The admissibility of forensic science and medicine evidence under the Uniform Evidence Law

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This article offers a re-examination of the treatment of expert opinion evidence under the uniform evidence law. Focusing on the terms of s 79, particularly the need for “specialised knowledge”, and drawing upon recommendations by scientists, judges and attentive scholars, it argues that reliability should be read into “specialised knowledge” and trial judges should be provided with criteria that will assist with admissibility decision making in criminal proceedings. Rather than rely upon traditional admissibility heuristics – based around considerations such as formal qualifications, experience, the existence of a field, and whether a technique has been previously admitted – the article recommends moving to criteria that are more consistent with mainstream scientific practice and much more likely to provide substantial insights into the probative value of expert opinion evidence.

INTRODUCTION: APPLYING THE EVIDENCE ACT IN CRIMINAL PROCEEDINGS

Almost 20 years after its introduction in New South Wales, criminal courts continue to struggle with the admissibility of expert evidence under the Evidence Act 1995 (NSW).1 Criminal courts routinely admit weak, speculative and unreliable expert evidence because lawyers and judges do not direct sustained attention to the reliability of forensic science and medicine evidence when considering admissibility. In some cases consideration of expert evidence is so perfunctory, and preparation and analysis so constrained, that we do not even know whether the evidence is relevant. That is, we do not know whether the individuals allowed to express incriminating opinions at trial, as legally-recognised experts, actually possess relevant expertise.2 Drawing upon the Evidence Act and therefore the Uniform Evidence Law (UEL), particularly ss 76 and 79 (as well as ss 55 and 56) and several important decisions from civil proceedings, this article aims to encourage a reconsideration of the treatment of the admissibility and presentation of expert opinion evidence in criminal proceedings.3

The invocation of exclusionary jurisprudence from (well-resourced) civil proceedings is revealing. It is difficult to imagine a justice system – regardless of whether the tribunal of fact is a jury or trial judge – where forensic science or forensic medicine evidence adduced by the state should obtain easier access to the courtroom than expert evidence adduced by the parties in civil proceedings.4 The state has obligations to evaluate techniques, particularly techniques in regular use, 

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2 In many cases substantial problems with the expert evidence are not identified or adequately explained.


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and certify the analysts it relies upon. Superimposed over such expectations is the criminal justice system’s peculiar concern with truth and fairness, the presumption of innocence, and the need to prove guilt beyond a reasonable doubt.

Recent inquiries and reports, highly critical of much forensic science and medicine evidence, reinforce the need to direct attention to the reliability of expert opinion evidence. It is not intended to review these reports in any detail; nevertheless, it would be misleading to omit their findings and recommendations. The United States National Academy of Sciences (NAS), the National Institute of Standards and Technology (NIST) and the National Institute of Justice (NIJ), as well as Justices Goudge and Campbell, have identified serious epistemic and structural problems with many forensic science and medical techniques and practices through the course of their reviews and inquiries. Opinions purporting to connect a trace with an individual or object (the so-called identification “sciences”), or to determine the cause of infant death and injury were the subject of sustained criticism. The reports from these reviews and inquiries place emphasis on the surprising lack of research (especially validation studies), the lack of disclosure, the failure to report uncertainties and error rates, the lack of standards and weak application of standards, misguided and misleading ways of expressing opinions, inattention to cognitive contamination (that is, contextual bias), as well as the need for transparency, disclosure, more detailed reports and institutional separation of forensic analysts from law enforcement.

In addition to posing the confronting question of whether science underpins the many forensic procedures in routine use, the National Research Council committee responsible for the NAS report concluded that “[l]ittle rigorous systematic research has been done to validate the basic premises and techniques”. The committee insisted on the need for validation studies and saw “no evident reason why conducting such research is not feasible”. The NAS report recommends wholesale reform to the forensic sciences in the United States. It would be a mistake to trivialise these conclusions, or contend that Australia is different (or exceptional), without providing substantial scientific evidence that addresses the many deficits and limitations identified by the NAS and other peak scientific and technical organisations (such as the NIST).

The lawyers and judges of New South Wales (and other UEL jurisdictions) have not interpreted their evidence acts in ways that have produced a jurisprudence (and criteria) suited to determining the reliability of forensic science and medicine evidence. There is, in consequence, very limited judicial gatekeeping. This article represents a plea for greater rigour in the application of s 79(1) of the UEL in criminal proceedings. It explains why the terms of the Evidence Act, and the system in which it operates, require judges to direct sustained attention to the reliability of expert evidence adduced by

7 The findings and authoritative recommendations are important because of the light they inadvertently cast on criminal trials and appeals in Australia. Revealingly, trial practices, trial safeguards and appeals have not exposed the depth or significance of problems across the forensic sciences. No court in Australia has produced anything remotely resembling the criticisms and concerns expressed in the NAS Report. For a detailed review of recent reports, see Edmond G, “What Lawyers Should Know about the Forensic Sciences” (2014) 34 Adelaide Law Review (forthcoming).
8 NAS Report, n 6, see Recommendations.
It draws on several important civil decisions to explain why attention to the terms of the Act will require judges to be more exclusionary in their responses to incriminating expert evidence in criminal proceedings.¹⁰

Primarily focused on s 79(1), this article does not substantially engage with ss 135 and 137 of the Evidence Act,¹¹ which place the burden on the party challenging otherwise admissible evidence. Leaving consideration of reliability to ss 135 and 137 places responsibility for demonstrating unreliability, and the risks of jury misunderstanding and misuse, on the accused rather than requiring the State to formally evaluate the techniques and certify the individuals it regularly relies upon for expert advice.¹² Section 137 should focus attention on probative value (and, therefore, the validity and reliability) of forensic science and medicine evidence. It should support the heavy work performed by the exception for “opinions based on specialised knowledge”. Section 79(1) must be the protagonist in the admissibility drama.

**Satisfying section 79(1)**

The relevance of evidence is always the appropriate starting point when considering admissibility. To begin this analysis, however, it is useful to focus on ss 76 and 79(1) of the Evidence Act.¹³ This discussion will help to illuminate the issue of whether incriminating opinions are relevant and how this might be gauged (discussed further below). Section 76(1), “the opinion rule”, states:

Evidence of an opinion is not admissible to prove the existence of a fact about the existence of which the opinion was expressed.

The proscriptive and exclusionary opinion rule covers the field. In the absence of an enumerated exception it is designed to exclude opinions intended “to prove the existence of a fact about the existence of which the opinion was expressed”. In practice, most expert opinions are intended to prove (or disprove) the existence of a fact about the existence of which the opinion was expressed. It would appear, therefore, that in the absence of an enumerated exception such opinions are not admissible even if (apparently) relevant.

Of the various exceptions for opinion evidence, we, self-evidently, are concerned with the exception for those recognised by courts as experts. Section 79 of the Evidence Act provides the only enumerated exception for expert opinions. Referring to “opinions based on specialised knowledge”, s 79(1) states:

If a person has specialised knowledge based on the person’s training, study or experience, the opinion rule does not apply to evidence of an opinion of that person that is wholly or substantially based on that knowledge.

Significantly, “knowledge” appears twice.

**Form**

Initially, it is useful to direct attention to what appellate courts have said about the requirements of s 79(1). Most of the commentary has been focused on questions of form rather than questions of substance.

According to the High Court in Dasreef v Hawchar, opinions admitted under s 79(1) must satisfy two criteria:

10 Although there are important differences between civil and criminal proceedings. See Edmond G and San Roque M, “Just(,) Quick and Cheap: Do We Need More Reliable Expert Evidence in Civil Proceedings?” in Legg M (ed), The Future of Dispute Resolution (LexisNexis Butterworths, 2013) pp 72-83.


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The first is that the witness who gives the evidence “has specialised knowledge based on the person’s training, study or experience”; the second is that the opinion expressed in evidence by the witness “is wholly or substantially based on that knowledge”.14

These criteria have been widely rehearsed. In Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd, the Full Federal Court explained that in applying s 79(1) it is necessary to satisfy the court that:

- the opinion is wholly or substantially based on “specialised knowledge” that the person has; and
- that specialised knowledge is based on the person’s “training, study or experience”.15

In Pan Pharmaceuticals, Emmett J identified “two prerequisites [that] must be satisfied”:

- specialised knowledge derived from training, study or experience must be identified; and
- the opinion sought to be relied upon must be shown to be wholly or substantially based on that specialised knowledge.16

The need to satisfy these criteria has led to considerable commentary on the structure and form of expert reports and testimony.

One of the earliest authoritative statements appeared in HG v The Queen.17 There, Gleeson CJ explained that those proffering opinions based on specialised knowledge must attend to the form of the evidence so that it is possible to answer the question of whether the terms of s 79(1) were fulfilled.

