

financial crisis of the late 1990s, it was happy to join the US as a major partner in the collider. Following Europe's example, the US government and the science community agreed that the US research labs should be centralized at one facility, even though the technical breakthroughs that had lowered the cost of the collider so that it was affordable had been made at the Stanford Linear Accelerator Center. And that is how the collider ended up at the Fermilab site, with the enthusiastic support of the lab director. Winstein will not have far to go to visit it.

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Seventy-Plus Years in Physics: Bethe Finds His Match—in Family

I believe one can take exception to Kurt Gottfried's remark, in his review of Hans A. Bethe's new book (PHYSICS TODAY, July, page 65), that no other physicist of this or any other era could have written Bethe's opening sentence: "This book contains a selection of my publications of the 70 years during which I have been active."

In fact, Bethe's own father-in-law, Paul P. Ewald, could have written the same sentence. Ewald's doctoral research on crystal optics (completed in 1912 under Arnold Sommerfeld) was the impetus for Max von Laue's famous investigations that launched the field of x-ray diffraction. Ewald continued his research in optical and x-ray phenomena (including the development of both the reciprocal-lattice theory and the dynamical theory of x-ray diffraction) for over 70 years, until he passed away in 1985 at the age of 97. His last paper was published posthumously in *Acta Crystallographica* (volume 42, page 411, 1986).

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Physics Update: 'Fractional' Flux Quanta May Be Random

With regard to your "Physics Update" story on quantum boxes for Cooper pairs (February, page 9), I want to point out that the "fractional" flux quanta in Andrey Geim and company's measurement of magnetization

as a function of flux are basically random portions, not rational fractions, of the quantum. There are, however, other examples of fractional quanta that are neatly determined and have recently appeared in the literature.

In an array of wires containing Josephson junctions at a temperature of 0.3 K, the resistivity as a function of flux clearly shows that fractional flux occurs. The values of $\frac{1}{2}$, $\frac{2}{5}$, $\frac{1}{3}$ and $\frac{1}{4}$ are clearly seen,¹ and the theory can perfectly explain fractions of less than $\frac{1}{2}$.

For a single Josephson junction with various phase shifts, the smallest value of the flux permitted by the present theories is $\frac{1}{2}$ of $hc/2e$. However, my colleagues and I have found that $\frac{1}{4}$ flux quantum is the minimum.² Our result is deduced from the turning point in the magnetization as a function of temperature in the paramagnetic Meissner effect.

Thus, the smallest commensurate value of the flux reported to date is $\frac{1}{4}$, according to us.² Arguments have been put forward in support of the elementary flux being $hc/2e$, but other, smaller values have not been contradicted.³

References

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Lawsuit Update: More on APS/AIP's Dispute with Gordon & Breach

Irwin Goodwin took the time to speak with me at length about the case he covered in "Court Rules for APS and AIP in Dispute with Gordon & Breach over Survey of Journals" (PHYSICS TODAY, October 1997, page 93). In addition to correcting one misquotation, I would here like to mention a few brief points that are pivotal, but unfortunately were omitted from Goodwin's story. Since my letter is appearing 11 months after it was submitted, I also want to take this opportunity to update your readers on the status of the case.

Fundamentally, G&B objects to the

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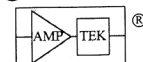
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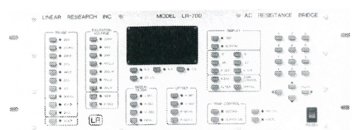


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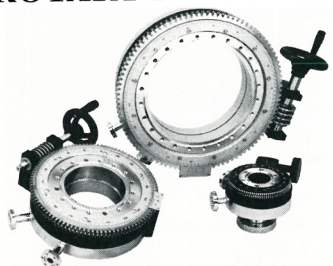
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LETTERS (continued from page 15)

American Physical Society and American Institute of Physics' use of a self-motivated and error-filled marketing survey to redirect the purchasing priorities of libraries. Because the survey—prepared by the late Henry Barschall—was presented as a “scholarly study” that they published in their *PHYSICS TODAY*, APS and AIP sought to avoid, and succeeded in avoiding, the Lanham Act standards that limit promotional activity. Barschall's survey was flawed not with “fatal errors” as Goodwin stated but with *factual* errors, as I stated in my interview with him. The errors in the survey are not in dispute; neither is the refusal of APS and AIP to correct them.

Among the more egregious of those factual errors is that, of the eleven G&B journals included in the survey, eight were not research journals and therefore not part of the citation index, a key index that Barschall used to determine the survey's results. Also, the survey's error rate, which was admitted by Barschall and *PHYSICS TODAY* to be 20%, a rate that experts testified was in itself unacceptable, was shown to the societies to be 40–50%. These are essential errors and a gross misuse of the citation index. Far worse and more damaging to G&B is the fact that *PHYSICS TODAY* led the scientific community to perceive Barschall's survey as being wholly accurate, although we gave APS and AIP information to the contrary.

The societies' refusal to publish corrections of the G&B data they used has forced us into this legal action, which, if not satisfactorily settled, must be ultimately decided by a court of law. Both the Swiss and German courts found that readers of the survey in their countries would not use it to make purchase decisions because the methodology was not reliable. This was not, as Goodwin claimed, a victory for APS and AIP. And the French court expressly said that APS and AIP violated French law “by publishing in their journals articles which, in scientific guise” denigrated their competitors' journals.

At the US trial, in June 1997, we presented two of the foremost experts on information science in the US, and they said that cost per use, not cost per impact factor, is the key to making intelligent purchase decisions. They also said that the survey should not have compared journals that were fundamentally different; APS and AIP's experts did not disagree.

