

Historical Model for Editor and Office of Research Integrity Cooperation in Handling Allegations, Investigation, and Retraction in a Contentious (Abbs) Case of Research Misconduct¹

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ABSTRACT:

Cooperation between a journal editor and the federal Office of Research Integrity (ORI) in addressing investigations of research misconduct, each performing their own responsibilities while keeping each other informed of events and evidence, can be critical to the professional and regulatory resolution of a case. This paper describes the history of one of ORI's most contentious investigations that involved falsification of research on Parkinson's Disease patients by James Abbs, Professor of Neurology, University of Wisconsin, published in the journal *Neurology*, which was handled cooperatively by the authors, who were the chief ORI investigator and the Editor-in-Chief of *Neurology*, respectively.

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INTRODUCTION

In 1660, the Royal Society of London was founded as the first scientific society in the world, taking as its motto, "Nullius in Verba," meaning "take no man's word." Thus, it sent the world a clear message: that the reliability of science was derived from its rejection of the authority of kings, men or texts; the authority of scientific data was the only authority to be recognized; this philosophy in science has persevered to the present. The authority of data, and the accuracy of scientific reporting, is basic to the trust that the public gives science, and the trust that scientists give to each other. On rare occasions, however, we learn that some scientists appear to have falsified, fabricated, or plagiarized research results in their manuscripts and publications.² Several books, including Judson (2004), have described many such research misconduct cases in their historical context.

Editors of scientific journals must deal with allegations and evidence of possible research misconduct in manuscripts submitted to, or published in, their journals (Council of Science Editors (CSE) Retreat, 2003). The Chair of the Committee on Publication Ethics (COPE) (Wager, 2007), in her research survey on editors' actions, found that an impasse is often reached when the authors, or their employers, fail to respond to the editors' repeated requests. She suggested that editors' organizations, such as COPE, CSE, and the Worldwide Association of Medical Editors (WAME), need to promote understanding about the editors' responsibilities and provide practical guidance and training to editors who suspect misconduct. She later concluded (Wager, 2012) that journals and institutions should collaborate closely on cases of suspected misconduct. Some editors attempt to determine the truth, generally by requesting that universities and/or agencies, such as the federal Office of Research Integrity (ORI) in the Department of Health and Human Services (HHS), conduct thorough and fair inquiries or investigations into such alleged research misconduct.³ In the best circumstances, this involves a cooperative effort by the editors, universities, and agencies to determine the facts and to decide whether research misconduct has so tainted a publication that it should be retracted to correct the scientific literature.

In this paper, we provide a detailed⁴ historical model for editors, detailing a very contentious and public case of research misconduct handled over an eight-year period by an editor (dealing with allegations and letters from readers), university and National Institutes of Health (NIH) officials,

² The ideas in this paragraph were borrowed from those of Jules V. Hallum, Ph.D., Director from 1989 to 1991 of the Office of Scientific Integrity, ORI's predecessor office (*e.g.*, Hallum and Hadley, 1990).

³ Mary Scheetz, Ph.D., developed an ORI *Guidance for Editors*, based on experiences from this case and many others in ORI (Office of Research Integrity, 2000).

⁴ The authors presented an invited summary discussion of this case at the CSE Short Course on Publication Ethics, in Seattle, Washington, on May 19, 2012.

and later ORI scientist-investigators. The documents cited were available from Internet/news sources, the ORI investigation report and rebuttals (which were made available to the public under Freedom of Information requests to ORI in the 1990's), the *Neurology* journal, and its editor's files. Despite the problems with the respondent and his institution, the case was finally resolved with full cooperation between the Editor and the ORI official, who are the authors, reporting here on their remembrances, public actions and publications in 1987-2005.

As detailed in a review of ORI's history (Price, 2013), this case was part of a very difficult historical beginning for the ORI under its predecessor, the Office of Scientific Integrity (OSI) at the National Institutes of Health (NIH) in the late 1980's. Its creation followed a decade pressure from the public and Congress (Albert Gore, John Dingell Jr., and Robert Roe) on NIH officials to deal with news reports of misconduct in science at major, predominantly eastern medical centers (see timeline by Mitcham, 2003).

ALLEGATIONS TO THE JOURNAL EDITOR AND UNIVERSITY

On April 9, 1987, Steven M. Barlow, Ph.D., Boys Town National Institute, wrote to Robert Daroff, M.D., Editor-in-Chief of *Neurology*, alleging that his former doctoral thesis mentor, James H. Abbs, Ph.D., Professor of Neurology at the University of Wisconsin/Madison (UW/M), had falsified research just published in *Neurology* (Abbs *et al*, 1987) with two coauthors from the Gundersen Medical Foundation in Wisconsin. The published waveforms and bar graphs on orofacial motor control in Parkinson's disease patients in this paper were alleged by Barlow to have been misrepresented and falsified by altering waveforms from subjects that had been previously published in 1983 by Barlow and Abbs in the *Journal of Speech and Hearing Research* (Barlow and Abbs, 1983) [see Figure 1 below]. Barlow sent copies of his letter to the UW/M Medical School Dean, the UW/M Waisman Center Director, the UW/M Neurology and Neurophysiology Department Chairmen, the Editor of the *Journal of Speech and Hearing Research*, and the Deputy Director of the National Institute for Neurological and Communicative Disorders and Stroke (NINCDS) at the NIH, which Abbs had cited as a source for the funds for this research.