The provisions of s 79 will often have the practical effect of emphasising the need for attention to requirements of form. By directing attention to whether an opinion is wholly or substantially based on specialised knowledge based on training, study or experience, the section requires that the opinion is presented in a form which makes it possible to answer that question.18

This concern with transparency, around the form of reports and testimony, has been repeated in other courts. In Ocean Marine, the Federal Court explained:

The … requirement that an opinion be based on specialised knowledge would normally be satisfied by the person who expresses the opinion demonstrating the reasoning process by which the opinion was reached. Thus, a report in which an opinion is recorded should expose the reasoning of its author in a way that would demonstrate that the opinion is based on particular specialised knowledge. Similarly, opinion evidence given orally should be shown, by exposure of the reasoning process, to be based on relevant specialised knowledge.19

Perhaps most famously, in the New South Wales Court of Appeal in Makita (Australia) Pty Ltd v Sprwoles, Heydon JA endeavoured to comprehensively capture the admissibility requirements. Based on the Evidence Act and the common law, his oft-quoted remarks bear repeating:

In short, if evidence tendered as expert opinion evidence is to be admissible, it must be agreed or demonstrated that there is a field of “specialised knowledge”; there must be an identified aspect of that field in which the witness demonstrates that by reason of specified training, study or experience, the witness has become an expert; the opinion proffered must be “wholly or substantially based on the witness’s expert knowledge”; so far as the opinion is based on facts “observed” by the expert, they must be identified and admissibly proved by the expert, and so far as the opinion is based on “assumed” or “accepted” facts, they must be identified and proved in some other way; it must be established that the facts on which the opinion is based form a proper foundation for it; and the opinion of an expert requires demonstration or examination of the scientific or other intellectual basis of the conclusions reached: that is, the expert’s evidence must explain how the field of “specialised knowledge” in which

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15 Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd (2000) 120 FCR 146 at [18].
17 HG v The Queen (1999) 197 CLR 414.
18 HG v The Queen (1999) 197 CLR 414 at [39].
19 Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd (2000) 120 FCR 146 at [23]. See also Daniels v Western Australia (2000) FCA 1334; Gambro Pty Ltd v Fresenius Medical Care Australia Pty Ltd (2007) 245 ALR 15; Dura (Australia) Constructions Pty Ltd v Hue Boutique Living Pty Ltd (No 3) [2012] VSC 99.
the witness is expert by reason of “training, study or experience”, and on which the opinion is “wholly or substantially based”, applies to the facts assumed or observed so as to produce the opinion propounded. If all these matters are not made explicit, it is not possible to be sure whether the opinion is based wholly or substantially on the expert’s specialised knowledge. If the court cannot be sure of that, the evidence is strictly speaking not admissible, and, so far as it is admissible, of diminished weight. And an attempt to make the basis of the opinion explicit may reveal that it is not based on specialised expert knowledge, but, to use Gleeson CJ’s characterisation of the evidence in HG v R [1999] HCA 2; (1999) 197 CLR 414, on “a combination of speculation, inference, personal and second-hand views as to the credibility of the complainant, and a process of reasoning which went well beyond the field of expertise” (at [41]).

Heydon JA’s statement, described by the Federal Court as a “counsel of perfection”, retains some common law “baggage”. There is, for example, no reference to a “field” in the Act. Nevertheless, Heydon’s JA careful attention to legal needs is both commendable and informative. Makita affirmed the need to identify underlying facts and assumptions as well as direct careful attention to the ability to rationally assess the opinion and the reasoning: “the scientific or other intellectual basis of the conclusions reached”. Makita also reinforced the need for attention to “specialised knowledge”. Heydon JA’s restatement emphasised the need to attend to “an identified aspect” of the specialised knowledge “that by reason of specified training, study or experience, the witness has become an expert”. According to Makita, we need to know about the technique and reasoning in order to determine that “the facts on which the opinion is based form a proper foundation for it”.

In Dasreef, six judges of the High Court (though not including Heydon J) insisted that the text, rather than “any attempt to parse and analyse particular statements in decided cases”, should shape the application of s 79(1). Nevertheless, referring to the paragraph from Makita extracted above, they explained:

Accepting that to be so, it remains useful to record that it is ordinarily the case, as Heydon JA said in Makita, that “the expert’s evidence must explain how the field of ‘specialised knowledge’ in which the witness is expert by reason of ‘training, study or experience’, and on which the opinion is ‘wholly or substantially based’, applies to the facts assumed or observed so as to produce the opinion propounded”. The way in which s 79(1) is drafted necessarily makes the description of these requirements very long. But that is not to say that the requirements cannot be met in many, perhaps most, cases very quickly and easily. That a specialist medical practitioner expressing a diagnostic opinion in his or her relevant field of specialisation is applying “specialised knowledge” based on his or her “training, study or experience”, being an opinion “wholly or substantially based” on that “specialised knowledge”, will require little explicit articulation or amplification once the witness has described his or her qualifications and experience, and has identified the subject matter about which the opinion is proffered.

But that was not this case. The High Court recognised the need to explain the relationship between the opinion, the specialised knowledge and the training, study or experience. This focuses attention, once again, on how the form in which the opinion is expressed provides the ability to determine whether there is specialised knowledge and whether the opinion is based upon it. This approach should assist in determining whether the evidence is relevant, satisfies the conditions of s 79(1), and possesses probative value for the mandatory and discretionary exclusions (ss 135 and 137). The court also made it clear that where the training, study or experience is not obviously linked to specialised knowledge, the admissibility of the opinion will require careful consideration.

20 Makita (Australia) Pty Ltd v Sprowles (2001) 52 NSWLR 705 at [85] (emphasis added).
21 See also Sydney Wide Distributors Pty Ltd v Red Bull Australia Pty Ltd (2002) 55 IPR 354 at [7].
22 “Field” may, on occasion, be a useful heuristic. It will, however, rarely take the place of evidence of knowledge. There are many examples of fields where knowledge and abilities are contrevorbible. Some forms of alternative medicine are conspicuous examples, see Bausell RB, Snake Oil Science: The Truth about Complementary and Alternative Medicine (OUP, 2007).
23 Notwithstanding Red Bull, in Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [29], Emmett J indicated that: “Even if the witness is not required to prove by admissible evidence all the facts on which an opinion is based, those facts ought to be stated with sufficient specificity to enable them to be tested by cross-examination.”
24 Dasreef Pty Ltd v Hawchar (2011) 243 CLR 588 at [37]-[38].
Substance

At this point, having reviewed the commentary on the form of the opinion, we turn to consider what judges have said about substance – that is, specialised knowledge and the issue of “reliability”. Any opinion, according to s 79(1), must be wholly or substantially based on specialised knowledge and the individual proffering the opinion must possess specialised knowledge. This raises the question of what “specialised knowledge” means. Most of the jurisprudence has directed attention to requirements of form. Far less attention has been directed to the meaning of “knowledge” and the provision of guidance for lawyers and trial judges engaged in criminal proceedings.

Perhaps the most important and influential decision by a criminal court is R v Tang.25 Writing for the New South Wales Court of Criminal Appeal (NSWCCA), Spigelman CJ endorsed part of the definition of “knowledge” adopted by the United States Supreme Court in its seminal Daubert v Merrell Dow Pharmaceuticals Inc decision.26 He explained that:

In the immediate context of “specialised knowledge”, picked up by the words “that knowledge” in the second limb of s 79, the word “knowledge” has a different connotation to that which it might have in a different context, eg “common knowledge”. The meaning of “knowledge” in s 79 is, in my opinion, the same as that identified in the reasons of the majority judgment in Daubert v Merrell Dow Pharmaceuticals Inc 509 US 579 (1993) at 590:

“[T]he word ‘knowledge’ connotes more than subjective belief or unsupported speculation. The term applies to any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds.”27

Notwithstanding reliance placed on this definition of “knowledge”, the NSWCCA did not follow the United States Supreme Court’s lead and impose a reliability standard. Indeed, in contradistinction, Spigelman CJ insisted that “the focus of attention must be on the words ‘specialised knowledge’, not on the introduction of an extraneous idea such as ‘reliability’”.28

In this context, it is enlightening to consider the Daubert jurisprudence in a little more detail. Unlike the NSWCCA, the United States Supreme Court moved directly from the phrase “scientific knowledge”, in r 702 of the Federal Rules of Evidence (FRE), to the need for “reliability”.29 Having defined “knowledge”, the United States Supreme Court went further, finding that it imposed “a standard of evidentiary reliability”:

But, in order to qualify as “scientific knowledge,” an inference or assertion must be derived by the scientific method. Proposed testimony must be supported by appropriate validation — ie. “good grounds,” based on what is known. In short, the requirement that an expert’s testimony pertain to “scientific knowledge” establishes a standard of evidentiary reliability.30

In order to help trial judges assess “reliability”, the Supreme Court provided four (or five) criteria:

Ordinarily, a key question to be answered in determining whether a theory or technique is scientific knowledge that will assist the trier of fact will be whether it can be (and has been) tested. …

Another pertinent consideration is whether the theory or technique has been subjected to peer review and publication. …

28 R v Tang (2006) 65 NSWLR 681 at [137]. The suggestion that the United States Supreme Court’s construction of “scientific, technical and other specialized knowledge” from r 702 of the FRE could not inform the interpretation of specialised knowledge from s 79(1) is far from persuasive (at [139]).
29 Daubert v Merrell Dow Pharmaceuticals, Inc 509 US 579 (1993) at 590. Before amendment in 2000, r 702 originally stated: “If scientific, technical, or other specialized knowledge will assist the trier of fact to understand the evidence or to determine a fact in issue, a witness qualified as an expert by knowledge, skill, experience, training, or education, may testify thereto in the form of an opinion or otherwise.” The revised formulation endeavours to encapsulate the Daubert-Kumho concern with reliability.

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Additionally, in the case of a particular scientific technique, the court ordinarily should consider the known or potential rate of error. … and the existence and maintenance of standards controlling the technique’s operation. …

Finally, “general acceptance” can yet have a bearing on the inquiry. A “reliability assessment does not require, although it does permit, explicit identification of a relevant scientific community and an express determination of a particular degree of acceptance within that community”.

