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Current Comments®

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Will Hot Papers Ever Become Hot Properties? A Provocative Viewpoint by *Science Watch*® Editor David Pendlebury

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Twenty years ago in *Current Contents*® (*CC*®), I wrote about commercial product endorsements by scientists.[1] What inspired that essay was a scotch whiskey advertisement that featured a scientist rather than an athlete, entertainer, or other high-profile public figure. In a satirical spirit, I suggested that it would not be farfetched to think that "somewhere there is a diabetic physician...whose endorsement of the insulin he uses would add a new dimension to the brand/generic name controversy."

In the same vein, I discussed the topic of academics as salespeople.[2] That is, university professors who advertised their elective courses in student newspapers. The point was illustrated with examples from *MAD* magazine's "The Alfred E. Newman University Competitive Hard-Sell 1976 Catalogue," which I still find hilarious.[3] Like all good satires, there was a kernel of truth in the *MAD* spoof. In a broad sense, scientists do in fact promote themselves legitimately, as I've often discussed—they "sell" their ideas at meetings, in grant proposals and research papers, and so on.

Most researchers would probably feel ambivalent about, if not downright hostile to, the suggestion of a direct link between science and commercialism. But few would deny that financial interests are indeed a part of science. For example, it is not at all unusual for scientists to receive honoraria for invited lectures, involvement with journals, etc. Some even serve as board members of universities or companies. And many scientific prizes include cash awards, some amounting to several hundred thousand dollars. In addition, it is not uncommon for scientists to have consulting contracts with private corporations and/or ownership stakes in new business ventures. An indication of how widespread this has become is the growing number of journals that now require authors to disclose possible conflicts of interest when submitting manuscripts.

At the institutional level, many universities and independent research institutes have recognized the potential commercial value of their research. Their patent offices are more aggressive today in securing the rights to marketable "assets" in their research portfolios and negotiating licensing and royalty agreements. An example is the controversial agreement between the Scripps Research Institute and Sandoz Pharmaceuticals Corporation—in return for $300 million paid over 10 years, Sandoz will have the rights to all Scripps discoveries.[4]

Is this really a sign of the times, and how far might commercialism go in science? An interesting answer was recently posed in *The Scientist*® by David Pendlebury, editor of ISI®'s monthly newsletter *Science Watch*®.[5] His article is reprinted below because it presents an imaginative and provocative viewpoint, though not necessarily a prescient one.

With tongue in cheek, he foresees two improbable but not impossible scenarios. One is that prominent scientists might take a cue from sports and entertainment stars

by hiring agents to negotiate their contracts when institutions are competing to recruit them. Considering all the details a "superstar" scientist must attend to—salary, benefits, endowment and royalty income, staff size and selection, lab space and setup, miscellaneous perks, etc.—it is surprising that lawyers or financial counselors are not routinely used in contract negotiations.

More provocatively, David also proposes that a market for research manuscripts might form in scientific publishing. That is, journal editors might one day bid at open auction for the "first look" rights to an author's work. The $137,000 price David hypothetically quotes below is exaggerated for satirical effect. But the basic idea of paying authors is not so implausible. Journals already offer to waive page charges, accelerate peer review, and publish promptly to compete for the hottest breakthrough papers. Is it farfetched to suggest that journals might also offer prominent authors honoraria? The practice is already evident in certain controlled-circulation medical publications.

Many would say that the economics would not allow it. Journal prices are already rising so steeply that libraries, institutions, and individuals are forced to cancel subscriptions. Manuscript auctions would only make a bad situation worse. This is probably true for the majority of journals in print today, especially those with limited circulation and few high impact papers. But the most prominent journals with substantial subscription and advertising revenue may well have the financial means to compete in a hypothetical manuscript market.

The evolution toward electronic publishing and document delivery may actually encourage such a market. Instead of subscribing to an entire journal, researchers might selectively choose particular articles and pay document delivery and copyright fees. To compensate for subscription losses, publishers would have little choice but to take a free market approach to pricing articles. The current cost of document delivery varies considerably. It ranges from $5 to $35 depending on how cost accounting is done. For a very limited topic, there are always a few organizations willing to pay top dollar for highly relevant work.