Editor Daroff acknowledged Barlow's allegation letter, noting that "it will undoubtedly provoke internal investigations" at UW/M, Gundersen Medical Foundation, and NINCDS/NIH. Daroff also wrote to the same officials whom Barlow had copied and to the NINCDS Director, asking whether he would be informed of the results of their investigations, noting his obligation to the readers of *Neurology*. After Abbs was informed and responded to Daroff in a lengthy letter in May 1987, Daroff told Abbs that he had informed the editors of *Annals of Neurology* and *Archives of Neurology* about Barlow's letter, because the three editors had an agreement to share information about misrepresentation and falsification of data.

It is noteworthy that in the late 1980s and early 1990s, there was little consensus among editors of biomedical and clinical research journals on whether or not, or how and to what extent, the editor should be involved in pursuing allegations of scientific misconduct. As noted in an earlier paper (Daroff, 2007), Editor Daroff was surprised by comments at a 1990 OSI-hosted NIH

retreat for two dozen major biomedical and medical journal editors: one editor explained that he would not himself retract a paper that a university had judged to be fraudulent, and another editor stated that only authors can retract a paper, not editors.

UW/M Medical School Dean Arnold Brown, M.D., in April 1987 asked Henry Schutta, M.D., Chairman of Abbs' department (Neurology), to appoint a committee to conduct an inquiry into Barlow's allegations. Three of the four faculty appointed were members of Abbs' department. They held no meetings; instead they requested a written response only from Abbs. Chairman Schutta collected the individual members' written assessments of Abbs' comments and submitted them in May 1987 as a composite report of the inquiry to UW/M Dean Brown, stating: "That consensus and the committee's recommendation to you is that Dr. Barlow's accusations against Drs. Abbs, Hartman, and Vishwanat are unsubstantiated and the findings of our inquiry into this matter do not justify or require a more formal investigation."

It is noteworthy that this UW/M inquiry was conducted in 1987, before the issuance in 1989 of the federal regulations on scientific misconduct (Public Health Service, 1989). These federal regulations required a thorough review of the evidence, and interviews with the respondent and if possible the complainant, with the creation of a fair, analytical report, all done by a committee of expert scientists who had no personal or professional conflicts of interest with the parties. In this case, the Dean should⁵ have selected faculty from outside Abbs' department, with no relationship to him, to do a fair and thorough inquiry/investigation; however, the UW/M Neurology Chairman did not do so in 1987.

In June 1987 UW/M Dean Brown sent the UW/M inquiry report to the NIH Deputy Director for Extramural Research, Katherine Bick, Ph.D., pursuant to her request. Dean Brown stated that he and UW/M Acting Chancellor Bernard Cohen had accepted the report's recommendation that there was no basis for the allegations nor need for further action. After conducting a preliminary review of the report, NIH's Bick sent an acknowledgment letter in late June 1987 to Dean Brown, regarding the inquiry report and its pending review by a senior committee from NINCDS and the NIH Office of the Director and its Office of General Counsel (OGC).

At the Gundersen Clinic, where the Parkinson's Disease patients described in the *Neurology* paper had been evaluated, a very brief inquiry report was prepared in August 1987 by a committee of scientists from the Clinic who were not affiliated with Abbs, who said that they

⁵ UW/M was a founding member of the Association of American Universities (AAU), which took a leadership role in the mid-1980's for the major universities to address the political and public reaction to stories of misconduct in science. In 1987-1988 AAU members were developing a framework for dealing with fraud in research, which specified: "Individuals chosen to assist in the inquiry process should have no real or apparent conflicts of interest bearing on the case in question. They should be unbiased. . . . Those investigating the allegations should be selected in full awareness of the closeness of their professional or personal affiliation with the complainant or the respondent." (AAU, 1988).

had reviewed (unnamed) documents and concurred with the UW/M inquiry committee's conclusion that Barlow's allegations were unsubstantiated.

In September 1987, Neurology Chairman Schutta sent a letter and the inquiry report to Barlow, stating: "This committee found your undocumented suspicions spurious and totally without merit. . . . It is evident that you have made a grave error. We believe very strongly that you have an ethical responsibility to apologize in writing to Drs. Abbs, Hartman and Vishwanat and to the Dept. of Neurology. . . . We are therefore prepared to consider the matter closed with the receipt of your apology." A copy of this letter was sent by Chairman Schutta to the Director of the Boys Town National Institute where Dr. Barlow was employed. Barlow did not apologize; he did not press the case further himself,⁶ as did others publically (see below).