The move from scientific knowledge to reliability was not an isolated incident or an interpretive step restricted to scientific evidence. When it came to interpreting “technical and other specialized knowledge”, also from r 702 of the FRE, in Kumho Tire Co v Carmichael, the Supreme Court made clear that:

In Daubert, the Court specified that it is the [Federal] Rule’s word “knowledge,” not the words (like “scientific”) that modify that word, that “establishes a standard of evidentiary reliability.” Hence, as a matter of language, the Rule applies its reliability standard to all “scientific,” “technical,” or “other specialized” matters within its scope.

In United States federal, and most state, courts, the phrase “scientific, technical and other specialized knowledge” requires lawyers and judges to direct their attention to the reliability of expert opinion evidence. As gatekeepers, trial judges are obliged to exclude insufficiently reliable expert opinions.

Kumho was, in part, a response to lawyers seeking to circumvent the Daubert criteria on the basis that the expert evidence was merely “technical” or “specialised”. That approach was decisively rejected. The Kumho Court explained that it is incumbent on proponents to demonstrate that opinion evidence based on “scientific, technical, or other specialised knowledge” is reliable. The court accepted that the indicia used to determine reliability need to be applied flexibly; to accommodate the many different types of expertise. Notwithstanding the need for flexibility, arguments around nomenclature (eg science/non-science or novelty), the boundaries around fields, and the longevity of practices, should not be used to circumvent careful scrutiny.

Forensic science and medicine techniques should generally satisfy the Daubert criteria if they are genuinely scientific or specialised. Attention to actual reliability is important because most techniques used in forensic science and medicine purport to be scientific and, as the NAS report affirms, are susceptible to formal evaluation.

Scalia J insisted that “choosing the manner of testing expert reliability – is not discretion to abandon the gatekeeping function. I think it worth adding that it is not discretion to perform the function inadequately.”

In New South Wales, in the aftermath of Tang, specialised knowledge serves almost no purpose in criminal proceedings. Section 79(1) does not prevent weak, speculative or unreliable opinion evidence from contaminating criminal proceedings. The courts of New South Wales do not consider the reliability of expert evidence in their admissibility determinations. Unreliable expert opinions, drawing upon impressions and untested techniques, and even the speculative opinions of investigating police, have been, and continue to be, admitted – whether characterised as evidence of fact, or ad hoc expertise or as “opinions based on specialised knowledge”.

When it comes to forensic science and medicine evidence the characterisation of “reliability” as “extraneous” was mistaken. Unless “reliability” is read into specialised knowledge, the phrase is (or risks being) denuded of meaning and practical import. In most cases, inattention to specialised knowledge – and, therefore, demonstrable reliability – leads lawyers and judges to direct their

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31 Daubert v Merrell Dow Pharmaceuticals, Inc 509 US 579 (1993) at 596-597. Some authors count “the existence and maintenance of standards controlling the technique’s operation” as a separate criterion.


33 A prominent example from the forensic sciences is United States v Havward 117 F Supp 2d 848 (SD Ind, 2000).

34 Concern with reliability should not be restricted to novel techniques. See the discussion in R v Trochym [2007] 1 SCR 239.


attention to whether the opinion appears to be linked to the witnesses’ “training, study or experience” or some putative “field” or whether similar opinions have been admitted. Sections 55, 56, 79(1), 135 and 137 of the New South Wales Evidence Act do not require courts to consider the probative value of expert evidence.\(^\text{38}\) Indeed, there are no sections of the Evidence Act or other rules and practices that, as currently interpreted, direct attention to the actual probative value of incriminating expert opinion evidence as a condition of admission. Consequently, the validity and reliability of techniques plays no part in the admission of scientific, technical and other kinds of expert evidence.

This approach is not only undesirable, it is difficult to reconcile with the text of the UEL. Reference to specialised knowledge in s 79(1) requires evidence that something is known – that is, already known. It does not refer to things that could be known, to things that seem plausible, to something that might be exposed during a trial, or to what a jury might accept. Unreliable knowledge is oxymoronic. Specialised knowledge that is not demonstrably reliable is not knowledge. Similarly, things that are uncertain, speculative or not well supported do not constitute knowledge. With the emergence of wide-ranging, authoritative and unanswered critiques of the forensic sciences, the time is ripe to consider not only the form of the opinion, but also the more fundamental question of whether there is evidence of specialised knowledge.\(^\text{39}\) Where forensic science techniques have not been formally evaluated we do not know if they constitute “knowledge”. Notwithstanding previous legal traditions and practice, recent appeals and revelations (for example, from the NAS and NIST/NIJ reports) should make us cautious about complacent assumptions and trust.\(^\text{40}\) Not everything presented as forensic science or forensic medicine evidence should be equated with (scientific or medical) knowledge.

In the aftermath of the NAS and other inquiries and reports, we can refine the criteria advanced in Daubert and Kumho to guide the identification of knowledge (and reliability). On the basis of the advice and recommendations of authoritative, independent reports from peak scientific and technical organisations, it seems that courts responsible for the admission and evaluation of forensic science and medicine evidence should attend to the kinds of criteria listed in Columns 2 and (especially) 3 of Table 1 (overleaf). As Table 1 makes clear, these indicia of knowledge are not consistent with the kinds of criteria conventionally used by Australian judges in their application of s 79(1) in criminal proceedings.

Most of the conventional legal criteria and considerations (such as those in Column 1) are either misguided or, like the New South Wales approach to specialised knowledge, interpreted or applied in ways that denude them of significance. They might be easier to apply than the criteria listed in Columns 2 and 3, but they do not direct attention to the value of the evidence, particularly whether a technique works and how well. They shift the focus from the primary epistemic issue (that is, pertaining to knowledge) by substituting misguided heuristics and secondary considerations such as whether the court (or another) is satisfied there is a field, whether courts in other jurisdictions (such as England, where there is no requirement for specialised knowledge and no attention to reliability) have admitted similar evidence, the length of time courts have been admitting such evidence, the experience of the analyst, and perhaps most curiously – given the text of s 79(1) – whether the jury is perceived to be able to assess the evidence (for example, CCTV images or voice recordings) without the expert’s assistance.\(^\text{41}\)

\(^\text{38}\) According to Basten JA, author of the most orthodox of the judgments in R v XY (2013) 84 NSWLR 363, attention to the reliability of evidence in undertaking the balancing exercise required by s 137 is exceptional.

\(^\text{39}\) Contrast HG v The Queen (1999) 197 CLR 414 at [40]; in 37: “It is unnecessary for present purposes to enter into issues of the kind considered in Daubert v Merrell Dow Pharmaceuticals Inc [1993] USSC 99; 509 US 579 (1993). It is the language of question of whether there is evidence of specialised knowledge.” Where forensic science techniques have not been formally evaluated we do not know if they constitute “knowledge”. Notwithstanding previous legal traditions and practice, recent appeals and revelations (for example, from the NAS and NIST/NIJ reports) should make us cautious about complacent assumptions and trust.

\(^\text{40}\) See, for example, Morgan v The Queen (2011) 215 A Crim R 33; Gilham v The Queen (2012) 224 A Crim R 22; Wood v The Queen (2012) 84 NSWLR 581; Honeysett v The Queen (2013) NSWCCA 135.

### TABLE 1 Criteria for assessing admissibility and weight

<table>
<thead>
<tr>
<th>(1) Australian (criminal) jurisprudence</th>
<th>(2) US Supreme Court’s <em>Daubert</em> reliability criteria (from “scientific, technical, or other specialized knowledge”)</th>
<th>(3) National Academy of Sciences (US), National Institute of Standards &amp; Technology (US) National Institute of Justice (US) (forensic science and medicine)</th>
</tr>
</thead>
<tbody>
<tr>
<td>“specialised knowledge” but not “the introduction of an extraneous idea such as ‘reliability’”</td>
<td>Testing (ie, validation studies): “whether a theory or technique … can be (and has been) tested”</td>
<td>Independent (pre-litigation) validation studies</td>
</tr>
<tr>
<td>“training, study or experience” (particularly time spent doing something)</td>
<td>Rigorous proficiency testing and demonstrated proficiency</td>
<td>Supported by peer-reviewed publication</td>
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<tr>
<td>Previously admitted (though not necessarily in NSW)</td>
<td>“the existence and maintenance of standards”</td>
<td>Standards developed and applied</td>
</tr>
<tr>
<td>Imputed (or legally recognised) “field”</td>
<td>General acceptance: “a relevant scientific community and an express determination of a particular degree of acceptance within that community”</td>
<td>Persuasive to multidisciplinary audiences (beyond parochial forensic science “fields”)</td>
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<tr>
<td>Imputed (or legally recognised) “expertise”</td>
<td>Probabilistic expression of results</td>
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<tr>
<td>“Adversarial bias” and breach of expert “Code of Conduct” (though normally only matters for weight and possibly discretion)</td>
<td>Processes to remove contextual bias and errors created by human factors (and the need to document exposure to domain irrelevant information)</td>
<td>Independence from law enforcement</td>
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<td>Fall disclosure in detailed and transparent reports</td>
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<td></td>
<td>Standardised expressions (preferably probabilistic expressions derived from formal studies)</td>
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<tr>
<td>Assist the jury (and whether the jury will be able to assess the evidence without “expert” assistance)</td>
<td>Assist the jury</td>
<td>Need for consistent use of terminology and attention to how expressions are actually understood by the tribunal of fact</td>
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Prosecutors and judges – and presumably jurors – have repeatedly conflated “experience” with “expertise”. They have invested confidence in the untested experience of forensic analysts and in consequence these analysts have never been inclined to actually assess their abilities. Instead, lawyers and expert witnesses have tended to treat previous admission in courts and cross-examination as some kind of test. These are lamentable and damaging responses that are not consistent with the terms of s 79(1) or the advice from leading scientific organisations. Admission has discouraged independent research and the refinement of techniques and performances. Easy admission encourages speculation, and increases the risk that incriminating opinions are mistaken or exaggerated, and that very real risks will not be recognised or understood by the tribunal of fact. The *Daubert* criteria and the factors recommended by the NAS (and the NIST), in stark contrast, direct attention to independent evidence of actual abilities and the need to develop and apply standards, satisfy multidisciplinary audiences and express opinions in empirically justified terms. That is, they direct attention to knowledge.

