

Report of a Committee
set up by

JUSTICE
and the
Council for Science and Society

Science
and the
Administration
of Justice

Chairman of Committee

His Hon. Judge
Christopher Oddie

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London

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Whereas JUSTICE was formed through a common endeavour of lawyers representing the three main political parties to uphold the principles of justice and the right to a fair trial, it is hereby agreed and declared by us, the Founder Members of the Council, that we will faithfully pursue the objects set out in the Constitution of the Society without regard to consideration of party or creed or the political character of governments whose actions may be under review.

We further declare it to be our intention that a fair representation of the main political parties be maintained on the Council in perpetuity and we enjoin our successors and all members of the Society to accept and fulfil this aim.

OBJECTS

The objects of JUSTICE, as set out in the Constitution, are:

to uphold and strengthen the principles of the Rule of Law in the territories for which the British Parliament is directly or ultimately responsible; in particular to assist in the maintenance of the highest standards of the administration of justice and in the preservation of the fundamental liberties of the individual;

to assist the International Commission of Jurists as and when requested in giving help to peoples to whom the Rule of Law is denied and in giving advice and encouragement to those who are seeking to secure the fundamental liberties of the individual;

to keep under review all aspects of the Rule of Law and to publish such material as will be of assistance to lawyers in strengthening it;

to co-operate with any national or international body which pursues the aforementioned objects.

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*Died in December 1988

Science and the Administration of Justice

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This report has been endorsed and approved
for publication by the Council of JUSTICE

It is dedicated to the memory of Paul Sieghart who combined a
keen and reforming interest in both science and the law.

PREFACE

This report considers whether there is any reason to be dissatisfied with the inter-reaction of two very different things: science and the administration of justice. Each is a big subject: together they present a formidable challenge if the disciplines are to be reconciled to serve the public interest better. Many observers see the relationship as an uneasy one, based to some extent on a long-standing truce rather than on relaxed and full co-operation. It would take the resources and time granted to a Royal Commission to do full justice to the subject, and to explore its scope in detail. There would have to be consultation over a wide field with experts and interested parties across the community. This was not our task, nor is it our object.

We were set up as a Committee in 1987 under the joint auspices of JUSTICE and the Council for Science and Society (now unhappily defunct) to consider the practical problems affecting the determination of scientific issues by the Courts and the extent to which scientists could make a contribution to the evaluation of evidence of all kinds. Our work overlaps to some extent the work of some of the committees of JUSTICE (and, in particular, the current Committee under Mr Justice Phillips which is examining the accusatorial and inquisitorial criminal processes of different jurisdictions).

We have set ourselves the task of explaining some, but by no means all, of the practical problems to which the roles of the two disciplines give rise. We have made some tentative suggestions for reform or improvement of the system as it stands. We hope that we will stimulate discussion among scientists in all relevant fields of interest, as well as among lawyers, particularly those who are concerned with the administration of criminal justice. If the end result is to produce constructive solutions to some of the problems, we shall be well satisfied. Since we began our work the spot-light of public interest has frequently fallen on cases involving shortcomings in expert evidence. We believe that the response should be a calm and objective review of the procedures and we hope that this Report will be seen in that light.

In the Introduction we make some general observations regarding the scope of the subject as we have seen it. We also explain briefly the present legal status of expert witnesses in our Courts and the procedures which govern their evidence. It is against that background that we develop in the succeeding chapters an examination of what seem to be the most pressing and common problems and consider some suggested solutions and alternative procedures.

We are indebted to Stephen Hedley, Fellow of Christs' College, Cambridge, and a member of JUSTICE, for his assistance with earlier drafts of this report.

The Committee is the result of an initiative by the late Paul Sieghart, who played a leading role in both JUSTICE and the Council for Science and Society. Since he combined a keen and reforming interest in both science and the law, our report is a testimonial to his memory.

PART A: INTRODUCTION

Chapter 1: General

1.1 Expert scientific and medical evidence is in everyday use in the administration of justice. It would be difficult to imagine a legal system without forensic evidence in criminal cases: scientific evidence lies at the core of many patent cases: medical evidence is given frequently in both civil and criminal matters: the evidence of child psychologists is regularly used in the Family Division. Fresh advances in scientific understanding frequently find their way into the court-room, for example, genetic fingerprinting. The collaboration of scientists and lawyers is both beneficial and inevitable.

1.2 Since this report considers the inter-action of science and the administration of justice, it may be as well to begin by defining our terms.

1.3 We see 'science' as a label which is attached to a disciplined search for knowledge using certain widely accepted procedures for testing, validating and falsifying hypotheses about the nature and inter-action of the components of the material universe, including its human inhabitants. We have taken 'the administration of justice' to mean certain institutional, formal, and public procedures provided by the State for deciding particular kinds of disputed questions. The dispute may be between individuals, or companies, associations or public authorities, about their respective rights and obligations, in which event they will be conducted in the civil Courts. In the vast majority of cases, the ultimate decision will be taken by a professional Judge sitting alone. Or the dispute may be whether a particular individual has committed a particular crime, in which case it will be determined in a criminal Court either by magistrates or by a jury.

1.4 The resolution of disputes in the litigation process is governed by very precise sets of procedures, which can often be extremely complex. In the United Kingdom these procedures are almost entirely 'adversarial' - that is, each party will have the opportunity to present to the Court the material on which it relies in support of its case, in the form of evidence and argument, and to test as thoroughly as it can the evidence and arguments presented by

its opponent; the Court, having heard them all, then decides which of them is entitled to win. Some scientists are genuinely concerned that the adversarial process itself produces what they see as an artificial polarization of the scientific issues in disputes which have to be resolved in Court. Some of the dangers illustrated by recent cases of wrong convictions are said to arise because the legal system encourages expert witnesses to 'take sides'. And yet scientists are familiar with adversarial procedures. Often, when they present their work to a meeting they expect to be cross-examined by their colleagues so that their evidence and argument for their conclusions may be tested.

1.5 Whatever the tribunal, it will have to perform two fundamentally distinct functions: first, to ascertain the relevant facts from the evidence which is brought before it, and then to apply the correct rules of law to those facts in order to determine the dispute. Where the tribunal is a Judge sitting alone - as in almost all civil cases - he will have to decide both the facts and the law, and give a fully reasoned judgment explaining how he came to his conclusions in both these areas. But where the Judge sits with a jury - as in all the more serious criminal cases - it will be the jury which decides the facts, without giving any reasons for the finding, and the Judge's role will be largely limited to directing them as to the law and summarising the evidence to help them reach their decision. In a Magistrates Court (where all the less serious criminal cases - well over 90% of all criminal trials - are heard) both the facts and the law are decided either by a single legally qualified 'stipendiary magistrate', or, more often, by a bench of lay Justices of the Peace, advised on the law by a professionally qualified Clerk. None of these (save in rare cases involving a point of law) need to give any reasons for their decisions. To understand how the Courts use scientific knowledge to help them make their decisions, one must first look at the procedures they follow for reaching their conclusions of fact. Where a particular fact is disputed in the proceedings, a Court of law cannot simply determine it from its own knowledge, or just make intelligent guesses about it: one or other of the parties has to 'prove' it by 'evidence'.

1.6 First, therefore, the Court has to apply a rule of law determining which party must prove the facts in order to succeed - or, more technically put, where the burden of proof lies. In a criminal trial, for example, the burden of proving the facts necessary to establish the accused's guilt lies throughout on the Prosecution. Next, the Court must apply a rule of law which determines how heavy that burden is: the 'standard of proof'. In the United Kingdom this varies according to the type of dispute. In a criminal trial the Court must be satisfied beyond reasonable doubt (or, in other

words, so that it feels sure) of the guilt of the defendant before it can convict him. Reasonable doubt must be resolved in favour of the Defence. In a civil case, on the other hand, the party which makes a particular claim usually has the burden of proving it, and the facts that go to establish it, 'on the balance of probabilities'.

1.7 At once, a series of problems arises, which we shall consider further. All of them, one way or another, have to do with the different attitudes of lawyers and scientists to the work they do, the differences between their respective training, the different ways in which they use language, and their understanding of concepts. This can be seen at once in the field of insanity and the responsibility of mentally disordered persons for criminal acts. Do lawyers and psychiatrists mean the same thing when they use legally defined words such as 'insanity' or 'diminished responsibility'?

1.8 The differences between the scientific and the legal approach can be seen elsewhere too. For example, scientists often give an opinion on the probabilities, in a mathematical sense, of something being the case. But much of their work involves the validation of facts in ways which are quite different from the standards of 'proof' used by the Courts in their everyday work. Then again, the scientists' methods and the information which they use to establish a fact do not by any means always accord with legal procedures for doing the same thing. The rules of evidence may distort what the scientist regards as the legitimate target in a case.

1.9 Let us therefore look at some other related differences. First, both lawyers and scientists are accustomed to deal with rules - lawyers with 'rules of law', and scientists with those rules of consistency which in earlier days used to be called 'laws of nature'. But there is a fundamental difference between these two sets of rules, so obvious that it is often forgotten: the lawyers' rules of law are entirely man-made, and Parliament (and occasionally the Courts) can change them at any time - so that, for example, conduct which would have been a crime last month may cease to be so today, and vice versa. By contrast, the rules with which scientists deal in their work are those which govern - or at least appear to govern - the behaviour of the material universe around us, and we cannot simply change them to suit our convenience or preferences.

1.10 Another profound difference is that scientists are taught always to remain sceptical: to them, the mere fact that everyone agrees that something is the case is not enough to establish that it is: 'everyone' may eventually be shown to be wrong. By contrast, the law courts will generally not question the facts if all the parties in the case agree on them. In a civil case, if a fact asserted by one party is formally admitted by all the others,

the Court will not go behind that agreement, and is generally bound to take that fact as established for the purposes of that case. Even in a criminal case, it is only in exceptional circumstances that the Court will go behind a plea of 'guilty': if an accused person formally admits that he has committed the crime with which he is charged, that is almost always the end of the matter, and all that is left is to decide what the proper sentence should be.

1.11 There is another, and equally important, difference. In the nature of things, a scientific hypothesis or theory can never be final: it is of the very essence of the scientific method that all hypotheses and theories are always open to revision in the light of later discoveries. By contrast, the law deliberately, and as a matter of public policy, seeks finality: once given, a judgment or verdict finally determines the issue between the parties, and (with a few exceptions) no subsequent discoveries can set it aside again. There will usually be the opportunity for one - or at the most two - appeals to a higher Court, but once those appeals have been determined, or the time for taking the opportunity has expired, that will normally be the end of the matter.

1.12 Recent cases such as those of the Maguires and the Birmingham Six come within the exceptions. Quite often, as in these cases, exceptional circumstances, related, inter alia, to the reliability of the scientific evidence or the procedures surrounding the presentation of the scientific findings (including the scrutiny procedures) call the verdicts into question. Third or subsequent appeals or references to the Courts may bring about a change in the verdict. These cases, in a sense, bring vividly together aspects of problems which confront lawyers and scientists alike. Many of the topics in this report will bear on these problems. Most of them, and most of our discussions, concentrate on criminal cases. In civil litigation the parties have more freedom of choice of experts and, quite often, better facilities.

Chapter 2: Expert Evidence

2.1 There are some popular misconceptions as to the status of expert witnesses and in relation to the rules of evidence which govern them. While lawyers will be familiar with the rules in general terms, there have been some significant changes of practice in recent years; and for them, as well as for the lay reader, we set out a brief review of the principal rules affecting expert evidence in the English Courts.

2.2 At the heart of our system of administration of criminal justice is the fundamental concept that the jury is the sole judge of facts in a criminal trial. The philosophy of the Courts has been to emphasise rather than to diminish this factor. Many professionals as well as laymen believe that this concept is inappropriate to be relied upon when the issue at trial relates to complex scientific or financial issues. We examine later this question, and the alternatives to the traditional trial of scientific issues.

2.3 The present system is that if complex issues of a specialised nature arise, the jury or the tribunal must evaluate them as best it can and reach a conclusion on the basis of the expert evidence presented. In keeping with this notion, the common law has, for centuries, recognised the valuable assistance which may be made available to Courts of law by persons possessed of specialist knowledge and skills. The fundamental approach of a tribunal of fact should be that it should first be certain what are the primary facts, and then draw appropriate inferences from those facts. The assistance of experts may be required in relation to both aspects.

2.4 In order to understand how the law views the role of an expert, it is necessary to set out some basic principles which govern the law of evidence -

- (1) Generally a witness can only give evidence as to matters which he himself has specifically observed.
- (2) Accordingly, he is not entitled to express his beliefs or opinions upon the evidence, or to draw inferences from the facts either as observed by himself or as proved to the Court.
- (3) However, in cases where the facts and issues are such that the tribunal of fact is not competent to draw proper inferences from the evidence or to form a proper opinion on the issues, or perhaps, even decide

whether particular facts can be regarded as satisfactorily proved, the Courts will be prepared to accept the testimonial assistance of a person with special knowledge and expertise in the field concerned. Such a person will be regarded as an expert, and is permitted, contrary to the general rule, to express his opinions on the evidence before the Court, in order to assist the Court to form its own ultimate view upon the evidence, e.g. the common example of the psychiatrist who gives an opinion in terms as to whether an accused person charged with murder suffered at the material time from a mental illness which affected his behaviour or diminished his responsibility. He answers the question the Court has to answer, but his answer does not bind the Court.

