

## W. D. McElroy: An Old Incident Embarrasses New NSF Director

William D. McElroy, who was sworn in last week as director of the National Science Foundation (NSF), wrote a review article several years ago in which verbatim quotations from another author appeared without complete attribution. The incident, which went largely unnoticed at the time, has become a subject of discussion within a small portion of the scientific community in the wake of McElroy's elevation to one of the top federal science posts in the country.

In an interview with *Science* last week, McElroy said he had inadvertently used the material without full attribution through an oversight which he later corrected. "It was a real foul-up," he said. "It was an honest mistake and I readily admit it." McElroy also noted that his article had made numerous references to the work of the other author. McElroy suggested it was "inconceivable" that he would intentionally try to steal something from the other author and then mention his name so many times.

### Some Scientists Concerned

In a separate telephone interview, David S. Smith, the man whose work was allegedly plagiarized by McElroy, said he regards the matter as "closed" and as simply due to "an unfortunate oversight on Dr. McElroy's part." But a few scientists in England, who are close to the field of research involved, say they are so concerned over the incident that they are circularizing colleagues in the United States in an effort to obtain signatures for a letter requesting clarification of the matter. These investigators brought the matter to the attention of Daniel S. Greenberg, the foreign editor of *Science*, who is based in London.

In an effort to determine precisely what happened, *Science* has discussed the matter with the principals and their publishers. Though memories have dimmed somewhat over the years, it seems clear beyond doubt that McElroy, in writing a review chapter

on bioluminescence for a lengthy book about insects, used large chunks of material from an earlier paper written by Smith. The material, for the most part, was quoted verbatim but was not put in quotation marks and was not attributed clearly to Smith.

Review articles, by their nature, tend to rely heavily on work done by others, since the function of such an article is to review and synthesize important work that has been done by investigators in a given scientific field. But the authors of such articles—as is true in other academic disciplines—are expected to use their own words or else to attribute quotations to their original authors.

The chapter by McElroy, entitled "Insect Bioluminescence," was published in 1964 in volume 1 of *The Physiology of Insecta*, a three-volume work that was edited by Morris Rockstein, of the University of Miami School of Medicine, and was published by Academic Press, of New York. The chapter, which is 46 pages long, contains a survey of luminous insects, a discussion of the chemistry of light emission, and a discussion of the physiology of light emission, a subject to which Smith's work is particularly relevant.

The paper by Smith, which is 37 pages long, was published in 1963 in volume 16 of *The Journal of Cell Biology* under the title: "The Organization and Innervation of the Luminescent Organ in a Firefly, *Photuris pennsylvanica* (Coleoptera)." The paper describes Smith's own cytological investigations of the luminescent organs of fireflies, and it relates Smith's findings to work done by others in an effort to develop an understanding of the mechanism of light emission.

A comparison of the two articles reveals that more than 20 percent of the text of McElroy's chapter consists of material that was either taken verbatim from Smith's article or else was closely paraphrased from the wording used by Smith. The material appears

entirely in four subsections of McElroy's chapter dealing with the physiology of light emission, and it comprises more than 80 percent of the text in those four subsections. In all, McElroy uses more than 25 percent of the text in Smith's original article.

McElroy makes it clear in his chapter that he consulted Smith's work. He lists Smith's 1963 article, as well as an earlier article by Smith, among his references. He credits seven different illustrations and their captions to Smith. And he cites Smith's work no fewer than a dozen times in the text of the chapter. These citations generally refer to work carried out by Smith himself or to observations that seem to have originated with Smith. In general, McElroy seems to give Smith credit for Smith's original work, but he does not indicate that he has used Smith's words to describe the work of others and to delineate the existing state of knowledge in the field. Ironically, McElroy even uses Smith's words to describe studies that he (McElroy) carried out.

### McElroy's Explanation

How did it happen? In an interview with *Science*, McElroy explained that he was in the midst of writing his chapter when he went to Woods Hole, Mass., during the summer of 1962 and happened to ask a colleague whether he knew of any relevant cytological work. The colleague mentioned research carried out by Smith, a young British investigator who had recently been working at the University of Cambridge, in England, and at the Rockefeller Institute, in New York City. Subsequently, Smith came up to see McElroy and also sent him galleys and original illustrations from his article. McElroy says that at Woods Hole he dictated material from Smith's article into a recording machine, occasionally changing the wording somewhat as he went along, and then sent the tapes to his secretary in Baltimore for typing, fully intending to rework Smith's material before publication. However, when McElroy put the chapter into final form later in the fall, he did not rephrase Smith's material. "What happened, I don't know," McElroy says. "It's not like me not to rework it. But it's an area I'm not interested in. Maybe subconsciously I just wanted to get it over with."

When the volume containing McElroy's chapter first appeared in print,

Smith noticed that a substantial amount of his material had been used without attribution and registered a complaint—as did the Rockefeller Institute Press, which publishes *The Journal of Cell Biology*. Academic Press and McElroy subsequently agreed to insert an erratum stating that “credit for verbatim quotations” on nine different pages of McElroy’s chapter should be given to Smith’s paper. The erratum slip seems to have been sent out to many recipients of volume 1 and was also included in volume 2, which was published in 1965.

