

## The commercialization of curiosity

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### Abstract

This article maintains (with no claim to originality) that the mission of the academy is the advancement of *Scientia*: scientific knowledge, or more broadly, learning; a mission, which is served by academic research. Focusing here on the example of medical research, it is suggested to divide such research into *industrial*, *public-health*, and *academic*. What distinguishes these three classes of medical research is not their content or method, but their different *aims* or *purposes*. The overarching purpose of academic research is here said to be to contribute to the advancement of *Scientia*. It is maintained that the essential characteristics of such research, as contrasted with the other kinds, are that it must be *free*, *open*, and *uncompromised*. Industrial research is *commercial*: it is funded, under contract, by business firms, which want or need the results in order to market their products or services and to profit thereby. The question is whether industrial research so defined can remain properly *academic*. The author answers this question in the negative, arguing that commercial research is inevitably *unfree*, *closed* and *compromised* and thus foreign to the mission of the academy. The academy should therefore not commercialize itself; industrial research should seek other venues, while the academy remains the principled and dedicated guardian of *Scientia*. The problem of funding the various categories of research is raised—“Is academic medicine for sale?”—and suggestions are made as to how academic research might be funded without compromising the academy. But the author ends on a pessimistic note, suggesting that the academy may already have betrayed its mission and sold out irretrievably.

**Keywords:** academic research; public-health research; commercial research; medical research; advancement of learning

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### 1. *Scientia*: the mission of the academy

“Curiosity” in my title stands for the thirst for knowledge, or perhaps more accurately for knowledge of a certain sort: *scientific knowledge* let me call it *Scientia*, of which the requirement is made that it rest, in specified ways, upon publicly accessible evidence. What counts as evidence and as evidential warrant—and therefore, in the end, what counts as *Scientia*—is determined by a certain set of standards cherished, protected and applied by the widespread and diverse community of persons whom we call *scientists*. The acquisition and advancement of knowledge through the rigorous application of these standards is the *mission of science*<sup>1</sup>.

What I have just said hints at the fundamentally social nature of science: at its dependence upon a *community* that values, protects and applies certain standards. This is a point to which I will frequently recur. And because it is a social institution, science is subject to dissolution, corruption and subversion by all of the various forces which can affect such institutions, including violence, politics, and the assiduous pursuit of personal self-interest, as well as by interactions with the wider social context—for instance by fashions, fads, the “spirit of the times” and other public delusions. By the same token, the continued integrity and development of science are made possible—and are only made possible—by there being structures and organizations

<sup>1</sup> For the scientist, this may seem evident; for the philosopher of science, it is controversial, having been disputed in serious ways

by such influential thinkers as Thomas Kuhn, Paul K. Feyerabend and Richard Rorty.

which permit and, indeed, encourage people to apply themselves to the scientific mission, and which prepare them for doing so<sup>2</sup>.

At any rate, science is activity organized around a set of standards. Traditionally, the principal repository of scientific standards, and the central venue for their application and transmission, has been the academy, which originated (or so we say) in ancient Greece. To maintain itself as such a venue is the *mission of the academy*; and this mission defines what may be called its internal morality. As an institution dedicated to this mission, the academy must be organized in such a way that the repute, status and advancement of those individuals who belong to it as collegial members—and indeed their very membership in the academy, has as its sole principle excellence in the application and transmission of scientific standards. In other words, excellence in research and in teaching—because only in this way can the individuals within the academy be consistently encouraged to identify their personal self-interest with academic values and ideals. Any institution which claims to be academic, but which departs from this principle, is a fraud.

As things have developed, the academy necessarily works hand in hand with two other institutions, also with long histories: academic journals and academic societies.

Academic journals are the principal, and weightiest, locus of peer review. If the academy is to judge the excellence of the scientific work of its members, it must rely heavily upon the judgment of academic journals that the work is worthy of publication and thus of transmission to the scientific community at large<sup>3</sup>. It is important that academic journals maintain rigorous procedures for peer review and must guard against the many influences that can compromise academic publication. The less rigorous the academic journals, the more vulnerable the academy and the very institution of science<sup>4</sup>.