2.5 The functions of expert witnesses were succinctly stated by Lord President Cooper in the Scots case of *Davie v Edinburgh Magistrates* [1953] SC 34 (at page 40) :

'Their duty is to furnish the judge or jury with the necessary scientific criteria for testing the accuracy of their conclusions, so as to enable the judge or jury to form their own independent judgment by the application of these criteria to the facts proved in evidence'.

2.6 The modern approach in regard to the relationship between the lawyers and the experts was expressed by Lord Wilberforce in *Whitehouse v Jordan* [1981] 1 All ER 267 (at page 276):

'While some degree of consultation between experts and legal advisers is entirely proper, it is necessary that expert evidence presented to the Court should be, and should be seen to be, the independent product of the expert, uninfluenced as to form or content by the exigencies of litigation. To the extent that it is not, the evidence is likely not only to be incorrect, but self-defeating'.

2.7 Who, then, is qualified or competent to be an 'expert'? This question (often a contentious issue in itself) is a preliminary matter for the Judge to decide. In theory, he should investigate the credentials of the proposed expert to determine whether he has undergone such a course of study or has otherwise acquired sufficient experience to render him qualified as an expert for the purposes of the case in question. In practice, however, this exercise is not undertaken in any detailed or formal way; if the witness credibly claims some expertise, he is usually permitted to give his evidence; he is invariably asked leading questions as to his qualifications and credentials, and these will be accepted on a prima facie basis by the parties. It does, occasionally, happen that the very expertise claimed is itself

challenged: in such an event the Court has to rule on the question. More often than not, the apparent qualification of the witness as an expert is accepted, but if his apparent expertise is not translated into reality, the weight (or importance) to be attached to his testimony will be substantially diminished or wholly neutralised (in either event to the obvious disadvantage of the party calling him). This can sometimes happen even with the most prestigious of experts. It may be observed that many cases have been lost by aggrieved parties who have innocently put their faith in an expert whose performance as a witness has proved to be poor.

2.8 Academic or professional qualifications, in themselves, are not a precondition to be fulfilled before a person will be regarded as an expert. The Courts have recognised that expertise may be gained by practical experience and not through study. In *R v Silverlock* [1894] 2QB 766, the Court for Crown Cases Reserved decided that a solicitor, who had made a study of handwriting in his spare time, could give expert evidence in such matters, notwithstanding that he possessed no formal qualifications in that area, since he had acquired the necessary actual skill.

2.9 An expert witness can be compelled to give evidence in the same way as anybody else. In *Harmony Shipping Co. SA v Saudi Europe Line Limited* [1979] 1 WLR 1380, a handwriting expert was consulted by the Plaintiff with a view to giving expert evidence at trial upon the authenticity of certain shipping documentation. He advised the Plaintiff in consultation in terms that did not support the Plaintiff's case. He was later consulted by the Defendant's solicitors and expressed the same opinion upon the same documentation. It was only at this stage that he realised that he had previously advised the other party, and, in accordance with his own personal and professional rules, he declined to continue to accept instructions from the Defendant. The Defendant subpoenaed him to compel him to attend at Court and give oral evidence. The Plaintiff applied to have the subpoena set aside. The Court of Appeal decided:

- (1) that there was no 'property' in a witness, i.e. neither side had a 'right' to the expert's evidence, or to prevent the other side from calling him as a witness;
- (2) accordingly, the expert was a compellable witness, who could be required to attend Court and give evidence;
- (3) however, he could not be compelled to give evidence as to communications arising in the course of his being instructed by a party which were protected by legal professional privilege.

2.10 Even so, the Court will be vigilant to protect an expert from unfair pressure to give evidence. It exercises in suitable circumstances its inherent jurisdiction to disallow a subpoena; and Cooke J. in *Seyfang v G.D. Searle* [1973] QB 148 (at page 153) indicated that 'the English Courts will not as a rule require an expert to give expert evidence against his wishes in a case where he had no connection with the facts or the history of the matter in issue'. If the rule were otherwise, those with expertise might find themselves more often in the Court-room than their laboratories.

2.11 An expert witness, for most purposes, is in the same position as an ordinary witness of fact. He gives his evidence on oath and he may be prosecuted for perjury if he expresses an opinion which it can be shown he does not genuinely hold. He is examined, and may be cross-examined and re-examined as any other witness, save that it very often happens that the parties will agree that the report of the witness be taken as his evidence in chief.

2.12 In almost all civil cases, and certain types of tribunal inquiry, it will be ordered that experts' reports be exchanged before the hearing. In criminal cases, too, this course may now be adopted under rules to that end made pursuant to the Police and Criminal Evidence Act 1984 section 81(1). How suitable this course will prove to be with a jury it is too early yet to tell. One improvement in the system is that the experts' reports on both sides may become 'cards on the table' in a criminal trial.

2.13 As indicated earlier, the expert's role is to assist the Court by giving his expert opinion on the specialised matters upon which it is required. He is not precluded from giving evidence as to facts and matters within his own knowledge. Indeed, in many situations it would be difficult for an expert to separate expert evidence of facts from his opinion evidence, since he will often be basing his conclusions and opinions upon particular specialised facts or scientifically accepted data within his own knowledge.

2.14 In the course of giving his evidence, an expert may give his opinion based upon facts which are admitted, or which have been proved either by himself or other witnesses in his presence at the hearing, or which are matters of common knowledge. He may also express an opinion upon any hypothesis based upon such matters. An expert may, in the course of giving evidence, refer to any works of authority on the subject in question, either for the purpose of refreshing his memory or confirming his opinion, although strictly the Court may not look at any authoritative works to which it has not been referred in evidence. The expert may also refer (depending on the nature of his expertise and the matters in issue) to such

documents as price-lists, medical publications or texts. Such documents are not in themselves evidence, but the expert may adopt them as accurately reflecting his view and they may be read as part of his testimony accordingly. In addition, he can also inform the Court of any tests or experiments which he has carried out, whether they were carried out with the present case in mind or generally; he may even be permitted by the Court to demonstrate matters to the tribunal of fact. This approach is more commonly used in the USA, but it is not unknown here and may become more common with the availability, at relatively modest cost, of video camera recording apparatus.

2.15 There are, however, a number of limitations upon the expert's evidence. First, it must be remembered that it is his function only to give evidence and not to decide the issues before the Court: that is the function of the tribunal of fact. It is always open to the Judge or jury to reject the expert evidence if it is found wanting. It is obvious, however, that the more complicated and specialised the questions involved, the greater the likely dependence of the tribunal upon the expert's findings. In these circumstances, the highest standards of objectivity and accuracy are required from the witness.

2.16 The second limitation is somewhat complicated, having its roots in the difficult and detailed area of the law relating to the exclusion of hearsay evidence. It is fair to say that the restrictions on the use of hearsay evidence when scientific information is put before the Court have been significantly relaxed over the years. But there are still problems in this field which have to be considered in deciding how science can most effectively help the Courts reach their conclusions.

2.17 The rule against hearsay (subject to its many exceptions) prevents an assertion, other than one made by a person whilst giving oral evidence in the proceedings, from being admissible as evidence of the truth of its contents. In effect, it prevents a witness from giving 'secondhand evidence' of what other people say occurred if that evidence is to be relied upon to prove the truth of the facts and matters stated in it. Put in broad terms, an expert is subject to the following limitations in regard to the evidence he may give -

- (1) An opinion is generally admissible only if it is itself based upon facts which have been or will be proved by admissible evidence or which have been admitted. Accordingly, an expert cannot express an opinion based upon hearsay unless an exception to the hearsay rule applies.

(2) The principal exceptions which seem to apply to experts are that an expert can give opinion evidence based upon hearsay material (which may even be incorporated into his evidence) if it:

- (a) is contained in the technical data, particular studies and general works of reference widely used by members of his profession which are regarded as reliable; or
- (b) is knowledge which he can be assumed to have and on which he draws to formulate his opinion, even though he has not learnt it through personal experience.

2.18 While in certain relatively rare circumstances an expert may be permitted to give evidence as to whether a person should be believed on oath, the Courts are generally reluctant to admit expert evidence to assist in the process of forming judgment. Attempts to give the Courts the help of psychologists to determine whether a witness is lying, or honest but mistaken, have also been resisted. It is difficult to persuade Judges of the value of experimental work by psychologists into the basis of human perception and memory and its effect on the reliability of witnesses' recollections, notably in identification cases. We think it is questionable whether the reluctance of the Courts to accept scientific evidence from psychologists in relation to the modern understanding of perception and memory is justified.

2.19 We consider the problems of scientific expert evidence against the background of these general rules and judicial attitudes. The main thrust of our consideration has been directed to two principal areas of concern -

- (1) Are scientific issues evaluated in the most reliable way? Do the present procedures inhibit and restrict the most useful and effective presentation of scientific material to the Court? And are the facilities fairly and equally available to both parties?
- (2) Can the scientists assist the judicial function of evaluating the evidence? Can scientific procedures improve the business of judgment itself, and, if so, in what way and subject to what limitations?

Chapter 3: Practical Problems

3.1 Problems are not far to seek. Law and Science are both sceptical disciplines, and when each examines the other it does not always like what it sees. Judges tend to be suspicious of any other discipline that seems to take the power of decision away from the Courts; the more unanswerable a particular piece of scientific evidence seems, the greater the suspicion. Seemingly cast-iron expert evidence has proved before now to be wrong, and in retrospect it was often the very appearance of unanswerability that stopped the Court in its tracks, making it abandon its usual scepticism and bow to apparent expertise. As the recent revelations in the Maguire and Birmingham Six cases illustrate, the appearance of unanswerability may simply mean that the right questions were not asked.

3.2 Furthermore, what are the Courts to do at the other extreme, where scientists themselves plainly have yet to agree on all the implications of some new principle or technique? In the U.S.A., ever since the *Frye* case, the Courts have shown a reluctance to accept scientific evidence on some issues unless the principles and techniques on which the conclusions depended were broadly acceptable to scientists generally in the relevant field. But how, for example, should the Courts react if the Defence calls into question the validity of a genetic fingerprint, or if a local authority introduces a new and apparently powerful technique in the diagnosis of child sexual abuse? If the scientific aspect of a case is over the heads of Judge and jury alike, what is the proper course to adopt in the public interest?

3.3 Scientists are often sceptical about legal processes. There is no question of the Court's proceeding by formulating and testing hypotheses. The tribunal may well be without anything but rudimentary scientific skills; indeed, it may also lack any in-depth training in law (as is the case with lay magistrates) or either scientific or legal training (as with juries).

3.4 Yet we did not find, while seeking the views of scientists on legal issues, that any of them expected legal enquiries to resemble scientific enquiries, or wished that they should. There seemed a ready understanding that it is right, in legal processes, to talk of a burden of proof; that it is legitimate to insist, for example, that the defendant in a criminal case has a

right to have the Prosecution's case proved beyond reasonable doubt, even though it is not only wrong but actually meaningless to talk of any point of view having a 'right' in a scientific enquiry.

3.5 The criticisms we did encounter were on a rather different level. One complaint, often repeated, hits at the most basic of issues: how should scientific evidence be presented in Court? Many concerns have been voiced in public, ranging from the way in which witnesses are questioned and general difficulties of communication to more fundamental issues, such as whether expert witnesses should be called 'for' one side, as they are under the present adversarial system; or whether it makes sense to allow non-scientists to decide cases which turn mainly on scientific questions. Some of these difficulties are illustrated by the convictions associated with the Home Office scientist, Dr Clift: is it realistically possible to reconcile the requirements of the adversarial system with the requirement that expert witnesses be absolutely impartial? To what extent can (or should) an expert witness articulate important points on which no questions have been asked by Counsel? And do current administrative arrangements give the Prosecution an unfair advantage over the Defence?

3.6 A second set of issues raised relates particularly to sciences of the mind. Psychiatry and psychology both do much to question the assumptions which lie at the root of legal conceptions. How much of our law of evidence, for example, can be said to be justified in the light of modern psychological understanding of perception and memory? If the law concedes that psychological pressures may make a confession unreliable, can it properly refuse to hear expert psychological testimony on the point? And are legal conceptions of responsibility for crime consistent with modern psychiatric knowledge?

3.7 We consider these and other issues in this report. Part B deals with the relations between science and the law. In Chapter 4, we discuss how scientists evaluate uncertainty, and compare the law's reaction to it. In Chapter 5 we discuss the general position of the expert witness in Court.

3.8 Part C of the report deals with more detailed reforms of the legal system. In Chapter 6 we consider the position of the scientist as an expert witness in the court-room. In Chapter 7 we analyse and evaluate the possible alternatives to the jury in criminal cases involving complicated issues. In Chapters 8 and 9 we propose some practical improvements.

3.9 Part D, which is necessarily more speculative, considers the particular problems posed by the sciences of the mind. In Chapter 10 we

consider the implications for legal processes of modern psychology; does the law of evidence need fundamental revision in the light of modern understanding of the mind's workings? In Chapter 11 a psychiatrist examines some problems for the reception and comprehension of psychiatric evidence; in the trial process have legal and psychiatric assumptions about criminal responsibility in this area diverged too far to permit useful communication?

PART B:
SCIENCE IN THE SERVICE OF THE LAW

Chapter 4: Scientific uncertainty and the Law.

4.1 It was said by Sir Peter Medawar that 'not to be absolutely certain is one of the conditions of rational thinking'. Both Law and Science acknowledge this, but in very different ways. While neither discipline contends that there is any such thing as 'absolute' proof, both claim to produce useful findings approximating to a high degree of confidence in the result.

