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## [Introduction] The Science Court Is Dead - Long Live the Science Court

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# The Science Court is Dead; Long Live the Science Court!

Thomas G. Field, Jr.\*

It is a pleasure to introduce this symposium issue with its range of current thoughts about what Arthur Kantrowitz invented a little over twenty-five years ago and has since come to be known as the "Science Court." The pleasure is enhanced by being able to include papers by Dr. Kantrowitz, Allan Mazur (who worked closely with him), Carl Cranor, Itzhak Jacoby and Sheila Jasanoff — as well as an extensive list of citations to other discussions.

In approaching these papers, readers may find it helpful to consider what Kantrowitz invented,<sup>1</sup> he and others have attempted to improve, and the marketplace for social innovation has so far largely rejected. Notwithstanding a Congressional desire to "include anything under the sun... made by man" within patentable subject matter,<sup>2</sup> social technologies appear not to fit. Still, the Science Court can be usefully subjected to the kind of scrutiny it would have to survive before a patent could be granted. The heart of a patent application is:<sup>3</sup>

[A] specification [that] shall contain a written description of the invention, and of the manner and process of making and using it,... as to enable any person skilled in the art to which... it is most closely connected to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

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<sup>1</sup> In her presentation at the Colloquium on the Science Court, Margaret Mead called the Science Court a "new social invention" and analogized to others, e.g., panels, peer review and impact statements. See *PROCEEDINGS OF THE COLLOQUIUM ON THE SCIENCE COURT* 26-32 (1976).

<sup>2</sup> See S.Rep. 1979 at 5 and H.R.Rep. 1923 at 6 — both 82d Cong., 2d Sess. (1952). See discussion in *Diamond v. Chakrabarty*, 447 U.S. 303, 309 (1980).

<sup>3</sup> 35 U.S.C. § 112. In this context, "art" means "technology."

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Also, to be patentable, a claimed apparatus or process must be novel and unobvious in view of what those skilled in the art<sup>4</sup> already knew at the time of its invention. Before filing an application, a patent attorney usually discusses such matters with the inventor. Thus, we can imagine a dialog between inventor Kantrowitz and his attorney, circa 1967:<sup>5</sup>

*Attorney:* To prepare your patent application, Dr. Kantrowitz, I need to identify the field within which your invention resides. Let's start with what you regard as its essence.

*Kantrowitz:* Preventing tyranny and preserving the integrity of science.

*Attorney:* Hmm... that's certainly an ambitious undertaking. How do you propose to do this?

*Kantrowitz:* By creating an Institution for Scientific Judgment.

*Attorney:* So your invention is a kind of social apparatus; what are its key parts?

*Kantrowitz:* A panel of judges and a pair of advocates. But, before you interrupt me to say that this is old, let me add that it is essential to the operation of my invention that those people be primarily scientists, not lawyers.

*Attorney:* Well, that sounds novel, although patent attorneys like myself must be trained in science or technology as well as law. But how does this relate to tyranny and preserving the integrity of science?

*Kantrowitz:* Simply put, I often see both scientists and policy makers wandering outside of their areas of respective competence. With Pascal, I believe that exercising power beyond competence is tyranny. Thus, persons exercising political or legal authority become tyrants when they claim to make social choices based on *facts* that lack empirical support. Conversely, scientists become tyrants when using their professional credentials to advance personal values

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<sup>4</sup> Where, as here, an invention straddles several different fields, it is difficult to identify the "art to which... it is most closely connected." *Id.*, first paragraph.

<sup>5</sup> See, e.g., Arthur Kantrowitz, testimony. *Before the Government Research and Technical Programs Subcomm. of the House Comm. on Government Operations*, 90th Cong., 1st Sess. (March 16, 1967).

rather than to address facts within their technical expertise.

*Attorney:* If the essence of your invention resides in facilitating the separation of facts from values for social decision making, it seems that you really don't care what kind of apparatus is used, as long as it accomplishes those objectives. Is this true?

*Kantrowitz:* I suppose it is.

*Attorney:* Under those circumstances, claims directed to means for accomplishing steps in a process will provide broader protection. So, let's explore your process....

*Later ...*

*Attorney:* Hmm.... If you're not sure that you can accomplish what you propose in all cases or know exactly how to do so, maybe you should conduct a few experiments before going to the expense of filing an application.

*Kantrowitz:* Well, given some of my contacts and the social importance of what's at stake, that shouldn't be a problem. As soon as we run a few trials and work out some of the bugs, I'll get back to you.

