

Short Articles

THE NINETY-SIXTH ORDINARY MEETING

The members met with those from the Pybus Club of Newcastle upon Tyne for a joint meeting at Close House, near Wylam, on 7 June 1980. Papers were read by Mr. W. A. Campbell of the Department of Inorganic Chemistry, University of Newcastle upon Tyne, and Dr. Alastair H. B. Masson.

Mr. Campbell's paper was entitled:

THE HISTORY OF THE CHEMICAL DETECTION OF POISONS

In the seventeenth century even learned men believed in a bizarre folklore of poisoning, in which powdered emerald was a universal antidote and unicorn's horn an infallible detector of poison. When Richard Weston was tried in 1616 for the murder of Sir Thomas Overbury by means of arsenic and mercury, the jury was warned not to expect proof of the identity of the poisons.

Chemical tests were first admitted as evidence in 1752 in the trial of Mary Blandy, accused of poisoning her father with arsenic. For the next eighty years arsenic was recognized, if at all, by the garlic odour on heating with charcoal and by precipitation reactions which were not specific. James Marsh (1794–1846) of Woolwich published his reduction test for arsenic in 1836, believing it to be so simple that anyone could use it without chemical training.² Marsh's test achieved notoriety in 1840 when M. J. B. Orfila (1787–1853) used it in the trial of Marie Lafarge in Paris. Contradictory results were obtained, probably due to contaminated reagents, and confidence in the test was shaken.

Hugo Reinsch's test (1841), in which a stain of arsenic was deposited on copper from hydrochloric acid solution, yielded similarly unsatisfactory results at the trial of Thomas Smethurst in 1859. This time failure was traced to interference by potassium chlorate in a cough medicine. Courts became reluctant to admit chemical evidence (often given by medical men), and as late as 1889 the judge at the trial of Mrs. Maybrick remarked, "one has to take a great deal of the scum from the testimony of skilled witnesses." Yet all the metallic poisons could then be identified unequivocally if care was taken to eliminate organic matter.

Separation was crucially important when the poison was organic. Pure alkaloids appeared in the 1820s and attracted the professional poisoner; soon commercial preparations of strychnine were sold for killing vermin. Most alkaloids were white powders giving characteristic colours with salts of metals in concentrated acids. These tests were adequate for pure compounds, but organic impurities from food or tissues interfered. The separation process invented by Jean-Servais Stas in 1852 and refined by Isaac Otto gave satisfactory results if followed meticulously. But when William Palmer, the Rugeley poisoner, was tried in 1856, in spite of strong circumstantial evidence that strychnine had been administered, none was detected; and at the Lamson trial in 1882 the only evidence for aconitine was the numbing effect on the tongue.

The science of qualitative organic analysis was slow to develop. Although M. E. Chevreul (1787–1889) had used melting points to characterize fatty acids in 1813,

² James Marsh, 'Account of a method of separating small quantities of arsenic from substances with which it may be mixed', *Edinb. new phil. J.*, 1836, 21: 229–236.

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melting point tables in book form did not appear until 1899. F. F. Runge, C. F. Schönbein, and C. F. Goppelsroeder had separated coloured substances on blotting paper in the 1850s, but paper chromatography was not employed seriously until 1944. Finally, the application of electronic engineering to absorption spectroscopy from 1950 placed the identification of organic poisons on a firm scientific basis.

Dr. Masson then read his paper on

THE CRIMINAL USE OF ANAESTHETICS

Part of this paper has been published,³ and will be followed by further parts.

Sir Charles Illingworth, *President*
N. H. Gordon, *Honorary Secretary*
H. P. Tait, *Editor, Report of Proceedings*

³ A. H. B. Masson, 'Crime and anaesthesia – robbery', *Hist. Med.*, 1980, 8: 18–19, 32.