director of the Department of Applied Physiology at Yale University developed the Alcometer in 1941. The alcometer employed a process whereby iodine vapour, starch and potassium iodide was used. The chemicals then reacted with a motorists breath sample and changed colour depending on the level of alcohol present.

SECOND GENERATION BREATHALYSERS

The Breathalyzer



The Breathalyzer

Developed by: Professor Robert F Borkenstein

Date: 1954

Location: Indiana, USA

The breathalyzer was the first of the second generation breathalysers and is the most famous of them all, it is widely and wrongly believed to be the first EVER breathalyser. It was Professor Borkenstein's interest in photography that led to the breathalyzer which utilized chemical oxidation and photometry to determine alcohol concentration in a persons breath. The breathalyzer contained two photo cells, two filters, a device for collecting the breath sample and about six wires, that was about it. The breathalyzer was a significant improvement over early devices and required less skill to operate. The results the Breathalyzer produced were analysed electrically.

The terms breathalyser™ and breathalyzer™ are trademarked brand names of this device. However, both of these terms have become synonymous with all breath testing devices and machines, regardless of the brand name or type.

Professor Borkenstein also invented a coin operated **breathalyser**. A reading of 0.4 would display the message "Be a safe driver". A reading of between 0.5 and 0.9 displayed the message "Be a good walker" (*implying that a person had consumed too much alcohol to safely drive and should walk*) and a reading of 0.10 or higher displayed the message "You're a passenger!" (*implying that a person had consumed too much alcohol and definitely should NOT drive*).

Of course today's breathalysers use far more sophisticated and advanced technology in measuring a persons BrAC (*breath alcohol concentration*).

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