THE DEVELOPMENT OF FORENSIC MEDICINE

BY G. A. PATON, PROFESSOR OF JURISPRUDENCE,
UNIVERSITY OF MELBOURNE

A MEETING of the Medico-Legal Society of Victoria was held on Saturday, May 17, 1941, at 8.30 p.m., in the British Medical Society Hall, East Melbourne. The President, Mr. Justice Lowe, occupied the chair.

Professor G. A. Paton delivered an address, "The Development of Forensic Medicine." Professor Paton said:

The recent triumphs of forensic medicine in notorious cases raise in the mind of the common man an occasional feeling that only an alliance with black magic could achieve such results. To-day we can recall the triumphs of Professor Glaister and his colleagues in the Ruxton case in reconstructing two bodies from dismembered remains, each part of which had been skilfully mutilated in the hope of rendering identification difficult. So well was the work done that another doctor was added to the long list of medical men hanged by the state. But Glaister was not moved by the *odium medicum* of which we have heard so much, but only a desire to use his skill in the interests of justice, and he and his colleagues were rewarded by the tribute of Singleton, J. that he had never known expert witnesses more careful not to strain a point against the prisoner. This could not always have been said of the expert witness.[1]

In contrast to modern examples, these of the past reveal a rather amusing ignorance. It is true that some knowledge existed even in remote antiquity—the poison *lehre* goes back very far.[2] The ancient Egyptians could distil poison from the peach. The Greek used poison as a means of capital punishment.

The treatise of Nicander, who died in 138 B.C., is still

1. For an account of the Ruxton trial see Glaister and Brash, Medico-Legal Aspects of the Ruxton Case.
2. See A. Wynter Blyth, Poisons: Their Effects and Detection p. 1 et seq.

extant, and before A.D. 90 Dioscorides treated well the effects of cantharides, sulphate of copper, mercury, lead and arsenic. The ancient practice of burning Hindu widows is sometimes said to have originated in the hope of dissuading wives from poisoning their husbands.

The poisoning schools of Venice and Italy in the fifteenth and seventeenth centuries are well known. Tophania sold solutions of arsenious acid, and the names of Lucrezia Borgia and Catherine de Medici have become household words. But this knowledge was not widely diffused. As late as 1578 Phillip of Spain found great difficulty in poisoning Escovedo and, after weeks of administration of drugs, the royal servants in despair descended to the use of a dagger.[3]

When the Earl and Countess of Somerset in 1613 wished to poison Sir Thomas Overbury, the unfortunate victim was put on a diet of seven poisons for four months.[4] Arsenic was put in his salt, lapis costitus in the roast pig, cantharides in the partridge sauce. Aquafortis was bought, but the Countess of Somerset thought that its violent results might make the doctors suspicious. Powder of diamonds, great spiders and corrosive sublimate were also used. One of the conspirators disgustedly exclaimed that Sir Thomas had eaten enough poison to kill twenty men, and still disgraced the land of the living. However, ultimately the victim succumbed. One story is that his body became so covered with sores that two of the conspirators thought the doctors might suspect something and so they suffocated him to put the cause of his death beyond medical discovery. Of scientific evidence at the trial, however, there was little. Torture and the fear of it induced the lesser minions to confess.[5] In early times the rack provided a substitute for expert evidence, and confessions were obtained even from the innocent.

The creation of a science devoted not to the art of

3. Lang, Historical Mysteries, 46.
4. St. Tr. 911 et seq.
5. Altogether five persons were executed, but the Earl and his Countess received a pardon.

poisoning but the detection of the use of poison is a comparatively late development. At first sudden death and rapid putrefaction of the body were regarded as evidence of the use of poison. Another test was to give to an animal portion of the dish of food last eaten by the deceased. Dissection of a body was regarded as contrary to religion, until the Pope relented in the fifteenth century.

Only in 1532 in Europe was it thought necessary to provide that courts should seek medical evidence in cases of sudden death. The real father of modern toxicology is Orfila, who published his great work in 1814. His great merit was that he discovered that poisons were absorbed and accumulated in certain tissues—before his time, if a chemist discovered no evidence of poison in the stomach he would not have bothered to examine the liver, kidneys, or blood. In particular he refined the method of extracting arsenic from the viscera. Orfila gave evidence at the trial of Dr. Castaing, the first recorded trial for morphia poisoning. The prisoner was convicted, although the tests then in use were too crude to detect the minimum fatal dose. Progress was naturally slow and so late as 1875 Taylor confessed that many poisons could not be detected in the body by chemical analysis and he pointed out that if a jury required chemical proof that there was poison in the body of the victim, too many prisoners would escape. In 1872 Mrs. Cotton successfully began the process of poisoning twenty members of her household, and it was only on the twenty-first attempt that the doctors became suspicious.[6] Even the B.M.J. thought that the trusting nature of the medical profession was to be condemned.

Turning to forensic medicine in general, Fidelis published the earliest scientific work in 1598 at Palermo. The first English writer is Dr. Farr, of 1788, and the first important English work is that of Male in 1816.[7]

To illustrate the development of forensic medicine I have chosen some trials from the seventeenth century onwards.