<sup>2</sup> The French sociologist of science, Bruno Latour, has brought into question whether existing structures and organizations do this. But at the same time, his work, and that of his colleagues, emphasizes the important of the social context in which scientific practice is embedded.

<sup>3</sup> Of course, academic book publishers perform the same function. But books are nowadays less rigorously refereed, in general, than journal articles; and many publishers have of late become disturbingly slack, not least due to market-consciousness.

<sup>4</sup> To be sure, if the journals should fail us, they might conceivably be replaced with something else—but what

Academic societies need to function—and often do function—to provide moral and political pressure upon politicians, the public and academic institutions in support of academic values and standards: to defend and promote the academy in the public sphere, and to help protect it from compromise and dissolution. During the Renaissance, institutions such as the Royal Society of London (founded 1662) and its younger sisters played a central role in re-creating the academy and imbuing the universities with academic standards.

## 2. Types of medical research: industrial, public health & academic

“Curiosity”, understood as the thirst for *Scientia*, is served by carrying out scientific research. In the present context, let us focus exclusively upon medical research, although our argument will have much wider application.

I will divide medical research into *industrial, public health* and *academic* research<sup>5</sup>. This three-part division is not the same as, and indeed cuts across, the more familiar division into *applied, strategic* and *basic* research. I make no claim that my classification is exhaustive; nor do I claim that the categories have very sharp edges. But I believe that this way of classifying medical research can help us in the context of the present discussion.

What distinguishes these three classes of medical research is not their content or method, but their different *aims* or *purposes*. The aim of industrial research is to develop, improve and test marketable drugs, devices and techniques<sup>6</sup>. It is profit- or market-driven research. The aim of public health research is to test the safety and effectiveness of drugs, devices and techniques in the public interest; it is, we might say, welfare-driven research. The aim of academic research is the advancement of knowledge and understanding; it is, in a word, curiosity-driven research.

All of these types of research are, in the current context of things, necessary and legitimate; and it is desirable that there be a healthy co-operation among research efforts. But extreme caution is necessary, because their

<sup>5</sup> I made a similar distinction in a lecture presented “Matur er manns gaman” (Food is Man’s Pleasure); invited lecture presented at a symposium, “Matvæli á nýrri öld” (food in the new century), celebrating “matvæladagur MNÍ” (the annual ‘foods day’ of the Icelandic Association of Food Scientists and Nutritionists), held at Hótel Saga in Reykjavík, 18 October 1997.

<sup>6</sup> It is also concerned with developing and improving production processes.

objectives can easily come into conflict, with potentially disastrous results. Certainly the strictures—scientific, professional and moral—which govern the three types of research are not the same; and these strictures have consequences for the modes and channels of research funding which may be considered defensible and for the permissible forms of interaction among the persons and institutions responsible for organizing and carrying out research under these three different heads.

### 3. Necessary characteristics of academic medical research

What are the necessary characteristics of academic medical research? I think that there are at least three, and they all apply to academic research in general, not just to medical research, although I here narrow my focus.

First, *academic research must be free*: What I mean by this is, that in principle, the topics for academic research projects should be freely chosen. That is to say, the investigator should choose topics for research with attention only to their scientific importance as he perceives it, to the state of the art, to his own special competences and those of local colleagues, to the facilities at his disposal, and—last but not least—to his own curiosity. Remember that academic research is that which aims at the advancement of knowledge, *Scientia*, and understanding. Research topics are not freely chosen if there is political or economic pressure, which influences or even determines the direction of research.

Second, *academic research must be open*: The results of academic research must, that is to say, be made public; otherwise, the research will not be a contribution to the advancement of knowledge. Even if the results are disappointing, other researchers should know—in the spirit of the co-operative quest for *Scientia*—what has already been done. Failures or mistakes have often pointed the way in science to new knowledge and deeper understanding.

Third, *academic research must be uncompromised*: The conclusions of academic research may never be “bent” to suit the preferences of interested parties. Indeed, academic research must be protected from any suspicion that it has been compromised by conflicts of interest. The falsification or “adjustment” of results to suit special interests is anathema to the scientific enterprise.

