The Antiphysical Review

Founded and Edited by M. Apostol **86** (2004)

ISSN 1453-4436

Letter to be turned down by *Nature*'s Editor

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Sir-
The European Commission's latest report on science and technology, published on 25 November 2003, shows a decline in the European science and technology, a widening gap in comparison with the USA, and gloomy prospects. Both the report and your recent Editorial (*Nature* **426** 369 (2003)) trace back correctly this uncomfortable situation to Europe's low level of expenditure on Research and Development. But this is only one side of the issue. The other side consists in low funding of the professional competence, highly-skilled professionals, in science and technology, in contrast with the USA, which give, comparatively, more consideration to highly-qualified scientists and engineers.

Your Editorial correctly suggests a route forward by taking advantage of the highly-qualified human resources of the Eastern countries, candidates to being integrated into the European Union (EU) in the near future, which still comprise lots of well educated people, particularly in science and mathematics, whose costs are still low. I may leave aside the touch of cynism which might be implied by such a solution (equal jobs, unequal payments!), and note that, though correct, and acceptable, your suggestion may still encounter serious dificulties, not only short-term challenges for the EU.

Indeed, the main route toward tapping the scientific potential of the east is the integration of the Eastern countries into the EU. Now, the EU's budget for science and technology is only 5% of the science and technology budget of the member states. The participation in the European research is plagued with a huge bureacracy, and the participation documents are intoxicated with an empty verbosity. The scientific and technological projects funded by the EU have a low scientific value, some aiming at almost trivial scientific or technological applications, others lacking a sound scientific basis. The leaders of research in the EU, as well as the reviewers, referees, experts, etc, are of quite low a scientific level, much behind many of the eastern scientists. No public report, in general but professional terms, has ever been released by the EU on the scientific research conducted under its auspices. The communal scientific research in the EU produces only a minor, mediocre, science. The EU does not seem to be interested very much in high quality science and technology. Under these circumstances, the high-level scientists and engineers in eastern countries would not be much interested to join unattractive EU research projects. They prefer to continue to do good science at home, or, more probably, flee westward, especially to the USA, instead of struggling for little money with so many non-professional strings from the EU.

On the other hand, the Eastern countries in Europe are still facing great difficulties in running out a sound science policy, admittedly with important differences from one another. Your recent Correspondence (*Nature* **427** 196 2004) highlights some of these difficulties, like gerontocracy in

Poland, and lack of competitiveness in Slovakia. Though not typical, Romania, another Eastern country in the process of joining the EU, struggles with ever greater difficulties in its policy of scientific research and technological development. Romania declares a budget of 0.8% of its GDP for science and technology, and, consequently, contributes the corresponding 5% of this 0.8% to the EU budget, but it spends actually only 0.2% of its GDP on science and technology. Even these scarce funds are not provided constantly, directly, rhythmically, to the governmental research institutes, because, according to Romanian laws, the scientific research performed in these institutes is only entitled to occasional subventions. The governmental research institutes comprise the largest part of Romanian research, and they are far away from being re-structured for increasing their efficiency. In Romania there are cca 40 000 employees in scientific research, out of whom 8 000 only are researchers. Social and administrative expenditure increase considerably the real cost of research in Romania, by a factor of 3. Scientific researchers in governmental research institutes in Romania get an average monthly salary of about $150 (slightly above the minimal salary in Romanian economy) exclusively on a generalized competition basis. This salary is distributed irregularly in time and amount, according to researchers' score in projects competitions. In contrast, though generally credited with much poorer a scientific research, researchers in Romanian universities and academia are given a constant, direct, rhythmical salary without any competition. In addition, they are oferred various grants which add to their income and research funds. In Romania, for about 22 million inhabitants, there are cca 40 state universities and another 40 private universities, with about 5 000 professors and associate professors! The Romanian Academy has about 6 000 employees! Before 1989 there was almost no scientific research in Romanian universities (about 7-8 at that time) and Academy (which comprised at that time about 2-300 people). The whole scientific research in Romania was concentrated at that time in governmental research institutes. After 1989 Romania attempted to build up scientific research in these institutions, with little success. The science policy in Romania tries incessantly to antagonize the researchers in institutes, on one hand, and those in universities and academia, on the other. For scientific research, Romania is one country with two distinct social systems. Romania spends almost nothing on infrastructure in scientific and technological research, and greatly inhibits the private sector. Romania still holds a relatively high professional potential especially in basic research. In addition, corruption and abuses, bribery, imposture, jobbery, plurality of government jobs flourish in the academic life in Romania, encouraged by a huge bureaucracy and a generalized politicizing of this socio-professional field of activity, by an aggressive intrusion of politics in universities, institutes and academia. Many Cabinets members in Romania use to describe themselves as scientific researchers, and many acceded to university positions while in public office. Participation in the EU research projects is also politicized in Romania, the access being permitted only through special governmental channels. It is true that Romania adopted some positive laws, especially under the EU pressure, but these laws are not applied, nor obeyed. On the other hand, Romania tries to enforce many negative laws on scientific research and education, which lead to the destruction of these activities. All this is the internal policy of Romania for science and technology, and the EU would not interfere with such matters. However, the process of integration of Romania into the EU is largely jeopardized, and greatly compromised, by such a state of affairs.

On the other hand, such policies, practices and mentalities are not going to change from inside, because the new generations are raised in such a climate. Under such circumstances, tapping the scientific professional potential to the east remains as ellusive as ever. If sincerely interested in such a process, Western democracies have another choice, beside encouraging immigration: funding directly scientific individuals, small groups and laboratories in Eastern countries, setting up new ones, both for scientific research and science education, under their own control, without much interference with the local governments and administration. The cost of such an enterprise

is relatively low, and such groups may be used as think-tanks for Europe's science. The funds may partly come precisely from Eastern countries' contribution to the EU budget for science and technology. The acceptance may be negotiated with the local governments, and regarded, for instance, as a must for admission into the EU. Such groups will highly contribute to a stimulative local atmosphere, and will trigger undoubtedly the general, beneficial, change. If things are left as they are now, the scientific professional potential will vanish soon in Eastern Europe, and nothing will be left for tapping. Sincerely.