6. Lambert, When Justice Faltered, 108.
7. Beck, Medical Jurisprudence (1863), XVII et seq.

The detective story to-day has provided a convenient, if not really accurate, manual of the methods of inflicting death, and the criminal may learn to guard against the more obvious mistakes. That gifted liar Oates would to-day have invented a more plausible story than that which he told of the murder of Sir Edmundbury Godfrey in 1679.[8] Sir Edward was strangled on October 12 and the prisoners then twisted his neck and stamped on his breast. For four days the corpse was left in a room and then it was thrown in a ditch and Sir Edward's own sword was run through his body so that the authorities would consider that it was a case of suicide.[9]

Some of the evidence in witchcraft trials as late as 1616 seems to belong to an age before the existence of science. Thus in Mary Smith's trial we read of a cat that could not be killed by a sword and escaped through a locked door, and of a curse that caused the fingers of the victim to rot and fall out.[10]

The slipshod nature of early medical examination of a patient is illustrated by an example taken from 1678. An unfortunate drinking companion had been kicked so brutally by my Lord Pembroke that the poor man died, after lingering in agony a few days. Dr. Bruce, asked if there were any bruises on the victim's chest, replied that, as the patient complained only of pains in the shoulders and belly, the chest was not examined.[11]

In 1688 Philip Standsfield was charged with the murder of his father, treason (drinking confusion to His Majesty) and cursing a parent, for which last offence death was the penalty at that time in Scotland. The allegation was that the accused had strangled his father and thrown the body in a pond. The corpse was exhumed two days after burial, examined, and as the prisoner was assisting to lift the body into the coffin, although previously there had been no blood

8. St. Tr. 159.
9. As late as 1821 Bastien and Robert buried a body in quicklime to destroy it, but forgot to add the necessary moisture. See Bierstadt, Curious Trials and Criminal Cases, 188.
10. 2 St. Tr., 1050.
11. 6 St. Tr. at 1331.

on the corpse, the blood gushed out and defiled the prisoner's hands "according to God's usual method of discovering murderers." Great stress was placed on this evidence by the court and it was used as proof that God had named the murderer. Dr. James Craufurd and Dr. James Murehead gave a clear report, stating in detail the injuries to the neck and revealing that no water was found in the body at all. This report of the doctors was submitted to the Surgeons of Edinburgh and to the College of Physicians, both of whom confirmed the original report that strangling and not drowning was the cause of death.[12] An official report on the evidence by the Royal College of Physicians and the Royal College of Surgeons would be an interesting experiment to-day.

In 1699 there entered the dock Spencer Cowper, who was a barrister and later become the grandfather of Spencer the poet.[13] Cowper had visited his friends the Stouts, and Sarah, the daughter, was not seen alive after he left. Next morning her body was discovered in a mill dam, and ultimately the Crown charged Cowper and three others with having strangled her and then thrown her body into the water, the suggested motive for the crime being that Cowper had seduced the lady. The medico-legal issue was therefore fairly simple. Was the lady strangled, or was she drowned? The truth of the matter apparently was that the lady, who seemed very fond of Cowper, had ended her own life in a fit of depression caused by unrequited love.

The medical evidence for the Crown was largely given by local doctors in Hertford, who were political enemies of Cowper. In order to rebut this, Cowper brought down ten physicians and surgeons from London. The post-mortem had taken place after the body had been buried for six

12. The report stated (11 St. Tr., 1403) that the "face (was) a little swelled and inclining to a dark reddish colour, some fulness of, some capillarie veins in the pallat of the mouth towards the uvula, as also a large and conspicuous swelling, about three inches broad, of a dark red or blue colour, from one side of the larynx round backwards to the other side thereof; we observed the jugular veins on both sides of the neck very large and distended and full of blood; there was a large swelling under and between the chin and the cartilago scutiformis; there was also a little scratch below the left mandibula . . . ."

13. 13 St. Tr., 1105.

weeks. The body was very free from putrefaction except the head and the left arm, which possibly had been injured by the stakes in the dam. The evidence protected the lady's chastity, and this was accepted by both sides.

The expert evidence for the Crown was two-fold. Firstly, the state of the body at the post-mortem showed that the body had not been drowned, for if she had thus ended her life her body would have contained much water that would have rotted the lungs and gut; secondly, Sarah's body was found almost floating, and the only bodies that float are those of persons who are dead when they enter the water. The expert evidence on the second point was supplied by Clement, able seaman, who had fought at the Battle of Beachy Head ten years before. He testified that if live men fall into the water, they sink; if dead men are thrown in, they float. Else, why should a parsimonious Government supply iron to tie to the bodies of those buried at sea? Another sailor clinched this evidence. In establishing his character as an expert, counsel asked, "Are you a sailor?" He replied, "I fought against my will in two fights," and his testimony was admitted.

The evidence as to the effect of water on the putrefaction of the body was discussed at great length. The Crown experts expected to find the lungs, the stomach and even the cavity of the thorax full of water if the lady had drowned herself. Dr. Coatsworth testified: "If a person was drowned and taken out immediately, as soon as the suffocation was effected, I should not wonder if there was but little water in the stomach and guts; but if it lay in the water several hours, it would be very strange if the belly should not be full of water." Thereby he convicted himself of ignorance. No one knew exactly what the effect of six weeks in a coffin would be. The doctors for the prosecution testified that the water that would result from drowning would ferment the lungs and guts. Dr. Garth, for the defence, testified that water would not necessarily cause the body to putrefy—was not meat sometimes preserved in water?

Dr. Gerstrop certified that, once the body had been six weeks in the coffin, no one would tell whether the lady had been drowned or not. William Cowper, introduced as the best anatomist in Europe, at least had taken the trouble to make experiments by drowning dogs and throwing dead bodies of dogs into water, and his conclusion was that dead bodies sink, and that a dog may be drowned and yet have no water in the stomach and only three ounces in the lungs. To expect water in the cavity of the thorax was ridiculous. Dr. Crell proceeded to cite the works of Ambrose Paré, the famous surgeon of the sixteenth century. The judge objected to this, but finally the doctor was allowed to proceed as he wished. The general practice now is to refuse to allow text-books to be read as evidence.