PUBLIC ATTENTION AND NOTICE AT NIH ABOUT THE CASE

In a January 1988 newspaper article by Gardner Selby, entitled, "A UW Whitewash?" (Selby, 1988), Barry Guitar, Ph.D., Professor of Speech Pathology, University of Vermont, was reported as stating that the resemblance of the two figures published by Abbs in the 1987 paper versus the 1983 paper was "uncanny" and that the allegations merited an investigation by scientists with no association with the UW/M or Abbs. The article also quoted Ronald Netsell, Ph.D., Abbs' original graduate advisor: "For any one of those (graphs) to superimpose is entirely remote. . . . For three to appear to be so similar is a likelihood you don't see. . . . I have never seen it before."

The news article (Selby, 1988) also reported that Gary Weismer, Ph.D., a staff scientist in the UW/M Waisman Center, had stated that he suspected that his phaseout from Abbs' grant support was retribution for his support of Barlow's allegations during a conversation with two members of the UW/M inquiry committee. The article also reported Abbs' claims: "In an interview, Abbs said he hand-drew the graphs in question around 6 AM one day in a drawing room down the hall from his 5th floor office in the Waisman Center. He said that there were no witnesses or collaborators on the graph because the article was about his research off-campus with Hartman and Vishwanat . . ."

Charles McCutchen, Ph.D., a scientist on the NIH intramural⁷ research staff, reported in April

⁶ Barlow continued his strong research direction at Boys Town, later moving to Indiana University, then to the University of Kansas, as Professor, Department Chairman, and Director of the Communication Neuroscience Laboratories, with a succession of NIH investigator-initiated R01 grants.

⁷ McCutchen's fellow NIH intramural research "fraud-busters," Walter Stewart, Ph.D., and Ned Feder, Ph.D., had mentioned their recommendation to NIH's Bick that NIH investigate Barlow's allegations against Abbs, in their public testimony in early 1988 before Representative John Dingell's House Energy and Commerce Oversight Sub-Committee (available at http://www.gatewaycoalition.org/files/gateway_project_moshe_kam/resource/DBCcre/testimony_nedapr12.html).

1988 to NIH Deputy Director Bick his own analysis of the figures in question, concluding that the chance was “remote (0.7×10^{-8}) that two curves in question were independently derived, and I believe it inescapable that the curves were borrowed” from the 1983 Barlow and Abbs paper for the 1987 Abbs *et al.* paper.

FOLLOWUP AT NIH AND THE JOURNAL

After reviewing McCutchen's analysis, NIH Deputy Director Bick wrote in April 1988 to Abbs, Barlow, Dean Brown and *Neurology* Editor Daroff: "Based on the information provided, we concluded [in 1987] that the allegations were not substantiated. An uninvolved scientist recently provided information suggesting that our conclusion was based on misleading or incomplete information. . . We are now in the process of seeking advice as to the soundness of that analysis." Bick asked that the involved persons provide to NIH additional documentation on the UW/M inquiry and their comments on the UW/M inquiry report.

In May 1988 NIH's Bick then requested that an internal NINCDS committee examine the documentation received. In August 1988, the NINCDS committee reported to her that the arguments advanced by McCutchen were not persuasive and that his analysis was not an appropriate statistical approach; the NINDS committee was not convinced that the issues could be readily resolved.

In September 1988, NIH's Bick constituted a committee of senior NIH officials to review all the reports. They recommended that NIH seek further information from Abbs on his research methods and obtain independent analyses of the waveforms by experts in biostatistics or signal processing. In October 1988, the Director of the NIH Institutional Liaison Office under Bick asked Abbs to provide the other recorded graphs from the patients to permit a statistical evaluation of the published results.

In December 1988, Abbs responded to NIH with copies of some summary tables on the research, but he provided no laboratory notebook, notes, other tracings nor waveforms. He detailed the methods (measurement by eye and hand for each patient/subject of 60 recordings of 3-seconds measured at 10 msec spacing, for 300 points – totaling over 200,000 points – and entry of the numerical data into a pocket calculator for analysis) that he claimed he done by himself alone in the lab to make the measurements reported in the 1987 *Neurology* paper.

In March 1989, *Neurology* Editor Daroff published a letter from McCutchen⁸ (McCutchen, 1989), with copies of the two figures in question laid side-by-side and then overlaid (Figure 1), stating: “Barlow contends that the second figure is a smoothed tracing of the first. Abbs denies