In contrast with academic research, commercial research, which may be skillfully done and of great value to a commercial firm—and sometimes also to mankind at large—is unlikely to be free, is almost certain to be

closed, rather than open (sometimes only for a time, but often permanently), and is by its nature always compromised, considered from the point of view of science.

The mission of the academy consists, therefore, in maintaining a context in which free, open and uncompromised research is made possible and, indeed, encouraged to the greatest degree.

But the problem is that research must be funded. Research has become increasingly, and proportionally, more expensive, and the number of researchers has grown, not only in absolute numbers, but as a proportion of the population; for the European Commission, the proportion is still too low. At the same time, universities and other centers of academic research are generally in a state of financial crisis. This has opened the door very wide to the sale of academic research as a commodity: to the commercialization of curiosity. Research, not least research which pretends to be academic, has become big business. Institutions, and individual researchers, are not only managing to survive, but are in some cases becoming rich, by selling their research services, to business firms.

What is new about this is not the phenomenon itself—for industry has often sought the services of academic researchers—but its extent, its invasiveness, and the connivance in this commercialization process of the institutions that pretend to be academies. In the medical sphere, pharmaceutical and gene technology firms have gone very far in the direction of commercializing the academic research community; indeed, already little of it is left unscathed.

### 4. Commercialized research: unfree, closed and compromised

What do I mean by commercialization? I mean, first and foremost, that supposedly academic medical research is funded, under contract, by business firms, which want or need the results in order to market their products or services and to profit thereby. But I also mean to include what is politely referred to as “securing the good will” of researchers by recruiting them as consultants, inviting them to join advisory boards, offering them a share of patent and royalty arrangements or equity in the firm, including them as listed authors of journal articles prepared by the firm, and giving them expensive gifts—and not only at Christmas time!

But *can* curiosity be commercialized? Can research remain properly *academic* in such a context? My answer is *no*, and I shall endeavor to explain why.

First, research undertaken on contract with a commercial firm can hardly be free, at least if we consider the research picture globally. Topics will not be chosen with the potential contribution of the research to the advancement of *Scientia* in mind, but will rather be determined by the interests of the firm, which are primarily those of making a profit. The initiative for commercial contract research will most often come from outside of the academic community. And while there is nothing wrong with such external initiative as such—for commercial firms can surely be a source of good ideas for research projects—such initiative cannot be the general rule, or anything close to the general rule.

Second, the openness of commercial contract research is problematical, as the funding firms often try to suppress results unfavorable to their interests; moreover, they often succeed. A well-known case in point was the study contracted by Boots pharmaceutical company with Betty Dong and her research team at the University of California at San Francisco. According to a story first broken by staff reporter Ralph T. King, Jr. in the *Wall Street Journal* (King 1996)<sup>7</sup>, Dr. Dong was to study the bioequivalency of Boots' product, Synthroid™, an immensely profitable synthetic thyroid hormone, with competing, but less successful, products such as Levoxyl™, produced by Daniels Pharmaceuticals. Boots hoped to demonstrate that the competing products were not bioequivalent to Synthroid™; Dong's team was chosen by Boots not least because Dong had expressed doubts about the bioequivalency of these products in earlier publications. In the event, however, Dong and her associates concluded, on the basis of the research, that the products were fully bioequivalent; and in Dr. Dong's paper on the study, which was accepted for publication in January 1995 by the *Journal of the American Medical Association*, after their normal, intensive peer review, Dong concluded that U.S. health-care costs could be reduced by \$356 million per year by substituting cheaper, but equally effective, drugs for Synthroid™. Boots, facing a disaster, which it had brought upon itself, fought hard to discredit and suppress the paper. It is hard to know the facts of the case from the outside; but from what was reported, it appears that Boots resorted to multiple forms of bribery and threat, which ultimately led to the University of California backing down from its support of Dong and to the withdrawal of the paper.