But this is only one of many scenarios. As mentioned in a previous essay,[6] the full text of each biweekly issue of *The Scientist*® is available electronically on the Internet network—free of charge. Following an initial experiment on NSFnet,[7] *The Scientist* can now be accessed on the InterNIC (AT&T) server via anonymous ftp, WAIS, and Gopher. Issues from November 1992 onward are currently available, and new issues are added every two weeks on alternate Mondays to coincide with the cover date of the print edition. Back issues are also available. To ftp *The Scientist*, simply access ds.internic.net and use your Internet address as password. Then type cd pub/the-scientist. For further information, contact garfield@aurora.cis.upenn.edu.

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Are New Riches In Store For Superstars Of Research? If Some Current Trends Continue, The Answer Is Yes!

DAVID A. PENDLEBURY

A news story you might be reading in 2003:

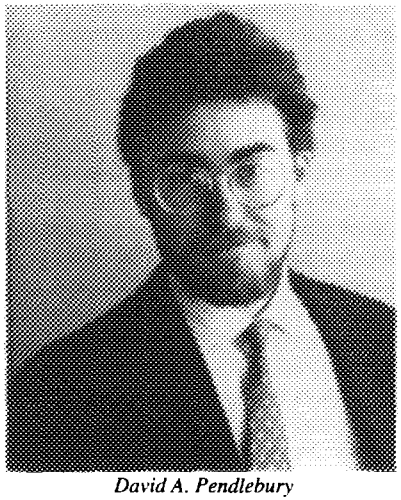
LOS ANGELES—A bidding war broke out yesterday for the rights to publish a scientific study identifying a master gene that controls aging. In the end, the journal Genes & Proteins *topped offers from four other journals and agreed to pay the authors of the breakthrough paper $137,000—a new record for a scientific paper sold at auction.*

"With this money, we'll be able to hire a couple of postdocs, and that will help speed up the work in our lab," Robert Kildow, director of the Phoenix Institute for the Study of Cell Senescence in Arizona, told reporters immediately after the winning bid was accepted.

By late in the day, word of the record price had swept through the scientific community, raising hopes of many researchers whose papers are coming up for auction next month....

...The practice of paying authors for the rights to publish their hottest papers began in 1997. Considered an outrageous maneuver at the time in the once staid and polite world of science publishing, the paper auction has since become a standard operating procedure, one that has helped support research at top labs around the world.

As the editor of *Science Watch*®, a newsletter that tracks trends in research, I typically keep my eyes fixed on new scientific findings, the substance of science itself. But I see plenty of changes in the nature of the scientific profession, too. It's plain that over the last decade or so, there's been a lot more money circulating around elite scientists—the researchers universally recognized by their peers as leaders—particularly those working at the frontiers of molecular biology.



David A. Pendlebury

Recent reports about and concerns over conflict of interest among leading molecular biologists exemplify this trend (see, for example, Christopher Anderson, "Hughes' Tough Stand on Industry Ties," *Science*, 259:884-6, 1993). The introduction of big bucks is, of course, due to the emergence of the multibillion-dollar biotechnology industry and the overheated financial markets that feed it. But, in the United States at least, elite scientists in other fields have also seen their economic value escalate as universities and corporations have started to fight ever more fiercely to sign on superstar or big-name scientists.

If current trends to "bid up" the value of hot research and hot scientists continue, the

news item above may one day not seem so unlikely.

In fact, I can see two developments in prospect that would seem a logical consequence of the increasing advantage of the elites of science and the clear trend to commercialize their work and their celebrity status: science agents and bidding wars for papers. Let it be clearly understood that I do not advocate the introduction of either; I simply sense their inevitability. Perhaps, if some of these possibilities are aired openly, the scientific community might think about and discuss them before—instead of after—they happen.

First, let's look at the increasing economic power and value of superstar scientists.

