sources, the data were entered into a special program of library software to produce proposed lists and their relative costs. These lists of journal cancellations and new subscriptions were then offered to the library's public, and every reader was encouraged to comment and offer alternative suggestions. Last, the library committee made the final decisions: 668 titles were cancelled; 88 titles proposed for cancellation were renewed; and 14 new titles were ordered. In total, the library subscribed to 1492 titles; the evaluation will continue routinely.

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"Science-Active" Colleges

When researchers examine the state of undergraduate science education in the United States, at least one surprising result stands out—the place that select liberal arts colleges such as Haverford, Macalester, Bowdoin, and Beloit hold among the ranks of educational institutions.

These colleges produce far greater numbers of scientists than one might expect, especially since they lack the kind of equipment and money that are available to the large research universities, both public and private. Historically, they have received little funding from federal sources such as the National Science Foundation, the National Institutes of Health, and other government agencies.

In a recent study (*1*), a group of 50 liberal arts colleges were found to have had significant impact on the training of future scientists. The study showed that, in 1985, about 30% of freshmen in these "science-active" colleges chose to major in science, which is twice the percentage at highly selective universities and about six times the national average.

The report also points out that, of the 7000 articles coming from these colleges, about 30% were coauthored by an undergraduate. That figure is less than 1% at large research universities.

A number of reasons are cited for such impressive results at select liberal arts schools. They include the small size of classes, quality teaching, and significant opportunities to participate in research. That may also explain why (since the mid-1970s) the total number of baccalaureate degrees in science increased slightly at these colleges, while national statistics reflected a drop of 17%.

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Another Cognitive Psychology

In his review of B. J. Boar's *Cognitive Revolution in Psychology*, Harry Levin (26 June, p. 1683) writes that "Neisser in 1967 published the first book to be named *Cognitive Psychology* and so named the field and outlined an agenda." In fact, Thomas Verner Moore (in 1939) was the first to publish a text entitled *Cognitive Psychology*. It was published in Chicago by the J. B. Lippincott Company. He defined cognitive psychology as the study of "the way in which the human mind receives impressions from the external world and interprets the impressions thus received" (p. v). Moore, then professor of psychology at the Catholic University of America, presented many interesting analyses, including a rejection of the introspection-based psychology of Wundt and Titchener as wholly inadequate and self-contradictory.

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Einstellung Effects

Gina Kolata concludes her article about language acquisition (Research News, 10 July, p. 133) by asking why Rumelhart's 5-year-old son, when giving the grades in descending order—"sixth," "fifth," "fourth"—said "thirdth," whereas he said "third" when giving them an ascending order. A possible explanation is that he developed an *Einstellung*, a mental set brought on by the nature and order of the stimuli (*1*). For example, if people are asked to say each of the following words as they are spelled—MACPHERSON, MACDONALD, MACNAMARA, MACHENRY, MACHINERY—they may mispronounce the last word. Decades of research with thousands of subjects of all ages reveal strong tendencies to develop an *Einstellung* in verbal, visual, and arithmetical materials; the subjects continue to apply patterns of rules even when they are not appropriate and thereby overlook novel or simpler methods (*2*).

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The Chlorofluorocarbon Dilemma

A number of years ago, considerable concern arose about "planned obsolescence," the supposed intentional designing of products so that they would wear out and have to be replaced; the theorem was that industry was creating the continued need for its existence. The "landmark ozone treaty" to control the emissions of chlorofluorocarbons (CFC) (News & Comment, 25 Sept., p. 1557) addresses a corollary of that theorem in which a product creates a need for its continued existence. As an example, when CFCs used as refrigerants escape to the atmosphere, they induce a climatic warming that increases the need for CFC-powered air conditioners. More directly, Europeans have available CFC-powered aerosol sprays of sunblock, the use of which may deplete the stratospheric ozone layer and increase the need for the product. Let us hope the called-for emission controls can limit such positive feedbacks.

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Overdue Movie

The "DNA dragon 1" (Editorial, 18 Sept., p. 1397) is a film long overdue. Please reserve a seat for me at the screening. I will bring the popcorn (mutant maize, of course).

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