Boots recruited other thyroid experts, whose good will had no doubt been secured by various means, to criticize Dong's study as flawed (though they were confessedly not in possession of most of the data); and eventually an article by Dr. Gilbert Mayor appeared in the *American Journal of Therapeutics* in June 1995 criticizing Dong's unpublished work and maintaining that her study was too flawed to allow any conclusions to be drawn about the bioequivalence of the products in question. Dr. Mayor had been Boots' Medical Services Director at the time when the conclusions of her study were first sent to the firm, and he took an active part in the suppression of Dong's article. Coincidentally, he was an editor of the *American Journal of Therapeutics*. This is a dramatic case and was complicated by the fact that Dr. Dong's contract with Boots included a gag clause, which gave Boots grounds for a lawsuit against Dong and her university in case she persisted in publishing. But what is most significant about it is the hints that it gives us about the case that don't surface. Few, I believe, would have resisted Boots' threats and blandishments as long as Dr. Dong did, particularly if the researchers' "good will" had been secured in advance. Many commercial firms continue to try to write gag clauses into academic research contracts. But even if this is successfully resisted—and it is against the policy of most major American universities—it is clear that firms will try very hard to keep results unfavourable to them from reaching the light of day.

Third, and perhaps most importantly, research, which is funded by a commercial enterprise, is never uncompromised. Claims have been made for the incorruptibility and lofty morals of the academic research community; but while I am sure that there are a few individuals who live up to them, I must confess to thinking that all such claims are examples either of cynical propaganda or of rampant self-deception: and these are "lie-o-equivalent". But perhaps I go too far in asserting that commercially contracted research is *never* uncompromised. There are imaginable cases, at least, where commercial funding would not imply a conflict of interest. However, a great deal of the contracted research under discussion consists in clinical trials of the safety and efficiency of pharmaceuticals produced by the firms which fund the research; most often the objective is governmental approval of the drug being tested. Such a study, and indeed any study conducted by persons with a personal connection with the producer any potential competitor, or by persons with any sort of financial interest in the producer in any potential

<sup>7</sup> King's article was the direct source of the information herein recounted. A considerable amount of reportage—for instance in the *New York Times* and in *Science*—has subsequently rehearsed the case as described in King's exposé.

competitor is always compromised, and thus cannot meet the standards of proper academic research. I do not assert, of course, that the results of such trials are always “adjusted” to suit the interests of commercial firms; indeed, I suppose that most such trials which are carried out by nominally academic researchers are quite above-board. What compromises all such studies is not actual fraud but the conflict of interest that is ineradicable from any such arrangement. Research of this sort thus fails to meet what I consider the crucial most crucial academic requirement; for a study which is compromised does not contribute to *Scientia*.

By the way, the point mentioned here, that much of the contracted medical research consists in the safety and efficiency testing of pharmaceuticals might have also been considered under the first two heads. Such trials are important and necessary, from the public health point of view as well as from the point of view of commercial interests; and an open and uncompromised clinical trial is also of some interest scientifically. Nonetheless, it is clear that clinical drug trials do not constitute the most significant contributions to the advancement of knowledge and understanding. The industrialization of curiosity, by funnelling so much effort into this form of research, therefore has the effect, I am sure, of retarding science.

I conclude, therefore, that what we are witnessing is not properly described as the *commercialization* of academic research; it is rather—or at least may turn out to be—the *death* of academic research; the corruption, diversion and dissolution of the mission of the academy; the breakdown of standards and of an institution. And should the academy fail in its mission, the dissolution of science cannot be far behind.

### 5. “. . . for a mess of pottage”

But what alternatives do we have? Perhaps none. What is happening to academic research—or what I claim is happening—is only a reflection of what is happening in society at large. We live in a time which is in thrall to the idea that everything is for sale. Curious idea, that.

If there is any *locus* for resisting such an idea, it must be the academy. What can the academy do? It cannot function without funding. Research—one of the central functions of the academy—has to be financed; and where is this financing to come from if not from industry? We must not forget that without industrial funding, many of the most important scientific advances of our time—not least in medical science—would never

have been made. Can industry be made into the friend of the academy instead of its executioner?

I suggest, first, that the academy must resist all erosion of academic standards. An academy without standards is an academy in name only; a fraud, in fact, as I said before. This means, for example, that no study which is compromised by conflict of interest should be recognized as having academic merit. No research of that kind should contribute to status, reputation or advancement within the academy.

