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# Defense Report

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## **The Growing Shortage of Scientists and Engineers — *Sputnik* Revisited.**

The Soviet Union launched its tiny *Sputnik* satellite in October, 1957, and coincidentally set off a great furor in the United States over the number of scientists and engineers we might be able to press into our lagging space program. The furor caused curricula to be rewritten at every level of education and heavy pressure on educators to increase exposure to mathematics and science. Our eventual triumphs in space attest to the success of that emphasis. Now we seem once again to have outrun our capability to provide qualified people to fill the engineering and scientific ranks in industry and national defense.

While the number of new engineers and scientists produced by our colleges has remained high, our dependency on advanced technology has outstripped it by leaps and bounds. Almost half of our doctoral-level students in these fields are from foreign countries, as are 40 percent of the master's-level students and eight percent of the bachelor's degree candidates. When they graduate, they take their skills home with them where they become real or potential competitors.

As far as our own potential scientists are concerned, there has been a substantial drop in the number of young people taking the proper courses to prepare for study in these fields. Only one-sixth of our high school graduates take *any* math or science courses after their tenth-grade year.

The military services find it particularly difficult to compete with industry for the services of the kind of people they need, both in and out of uniform, to manage very complex and expensive development programs. Starting salaries for government service today average about \$7,000 per year less than in industry. And yet the services are under constant scrutiny by Congress, the press and the public as they search for real or imagined mismanagement of weapons-related programs.

The *Sputnik* panic is forgotten. The education of people we need to cope with blossoming reliance on science is falling short of the demand. We must take a new, hard look at our schools, at our ability to retain talented teachers — indeed, at our whole commitment to technical excellence — if we are to revitalize our educational base and reestablish the technological preeminence our national security demands.