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The Unbearable Lightness of Financed Research

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1.On the trails of research fraud

In *Bastard Scientists. Scientific Research Fraud* (2015), Enrico Bucci addresses academic fraud, scrutinizing research practice in several Western countries such as the US, Great Britain, and Italy[1]. He examines the process from the validation of results through to publication, focusing on three stages: 1) the experiment, 2) the preparation and presentation of data following the experiment, and 3) publication.

Bucci describes the way in which researchers are drawn to committing fraud, as they struggle to fulfill employment or promotion requirements. These requirements include the publication of numerous scientific papers in prestigious scientific journals, which is deemed necessary for either the candidate's recruitment, promotion, or securing further research funding.

Bucci defines three types of fraud scientific publications typically contain:

1. The *fabrication of experimental data*, when the experiment that which should have underlain the research hasn't been carried out or has failed -- the data presented in the paper are basically invented.
2. The *falsification of experimental data*, when the experiment has occurred, but the results have been mis-presented to align with researchers' expectations.

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[1] Enrico Bucci is an Italian researcher who specializes in bioinformatics, biotechnology and molecular biology. He worked at the Institute of Biostructure and Bioimaging (Instituto di Biostrutturo e Biomagini) in Napoli, a body governed by Italy's National Research Council (Consiglio Nazionale delle Ricerche). in 2014, Bucci founded *BioDigitalValley,* a company dedicated to the analysis of biomedical data and the detection of fraud in specialized scientific publications.

3. The *plagiarism of experimental data*, when the author of the paper appropriates the results of another author or when he reiterated some of his older results, pretending they are new -- i.e. “self-plagiarism” (Bucci, 2015: 140-141).

All three of these cases constitute deliberate misconduct involving an intention to deceive.

Much of the impetus to commit fraud is driven by the ‘*publish or perish*’ dynamic, which Bucci illustrates with an example from biometrical science in the Unites States. Scholars in this field that had formal employment in research institutions in 2014 (not counting those on internships or external contracts) published on average 2.5 papers per year. A researcher with five years of experience competed against nine others for research funding and against five additional candidates, each with at least 12 published scientific papers, for the opportunity to publish a new research paper. (ibid,147-149). Additionally, Bucci notes that:

─ a survey carried out by *Nature* magazine on 8000 researchers who filled in anonymous questionnaires, revealed that *a third of them admitted that they committed fraud in their activities* (ibid, 105).

─ In a meta-analysis of the available literature, researcher Daniele Fanelli established that one out of 50 specialists admits that they published papers with fabricated or false data and that one out of seven noticed fraudulent behaviors of his peers (ibid.);

─ At San Diego University, 81% of the anonymous questioned specialists admitted that they would be ready to modify an experimental result in order to obtain funds, to publish or to be promoted (ibid.);

─ in the basic oncology sector, a quarter of the 120 papers analyzed by the Norwegian researcher Morten Oksvold contained

fabricated or falsified data, through “serious image manipulation” (ibid, 117, 157);

— in certain research domains, up to 25% of the published papers contain fraudulent data (ibid. 153).

These data indicate that some 25% -- 33% of researchers engage in research and publication fraud. Furthermore, the inclination or temptation to commit fraud in research and publication of results is alarmingly high, with figures reaching up to 81% in U.S. academia. Anonymous statements from surveyed researchers also suggest that, even under cover of anonymity, some researchers are reluctant to confess to having committed fraud, while willing to disclose detected fraud in other fellow researchers. Thus, only 2% of cases analyzed by D. Fanelli admit to the publication of falsified or fabricated data, while approximately 14.3% report observing these fraudulent practices in their peers. In any case, the evidence is overwhelming that there is a widespread pattern of fraud within academic research.

Regarding the peer review system, Bucci identifies three problematic cases, all of which involve reviewers encouraging the above-mentioned fraudulent practices, namely:

- reviewers are not truly competent;
- reviewers are impressed by nice, well written stories;
- reviewers are guilty of *rational cheating*, gratifying weaker papers of some friends of theirs or rejecting papers of the rivals from the same line of activity (ibid, 101).

These tendencies are aggravated by the fact that, given the large number of submissions for publication, less qualified specialists are being recruited as reviewers.

There are currently no solid mechanisms for surveying academic integrity. Some oversight is provided by entities such as the Center for Open Science and the Center for Scientific Integrity, with its blog Retraction Watch (launched in 2010 by scientists Adam Marcus and Ivan Oransky) that registers and makes public retractions and expressions of concern.