The scientific community has always had its elite members. Even an outsider can spot them. They're the ones with endowed chairs, generous funding, spacious and modern labs, many papers in top journals, and sizable citation counts. They've got collaborators worldwide, a constant stream of invitations to organize conferences and deliver keynote addresses, editorship of one or more journals, membership in the national and in foreign academies, and multiple prestigious (and frequently lucrative) prizes.

These folks are the research world's equivalent of the rich. The scientifically rich, too, just seem to get richer and richer.

Twenty-five years ago, the doyen of the sociology of science, Robert K. Merton of Columbia University, described how advantage accumulates for the scientific elite (*Science*, 159:56-63, 1968). He called this phenomenon "the Matthew Effect," after the biblical passage that reads: "For unto everyone that hath shall be given, and he shall have abundance; but from him that hath not shall be taken away even that which he hath." All pretty grim for the nonelite of science, but that's their lot, as, probably, it has always been.

The difference today, because of the unprecedented amount of money that's been introduced into science, is that the gulf is rapidly widening between the nonelite and the elite. If your star is going supernova, there's a whole world of opportunities that open up to you, and the opportunities just keep coming.

Two recent examples are Leroy Hood and Anthony Cerami. Lured by billionaire software developer William Gates III, Hood was convinced to close shop at the California Institute of Technology and move himself and his retinue of investigators to the University of Washington (Susan L-J Dickinson, *The Scientist*, March 30, 1992, page 1). Cerami and his troops broke camp a year ago after three decades at Rockefeller University and set up again at the new Picower Institute for Medical Research, in Manhasset, N.Y., which was established for Cerami and specifically tailored to his research interests (Franklin Hoke, *The Scientist*, Feb. 22, 1993, page 1). The offers these days can frequently prove irresistible.

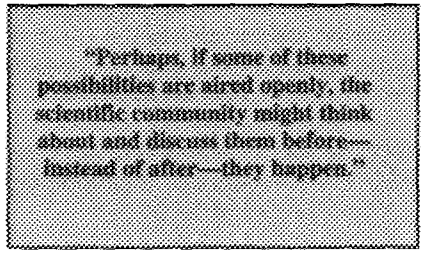
Is it any wonder, then, that many superstar scientists are on the move and many more are on the make?

Not just for great science are many institutions seeking to sign on a superstar. Many are also hungry to have a "hot property." The mere presence of a name scientist on the staff carries real economic benefits and newfound promotional power. For second-tier or third-tier universities that aspire to the first tier, it's the royal road to recognition. With a superstar comes new respect for the institution, a better ability to attract other top-flight investigators, a means to attract media attention, and a new way to wow well-heeled contributors and win donations.

And the economic benefits go both ways. These scientists can be quite shrewd. Like any other professional, a scientist will seek to optimize opportunities and compensation. More than money is usually involved—lab space, staff, and other forms of support obviously enter into a scientist's decision about where to practice—but it's the best offer or package that generally gets taken.

Hood negotiated his own move directly with Gates: "We met for dinner," Hood told *The Scientist* a year ago. "[and] we discussed what I thought would be necessary resources for the kind of department I wanted to create and negotiated what turned out to be [Gates's] gift."

Should we not expect that scientists of Hood's stature will be in a position to play one offer off another? One day the stakes in these negotiations will go high enough to attract the attention of the legal profession. Enterprising lawyers, recognizing the amounts of money involved in some of



these recruitment situations, will eventually offer their services to superstar scientists. Like agents who negotiate on behalf of professional athletes, best-selling authors, and entertainers, agents for scientists would attempt to secure the best deal for the client and then take a percentage or a fee.

The science agent, being a professional negotiator, would go after salary, benefits, staff, facilities, research support, as well as other things that a scientist has probably not thought of or never would think of. That's all part of their profession; they love it and they're good at it. A scientist, on the other hand, spends his or her days in other pursuits, likely finds such negotiation difficult or distasteful, and is probably not very good at it. The agent can be counted on to cut the better deal.

"It just never occurred to me [to have representation]," says chemist Barry Sharpless, who moved from the Massachusetts Institute of Technology to the Scripps Research Institute a year ago. "I've never heard of that. Most scientists seem to do their own negotiating. At the highest levels I know of, that's what's going on. Most discuss these things with their spouse and their friends." Could Sharpless see science agents in the future? "Well, I don't know. If it did occur, I guess it would be a sign of the times, one that would make it even harder for the man in the street to appreciate science as something special."