Goodwin did not mention that Judge Leonard B. Sand said he would have had “serious concerns” with any

promotional material that made claims that Barschall's methodology proved that journals were of better quality or value. The judge also found that the two societies used the survey to promote their journals commercially. Yet they continue to claim their only motivation is academic. The survey was never submitted for peer review; only the societies' business officers got a chance to comment on it in draft form, clearly indicating commercial, not academic, motives.

The fact remains that the commercial use of the survey as a marketing tool is still subject to scrutiny under Federal unfair competition law, and on these grounds, we have appealed Judge Sand's refusal to allow an injunction against future commercial use. G&B is justly seeking such an injunction as is prescribed by law, and will continue to object in the strongest terms to representations of its position that suggest otherwise. APS and AIP have also appealed the judge's decision to deny them an award of fees; he ruled against such an award because he determined that G&B's actions in this matter were not frivolous.

G&B remains confident that, on appeal, APS and AIP will be held to the prevailing legal standards for honesty and accuracy in marketing and promotional activities. We believe that to do less would set a dangerous precedent that, over time, would seriously erode the public's confidence in the high degree of credibility the public affords the scientific community.

MARTIN B. GORDON

Gordon & Breach Science Publishers
Lausanne, Switzerland

[The writer is chairman of the Gordon & Breach Publishing Group]

Irwin Goodwin's report about the Gordon & Breach lawsuits states the facts. What it lacks, though, is an appreciation of the social and human context in which the American Institute of Physics (AIP) and the American Physical Society (APS) have had to wage this costly, decade-long battle in defense of free expression and the scientific competence and personal integrity of Henry H. (Heinz) Barschall, whose surveys and articles regarding the cost-effectiveness of physics journals so offended G&B.

My vantage point is that of a physicist who, as treasurer of APS from 1985 to 1996, had the primary responsibility of working with our attorneys on APS's responses first to the threats and then to the actual prosecution of lawsuits in four countries. After retiring, I continued to be involved, as a part-time consultant to APS. Also, I served as a witness in

the June 1997 trial before Judge Leonard Sand of the US District Court for the Southern District of New York. This letter represents my personal effort and views.

I remember the incredulity with which AIP and APS received G&B threats and complaints about the Barschall's PHYSICS TODAY article soon after it was published in July 1988. Although our analysis showed that the complaints were without merit, PHYSICS TODAY offered G&B space for a statement setting out its objections to the Barschall article, subject only to giving Barschall space to rebut any allegations of error. G&B summarily rejected the offer. Nevertheless, the offer was made again and again during the many years of ensuing litigation and of attempts, on our part, to achieve a settlement of the dispute.

After the litigation began, we learned about the history of G&B's largely successful efforts to intimidate those who criticized the prices or policies of its journals, and how G&B often demanded and got a retraction on threat of a lawsuit. By the time G&B's US suit against AIP and APS went to trial, we had documented ten instances of such intimidation. The realization that we were pretty much alone in standing up to G&B's threats was a major factor in the principled decisions of AIP and APS's officers and councils to stand by Barschall and to defend him and ourselves in what has come to be, at last count, a total of 13 courts of law in four countries.

At the outset, in 1988, some of us did not believe that a suit challenging the accuracy of Barschall's work and the right of the societies to publish the results would even be examined juridically on its merits. After all, wasn't there a constitutionally guaranteed right of free speech and publication? However, when Barschall and the societies were notified the following year that G&B had launched suits in Germany, Switzerland and France, we realized that free-speech protection was not as strong in those countries as in the US, and we also learned that they have "unfair competition" laws that significantly restrict the right to compare the prices and the quality of products.

As Goodwin reported, we nevertheless won our case in Germany, and are now close to final victory in Switzerland. In France, where a trial court initially found that Barschall's articles had violated the French law against unfair competition (the only such opinion obtained by G&B in any court), the appeals process is still dragging on. It's also worth noting that, after Barschall died in February

1997, G&B added his survivors to the list of defendants.

In September 1993, faced with losses and dimming prospects in Europe, G&B filed suit against us in the US under the Lanham Act, which regulates advertising. Litigation in the US is notoriously expensive and time-consuming—even more so than in Europe—but AIP and APS did not yield. Finally, in August 1997, as Goodwin noted, Judge Sand found in our favor, not only on the basis of free speech but also on merit: Nothing in Barschall's articles was false or misleading, and the societies had a perfect right to publicize them. True to form, G&B has appealed the judge's verdict.

The G&B lawsuits had a deep effect on Barschall. In some of the European lawsuits, he was threatened with severe sanctions. He devoted a large fraction of the last decade of his life to working indefatigably with us and our attorneys in the defense of the suits, using his command of German and French to help with the European litigation. When he lay on his deathbed, he spoke of his frustration that he would be unable to be a witness in the New York trial. It is a source of great sadness to me that he did not live to see the complete vindication of his work that resulted from that trial.

It also saddens me that, despite our successes in court, G&B did manage to discourage the societies from communicating the Barschall results to their constituencies and publishing any information about the cost-effectiveness and quality of journals. Moreover, the societies were forced to deflect large amounts of money and effort that could have been used for the good of the physics community.

Goodwin began his story with "By most legal standards, the case was of little importance. It had no broad political, social or economic implications." That opinion may ultimately prove to have been correct. But it certainly does not feel that way to me, nor—I venture to say—does it to the other participants in this continuing ten-year battle for freedom of expression and against intimidation.

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Correction

July, page 79—The award received by Richard M. Goody was the William Bowie Medal (AGU's top honor), not the Gold Medal as stated. ■

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