Where techniques are in routine use, the requirement for specialised knowledge demands not only attention to the form of the opinion in reports and testimony (following *HG*, *Makita* and *Dasreef*), but also that we have means of rationally evaluating it. Hence the focus on specialised knowledge. With many (perhaps most) forensic science and medicine techniques, this will necessitate independent...
validation studies (published in peer-reviewed journals), indicative error rates, explanations of uncertainties and limitations, empirically derived standards, attention to contextual bias and the use of expressions linked to the results of validation studies.\textsuperscript{42} Such prerequisites are not merely appropriate but, according to unconstrained advice from the United States National Academy of Sciences, necessary. The knowledge produced through formal evaluation of techniques enables lawyers, judges and fact-finders to determine whether there is specialised knowledge and \textit{actual expertise} in the specific domain regardless of claims about training, study or experience. Validation studies (like independent and rigorous proficiency tests) provide demonstrable evidence of reliability (really validity and reliability) and provide a framework that enables the trier of fact to determine if an opinion is probative and, if so, to rationally evaluate it. The alternative is to focus on training, study or experience. There are real dangers in moving from training, study or experience to an opinion without attending to the existence of specialised knowledge and the fundamental question of whether the opinion is based on that knowledge.

In the absence of evidence of specialised knowledge, lawyers, judges and jurors are not in a position to rationally evaluate a great deal of the forensic science and medicine evidence proffered in courtrooms. Of considerable concern, the failure to have undertaken formal evaluation and provide evidence of specialised knowledge may not prevent lawyers, judges and jurors from deeming evidence relevant and treating it as highly probative. It will, however, force them to rely upon misleading evidence of specialised knowledge may not prevent lawyers, judges and jurors from deeming evidence relevant and treating it as highly probative. It will, however, force them to rely upon misleading heuristics and, in consequence, leave them without appropriate means of understanding limitations and determining probative value.\textsuperscript{43} Moreover, jurors should not be required to determine whether techniques and derivative opinions are valid (that is, work), especially when they are not provided with appropriate information, and in the context of adversarial proceedings where the prosecution appeals to the long experience and independence of state-employed analysts, and aduces other incriminating evidence.\textsuperscript{43}

When determining admissibility, courts should be interested in the form of the opinions insofar as it allows them to identify the specialised knowledge and its basis so that expert opinion is susceptible to rational evaluation. The expert (and the prosecutor) must provide the means to rationally assess the opinion and the underlying technique. This idea, commonly associated with \textit{Davie v Magistrates of Edinburgh},\textsuperscript{44} is advanced in both \textit{Makita} and \textit{Dasreef}. According to Heydon JA, it is:

\begin{quote}
a prime duty of experts in giving opinion evidence: to furnish the trier of fact with criteria enabling evaluation of the validity of the expert’s conclusions … Davie’s case is not to be read as reflecting only a principle peculiar to Scottish law.\textsuperscript{46}
\end{quote}

In \textit{HG}, Gleeson CJ insisted that for the opinion to be admissible “would have required or invited demonstration or examination of the scientific basis of the conclusion”.\textsuperscript{47} In \textit{Dasreef}, satisfying the criteria from s 79(1) in such a way as to enable rational evaluation was characterised as an admissibility issue rather than a matter for weight.\textsuperscript{48}

\textsuperscript{42} Validation studies tell us whether techniques work (and are therefore potentially relevant), provide indicative error rates, empirically derived standards and expressions, and also delimit the scope of the technique (and related expertise).

\textsuperscript{43} Limitations, uncertainties, error rates and errors are not routinely disclosed. Rather, they are left for the defence – displaced in time and space from the collection, transportation and laboratory where analysis and interpretation took place – to somehow tease out. See Vincent F, \textit{Report: Inquiry into the Circumstances that Led to the Conviction of Mr Farah Abdulkaadir Jama} (Victorian Government Printer, May 2010).

\textsuperscript{44} In the absence of formal evaluation, those assessing expert opinions are obliged to rely on inferior, and frequently misleading, criteria such as their impressions of demeanour, credibility, experience, qualifications and plausibility.

\textsuperscript{45} \textit{Davie v Magistrates of Edinburgh} [1953] SC 34 at 40. Davie is cited in \textit{Tang}, although there the approach adopted by the court does not provide a rational means of assessing the anatomist’s opinion and does not direct attention to specialised knowledge or the actual ability of the analyst.

\textsuperscript{46} \textit{Makita (Australia) Pty Ltd v Sprowles} (2001) 52 NSWLR 705 at [59]-[60]. See also the italicised section from the larger \textit{Makita} at [85] (extracted above at n 23).

\textsuperscript{47} \textit{HG v The Queen} (1999) 197 CLR 414 at [41].

\textsuperscript{48} \textit{Dasreef Pty Ltd v Hawchar} (2011) 243 CLR 588 at [93]-[94].
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This concern was also reflected in *Ocean Marine* (extracted above), as well as common law jurisprudence. In *Hillstead v The Queen* in 2005, the Western Australian Court of Appeal went even further:

It is a primary duty imposed on experts in giving opinion evidence to furnish the trier of fact with the criteria to enable the evaluation of the expert conclusion: *Makita (Australia) Pty Ltd v Sprowles*, … In criminal cases the prosecutor has a clear duty to acquaint the Judge and jury in ordinary language, through the evidence which is led, with those aspects of the expert’s discipline and methods necessary to put the court in a position to make some sort of evaluation of the opinion that the expert expresses. Where the evidence is of a comparatively novel kind, the duty resting on the prosecutor is even higher. Then the evidence should demonstrate the scientific reliability of the opinion expressed: *Lewis v The Queen* [1987] NTCCA 3; (1987) 88 FLR 104 at 123-124 per Maurice J; *Makita (Australia) Pty Ltd v Sprowles (supra)* at [73]. It is the role of the prosecutor to strip forensic evidence of its mystery so far as is possible. The “bare *ipse dixit*” of a scientist upon an issue in controversy should carry little weight: *Davie v Magistrates of Edinburgh* (1953).49

It is a fundamental requirement of our accusatorial system that the trial judge and the tribunal of fact are able to understand and assess the evidence.50 The express need for specialised knowledge in s 79(1) would seem to require proponents of expert opinions to present independent evidence of knowledge – that is, beyond the witness’ experience and any ability to withstand cross-examination. There should be evidence beyond the claims of the witness that demonstrate knowledge and/or relevant expertise (that is, an ability well beyond what a lay person can do). Without such knowledge the assessment of most types of forensic science and forensic evidence is not based on the criteria and considerations recommended by peak scientific organisations and scholarly commentators. In such circumstances assessment is not rational.

In this context it is worth explaining that allowing a witness to describe his or her technique, especially when that technique can be formally evaluated but has not been, is not an adequate response.51 Describing most techniques does not enable lay persons to ascertain their validity or reliability. The description of a technique or set of practices does not tell us if they work. Description merely indicates to the judge and jury what the analyst did (or claims to have done). Significantly, it does not “furnish the trier of fact with the criteria to enable the evaluation of the expert conclusion”. Similarly, requiring the expert to make concessions – such as the technique has not been validated or there is no database – as some kind of admissibility compromise does not reveal anything positive about knowledge or expertise.52

Genuine dangers are created by opinions that are not reliable – that is not based on specialised knowledge:

Experts who venture “opinions”, (sometimes merely their own inferences of fact), outside their field of specialised knowledge may invest those opinions with a spurious appearance of authority, and legitimate processes of fact-finding may be subverted.53

Attention to specialised knowledge allows us to answer questions about the scope of expertise as well as the level of performance (and error). Concern with specialised knowledge should prevent courts from prematurely legitimising speculative techniques or relying on nonsystematic and untested experience.

Presented as expert, weak, speculative and unreliable opinions pose grave risks to the fairness of criminal proceedings as well as the legitimacy and accuracy of fact-finding. It is far from obvious that conventional trial safeguards, particularly warnings and qualifications to expression provide

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49 *Hillstead v The Queen* [2005] WASCA 116 at [48]-[49].
53 *HG v The Queen* (1999) 197 CLR 414 at [44].
meaningful correctives.\textsuperscript{54} Admitting weak, speculative or unreliable opinions and requiring lay jurors to determine probative value without appropriate information and explanation is undesirable and inconsistent with a system that claims to be concerned with the rational provision of justice.\textsuperscript{55}

Section 79(1) is frequently interpreted in a way where the need for specialised knowledge is satisfied by “experience”. If specialised knowledge is marginalised, or its meaning traduced, then opinions based on (untested) experience or training in adjacent domains become admissible. This was not the intention of the drafters and not how the section is drafted. Section 79(1) requires opinions to be based on specialised knowledge. Specialised knowledge is not training, study or experience. Witnesses should identify and explain the knowledge that they rely upon. Training, study or experience should mean that the witness is conversant with and able to identify relevant specialised knowledge. They are, after all, expected to possess that knowledge.