This fictional dialog cuts to the heart of much that followed when Kantrowitz learned that Mazur had arrived at essentially the same idea. As described in their papers, they joined forces and ultimately secured the cooperation of people high in the Ford administration.<sup>6</sup> A task force was formed to further flesh out the idea, and a series of experiments were proposed.<sup>7</sup> In September 1976, a large public meeting was held at Leesburg, Virginia, with the objectives of, e.g., garnering additional support and placating potential opponents.<sup>8</sup>

Shortly thereafter, President Ford lost his bid for reelection. It is difficult to guess whether the present status of the Science Court would be different if the results had been otherwise.<sup>9</sup> Yet, while no test closely hewing to the task force model was ever made, that model is the clear antecedent of later proceedings, some described here.<sup>10</sup> A host of

<sup>6</sup> See Kantrowitz, *infra* at 107. See also, Allan Mazur, *infra* at 163.

<sup>7</sup> Task Force of the Presidential Advisory Group on Anticipated Advances in Science and Technology, *The Science Court Experiment: An Interim Report*, 193 SCIENCE 654 (1976); reprinted *infra* at 179.

<sup>8</sup> See Mazur, *infra* at 165 (recounting a conversation between Arthur Kantrowitz and Margaret Mead at the Colloquium).

<sup>9</sup> See Kantrowitz, *infra* at 108.

people have been captivated by Kantrowitz's invention. Since publication of the task force report, reactions have spanned the gamut from extreme hostility through skepticism and curiosity to unreserved acceptance.<sup>11</sup>

My own reactions have varied depending on whether I considered the objectives of the Science Court,<sup>12</sup> the court as a distinct institution or a strong possibility of results other than those intended. This is apparently true for others, including Kantrowitz.<sup>13</sup>

At bottom, the Science Court proposal required overlaying legally-derived procedures on those ordinarily used by scientists to determine facts,<sup>14</sup> and major disagreement centers on whether this would more

<sup>10</sup> See, e.g., Kantrowitz, *infra* at 109; Mazur, *infra* at 165; Jacoby, *infra* at 133; and Jasanoff, *infra* at 152.

An example of the NIH process as generally described by Jacoby appears in MICROCOMPUTERS IN PATIENT CARE (Henry S. Eden & Murray Eden, eds. 1981). Although I was a member of the panel that generated "working papers" for that conference and had attended the Science Court Colloquium in 1976, I saw no connection until Kantrowitz suggested Jacoby as an author. Even now, I see little relationship between the Science Court and that conference.

A detailed account of a similar procedure in Canada appears in CONRAD G. BRUNK, LAWRENCE HAWORTH & BRENDA LEE, VALUE ASSUMPTIONS IN RISK ASSESSMENT: A CASE STUDY OF THE ALACHLOR CONTROVERSY (1991), reviewed in 3 RISK 175 (1992).

<sup>11</sup> The range is apparent from some of the titles in the bibliography alone, e.g., Marino, *We need a Science Court*, *infra* at 173; *Science Court — Idea in Search of a Need*, *infra* at 173; and Sofaer, *The Science Court: Unscientific and Unsound*, *infra* at 174.

<sup>12</sup> An objective that seems to get less attention than it deserves is to have technical disputes resolved in the open; compare, e.g., *Lombardo v. Handler*, 397 F.Supp. 792 (D. D.C. 1975), *aff'd* 546 F.2d 1043 (D.C. Cir. 1976) (challenging, under the Federal Advisory Committee Act, failure of the National Academy of Science [NAS] to conduct such a proceeding publicly.)

In a related vein, one should be concerned that judges, legislators and regulators often obscure the basis for decisions by suggesting that they are dictated by scientific or technical considerations. See, e.g., Andrew Greely, *In Soft Defense of Social Science*, 23(2) N.Y.U. Law School Bulletin 26 (1977), see also, e.g., William E. Hilton, *Risk and Value Judgments: A Case Study of the Poison Prevention Packaging Act*, 3 RISK 37 (1992).

<sup>13</sup> *Infra* at 108 (recognizing the difficulty of gaining acceptance for an institution that threatens the status quo).

<sup>14</sup> An especially intriguing comparative approach appears in Allen D. Allen, *Scientific Versus Judicial Fact Finding in the United States*, SMC-2 IEEE

effectively separate facts from values. It often also centers on the extent to which such separation is useful — particularly in curing “mixed science-policy ills.”<sup>15</sup> While the latter disagreement seems largely normative, it turns in part on the feasibility of the separation.<sup>16</sup>

More attention should be given to legal processes. Notwithstanding difficulties discussed by Cranor and Jasanoff, virtually every aspect of legal process, including the fundamental right to jury trial,<sup>17</sup> rests on the need to separate facts and values. To what extent *can* this need be met? To what extent *is* it met — even in non-politicized disputes?<sup>18</sup>

If facts and values can be separated to the extent needed for a science-court-type process to work,<sup>19</sup> will its findings<sup>20</sup> be, honestly or conveniently, misunderstood?<sup>21</sup> Efforts have been made to learn more about effectively communicating technical information,<sup>22</sup> but a similar need exists with regard to relevant non-technical information.<sup>23</sup>

TRANSACTIONS ON SYSTEMS, MAN, AND CYBERNETICS 548 (1972).