The conduct of the judge was even more amazing than that of some of the witnesses for the Crown. Baron Hatsell was weary at the end of the trial and told the jury that unless they had more skill than he had they would not be much edified by the medical evidence. "I am sensible I have omitted many things; but I am a little faint and cannot repeat any more of the evidence." The prisoners were acquitted—in fact there was no real evidence against them at all.

For sheer recklessness in dealing with poison, Mary Blandy was astounding. She was tried at Oxford in 1752 for the murder of her father, an attorney-at law.[14] Mary wanted to marry a soldier who was in love with her money, but the father was penetrating enough to discourage the suit. In anger the soldier provided arsenic for the lady to administer to her father. The girl poisoned his food for some time, and the father suffered great agonies, his "teeth dropping whole from their sockets." One day he would not drink his tea because he did not like the taste of it: unfortunately the charwoman drank it and nearly died. Mary immediately prescribed great quantities of sack whey and mutton broth, which was the popular medical antidote of the day for arsenical poisoning. On another occasion a

14. 18 St. Tr., 1118.

second servant drank some tea which the master had left and was seriously ill. Tea being a dangerous medium, Mary put the poison in her father's gruel, but unfortunately the charlady again ate from what was left. One of the maids had the sense to confiscate the remains of the gruel and send it to the apothecary. The poisoning began about November, 1750, and the father's death took place the next August. Dr. Addington attended him from August 10 till his death four days later. There was no attempt made to discover whether arsenic was present in the body, but the powder that had been confiscated was chemically treated and declared to be arsenic. (One test was to boil ten grains in clean water, filter it and then test the reaction produced by sal ammoniac, lixivium of tartar, spirits of vitriol and salt and syrup of violets.) The lady was found guilty and executed.[15]

A Scots trial of 1765 reveals that the courts were satisfied with very sketchy medical evidence.[16] Katharine Nairn and her husband gave hospitality to the latter's brother, Lieutenant Ogilvie, who had recently returned from the East Indies. The charge was that Ogilvie and the wife committed adultery and then poisoned the husband —thus incest and murder were drawn together in one trial. If the Crown could prove motive and opportunity, and that the victim had died suddenly, that was usually sufficient for a conviction. Thus in this case Peter Meik, surgeon, who looked at the body after death, said he did not know enough of the effect of poisons to make any conjectures. The only evidence that he and Dr. Ramsay could suggest relating to poison was that the tongue was somewhat swelled. But Ramsay, getting tired of cross-examination, said that he could not answer with certainty whether all the symptoms of poisoning were present as he had never before

15. The passage at the end of the account in State Trials is rather quaint: "Miss Blandy suffered in a black bombazine short sack and petticoat with a clean white handkerchief drawn over her face .... The number of people attending her execution was computed at about 5,000, many of whom, and particularly several gentlemen of the University, were observed to shed tears .... In fine the whole was so well conducted and made such a deep impression upon the minds of the people present that the circumstances attending Miss Blandy's execution will not soon be forgotten at Oxford."

16. 19 St. Tr. 1235.

seen the body of any person who had been poisoned. There was some talk of opening the body, but as the three surgeons could not arrange a convenient time no autopsy was carried out. It is possible that it was the *prosecutor* who prevented the post-mortem examination. There was some evidence that the female prisoner had arsenic in her possession, but none that she administered it or that the victim died of arsenic. She certainly had the opportunity, as she took her husband a cup of tea and a maid swore that she went to a cupboard upstairs. An hour later the victim was violently sick and he died within 24 hours. Much of the evidence against the prisoners was given by members of the family who had previously quarrelled with them. On the proceedings being transmitted to London for the consideration of the Privy Council, an English barrister stated that no English jury would have convicted on the evidence. Indeed the doctors confirmed that the death might have been due to a violent colic. "The incest is supposed to be certain, because the husband is supposed to have been poisoned; and, on the other hand, the man is believed to be poisoned, because there is a supposed proof of incest."[17] The prisoners were convicted, and the Lieutenant was hanged, but the lady obtained a respite on the ground of pregnancy and ultimately escaped from prison.[18]

A case of hydrocyanic poisoning in 1781 is interesting as revealing the ineptitude of the authorities in cases of sudden death and the wide scope allowed to the medical witnesses in giving their testimony.[19] Donnellan was charged with the murder of his brother-in-law, who died after drinking a dose of medicine poured out by his mother. The mother gave a very clear description at the trial of symptoms which are now recognized as due to cyanide poisoning. Apparently Donnellan had manufactured laurel water, which he poured into the bottle of medicine. Actually

17. The opinion of M'Carty, an English barrister, printed at the end of the account in State Trials.

18. The jury of matrons was empanelled to decide the question of pregnancy. At four months they failed to agree, but at the end of six months they reached an accurate verdict.

19. Stephen, History of Criminal Law, Vol. III, 371: W. R. Grove, in 2 Medico-Legal and Crim. Rev. (1934), 314.

there was little serious scientific evidence against the prisoner, but he convicted himself by his own foolish conduct. Firstly, in spite of the mother's protests, he poured out the contents of the bottle; secondly, by a series of manoeuvres he got the body buried and prevented an autopsy from being held for eleven days.

The medical evidence of the results of the autopsy was not very definite, since most of it points only to putrefaction. Rattray detected some redness of the stomach which he considered was due to arsenic but which Spilsbury to-day thinks was due only to putrefaction, but all the doctors signed a statement that the victim had been poisoned. This was a case where prejudice overcame science and a modern doctor describes the reasons for their opinion as "all wrong medically."[20] The preservative effect of arsenic was, of course, unknown. The charge against the prisoner was poisoning by arsenic, but what real evidence there was pointed to laurel water. One doctor swore that he detected a smell like laurel water in the fluid of the stomach, and the mother said that the medicine smelt like the taste of bitter almonds.

