

The words "substantial penalty" are your words, Dr. Trytten, not mine. How can you quantify that phrase? What, does it mean in terms of physics, chemistry, or other fields of science?

From what sectors of American business and industry can we anticipate hearing plaintive cries in the next several weeks and months about the impact on them of our new draft policy?

I will scatter all my questions here, Madam Chairman, and then invite replies from any of the witnesses.

What about this question of "community need" as distinguished from "national need?" Dr. Harrington made, I thought, a very telling observation when he pointed out that his apprehension of the policy was not purely in terms of the impact of the policy on universities and their admissions but in terms of the national interest as well.

Yet, I can conceive that there may be a sharp distinction between what is needed in a particular community and what is needed in our national interest.

Mrs. Vetter, do you want to start off by making a comment on any of these matters I have raised?

Mrs. VETTER. On the basis of the Russian figures I gave you, I don't have the science figures with me because I did not stop to look them up this morning but I did stop to check the engineers' figures.

Russia is now producing at the rate of between 138,000 and 148,000. We are producing less than 50,000 as things now stand.

Of course, you must remember Russia does not have to worry about something we have to worry about. We must worry about equity and fairness. Russia does not have to. This gives them in this particular context an advantage in manpower.

Mr. BRADEMAS. Wasn't there a report about 10 days ago by the Engineering Manpower Commission, even before this new draft policy was announced, pointing out that we have a very serious shortage of trained engineers in this country?

Mrs. VETTER. That is right. The number of students entering engineering as a proportion of the number of college students has dropped steadily for many years.

We are not improving. In terms of specific disciplines, in science, particularly, the number of students who graduated at baccalaureate level in science and then went on to graduate study is much higher than it is, for example, in the humanities.

The loss in graduate levels in the sciences is worse proportionately although there are still more students in humanities than there are in the sciences.

We do have numbers in this same set of breakdowns. We have them divided by disciplines. In physics, for example, we have this year, with these numbers, 639 first-year physics majors, first-year graduate students in physics. Next year's expectation, 126.

This is because physics majors, chemistry majors, math majors, tend to enter graduate study immediately after baccalaureate programs. To take a break it is too difficult to come back and catch up.

People in the humanities, education, social science even, may go out 2 or 3 years after baccalaureate before beginning graduate study.

This means the impact hits harder on the sciences field than the others. We are very short of Ph. D. physicists now. The Government says