Wade] were interesting to read and took me back to my boyhood, when I enjoyed collecting insects.

In New Hampshire in the summer of 1919 the sugar maples were completely defoliated by the rosy maple moth, *Dryocampa rubicunda*. In 1920 the maples were normal. In the maple forests, my joy, as a collector of beetles, was great because the woods were swarming with *Calosoma frigidum* eating the larvae of the moth. At home in New Jersey, I visited a friend on his farm where potatoes were being dug. The insecticides 50 years ago were not as effective as they are now; that potato field was swarming with *Calosoma calidum*, which had been feeding on larvae of the potato beetle, *Leptinotarsa decemlineata*.

I am not an organic gardener, but in my vegetable patch I cultivate the lazy way with a minimum of plowing and some mulch of leaves and shredded sticks. I have not sprayed or dusted for several years. The corn ear worms and bean beetles are there, but their damage is small.

I suppose my farmer friends are right in saying that it is not economically practical to rely on natural predators for control. I am a chemist and so should probably not speculate, but I wonder what would result if a *Calosoma*, full of eggs, could be kept alive in cold storage to be released when pest larvae were hatching. Clausen (*1*) names many insects, some with unrestricted feeding habits, which might be treated this way. Could not some of these be used to control the gypsy moth?

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References

1. C. P. Clausen, *Entomophagous Insects* (McGraw-Hill, New York, 1940).

University Cooperation with Industry

The spirited discussion by G. D. Cody, W. D. Compton, and R. Roy (Letters, 31 Aug., p. 800) of Roy's article (1 Dec. 1972, p. 955) on university-industry interaction patterns prompts me to mention our experience at Carnegie-Mellon University, where the Processing Research Institute (PRI) was organized with a grant from the RANN (Research Applied to National Needs) program of the National Science Foundation (NSF). PRI benefits from what Cody calls a "troika," in which government funds are used as a "catalyst" to bring industry and the university together in a meaningful way. During the 1972–73 academic year, PRI cooperated with 14 companies in projects having an annual value of $500,000. Approximately 60 percent of the funds were provided by industry.

A key feature of PRI is a 2-year Master of Engineering degree program which provides for a diversified, broad curriculum. PRI attracts problem-oriented graduate students who consider their industry-sponsored project to be a vital part of their education. Aspects of our experience that we think are critical for successful industry-university interaction are (i) an identifiable organization on campus that interacts with industry—at Carnegie-Mellon, the PRI; (ii) a broad base of disciplinary support—in our case, from the departments of chemical engineering, mechanical engineering, and metallurgy and materials science; (iii) sufficient faculty of acknowledged competence who are willing to enthusiastically support this type of activity; and (iv) encouragement and support from the university administration.

As Cody has indicated some doubt concerning the feasibility of an effective industry-university partnership, it is important to mention some of the benefits to the university we have observed in a brief span of time: (i) the development of a problem-oriented graduate program that parallels the traditional discipline-oriented programs; (ii) a broadened outlook on the part of the faculty; (iii) an increased interaction between the three cooperating departments; and (iv) increased support of the graduate program through industry-sponsored projects. From the point of view of industry, the opportunity to provide a positive input to graduate education, especially in the development of new approaches to problem-solving, is gratifying. Representatives of industry who visit our campus seem to benefit from the broad view that our faculty takes of their disciplines, which has led to some unusual solutions to industrial problems.

Finally, one of the objectives of the NSF grant is to experiment with different forms of industry-university interaction. We invite comments and suggestions.

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