The doctors were allowed to give their evidence very widely and express their views on the validity of the evidence as a whole—in fact they were asked to trespass on the freedom of the jury. The prisoner called the famous John Hunter in his defence to give evidence that while the symptoms were consistent with poisoning by laurel water, they were also consistent with epilepsy or apoplexy. Sir D'Arcy Power in 1934 bluntly terms the suggestion of epilepsy as rubbish,[21] but Hunter's strong point was that the head should have been opened, in order to rebut the defence of epilepsy. There is little doubt that the prisoner was guilty, if we consider all his conduct, but there is also no doubt that Hunter was correct in pointing out that the scientific evidence was totally inadequate. Indeed, Spilsbury

20. Grove, op. cit.
21. 2 Medico-Legal Jo. and Crim. Rev., 337.

considers that a plausible defence would have been that the victim died from some syphilitic cerebral emergency, such as ruptured aneurism or a thrombosed vessel. In spite of much badgering in cross-examination, Hunter, as a man of science, refused to admit that the medicine was the cause of death merely because the victim died in agony after drinking it. Hunter was also sceptical of the conclusions drawn from Rattray's experiments—the giving of laurel water to a dog, a cat and a mare. But it was an important mile-stone that experiments were made, for this is an early example of experimental work undertaken in order to get definite results, and probably was due to the influence of the great Hunter himself.

In 1807 a prisoner was acquitted because of the evidence by Baudelocque and Chaussier. A husband was charged with murdering his pregnant wife by administering pounded glass, which the state claimed had caused death during childbirth. Shortly before her death the lady had taken roast pig, black pudding, calf's liver, coffee and brandy, and during the night had violent pains and convulsions. The suggestions for the defence were that, firstly, the lady might have accidentally bitten a tumbler during her convulsions; secondly, there was grave doubt whether the substance found was glass; and thirdly that, when the stomach was filled with food, glass would do little harm.

In 1821, the carefulness of Mr. Thackrah, at Leeds saved a prisoner from conviction for administering arsenic. The lady received some tarts from the prisoner and ate some. She was violently ill and arsenic was discovered in the tarts that were untouched, and also in evacuated matter. But the doctor was suspicious. The lady said that the tarts tasted of copper, a taste that arsenic hardly possesses; moreover, the time of vomiting did not seem to fit in with the argument that the arsenic had been administered through the medium of the tarts. Afterwards it was discovered that the lady, being annoyed with the prisoner, had entered into a conspiracy to secure the prisoner's

conviction, and poisoned the tarts and herself with her own fair hands.[22]

In the Casting case in 1822, no poison was found in the body of the victim—the only appearance that bore any relation to the poison suggested were congestion of blood and serous effusion in the vessels of the cerebral membrane. The great Orfila himself gave evidence that poisons might cause death and not be detected owing to their removal by vomiting or absorption. The prisoner was convicted, although the results of all the expert evidence were rather inconclusive.[23]

Dr. Palmer's case[24] is too well known to need discussion. Palmer insured his wife for £13,000 and she conveniently died. Next, one of his friends died, in circumstances which at least suggested strychnine poisoning by Palmer. The scientific difficulty about the case was that Taylor found no evidence of any poison in the body. Two circumstances were brought forward in order to remove the effect of this: firstly, that when Taylor was called in, the contents of the stomach had gone and the stomach itself had been turned inside out so that the mucous surface was rubbing against the intestines, and it would be difficult to detect poison; secondly, that strychnine acts by absorption, and therefore that if a minimum dose were given none would be left in the stomach. In the tissues it undergoes a chemical change and cannot be detected in small quantities. Thus Taylor argued that proof that no strychnine had been found in the body was not proof that no strychnine had been administered.

Nunneley, Herapath, Rogers, Letheby and Wrightson contradicted Taylor on this part of the evidence and professed that strychnine could be discovered in minute quantities in any body into which it had been introduced. Herapath swore that he could detect the fifty-thousandth part of a grain if it were unmixed with organic matter.

22. Beck, Medical Jurisprudence (1863), II, 431.
23. Beck, op. cit. II, 804. Acetate of morphine was, however, traced to the accused.
24. A short account will be found in Stephen, History of the Criminal Law, Vol. III, 389.

But the defence were in a difficulty. If they demolished Taylor as a scientific expert, then his finding that there was no strychnine in the body would also be discredited. Hence the defence admitted that Taylor was right in finding no poison but wrong in thinking that minute quantities could escape detection. The expert evidence left the whole question in the air, but the circumstantial evidence was very damning and few have any doubts of the prisoner's guilt, although possibly strychnine was not the poison used. Before his execution Palmer stated that the victim "was not poisoned with strychnine."

In 1859 Dr. Thomas Smethurst was tried for the poisoning of Miss Isabella Bankes,[25] whom he had bigamously married. The defence may be summarized thus:[26] A delicate, fragile woman who suffered from uterine disease and used vaginal injections, who was frequently subject to nausea, married at the age of 42. About three months after she became pregnant she began to suffer from vomiting and diarrhoea, which would not yield to treatment. Within five weeks she died. The post-mortem showed a condition of the liver which explained the bilious attacks, and a state of the intestine which closely corresponded with the effect of dysentery. No arsenic was found in the body and only one quarter to half a grain of antimony. There were no special lesions in the mouth or stomach which an irritant poison usually produces. A natural cause of death would be a severe attack of that vomiting which sometimes occurs during pregnancy, made worse by the delicate health, the constitutional tendency to nausea and the advanced age at which this, the first pregnancy, took place.

