



NEWSLETTER---

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EXPERT TESTIMONY REDEFINED

It used to be that almost anyone could be presented in court as an "expert" to support one side or the other in a dispute. When this was over fault or liability for damage the jury -- usually ordinary citizens -- would often decide the case using such expert evidence. Sometimes huge amounts of money are asked for as compensation and punishment.

In the last six years judges and courts have been moving to clarify who is "expert" where the issue being debated rests on a theory or supposition of cause-and-effect. Experts in the position of answering questions about the science and testing of such a theory -- well-respected researchers and professors for instance -- now must consider that an unsupported opinion may be ruled as inadmissible by the judge.

The change in the picture began when the U.S. Supreme Court ruled in 1993 in the case of *Daubert v. Merrell Dow Pharmaceuticals Inc.* that several issues should be considered in determining whether "scientific" testimony would assist a court. The issues included the case where the opinion stated by the expert involved a theory or technique that can be tested has been subjected to peer review and has attained general acceptance within the scientific community.

This Supreme Court finding has led to proposals of "science courts" or panels of specially-qualified judges hearing such cases. The other judges would be relieved of the difficult task of supervising cases that hinged on what is "fact:" and what is "unsupported opinion". Science courts have not yet attained prominence, but since 1993 other courts have referred to *Daubert* in their decisions.

In an August 8, 1997 opinion by the 9th U.S. Circuit Court of Appeals, Judge Betty B. Fletcher noted that the *Daubert* court cited Federal Rule of Evidence 702, which allows for scientific testimony by witnesses who are qualified as experts "by knowledge, skill, experience, training or education" and said that *Daubert* viewed in a broad context gives "strong advice to district courts: in ruling admissibility, trial judges are the gatekeepers and should pay particular attention to the reliability of the expert and his or her testimony."

More and more cases being overturned on appeal are using the *Daubert* ruling. One attorney, Hughes & Luce partner Bert Black, who filed an amicus brief on behalf of the National Academy of Sciences in a case concerning Ashland Chemical, may have put the importance of *Daubert* best when he said: "Some people don't like *Daubert*, because it keeps plaintiffs from getting away with stuff in court."

Technical experts should be aware of this background when preparing to appear in court to render opinions as to causality. If the expert's legal associate in the case does not bring it into the pre-trial discussions, the expert who is keeping up on this new aspect of admissibility may want to ask about it.

LOOK OUT FOR DATA IN THE RAW

Electronic information transfer is so easy now that we are seeing increasing signs of advocacy journalism and the rumor mills misusing it. The Internet is still so novel and fashionable that "facts" and "data" found there are often sanctified as if holy writ.

Anyone can lift selectively from "cyberdocuments" quotes that are presented as reviewed scientific statements that can be relied upon. They may then be retailed as concrete foundations for making decisions, laying plans or proposing public policy.

There is much value in the leads offered by information found in popular magazines, the newspapers and on the Internet. The dangers of passing on as reliable, "facts" or conclusions that are not tied to refereed, reviewed publication articles can be avoided by searching for more background information. Ingenious searching can often trace an unsupported statement to the names and institutions where the hard facts can be learned.

It is a pity that "Sunshine Laws" and the Freedom of Information Act have allowed unqualified citizens to find "data" and "facts" that they use to try to legitimize a cause or position that they have already adopted.

USES OF IONIC LIQUIDS

A relatively new class of liquids is solving old problems. Chemical reactions like alkylations and acylations that used to require powerful but obnoxious solvents like dimethyl sulfoxide or dimethyl formamide are now being done in liquids that are salts of a strong organic tertiary-amine base with a strong Lewis acid like aluminum chloride or boron hexafluoride.

The traditional solvents suffer from the disadvantages of toxicity and problems of removal from the reaction product. The ionic liquid solvents have very low vapor pressure and are stable to water which allows extraction of product with an immiscible solvent.