4.2 There are various sources of uncertainty in scientific opinion. Hypotheses can only be tested if they are expressed in terms which permit testing. This problem arises particularly when the hypothesis has not been arrived at as the result of induction from experimental observations. For example, it is hardly possible for a scientist to test directly the hypothesis that the responsibility of the defendant is 'diminished'. On the other hand, the scientist may be able to help the Court by addressing suitably formulated questions about a defendant's comprehension of his own behaviour. Knowing what questions to address is part of the expertise of the scientist. But to reformulate the question risks confusing the Court, or giving the impression of avoiding or even evading the issue. There are also limitations in methods of estimation. Keen awareness of those limitations makes scientists play safe when they are asked in Court to express an opinion. Seeing this as a negative approach, some are bolder and willing to hazard an opinion, the best possible one in the circumstances, with whatever qualifications may be necessary. What matters is that the expert himself says how well-founded the opinion is.

4.3 How is a scientific opinion to be evaluated? Perhaps the first question to be asked about any finding is its reliability. How well do the results agree when the test is repeated ('test-retest' reliability)? Or when obtained by different observers ('between-observer' reliability)? How reliable as a yardstick, for example, is the class to which a mental illness is assigned? The answer is that it is low, unless care is taken to ensure that the observers apply the same interview techniques, are similarly experienced in their use, and, especially, define the classes in the same way. For 'dangerousness', a

rating to which great importance is attached when decisions are being taken about the parole or discharge of offenders, the degree of agreement between observers also tends to be low. On the other hand, the scores obtained by different observers on a standardised intelligence test may correlate closely.

4.4 In order to improve 'between-observer reliability', tests may be standardised, that is to say that the procedures to be followed in making the observations and scaling the results are laid down by bodies of experts. Norms are found for different classes of subjects when the procedures are followed. They include some measure of the dispersal of the scores to be found in different populations; it may even be possible to calculate the probability of a particular score. Increasingly, laboratories of all kinds have 'quality assurance' schemes; these provide independent monitoring of the procedures and the reliability of the results reported. A question to be asked of the expert is therefore whether the method used has been standardised, or whether it is an ad hoc method devised for the particular occasional purpose. There is no objection to ad hoc methods, provided they are acknowledged as such. Caution should be exercised in accepting the results of a method which has not been published and has not been subjected to the scrutiny of other experts.

4.5 Another criterion is the validity of the results, that is, the degree to which the results agree with those obtained in other ways. The ratings of the dangerousness of offenders, for example, tend to show very little agreement with the number or seriousness of the violent offences they commit during a follow-up period. One reason why the validity, or the predictive value, of such ratings is low lies in their relative unreliability. Another is that circumstances which are difficult to predict play a part in determining violent behaviour as well as the personal qualities that are rated.

4.6 A further and important question is whether alternative hypotheses have been excluded. In giving an opinion, the expert will say what hypothesis was tested, and whether the findings confirm it or refute it. Suppose that the findings confirm the expert's hypothesis. The question then must be asked: is there an alternative hypothesis? Observations may be compatible with the expert's opinion, and yet also be compatible with alternative hypotheses. Critics of 'establishment' forensic laboratory work sometimes argue that there is a temptation, especially when the investigation is being undertaken on behalf of the Prosecution, to go no further than to assemble evidence compatible with the favoured hypothesis, scepticism being lulled by compatible findings. But two further steps should be taken;

to look for evidence that would falsify the hypothesis, and to formulate and test the alternatives.

4.7 An example, taken from a Home Office Research Study, relates to glass fragments. Suppose that glass fragments are found in the socks of a suspect and are shown to be similar to a sample of glass taken from the window of burgled premises in respect of their surface, refractive indices, and elemental composition. These findings are compatible with the hypothesis that the fragments in the socks came from the window. Any differences that might be found between the fragments and the sample in other respects would falsify this hypothesis. An alternative hypothesis might be that the fragments came from another, as yet unidentified, source. The former hypothesis would be preferred if the glass fragments and the sample share characteristics that are very uncommon. But otherwise another source remains open as a possibility, though the more special the glass in the broken window and the socks, the less probable is it that there is another source.

4.8 Any scientific test has two complementary qualities, its 'sensitivity' and its 'specificity'. These describe its strengths and weaknesses as a means of detection. A test is highly sensitive if it rarely makes the error of overlooking something that is being sought for; it is thus 'sensitive' to the presence of the thing in question. On the other hand, it is highly specific if it rarely makes the error of finding something that is not there: it is thus 'specific' to the thing being sought. For example, if a person has been the victim of a sexual attack, a test will be made on her clothing for the presence of semen on it. This cannot be done by simple inspection; there must be tests for some substance that is associated with the presence of semen. This might be spermatozoa, or alternatively some special chemical that is present in human semen. If spermatozoa are used, the test is highly specific, since whenever spermatozoa are found, then only semen, and no other substance, could have produced them; there are no 'false-positives'. On the other hand, there are many cases where, in spite of the presence of semen, no spermatozoa are detected; hence this particular test would produce many false-negative results, and so is insensitive to the presence of semen. An alternative test for the presence of semen uses the acid phosphatase, for this enzyme is always found in high concentration in human semen and appears reliably in tests. Hence, unlike the spermatozoa test, it is highly sensitive. On the other hand, it may be present in a sample in spite of the absence of semen, through other causes; and so the acid phosphatase test may produce false-positive results and is therefore of low

specificity. Ignorance of these inherent strengths and weaknesses of scientific tests can lead to confusion and worse.

4.9 In order to remedy the weaknesses of particular tests, an investigation will use them in sequence. In our example of a sexual assault, further tests can be used for including or excluding particular groups in the population, thereby narrowing the choice of suspects. Grouping tests in the ABO blood system can include or exclude a suspect, but if, for example, the stain gives reactions for group O secretor, this will only exclude about two-thirds of the male population. Tests for certain polymorphic enzymes such as phosphoglucosmutase (PGM) can achieve a further exclusion. If, in addition to group O secretor, the stain is found to be of the commonest type (PGM 1), then about four-fifths of men would be excluded. With less common combinations, it is possible to exclude a much higher proportion say 99%. DNA profiling is the most significant testing system available. Given sufficient quantity of material, it can come close to definitive proof that the semen was produced by a particular man, the chance of finding an identical profile being one in millions. DNA profiling may take several weeks to complete and is expensive to perform. It is therefore normal practice to test first with traditional systems which can include or exclude suspects.

4.10 Finally, the congruence of evidence from different sources tends to have a powerful influence on the choice of hypothesis, even if no quantification is feasible. There are many tests that remain in regular use, though of little value by themselves for lack of specificity or sensitivity or both, because they may corroborate other evidence. An example is provided by a research study of pilots, to determine whether attacks they suffered were fits or faints. The EEG tests were found to be normal in 43% of a sample of pilots whose attacks had been diagnosed on clinical grounds as fits; this proportion of false-negatives shows the test to be insensitive. It was abnormal in 29% of those whose attacks had been diagnosed as faints; it was therefore non-specific as well. Nevertheless, the EEG may help in diagnosis. Suppose the attack was observed, and was thought to be epileptic. A positive finding on an EEG subsequently, especially if repeated, would weaken the hypothesis that the fit was due to special circumstances, such as high fever or heavy drinking. Congruence in detail between the clinical and the EEG findings would give strength to a diagnosis, as in a case in which features of both the fit and the EEG recordings indicate a lesion in a certain part of the brain.

4.11 Similar issues arose in the Butler-Sloss Inquiry into child abuse in Cleveland. Following that Inquiry, a working party of the Royal College of

Physicians drew attention to the need to standardise the techniques of examining children (the anal region especially), as well as the diagnostic criteria and the nomenclature. Because the techniques are specialised, the examination should only be carried out, and the findings interpreted, by those with suitable skill and experience. Since the tests available yield a proportion of false-positives, a conclusion of abuse should not be made in the absence of corroboration.

4.12 Trial processes do not purport to be enquiries into the truth. Rather, they are enquiries into whether a particular view of the matter - that of the plaintiff or Prosecution - is held to be established or not. This, for those with scientific training, is perhaps the most striking aspect of the trial. Most strange of all, the Defence in a criminal case does not have to advance a plausible account of the incriminating circumstances established by the Prosecution. It can, and often does, win its case merely by pointing to shortcomings or possible defects in the Prosecution case. This is strikingly illustrated by the recent Maguire inquiry leading to the Interim Report in which Sir John May concluded that the convictions were hopelessly compromised, not because it had been established that the defendants were innocent, but because all of the material which the Prosecution witnesses had was not revealed to the Defence, with the consequence that the witnesses had not exposed themselves to Defence criticism in the appropriate manner. The Defence is, of course, not limited to this line of attack. One of the simpler and more plausible ways of demolishing the case for the Prosecution is to point to another hypothesis, consistent with the Prosecution's primary evidence, even if it is not possible to establish its weight. When the Maguire case was reviewed in the Court of Appeal it was only on this narrower basis that the convictions were held to be 'unsafe and unsatisfactory'. The differences between the May Report and the conclusions of the Court of Appeal may be explained by the fact that the Court of Appeal operates under the strict rules of appellate procedure, whereas Sir John May was not in any sense so confined. For present purposes, however, the difference does not matter.

4.13 We cannot expect legal and scientific attitudes to uncertainty to coincide. For the law, the accumulation of facts is merely a means to an end, rather than an end in itself, and other values intrude. Legal decisions can of course have drastic effects on people's lives, and more evidence is demanded for the graver cases. So, for example, plausible but hardly overwhelming evidence that an employee has stolen her employer's property may be held to be sufficient ground for terminating her employment, but insufficient to justify prosecuting or punishing her for

theft. To ask whether that employee did or did not, in the eye of the law, steal the property is in that context probably a meaningless question.

4.14 As we have seen, the legal treatment of uncertainty hinges on the concept of the burden of proof; to say that a party bears the burden of proof is to say that he will lose the case unless he discharges the burden with sufficient evidence. It is usual to distinguish between the evidential burden borne by the party who must raise a particular issue for determination, and the legal burden borne by the party who will lose the ultimate issue unless he persuades the tribunal that his case is established to the required standard of proof. Thus a defendant charged with bigamy, whose defence is that the earlier marriage never took place, is entitled to demand that the Prosecution proves it. If, however, the Prosecution produces an apparently genuine marriage certificate consistent with its case, the evidential burden shifts to the defendant, who cannot simply allege that the certificate is false, but must adduce some plausible evidence to that effect. If he succeeds in this, the legal burden of proving the former marriage reverts to the Prosecution. We have already indicated that the degree of persuasion required is called the standard of proof; which is, in general, that in civil cases plaintiffs must demonstrate that their case is more likely than not (that the case is 'proved on the balance of probabilities'), but in criminal cases the Prosecution must prove the essential ingredients of the charge 'beyond all reasonable doubt'.

4.15 There is undoubtedly an element of circularity in these definitions, especially that of the standard of proof. What, after all, does it mean to say that a case is proved 'beyond all reasonable doubt'? Juries are often told that they must be 'satisfied so that they are sure' of the defendant's guilt before convicting. The Court of Appeal has refused to give a closer definition of 'reasonable doubt' and, indeed, has made it clear that attempts to do so risk misdirecting the jury. The concept cannot be reduced to any numerical criterion of probability (Walls, 1971). The test is little more than a way of reminding the jury that the decision is theirs, emphasising that such doubts must be resolved in favour of the Defence, and that a serious accusation demands a commensurate weight of evidence to prove it.

4.16 Probability is a valuable starting point in the resolution of most questions. The civil standard of proof ('the balance of probabilities') has a more precise, almost mathematical, ring to it. Yet it does not seem to have been developed with probability theory in mind, and the Courts have been uncomfortable with this standard in cases where expert witnesses have given numerical estimates of probability. In one case, a worker in a brick

kiln claimed compensation from his employer for dermatitis induced by brick dust; medical evidence suggested that the employer's failure to provide shower facilities had materially increased the risk of dermatitis. The House of Lords did not accept the logical implication of the 'balance of probabilities' test, that an employer who increases the risk from 45% to 90% is liable, whereas one who increases it from 55% to 90% is not (because the employee would 'probably' have contracted dermatitis anyway); the normal standard was modified, the plaintiff's case being established if the defendant was shown to have 'materially increased the risk of injury'.

4.17 Speaking generally, the law's treatment of numerical probabilities appears to be unsatisfactory. Probabilistic statements, no matter how precise, are often treated as admissions of uncertainty, not to say unreliability. 'The Court ... may well confuse likelihood and probability, treating a firm conclusion of probability as expressing only a likelihood. This is because the Court wants to know definitely whether a particular event did or did not occur, and both probability and likelihood statements appear as insufficient answers to this question. If the factual question is whether this particular individual is the blood source, any statement which does not answer yes or no may in consequence be treated as only opinion' (Smith, 1989, page 68). Accordingly, some witnesses recall feeling intense pressure to state that a particular statement is 'certain', with the clear implication that their evidence will be of negligible evidential value if they will not do so.

4.18 It is somewhat puzzling that lawyers should act in this way. In their treatment of non-expert witnesses, they are perfectly familiar with the notion that absolute certainty is a myth, that apparently cogent and truthful testimony may turn out to be quite wrong for a variety of reasons, or that a witness who seemed at first to have evidence centrally relevant to the issue in question may turn out only to be able to speak to peripheral matters. Yet legal attitudes to Science are ambivalent; sometimes lawyers profess near-absolute faith in scientific knowledge in the abstract while at other times turning the full force of legal scepticism on individual parts of it. Lawyers think, it has been said, that 'while 'science' is reliable, there has never been a scientist who is' (Wynne, 1989, page 54). This may lead to unfortunate attitudes, even if they rarely surface. Scientists have their own criteria for determining the level of uncertainty which is so small that it may be ignored, but these were developed for very different reasons. 'Perhaps the uncertainties of science will always work in the defendant's favour' (a Barrister, quoted in Smith, 1989, page 84).