This case, however, split the ranks of the profession and ultimately the doctor was convicted of poisoning his wife on the following testimony. The three doctors, who attended the lady in her last illness, suspected an irritant poison as the cause, and described her symptoms as burning sensations in the throat and stomach, nausea, diarrhoea with blood,

25. The Trial of Dr. Smethurst (ed. Parry) in the Notable British Trials Series.
26. This is the summary by Parry, op. cit. at 24.

pain and tenderness in the abdomen. These correspond to the symptoms of arsenical poisoning, and poisoning by antimony produces results that are not dissimilar. The pathological appearances were not decisive. Either dysentery or an irritant poison might have caused them. The sole chemical evidence was the finding of arsenic by Dr. Taylor in one motion. But his testimony was seriously discredited by a mistake he made in examining bottle No. 21, for the arsenic which he claimed to have found really resulted from impurities in the copper gauze which he used in the chemical test. He notified at once both the prosecutor and the defence, but the same apparatus had been used in testing the motion, and hence this experiment also was questioned. No arsenic was found in the tissues and a test for this had been known since 1808.

Great controversy followed the doctor's conviction. *The Lancet* and the *British Medical Journal* asked whether it was an irritant poison, or an irritable uterus or the ulcerated bowel of dysentery which did the poor lady to death. In most cases either poison is found in the body of the victim or in the possession of the poisoner. "In the present case, however, no poison whatever was traced to the prisoner, no arsenic whatever was found in the viscera of the deceased; and but a very small proportion—less than a quarter of a grain—in four ounces of evacuated matter . . . In dealing with such minute quantities . . . we ought to be very certain . . . We are very far from having reduced chemistry to an exact science." The *Dublin Medical Press* reported that Professor Taylor had now ended his career, hoped that he would immediately withdraw into the obscurity of private life, not forgetting to take his copper gauze with him. Alas for human prophecy! The *B.M.J.* also asked why toxicologists should hate each other so much.

Pollock, C.B., took the view that the details of the scientific evidence were not of great importance for the jury. When the foreman fainted at the details of the post mortem examination, the Judge said he thought it was quite unnecessary to go into these matters with such minuteness,

particularly as the jury would understand very little of the matter. The *B.M.J.* complained that it had never heard a more extraordinary statement emanating from the Bench.

After a long enquiry the Home Secretary granted a complete pardon, but he very unfairly put the whole blame for the results of the trial on the imperfection of medical science and the fallibility even of experienced practitioners. This statement gave great offence.[27]

In 1852, in Victoria, Dr. Hunter was sued for negligence in treating a foot.[28] The lady in question had been one of Dr. Grieves' patients, but for some reason she changed to Hunter, whose first question was: "What scoundrel of a doctor has been treating you?" Ultimately the lady's foot was amputated and the real question was whether this was made necessary by Hunter's careless incisions. Hunter conducted his own case and won it by an appropriate use of wit, rudeness, tears and eloquence. The case revealed great hatreds in the ranks of the medical profession, which Hunter brought to the fore in the cross-examination of his colleagues. All Hunter's enemies rushed to give evidence for the lady. Hunter submitted each of his opponents to a long oral on anatomy and, when they were "stumped," they retorted with stories of Hunter's past. Thus one doctor, questioned as to his knowledge of the knee joint, replied: "I learned enough not to cut into the knee joint as you did on one occasion. I learned enough at all events to instruct you when you failed in chloroform at your own house." When the amputated foot was produced, the important bones were missing, but Hunter, knowing his colleagues, dived under the witness box and recovered them with a yell of triumph. One doctor confessed, in cross-examination, that when attending a mother with twins he delivered the first child but forgot about the other and went home. But, he added, he was very tired that night and he immediately rectified the error the next day. The trial is a truly amazing performance.

27. Smethurst, after his pardon, received a sentence of one year for bigamy, at the end of which he proved Isabella Bankes' will in his favour.
28. The *Argus*, 1852, Nov. 13, 15, 16, 18, 19, 23, 26, and Dec. 3.

In 1852, in Ireland, Kirwan was tried for murder. He and his wife had spent the afternoon alone on an island and the lady was found dead on the beach apparently after swimming. He was probably convicted because he had been guilty of adultery. Dr. Taylor, after the trial, said that there was an entire absence of evidence that the death was the result of violence. Drowning during a fit might easily be the explanation. Dr. Geoghegan, a Dublin professor immediately entered the lists on the other side—it was ridiculous to suppose that the post-mortem evidence was consistent with drowning during a fit. Simple drowning was impossible, and the lady must have been strangled. Thus the medical evidence was a complete deadlock.[29]

A case as late as 1886 provides a puzzle that has not been solved.[30] The case concerned a curious triangle of Bartlett (who suddenly died), his wife and a minister who was also a lover. On December 9 the husband was taken ill and the local doctor suspected mercurial poisoning. On the night of December 31 the husband died. It was thirty-eight hours before the post mortem examination took place. The Home Office analyst ascribed death to chloroform poisoning, 11¼ grains being found in the stomach, and Mrs. Bartlett and the minister were put on trial. The lady undoubtedly had chloroform in her possession, but the great puzzle is how the chloroform found its way to the stomach without evidence of resistance, external burning, spilling, vomiting or defecation and without burning the mouth, pharynx or oesophagus. The Attorney-General's theory was that the victim was partially anaesthetized and then the chloroform was administered in a liquid form by the mouth. But even an expert could hardly do this successfully. The victim must be made insensitive to pain and yet retain the swallowing reflex, and the administration must proceed without bringing the coughing reflex into action. No witness could be found who had succeeded in anaesthetizing a sleeping

29. Lambert, When Justice Faltered, 162.
30. See K. McFadyean, 7 Medico-Legal and Criminological Review (1939), 123: The Trial of Adelaide Bartlett (ed. John Hall), Notable British Trial Series.

adult. The absence of vomiting seems conclusive when we read that the deceased ate one dozen oysters at noon; at 3 p.m. jugged hare, at 9 p.m. six oysters, bread and butter, mango chutney, cake and tea.

