IN HIS REFERENCE TO A MEETING OF SOME research university department heads on the subject of the introductory course, E. Stokstad makes a small but significant error ("Reintroducing the intro course," 31 Aug., p. 1608). Although my friend and colleague Bruce Partridge deserves a lot of credit for convening this meeting, such strategy sessions are not "unprecedented," as Stokstad says.

The Astronomical Society of the Pacific (ASP) has convened four national "Cosmos in the Classroom" symposia on the topic of teaching introductory astronomy (*1*), two of which were cosponsored by the American Astronomical Society, the organization Stokstad mistakenly calls the "American Astrophysical Society."

I mention this small omission in part because one of the issues those scientists and academics who spend time on education are grappling with is that the respect for priority and references is not as well established in education as in research. As a result, articles and papers often report on work that claims to be new but actually duplicates or derives from uncredited earlier work.

ANDREW FRAKNOI
Astronomical Society of the Pacific and Astronomy Department, Foothill College, Los Altos Hills, CA 94022, USA. E-mail: fraknoi@fhda.edu

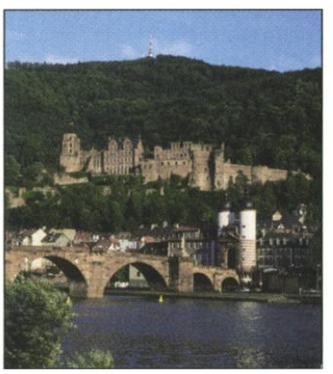
References and Notes

1. Innovative ways to approach "Astronomy 101" can be found in the proceedings of the 2000 conference, which are available through the ASP. More information is available at http://www.astrosociety.org/education/cosmos.html

Science Education in a University Town

EDUCATION CENTERS AT ALL LEVELS, FROM grammar schools to universities, must address how to prepare students for the rapidly developing world of knowledge, globalization, and technology by not only teaching natural sciences and liberal arts, but also by providing an ethical foundation so that young people learn a sense of responsibility and tolerance.

To achieve these educational goals, young people need to encounter science and research at an early age. A city like Heidelberg offers excellent conditions for this with its university, numerous research centers, and many international institutions, and such conditions can be enhanced by local government policies that promote an exchange between scientists and citizens. The city of Heidelberg, in cooperation with the Heidelberg Economic Development Agency, has developed a program that consists of three major projects: International Summer Science School Heidelberg, Life Science Lab Heidelberg, and ExploHeidelberg.



Heidelberg taps all of its resources to provide a solid science education for its youth.

CREDIT: ANDREW COWIN/CORBIS

The first project was established in 1996 and is for 18- to 20-year-old pupils who have completed their last year of grammar school in one of Heidelberg's sister cities, that is, Bautzen (Germany), Cambridge (United Kingdom), Kumamoto (Japan), Montpellier (France), Rehovot (Israel), or Simferopol (Ukraine). During the first 3 weeks of this 4-week program, small groups of pupils do practical research work at scientific institutions (such as the European Molecular Biology Laboratory, the Max Planck Institutes for Medical Research and for Nuclear Physics, the German Cancer Research Center, the Biochemical Center of Heidelberg, and several institutes of the University of Heidelberg). The final week is spent by all the pupils in a teaching laboratory at one of the participating institutes.

The second project, Life Science Lab Heidelberg, was established in 2000 at Heidelberg's technology park. It is a joint education program of school, research, and economics that establishes a network among its partners. The Life Science Lab is for pupils from the last 3 years of grammar school (16 to 18 years old). In the first year, 215 pupils applied for 60 available places. The program now allows for 100 pupils who participate in the lectures, weekend courses, and working groups.

The third project, ExploHeidelberg, is still in the planning stages. It will be an interactive exhibition of basic phenomena of natural sciences (the main focus to be on life sciences), including a media and teaching laboratory. Following the example of the Exploratorium in San Francisco, California, ExploHeidelberg will be designed for 6- to 15-year-olds. The opening is scheduled for 2002.

