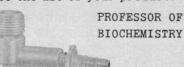


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## Ph.D.'s Need High Hurdles

It was refreshing to find the Ph.D. language requirements discussed in the rational manner adopted by Ross and Shilling (Letters, 30 Sept.). Having recently qualified in both French and German for the Ph.D. in business, where these language requirements were essentially useless and where an equal amount of time devoted to quantitative methods or economics would have had great value, I feel qualified to make one point.

It is increasingly apparent that a student who appears in class a minimum required number of times will someday have these added up to equal a bachelor's degree. One or two more years of the same practice equals a master's degree, and the same approach can be found in many doctorate programs. Therein lies one of the major functions of the language requirements: they do present a very serious hurdle that the student must overcome before he gets his Ph.D., and they cannot be met merely by classroom attendance. Perhaps the suggestion made by Ross and Shilling can be implemented, while those who are responsible for the quality of the Ph.D. programs can still make certain that some other exacting requirement for the degree will serve to screen the highly capable from the average student.

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## Conspiracy and Espionage

The Rosenberg - Greenglass - Sobell case has been thoroughly, but onesidedly, discussed by Langer (News and Comment, 23 Sept., p. 1501).

The facts are that there was espionage and that the evidence was good enough to convict the Rosenbergs. It was more than merely "some documentary evidence that a crime occurred." The trail goes from Whittaker Chambers through Elizabeth Bentley, through Judith Coplon and Alger Hiss, not to mention Pontecorvo, Fuchs, Joan Hinton, and the infamous duo, Burgess and MacLean. There was espionage and there is reason to believe that a Soviet apparat is still operating. The same issue of Science also reports on the recently expelled Soviet aid, Valentin Revin. He was expelled for attempted espionage. For additional information about recent Soviet espionage, The Penkovskiy Papers are a good start (1).

Probably Ralph De Toledano expressed it best (2):

Before the bomb could be built, means had to be found for the mass separation of fissionable U-235 and U-238. To this end, the green light was given to three different methods: the gaseous diffusion process, the electromagnetic process, and the thermal diffusion process. Eventually the gaseous diffusion process proved to be most effective. And it was this process, which Klaus Fuchs helped develop, to which the Soviets became heir. Had the U.S.S.R. been compelled, by sound security at the Manhattan Engineer District, to duplicate this three-pronged assault, the story of the last decade would have been differently written. The bad quality of Soviet workmanship, to which any visitor to the U.S.S.R. can attest, would have led to serious failures. But with the knowledge that they were moving down an already blazed trail, Soviet scientists proceeded with confidence

Morrison's and Linschitz's demurrers notwithstanding; there were secrets vital to the United States, there are new secrets equally vital, there was a conspiracy and espionage—and there still is.

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## References

O. V. Penkovskii, The Penkovskiy Papers (Doubleday, New York, 1965).
R. DeToledano, The Greatest Plot in History (Duell, Sloan & Pearce, New York, 1963).

It seems most inappropriate to me that your journal has embarked upon the troubled waters of politics and morality. It is even less becoming that your pages have been invaded by legal opinions, authored by a person with no special competence in the field. And it will be unforgivable if you fail to publish a reply to the emotionally charged brief by Langer in defense of Morton Sobell. In this story she has appointed herself judge, jury, and chief defense counsel and has then emitted the opinion of an appellate court. The business of Science should be science. The essence of science is controversy and the freedom to receive and judge contradictory opinions. The fact that a subject is controversial does not open the field to uncontradictable monologues by writers trained only in diatribe.

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