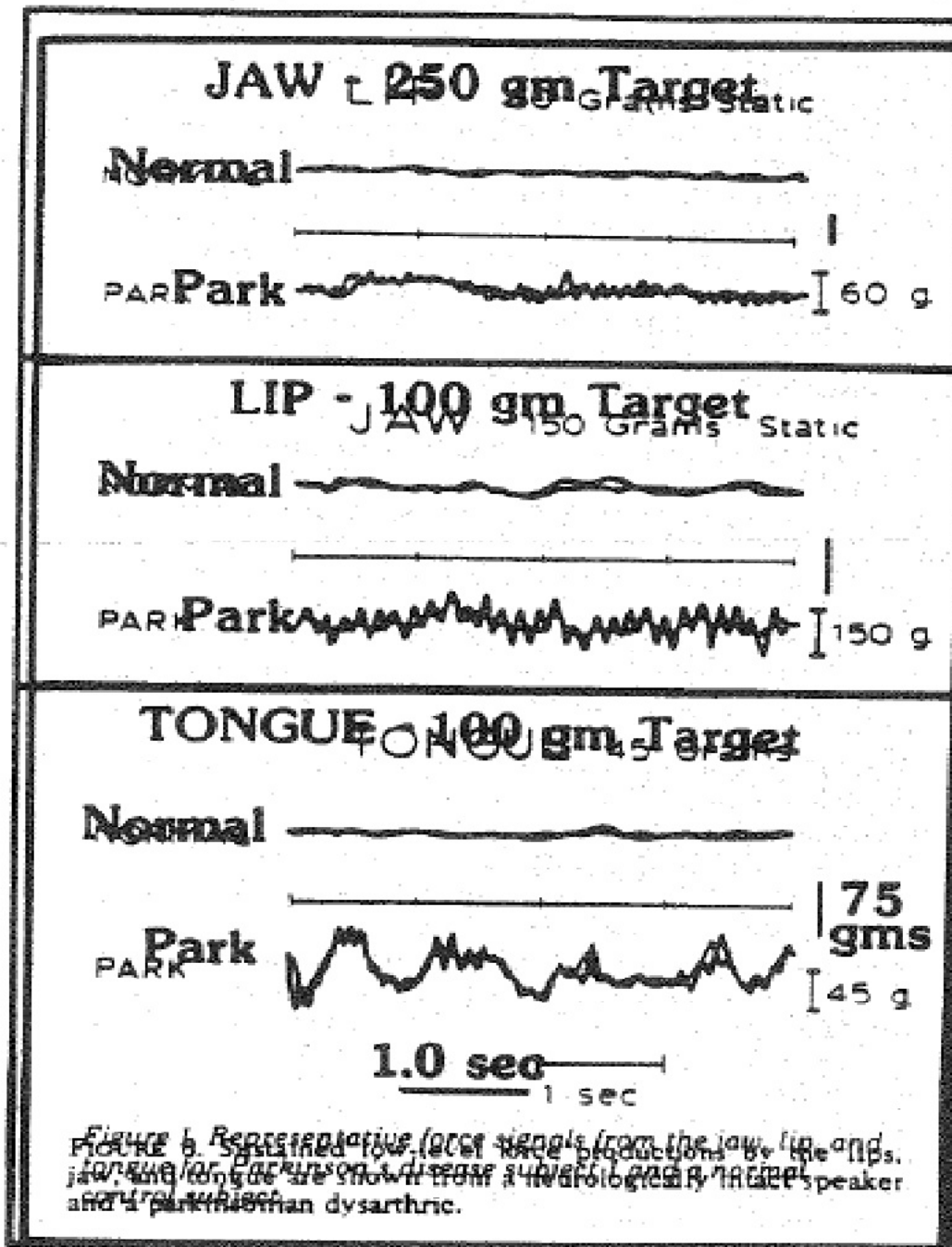
⁸ McCutchen then wrote to Editor Daroff: “I thank you for publishing the exchange. After so many important people have behaved so timidly, it was wonderful to see someone with the power to do something who dared to do it. . . I think courage is good stuff, and I am proud to be your fellow scientist.” [McCutchen retired from NIH, continuing public advocacy for integrity.]

this. So readers can judge for themselves, I have superimposed the two figures.” This published correspondence note was accompanied by a rebuttal from Abbs (see McCutchen, 1989), stating:

. . . the information provided is deceptively incomplete. The issue is not the similarity of the signals, but whether this superficial likeness is due to multiple natural factors as I have pointed out [citing *The Capital Times* story by Selby, 1988]. . . . Given the illustrative purpose of Figure 1 and unequivocal replication of the major results of that study [by others], it is obvious that the seeming impropriety implied by McCutchen is not only groundless, but of absolutely no experimental or substantive consequences.

FIGURE 1

Figure 3 from Charles McCutchen's 1989 letter to the Editor of *Neurology* (McCutchen, 1989), as his superposition of Figure 1 from Abbs *et al.* 1987 *Neurology* paper laid over Figure 6 from Barlow and Abbs 1983 *Speech Hearing Research* paper.



In May 1989, William Raub, Ph.D., NIH Acting Director, asked six experts⁹ in biostatistics and signal processing each to perform a formal statistical analysis of the data. Three experts performed detailed data reduction and formal statistical analysis, each using a somewhat different approach or set of tracings for analysis, but all coming to fundamentally similar conclusions. Raub received these experts' biostatistical reports and referred them in Summer 1989 to the newly-created OSI. OSI Scientist-Investigator Alan Price, Ph.D., was assigned prime responsibility for conducting the OSI investigation, as his first assignment on joining OSI in late 1989.

