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On the value in science

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**To Ronald, Alex and Donald
Merry Christmas, a Happy New Year
and the Note below**

In a comment[1] upon one of his recent papers[2] Ron Kostoff raises the interesting question of how much costs a scientific paper, *i.e.* how many \$'s is a scientific paper worth. According to Ron, the funding agencies would be much interested in answering such a question, when it would come about funding the scientific research. Disappointingly, the answer is very simple: a scientific paper costs as much as expensive it is, and as little as cheap it is. If someone spends a lot of money for producing a scientific paper that person would claim the money back, and that paper will have a high price; on the contrary, if a paper is produced without money, nobody will pay a price for it. In terms of money we can only have information about money, not about scientific papers.

A more interesting question would be that of whether there is an intrinsic value of the scientific papers, *i.e.* whether we attach any importance to the scientific papers, and what sort of importance, measurable in what? This depends on our interests, and the importance people attach to the scientific papers is extremely variable. Most of us deny them any value, others deem them as being important means for building a career, others try to justify funding their research by producing and publishing scientific papers. Those who attach this type of importance to the scientific papers devised methods of counting these papers, counting the journals which publish such papers, and counting the citations of these papers. Obviously, in all these cases the question is about money, and we arrive back at the first point. If you, as a scientific researcher, want to get money, then you should spend money in producing papers, in establishing new journals or paying those already existent for publishing your papers, cite a lot of people who get money and pay them for citing you back. An avalanche of scientific papers of bad quality, or even non-scientific, is thereby produced and published. Nobody can read them, nobody, in fact, do read them, and we need catalogues of synopsis, and synopsis of catalogues of synopsis, to get a vague idea of what happens with the scientific research in one field or another.

All these questions and answers turn out to be more or less trivial, and I do not think that we really want, or need discuss them at long. The game of money in scientific research will never end, because it is a profitable one.

However, those of us, who are not very interested in money, or have not much of a chance to enter this game, can not get rid of a persistent question. Yet, is there any intrinsic value of the scientific

papers? The answer is yes, and it comes from the history of science and technology. There exists a type of preoccupations which we call science, the scientific results are communicated and deposited in scientific papers, science leads to technological advances in civilization, though, admittedly, not straightforwardly, and, perhaps more important, it leads also to understanding, it discovers the truth about ourselves, *i.e.* it tells us what and who we are. (Of course, most of us would say Thank you, we know what we are and who we are, need not science for telling us that; well, they may have their own way; people who know need not science). Nobody can tell why science appeared, there is no reason at all for it to continue, all these depend on our cultural beliefs, on our society beliefs. At this moment, science is much perverted and turned into a pseudo-science, precisely by the money game of the scientific research, and it depends on us to strike the balance to one or to the other side. It depends on our beliefs, it depends on how many of us believe in what.

A further reflection might explain why our beliefs are such as they are, by further reflection we can find what will be good for us, and what bad; a further reflection would be able to tell us convincingly why we should doubt many of our convictions and habits. Unfortunately, a further reflection would mean precisely science.

References

- [1] R. N. Kostoff, private communication.
- [2] R. N. Kostoff, H. J. Eberhart and D. R. Toothman, Hypersonic and supersonic flow roadmaps using bibliometrics and database tomography, to be published.