\textbf{A note on ad hoc experts}

The approach to expert evidence in New South Wales has, in addition, been subverted by expansion in the use and scope of so-called \textit{ad hoc experts}.\textsuperscript{56} The idea of the ad hoc expert emerged (in Australia) in Butera \textit{v} DPP (Vic), where the prosecutor called upon a translator to provide a transcript to assist the jury with the interpretation of a contested voice recording.\textsuperscript{57} The transcript was admitted as an interpretive aid. The tape remained, in theory, the primary evidence.\textsuperscript{58} Over the last decade, New South Wales courts have recognised ad hoc expertise as a type of admissible expertise that appears to sit beyond the \textit{Evidence Act} or, perhaps less comfortably, within it.\textsuperscript{59}

Lamentably, in responding to contested voice recordings and images, New South Wales courts have allowed analysts and investigating police officers to proffer their opinions not merely about what words were allegedly spoken (as in Butera) but the identity of the speaker (or person of interest).\textsuperscript{60} These analysts and investigators are frequently exposed to a great deal of gratuitous information about the case (usually highly suggestive) and generally have no relevant training or study (and sometimes no experience) in voice or image comparison.\textsuperscript{51} They do not always know about relevant methods, they are not necessarily conversant with research and limitations, they are likely to be over-confident and error-prone; most do not produce reports or comply with Codes of Conduct (discussed below). Those proffering ad hoc expert opinions do not possess or identify relevant specialised knowledge. Remarkably, many of these issues have not been addressed or are yet to receive judicial consideration.\textsuperscript{62}

In addition, judges seem inclined to think that the performance of ad hoc (and many other) experts cannot be formally evaluated.\textsuperscript{63} Such inclinations are mistaken. Techniques and abilities can be assessed but have not been. Moreover, in many cases there are scientists and engineers working on the very issues, but these individuals (sometimes unknown to police and prosecutors) are often


\textsuperscript{57} \textit{Butera v DPP} (Vic) (1987) 164 CLR 180; 30 A Crim R 417 drawing on \textit{R v Menzies} [1982] 1 NZLR 40 at 49.

\textsuperscript{58} The issue was largely addressed by s 48 of the \textit{Evidence Act}.

\textsuperscript{59} There are many problems with such an approach. For a range of criticisms, see Edmond G, Martire K and San Roque M, “Unsound Law: Issues with (‘Expert’) Voice Comparison Evidence” (2011) 35 Melbourne University Law Review 52.

\textsuperscript{60} Though the transcripts themselves are not without genuine problems, see Fraser H, “Transcripts in the Legal System” in Freckelton I and Selby H (eds), \textit{Expert Evidence} (Thomson Reuters, 2010) Ch 100.


\textsuperscript{63} See \textit{Li v The Queen} (2003) 139 A Crim R 281; \textit{R v Aitken} 2012 BCCA 134.
unwilling to testify because their science-based techniques are not yet capable of producing reliable results. Prosecutors and judges have been too eager to facilitate the admission of the untested and therefore speculative opinions of investigators. This is not only highly undesirable but also inconsistent with the terms of the Evidence Act.\textsuperscript{64}

Sections 76 and 79 would appear to cover the field. This is particularly important in relation to ad hoc experts. If the witness does not satisfy the terms of s 79(1), he or she cannot offer an incriminating opinion “to prove the existence of a fact about the existence of which the opinion was expressed”. We should not encourage investigating police officers (and others) to express speculative opinions, let alone treat them as expert evidence, in criminal proceedings. Attention must be focused on specialised knowledge (and indicia of reliability) because attention to the requirements of s 79(1) provides means of enabling expert opinions to be evaluated. Inattention to specialised knowledge, and therefore evidence of ability and performance, means the evaluation of expert opinions depends on impressions of demeanour, credibility, (apparent) impartiality and (untested) experience.\textsuperscript{65}

Recourse to ad hoc experts represents an inappropriate relaxation of important rules (and protections) for reasons of convenience and expediency to the state. The opinions of ad hoc experts are likely to be misleading and they are also very likely to be over-valued. Moreover, it is incredibly difficult to contest the incriminating opinions of police officers and others when they can simply acknowledge that they have not studied the technique, do not know about relevant literatures, have never been tested, but nonetheless sincerely believe the accused is the person in the voice recording or incriminating images. There is no evidence that the performance of these witnesses is better than the tribunal of fact (thereby making their incriminating opinions relevant) or that their subjective interpretations have not been irreparably contaminated by gratuitous exposure to suggestive information.\textsuperscript{66} Moreover, confidence and persuasiveness do not have a linear relationship with accuracy.

An argument could be made that ad hoc experts have experience derived through the course of the investigation; usually through repeated listening to voice recordings or viewing images. The real problem emerges when specialised knowledge enters into consideration. Unsurprisingly, the criminal justice jurisprudence has been inattentive to the issue of specialised knowledge for ad hoc experts. Generally, if there is specialised knowledge about voice and image comparison it does not reside with the ad hoc experts and they rarely seem to be conversant with specialist research literatures or anything that could credibly be equated with knowledge (from Daubert or Tang). Ironically, most of the relevant knowledge (in this case, the published scientific literature) in relation to voice and image comparison is critical. Published studies confirm how difficult comparison tasks are and how error-prone humans, including experienced investigators, tend to be.\textsuperscript{67}

\textsuperscript{64} See Kirby J in Smith v The Queen (2001) 206 CLR 650 at [56]-[57]; 125 A Crim R 10. These concerns have a long lineage, as evidenced by R v Crouch (1850) 4 Cox CC 163 at 164.

\textsuperscript{65} On limitations with assessments of credibility and demeanour, see Bandes S, “Remorse, Demeanour and the Consequences of Misinterpretation: The Limits of Law as a Window into the Soul” in Roberts P et al, Realising Integrity in the Criminal Process (Hart, 2015) (in draft).


IMPLICATIONS OF NOT SATISFYING SECTION 79(1)

Historically, courts have been reluctant to exclude incriminating expert opinion evidence. Evidence that is (perhaps not recognised as) weak, speculative, unreliable or exaggerated is routinely admitted on the basis that problems can be explored at trial and considered as issues of weight. Such an approach is inconsistent with the terms of ss 76(1) and 79(1). The High Court made this crystal clear in *Dasreef*:

> A failure to demonstrate that an opinion expressed by a witness is based on the witness’s specialised knowledge based on training, study or experience is a matter that goes to the admissibility of the evidence, not its weight.68

This is consistent with earlier decisions, such as *HG* and *Makita*, where courts explained that the failure to address the criteria in s 79(1) would make it difficult, perhaps impossible, to determine whether the opinion should be admitted. Moreover, the failure to address the criteria and provide information about performance and accuracy compels the tribunal of fact to turn to inappropriate considerations in their assessment of incriminating expert opinion.

**WHAT IS REQUIRED IN AN EXPERT REPORT ACCORDING TO SECTION 79(1) AND THE CODES OF CONDUCT?**

To determine whether expert opinions are admissible, criminal lawyers and judges should be much more attentive to the form of the expert report and testimony insofar as that enables them to determine whether the opinion is based on specialised knowledge. Lawyers and judges should pay much closer attention to whether expert reports and performances satisfy the various Codes of Conduct and Guidelines regulating conduct in the Federal Court, New South Wales and Victoria.69 Greater attention to the content of expert reports and certificates (s 177), and compliance with formal rules would greatly assist in admissibility decision-making and the rational assessment of expert evidence. Attending to existing rules and jurisprudence would substantially redress commonplace deficiencies but there remains an obvious imperative to direct attention to the reliability of forensic science and medicine evidence.

The extract below reproduces the formal requirements for reports as set out in the Expert’s Code of Conduct from, revealingly, the *Uniform Civil Procedure Rules 2005* (NSW).70 The first thing that must be said is that many forensic science reports adduced by prosecutors do not comply with these rules. Most expert reports do not provide the kinds of detail required to address the conditions prescribed by s 79(1). Moreover, they do not enable a scientist — let alone a lawyer, judge or juror — to rationally assess the opinion and its basis. They do not “furnish the trier of fact with the criteria to enable the evaluation of the expert conclusion”.71

3. The form of expert reports

1. A report by an expert witness must … specify the following:
   a. the person’s qualifications as an expert,
   b. the facts, matters and assumptions on which the opinions in the report are based (a letter of instructions may be annexed),
   c. reasons for each opinion expressed,

68 *Dasreef Pty Ltd v Hawchar* (2011) 243 CLR 588. See also *Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd* (2000) 120 FCR 146 at [18]: “Each of those requirements must be satisfied before the exception afforded by section 79 will allow opinion evidence to be admissible to prove the existence of a fact about the existence of which an opinion is expressed.”