MORE PUBLIC NOTICE FROM JOURNAL EDITOR

In January 1990, *Neurology* Editor Daroff published a letter from Gary Weismer, a professor at UW/M and a former senior member of Abbs' research staff, criticizing Abbs' rebuttal to McCutchen's earlier letter, stating:

The purpose of this correspondence is to inform the interested scientific community of these aspects of the dispute, and to call for a full investigation of the original charges filed by Barlow. . . . To date, the investigations conducted by the UW/M and NIH have not been focused or comprehensive (Weismer, 1990).

Weismer's letter was published with a caustic reply from Abbs:

Given its obvious biases, a content consisting primarily of reiterated insinuations, and arguments based on numerous misconceptions regarding Parkinson's Disease, Dr. Weismer's letter is an insult to the scientific community. . . the mewlish [sic] and trivial character of the comments reflects their harassing intent: namely, the over-eager advocacy of a maliciously disgruntled former employee. . . based on misunderstandings of neurological research literature and modern clinical practice. . . we are experiencing a time of scientific McCarthyism, in which even unsubstantiated claims such as Weismer's and Barlow's before him are thought, even without evidence of guilt, to require proof of innocence. . . if it continues science will increasingly become the domain of self-styled sophists such as Weismer and those naive or irresponsible enough to be so influenced (see Weismer, 1990).

⁹ David Cooper, Ph.D., Engineering, Brown University; Murray Eden, Ph.D., Biomedical Engineering and Instrumentation, NIH; Richard Jones, Ph.D., Biometrics, University of Colorado; Alan Oppenheim, Ph.D., Electrical Engineering and Computer Science, Massachusetts Institute of Technology; Eric Slud, Ph.D., Mathematics, University of Maryland; and Scott Zeger, Ph.D., Biostatistics, Johns Hopkins University. Their comments were summarized for NIH's Raub by Peter Frommer, M.D., Deputy Director of the National Heart Lung Blood Institute, NIH.

INITIATION OF NIH OSI INVESTIGATION AND ABBS' COURT EFFORTS TO STOP IT

In January and February 1990, OSI's Price sent letters to Abbs regarding his being named as the subject of an OSI investigation of possible scientific misconduct. At OSI request, Abbs suggested eight people as potential experts, and two of them agreed to serve, along with two other scientists recruited by OSI, as outside expert scientific advisors.¹⁰ After written interactions with Abbs in early 1990, OSI formally notified him on May 11 of the focus of the interview scheduled for June 4 in Madison, Wisconsin. However, on June 1, a newly-retained attorney for Abbs, Carl Gulbrandsen, called OSI to ask for copies of the correspondence related to the scheduled site visit; he came to the interview with Abbs on June 4, but he challenged the OSI process of holding confidential interviews with witnesses in Abbs' absence, and he advised Abbs not to answer any questions. The OSI team then proceeded alone to interview the others.

UW/M Vice Chancellor for Legal and Executive Affairs Melany Newby in July 1990 declined to respond to OSI's request to provide Abbs' research records, because of the UW/M position as a party-plaintiff in a suit against the HHS and OSI, filed by Abbs in a Wisconsin court. Abbs claimed that OSI was violating his Constitutional rights and had failed to follow the federal Administrative Procedures Act's requirements for publication of its procedures (NIH had published the regulations for public comment before their adoption in 1989, when OSI was created at NIH). HHS then published OSI's operating procedures in the 1991 *Federal Register* (no other federal investigative office had ever done this before).

After the Wisconsin judge's initial ruling not to grant a temporary injunction to block OSI's investigation, UW/M Vice Chancellor Newby complied in October 1990 with an NIH OGC request, providing copies of some of the requested documents. Nonetheless, the OSI investigation had to be put on hold for a period of two years because of Abbs' law suit against the HHS investigation process. The Federal Court Judge for the Western District of Wisconsin ruled against HHS and in favor of Abbs in December 1990. However, HHS immediately appealed to a higher court; the Federal Appeals Court in Washington, D.C., vacated the original suit in May 1992, given that Abbs was just under investigation pursuant to the published 1989 regulations (*Abbs v. Sullivan*, 1992).

¹⁰ Louis Goldberg, D.D.S., Ph.D., Professor and Chairman of Oral Biology, School of Dentistry, University of California Los Angeles, expert in orofacial motor control; Gerald Loeb, M.D., Professor of Physiology and Director of Special Projects, Biomedical Engineering Unit, Queens University, Kingston, Ontario, Canada, expert in biomedical instrumentation and sensorimotor neurophysiology; W. Zev Rymer, M.D., Ph.D., Professor and Director of the Biomechanics Program, Northwestern University, and Research Director, Rehabilitation Institute of Chicago, expert in Parkinson's disease, neurology, and motor control; and David Alling, M.D., Ph.D., Special Assistant for Biometry in the intramural program of the National Institute of Allergy and Infectious Diseases, NIH, expert in biostatistics.