Although now it is just not done in academia, deal-making through legal representation may nonetheless become routine for the much-wooed superstar researcher juggling multiple mega-offers. Every day, more and more scientists are forming associations with biotechnology companies, and through these associations they can quickly pick up on the ways of the business world.

Hard evidence of the number of elite scientists with close ties to the business world arose recently. Last fall, Irving Weissman of Stanford University was forced to resign his appointment as a Howard Hughes investigator because the Hughes Medical Institute objected to Weissman's financial ties with his startup Systemix Inc. Now, other Hughes investigators—who may, perhaps, be called the superelite of science—are worried that they, too, will be cut off from Hughes support, since so many have significant stakes in fledgling and maturing biotechnology firms. Conflict-of-interest concerns are now coming to a boil at universities, independent labs, and government labs, such as the National Institutes of Health.

Payment by journals to scientists for the rights to publish their papers, while perhaps a more distant prospect, is almost thinkable. Perhaps, as in the hypothetical news story described previously, payment would be offered for a single hot manuscript containing the details of a breakthrough discovery. More likely, a journal might sign a contract with, and pay a fee to, a superstar scientist for the right of first refusal for his or her papers over a particular period. Journals today, especially the

widely circulated titles, such as *Science, Nature,* and *Cell,* are increasingly aggressive about securing and publishing the hottest reports. To get these papers, editors waive page charges, promise fast-track review, and commit to rapid publication (Leslie Roberts, "The Rush to Publish," *Science,* 251:260-3, 1991).

Just how far will journal editors go in giving special treatment to superstars to get their papers?

Consider for a moment what's at stake for the leading journals. My phone rings off the hook with calls from employees on the business side of these publications who want to know what their journal's newest impact factor ranking (a citation-based measure of performance) is or how many highly cited, or "hot," papers I've listed in *Science Watch®* from their journal. All of this information, or rather carefully selected pieces, go right into advertisements that tout their journal as "the best."

There can be significant money to be made when your journal is the best. It works like this: Everyone wants to read and subscribe to the best journal. The journal that everyone wants to read and subscribe to is the journal advertisers want to place their ads in.

But would editors actually pay for the rights to certain papers?

"That's a really manipulative, but intriguing, idea," says Janet Garman, managing editor of *Neuron.* She quickly adds, however, "I hope I'm not around when that happens." Simon Mitton, who directs science publishing for Cambridge University Press, acknowledges the increasing competition between leading science journals, "but for the moment, what a journal editor can offer is confidentiality and rapid publication. That's all."

How, then, could payment for papers actually come about? It's not as large a leap as you might think. First, note that an offer to pay for rights of first refusal neither guarantees publication nor eliminates the need for peer review. A manuscript could still be rejected by a journal; a journal would be paying only for "first crack" at publishing the paper. Second, a researcher wouldn't actually pocket any money for personal use. The money would go to furthering research; it would be a new source of "private funding" that would lessen the demand placed on government for funding, the argument might go.

And consider this: It would only take one iconoclastic editor of a leading journal and one fearless superstar scientist of entrepreneurial bent to blaze this new path in science publishing. Once that path is cleared, others could follow more easily.

You can just see the gulf widening between science's haves and have-nots. Wheeler-dealer science agents who push salaries of superstar scientists into the stratosphere. Payment for the rights to publish research papers from the hottest labs. Is this where science is headed?

Simply outrageous? Patently impossible, you say?

That's what they said about Scott Meredith, the maverick literary agent who died recently. His obituary in the *New York Times* (Feb. 13, 1993, page A10) reads as follows: "In 1952, Mr. Meredith initiated the book auction: the offer of a manuscript to many publishing houses at once, with publication rights going to the highest bidder. Considered an outrageous maneuver at the time in the once staid and polite publishing world, the book auction has since become a standard operating procedure, one that has helped increase the fees that publishers pay writers." ❑

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