Another theory is that the doctor was the innocent killer, for to a patient suffering from acute mercurialism he prescribed 36 bottles of medicine in 14 days. The patient swallowed chlorate of potash, bismuth, nux vomica, quinine, magnesium sulphate, jalap, chloral hydrate, potassium bromide, morphia, santonin, senna, iodoform and croton oil. Cocaine and gas anaesthesia dulled the pain of the extraction of the seventeen teeth. Truly the patient would be sodden with drugs. Many theories are discussed by Dr. McFadyean in a paper read in 1939.[31] A dose of chlorodyne would explain the facts, but for the finding of the analyst that there was no prussic acid or morphia in the stomach. Hypnosis was also suggested. Possibly the lady used the chloroform to avert unwelcome advances from her husband and he died from a fatal syncope. The prisoners, on the evidence, were rightly acquitted.

The present century shows a great increase in the skill both of the murderer and of the agencies of detection. In India a man was executed for killing another with an injection of plague bacilli.[32] Malingering has become quite a science and people like Sir John Collie have achieved quite well deserved reputations as scientific sleuths.[33]

The balance which once favoured the criminal has now changed, and various factors now place the prisoner at a serious disadvantage. To discuss these topics fully would take a paper in itself, but certain points may be noted. Firstly, the constant use of the same experts by the Crown tends to produce, even in the most scrupulous of men, a bias in favour of conviction. It is not always that, like Glaister, they are careful not to strain a point against the prisoner. Secondly, even assuming that these experts are unbiassed,

31. 7 Medico-Legal and Crim. Rev. (1939), 123.
32. See 5 Medico-Legal and Crim. Rev. (1937), 297.
33. 1 Medico-Legal and Crim. Rev. (1933), 10.

their very eminence puts the prisoner at a disadvantage, for only rarely can the prisoner afford witnesses of the same calibre. Thirdly, even if the prisoner has unlimited funds, by the very nature of things most of the important scientific evidence had been collected before he is charged. When the post mortem takes place, there is usually no prisoner, and therefore no possibility of checking this evidence by an expert sent to be present. The only escape from this difficulty would be to create a public defender whose task it would be to assign an expert to watch proceedings with a view to testing the accuracy of the findings of the Crown doctors. In many cases, of course, evidence may be preserved. Thus Willcox made it a rule to use, if possible, only half of the material (e.g., the blood-stained cloth or the contents of the viscera) so that the defence would have something to test independently. In the Seddon case, Marshall Hall, for the defence, got Willcox to re-do the essential experiments before the trial in the presence of an expert chosen by the defence. In Paris, I understand, the body is frozen in order to preserve as much evidence as possible. This sometimes obviates the difficulties which arise when the defence succeeds in an order for exhumation and the body is found to be seriously decomposed. Thus in Thorne's case, the problem was whether the girl had hanged herself, or been clubbed into insensibility.[34] The prisoner's story was that he found the girl hanging in his room and, realizing that he might be thought guilty, he dismembered and buried the body. Spilsbury emphatically stated that there were no marks on the neck to indicate hanging, but three doctors for the defence testified to subcutaneous haemorrhage consistent with the pressure of a cord.[35] But the investigation by the defence was five weeks later than that of Spilsbury and decomposition naturally made the test more difficult. Spilsbury thought that the bruises were consistent with blows by a club, whereas Brontë testified that any heavy blow would have cracked the girl's thin skull like an egg-

34. The Trial of Norman Thorne, by Helena Normanton.
35. Op cit. 155 et seq., Gibson, Brontë, Galt and Nabarro gave expert evidence for the defence.

shell. The experts were thus at a deadlock, but other evidence led to the prisoner's conviction.[36]

Some deductions startle the layman with their ingenuity. Thus Spilsbury, in 1927, is said to have deduced from the examination of a bowler hat whether the wearer had died as the result of accident, suicide or murder[37]—but what would a second expert have said? In Rouse's case,[38] Spilsbury deduced from the position of a very charred body in a car which had burnt fiercely that the victim had been insensible but alive when placed in the car by the prisoner. Mucus from the lungs contained carbon and there was some carbon monoxide in the blood, but so little that the man must have died quickly. The position of the legs proved to Spilsbury that the door was open and that the prisoner could not have been imprisoned in the car. The expert evidence left doubts, for no doctor had seen the body in the car and the constables' evidence was somewhat vague. But there was little quarrel with the verdict of guilty.

The wheel has turned and the agencies of detection can draw on the full range of scientific specialization and the technical resources of laboratories of every description. Instead of merely medical evidence, a team of scientists co-operates in preparing the case. The greater the reliance on the expert in a particular field, the more does Justice require that he should give his evidence with a sense of responsibility for the result of any error, exaggeration or ill-founded hypothesis. Yet great as has been the progress in the last century, future ages will probably feel very complacent as they scan the cases of to-day.

36. There was no mark on the beam to indicate that a rope had been attached to it. An experiment showed that the beam would be marked if a weight was suspended from it by rope.
37. 1 Medico-Legal and Crim. Rev. (1933) at 257.
38. The Trial of Alfred Rouse (ed. H. Normanton), Notable British Trials.