Academic journals play a key role here; they must be adamant in maintaining their policies concerning conflict of interest. The commercialization of curiosity has gone so far that this is already hard to carry out in practice. In an editorial entitled “Is Academic Medicine for Sale?”, which appeared in the *New England Journal of Medicine*, Dr. Marcia Angell wrote (Angell 2000) that it was difficult to find an editorialist to write about an article in the same issue dealing with depression:

We require [she wrote] that [editorialists] have no important financial ties to companies that make products related to the area they discuss. We do not believe disclosure is enough to deal with the problem of possible bias. This policy is analogous to the requirement that judges recuse themselves from hearing cases if they have financial ties to a litigant. . . . But as we spoke with research psychiatrists about writing an editorial on the treatment of depression, we found very few who do not have financial ties to drug companies that make depressants.

Many journals are stringent about conflicts of interest, about being included as a co-author of an article to which one has not in fact contributed, about peer review, and about the financial and institutional independence of the journal itself, although few go as far as I would like to see them go. But this is now up to each journal individually. We need to go further. Academic journals need to be accredited by academic associations, or perhaps even by government, as conforming to a set of uniform, minimum—and very stringent—requirements. Only publication in an accredited academic journal should count within the academy. Publication in other journals—which would be classified as industry or trade journals—although possibly of merit or interest, should count for nothing. A journal such as the *American Journal of Therapeutics* should be censured, by academic associations and the academy, for its participation in the affair of Dr. Betty Dong (I am assuming that the facts are as reported).

But the academy must also police itself, and must make it clear to its academic members that any personal or financial connection which creates a conflict of interest disqualifies research as academic.

That would, however, evidently exclude most industrial funding of research. Certainly it would exclude the funding of a clinical trial of its products by a pharmaceutical manufacturer. How, then, is such research to be funded?

## 6. Funding public-health research

Let me point out here that a high proportion of clinical trials of pharmaceuticals have as their objective the approval or licensing of drugs. I suggest that this kind of study falls more obviously and naturally into my category of public-health research than into my category of academic research. There are, to be sure, certain advantages to having such research carried out within academic institutions, particularly teaching hospitals; and such studies are not without scientific interest. But classifying such trials as public-health research has, I think, a number of advantages.

To begin with, it emphasizes that these trials—which are often required by political authorities as a condition for using and marketing drugs—serve the public interest by providing some assurance of safety and efficacy. It is therefore made obvious that the public should participate in the cost of such clinical trials. It also implies—rightly, I believe—that the responsibility for such studies should rest with the public health authorities. One may resist the idea of financing such clinical studies with public money; but it is surely the public that pays for them already, since the cost of clinical trials financed by pharmaceutical companies is added to the price of the marketed product. Moreover, in a country with a health-care system that contributes to pharmaceutical costs, the public pays for the trials with tax money as well as out of pocket at the pharmacy. And given the practices of the commercial firms in securing the “good will” of researchers, the public is surely also paying for largely-fictional consulting, for equity-interests, and for family trips to Mallorca.

As a political reality, however, it is perhaps impossible to finance an efficient system of public-health drug testing with public money alone. And since the commercial firms have an interest in getting their products tested and to market with as little delay as possible, they might also contribute to the financing. This could be done through special taxes, or it could be done voluntarily by the pharmaceutical industry. But what I have in mind is that no clinical study would be financed

directly or specifically by a commercial firm. Clinical testing would be organized by a public-health agency and carried out by researchers have no direct contact with the firm whose products were under test. They would naturally have to conform with stringent regulations concerning conflict of interest, for it as important in the public health sphere as in academic research that the research not be compromised. The openness of this kind of research would also be secured by this arrangement. The researchers, who could as well be anonymous to the commercial firm (which would have obvious advantages) would be contracted by the relevant public-health agency. Teaching hospitals, contract research organizations, and site-management organizations could bid competitively for the research contracts. With stringent oversight, there is a good chance that the cost of clinical licensing trials could be substantially reduced (to the commercial firms as well as to the public) through such a mechanism.

Under these conditions, the academic merit of clinical trials would be relatively well secured, and academic researchers could publish their results in properly academic journals and gain academic credit for this kind of work. But the inherent scientific interest of most such studies is meager; so it is likely that with the financial support coming into academic institutions through these channels, able medical researchers could be freed up to pursue more inherently interesting, freer, research, leaving the clinical trials in the hands of less ambitious scientists.