The Queen's University of Belfast Ionic Liquid Laboratories Research Center in Northern Ireland has been set up to provide a university-academic collaboration center for concentration on practical applications of this technology.

INTERNET SITES OF INTEREST

WANT TO GO BOOLEAN? URL www.profusion.com

Searching the Internet often turns up thousands of "hits". This site, created and supported by faculty and students at the University of Kansas, is a handy tool for avoiding that. It, like many other sites, sends several other search engines out and compiles the returns. But it is more "user friendly".

Like many others search systems, ProFusion allows the searcher to separate the search terms with operative terms like "and", "not", "or". Such a search is called "Boolean", after the 19th-century British mathematician George Boole who invented a form of algebra that can sort items logically. Instead of bringing back all items including the search terms, Boolean searching collects only the ones that the searcher is interested in and not the ones prefaced by "not".

The site includes explanations of the use of Boolean algebra for Internet searching. Click on: "Here's help on Boolean Query Formulation."

THE NATIONAL DIRECTORY OF EXPERT WITNESSES

Here is a site of a concern that publishes a well-know listing of experts. E-mail them at Info@claims.com or check the web site at www.claims.com.

CHEMISTRY CHAT

<http://chemistry.miningco.com/gi/pages/chatpform.htm>. This URL brings you a chat platform devoted to chemistry topics. Through it one may exchange ideas, questions and concerns with others who may be chemists or may be in need of being educated in chemistry. If you try it, please let the editor know your opinions.

CAMSOFT, A likely place to keep up on chemistry-related computing. CS Catalyst (<http://www.camsoft.com/>) is a newsletter issued monthly as a way to keep the chemical community informed on the latest happenings in the world of chemical computing. Distributed by CambridgeSoft, developer of ChemOffice and ChemDraw.

In a recent issue:

1. A Moving Experience
2. ChemDraw Plugin Used with New Patent Search Software
3. ChemShirts Now Available in the ChemStore
4. Web Publishing With the ChemOffice Plugins
5. New Products Added To ChemStore
6. Reviewers for ChemOffice WebServer Wanted
7. Special Offers for Our Subscribers

GOLD IN THEM THAR DUMPS

From time to time current news items stir memories of long ago in the editor. Here is his latest.

"A recent article in New Scientist told of a discovery in New Zealand that indian mustard plants (*Brassica juncea*) can extract gold from the soil. The soil was the "spoil dump" of a commercial gold mining operation where cyanide solution was used to leach gold from pulverized rock. A small amount of the mother liquor from the extraction remained in the dump.

"The roots of the weeds picked up gold through their roots and the gold was recovered by ashing the vegetation. Though the plants only lived one week because of the cyanide, there is hope that ways can be found to make a paying proposition out of the discovery.

"Why does this stir memories? It was about 55 years ago and I was co-op student working in the pilot plant of a pharmaceutical firm. "I recall two operations I learned in my short tenure at that firm. The following is one. The other makes a story too, for later."

"One of my tasks was to manufacture a whole year's supply of gold sodium thiosulfate. It was and still is sold as pain reliever for rheumatics. I started with gold leaf (the kind to put gold on domes or signs on glass doors). I dissolved it in aqua regia and precipitated it to give a brown powder which I redissolved in sodium thiosulfate solution. I recrystallized the recovered product from hot alcohol, yielding long, glistening white needles."

"Chemistry lesson: aqua regia oxidizes the gold and yields water soluble salts. The mixed salt of gold and sodium is sparingly soluble and easily purified to drug grade product."

CHEM ENGINEERS WRONGED

A letter to the editor of C&ENews complained that Warren K. Lewis and Edwin R. Gilliland were referred to in a November article as "two scientists". Gerald A. Lessells of Tucson set things straight: "For decades, Lewis was viewed as pesonifying chemical engineering, and Gilliland was not far behind. These two chemical engineers, long-time Massachusetts Institute of Technology faculty member and consultants to industry, gained their reputations as chemical engineers. C&EN should not divest them of this category of professional achievement."

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