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(d) if applicable, that a particular question or issue falls outside his or her field of expertise,
(e) any literature or other materials utilised in support of the opinions,
(f) any examinations, tests or other investigations on which he or she has relied, including details
of the qualifications of the person who carried them out.
(2) If an expert witness who prepares a report believes that it may be incomplete or inaccurate without
some qualification, that qualification must be stated in the report.
(3) If an expert witness considers that his or her opinion is not a concluded opinion because of
insufficient research or insufficient data or for any other reason, this must be stated when the
opinion is expressed.
(4) An expert witness who, after communicating an opinion to the party engaging him or her (or that
party’s legal representative), changes his or her opinion on a material matter must forthwith
provide the engaging party (or that party’s legal representative) with a supplementary report to that
effect.72

Reports and testimony, particularly where adduced by the prosecutor, should comply with these
rules.73 Reports should be presented in a form that satisfies the formal requirements of s 79(1), as well
as the express terms of codes of conduct. Reports should identify the facts or assumptions on which
the opinions are based. They should also provide reasons (s 793(1)(c)); declare limits of expertise
(s 793(1)(d)); refer to relevant literatures and tests (s 793(1)(e)–(f)); pro-actively disclose limitations
(s 793(2)); and draw attention to the need for further research or evidence (s 793(3)). Those preparing
reports should also be willing to change their mind (s 793(4)). Compliance will usually assist with
decisions about admissibility, probative value and some of the risks of unfair prejudice that might
arise.

The Codes of Conduct are not admissibility rules per se. Judges have suggested that in most cases
partisanship (and bias) and other shortcoming will generally not lead to the exclusion of expert
opinion evidence, at least not under s 79(1).74 However, judges might use their mandatory and
discretionary exclusions (ss 135 and 137) to reject expert evidence that does not comply with the text
of the Codes.75 In thinking about compliance with s 79(1) and the Codes of Conduct, prosecutors and
judges should consider whether non-compliant reports and testimony actually enable them to answer
the questions advanced by the High Court in Dasreef. What is the specialised knowledge, is the
opinions based on it, and is the specialised knowledge linked to the individual’s training, study or
experience? In many cases, the failure to address the criteria listed in Column 3 in Table 1 will make
it difficult to answer the very questions that should determine admissibility (as well as guide
assessment of weight).

Examples from the Federal Court

Two examples from civil proceedings provide some indication of what ought to follow from careful
scrutiny of reports and testimony. Responding to a challenge to the admissibility of expert reports in
Ocean Marine, the court insisted that:

it is not permissible to conclude, simply because a person expresses an opinion on a particular subject,
referring to particular technology, that that person has any specialised knowledge in relation to that
subject. There must be specific evidence as to specialised knowledge of the person in relation to that
subject and as to the training, study or experience upon which that specialised knowledge is based.76

Of considerable interest, the court continued:

72 Uniform Civil Procedure Rules 2005 (NSW), Sch 7.
73 On the obligations of prosecutors, see Edmond G, “(ad)Ministering Justice: Expert Evidence and the Professional
Responsibilities of Prosecutors” (2013) 36 UNSWLJ 921.
74 See FGT Custodians Pty Ltd v Fagenblat [2003] VSCA 33. Although there are recent exceptions: Welker v Rinehart (No 6)
75 Wood v The Queen (2012) 84 NSWLR 581 at [728]-[730].
76 Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd (2000) 120 FCR 146 at [22]. The New South
Wales expert witness Code of Conduct is similar, indeed based upon, (earlier incarnations of) the guidelines for expert witnesses
developed by the Federal Court of Australia.

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The further requirement that an opinion be based on specialised knowledge would normally be satisfied by the person who expresses the opinion demonstrating the reasoning process by which the opinion was reached. Thus, a report in which an opinion is recorded should expose the reasoning of its author in a way that would demonstrate that the opinion is based on particular specialised knowledge. Similarly, opinion evidence given orally should be shown, by exposure of the reasoning process, to be based on relevant specialised knowledge.77

The basis of the opinion requires explanation of the reasoning process. That is, the method through which the opinion was derived should explain the nature of the specialised knowledge. The opinion must be based on pre-existing specialised knowledge and this should be identified – usually through the process (and independent evidence about its value).78 The existence of an opinion does not support the possession of specialised knowledge. Courts should avoid such backward reasoning.

Turning its attention to the condition and repair of marine engines, the court in Ocean Marine considered the admissibility of several expert reports. The court found that signing a report “Surveyor” and describing the firm employing its author as “Consulting Marine Surveyors and Engineers” was “equivocal and inconclusive”.79 In another of the reports, a Mr Parker of Rockcliff Marine & Engineering P/L had asserted:

> It is my belief that poor performance of previous overhauls caused contamination of lubrication system, which in turn caused a gradual yet premature failure of components outside their normal wear schedule. I can make this claim with some authority as I was involved with repairing the engine after its repair and return from New Zealand.80

In the absence of explicit evidence of relevant specialised knowledge these expert reports were deemed inadmissible. The court was unwilling to constructively redeem inadequate reports and opinions even in conditions where the authors might have appeared qualified and claimed to have examined the engine in dispute.

Pan Pharmaceuticals provides an even clearer example of the kind of analysis that criminal defence lawyers (and prosecutors) should be applying to the expert reports and certificates routinely produced by forensic scientists, adduced by prosecutors and admitted (sometimes over objection) by trial judges. Pan Pharmaceuticals was a civil action against Jim Selim in the Federal Court. Liquidators were acting on behalf of Pan, on the basis that Selim had “breached the duties that he owed to Pan as its chief executive officer. More specifically, the Liquidators say that Mr Selim failed to ensure that Pan adopted and applied good manufacturing principles (GMP)”.81 The liquidators relied on three expert reports. The admissibility of these reports was challenged. The careful scrutiny of the industrial and commercial experience possessed by the experts and the way these lengthy and detailed reports were deemed to have been non-responsive to the need for specialised knowledge provides a salutary lesson.

Emmett J rejected all three reports adduced by the liquidators. Notwithstanding the fact that the authors had considerable industry experience and qualifications related to the facts in issue, notwithstanding months and presumably tens (perhaps hundreds) of thousands of dollars preparing them, notwithstanding the implications for the proceedings, Emmett J concluded that the opinions in the reports were not based on specialised knowledge. Even without explicit attention directed toward reliability, he was willing to exclude the reports. The content was characterised as speculation and bare assertions lacking a clear relationship to specialised knowledge.

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78 The court rejected the attempt to use s 183 of the Evidence Act in Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd (2000) 120 FCR 146 at [19]-[20], noting that it “does not, however, dispense with proof of matters that need to be provided before opinion evidence becomes admissible”.


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The reports and supplementary documents of most interest are those by Williams. These materials discuss “good manufacturing principles”, particularly quality assurance (QA) and quality control (QC), and outline Williams’ considerable industry experience. In order to determine the admissibility of the lengthy report prepared by Williams, Emmett J initially asked for additional information from the author, “identifying for each opinion”:

- the reasoning in support of the opinion,
- the specialised knowledge on which the opinion is based; and
- the training, study or experience on which the specialised knowledge is based.

The court was adamant that it “must be furnished with the necessary criteria for testing the accuracy of the conclusion”. Emmett J continued:

Opinion evidence must go beyond a bare *ipse dixit* (Makita (Australia) Pty Ltd v Sprovles [2001] NSWCA 305; [2001] 52 NSWLR 705 at 745 and *R v Tang* at 715). Before opinion evidence will be admissible under s 79, the witness must explain how the field of specialised knowledge in which the witness is expert by reason of training, study or experience and on which the opinion is wholly or substantially based applies to the facts assumed or observed so as to produce the opinion given. Unless those two prerequisites are satisfied, the opinion evidence will be of no value to the Court, in the sense that it would be accorded no weight. *It should not be left to the cross-examiner to attempt to illicit the facts or assumptions upon which opinions are based.* The evidence must demonstrate an identifiable reasoning process against which the conclusions can be tested (Ocean Marine Mutual Insurance Association (Europe) OV v Jetopay Pty Ltd [2000] FCA 1463; [2000] 120 FCR 146 at 151).

Responsibility for satisfying s 79(1) is placed squarely on the proponent. Before discussing the reports, Emmett J considered the training, study and experience held by Williams. His attention to industry experience, given the exclusionary decision, is instructive. Williams held extensive experience in the pharmaceutical industry spanning several decades. The following extract provides some sense of Williams’ considerable experience:

Mr Williams has been employed in the pharmaceutical industry since 1971. During that period he held line management positions in quality assurance, quality control, production and packaging in Australian based multinationals such as CSL Limited and Faulding (Mayne Pharma and now Hospira). During the period, Mr Williams prepared for and hosted a number of GMP audits including audits from sponsors, the TGA [Therapeutic Goods Administration], the United Kingdom’s Medicines and Health Care Regulatory Authority and the United States’ Federal Drug Agency (FDA).

In his role as a quality assurance manager in industry, Mr Williams has overseen and been responsible for the following areas:

- compliance with the Code [1990 Australian Code of Good Manufacturing Practice for Therapeutic Goods – Medicinal Products];
- quality assurance programs development and administration;
- facility and process validation;
- quality control testing laboratories; and
- GMP training programs.

Since 1989, Mr Williams has been a full time professional consultant in GMP and quality assurance within the pharmaceutical industry. In that role he has generally been required to conduct the following analyses and project roles for clients:

- assessing GMP compliance for a range of codes, including the Code;
- preparing clients for regulatory audits;
- assisting clients in responding to TGA and FDA deficiencies; and
- preparing remediation programs to bring clients into compliance.

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82 The report and the methods employed by Williams were not scientific and not susceptible to the kinds of formal evaluation suited to most forensic science and medicine techniques. There is, nevertheless, a need to direct careful attention to the relevant specialised knowledge and its relationship to the opinion and training, study or experience.

83 *Pan Pharmaceuticals Ltd (in liq) v Selim* [2008] FCA 416 at [24].