## 7. Can academic research be funded without compromising the academy?

But the problem of financing non-industrialized academic research would still remain; and it is a problem to which there are no easy solutions. The academy and academic associations must make a concerted effort, in the first place, to convince the public and the political authorities of the value of genuinely academic research: of research that is free, open and uncompromised, which is curiosity-driven, and which meets the standards of scientific excellence. This is impossible to do as long as academics themselves, and academic institutions, are selling out science in their mad scramble for cash, motivated by the twin forces of need and greed. When the academy shows, by its behavior, that it is simply for sale, it confirms the thought that lofty talk about science and the advancement of human knowledge is just so much hot air. A public and a government convinced of the value of academic research is

willing, as has been frequently shown, to support such research fairly lavishly. But making a convincing case for science rests upon the integrity of the academy. Anyway, the first suggestion is that academic research be supported through science funds, using public money, as is indeed done in every advanced country that I can name. The justification for using public money is that—like public health and safety—academic research is a common good.

But public funding, with all the demands that are made upon it, is pretty clearly insufficient to support academic research at the level at which it needs to be supported, even under the best conditions. And a reliance upon public funding is particularly problematical now, when the politicians in many countries have become so confused by their own rhetoric that they seem intent upon pulling the financial rug out from under academic institutions, all the while declaring that education needs to be improved and research strengthened if our dear country (fill in your country name here) is to remain competitive in the new millennium.

Some recent discussions in Europe seem to indicate that at least the more enlightened commercial firms recognize—more clearly than the public, the politicians, and perhaps even the academics themselves—the value of academic research. They understand that it is the advancement of *Scientia* which leads to most of the developments in technology and thus ultimately to new commercial possibilities. What they are not convinced of is that they should be paying for it. And by the way, they do actually pay a considerable amount for it, through commercially supported research foundations, through philanthropic support to universities and so on. But their general reluctance to shoulder the burden of academic research is understandable enough.

A better case might be made than has been made up until now for contributions by commercial firms to research foundations. As in our earlier discussion, I believe that the direct funding of research projects by commercial firms “industrializes”, and undermines, academic research. But arm’s-length funding, through research foundations or (less desirably) through universities, which guards against extraneous control, dependency, and conflicts of interest, is much to be desired.

Here again, though, any appeal by the academy to industry to contribute more significantly than it already does to academic research and to do so at arm’s length

rather than by direct purchase can only be effective if the integrity of the academy is assumed. In the present climate, no one is more aware than industry of the decline of integrity in the academy; of the fact that the academic *imprimatur* is rather widely for sale. Today, the academy as such has no position from which to bargain or propose. If the academy has it within itself to shake off the many influences which are currently working in favor of its dissolution and to present a credible and uncompromising face to industry, as well as to government and the general public, I believe that industry support will be forthcoming. Industry can—and I think would be—the friend of a strong academy. But nobody loves you when you’re down and out.

## 8. The gloomy question: has the academy already sold its birthright?

As my reader will have perceived, I am rather pessimistic about the future of the academy and thus about the future of science. Marcia Angell, in her aforementioned editorial, “Is Academic Medicine for Sale?”, closes by saying:

Academic institutions and their clinical faculty members must take care not to be open to the charge that they are for sale.

My view is darker. I think that they have shown clearly that they *are* for sale. And to me, this signals the approaching death of the academy. I have tried to show why academic research—curiosity—cannot be industrialized, but can only be destroyed, as *academic* research, through “commercialization”. I have said some things, not very new, about the ways in which this slide toward destruction has come about, and have said something about what I think will be lost if the academy succumbs. The problems are perhaps most acute in the area of medical research because of the large amounts of money to be made in the pharmaceutical and biotechnology industries, but the problems pervade the whole academy. Academics are losing their grip on the standards around which scientific activity must be organized and are trying to substitute for these the standards of the so-called “market” which is now so much in fashion. I can only hope that it is possible for the academy—that venerable and wonderful institution, the nanny of science—can pull back from the abyss.

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