In addition to these three major programs, pupils who have completed grammar school are offered an opportunity to participate in the International Summer Science Institute, a 4-week program at the Weizmann Institute in Rehovot, Israel, that began in 1985 and served as a model for International Summer Science School Heidelberg. In groups of two or three, about 75 students from countries around the world do practical research with scientists from the Institute.

The young people who participate in these projects are our leaders of the future. If they are taught to accept each other, learn from and with others, and take an interest in things and processes in their surroundings, it will be an important step on the path toward peace and understanding among nations and will encourage positive developments in the lives of individuals.

LADY MAYOR BEATE WEBER
Office of the Mayor of Heidelberg, 69117 Heidelberg, Germany. Correspondence should be addressed to Christine Huber at christine.huber@heidelberg.de

HIV/AIDS Control in Sub-Saharan Africa

AS THE AIDS EPIDEMIC IN SUB-SAHARAN Africa escalates, international actors raise their voices and request additional money and drugs (Policy Forum, "Resource needs for HIV/AIDS," B. Schwartländer *et al.*, 29 Jun., p. 2434). But does this really address the core of the problem?

The efficiency of sub-Saharan government service systems, including education and health, has gradually declined in recent decades and is nearly impossible to maintain because of dwindling resources. Overstaffed with poorly paid personnel and given inadequate resources, these systems generally produce little—health workers see few patients, and schools often do not function because of a lack of teaching materials and a shortage of teachers due to AIDS.

Reform is under way in sub-Saharan Africa, but it is slow and requires politically difficult restructuring. For example, the salary system is largely built on allowances, and this has led to those at the central level spending a disproportionate amount of time attending meetings instead of doing productive work. Pouring money into such systems is unlikely to lead to development. According to a World Bank study of 10 African countries, most economies actually declined as money came in (*1*). The ongoing reforms often do not tackle these problems headon, but favor sectorwide budget support, irrespective of the particular country's situation. Rectifying these problems will take time, demand flexibility from donors and political courage from the recipients, and require nationally rather than internationally formulated solutions (*2*).

The existing systems cannot be fully relied on to control AIDS. Moreover, to flood them with money and antiretroviral drugs, which they do not have the capacity to handle, would compound the situation further. For example, because highly active antiretroviral therapy (HAART) requires safe, well-functioning laboratories, it can only be made available in a few specially equipped hospitals and thus will likely have limited public health impact.

Certainly money and drugs are needed, mainly for the treatment of sexually transmitted diseases and opportunistic infections and for prevention of mother-child transmission. But, most of all, there is a need for operational systems that can absorb money and effectively transform it to care and prevention. Although implementation cannot rely entirely on government systems, it has to be done in close cooperation with them to achieve reasonable coverage. Smaller, nongovernmental organizations that have a proven track record could be used to grease the machinery, but however aid plans are implemented, there must be simultaneous support for sector reforms and individual projects (*2*).

> "...there is a need [in sub-Saharan Africa] for operational systems that can absorb money and effectively transform it to [HIV/AIDS] care and prevention."

The emphasis on money and HAART drugs does not give a balanced picture of the requirements of most Sub-Saharan countries. More is required—we need a more honest problem analysis and with this a more profound understanding of the issues. A simplified approach might be attractive, but overlooks difficulties and risks misallocation of resources.

STEFAN HANSON
c/o European Union, Post Office Box 9514, Tanzania. E-mail: steffhan049@yahoo.com
*Advisor to the National AIDS Control Program, Tanzania

References and Notes
1. S. Devarajan, D. Dollar, T. Holmgren, Eds., *Aid & Reform in Africa* (World Bank, Washington, DC, 2001).
2. S. Hanson, *Int. J. Health Plann. Mgmt.* **15**, 341 (2000).

Response

HANSON'S CENTRAL POINT IS THAT MONEY and drugs alone are not the answer to HIV/AIDS control in sub-Saharan Africa. We could not agree more. However, effective HIV/AIDS control will not be possible without additional resources. In our study, we calculated costs for HIV/AIDS-specific interventions and explicitly excluded resource needs for strengthening infrastruc-