4.19 Then there is the human element which may, consciously or unconsciously, affect us all. There may be many reasons which prompt a scientist to 'take sides'. One consequence of doing so is that he may be tempted to diminish or altogether to conceal his uncertainty. In this he may have been intellectually corrupted by what he perceives to be the 'games' lawyers play. He knows that strict adherence to scientific standards may bring about a result in law unjustified by common-sense or fairness. Maybe he sees his discipline being corrupted by rules the validity of which he deeply questions.

4.20 The Interim Report on the Maguire case concluded that there was a failure by the Crown scientific experts to reveal all their notes and details of all the tests they had carried out. Had this material been made available to the Defence, a cogent attack would have been made upon the Prosecution's case. Indeed, the sort of attack made by the Prosecution on the procedures of the Defence expert could have been mounted with at least equal effect in undermining the evidence of the Prosecution scientists. Since certainty was the Prosecution's target, and uncertainty that of the Defence, the original verdict might well have been different, leading to an acquittal at the first trial. Similar problems were revealed in the investigations of some of the cases in which Dr Clift gave evidence. But those cases and the Maguire case are only ambiguous indicators for reformers. There can be no doubt that in those cases the Courts were seriously misled. But how should this have been prevented? When we consider the charges made against the experts in those cases - conscious or unconscious partisanship, failure to mention points that could help 'the other side' (the very expression is symptomatic), making impossibly precise claims - we see the mirror-image of the complaints that scientific witnesses themselves make - that they feel under pressure to be partisan, that they are not given an opportunity to present their evidence as they wish, that they feel badgered to leave out qualifying details that may, with hindsight, turn out to be vital. The question is not 'how many Clifts are there?'; indeed, without any authoritative determination of anything Dr Clift may have done or failed to do, that question is meaningless. Rather, we ask, 'what factors prevent expert witnesses from acquainting the Courts with scientific knowledge that may help the judicial process?'. On this question, the expert witnesses themselves are well qualified to speak.

4.21 And so we turn to review criticisms that have been made in relation to the position of scientific expert witnesses within the legal system, as a way of identifying some of the issues which we believe must be addressed.

Chapter 5: Expert Witnesses

5.1 It is unusual indeed for scientific or medical witnesses to receive any kind of training for the role. It is rarely addressed in university courses. Few undergraduates receive any formal training in legal applications of their discipline at all, let alone the skill of being a witness. Formal training is provided within the Forensic Science Service, but the only practical recourse for others called as witnesses is a textbook, and even this may be of limited use. Some textbooks on Forensic Medicine, for example, have a chapter on the Expert Witness, but this quite often consists mainly of information on relatively trivial matters, such as how to dress, how to address the Judge, what documents to take to Court, and how to claim expenses. There may be little discussion of the types of common mistake witnesses make, strategy of cross-examination and so on. The contrast with the numerous textbooks on advocacy, with advice on how to question expert witnesses, and how to challenge those who give unfavourable evidence, (for example, Evans, 1983, 159-66), is very marked.

5.2 Even the position of a would-be witness who hopes to learn by trial and error is worse than it was. Such a witness can always hope for early experience of uncomplicated cases in the lower Courts, but may come to grief if pitchforked into a complicated case in the Crown Court. This is all too likely to happen today. Before 1968, important criminal cases received a 'dry-run' before a panel of examining magistrates with a view to committal for trial to the Crown Court. That was to see if there was sufficient evidence for the defendant to stand trial. To a large extent, these 'old-style committals' no longer take place and, after written statements have been handed over to the Defence and produced in Court, a committal for trial is often a formality. Thus a valuable opportunity to gain experience is now only rarely available. These and other reforms designed to avoid the taking of oral evidence, except where absolutely necessary, make it hard for the forensic scientific witness to gain experience except at the risk of public humiliation at the hands of seasoned barristers.

5.3 The process of being a witness is time-consuming and poorly remunerated. Court time-tabling is a continual source of complaint, despite improvements in the last two decades. The case may also involve pre-trial conferences with the lawyers, which may require considerable

travel and waiting around. The complaints of expert witnesses about this aspect of the way they are treated are heartfelt. The feelings of would-be witnesses who cancel appointments and make lengthy journeys for a pre-trial conference, only to be told that they will not be called after all for reasons that would have been apparent had they been allowed to discuss the matter earlier, are perhaps better left to the imagination. Many scientific witnesses complain that the pre-trial conference is limited to a hurried discussion at the very doors of the Court. Prevention of this sort of abuse of course requires a change in legal attitudes to witnesses generally, but much could be done to improve lawyers' scientific understanding, a matter which we consider in detail later.

5.4 The actual experience of being in the witness box is frequently not too unpleasant. Expert evidence is usually presented without incident. If the matter is a straight forward factual one on which the expert can give a clear and firm opinion, no difficulty is likely to arise; nor is it likely to do so if the expert's part of the case is not a particularly contentious one. It is well to remember that many, perhaps most, cases are of this sort. But problems arise in other types of case.

5.5 The danger of experts being led outside their field of scientific expertise is an obvious one; yet several witnesses have complained of being asked to pronounce on matters in which they have no expertise, usually because of the Court's failure to appreciate that it is a separate field. Witnesses may also be led outside their fields in the rather different sense that they may be called upon to use communication skills with which they are unfamiliar. It is perfectly possible to achieve eminence in a particular field of scientific enquiry while remaining incapable of presenting findings in a manner which the Court will find convincing. The ability to convey difficult scientific concepts to a lay audience in an unfamiliar setting is a rare one; indeed, some argue that the task is virtually impossible, and that purely scientific issues should be resolved by panels of scientists, rather than by lay people (lawyers or not) who will inevitably miss the finer points. We consider this argument later.

5.6 But quite apart from the problem of the witness' own communication skills, legal procedures impose a variety of constraints which have given rise to criticism. Witnesses are not simply called to testify as to how they can help in the case; they are called 'for' one side, and so, implicitly, 'against' the other. These and other features form part of the adversarial system, under which the Courts seek the truth of the matter not through a Judge-directed inquiry into the facts but through presentation of the arguments for each side to a neutral tribunal, which itself plays a largely

passive role. Many see this as the root of the trouble; truth is not two-sided but many-sided, and it seems a strange form of enquiry in which the major actors are not, even technically, committed to the discovery of the truth. If there is a problem of partisanship on the part of expert witnesses, then, it is said, its cause lies here. This raises various issues going far beyond the question whether the legal system should be 'adversarial' or 'inquisitorial', and we have tried to disentangle the various threads involved. In later chapters we make practical proposals about how legal procedures could be improved.

5.7 Other complaints are raised about the manner in which witnesses are required to give their evidence. The question and answer technique seems inappropriate to many witnesses; misconceptions might be avoided, it is said, if witnesses were initially allowed to present their views as they see fit. Indeed, some experienced witnesses have claimed that they deliberately wander off the topic of the questions they are asked, to make important points they cannot otherwise convey (e.g. Goodwin Jones, 1986, page 15-16). There is a disquieting parallel between complaints from witnesses and cases where responsibility for false convictions have been laid at the door of the expert witnesses themselves: we need only compare the repeated complaint that question and answer techniques distort the case. The most notorious example of this was the Preece case, where Dr. Clift reported on the result of a test on a vaginal swab taken from the victim, without commenting on the scientific circumstances. These were that, since the victim was a 'group A secretor', no inference whatever could be made about the type of any semen which might have been present. The fact that the defendant was also 'group A', along with roughly one-third of males, was irrelevant. Dr. Clift was later strongly criticized in the Scottish High Court of Justiciary for not providing full information. Many have commented that if the Courts expect this degree of impartiality from expert witnesses they should do more to encourage it.

5.8 A related point is that of how witnesses should deal with scientific uncertainty. Many experts (especially medical and psychological experts) feel that a strict adherence to the truth demands lengthy qualifications and admissions of uncertainty. Yet they know, from experience of the pressures to make firm and unqualified statements, that expressions of uncertainty are often treated as admissions of incompetence, especially if a 'competing' expert witness is apparently more confident as to his conclusions. One hears of cases that were lost because the expert witness was too knowledgeable, and so would not make the crisp generalisations that would carry conviction in Court (e.g. Waller, 1984, page 239). Unsurprisingly,

therefore, scientific expert witnesses are reluctant to arm the opposing barrister with admissions that could be used to present them as incompetent; qualifications which may turn out to have been vital get lost in the business of getting basic points over to the Court. It is a common complaint from Prosecution witnesses that the Defence will exploit scientific uncertainties to an unreasonable extent, being under no obligation themselves to suggest any explanation of suspicious circumstances, but merely raising doubt so as to prevent the Prosecution from establishing its case.

5.9 More generally, there is a widespread feeling that the legal system introduces irrelevant considerations into what are essentially scientific enquiries. In many cases this is doubtless true. It is also true that disproportionate weight may be given to formal qualifications, and to whether experts can support their views by reference to published materials. In some cases no one in Court has enough knowledge to comprehend the scientific issues fully, and so make effective use of what the expert is saying. But to the extent that these problems have solutions - and they may not have - they must involve a more knowledgeable tribunal and legal profession.

5.10 It is not surprising, then, that being an expert witness is often seen as a demanding and unrewarding activity; indeed, some find it surprising that despite these drawbacks, some experts seem positively to thrive on the experience. It can also be seen that, while the causes of concern are real, they are also very diverse, and the reforms they suggest are even more so. How, therefore, should we consider what reforms are appropriate?

PART C

THE PRESENTATION OF SCIENTIFIC EVIDENCE

Chapter 6: The Scientist in Court

6.1 In considering the need for reform of legal procedures, it is usually necessary to focus on how matters would develop should the case come to trial, whether or not it does so. In personal injury actions, for example, barely 1% of cases ever reach Court, the rest being settled at some earlier stage. But the (hypothetical) Court hearing is of vital importance, for it sets the tone for all the negotiations: these assume that the matter will come to trial unless the parties otherwise agree. Accordingly, all talk of reform must start where the legal action ends: in Court.

6.2 As we have seen, English procedure, unlike that in most European countries, is 'adversarial'; in other words, it relies on the clash of opposing view-points on which a neutral (and relatively passive) tribunal then adjudicates, rather than being an 'inquisitorial' system in which the tribunal actively enquires into the truth. It needs no deep appreciation of scientific methodology to realise why the latter system appeals to scientists as the rational way of going about things, whereas the former seems to have little to commend it. Many scientific witnesses have urged the adoption of more inquisitorial procedures, while being vague as to what this would involve in practice. Yet if the matter is put in these terms, neither of what may seem the two obvious solutions - either making legal processes more scientific, or taking scientific matters away from Courts and leaving them to the scientists - would, we think, be acceptable to the legal profession. A JUSTICE Committee under the chairmanship of Mr Justice Phillips is engaged on a wide-ranging review of the rival adversarial and inquisitorial processes in criminal cases. Since that Committee was set up a Royal Commission was appointed under the chairmanship of Lord Runciman of Doxford and both are now at work. It would be inappropriate here to do more than point out that support by expert witnesses for a more inquisitorial procedure seems to us to be either simply a vigorous statement of distrust of the present system, or a covert plea that the law should become more scientific, rather than a deliberate statement of the

direction reforms should take. For the purposes of this report, however, we proceed on the basis of our system as it is.

Pressures to take sides

6.3 The expert witness's initial involvement in the case may be a source of pressure towards partisanship. The danger that the Forensic Science Service may become too closely identified with the Prosecution has often been the subject of critical comment. The danger is equally apparent when individual litigants in civil cases engage experts. Solicitors are most likely to choose witnesses who seem favourable to their client's case, thus giving rise to reputations (usually quite undeserved) of some expert witnesses as pro-defence or pro-plaintiff.

6.4 Until recently it was safe to say that pre-trial procedures operated to exacerbate partisanship more than to relieve it, but the situation is now less clear. Provision for advance mutual disclosure of experts' reports now covers most classes of legal proceedings other than those in Magistrates' Courts, and this quite apart from the informal consultations which may go on between experts in the same field. Much more could, however, be done to reduce the dangers of legal ambush, and to encourage consultations between the respective experts who are to be called for opposing sides, as well as between the experts and the lawyers.

6.5 Various proposals have been made to modify the status of expert witnesses while in Court, and we consider these later. Some suggest we should follow the continental system of 'Court experts', who would not be called for either side, but simply give their evidence as the Court's own witnesses. This is technically possible under the present law, but is very rare. Another common suggestion is that expert witnesses should be acknowledged as being in a special position, and that rules regulating their conduct should to that extent be modified, by giving them increased rights (and perhaps even duties) to reveal doubts, remove misconceptions, and discuss points of view opposed to their own. In 1985 an Australian judge, with the consent of the parties, allowed five experts to be called together and invited them to comment on each other's testimony and, under control of the Court, pursue areas of disagreement amongst themselves. (*Spika Trading Pty.Ltd v Royal Insee Australia Ltd*, -unreported, Sup.Ct. of NSW 3 Oct. 1985). We doubt the practicality of such a procedure save in rare and exceptional cases.

What should be done?