DISCUSSION

Dr. C. H. Mollison opened the discussion. He said he had no personal knowledge of very early medico-legal work in the colony of Victoria, although his association with the Coroner's office went back to 1891. The first Coroner of whom there was any record was Dr. Willmott, but the date of his appointment was uncertain. He was succeeded by Dr. Richard Youl, who was appointed Coroner for the County of Bourke, but in August, 1857, Dr. Youl was appointed Coroner for Melbourne and Mr. Samuel Curtis Candler, who had a medical diploma, was appointed for the County of Bourke. They must each have held office for over 40 years. At first they were paid two guineas for each inquest and 2/- a mile travelling expenses, but this was later on converted to a fixed salary, no doubt owing to the increase in population and inquests. They became City and District Coroner respectively. Dr. Youl was a well-known medico who practised in Collins Street and had a reputation for caustic remarks and mordant wit. He was rather a terror to young medical witnesses and even to police officers. He had some influence in the re-building of the old Melbourne Hospital, as his remark that the bricks of the building were saturated with germs, although extravagant, stimulated public interest in the plans for a new edifice, now about to be succeeded by another and more magnificent erection. Under Dr. Youl, post-mortem examinations were made by various members of the profession who, whilst waiting to build up a practice in Collins Street, were glad to supplement their incomes in this way. Most of them subsequently became eminent in medicine or surgery. The only two who devoted themselves to medico-legal work were the late Dr. Brett and himself (Dr. Mollison). Mr. Candler was quite another type of man, rather severe and ascetic. He was said to have only one meal a day, and walked many miles to attend his inquests, many of which were held in the Kew or Yarra Bend Asylums. On Dr. Youl's death, Mr. Candler became sole Coroner, and acted as such for some years, until it was evident that his powers were failing, and he had to be retired. He had a curious habit of waving his hand about his head in search of a mosquito, imaginary no doubt, and due to some buzzing in his ears. He employed Dr. Neild, who preceded Dr. Mollison in the lectureship in forensic medicine, at the University, almost exclusively as pathologist, in which capacity Dr. Neild gave evidence in many

important trials, including those of Mrs. Needle, for poisoning, and Mrs. Knorr, for baby farming. These were the last women to be hanged in Victoria. In addition to his medical qualifications, Dr. Neild was a Shakespearean scholar, and also a dramatic and musical critic for *The Australasian.* The first medical-legal post-mortem Dr. Mollison made was for another practitioner in the Morgue, which was then situated on Princes Bridge, where the cafe now stood. The only thing he remembered about it was the large wire cage that was placed over the body to keep the rats away. There was, he believed, an earlier morgue down on the wharf near Spencer Street, but he never visited it. The present Morgue was built in the late '80's on the Yarra bank, because so many bodies were then brought from the river. Under the Licensing Act, publicans were obliged to take in a body, if necessary, and post-mortems were made in stables and barns, and inquests were held in hotels. As a jury was then required, no doubt it was to the advantage of mine host, especially as he was also entitled to £1 for taking in the body. These perquisites, however, were practically done away with since the erection of the present Morgue and Courthouse. On Mr. Candler's retirement, Dr. R. H. Cole was appointed Coroner both for the city and the County of Bourke. He held both medical and legal qualifications, and made an excellent coroner, although he early fell into disfavour with the medical profession by somewhat injudiciously cautioning a doctor, when he was about to give evidence regarding a case in which he had given an anaesthetic which caused the death of the patient. Dr. Cole was the first coroner to recognize that medico-legal post-mortems should be made by qualified pathologists, and he appointed the late Dr. Brett and Dr. Mollison to make all examinations coming under his jurisdiction. This practice had been followed by subsequent coroners, and the results had undoubtedly been more satisfactory than under previous methods. Since Dr. Cole retired, coroners had been appointed from the ranks of police magistrates.

Mr. Barry said the subject of forensic medicine was of extraordinary interest, and it was remarkable that the attitude of lawyers for the most part seemed to be very similar to that of the judge who tried Spencer Cowper, in which case the judge, after dealing with some of the evidence, said he was "too faint" to address the jury on the rest of it. It was rarely that lawyers took any great interest in medico-legal matters, and he felt that

in many trials statements on medico-legal subjects were made and allowed to go unchallenged which investigation might show to be unfounded. It was characteristic of these and, for that matter, all times, that criminal trials attracted a great deal of attention, because the matters at stake were so grave, particularly where the charge was murder. It was of great importance that public confidence in the administration of the law should be preserved by efficient and patient investigation, for only in that way could the risk of unjust convictions or unfair verdicts be minimized. As the tendency grew to rely on medical and other experts, so to a greater and greater degree juries were compelled to depend upon the eminence of the expert rather than upon that experience in the subject matter of the testimony laid before them which was the real value of trial by jury. He stressed the very great importance of accuracy on the part of medico-legal experts. Some of the extraordinary errors by so-called medico-legal experts detailed by Professor Paton were well paralleled by the conduct of the judge in Cowper's case, to which the lecturer had referred. If the legal profession was not careful to scrutinize medico-legal evidence there was grave danger of injustice being done. This was particularly so in England, where one eminent expert in forensic medicine had attained a reputation, particularly with the judiciary, almost of infallibility. Belief in that reputation, he gathered, was not altogether shared among the legal profession. This expert came into prominence in the trial of Dr. Crippen. Although the accused in that case was probably guilty, sceptical minds remained unsatisfied on many points. After Thorn's case, in which the same expert gave evidence, a medico-legal expert wrote to the press remarking that although the expert's utterances in the witness box commonly received unquestioned acceptance from judge, counsel and jury, a reputation for infallibility was quite out of place in medical and surgical matters. It was plain that because of this attitude on the part of the judges the evidence of some experts called for the Crown was given unnecessary prominence. This state of things was occasionally to be found in trials in this community. He was far from wishing to cast any reflection on Dr. Mollison or Dr. Wright Smith, whose evidence was always given with conspicuous fairness, but because they were called for the Crown there was a tendency to accept their evidence without question, and the evidence of anyone who disagreed was liable to be treated lightly. It was pre-

eminently the duty of the medical profession to see that when its members gave evidence on medico-legal subjects, involving matters of vital consequence, that evidence should be only of observed facts and of sound inferences drawn from those facts, and the duty of lawyers was to see that medico-legal experts rigidly followed those lines and confined themselves within that sphere.