RE-INITIATION OF ORI INVESTIGATION

In May 1992 Scientist-Investigator Price for the newly established ORI (see history, Price, 2013) notified UW/M officials that the investigation would resume. In June 1992, UW/M Provost David Ward, Ph.D., then requested that ORI send its evidence to the University and that UW/M be allowed to conduct the investigation, if ORI believed that one was warranted. ORI reminded the UW/M officials of letters to them in May/June 1990, stating that the federal investigation was opened by OSI because of concerns about a lack of objectivity, thoroughness, and competence in the 1987 UW/M inquiry. However, the University was informed by ORI that it could open a proper investigation in 1992, just as it could have done in 1987 or in 1990, when UW/M Vice Chancellor Newby had discussed these matters with OSI; however, ORI found no compelling reason in 1992 not to complete its own investigation.

ORI again requested Abbs' cooperation in answering ORI questions and his help in providing any other available evidence. Abbs responded to questions in writing in September and November 1992. He also gave ORI the names of possible witnesses from his UW/M laboratory from 1983 to 1987, when he was working on the research and analysis for the *Neurology* paper. ORI then called all of these suggested witnesses. In December 1992, Abbs himself requested an interview with ORI's expert advisors. ORI scheduled the requested interview for mid-March 1993, after reappointing its four experts and arranging their travel. However, in early March 1993, the UW/M counsels wrote to ORI that Abbs was then declining, on their advice, to be interviewed by ORI.

ORI tried throughout 1993 to obtain further records from the University. Some records were brought in November 1993 to ORI for examination (when the UW/M counsels declined to give ORI possession of that original evidence). ORI completed its investigation during 1994 and 1995, talking to selected witnesses, performing additional analyses using forensic statistical and image analysis techniques,¹¹ and drafting an investigation report, which was provided to Abbs in February 1996 for any comments, but he did not then respond.

ORI INVESTIGATION FINDINGS AND ADMINISTRATIVE ACTIONS

In March 1996, an HHS OGC Counsel for ORI, Stephen Godek, negotiated a settlement agreement with Abbs and attorney Gulbrandsen. Abbs neither confirmed nor denied the three ORI findings [see Appendix] of scientific misconduct for his falsification and fabrication of Figures 1, 2, and 4 of the 1987 *Neurology* paper and for his false claims to NIH and OSI/ORI thereafter. Abbs was required under this voluntary agreement to exclude himself for three years

¹¹ ORI Scientist-Investigator John Krueger, Ph.D., performed detailed forensic image analysis on the UW/M original evidence and on Abbs' explanations for the figures. ORI Senior Statistician James Mosimann, Ph.D., conducted sophisticated forensic digit analysis on the data points that Abbs provided. Their analyses were central to the ORI report's misconduct findings of falsification and fabrication of data by Abbs.

from any HHS research advisory committees, and that any institution submitting an application for NIH funds involving Abbs would have to include a plan for his supervision to ensure the integrity of his research, as well as a certification that Abbs' data were based on actual experiments or otherwise legitimately derived data, procedures, and methodology.¹² The ORI findings and actions were published¹³ in April 1996 in the *Federal Register* (Department of Health and Human Services, 1996).

HANDLING OF RETRACTION BY JOURNAL EDITOR

ORI then recommended retraction of Abbs' 1987 *Neurology* paper to *Neurology* Editor Daroff, providing him detailed information about ORI's misconduct findings. In late April 1996, Abbs submitted caustic rebuttals to ORI and Editor Daroff.¹⁴ As detailed previously (Daroff, 2007), Abbs tried to convince Editor Daroff that a retraction was not justified and suggested a "compromise partial retraction," objecting that the recommended [International Committee of Medical Journal Editors] retraction language and format was "harsh and malevolent." But given the statement by ORI's Director Chris Pascal, J.D., that Abbs' proposed language misstated ORI's findings, and ORI recommending that the standard language be employed (Daroff, 2007), Editor Daroff then published a formal retraction (Figure 2) of the Abbs *et al.* falsified 1987 *Neurology* paper, stating that the retraction was based on the finding of the ORI investigation report (Daroff, 1996).

¹² According to an NIH RePORT search, Abbs' last NIH grant (for a P50 center) had already ended in 1991, and he was not a Principal Investigator on any later NIH funding, so no such supervisory plan or certification was submitted by UW/M for him in 1996-1999.

¹³ For unknown reasons, the ORI findings against Abbs were not published in *The NIH Guide to Grants and Contracts*, where almost all other ORI findings have also appeared. Other senior faculty members were debarred from federal funding by ORI/HHS for 3-10 years, but they had committed much more extensive and significant research falsifications and fabrications (see Price, 2013).

¹⁴ ORI investigators Price, Krueger, and Mosimann wrote, with ORI approval, a detailed analysis of, and rebuttal to, Abbs' comments.