6.6 It should be plain, then, that the manner in which experts are treated in Court is central to our current concerns. Granting scientific expert

witnesses a greater freedom in presenting their reports brings about a fundamental alteration in their status. Accordingly, as we review the various constraints on what evidence experts may give and how they may give it, pride of place must go to the conduct of the expert's examination-in-chief, where he presents his major findings.

Examination-in-chief

6.7 In civil cases it is common for witnesses' written reports to be put in and adopted as evidence in chief. Rules of Court in civil cases now provide for evidence to be given by means of written statements or affidavits and in the case of experts this would be the usual course. However, in criminal cases tried with a jury, the traditional method, namely that of bringing out the witness' story by means of questions and answers is still normal. Continuous narrative by the witness seems far preferable. Many aids to exposition suggest themselves, several of which should be familiar to everyone in Court from other contexts: slide projectors, background information in documentary form, computer graphics and the use of cameras in Court would all have their uses. We can usefully take our lead from the Fraud Trials Committee (Roskill, 1986), not to mention the research they commissioned on the ease with which data in various forms is assimilated by lay audiences (MRC Applied Psychology Unit, 1986).

6.8 We are aware that there may be dangers here. Experts who do not outline their intended course in advance to the lawyers may in some cases risk infringing evidential rules in the course of their exposition. We are also aware that visual aids can be misleading. We believe, however, that these risks are overwhelmingly counterbalanced by the advantages of giving the responsible expert witness this greater freedom, and leaving the correction of over-emphasis or misleading colour to the advocates and to the Judge.

Partisanship

6.9 We have already referred to the danger of partisanship. If a witness is constantly treated as 'for' one side and 'against' the other, there is always the risk that he will become so in fact, giving points 'for' an undue emphasis, and those 'against' little emphasis, or perhaps no mention at all. The reality is that the adversarial system is hardly the ideal environment in which to nurture the principle of witness independence. True it is that a solicitor may not make an offer of payment to a witness contingent on the nature of the evidence given: see Chapter 14.06 of the Solicitors Guide 4th Edition 1990. But as Cross J. observed in *Re S (Infants)* [1967] 1 WLR 396 experts are only human and can hardly avoid having some faint desire that

their side should win simply because it is their side. In our experience the desire is frequently more than faint.

6.10 Various solutions have been suggested. We consider below, and reject, the possibility that the expert should be called for neither side, but as the Court's own witness. Another suggestion frequently made is that the witness should be called as at present, but should be accorded a special status and given a set of duties.

The best solution ... would be the express adoption by all scientific witnesses of some of the conventions which rule the Bar. It is customary to disclose in advance to the opponent a list of cases to be referred to in argument and it is the duty of the advocate to call the attention of the Court to any reported decision which in any way is against the submission which he is making ... [It] should be a rigorous obligation on all experts to give the Court, as clearly as they can, the limits of accuracy of their evidence, whether it is experimental or theoretical, and to disclose, if it be the fact, that other views exist in their profession. It should also be their duty to the Court, to indicate what inferences cannot properly be drawn from their evidence'.

(Ormrod, 1968, page 246).

The general sentiment of frankness is of course one that we approve, but the right of an expert to structure his main account as he wishes, provided he does not infringe the general rules of evidence, is just as valuable. We would also be reluctant to loosen the ties between Counsel and 'their' experts entirely, particularly when so many experts complain of insufficient, hurried (and usually late) consultations that could have saved so much time had they been carried out properly.

The 'ultimate issues' rule, and the 'province of the tribunal of fact'.

6.11 These two rules, difficult to state though they are, are only an occasional source of difficulty. The 'ultimate issues' rule, that no expert may pronounce on the precise issue which the Court must decide, is hard to defend in principle; always assuming that the evidence is such as the expert is qualified to give, and that it has been properly exposed to scrutiny by the Court, the rule serves no obvious purpose. It has been abolished in relation to civil proceedings, and it is only rarely invoked in practice in criminal proceedings (Jackson, 1984). Its formal abolition seems long overdue. The related notion, that expert witnesses must not pronounce on matters which are for the tribunal of fact to decide, seems similarly superfluous. Again, the usual constraints of relevance, appropriate expertise, and exposure to legal scrutiny are all that is required. Judges do

not experience difficulty in directing juries that they are not bound by what experts say.

6.12 In one important area, however, namely, the business of forming a judgment on the facts, the Courts have, on the whole, been resistant to the use of the evidence of behavioural scientists in the court-room, especially the criminal court-room. The rules, coupled with the notion that expert psychologists and psychiatrists can have nothing useful to say on the 'normal' workings of the human brain, have sometimes been used to exclude such evidence outright:

'Jurors do not need psychiatrists to tell them how ordinary folk who are not suffering from any mental illness are likely to react to the stresses and strains of life'.

(Lawton LJ, in *R v Turner* [1975] Q.B.834)

6.13 In urging the abolition of these rules, we do not imply that this attitude is universally held by the judiciary, though the distinction between 'normal' and 'abnormal' people has often been reiterated since 1975 (for example in *R v Masih* (1986) *Crim. Law Review* 395). Nor, for that matter, do we suggest that Courts should uncritically endorse every finding that the behavioural sciences have so far produced. What we do suggest is that they be subjected to the normal legal processes of examination, cross-examination and re-examination on their merits. The mere fact of being human may not, in itself, be enough to make Judges and jurors experts in all aspects of human nature; and we are opposed to an approach which rejects potentially valuable evidence which, if considered, might improve the quality of judgment.

Hearsay

6.14 The law of hearsay is not as clear as it could be (Pattenden, 1982), and a clear re-statement of the law would be welcome. Various expert witnesses have complained of aspects of it. We do not, however, think that there is a major problem here.

6.15 Technically, most displays of expert knowledge constitute hearsay, as they will almost inevitably involve recounting results and professional experience for which the expert cannot vouch personally. But the exception for technical knowledge is well-established, and the law's requirement that the expert refer explicitly to material on which reliance is placed (see for example *R v Abadom* [1983] 1 All E.R. 364) is not unreasonable. Furthermore, experts cannot give evidence as to matters of which they have no personal knowledge but were simply told when instructed. This is not an unreasonable rule; tedious though it must

sometimes be for experts continually to distinguish between what they have been told and what they infer from those given facts, it is a necessary exercise if the expert's report is to be accorded its true weight. And closer consultation with the lawyers would help to clarify in advance which of the hypotheses on which the expert opinion is based are agreed by all sides to be true, and which are themselves disputed.

6.16 Finally, there is the problem of team-work in the preparation of reports. If a report is the product of the work of various scientists, but is written only by one of them, then technically it is hearsay as to any matter the author cannot personally confirm. This is particularly a problem in relation to forensic science laboratories, where it is common for scientists to be assisted by junior staff who do not themselves usually give evidence. We understand that in many such laboratories the practice is for the reporting officer to make clear in the report which assistants made a substantial contribution to the preparation of his report; if this is done, then it is open to the Court to call the assistants as witnesses in the rare case where there is some point in so doing. It would be a mistake to be complacent about the possibility of errors by inexperienced staff, but we believe that, coupled with more thorough disclosure rules, this practice should be sufficient.

**Chapter 7: Scientific Issues and the Jury in Criminal cases:
What are the alternatives?**

7.1 It will be clear that, central to many of the matters we have considered, is the question whether trial by jury of criminal cases involving serious scientific issues can any longer be regarded as safe or appropriate.

7.2 Many people think that trial by jury of complicated scientific issues (like complicated financial issues in complex fraud cases) cannot safely be relied upon. Indeed, it has been suggested that in some cases legitimate defences based on complex scientific data may have been abandoned for fear of confusing the jury or submitting to the uncertain and potentially dangerous judgment of laymen. But while we recognise that there may be such cases, we believe that drastic reform of the system so as to diminish the role of the jury, or take such cases away from juries altogether, would not be justified. It is, we think, noteworthy that this is the unanimous view of the Committee, which comprises scientists from different fields of experience as well as lawyers. We explain our reasoning.

7.3 First, we doubt whether there is a significant number of cases in which the live scientific issues are so difficult, or involve such delicate or complex considerations, that a jury of lay people cannot be regarded as a competent tribunal to try them. We assume, of course, that (save in most exceptional cases) the Judge would direct the jury in a criminal case that before they could convict on the basis of such scientific evidence they would have to be satisfied so that they were sure that the view propounded by the Prosecution experts was correct. The in-built safety factor for the Defence is obvious; but (for reasons we have already touched on) we do not think that this in itself is a satisfactory answer to such problems as there are.

7.4 On analysis, it appears that the problems relating to scientific evidence in criminal cases generally can be identified as falling under one or more of the following (usually inter-related) heads -

- (1) difficulty in presenting to lay people the scientific concepts involved in the case;
- (2) failure at a sufficiently early stage to identify and deal with the scientific issues likely to arise at the trial;

- (3) the unwillingness of many experts to become witnesses at all because (inter alia) -
 - (a) much time is wasted while waiting to give evidence;
 - (b) restrictive rules of evidence and current procedures inhibit the clear presentation of the views of the expert;
 - (c) many experts feel that the process of cross-examination does them less than justice and exposes them to the risk of professional ridicule;
 - (d) there is often insufficient prior consultation with the lawyers involved in the case; and
 - (v) the absence of a procedure whereby the experts on each side not only exchange reports, but, if necessary, meet to discuss the case and exchange views.

7.5 There is no doubt that there is some substance in all of these complaints. Several suggestions for reform have been canvassed, by which it was thought possible to avoid or minimise the problems. We reached the conclusion that none of the proposed solutions was satisfactory: and, indeed, that some of them were more objectionable than the problem they were meant to cure. We believe that the answer lies in a more determined and robust use of the existing procedures. These we shall describe in a little detail. But, first, we think it useful to articulate and explain three of the principal solutions sometimes advanced by way of alternatives.

(1) A Tribunal of Experts

7.6 Suppose that proof of an important factual issue in a case depended on the contested evidence of experts in an esoteric field: would it be preferable for the Judge to be able to direct that the question be referred to a panel or tribunal of experts who would certify the factual findings on which the case would thereafter be tried?

7.7 We considered whether it should be open to the Judge (in advance of the trial by jury) to hear argument on the subject, and, if a complex scientific question was identified, to order that it be referred to a panel or tribunal of experts, either as a whole for report, or for defined questions to be answered. The lawyers for the parties would be able to cross-examine the expert witnesses and make representations to the Tribunal. It might be that the trial Judge himself would be entitled to preside over the Tribunal in a role akin to that of 'Scientific Judge- Advocate'. The result would be certified evidence as to the scientific issues, on which the case before the jury would thereafter proceed, but the evidence so certified would not be open to challenge.

7.8 While a similar procedure is used in some other legal systems, we do not think that it is suitable for adoption here. The principal objections are practical. We believe that it would have the effect of delaying trials and create a potentially expensive ancillary exercise. We believe, too, that apart from the problem of finding panels of experts willing to conduct the preliminary scientific inquiry, some expert witnesses themselves might (rightly or wrongly) be inhibited from accepting instructions to submit their opinions to the judicial evaluation of their colleagues.

7.9 However this may be, it is our view that in practice the results would create uncertainty for the trial itself. It is a very rare case indeed which does not to some extent depend on the finding of an issue of pure or primary fact (not necessarily one of a scientific kind) which itself would affect the basis on which the Tribunal of experts had proceeded. It would be wholly unsatisfactory for factual issues or permutations of possible factual findings to be decided in advance by the Tribunal. The task of the jury might well be made more difficult because the certified scientific evidence would itself become uncertain in application.

(2) The notion of a Court-Assessor

7.10 In civil cases there is already provision for the appointment of an Assessor to sit with a Judge when trying cases without a jury (RSC O.33 r.6, County Court Rules O.13 r.11). It is less often used than it might be. It has been suggested that it would assist in criminal trials with a jury if the trial took place in the ordinary way, but with a scientist appointed to sit with the Judge to advise as to the adequacy of the scientific enquiries and as to how the scientific issues should be evaluated. The Assessor would presumably assist the Judge in summing-up the scientific issues.

7.11 We doubt very much whether the possible advantages would outweigh the obvious drawbacks to such a system. We think that the role of the Assessor would endanger the impartial evaluation of the scientific issues: he would not be open to cross-examination by the parties, his advice to the Judge could not be given privately without offending the basic concepts of a fair trial, and it would be very difficult to give it openly without seeming to influence the result one way or the other. Such a system would also give rise to problems of appeals from the 'advice', or arising from the conduct of the trial. 'Indifferent scientific advice given into the Court's ear is much worse than the worst expert evidence given from the witness box' (Ormrod (1968, p.245-6).

7.12 For all these reasons, we do not believe that Judges or practitioners would welcome this suggested solution to the problem and, above all, we do not think the public would be well served by it.

(3) A Court Expert

7.13 In certain civil cases the Court may appoint an expert to advise as to scientific or technical matters. The expert is not a witness and is not liable to questioning by the parties. The power is rarely used, and is not, at present, available in criminal cases.

7.14 The concept has been developed in criminal cases in other common law jurisdictions where it takes the following form -

- (1) The Judge may, if he considers it desirable, appoint an independent expert who must, if possible, be agreed upon by the parties.
- (2) The Judge must give the independent expert instructions regarding his duties, and these instructions must, if possible, be agreed upon by the parties.
- (3) The independent expert must inform the Judge and the parties in writing of his opinion, and may thereafter be called to testify by the Judge or any party and be subject to examination by each party.

