

Gold-diggers and Monopoly in Science



I was asked by Andrzej Białas to contribute an article to "PAUza Akademicka" with a comment on my experience with different policies of conducting scientific research. Of course, the underlying idea is to learn from the past in order to avoid obvious mistakes in the future. Below, I will try to fulfill Andrzej's request by illustrating the old truths with recent examples. I hope it may prove useful for others.

Marek Gazdzicki

I have been working as a high energy nuclear physicist in the Rhein-Main-Neckar (RMN) region¹ for about twenty years. There, I have witnessed two periods of very different scientific policies. The first one, which I shall call the Gold-digger policy, dominated the 1980s and the 1990s. The second one, referred hereafter as the Monopoly policy, was introduced about ten years ago and still is being pursued. Now, let me sketch their main features.

The Gold-digger policy period was characterized mainly by strong promotion and support of the best, the most creative researchers, i.e. the *gold-diggers*. That support was independent of where and what they planned to investigate. There was no attempt to enforce a coherence of their efforts. Good ideas may contradict each other while still remaining good. Competition is a key ingredient of development. For science, the critical discussion is a "to be or not to be" question. Thus, the gold-diggers were supported without having to compromise.

The Gold-digger policy resulted in an unprecedented expansion of the number of researchers from the RMN region who travelled to the world centres of high energy physics in Berkeley, Brookhaven, and Geneva. They kept creating new experimental programs and new ideas. Soon, with the full acceptance of their colleagues from all over the world, they became authentic leaders of the entire field, spokespersons of experiments, founders of conferences, etc. The field of heavy ion physics was flourishing.

But after the "fat years"... the scientific policy was changed and we have entered the Monopoly period. I shall not speculate on the reasons and the mechanisms of this rapid transition but I'll move directly to its description. In this period the scientific policy has been clearly driven by non-scientific goals. In the present example it was the idea to establish a strong experimental activity in heavy ion collisions in the RMN region. The two selected projects, which should monopolize the activity here, were the detector construction for the ALICE experiment at

the CERN's LHC and the ion physics program within the FAIR Laboratory. I do emphasize the important difference: the goal is to establish a strong experimental activity and not – primarily – to make significant discoveries in physics. Thus, the political goals of the Monopoly policy replaced the physics goals of the Gold-digger policy.

The results of the Monopoly policy are easy to guess. First, a strong leadership is established. It is needed to suppress critical discussion and focus the effort on the selected direction. Only such sort of physics argumentation is allowed that can be used to justify the political goals. As a consequence, the gold-diggers leave either the RMN region or the field. The community becomes more and more homogeneous, self-supporting and thence politically influential. It is easy to win competition with others and get strong support from local agencies. This allows the RMN to achieve initial goals: a fast increase in the material infrastructure and the personnel related to it. Paradoxically, the support from the global community weakens. This is because the physics justification of the undertaken effort is missing and the political one is valid only locally.



Dr. Marek Gazdzicki in his realm at CERN

Whether the material achievements of the Monopoly policy will lead to important physics results or it will serve as a playground for future generations of gold-diggers remains to be seen. During the Gold-digger period the contribution of the RMN region to heavy ion physics was very crucial. Thus, its demise in the Monopoly period negatively impacted the whole field. However, in spite of the initial confusion, surprise and difficulties, the world heavy ion community quickly recovered and continues further development.

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¹ <http://www.kompetenznetze.de/the-regions/rhine-main-neckar>