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EWD 637: The Three Golden Rules for Successful Scientific Research

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The manuscript was published as pages 329–330 of

Edsger W. Dijkstra, *Selected Writings on Computing: A Personal Perspective*,
Springer-Verlag, 1982. ISBN 0-387-90652-5.

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The Three Golden Rules for Successful Scientific Research.

This note is devoted to three rules, the following of which is necessary if you want to be successful in scientific research. (If you manage to follow them, they will prove close to sufficient, but that is another story.) They are recorded for the benefit of those who would like to be successful in their scientific research, but fail to be so because, being unaware of these rules, they violate them. In order to avoid any misunderstanding I would like to stress, right in its first paragraph, that this note is purely pragmatic: no moral judgements are implied, and it is completely up to you to decide whether you wish to regard trying to be successful in scientific research as a noble goal in life or not. I even leave you the option of not making that decision at all.

The first rule is an "internal" one: it has nothing to do with your relations with others, it concerns you yourself in isolation. It is as follows:

"Raise your quality standards as high as you can live with, avoid wasting your time on routine problems, and always try to work as closely as possible at the boundary of your abilities. Do this, because it is the only way of discovering how that boundary should be moved forward."

This rule tells us that the obviously possible should be shunned as well as the obviously impossible: the first would not be instructive, the second would be hopeless, and both in their own way are barren.

The second rule is an "external" one: it deals with the relation between "the scientific world" and "the real world". It is as follows:

"We all like our work to be socially relevant and scientifically sound. If we can find a topic satisfying both desires, we are lucky; if the two targets are in conflict with each other, let the requirement of scientific soundness prevail."

The reason for this rule is obvious. If you do a piece of "perfect" work in which no one is interested, no harm is done, on the contrary: at least something "perfect" --be it irrelevant-- has been added to our culture. If, however, you offer a shaky, would-be solution to an urgent problem, you do indeed harm to the world which, in view of the urgency of the problem, will only be too

willing to apply your ineffective remedy. It is no wonder that charlatantry always flourishes in connection with incurable diseases. (Our second rule is traditionally violated by the social sciences to such an extent that one can now question if they deserve the name "sciences" at all.)

The third rule is on the scale "internal/external" somewhere in between: it deals with the relation between you and your scientific colleagues. It is as follows:

"Never tackle a problem of which you can be pretty sure that (now or in the near future) it will be tackled by others who are, in relation to that problem, at least as competent and well-equipped as you."

Again the reason is obvious. If others will come up with as good a solution as you could obtain, the world doesn't lose a thing if you leave the problem alone. A corollary of the third rule is that one should never compete with one's colleagues. If you are pretty sure that in a certain area you will do a better job than anyone else, please do it in complete devotion, but, when in doubt, abstain. The third rule ensures that your contributions --if any!-- will be unique.

* * *

I have checked the Three Golden Rules with a number of my colleagues from very different parts of the world, living and working under very different circumstances. They all agreed. And were not shocked either. The rules may strike you as a bit cruel... If so, they should, for the sooner you have discovered that the scientific world is not a soft place but --like most other worlds, for that matter-- a fairly ruthless one, the better. My blessings are with you.

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