7.15 We found this an attractive notion at first blush and it is commonly used in other Western European systems; but on further consideration we entertain grave doubts as to its practicability under our rules. We think that the appointment of such an expert would not be regarded with favour by the expert witnesses: the independent expert would act as a type of 'scientific referee' before whom, presumably, the witnesses would thrash out their respective points of view. The result would usually be to favour one side or the other, and that would create for the jury the problem of evaluating the evidence of a third expert. Furthermore, the role of the expert witness in our system is based on the principle that he is independent, and comes to assist the Court rather than to present a partisan view in favour of the party calling him. As we have seen, this may not always be honoured in practice, but we do not see the appointment of an independent expert as the remedy.

7.16 If the idea of an independent expert is that he is to replace the experts for the parties, then we think such an idea would be contrary to the well-established right of the parties in civil cases or the Prosecution and Defence in criminal trials under the adversarial system to call such witnesses as they wish. We believe that the solution would be objectionable for the reasons we have outlined above, and would also leave a jury with the opinion of only one expert. Furthermore, if the parties were to be entitled to call other expert witnesses in addition to the Court expert, little more than a proliferation of experts would have been achieved. We do not

believe this would be regarded as an acceptable solution. Even in civil cases, the idea has not found much favour. Lord Denning explained why in *Re Saxton deceased* [1962] 3 All ER 95:

'I suppose that litigants realise that the Court would attach great weight to the report of the Court expert, and are reluctant thus to leave the decision of the case so much in his hands. If his report is against one side, that side will wish to call its own expert to contradict him, and then the other side will wish to call one, too. So it would only mean that the parties would call their own experts as well. In the circumstances, the parties usually prefer to have the Judge decide on the evidence of experts on either side, without resort to a Court expert.'

7.17 Having broadly rejected the Court expert, we nevertheless think it is for consideration whether, in serious criminal cases involving scientific evidence, the Judge should have the power to appoint an expert whose role it would be to supervise the examination and presentation of all the scientific evidence. Such an expert would have the power to examine all notes, and ask for repetition of experiments. Such an appointment might have prevented some of the problems illustrated by the Maguire case.

7.18 In general, therefore, we conclude that under our adversarial system and the present modes of trial, the solutions we have canvassed would prove to be unsatisfactory at best, and objectionable at worst. We believe that apart from creating fresh and potentially complex procedures, there is a real risk that if these suggested reforms were implemented, criminal trials would 'come unstuck' because of some unexpected turn of events in the course of the other evidence in the case.

Chapter 8: Some Procedural Improvements

8.1 We turn, then, to a review of the procedures at present available, and to some suggestions whereby they might be more usefully employed. In doing so, we draw attention to the problems arising from the lack of equality in resources and the need to make research and laboratory facilities available equally to both Prosecution and Defence, and to our suggestion that better and more reliable systems of access to well-qualified experts should be established.

8.2 One of the most valuable improvements in criminal procedure in recent years has been the 'Summons for directions'. This procedure, long established in civil cases, has entered the field of criminal law in an effective sense only in the last decade. In broad terms, the idea is that some time before a trial begins with the jury, a Judge (preferably, but not necessarily, the Judge who is to take the trial) will consider in Chambers with Counsel what is the most likely course to be taken at the trial. An attempt is made to identify the issues, to agree by formal admission evidence not in dispute, to dispense with the attendance of witnesses whose statements can be read to the jury, and generally to resolve technical and/or procedural matters in advance of the trial itself. In complex fraud cases, this procedure has been used to considerable effect for some time past, and sweeping further powers to the same end have been given statutory force for such cases in the Criminal Justice Acts 1987-8 (hereafter referred to together as 'the CJAs').

8.3 We believe that more use should be made of the existing powers in cases involving scientific or technical issues. The success of the system of pre-trial review depends vitally on two factors -

- (1) that the Judge has the time and opportunity to review the papers in the case in advance of the hearing of the Summons for directions; and
- (2) that Counsel engaged in the case prepare it in thorough detail, so that well-considered views and suggestions for useful directions can be canvassed.

8.4 The first matter concerns the Court Administrator, and involves the efficient use of judicial time. In our view, the cases we are concerned with

justify special reading time to be given to the Judge and, if expert reports are already available, it would be an advantage if he read them in advance. We have referred several times to the Interim Report on the Maguire case. In that case, there was a pre-trial review and Chapter 12 of the Interim Report deals with what happened at that stage. It is not appropriate or necessary here to go into the detail of the events as disclosed by the Report, but it seems to us that insufficient advantage was taken of the procedure in the sense that the potential scientific issues were not fully and thoroughly reviewed, and their presentation in evidence catered for. We now have the advantage of some wisdom after the event and it seems to us essential that there should be a greater and more detailed use of the pre-trial or Summons for directions procedure.

8.5 We believe that the time has come for statutory sanction to be given for a pre-trial review in any case involving complex or scientific issues. It seems to us that the present practice is too informal, and it lacks national uniformity. Indeed, according to the current edition of Archbold's Criminal Pleading, Evidence and Practice (4-43) there have been Practice Rules in operation at the Central Criminal Court since November 21st 1977. (These we set out by way of Appendix to this report). If the implication is that Crown Courts generally do not operate such procedures, it would be surprising. We have assumed for present purposes that similar hearings take place elsewhere in the country, but the informality of the procedure is not satisfactory. We believe that there should be a positive duty on the Prosecution in all cases involving or likely to involve a contested 'scientific issue' to initiate a Summons for directions, which should take place unless the Defence consents in writing to the waiver of such a hearing. In the relatively unlikely event of a defendant not being legally represented, we think that a hearing should be mandatory. It would serve to give the Judge the opportunity of testing the defendant's readiness for trial, and to enquire as to the reliability of the Prosecution's disclosure procedures in the case under review.

8.6 If the risk of mistake is to be minimised, we believe that a robust and thorough use of pre-trial procedures is essential. This necessarily involves the lawyers on both sides getting up the case in depth before such a hearing. This problem is in turn very much linked to the matter of fees in criminal cases. In Legal Aid cases, in particular, there must be a willingness to allow full preparatory and attendance fees if Counsel is to be expected to prepare the case in detail so far in advance of the trial. In the type of case we are dealing with it is obvious that more time than usual may be required.

8.7 At the hearing of the Summons for directions, every effort can and should be made to see whether the convenience of the expert witnesses can be properly accommodated. Where there is a live issue, the experts on each side will usually be required to be in Court while the other gives evidence. To help the experts in this respect involves two further factors of importance -

- (1) prior consultation with the experts so that the real issues are more likely to be accurately identified; for this purpose it is essential that the experts themselves have a sufficient knowledge of the case as a whole to ensure that full disclosure of all material information is made; and
- (2) the making of better-considered estimates of the time the trial is likely to take, and where in the anticipated programme for the trial it would be convenient for the expert evidence to be given.

8.8 Much of the irritation caused to experts (with a consequent refusal by many to become involved in litigation of any kind) arises out of the time wasted while waiting to be called into Court. This problem may not be wholly soluble; but we are convinced that much more can and should be done to alleviate the difficulties. There is now power, if certain conditions are fulfilled, for the Court to permit evidence to be given by television links (see section 32 of the CJA 1988). At present this will not usually be employed to assist the experts, but we hope that serious consideration will be given to the notion of extending the provisions to enable experts to give evidence without having to attend a distant Court or to spend unnecessary time waiting to be called. It is said that some experts in London are very reluctant to become involved in litigation in the provinces because they may have to leave their other work for lengthy periods and (in some cases) have no option but to attend upon subpoena to give evidence about a matter in respect of which they have given an opinion or report. This is obviously unsatisfactory.

8.9 The element of surprise has rightly become a factor of diminishing significance in criminal trials. Without undermining the principle against self-incrimination or obliging a defendant to reveal his defence if he does not wish to do so, much progress has been made in devising acceptable procedures to make a criminal case a more realistic trial of the real issues. Some of these procedures have evolved without the compulsion of Statute; others have been given statutory force, e.g. the advance notice of alibi; and more recently still the special provisions of the CJAs in relation to certain fraud cases.

8.10 Until 1988 the jury was not permitted to see the reports of the experts on which the oral evidence was based. Section 30 of the CJA 1988 now provides that an expert report shall itself be admissible in evidence in a criminal case. With the leave of the Court (to be exercised in the light of broad considerations of fairness) such a report may be permitted to go before the jury as evidence in the case, even if the expert is not called to give evidence. Furthermore, section 31 of the CJA 1988 empowers the making of Crown Court Rules to help jurors to understand complicated issues of fact or technical terms. The Act authorises the making of rules to make provision -

- (1) as to the furnishing of evidence in any form notwithstanding the existence of admissible material from which the evidence to be given in that form would be derived; and
- (2) as to the furnishing of glossaries for such purposes as may be specified.

8.11 These powers seem to us to show the way to help juries in the type of cases we have referred to. We do not suggest that these new provisions will solve the problems outright; but we believe that if care is taken by the parties and experts in advance of the trial it would result in written reports in clear terms which would be of real assistance to the jury. It would also assist the experts in presenting their material (a subject to which we return below). We believe that there is much to be said for the reports proposed to be put before the jury being reviewed in advance of the trial by the Judge, who should be entitled to require clarification or amendment of the text where this is necessary to help understanding.

8.12 We believe that the traditional method by which witnesses are examined and cross-examined in Court may be an inhibiting factor in relation to the presentation of expert evidence in certain cases. Some experts complain that they are not (or do not feel themselves to be) at liberty to express their opinions as they would wish. They complain, too, that lack of prior consultation with Counsel sometimes leads to their not being asked important questions on which their evidence depends. The advantages of prior consultation are obvious. We think there is much to be said for greater latitude being accorded the expert witness by permitting him to present his views in narrative form rather than in answer to questions, and by being able to make use of video-camera and other presentational aids. We appreciate that there may be an element of danger in an over-enthusiastic witness breaking the rules of evidence, but we believe that the Judge will be well able to check abuse, and that during

prior consultation with Counsel, the inexperienced expert witness will be told what he may and may not be permitted to say in open Court.

8.13 In a criminal case there was, until comparatively recently, no means of requiring parties to exchange experts' reports. This was obviously unsatisfactory and led to many problems. By the Crown Court (Advance Notice of Expert Evidence) Rules 1987, any party to proceedings in the Crown Court who proposes to adduce expert evidence (whether of fact or opinion) is required to notify the other party or parties of the finding or opinion on which he relies. He may also be required to produce or make available for examination the record of any observation, test, calculation or other procedure on which such finding or opinion is based and any document or other thing or substance in respect of which any such procedure had been carried out. There are certain safeguards against abuse which are not germane to the present discussion.

8.14 While these provisions do not empower a Criminal Court to direct the exchange of experts' reports as such, we believe that they go a long way towards checking the problems previously occasioned by 'surprise'. We would encourage a widening of the rules to enable the Court to order simultaneous exchange of reports in appropriate cases. We would go further and suggest that at the Summons for directions stage, at least, the parties should be encouraged (but not obliged) to agree that their experts should meet and discuss their respective views. We believe that such meetings would in due course become common form, and the results would be likely to enhance what should in reality be (and be seen in practice to be) the non-partisan nature of the role of the expert witness.

Chapter 9: Other Suggestions for Reform

Facilities for the Defence

9.1 In criminal cases in particular, concern has frequently been expressed that the forensic science facilities available to the Defence are unfairly limited. The Prosecution has had the advantage of access to well-equipped Government or Government agency laboratories staffed by scientists specifically trained in forensic work. Until the recent change in the status of the Home Office Forensic Science Service to that of an independent agency, there has been no corresponding agency to which the Defence could turn. It has therefore been a problem for the Defence to find an appropriate expert to advise, to repeat the tests or to undertake new investigations. While there are some highly skilled and reputable scientists who undertake Defence work, the quality of the experts available may be very variable, and even when Defence scientists are highly knowledgeable, they do not always have the same sophistication of equipment available to them at their normal places of work, and are dependent either on using strange equipment at a forensic science laboratory or upon requesting tests to be carried out on their behalf.

9.2 In the past it was possible under specific circumstances for the Defence to submit work to the Forensic Science Service, but, in practice, it was an extremely rare event. This was because a report of the work undertaken was sent to the Police as well as to the Defence. There was also some reluctance on the part of the Forensic Science Service to have one of its scientists giving evidence against another. However, the Service did allow Defence scientists to use its equipment provided that the person concerned had the right experience, and it was not uncommon for Service staff to carry out work at the request of independent analysts acting for the Defence in their presence when they were unfamiliar with a particular version of the equipment.

9.3 We believe that the recent fundamental reorganisation of the Forensic Science Service has resulted in a more accommodating policy towards examinations on behalf of the Defence. We understand that the recommendations of the JUSTICE Report on a Public Defender that no details of experiments performed by the Service on behalf of the Defence should be communicated to the Prosecution have now been implemented.

Until now, particularly in the light of the meagre Legal Aid provision for forensic testing, the arrangements have represented a serious flaw in the administration of criminal justice. We cannot emphasise too strongly the need to seize hold of the present opportunity for the development of the Forensic Science Service, as an agency whose expertise is available equally to Prosecution and Defence, and whose independence and efficiency are generally recognised and respected by all who need its services.

Finding an Expert

9.4 Solicitors engaged in civil or criminal litigation frequently have difficulty in finding the appropriate expert to advise them and, if necessary, to give evidence in Court. There are in fact a variety of registers in existence, but coverage is patchy. The Law Society, the Forensic Science Society, the British Academy of Forensic Science and the British Academy of Experts all keep lists of experts, but none is prepared to give advice on suitability. The Royal Society of Chemistry keeps a list of approved analysts for drink/drive cases.

