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EXCLUDING 'JUNK SCIENCE' FROM ENVIRONMENTAL CASES

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It is a rare environmental case that will not, as a matter of course, involve expert testimony. Such testimony is essential to the identification of chemical components and their concentrations in the environment, the analysis of contaminating migration in the environment, and the assessment of risks to human and environmental health associated with a given set of environmental facts.

Juries, judges and counsel will regularly require the cross-disciplinary input of hydro-geologists, air modeling experts, chemists, laboratory technicians, risk assessment experts, epidemiologists, ecologists, biologists, economists and medical practitioners. Expert witness testimony is used to:

- Ascertain whether there has been any scientifically verifiable damage or injury to human health or the environment;
- Determine the cause of the observed injury or damage;
- Identify the source of the contaminant that constitutes the cause in fact;
- Determine who among various potentially responsible parties bear(s) responsibility for the damage in issue; or
- Verify the extent of the injury or damage and specify what will be required to effect remediation.

The centrality of expert evidence in environmental cases can tend to make such evidence come close to being "determinative of the very issue" that the trier of facts must ultimately decide. Thus, environmental litigation is especially sensitive to the debate on the necessity for suitable controls over the admission of expert evidence.

This debate can be traced through the U.S. *Daubert* trilogy (*Daubert v. Merrel Dow Pharmaceuticals Inc.,* 113 S.Ct. 2786; *General Electric Company v. Joiner,* 188 S.Ct. 512; and *Kumho Tire Company Ltd. V. Carmichael,* 119 S.Ct. 1167) and in the analogous Canadian strand of cases beginning with the Supreme Court's decision in *R. v. Mohan,* [1994] 2 S.C.R. 9 and culminating in *R. v. J.-L.J.,* [2000] 2 S.C.R. 600.

The purpose of that debate has been to find appropriate criteria to govern the participation of experts, while simultaneously ensuring the exclusion of "junk science" and emphasizing the need to preserve and protect the role of the trier of fact – the judge or the jury.

The U.S. Supreme Court first grappled with these issues in what has become known as the *Daubert* trilogy. It adopted a series of exclusionary tests designed to render inadmissible evidence that fails to meet a rigorous standard of scientific reliability.

Until very recently, the admissibility of junk science in Canadian courts was not easily challenged. However, the Supreme Court of Canada's decision in *R. v. J.-L.J.* may have redressed this situation in some material ways.

In *Daubert*, the U.S. Supreme Court held that "[a]ny and all scientific testimony" must be screened by the trial judge and determined to be "relevant and reliable" to be admissible (at 2795). It is inherent in the concept of "scientific knowledge" that evidence be grounded in the methods and procedures of science (at 2795). Evidentiary reliability is equated with scientific validity (at 2795 n.9). To determine whether an expert has scientific knowledge that will assist the trier of fact, the trial judge must investigate the reasoning and methodology employed by the expert witness (at 2796) using the following (non-exhaustive) list of factors (at 2796-2797):

a) Whether the technique or theory is capable of being tested;
b) Whether the technique or theory has been subjected to peer review and publication;
c) Whether the actual or potential rate of error is known and demonstrates reliability; and
d) Whether the technique or theory generally has been accepted in its particular field.

In *Joiner*, the U.S. Supreme Court tightened the *Daubert* criteria in subtle but important ways. While the Court accepted that extrapolating conclusions from existing data is an acceptable method of science, it held that there could not be too great an analytical gap between the facts and the conclusions reached. In effect, it was held that courts could not simply accept the conclusion of an expert on the *ipse dixit* of the expert (at 519).

More recently, *Kumho Tire*, the third case in the *Daubert* trilogy, significantly expanded the application of the *Daubert* test. The U.S. Supreme Court held that the factors outlined in *Daubert* are to be applied to all specialized expert evidence, not just scientific evidence (at 1171).

The first sign that the Supreme Court of Canada intended to follow a course similar to that laid out by its U.S. counterpart came in *R. v. Mohan*, *supra* where Justice John Sopinka expressed the following reservations (at 21 and 24):

"Dressed up in scientific language which the jury does not easily understand and submitted through a witness of impressive antecedents, this evidence is apt to be accepted by the jury as being virtually infallible and as having more weight than it deserves. There is also concern inherent in the application of this criterion that experts not be permitted to usurp the functions of the trier of fact. Too liberal an approach could

result in a trial's becoming nothing more than a contest of experts with the trier of act acting as referee in deciding which expert to accept".

In *Mohan*, the Supreme Court accepted the trial judge's conclusion that science had not yet developed sufficiently to render the proffered expert evidence totally reliable or even necessary in the sense that it was required to clarify "a matter otherwise inaccessible " (at 38). It remained unclear how far along the path suggested by the *Daubert* trilogy the Supreme Court of Canada was prepared to venture.

In *R. v. J.-L.J,* the Supreme Court of Canada referred liberally to both *Mohan* and the *Daubert* trilogy and treated the one as being apparently coextensive with the other. The court said that it had adopted in *Mohan* the "reliable foundation test" laid down by the U.S. Supreme Court in the *Daubert* trilogy.

The court has emphasized that the trial judge should take seriously the role of "gatekeeper" to ensure that expert evidence "be scrutinized at the time it is proffered, and not allowed too easy an entry on the basis that all of the frailties could go at the end of the day to weight rather than admissibility".

The court also emphasized the statement in *Mohan* that "the search for truth excludes expert evidence which may distort the fact-finding process" (at 21). After referring explicitly to the factors listed in *Daubert*, the court applied, in *R. v. J.-L.J.,* analogous considerations to guide the admissibility or exclusion of expert evidence (in fact, the error rate inherent in the method employed by the expert in this case figured predominantly in the rejection of the evidence as inadmissible).

In *Mohan* and *R. v. J.-L.J.,* may well have a significant impact on the trial and determination of future environmental cases. While they were both criminal cases, the underlying principles should not vary in quasi-criminal and civil cases. Indeed, the parallel U.S. jurisprudence was developed in the context of civil litigation.

Parties will now be in a position to test the scientific credibility of proffered expert evidence prior to its admission into evidence. This is a significant departure from (and some would say improvement upon) the traditional rule and practice whereby the reliability of scientific evidence went only to weight rather than admissibility.

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