84 *Pan Pharmaceuticals Ltd (in liq) v Selim* [2008] FCA 416 at [31].

During the period of twelve years prior to May 2002, Mr Williams provided services of the following types:

- Advice on GMP compliance, validation and quality assurance, entailing the provision of professional services and advice to clients regarding compliance with various codes of GMP in relation to improving compliance with such codes, strengthening quality assurance systems and implementing validation programs.
- Developing and delivering GMP, good laboratory practices, quality assurance and validation training packages, for prescription, over the counter and complimentary manufacturers.

During the period from 1990 up to May 2002, Mr Williams provided consultancy or auditing services to approximately twenty clients that manufactured complimentary medicines and over the counter products, including: MediHerb … Golden Glow … Parke-Davis … Probiotech, formerly PharmAction … Herron Pharmaceuticals …

In the period up to May 2002, Mr Williams was engaged, either by himself or with another consultant, on around 15 occasions to carry out a full GMP audit and recommend any corrective action.86

There is no doubt that Williams possessed substantial pharmaceutical industry experience and had been employed as a consultant advising on QA, QC and GMP for more than a decade. However, when it came to analysing the opinions about these manufacturing principles, Emmett J was unable to identify the specific connections between this experience and the specialised knowledge on which the opinions were purportedly based. Williams’ experience could not overcome the inability to identify relevant specialised knowledge.87

Consider some of Emmett’s J reactions to the materials and opinions presented by Williams:

- The Report prepared by Williams appealed to “industry norms” and a survey of manufacturers he had purportedly conducted on behalf of a pharmaceutical company he had acted for in 2004. Yet, the Report “says nothing of the so called industry norms” and “the results of the survey were not produced and the manufacturers were not identified”.88
- “The GMP Report does not identify any specific expertise or furnish any particulars of standards generally observed in the industry. The Liquidators point to assertions in Mr Williams’ later affidavit that, in his experience, around 80% of manufacturing companies have such a practice in place. He says that the manufacturing companies that do not have that practice are usually smaller and exchange information informally. However, no particular companies are identified and no explanation is given as to how the figure of 80% was arrived at. Mr Williams asserted in cross-examination that his assertions were based on his auditing experience and his consulting experience. … The conclusion that there is a ‘critical deficiency’ is simply a conclusion without reference to any other instance of a company that has exhibited a critical deficiency.”89
- “The Extracts Document does not go beyond stating that the opinion is based on Mr Williams’ specialised knowledge regarding training practices and his specialised knowledge regarding the elements of a training program. It may be that Mr Williams has experience that would enable him to say what is normally done in pharmaceutical companies carrying on a business similar to that of Pan. It is not apparent from the GMP Report what that experience is.”90
- “In his subsequent affidavit, Mr Williams says that, in his experience, around 90% of the SOPs [standard operating procedures] relating to internal audit all contain most of the steps he identifies as missing from Pan’s SOPs. He says that, in the case of large companies, they almost always contain all or most of those steps. … No explanation is given as to how the figure of 90% was reached and Mr Williams concedes that some of the steps he refers to are not contained in such

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86 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [49][f].
87 It is revealing to compare the use of this experience with the heavy reliance on untested experience and no identifiable specialised knowledge pertaining to image interpretation and comparison in R v Tang, R v Jung, and Honeysett, and all of the cases involving ad hoc expert evidence.
88 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [77]. See also at [116]-[117] and [71], [74]-[76], [81].
89 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [84]-[86].
90 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [88].
unidentified SOPs. Significantly, Mr Williams does not address the fact that the TGA audit of Pan carried out in May 2002 found no difficulty with Pan’s SOPs and found that Pan’s operators were conversant with the SOPs.91

- On the significance of Williams’ opinion about complaints: “[T]he conclusion is simply not shown to be based on any particular experience and a complete absence of reasoning makes the opinion worthless” and the “GMP Report makes no effort to identify the particular training, study or experience on which the so-called specialised knowledge is based other than his general experience described already.”92

- “Nowhere in the GMP Report, which Mr Williams took months to prepare and which was based on assumptions that took the Liquidators’ legal team years to generate, does Mr Williams identify an actual example of an industry company, similar to Pan or otherwise, that followed or did not follow what Mr Williams identified as norms or practices. His opinions therefore are virtually incapable of being tested.”93

- “For opinion evidence of Mr Williams to be afforded any weight, it would be necessary to demonstrate that he has had broad experience in the types of matters under consideration and has been called upon to perform the tasks about which he expresses opinions or that he has scientifically researched such tasks. It would be necessary to show how his experience and specialised knowledge in the particular field forms a basis for his opinion.”94

In reply to Emmett’s J concerns, lawyers for the liquidators argued that s 79(1) “does not preclude an expert generalizing from experience in forming an opinion, so long as the expert possesses specialised knowledge and the opinion is wholly or substantially based on that knowledge.”95 Emmett J responded:

The evidence of the GMP Report is not based on the fields of expertise … such as hard science, applied science or one of the social sciences. Nor is it the result of particular education or learning. Rather, it is based only on the experience of the witness.

There may be admissible opinion evidence within the GMP Report. However, substantial parts of the GMP Report consist of impermissible interpretation of the Code, and reproduction of the detailed assumptions that Mr Williams was asked to make and the voluminous supporting documents with which he was provided, which are prejudicial and of little weight.

Having regard to the argumentative nature of the GMP Report and the leading nature of the questions posed for Mr Williams’ opinion, it should be given little weight of its own.96

Deficiencies with the reports, along with the time and resources required to address them, were issues of genuine concern. To “the extent that there is admissible evidence in the GMP Report”, Emmett J rejected it under s 135 of the Evidence Act.97

Ocean Marine and Pan Pharmaceuticals are important and revealing judgments that cast a light that should make prosecutors and judges presiding over criminal proceedings and appeals uneasy. They indicate how lawyers, trial judges and appellate courts should be approaching forensic science and medicine evidence. For far too long, lawyers and courts have been accommodating unsatisfactory expert reports and speculative testimony from forensic analysts. The well-resourced and deep challenges sometimes made in civil proceedings are not a regular feature of criminal proceedings and trial and appellate judges have been insufficiently receptive to the few attempts to develop such

91 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [88]-[89].
92 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [94], [96].
94 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [112].
95 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [123].
96 Pan Pharmaceuticals Ltd (in liq) v Selim [2008] FCA 416 at [124]-[125]. Defence lawyers should pay close attention to interactions and communications between investigators and experts.
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issues.98 Criminal courts have relied too heavily on experience and previous admissibility practice in the absence of evidence of specialised knowledge. The approach of the Federal Court in Ocean Marine and Pan Pharmaceuticals is exemplary. Judges hearing criminal cases should be willing to exclude expert evidence where the report does not enable the judge to determine whether s 79(1) is satisfied or allow the fact finder to rationally evaluate the incriminating opinion. The kinds of scrutiny applied in Ocean Marine and Pan Pharmaceuticals would lead to the exclusion of a good deal of the incriminating expert opinion evidence adduced in New South Wales.

IS RELEVANCE RELEVANT?
A rational system of justice requires evidence to be logically relevant.99 This is captured in the text of the Evidence Act. Section 55(1) states:

The evidence that is relevant in a proceeding is evidence that, if it were accepted, could rationally affect (directly or indirectly) the assessment of the probability of the existence of a fact in issue in the proceeding.

Too often the relevance of expert opinion evidence is simply assumed. On those rare occasions when someone thinks to question the relevance of expert evidence, the “if it were accepted” clause, claims about provisional relevance (s 57), or impressions (whether putative common sense or the experience of the judges) are invoked to justify satisfaction of relevance.100 Such responses are not appropriate for most types of forensic science and medicine evidence.

In order for expert evidence to be relevant, the analyst must be able to do what is claimed and be able to do so in a way that is markedly superior to the performance of the tribunal of fact, whether jury or judge. This requires some indication that the technique works as well as evidence of the analyst’s proficiency with the technique.101 If the analyst cannot do better than an ordinary person (or chance) then they do not possess expertise in the specific domain.102 A majority of the High Court insisted in Smith v The Queen that such opinions are not relevant – that is, they are not probative and not admissible.103

Where criteria suited to the evaluation of the opinion have not been satisfied we cannot simply assume that the analyst has capabilities. We cannot leave the question of specialised knowledge and whether the opinion is wholly or substantially based on that knowledge to the impression of the jury. These are questions for the trial judge. Furthermore, answering such questions requires evidence (of specialised knowledge) independent of the expert.104 With respect to forensic science and medicine techniques that are susceptible to testing, trial judges should not defer to what a jury might accept, based on what might or might not transpire during the trial. Techniques should be formally evaluated before they are presented at trial.

Furthermore, the phrase “if it were accepted” must be subservient to “could rationally affect”.105 When it comes to most types of forensic science and medicine evidence, the relevance of the evidence

98 One conspicuous exception involves challenges to DNA evidence. This is, in part, a result of the fact that the state does not have a monopoly on relevant specialised knowledge, from biology, genetics and population statistics.


100 It is worth observing, in passing, that judicial experience has many of the same sorts of limitations as the non-systematic experience of those from other domains.


102 They may possess expertise in other (apparently relevant) domains. This is why it is vitally important to determine what was done and what is claimed so that relevant specialised knowl edge and training, study or experience can be identified.

103 Smith v The Queen (2001) 206 CLR 650.

104 The expert cannot (be allowed to) simply vouch for their putative expertise. There must be independent evidence and usually that evidence will be based on some kind of test or assessment.