9.5 Ideally, there should be a classified register of approved experts along the lines of the Home Office list of those approved to carry out paternity tests; these are appointed by a panel of eminent serologists. But there is such a wide diversity of subjects that such a register would be extremely difficult to set up. There is also the problem of deciding who shall (and who shall not) be included in the approved lists. We appreciate the problems involved and accept that an immediate solution is not obvious; but it is a subject which warrants further consideration, particularly by the various professional bodies concerned.

Quality assurance in forensic science laboratories

9.6 We make no apology for concentrating our thinking on the ways in which lawyers and the Courts can most effectively enlist the help of scientists in resolving the issues which society expects them to decide. At a time when media attention is focused on the quality of the scientific evidence in cases such as those of the Maguires, the Guildford Four and the Birmingham Six it might be felt that we have not considered the importance of ensuring high standards in the laboratory work of forensic scientists. The Interim Report of Sir John May on the Maguire case has already indicated grounds for concern in this area. His further investigation is likely to provide a definitive analysis of what can go wrong, and how the lessons of past mistakes can be learnt for the future. We share the public concern expressed on this crucial subject. At the same time, we think it is fair to say that the development of quality assurance in the laboratories of

the Forensic Science Service has come a long way since the time of the cases under scrutiny. In particular, since 1979, the general policy on quality assurance has been explicit, comprehensive and open to continuous improvement. For example, there is now much more cross-checking of investigations and research by one scientist with others of appropriate experience. New methods are properly validated, and research is undertaken both at a central research laboratory in Aldermaston as well as in the operational laboratories. An increasing awareness in the scientific community as a whole of the need for quality assurance in laboratory and other scientific work has led to some significant improvement in the working practices of the Forensic Science Service. We are confident that these high standards can, as they must, be maintained. But it is vital to ensure that they are shared by all other forensic scientists in the public and private sectors, whether that be the Royal Armaments and Research Development Establishment (RARDE) or a single expert working from his own laboratory.

Training for lawyers and judges

9.7 The status and professionalism of forensic scientists must be recognised and enhanced. Resources are needed to foster closer contact with universities and other related organisations in the same field. It is essential that research and development keep pace with the new demands made upon forensic scientists. But, if there is one theme which runs through reports and inquiries on cases causing concern, it is that wherever there is a breakdown in the relationship between different professionals or agencies jointly dealing with a problem which has to be decided by a court, there is a disturbing risk of injustice. Obviously, the more that scientists know about the courts and lawyers, the better. But, in our view, it is absolutely essential that lawyers and the courts know and understand how scientists can help them. This is why the thrust of our thinking is towards ways in which the courts can themselves ensure that scientific evidence is most effectively prepared, presented and tested. We believe that too often the scientific issues in a case may be more dependent on the skill of the expert as a witness than on his competence in his speciality.

9.8 In our opinion the introduction of at least basic training in scientific methodology, reasoning and language is long overdue, for solicitors, barristers and the judiciary alike. It is already commonplace for courses in financial affairs and accounting practice to be made available for practitioners and Judges. The Judicial Studies Board has recently arranged for doctors to address Judges on the problems of personal injury cases and

on proceedings concerning children. In relation to science we quote from Sir Roger Ormrod -

'It is reasonable to ask that the lawyers should attempt to understand the basic languages of science, but it is also reasonable to ask that scientific writers should do their utmost to express their material in simple terms. The difficulties are evenly divided. For the writer must distil his scientific material down to its basic principles, which he, all too readily, takes for granted, while the lawyer must make the intellectual effort to follow the basic arguments before attempting to apply them to practical problems. This may be impossible until lawyers receive some basic scientific training'. (Ormrod, 1968, page 244).

The twenty years which have elapsed have increased the importance of these observations.

PART D

LAW AND THE BEHAVIOURAL SCIENCES

Chapter 10: Psychology and the Rules of Evidence

10.1 The involvement of psychologists in legal processes is on the increase. They now give evidence on a wide variety of issues. Clinical psychologists, for example, give evidence in areas of mental abnormality, mental handicap, neurological damage and addiction. Educational psychologists frequently contribute expert opinions on the development, adjustment or ability of children in child care cases and Juvenile Court cases. The psychologist may have conducted a clinical assessment, or may have carried out special experimental studies to investigate the question at issue - for example, the likelihood that an individual could have observed what he claims to have observed under given lighting conditions; or the likelihood that certain behaviour could be the result of consuming alcohol.

10.2 Many of the problems involved in giving expert psychological testimony are the same as those of expert witnesses generally: the often unfamiliar format for the presentation of evidence; difficulties in being seen to 'take sides'; the pressures to state more certain conclusions than the evidence justifies. There are many different areas of expertise within psychology, and the same problems of identifying the appropriate expert also arise. Some difficulties, however, appear to be peculiar to psychology, or are at least an exaggerated form of the problems faced by other experts. Sometimes difficulties arise because psychologists' expertise (like that of psychiatrists - see Chapter 11) is framed in terms of concepts that are incompatible with those of the law and sometimes of 'common sense'. Thus, Haward (1979, p.52) writes, 'All the things that psychologists believe in are disputed by lawyers'. Difficulties also arise because psychologists' expertise may concern matters that lawyers feel fall within the realm of ordinary common sense. It is for this reason that psychologists in Britain do not give evidence on the reliability of witnesses, though their counterparts in the United States frequently do so. We have already referred to the scepticism (even cynicism) psychologists encounter when they seem to the Court to be claiming expertise on 'how ordinary folk ... are

likely to react to the stresses and strains of ordinary life'. While most lawyers would cheerfully defer to experts in genetics or serology, fewer are prepared to take the same attitude towards psychology.

10.3 But in our view, there is also a more fundamental problem. In cases where the facts are in dispute, the common law proceeds today much as it always has proceeded: witnesses are summoned to the Court and are questioned by Counsel, the Court then assesses the weight to be given to each item of evidence, and acts accordingly. Now psychology has much to say on the mental processes involved here. Memory and perception have been subjected to many studies over the years. Such questions as whether it is possible to detect lies, or whether memory of details can be enhanced by hypnosis, or how reliable the evidence of children is, have been matters of some concern. It is no longer a rare case where psychologists have some input that can usefully be made; arguably it is a rare case where they have not.

10.4 The matter goes beyond the problem of psychologists as expert witnesses, and begins to impinge upon the body of the law itself. If the law embodies unrealistically high expectations of the degree of trust we can place on witness recall of details, or unrealistically low expectations of the propensity of children to tell the truth, then the matter cannot be corrected simply by calling a psychologist to say so. Witnesses must work within the framework of legal rules, and would be severely censured for complaining that the rules themselves are founded on incorrect premises. Our present object then is to call attention to the wide-ranging challenge to traditional notions of evidence posed by the advance in psychology. In many areas we can do no more than alert our readers to the situation: the common law rules on evidence were not developed with any very systematic knowledge of the capacities of the mind, and so are highly vulnerable to criticism when such knowledge becomes available.

10.5 Work on the psychology of perception and memory dates from the early years of this century, and demonstrates that honest eye-witness testimony can be very inaccurate indeed. Lawyers are, of course, well aware that it can be unreliable, but tend to work with an intuitive concept of the processes involved, according to which memory is like a picture: the picture may initially be blurred or lacking in detail, and with the passage of time it may fade, but in its essentials it is a passive record of whatever it describes. On this view, a premium is placed on witnesses who can recall events 'most clearly', and accordingly speak of them with the most confidence.

10.6 The image that emerges from present day psychology is rather different. Perception and memory are regarded as active processes, designed to interpret the various (often ambiguous) signals which our senses receive. Many studies have shown that witnesses are frequently very poor at estimating lengths of time, or at realising the limits that poor lighting places on the accuracy of their perceptions, or at recalling events involving personal stress. Very much depends on what witnesses were expecting to see, what patterns they expected their sense-impressions to fall into; hence the tragic cases where hunters have shot at their colleagues, because they were expecting to see a deer, and so did 'see' one. The mind's propensity to make sense of what it perceives may result in witnesses 'remembering' what they have only inferred, sometimes quite wrongly. Here is an example -

'A lawyer was crossing town in a taxi during the rush hour. Suddenly, the car in front of the taxi stopped and a door swung open. The lawyer saw an old man pushed out, or fall out, and lie on the road. The lawyer later discovered to his surprise that his observations had been quite mistaken. The old man had been a pedestrian who was knocked down, not a passenger in the car. The lawyer had seen an open door and the old man in the road, and his perceptual processes had done the rest. This kind of mistake is particularly likely to occur when something dramatic seems to be happening: we quickly form an idea of what is happening on the basis of rather fragmented information'. (Lloyd-Bostock, 1988, page 6)

10.7 Storing and recalling information, too, are regarded by psychologists as active processes of interpretation. Memories may sometimes 'fade' or 'decay', and most (though not all) test results confirm that they deteriorate with time; but equally they may become displaced or abridged, so that what is remembered is an amalgam of several similar incidents. Different individuals involved in the same incident may be transposed in the witness' mind. Subsequent comments or leading questions may become lodged in the witness' memory and recalled as if actually seen; the very process of discovering what witnesses 'saw' may therefore have an effect on their testimony. Moreover, there seems to be no necessary correlation between the confidence of witnesses in the accuracy of their recollections, and the actual accuracy of the recollections; some researchers even report a small negative correlation (Clifford, 1979, page 178).

10.8 These problems are particularly acute in relation to identification evidence. Again, lawyers already recognise that there is a problem here, noting that when identifying a stranger, witnesses do not 'see' that the person they observed was the accused, but infer it from a variety of

perceptual stimuli. But the legal response - a special direction to the jury stressing the dangers of acting on such evidence, calling attention to features of the case such as the circumstances in which the identification was made - is perhaps too sanguine a view of the usefulness of such evidence. Clifford (1979) lists 24 factors that seem to affect the reliability of witness identifications, such as the attitude of the witnesses to the Police and Courts; the influence of stereotypes (e.g. the belief that blue eyes go with blond hair); the race of the witness (cross-racial identification is very difficult); and the nature of any intervening questions the witnesses have been asked.

10.9 Clifford also notes that while the Courts and the legal system can do little about such factors as the witnesses' attitudes or the complexity of the events in question, some of the influencing factors can be controlled. Showing witnesses photographs before they are asked to attend an identity parade seems to influence the result of the parade. Hesitant witnesses who have been asked to make guesses have been shown to make more errors in later tests of accuracy -

'it seems that when people give answers to questions and make descriptions they incorporate these into their memory of the event or person ... Wrong answers therefore take on a life of their own in the witness' memory' (Lloyd-Bostock 1988, page 10).

10.10 Procedures at identification parades can lead to errors, if for example there are few or no plausible candidates other than the suspect, or if the non-suspects give non-verbal cues such as looking at the suspect and not standing too close, or if the witness feels pressure to make a selection in any event. A controversial matter is whether it is legitimate to sharpen a witness' recollection by the use of hypnosis. After some initial enthusiasm on the part of the Police, a Crown Court Judge ruled in 1987 that hypnotically-refreshed witness testimony was inadmissible, and following that decision the Home Office instructed the Police to discontinue witness hypnosis. This scepticism is shared by many psychologists, and in the present state of scientific understanding of hypnotism there can be no question of such testimony being used in Court. However, while there are considerable difficulties with the suggestibility of witnesses in a hypnotic state, and there seems to be no reason for supposing that material recalled under hypnosis is necessarily fuller than matter recalled under other conditions, the technique may nonetheless in some circumstances be of use in eliciting details that are otherwise unavailable for recall. Such assistance may be greater for the purposes of the investigation than for the trial itself.

10.11 Similarly controversial is the question of the reliability of evidence given by children. The legal approach to this question stresses the question whether the child is intellectually mature enough to understand the duty of telling the truth. Psychological studies have confirmed the common sense view that ability to formulate concepts of 'truth' and 'honesty' increases with age, but it is another question whether children are any more likely than adults to tell lies, and there is so far no evidence to suggest that this is so. Are children's memories any less accurate than those of adults? Research is still continuing on this point.

10.12 Within their own familiar world, child witnesses seem able to recall details as well as or better than adults; although of course their own worlds are rather limited. Younger children are relatively unwilling to volunteer information, but with sufficient prompting they perform as well as adults. An obvious concern is that children might be more suggestible than adults, but such studies as have been carried out on this question suggest otherwise (Lloyd-Bostock, 1988, pages 88-89). Psychologists are currently very actively continuing to research the best methods of interviewing potential child witnesses, and providing their evidence to the courts.

10.13 Finally, can psychology help on the question of disputed confessions?

'There is no doubt that some of the techniques of interrogation that have been developed are highly successful in eliciting confessions and information that the suspect does not offer willingly, and with few exceptions the techniques are based on sound psychology ... The more serious problem can be that questioning techniques work only too well'. (Lloyd-Bostock, 1988, page 25).

10.14 In an otherwise optimistic study of the Brighton CID, one researcher noted that nearly half the suspects interviewed could be described as being in an abnormal mental state. The law seems to be moving in the right direction here, having replaced the older test of whether a confession is 'voluntary' with the question whether it is 'reliable', but arguably the extent to which suspects are open to suggestion by their interrogators is seriously underestimated. The extent of any mental handicap from which the suspect suffers will not necessarily be apparent to the Police, especially since sufferers from these handicaps may have been taught to present an outward appearance of confidence and normality; this was a major factor in the notorious case of Maxwell Confait. Further research is proceeding here, including work towards a

scale for assessing the subject's susceptibility to pressure to confess (Gudjonsson 1984).