<sup>15</sup> A term Cranor used in a draft of his paper.

<sup>16</sup> Yet if such separation is neither feasible or useful, the use of purely technical advisory committees seems unwarranted; *see, e.g.*, Joseph L. Lakshmanan, *An Empirical Argument for Nontechnically Trained Public Members on “Technical” Advisory Committees: The FDA as a Model*, 1 RISK 61 (1990).

<sup>17</sup> *E.g.*, the Seventh Amendment to the Constitution provides that:  
In suits at common law... the right of trial by jury shall be preserved, and no *fact* tried by a jury shall be otherwise re-examined in any Court of the United States, than according to the rules of the common law. [Emphasis added.]

<sup>18</sup> *See, e.g.*, Thomas G. Field, Jr., *Law and Fact in Patent Litigation: Form versus Function*, 27 IDEA 153 (1987) (discussing appeals courts exercising more control over facts than would be warranted under the Seventh Amendment).

<sup>19</sup> *See, e.g.*, Mazur, *infra* at 166; compare Cranor, *infra* at 119 and Jasanoff *infra* at 145.

<sup>20</sup> Lawyers distinguish *findings* [of fact] from, *e.g.*, *decisions* that reflect what should be done in light of such findings and controlling law, if any.

<sup>21</sup> *See, e.g.*, Robert Cowan, PROCEEDINGS, *supra* note 1 at 95.

<sup>22</sup> *See, e.g.*, Branden B. Johnson, Peter M. Sandman & Paul Miller, *Testing the Role of Technical Information in Public Risk Perception*, 3 RISK 341 (1992).

<sup>23</sup> *E.g.*, one often sees newspapers report the Supreme Court’s denial of *certiori* (*certiori* must be sought because appeals are not a matter of right) as approval of a lower court’s decision. Actually, such denial evidences nothing more than the Court’s having more pressing problems to address.

Lacking answers to important questions, policy makers face an overarching dilemma mirroring those for which science-court-type approaches have been suggested. Uncertain risks inherent in alternative mechanisms for resolving science-policy disputes must be weighed against shortcomings in the status quo,<sup>24</sup> including current muddling of facts and values, often deliberately.<sup>25</sup> Notwithstanding continued reluctance to risk a major test of the Science Court, many sophisticated observers find the status quo unacceptable.<sup>26</sup> This is demonstrated by continuing efforts less dramatic than those proposed in 1976.

The "Institution for Scientific Judgment," as Kantrowitz originally conceived it has been a source of inspiration and the focus of important dialog. To that extent, it continues to be a smashing success. Also, to the extent that the following papers contribute to that dialog and inspire further process tinkering, if not controlled experimentation,<sup>27</sup> this issue will have served its purpose. While the Science Court is dead, long may we pursue its spirit!




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<sup>24</sup> At the Colloquium, John Noble Wilford asked how the proposed Science Court would differ from similar NAS efforts; PROCEEDINGS, *supra* note 1 at 94. If nothing else, the proposed Science Court was to function in the open; *compare Lombardo, supra* note 12. Also, it would at least attempt, for reasons discussed above, to separate factual from policy issues. Both seem to be missing in the proceedings recently described in *Academy Splits on Risk*, 259 SCIENCE 759 (1993):

(NAS) Committees usually strive for consensus. Congress, the federal agencies, and private groups pay for NAS reports so they can get *recommendations*, spoken with one voice. So when you see a new NAS report that not only has dissenting *opinions*, but even offers "majority" and "minority" recommendations, you know that loud debates ranged *behind closed doors*. [Emphasis added.]

<sup>25</sup> See, e.g., Hilton, *supra* note 12.

<sup>26</sup> Although their focus was [general] *public* participation in risk management, several papers included in initial issues of RISK may be seen as premised on this assumption. See, e.g., Thomas G. Field, Jr., *Introduction*, 1 RISK 1 (1990).

<sup>27</sup> See, e.g., Thomas G. Field, Jr., *Law/Science in Law Schools*, 23 IDEA 69, 70 (1982) (arguing that, lacking controlled experimentation, only tinkering is possible).