FIGURE 2

Retraction published in 1996 by *Neurology* Editor Daroff (Daroff, 1996) of the 1987 paper by Abbs and coauthors (Abbs *et al.*, 1987).

Retraction of: Orofacial motor control impairment in Parkinson's disease

James H. Abbs, PhD,
David E. Hartman, PhD, and
Balaji Vishwanat, MD

From the Department of Neurology and Neurophysiology (Dr. Abbs), Clinical Science Center, University of Wisconsin-Madison, Madison, WI; the Speech Motor Control Laboratories (Dr. Abbs), Waisman Center, University of Wisconsin-Madison; and the Department of Neurology-Neurosurgery (Drs. Abbs, Hartman, and Vishwanat), Gundersen Medical Foundation, La Crosse, WI.

Published in *Neurology* 1987;37:394-398

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and the Gundersen Medical Foundation.

Note from the Editor-in-Chief

The retraction of this paper is based upon the Department of Health & Human Services' Office of Research Integrity (ORI) Investigation Report finding that James H. Abbs, PhD, engaged in scientific misconduct by deliberately falsifying and fabricating certain figures and research results that were published in the above paper. The ORI believes it is necessary to retract the paper to correct the scientific literature.

The form of this retraction complies with the recommendations of the International Committee of Medical Journal Editors (*Annals of Internal Medicine* 1988;108:304).

FOLLOWUP ARTICLES

Given the publicity from Abbs' earlier suit against HHS in Federal Court, in April 1996, HHS made a public announcement of the ORI findings:

ORI conducted an extensive scientific examination of the records that Dr. Abbs provided for this research, using specialized forensic and statistical techniques developed by ORI staff. ORI found that Dr. Abbs falsified Figure 1 in the paper, by tracing and then altering a figure showing actual results from a Parkinson's patient that was published in a prior scientific paper in 1983. ORI also found that Dr. Abbs falsified and fabricated the data displayed in Figures 2 and 4 of the *Neurology* paper and made other misrepresentations about the methodology used in the paper and in his explanations during the university's inquiry and ORI's investigation. This finding concludes an ORI investigation that was begun by the former Office of Scientific Integrity in 1989 and suspended while Dr. Abbs and the University of Wisconsin challenged the department's scientific misconduct procedures in federal court. That case against the department was ultimately dismissed on procedural grounds (Health and Human Services press release, 1996).

A freelance reporter in Virginia, Jock Friendly, wrote a *Science "News and Comments"* piece in May 1996 (Friendly, 1996) critical of ORI's process and report, while adopting many of the arguments that Abbs made after he signed the agreement on ORI's misconduct findings. However, honorable traditions in science dictate that when their results are challenged, scientists will provide the basis for their discoveries to colleagues, specifically the relevant laboratory data and records that underlie their published results. When Abbs was challenged within a month of publication of his 1987 paper, he claimed that he had lost or destroyed all but about a dozen of the hundreds of original experimental recordings and the analysis records from his 1983-1985 research at the Gundersen Clinic and the University of Wisconsin. ORI proved, from the evidence that Abbs himself provided [not from testimony of others, as Abbs claimed and Friendly repeated], that his claims in the paper were false. In his rebuttal, Abbs ignored the fact that four scientific expert advisors from outside ORI (two of whom he had nominated) all agreed with the investigative conclusion that Abbs had falsified his results and representations to NIH and ORI.

Editor Daroff recalled correctly (Daroff, 2007) that ORI considered him a "poster child/editor," displaying a "unique bravado" contrary to what seemed to be "pervasive timidity" among journal editors at the time, given his forceful retractions and publication of critical letters to the editor.

SIGNIFICANCE OF THE ABBS RESEARCH MISCONDUCT CASE

It is noteworthy that Abbs brought all this public attention¹⁵ on himself with his court suit against HHS. He defended what the ORI investigative team of experts felt was a very peripheral paper (from his consulting work in setting up an oral-facial motor control laboratory with his colleagues at the Gundersen Medical Foundation in LaCrosse, Wisconsin). The falsified 1987 *Neurology* paper was cited infrequently in the scientific literature (only fifteen times, nine by Abbs' own UW/M team and six by his colleagues, from 1987 to 1996). Over these years, the students and fellows left Abbs' laboratory, his NIH grant funding ended, and he retired, having very few later publications.¹⁶

This case serves as a model for editors on their interactions with NIH/HHS and ORI. If *Neurology* Editor Daroff had not pressed top NIH officials to investigate Barlow's allegations and had not published McCutchen's and Weismer's letters to him about Abbs' figures and explanations, the faulty inquiry by Abbs' Chairman and colleagues at UW/M might never have been followed up by NIH and OSI/ORI, with a full investigation and forensic analysis of the actual records. Editor Daroff and OSI/ORI staff each had their own responsibilities, but they shared information and comments that, in the end (after years of delays and a federal court suit by Abbs) led to his retraction of the paper containing falsified graph-figures and fabricated tabular bar-graph data, to correct the scientific literature as appropriate (Daroff, 1996).