However, as Bucci notes, this is far from sufficient, because the checked data is incomplete. Such entities are also constrained in exposing academic fraud by the risk of authors' responding with litigation (ibid, 121-124).

Bucci puts forward solutions targeting the creation in the scientific communities of some specialized entities meant to defend them. Their purpose would be not only to publicly signal the frauds, following the pattern of the so-called *whistleblowers*, but also to act as lymphocytes T – the T-cells in the body's immunity system that detect and kill virus-infected cells. The idea is to establish an entity specialized in detecting and memorizing instances of fraud with the power to retract fraudulent papers from magazines and to administer punitive measures. Such an entity would only be effective if all academic publications were submitted to its scrutiny and the acquired data is accessible freely to the community of scholars. Such entities should also benefit from a protection system allowing them to perform their activity freely and even-handedly.

2. Fraud uprooting

The societal drivers of fraud

Let us now examine the societal factors contributing to research fraud. These factors are closely related to the changing social status of knowledge and the increasing commodification of intellectual work.

Philosopher Richard Rorty has traced the broader cultural shift in the postmodern mindset as one where Truth no longer has to do with the conformity of a statement to objective facts but is a matter of socialization, of historical circumstance. This 'historicist shift', Rorty holds, "has helped us substitute Freedom for Truth as the goal of thinking and of social progress" (Rorty, 1989: xiiii). For us postmoderns, Truth becomes a private value, just as Belief had been a private value at the beginning of the secularization of modern societies. This dislodgment of truth from its anchoring in claims to objectivity erodes the authority of institutionalised scientific practice. By loosening the link between valid knowledge and objectivity, this shift opens the possibility that knowledge becomes validated in alternative ways.

In *Twilight of Debt. The Painless Epoch of the New Democratic Times* Gilles Lipovetsky (1996) speaks of moral values as becoming values of yield. What he calls "the utilitarian operationalization of morality" is illustrated best by the new communication strategies of companies. He traces a great shift in the mechanisms of legitimation of business activity: "…the era when the great enterprise could be considered a pure trader has passed; it is no longer limited to merely selling products, but it must manage public relations to shape and promote its institutional legitimacy. The ethical shift goes hand in hand with the ascension of the company, through its communication with the broader public, to a "total" institution from, strategically interested in proving that is has a sense of social and moral responsibilities beyond considerations of profit. The classical system based on the natural right of ownership and on the "invisible hand" of the market has been replaced with an open, problematic and communicational

legitimation system. Now, the legitimacy of the enterprise is no longer given or challenged (based on its economic performance), it is actively *built* and sold. We thus live in the era of values marketing and promotional legitimacies, the last stage of post-moralist secularization" (Lipovetsky, 1994: 291-292). As the boundary between a company's economic interest and public welfare is discursively blurred, the economic logic insidiously engulfs the shared understanding of public welfare.

From institutions meant to serve the public good, universities and research institutes increasingly behave as economic actors. This affects the production of knowledge in scientific research: under competitive pressures, the connotations of its core values of truth, honesty and rigor undergo a mutation as they become permeated by economic logic.

In Jean-François Lyotard's analysis (1993), along with the information revolution, the prescriptions related to the acceptance of an enunciation as "enunciation of knowledge" has drastically changed. This moment marked the beginning of the mutation of knowledge into merchandise, i.e. a good that shall be sold and bought:

> "The old principle that the acquisition of knowledge is indissociable from the training (Bildung) of minds, or even of individuals, is becoming obsolete and will become ever more so. The relationship of the suppliers and users of knowledge to the knowledge they supply and use is now tending, and will increasingly tend, to assume the form already taken by the relationship of commodity producers and consumers to the commodities they produce and consume—that is, the form of value. Knowledge is and will be produced in order to be sold, it is and will be consumed in order to be valorized in a new production: in both cases, the goal is exchange. Knowledge ceases to be an end in itself, it loses its "use-value." (Lyotard, 1984,4-5)

What are the consequences of the commodification of knowledge? There are significant political implications. Lyonard comments on the waning authority of states in this regard:

> “For the mercantilization of knowledge is bound to affect the privilege the nation-states have enjoyed, and still enjoy, with respect to the production and distribution of learning. The notion that learning falls within the purview of the State, as the brain or mind of society, will become more and more outdated with the increasing strength of the opposing principle, according to which society exists and progresses only if the messages circulating within it are rich in information and easy to decode. The ideology of communicational "transparency," which goes hand in hand with the commercialization of knowledge, will begin to perceive the State as a factor of opacity and "noise." It is from this point of view that the problem of the relationship between economic and State powers threatens to arise with a new urgency.”" (Lyotard, 1984, 5)

Secondly, the consequences of this commodification are educational with, again, political intricacies, since education has never been apolitical. Stripped of their spiritual or strategic value—values that have been overshadowed by exchange values—knowledge will circulate like monetary currencies, facilitating the pursuit of profit. It is not hard to visualize learning circulating along the same lines as money, instead of for its "educational" value or political (administrative, diplomatic, military) importance; the pertinent distinction would no longer be between knowledge and ignorance, but rather, as is the case with money, between "payment knowledge" and "investment knowledge"—in other words, between units of knowledge exchanged in a daily maintenance framework (the reconstitution of the work force, "survival") versus funds of knowledge dedicated to optimizing the

performance of a project. (Lyotard, 1984, 6)[2]. A similar dynamic can be observed in the realm of mass media. In news production, the relevant distinction has shifted from information versus misinformation to what can be compared to currency: “transactional information” versus “investment information.” This means that information is utilized for the maintenance of mass media institutions rather than being dedicated to optimizing the performance of specific programs (for example, shows designed to influence public opinion in favor of certain interest groups or centers of power).

Down the road, entities that are meant to be independent centers of knowledge production (i.e. shielded from both economic and political interests) such as universities, research centers and news outlets, become stripped of their function of governing the production of knowledge.

3. Conclusions

Enrico Bucci traces the temptation of committing fraud in the scientific research process to the altered logic of communicating scientific findings: “The communication of scientific results already inclines to be mistaken for

[2] Dumitru Borţun has discussed the commercialization of communication in postmodern societies (Borţun, 2014). He showed that in many fields, the commodification diverted the purpose of communication. For instance, under the pressure of the fight for rating, the dogma „This is what the public wants” reigns in television and the information programmes ended up with 88% non-news (tabloid news, *storytelling*). In Borţun’s opinion, the commodification of political communication generates *populism*, and the ultimate consequence is the *de-politization of political communication*: „political communication is replaced with non-political one, failing to promote political values”; nowadays, politicians adapt their messages to the voters’ expectations, according to the marketing principle „focus on the needs of the consumers” (Borţun, 2014: 116).

the marketing of merchandise" (Bucci, 2015: 136)[3]. It can be inferred that as the number of financial backers supporting the research increases—especially those interested in confirming economically beneficial results—the temptation to commit fraud in conducting and reporting the research also grows. We are witnessing a "hegemony of the economic discourse genre" invoked by Lyotard in 1984: Nonetheless, the need for proof becomes increasingly strong as the pragmatics of scientific knowledge replaces traditional knowledge or knowledge based on revelation. By the end of the Discourse on Method, Descartes is already asking for laboratory funds. A new problem appears: devices that optimize the performance of the human body for the purpose of producing proof require additional expenditures. No money, no proof—and that means no verification of statements and no truth. The games of scientific language become the games of the rich -- whoever is wealthiest has the best chance of being right. The equation between wealth, efficiency, and truth is thus complete. (Lyotard 1984,44)

If in the modern epoch being a scholar was a vocation (with a nod to Weber), in postmodernity, the scientist tends to become a "professional in an ongoing de-professionalization process" (Lyotard, 1997: 62). While the forces influencing scientific research are social, each researcher faces a dilemma, often feeling painfully isolated in this struggle.: should he remain loyal to the original ethos of knowledge or should he succumb to the instrumental rationality of personal and institutional self-preservation (akin to 'raison d'état')? We have written this essay hoping that the researchers who will read it will not feel so alone when faced with this choice.

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[3] "La comunicazione dei risultati scientifici già tende a essere indistinguibile da quella del marketing di qualunque prodotto..." (*it.*).

Even as the fight against ubiquitous academic fraud begins with personal choices we face alone, we hope that, where system deadlocks shall be targeted, these individual actions will entail systemic changes. A concerted action, of course, would be more effective in developing mechanisms that foster research integrity. Ideally, any researcher would consider themselves a potential whistleblower, backed by deontologic codes of universities and research institutes that protect and promote such practices.

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