McElroy apologized profusely for the incident. In a letter to Smith, dated 10 December 1964, McElroy said: “There is absolutely no excuse for this oversight and I confess to extreme embarrassment at letting something like this slip by me. I guess it shows what can happen when you try to write something in an area with which you are not entirely familiar.”

Smith, who is now at the University of Miami School of Medicine, told *Science* he regards the erratum slip as a “satisfactory solution” to an “unfortunate” episode. He said the lack of attribution was “certainly an oversight—I’m prepared to accept that” and may also have been caused by “a rather sloppy piece of editing” by the publisher as well. “I don’t bear any ill feeling about it,” he said. “As far as I’m concerned, the incident is best dropped.”

What judgment can be made of the whole episode? McElroy’s colleagues note that the article is a minor part of his scholarly output, that it is simply a review article and not an original scientific contribution, and that there is no indication that McElroy tried to take credit for anyone else’s scientific work. They also find it impossible to believe that McElroy would deliberately steal even the words of another man. “Bill McElroy doesn’t need it and he’s not going to risk it,” says Morris Rockstein, who asked McElroy to write the chapter in the first place. “His own work is so outstanding that it could win a Nobel Prize if they gave one for this kind of thing.” At the time of the incident, McElroy was chairman of the biology department at Johns Hopkins University, a member of the prestigious National Academy of Sciences, and a member of the President’s Science Advisory Committee.

On the other hand, the young investigators who are raising questions

about the incident tend to be less charitable and wonder what would happen to a college student who tried to explain lack of attribution by saying he forgot to rework the material. McElroy himself acknowledges that “It was not a very professional thing to do.”

Ordinarily, a matter that was resolved with some embarrassment 5 years ago would not come back to haunt a man. But McElroy has now been elevated to high public office, and he is learning the hard way that almost nothing a public official does, or has done, is exempt from critical scrutiny.

—PHILIP M. BOFFEY

## RECENT DEATHS

**Abdul J. Abdullah**, 57; professor of atmospheric science, State University of New York, Albany, and former president, University of Baghdad, Iraq; 9 July.

**James E. Ackert**, 89; first dean of the Kansas State University Graduate School; 18 June.

**O. C. Aderhold**, 69; former president of the University of Georgia; 4 July.

**Edgar Anderson**, 71; Engelmann professor of botany, Washington University, St. Louis, Mo.; 18 June.

**Edward G. Brandenberger**, 82; former medical adviser for the Veterans’ Claim Service, Veterans Administration; 17 June.

**George R. Brighton**, 69; former associate professor of otolaryngology at Columbia University College of Physicians and Surgeons; 16 June.

**Robert Calvert**, 80; chemist and for-

mer chairman of the New York Technological Society; 27 June.

**Wladimir G. Eliasberg**, 81; former president of the American Society of Psychoanalytic Physicians; 22 June.

**Peter Flesch**, 53; research professor of dermatology, School of Medicine at the University of Pennsylvania; 2 July.

**Adele L. Grant**, 87; professor of botany and former Los Angeles County supervisor of science instruction; 19 June.

**Frank W. Jobs**, 65; professor of biology, Yankton College, Yankton, S.D.; 16 June.

**John F. Keaveny**, 79; former director of the oral surgery department, Georgetown University, Washington, D.C.; 7 July.

**Peter M. Margetis**, 53; director, U.S. Army Institute of Dental Research; 17 June.

**William J. Muster**, 54; diplomate of the American Board of Obstetrics and Gynecology; 22 June.

**John F. Olson**, 49; president of Oklahoma City University; 25 June.

**Rudolph N. Schullinger**, 73; professor emeritus of clinical surgery at the College of Physicians and Surgeons, Columbia University; 27 June.

**William P. Shepard**, 73; former chief medical director for the Metropolitan Life Insurance Company; 26 June.

**W. E. Clyde Todd**, 94; curator emeritus of birds, Carnegie Museum, Pittsburgh, Pa.; 24 June.

**William L. Wheeler, Jr.**, 65; former associate clinical professor of medicine at New York Medical College; 27 June.

**Melville L. Wolfrom**, 69; regents professor of chemistry, Ohio State University; 20 June.

**Erratum:** Because of faulty proofreading during the page stage of production, Table 1 of “Sex ratios of newborns: associated with prepartum and postpartum schizophrenia” by M. A. Taylor (9 May, p. 723) had many inaccuracies. The table should have been as follows:

Table 1. Schizophrenic symptoms, conception, and live births.

Time of onset of schizophrenia (months)	Offspring		$\chi^2$ (1 d.f.)	P <
	Male	Female		
	<i>Before conception</i>			
> 10	2	4	0.7	N.S.
7 to 9	0	0		
4 to 6	2	0	2.0	N.S.
2 to 3	2	1	0.3	N.S.
	<i>After conception</i>			
± 1	0	13	13.0	0.001
2 to 3	2*	4	0.7	N.S.
4 to 6	1	2	0.3	N.S.
7 to 9	0	1		
	<i>After childbirth</i>			
0 to 1	10†	2	6.2	0.01
1 to 3	1	0		
7 to 12	0	2	2.0	N.S.

\* Mother of one male offspring developed toxemia of pregnancy before 24th week of gestation; infant born prematurely. † An 11th male offspring died 4 days postpartum (no autopsy).