The increasing number of retractions in the past decade, particularly for falsified images in ORI cases, has been accompanied by increasing attention of readers, who are often sophisticated in forensic image analysis, detecting and reporting questioned figures first on Internet blogs (such as Retraction Watch, PubPeer, SciFraud, and *The Scientist*) with "demands" that editors should take strong action against them. Journal editors can learn from the model in this paper that they can and should collaborate with ORI's scientist-investigators, who are experts in research misconduct and investigation methods (see guidance in Office of Research Integrity, 2000) to resolve research misconduct allegations and the related retractions.

¹⁵ In *Science* magazine alone, there were seven news articles on his suit and case (five in 1990-1991 and two in 1996). *Nature* magazine had five news pieces on his suit in 1991-1992.

¹⁶ Abbs apparently remained on the UW/M faculty; LinkedIn lists him as a professor emeritus. PubMed searches in 2013 showed, after the 1996 ORI finding, he was senior author on only two papers in 1998, and an author on one in 2011 (listed tenth of fifteen coauthors on a longitudinal Parkinson's Disease study in Madison).

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APPENDIX:

ORI Investigation Report Findings of Scientific Misconduct by James H. Abbs:

Finding #1: Dr. Abbs intentionally falsified Figure 1 in the 1987 *Neurology* paper. He traced Figure 6 from the 1983 *J.S.H.R.* paper, eliminating the apparent tremors, falsifying the standard force levels and structures, and misrepresenting the actual subject.

Fourier-transform and related analyses of the published waveforms by three independent experts demonstrated that it was highly unlikely that two different subjects could generate one essentially identical waveform for a given muscle group, and the probability was essentially zero (less than $10e-8$ to $10e-12$) that three such nearly identical waveforms could have been generated and then selected independently from the longer recordings (for a 1987 non-tremorous patient L.G.) as Dr. Abbs claimed (versus the 1983 tremorous patient R.C.).

Finding #2: Dr. Abbs intentionally falsified and fabricated the data for Figure 2 in the 1987 *Neurology* paper. He falsified the number of trials run on each subject, misrepresented the number of measurements made on each of the waveforms, and fabricated the numbers used to calculate the force instability results presented for Figure 2. He used the same fabricated numbers for Figure 4.

The evidence in the stripcharts provided by Dr. Abbs showed that he had performed less than half of the trials that he claimed on at least two of the patients. The working tabular data that Dr. Abbs provided had highly improbable ($p < 0.00001$ in Chi-square analysis) distributions of the terminal digits (which should have been random), indicating that these “data” were not real (but fabricated). It was not plausible that Dr. Abbs would have made and recorded himself the 216,000 measurements by eye/hand (300 points on the 720 waveforms for 12 subjects, as he claimed in the paper), which would have taken, even if done at the exhausting rate of 1.5 point/sec as he told NIH, at least 84 hours. Dr. Abbs provided to NIH (and said that no others existed in 1989) only six initial segments and only eight waveforms from internal sets of the 720 purported measurements, none that actually was the one he showed (traced) for Figure 1.

Finding #3: Dr. Abbs made misrepresentations in other descriptions in the 1987 *Neurology* paper and in his explanations during the inquiry and investigation. He misrepresented the identity of Subject #1, the way controls were handled, the other “tongue” waveforms for Subject #1, the methods and results of analysis of waveforms, and the claim that patient-subjects were matched with controls.

The evidence provided by Dr. Abbs demonstrated that he altered/misrepresented using a broad felt pen the questioned waveform, as well as several tongue versus lip waveforms, to the inquiry committee. Dr. Abbs falsely claimed a male patient L.G. was Subject #1 for Figure 1, whereas his preprints widely distributed indicated #1 was a female F.D. Dr. Abbs falsely claimed to have used six “matched” (by age and sex, in the preprint) controls as subjects; his tabular data and own statements indicated such matching was not done (controls were not done at the Clinic).

From an analysis of the digits in numerical data and of the stripchart records presented by Dr. Abbs, it was shown that he fabricated the standard deviations of individual trials that he claimed he had used for plotting Figure 2. In addition, since Dr. Abbs falsified the origin of the data for the subject in the 1987 Figure 1, he therefore must have also falsified his claims regarding the subject for the first panel in Figure 2. The description of the detailed analysis that Dr. Abbs claimed he had performed was not credible.

Summary: On the basis of all of the evidence provided by Dr. Abbs and its analyses by ORI, ORI concluded that Dr. Abbs deliberately falsified and fabricated data and descriptions for Figures 1, 2 and 4 in the 1987 *Neurology* paper. The extent of Dr. Abbs' deviation from accepted norms of scientific behavior in the falsification and fabrication of the results for a publication in a scientific journal was such that his actions could not be treated as sloppiness in technique, as acceptance of different standards within the research community, nor as an honest error. These falsifications and fabrications warranted findings of scientific misconduct on the part of Dr. Abbs.