10.15 In all these areas psychologists are developing new knowledge and new techniques. Their conclusions are often unsettling, and many of them have practical implications for the Courts and for legal proceedings. We venture to suggest that the Courts should think again about the view, reiterated recently in *R v Weightman* ([1991] 92 Cr.App.R. 291), that expert witnesses can have nothing to say on the behaviour of 'normal people'. Moreover, we suggest that advances in psychology call into question some of the existing rules of evidence, as well as police and other procedures of investigation and gathering of evidence.

Chapter 11: Psychiatry

11.1 Psychiatry raises special issues which go beyond the straightforward scientific matters discussed elsewhere in this report. Psychiatry is a branch of medicine and is therefore a clinical science. Psychiatrists have expertise to offer courts in an ordinary medical sense. They may answer questions about the presence or absence of particular diseases, the prognosis of those diseases, and the way in which those diseases can be treated and managed. In this capacity the psychiatrist is no different from any other expert witness and there is in fact very little conflict between psychiatrists about these matters. Difficult diagnostic questions do arise and arguments about finer points can occur, but as with other expert evidence they can usually be settled by the presentation of the evidence to a Court and perhaps the utilisation of further expertise.

11.2 Psychiatry is however in a special position in relation to the Criminal Courts, which are concerned with the mental components of crime, in regard to such issues as intention and responsibility, which are central to the whole philosophical structure of the criminal legal process. It is traditional in European culture, and probably throughout the world, that mental disease which interferes with personal integrity can, in certain circumstances, be regarded as an excuse for otherwise culpable behaviour, or as a factor which can mitigate the penalty for culpable behaviour.

11.3 Such issues were of significance in courts of law long before psychiatry developed as a branch of medical science. Psychiatry began in Britain in the 19th century, but psychiatrists were not often employed as witnesses until the end of that century. Eventually the psychiatrist began to be included in the traditional debates about intention and responsibility. This was natural enough because of his ability to give scientific evidence about the presence or absence of particular mental disorders. However, sometimes too much is expected of psychiatrists' expertise, for whilst evidence about the presence or absence of a disorder may be of great help in enabling a Court (Judge or jury) to come to a decision about intention and responsibility, the actual decision is a philosophical and moral one and entirely the prerogative of the Court itself. No one, whether he be priest, psychiatrist, or philosopher, can provide a conclusive opinion so as to bind the Court about the culpability or otherwise of an accused, because

in doing so he would usurp the basic function of the Court itself. Yet this is not always clearly understood and psychiatrists may find themselves embroiled in moral questions about guilt and responsibility and asked directly for their opinion on such questions.

11.4 Psychiatric evidence may be called at three points in a case. At the first stage, the psychiatrist (or even a psychologist) may be asked to express an opinion about the accused's ability to plead to the charges. Opinions in this area should be fairly straightforward. The clinician usually asks himself five questions: can the accused understand the indictment, is he able to comprehend the evidence, can he follow Court proceedings, does he understand that a juror can be challenged, and is he able to properly instruct legal advisers? The answers to these questions are put to a different jury, before the accused is arraigned. This jury will then decide whether the accused is fit to plead. Unfortunately the results of this system are somewhat capricious and a recent study has shown that there are surprising and arbitrary variations in the types of individuals who are found unfit to plead and the fates which they suffer (Grubin 1991).

11.5 The main problem for psychiatry arises at the trial itself. It is then that questions of responsibility are determined. Someone who is deemed insane under the McNaghten rules (enunciated by the Judges in 1846) is technically acquitted, although still restrained by virtue of a hospital order imposed by the Home Secretary. Any other defendant convicted of an illegal act, notwithstanding that he may be suffering from a psychiatric disorder, is found guilty. In practice in only half a dozen or so cases each year in England and Wales is the accused found 'not guilty by reason of insanity'. In each of these cases psychiatric evidence will have been of importance, but only in one or two will there have been a major conflict about the question of moral guilt. Those sent to hospital as 'insane' are a very heterogeneous group and the arrangements for their mandatory disposal are not entirely satisfactory. We believe the Butler Committee in 1975 were correct in recommending more flexibility.

11.6 Most psychiatric evidence is concerned with the third phase, of sentencing after conviction. In it the evidence is straightforward and concerned with medical science only. There, or sometimes in practice at the trial itself, the doctor can present evidence about the presence or absence of mental disease, the prognosis of that disease, and the appropriate treatment. He may be able to offer the court the possibility of treatment in hospital, or in some other setting. Whether the arguments are accepted, and whether the treatment offers are taken up, will be a matter for the Judge, who will take into account all the circumstances of the case,

including matters such as culpability, public interest, dangerousness and medical need.

11.7 A more usual area for conflict is the defence of diminished responsibility introduced by the Homicide Act 1957. It had a precursor in the similar (but more narrowly circumscribed) defence of infanticide, first introduced by the Infanticide Act 1922 and amended by the Infanticide Act 1938. Under the Homicide Act, the defence of diminished responsibility is available to a person who at the time of the killing 'was suffering from such abnormality of mind as substantially impaired his mental responsibility for his acts and omissions'. 'Abnormality of mind' has been defined by the Court of Appeal as 'a state of mind so different from that of ordinary human beings that the reasonable man would term it abnormal'. Plainly this 'reasonable man' is not a psychiatrist. The concepts employed are legal, moral and lay concepts, not medical ones. The psychiatrist can give evidence about the nature and extent of any mental disease which is present in the accused, but the Court must determine whether or not to attribute diminished responsibility to him. If it does, he will be found guilty of manslaughter and not of murder. The advantage of this, of course, is that the Judge is not constrained to pass a mandatory sentence of life imprisonment, but has a complete discretion as to the sentence he considers appropriate.

11.8 Many psychiatrists find themselves in the position of advising the Court as to whether a defendant suffered at the time of the killing from 'diminished responsibility' as though this were the name of some kind of disease. On occasions when attempts are made by psychiatrists to resist this approach, they may find themselves being rebuked by the Judge. Such cases are examples of psychiatry being used outside its proper field of competence.

11.9 But in spite of its notoriety as a specialty that is in conflict with the law, psychiatry causes few difficulties outside the occasional insanity trial and a number of murder trials. These two difficulties could be remedied very simply by changes in the law allowing increased flexibility for disposal in cases of the insanity verdict, and the abolition of the fixed penalty for murder. This would enable Judges to pass whatever sentence they regarded as appropriate in murder as in all other cases, as they could have done had the Government accepted the views expressed by the House of Lords in the debates on the Criminal Justice Bill in 1991.

SUMMARY

1. Scientific knowledge is increasingly relied upon in both civil and criminal courts. For the most part, collaboration between lawyers and scientists is effective and helpful in the process of decision. But there are some areas, notably in the trial by jury of criminal cases, where misunderstanding, and even mistrust, between the two professions has led to difficulty, and, worse, to injustice.
(Chap. 1.7 - 1.12, Chap. 6)
2. Fundamentally, this arises from the very different ways in which lawyers and scientists reach their conclusions, and the setting in which they work. The constraints placed upon scientists by the laws of expert evidence, and the lack of understanding by some lawyers of scientific concepts and methods, exacerbate the problems of presenting and testing scientific evidence in court.
(Chap. 5.6 - 5.9)
3. Moreover, the courts have yet to come to terms with some crucial insights of psychology into the nature of witness perception and memory, which have a bearing on evidence of identification, or by children or elderly witnesses, and into the kind of pressures which can contribute to false confessions. Some psychiatrists are uneasy about concepts of responsibility enshrined in the law which they have to apply.
(Chap. 2.18, Chap. 6.12, Chaps. 10 and 11)
4. Recent cases, and the inquiry of Sir John May into the Maguire case, have underlined the need for scientific witnesses to make full disclosure of all material relevant to issues on which they give evidence, and for lawyers to ensure that all significant material for the trial is available and properly considered.
(Chap. 4.20)
5. The response to these problems in some other countries where the inquisitorial system is used has been to remove the trial of scientific issues to a tribunal of experts, or for the court, instead of the parties, to appoint its own expert witness to resolve disputed scientific issues. We do not think this is the answer.
(Chap. 7.6 - 7.18)

6. It is essential that lawyers and scientists know much more about each others' work. Lawyers - certainly those concerned with criminal trials - need at least some basic training in scientific methodology, reasoning and language, critical to an informed understanding of the extent to which scientific evidence can help the courts in their work. There is a corresponding need for forensic scientists to familiarise themselves with legal concepts and the working of the law in the courts.
(Chap. 9.7 - 8)

7. The Crown Court (Advance Notice of Expert Evidence) Rules 1987 paved the way for more open disclosure of scientific evidence before a criminal trial. But we would go further. In our view, what is urgently needed is a much more active consideration and definition of the real issues in any case involving complex or scientific evidence at an early stage of the proceedings. There should be a compulsory pre-trial review, in which the available evidence should be fully considered by the Judge so that he can give directions as to the form it should take at the trial. Simultaneous exchange of reports should be ordered in appropriate cases, and the parties should be encouraged to arrange for meetings of their respective experts before the trial. We believe that a robust and thorough use of pre-trial procedures is essential.
(Chap. 8.2 - 8.7, 8.13 - 14)

8. The recent re-organisation of the Forensic Science Service has brought about a more accommodating attitude towards forensic examinations on behalf of the Defence but we cannot emphasise too strongly the need to develop the service as an agency whose expertise is available equally to Prosecution and Defence and whose independence and efficiency are generally recognised by all who need its services. It is vital to ensure that its high standards are shared by all other forensic scientists in the public and private sectors. Finding the right expert is not always easy and we think the various professional bodies concerned should give further consideration to the problem of keeping lists of approved experts.
(Chap. 9.3 - 9.6)

9. Expert witnesses should be encouraged to present their evidence in whatever form is appropriate, with the use of the latest technology of information retrieval wherever practical.
(Chap. 8.8, 8.12)

10. There is a continuing need for resources to enable closer contact to be maintained between forensic scientists and universities or other organisations working in related fields, so that research and development

meet current and future needs.
(Chap. 9.7)

11. All those who are concerned with the development of the law should be aware of the challenge of scientific research to certain traditional concepts of human personality, behaviour and responsibility, so that these can be fully debated and considered when legal reform is contemplated.
(Chaps. 10 and 11)

APPENDIX

See Chap. 8.5

Central Criminal Court Practice Rules 1977

1. Any case may be listed for practice directions within these Rules upon an application in writing made to the Court by solicitors acting for any party or by any unrepresented party, provided that a copy of the application is sent at the same time to all other parties and provided that the Court is satisfied that the case is fit for such practice directions. If no party makes application, the Court may list the case for such practice directions of its own volition.
2. The Court shall determine the time and place of the hearing.
3. At least 14 days' notice of hearing shall be given, unless the parties agree to shorter notice, and that notice shall not be given on a date earlier than 14 days after the preferment of a bill of indictment.
4. (a) Hearings for practice directions under Rule 3 may be dealt with in Chambers before any Judge of the Court.
(b) A represented Defendant shall be present at hearings in Chambers unless he elects not to attend.
(c) Hearings for directions and orders under Rule 6 and the making of orders under Rule 7 shall be held and made in open Court by the Judge allocated to try the case.
(d) All Defendants shall be present in Court at hearings under Rule 4(c) except with the leave of the Court.
(e) Hearings under Rule 4(a) and (c) shall be attended by Counsel briefed to conduct the case on trial or in special circumstances Counsel specifically instructed to deal with the matters arising under Rules 5 and 6.
5. At a hearing under Rule 4(a) Counsel will be expected to be able to inform the Court
 - (a) of the pleas to be tendered on trial;
 - (b) of the prosecution witnesses required at trial as shown on the committal documents and any notices of further evidence then delivered and of the availability of such witnesses;

- (c) of any additional witnesses who may be called by the Prosecution and the evidence that they are expected to give; if the statements of these witnesses are not then available for service a summary of the evidence that they are expected to give shall be supplied in writing;
- (d) of facts which can be and are admitted and which can be reduced to writing in accordance with Section 10(2)(b) of the Criminal Justice Act 1967 within such time as may be agreed at the hearing and of the witnesses whose attendance will not be required at trial;
- (e) of the probable length of the trial;
- (f) of exhibits and schedules which are and can be admitted;
- (g) of issues, if any, then envisaged as to the mental or medical condition of any Defendant or witness;
- (h) of any point of law which may arise on trial, any question as to the admissibility of evidence which then appears on the face of the papers and of any authority on which either party intends to rely as far as can be possibly envisaged at that stage;
- (i) of the names and addresses of witnesses from whom statements have been taken by the Prosecution but who are not going to be called and, in appropriate cases, disclosure of the contents of those statements;
- (j) of any alibi not then disclosed in conformity with the Criminal Justice Act 1967;
- (k) of the order and pagination of the papers to be used by the Prosecution at the trial and of the order in which the witnesses for the Prosecution will be called;
- (l) of any other significant matter which might affect the proper and convenient trial of the case.

6. At a hearing under Rule 4(c) in open Court, the Judge who is to try the case may hear and rule upon any application by any party relating to the severance of any count or any Defendant and to amend or provide further and better particulars of any count in the indictment. The Judge may order particulars relating to any count to be delivered within such time as he may direct.
7. The Judge may make such order or orders as lie within his powers as appear to him to be necessary to secure the proper and efficient trial of the case.
8. Subject to the provisions of Sections 9 and 10 of the Criminal Justice Act 1967, admissions made under Rule 5 may be used at the trial.

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