Mr. A. D. G. Adam said he gathered from the lecturer that the medical profession had a lot to answer for in the past, and it was really up to its present-day representatives to put forward an answer. He was in complete agreement with Mr. Barry about the influence of medical evidence in our courts, and the duty which lay on medical witnesses and experts to be perfectly impartial. From his limited experience of medical witnesses, this was particularly true in will cases, where experts on both sides, particularly on the difficult question of testamentary capacity, tended to become advocates for the side which retained them. In that type of case impartiality was especially called for. There was a tendency for the judges to attach particular importance to the evidence of one or two medical experts, and there was a race to obtain the services of those gentlemen whose evidence was known to carry great weight. Medical witnesses should give evidence always with a full realization that they owed a duty not only to those who retained them but also to their own profession. They should give their testimony with the strictest impartiality, no matter on which side they appeared.

Dr. Guy Springthorpe said he was inclined to support Mr. Barry's views. As to the vagaries of medical men in the past, he had been told that in the Deeming trial, whilst Deeming was being kept under lock and key, it was stated as one of the grounds of his mental disorder that he claimed to have seen a vision of his mother, and the then Government Medical Officer was reported to have said that that could not be the case and that Deeming must obviously be lying, because he had placed a reputable person there all the night and the warder had not seen any vision of the mother! Doctors would be loth to think that any member of the medical profession could have been either so ingenuous or so gullible. Did Dr. Mollison remember that incident?

Dr. Mollison: I do not remember anything about it, although I was present the whole four days of the trial.

Mr. A. Dean said he did not understand the reluctance of the medical profession, after hearing Professor Paton, to

point out the steps that had been taken to repair the defects in the medical testimony of the past. He had been trying to imagine what would be said in 500 years' time about the trials of to-day, and wondering whether we had evolved the best methods, particularly in the matter of punishment for crimes. The lecturer's research would be profitable to all, in that they might reflect that, in the presentation and prosecution of cases involving medical evidence, a good deal of thought and research was necessary both by the lawyer and the doctor. He did not agree with Mr. Adam as to medical witnesses in will cases. He had found that witnesses engaged to give evidence in such cases were almost without exception impartial, fair and frank, both in their evidence and the manner in which they gave it. It was impossible for a man who was on one side and was given the facts of that side and asked to give an opinion on them, or a man who had been the medical adviser of someone concerned in the case, not to form some theory and opinion which it was impossible to put aside in order to reach some nicely balanced attitude of impartiality.

Dr. Wright-Smith said that in the first place medicine to-day was such a vast subject that it was impossible for any one person to have a complete knowledge of all its branches, and therefore specialization was inevitable. In those circumstances, and so far as he was concerned, the tendency was towards pathology. Although one devoted one's whole time to the subject, still, working for hospitals kept him in touch with the clinical side, so that he had some knowledge of other branches of medicine. A person who devoted his whole time to pathology and the making of post-mortems must have a better knowledge of the subject than would a person who did not see such examinations, and it was therefore reasonable that his opinion should be more accurate. A medical witness should be impartial. He personally had been lucky to work under Dr. Mollison, who continuously impressed on him that evidence given in such cases must be purely on the appearances observed.

Mr. O'Dell Crowther said he thought it was a pity the discussion had not touched much on the civil side. Very often the medical man to a certain extent was called as an advocate deliberately so selected, because the lawyer dealing with the case wanted medical assistance and sought amongst the medical experts a man who would take the view which he wanted. This might be a reflection on the lawyer, but it was an explanation. The success of the frank presentation

of evidence by a medical man depended greatly on personality, and in any discussion of forensic medicine the first name that should be mentioned was that of the late charming Henry Michael O'Hara. As a witness Dr. O'Hara had the delightful habit of presenting in the most attractive fashion the views he undoubtedly held. In considering forensic medicine, the civil aspect of medical evidence as presented to the courts should not be overlooked. One of those aspects which had always troubled his mind in cases dealing with testamentary capacity was where a medical witness who had not seen the testator was asked to pass an opinion on his capacity in the light of the evidence given in court and of his reading of that evidence. It had always struck him as somewhat unfair to the medical man, and he would have liked to hear a member of the medical brotherhood give his opinions. The most striking side of forensic medicine must deal with the criminal aspects of the work of the courts, but the civil aspect was also of the utmost importance.

Dr. Ostermeyer said he desired to emphasize that there were other sides of forensic medicine than those dealing with death and post-mortems and coronial enquiries. There was the vast civil side, and the psychological side. There was forensic chemistry and the testing for alcoholism in accident cases, and there was the great field of blood groupings, which could be used to test paternity.

Mr. Sproule, in moving a vote of thanks to Professor Paton, paid a tribute to Dr. Mollison who, whenever he gave evidence on behalf of the Crown, spoke only of observed facts, without partiality. We had not yet gone the whole distance in forensic medicine, although blood groupings represented a step forward, but there were still many fresh worlds for the medical profession to conquer.

Dr. Mark Gardiner seconded the vote of thanks, which was carried by acclamation.

Professor Paton, in reply, said he had in his paper drawn the line at the year 1900 because the modern triumphs of forensic medicine were too well known to need recapitulation.

Brown, Prior, Anderson Pty. Ltd.