engineered the reform of the Gregorian calendar, wrote in his copy beside a faulty trigonometric theorem, "Here Copernicus is dreaming!" Several score of the books reveal detailed technical critiques by astronomers. The marginal notes of Erasmus Reinhold, the foremost astronomer in the mid-16th century Lutheran world, ignored the heliocentric cosmology but devoted great attention to questions such as the motion of the moon and the slow precession of the stars. And contrary to the conventional wisdom, Gingerich has shown that Copernicus was quickly taught at the graduate level in many of the great Lutheran universities.

Do notes appear in all the books? "It's hard to say," Gingerich told the History of Science Society. "It's difficult to find a copy that is totally clean, that doesn't have at least a little bit of underlining. Then there were the people who wrote index notes in the margin, sometimes losing interest after about 20 pages. About 10 percent of the books contain really interesting comments."

A book's provenance can also illuminate the sheer sweep of history. A copy now in a private collection in Oxfordshire was previously owned by William Jones, an English mathematician in the circle of Newton and Halley. Earlier, it was owned by Richard Bently, a classical scholar and master of Trinity College. Still earlier, it was in the possession of John Greaves, a 17th century astronomer at Oxford who apparently bought the book in Italy on the way to the Middle East. On the endpapers and flyleaves, Greaves took notes on Ur and Lahore, and noted that someone had sighted two unicorns in India.

So far Gingerich's survey has yielded two major discoveries. Not only was technical comprehension of the epic treatise widespread, but a network of shared notes often formed between master and apprentice, sometimes stretching over generations. This path of learning took place outside the tradition of the universities, and is therefore a major find. Some of Reinhold's comments over the course of the 16th and 17th centuries found their way into more than a dozen books. Another scholar's notes appear in six different volumes. As Gingerich has written in an article entitled "The great Copernicus chase": "Astronomy professors scrutinized the text and their protégés carefully copied out their remarks, setting the notes onto the margins of fresh copies of the book with a precision impossible by aural transmission alone. Clearly the students sat with the master book before them as they transcribed

Los Alamos Alumnus Touted as NSF Chief

Announcement of a new director of the National Science Foundation (NSF) is said to be imminent. The leading contender is said to be the foundation's current assistant director for mathematical and physical sciences, Edward A. Knapp, who joined NSF in September after 24 years as a scientist and administrator at Los Alamos National Laboratory.

Knapp has been active in scientific organizations in his discipline and to some extent in international scientific affairs, but is not well known in the science establishment. What is important is that he is apparently well known to President's science adviser George A. Keyworth II, who also came up through the Los Alamos hierarchy and is consulted in Administration appointments in the science sector.

Departing NSF director John B. Slaughter has accelerated his exit from the foundation in order to take up his new post as chancellor of the University of Maryland's College Park campus on 1 November. Slaughter announced in June that he would leave NSF for the university job. He said then that he would delay his departure from NSF to give President Reagan time to appoint a successor.

NSF deputy director Donald N. Langenberg will serve as acting director of the foundation until a new director takes over. Langenberg will be undertaking his second stint as acting director. He was acting director from July to December 1980 in the interval between terms of Slaughter and his predecessor, Richard C. Atkinson, now chancellor of the University of California, San Diego.

Knapp, 50, whose name has been mentioned increasingly on Capitol Hill and elsewhere as the probable White House choice to lead NSF, was head of the Accelerator Technology Division at Los Alamos when he was named to the NSF assistant director post. He earned a Ph.D. in high energy physics from the University of California, Berkeley, in 1958 and joined Los Alamos that year. Knapp's career at the laboratory included participation in the planning of the lab's Los Alamos Meson Physics Facility; he organized the accelerator technology division in 1978.

Slaughter's timing in leaving NSF was something of a surprise to the NSF staff. Slaughter was unavailable for comment, but sources in the foundation indicated that his decision was influenced by considerations that he had completed his role in NSF budget activities and that a longer absence from the university post could cause difficulties. Slaughter, 48, who was provost of Washington State University before becoming NSF director, will head Maryland's 37,500-student main campus outside Washington.

In actions that affected the policy sphere at NSF, President Reagan announced three more nominees to the National Science Board, the policy-making body for the foundation. The nominees are Robert F. Gilkeson, chairman of the board of the Philadelphia Electric Company; William F. Miller, president and chief executive of SRI, International; and William A. Nierenberg, director of Scripps Institution of Oceanography at the University of California, San Diego. If confirmed by the Senate, the appointments would bring NSB membership to within one of its full statutory membership of 24. The Administration for some months appeared to ignore a number of vacancies on the board.

—JOHN WALSH

Nuclear Regulation Run Amok, DOE Reports

Perhaps as early as next January, according to the White House, the Administration will propose new legislation designed to simplify nuclear plant licensing. One of the Administration's oft-repeated promises is that it will do something to shorten the time needed to get a nuclear project approved by the government. President Reagan's appointees have been looking for ways to simplify and centralize the running of the Nuclear Regulatory Commission (NRC), which is charged with protecting public safety. The first substantive indication of what they may propose appears in a paper issued by the Department of Energy (DOE) in October. It was one of several parting shots fired by James Ed-

0036-8075/82/1112-0662$01.00/0