105 It does not matter if the tribunal of fact accept something if it has no logical ability to influence. Similarly, when it comes to testable techniques we should not leave resolution of relevance to a jury or what a judge believes a jury might be capable of. Both of these require empirical evidence rather than guesses and impressions. A rational system of justice requires that testable
should be informed by independent evaluation of techniques – that is, the kinds of criteria read into knowledge by the United States Supreme Court and recommended by National Academy of Sciences. Formal evaluation determines whether techniques work and therefore whether they can “rationally effect”. Validation studies answer the questions whether the analyst is better than chance and better than laypersons. The fact that a jury might accept an expert’s untested opinion should not stand in the place of formal evaluation. The results of validation and proficiency studies enable the relevance and probative value of opinions to be determined rationally. If the ability of some technique or purported ability to affect rationally is doubtful (or even speculative or unknown), then there are real dangers in leaving it to lay persons to consider. The risks are heightened when the opinion is presented as expert and proffered by those with considerable experience. Where techniques can be tested they should be tested before questions pertaining to relevance or weight are considered.

In the absence of evidence of reliability and ability, we are obliged to take claims about specialised knowledge – that is, evidence that techniques work such that we know the analyst has relevant expertise – on trust. Courts should not take the existence of specialised knowledge on trust, especially where techniques should have been evaluated in a manner that demonstrates probative value. Determining the relevance of forensic science and medicine should not involve blind trust. It should follow the state – the primary producer of the vast majority of forensic science and medicine evidence – providing evidence that techniques and derivative opinions are not error prone and represent substantial improvements on what judges and jurors can do by themselves. Otherwise, the evidence is not relevant, it cannot rationally contribute to the proof of facts, and it is likely to be unfairly prejudicial to the accused, as well as add to the length, cost and complexity of criminal proceedings.

CONCLUSION: EXCLUDE INSUFFICIENTLY RELIABLE EXPERT EVIDENCE

The criminal courts of New South Wales have been insufficiently attentive to specialised knowledge. Indifferent to the reliability of expert evidence, they have allowed weak, speculative and unreliable opinions to contaminate criminal proceedings. The leading jurisprudence in New South Wales is debilitating; mistaken in both law and fact. It is wrong in law because, when it comes to forensic science and medicine, specialised knowledge requires evidence of reliability. Forensic science and medicine evidence is reduced to supposition, impressions, popular beliefs and the place of formal evaluation. The results of validation and reliability of forensic science and medicine evidence is reduced to supposition, impressions, popular beliefs and the performance of individual witnesses in the witness box rather than independent evidence that techniques work (that is, validation) and the individuals using them are proficient. The jurisprudence from New South Wales trivialises specialised knowledge by rejecting the need to attend to the validity and reliability of forensic science and medicine evidence. It facilitates the admission of opinions that are difficult to reconcile with basic accusatorial trial principles. Others should learn from these mistakes.

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107 In such circumstances, any confidence invested by the jury would seem to be on the basis of misleading criteria – appropriate criteria have not been provided – and therefore raises a very real risk of unfair prejudice to the accused.

108 If courts are oblivious to the deep epistemic problems with many areas of forensic science and medicine, then ongoing confidence in the fairness of proceedings and the value of (some) forensic science and medicine evidence might be misplaced. Such assumptions might help to explain the relatively small number of wrongful convictions exposed in New South Wales. See also Hamer D, “Wrongful Convictions, Appeals and the Finality Principle: The Need for a Criminal Cases Review Commission” (2014) 37 UNSWLJ 270.
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The criminal courts of New South Wales could enhance their practice by applying the kinds of rigour demonstrated in a range of civil appeals. In civil proceedings, judges in the New South Wales Court of Appeal, the Federal Court and the High Court have all been willing to apply rules strictly in ways that lead to the exclusion of expert evidence. It seems inappropriate, given the interests at play, for judges to be more engaged, and exclusionary, with the expert opinion evidence adduced by plaintiffs and defendants in civil litigation than the forensic science and medicine used to prosecute and convict people accused of the most serious criminal acts.

Even if appellate courts do not read the need for reliability into s 79(1), attention to the form of the opinion – the questions of whether the opinion is based on specialised knowledge and whether the specialised knowledge was acquired on training, study or experience – should lead to the exclusion of much more incriminating expert opinion evidence. Even the partial version of knowledge adopted by the NSWCCCA in Tang, referring to “any body of known facts or to any body of ideas inferred from such facts or accepted as truths on good grounds” and rejecting “subjective belief or unsupported speculation” would, if rigorously applied, require the exclusion of weak, unreliable and speculative opinion proffered as incriminating expert evidence. A reliability standard has the advantage of making the need to identify knowledge, and address these issues more straightforward and less susceptible to interpretative manipulation and oversight. In criminal proceedings judges should be much more willing to exclude insufficiently reliable opinion evidence.

Several Australian decisions have referred to reliability – for example, R v Gilmore, R v Carroll, Lewis v The Queen, Osland v The Queen, HG v The Queen, and Velevski v The Queen. None of these are recent. More importantly, none has developed reliability in a way that provides practical guidance as to how the existence of knowledge might be ascertained. There is no serious and sustained engagement in any Australian criminal decision, beyond the Janus-headed approach in Tang. The reluctance to develop the implications of knowledge and engage with the reliability (and therefore the probative value) of incriminating expert opinion evidence means that weak, speculative, unreliable, and exaggerated opinions routinely appear in criminal proceedings. Limitations are not always identified or explained. We cannot simply assume that trial safeguards will address and correct problems when there is compelling evidence of historical frailties.

Attention to specialised knowledge, and therefore the reliability of forensic science and medicine techniques and opinions, is important because incriminating opinions often appear plausible and even compelling. The cases of Gilham v The Queen and R v Matthey indicated how first appearances can be deceptive. In both cases, highly qualified experts proffered incriminating opinions even though they were not in possession of relevant specialised knowledge. In Gilham, prosecutors adduced incriminating expert opinions about the significance of multiple stab wounds and concentrations of carbon monoxide in blood from highly qualified and experienced forensic pathologists. Subsequently, when an empirical review of the incidence of stab wounds was conducted and the characteristics of carbon monoxide in blood was reviewed, compliant, experience-based, though reasonable-sounding and apparently persuasive opinions were discredited by knowledge. Had attention been directed to reliability, the speculative opinions of the forensic pathologists might not have been admitted.

110 In the absence of evidence of specialised knowledge a qualified incriminating opinion was admitted because the witness had anatomical qualifications, had spent time looking at the images, and the jury was deemed incapable of undertaking image comparison without assistance. Notwithstanding reference to “knowledge” the court in Tang admitted the ad hoc opinions of the anatomist.
111 This is why reliability is so very useful: it directs attention to evidence that might lead beyond or away from the particular expert or discipline.
112 Gilham v The Queen (2012) 224 A Crim R 22. In many cases where expert evidence is found wanting on appeal or after multiple appeals the admissibility of the original proffer was not challenged.
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Matthey provided a more stark example. There, an experienced trial judge was confronted with a mother who, it was alleged, had murdered her four children. The Crown called several medical witnesses to advance its circumstantial case. Professor Cordner, the pre-eminent Australian forensic pathologist, concluded his report with the following admonition:

In my view, it is wrong on the forensic pathology evidence available in this case to conclude that one or more of the Matthey children are the victims of a homicide. There is no merit in forcing certainty where uncertainty exists. The very existence of the enigma of SIDS demonstrates how little we know about why some babies die. It is not for a pathologist to conclude that a number of infant or childhood deaths, with no significant pathological findings at all, are homicides on the basis of controversial circumstantial grounds. If this case is to result in a prosecution, I want to clearly state there is no pathological basis for concluding homicide. The findings are perfectly compatible with natural causes. The findings cannot rule out smothering in one or more of the cases, but especially in the case of Shania, it is important that absolutely no signs of asphyxia or compression of the face are present.113

Cordner insisted that there was no specialised knowledge from (the field of) forensic pathology supporting the incriminating opinions advanced by the other expert witnesses.114 In response, Coldrey J was unwilling to proceed. The examples of Professor Cordner and Coldrey J are exemplary guides to what responsible expert witnesses should provide and what trial judges should do in response to expert opinions that are not based on knowledge or not capable of supporting a conviction.115 Cordner’s evidence is the converse of much forensic science and medicine evidence routinely admitted in New South Wales. It is tentative, identifies uncertainty and cautions against overreading the medical support notwithstanding the highly suspicious circumstances. Coldrey J’s response demonstrated an appropriate reluctance to allow the tribunal of fact, whether trial judge or jury, to use the opinions of formally qualified and very experienced medical professionals to try to resolve central questions where there is insufficient relevant knowledge. His Honour did not leave the purported disagreement as an issue for weight.116

113 R v Matthey (2007) 177 A Crim R 470 at [140].
114 There was a field (forensic pathology) but this did not answer the question of whether there was relevant specialised knowledge about multiple infant deaths.
116 Controversy and expert disagreement are not necessarily matters (of weight) for the tribunal of fact. They should not ground admissibility, per se. For, they do not address the fundamental question of whether some of the opinions have an epistemic foundation. Cordner’s comments illustrate how sometimes those who counsel against particular conclusions or draw attention to methodological limitations and uncertainty (often as rebuttal experts) might be the only witnesses proffering “opinions based on specialised knowledge”.

158 (2014) 38 Crim LJ 136

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