Peer review or mere formality?

Peer reviewing of manuscripts is an important step in determining the overall quality of research. Although evaluating manuscripts is time-consuming, it is the social responsibility of scientists to undertake reviewing. Editors take care to identify reviewers whose research fields overlap those of the submitted manuscripts such that meaningful evaluations are possible. The feedbacks from the reviewers help uphold the standard of the journal, improve the quality of the paper and advance the knowledge in the field in question. With the rapid advancement of science, fields of specialization are getting acutely specific compelling the editor to request the authors to suggest referees for their submissions. For instance, I am a mycologist studying the ecology of fungi. I can evaluate confidently submissions relating to this field of study. Editors of mycological journals, who know of my work, understandably do not seek my help to review contributions dealing intensely with say, genetics, physiology or taxonomy of fungi. Thus, effective peer-reviewing means choosing suitable reviewers and the reviewers taking their job seriously. However, this mechanism may not be flawless considering the requests that I have been receiving from various recently started electronic journals. I was requested by their editors to review manuscripts not even remotely connected with my field. To cite some examples, the manuscripts addressed the conservation of tree species in a country in Asia, documented the traditional uses of a tree species, looked at the insecticidal property of metabolites from a mangrove tree, described methods to distinguish the male from the female of a tree species, enumerated the traditional uses of woody tree species in East Africa, estimated the suitability of repeat sequences in determining a plant's phylogeny, and described the role of certain enzymes in facilitating horizontal transfer of genes in bacteria; there was one that explained how 'synthesis of metal nanoparticles is assisted by a plant species' and another on the impact of climate change on plant diversity. I was really flattered when I was asked to review a study that surveyed the preference by patients of ayurvedic medicine to allopathic ones. But what prompted me to write this letter was the invitation from a medical journal to review a manuscript dealing with molecular mechanisms that determine memory maintenance – the only way I am connected with this topic is that I am myself struggling to remember things. If I had agreed to evaluate these submissions, I certainly could not have done justice given my total lack of experience in these fields. While the editor of a newly floated journal will be keen on its survival, the editor should remember that lack of quality will only hasten its death. Finally, while emphasis is being laid on research publications for institutional and individual upgradations at the tertiary level in our country, it is becoming increasingly important to take cognizance of where they are being published.

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Higgs boson

In connection with the recent excitement about the discovery of a Higgs-like boson with a measured mass (energy) of 125 GeV, it may be of interest to refer to an old paper of mine, which appeared in *Current Science*, about 38 years ago (when I was a student[1]).

In connection with weak interactions, a formula is given for the boson mass as:

$$m_{\mathrm{B}} = \frac{1}{2}\left(\frac{\hbar^3}{G_{\mathrm{F}}c}\right)^{1/2},$$

where $\hbar$ is the Planck constant, c the velocity of light and G_{F} the universal Fermi constant. This works out to be just 125 GeV (the doublet would have a mass of 250 GeV).

The same paper has a discussion of neutrino mass, with a calculated mass of 0.7 eV. The WMAP results of 2005 mention this limit for the neutrino masses[2,3]. The last paragraph of the above paper has a brief discussion of TeV black holes, which is one of the predicted phenomena which the LHC would observe in the future. That these estimates were made when the subject was much in its infancy is indeed interesting (this work did not go into my thesis).

That m_{p}/α also gives a mass around 125 GeV (m_{p} is the proton mass and α the electromagnetic fine structure constant) was noted in an earlier paper on empirical mass formulae for elementary particles which appeared in *Current Science*[4,5].

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