Letters

Soviet Synthesis of Element 105

With great interest I read the article "Element 105 synthesized and named Hahnium by Berkeley researchers" (15 May, p. 810). As a person who has been engaged for years in synthesizing and studying the properties of heavy nuclei, it is impossible for me to pass this article without making a compliment of the wonderful way the experimental material and problem of artificial synthesizing of heavy elements have been presented. However, it seems to me that the situation of the discovery of element 105 is somewhat unusual. This element had been synthesized at our laboratory in the beginning of this year, and in February 1970 "Spontaneous fission of elements 103 and 105" was published in *Communications of the Joint Institute for Nuclear Research*. This article received wide distribution in the foremost American nuclear research laboratories which regularly receive scientific information from Dubna. By the end of April, we had investigated all the types of decay of the new element and had determined its chemical properties (*J.I.N.R. Communications*, May, June). Neither the statement of the U.S. Atomic Energy Commission (28 April 1970) nor the preprint of the Lawrence Radiation Laboratory referred to our work which was done in Dubna and published 2 months earlier.

Holcomb's report in *Science* includes the statement: "Ghiorso recently received an internal laboratory report from Dubna dated February 1970 describing experiments which offer some evidence for a spontaneous fissioning element that could be 105. The Soviets have not proposed a name for the element, so they apparently do not feel that their experimental evidence is very strong—a conclusion that Ghiorso agrees with wholeheartedly." This conclusion seems more than strange in two ways.

First, we are fully confident of the authenticity of our data and we can rely on scientific arguments to prove that we discovered the new element. Therefore, stating that we are not sure of our results since we had not named the new element immediately should be considered a personal opinion of Ghiorso and Holcomb. Naturally, there is no accounting for tastes. But unfortunately, there are examples in the history of synthesizing new elements when haste in the announcement of a discovery and naming a new element has led to a situation where a little while after the sensation only the name was left, but the nature of it was radically revised (please recall the history of element 102).

Second, and in this I hope you will agree, the fact that there were no references to our work is incompatible with the expression of any kind of opinion concerning our data.

It would be very pleasant for us if you would get acquainted with our investigations, and I am ready to provide any scientific material about synthesizing and studying the properties of element 105.

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Italy: Overwhelmed Universities

Contrary to Greenberg ("Academic finance . . . ," 14 August, p. 658), the student-teacher ratio in Italian universities is calculable. Based upon census data readily available, one can determine the ratio of student to professor as approximating 200 to 1 for the university system as a whole (*1*). Given the nature of the Italian system, the meaningful statistic must be in terms of *professor* (*2*). There are many schools with ratios well below the national norm: for example, Perugia (93 to 1), Pisa (112 to 1), and Bologna (147 to 1). Likewise, many universities exceed the norm: Rome (237 to 1), Naples (258 to 1), and Bari (282 to 1). Figures assume astronomical proportions when one turns to the smaller schools: L'Acquila (820 to 1), Salerno (869 to 1), and Lecce (1139 to 1). Since universities are organized on the basis of faculties of professors, the crucial statistic emerges. On a nationwide basis we find: veterinary medicine (14 to 1), medicine (67 to 1), sciences (132 to 1), pharmacy (145 to 1), architecture (205 to 1), economics and commerce (465 to 1), and teachers colleges (572 to 1).

Certainly, student-professor ratios are not the sole cause; however, many student grievances are based on the problem of never communicating with a professor. Little wonder that the Italian "3-R's" have become: Reading, Rioting, and Rebellion.

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References

1. *Annuario Statistico Italiano, 1968* (Instituto Centrale di Statistica, Roma, 1968), pp. 96–99.
2. L. W. Moss, "Contestazione: The academic year 1968–69 in Italy," presented to Section on Student Movements, American Anthropological Association, New Orleans, 22 November 1969.

Messages from Mount Olympus

As a scientist who was honored, more years ago than most of our present membership have been living, to be invited to become a member of the AAAS because of work done in chemistry and mathematics (without government subsidy), I feel compelled to chide some of my younger colleagues for their pronouncements on political controversy, subjective human relations, and self-serving government subsidies, as mirrored in recent editorials and articles in *Science*. I cannot believe that this is the best we have to offer.

Their intense rationalizations of concern for humanity are paradoxical—honest scientists are not dedicated—they are obsessed with their own brand of science. We live in ivory towers—laboratories, classrooms, offices equipped with the best writing desks and secretaries—all made possible in the past 25 years by indulgent fellow citizens who cannot hope to understand our compulsions. Freed from the debilitating necessity of earning our livings, and learning how humans survive, we have soared to unimagined heights of intellectual contemplations.

We have taken unto ourselves inherited credit for the basic science (not BIG) from which most of our present technology has been developed—the work of giants who never dreamed