SCIENCE NEWS of the week

Researcher Admits Tampering With Data

A medical researcher told SCIENCE NEWS this week that he tampered with data from experiments he helped perform at Harvard University's Dana-Farber Cancer Institute in Boston. "That's correct," Claudio Milanese said in a telephone interview from Turin, Italy, when asked if he had tampered with the data. Milanese recently returned to the University of Turin after a three-year appointment as a visiting Fellow at Dana-Farber.

"I'm trying to forget this thing as soon as possible," Milanese said in the interview.

In a letter to Dana-Farber officials, Milanese admitted that he tampered with the results, Dana-Farber President Baruj Benacerraf told SCIENCE NEWS. The researcher's admission prompted a written retraction last week of a published report of the experimental results, which purported to include the discovery of a molecule that plays a crucial role in stimulating the immune system. In the retraction letter, published in the Nov. 28 SCIENCE, the three authors write that the molecule, "interleukin-4A," which was reported in the March 7, 1986, SCIENCE, does not exist.

The retraction followed unsuccessful attempts in recent weeks to replicate results reported by Milanese, who authored the March 7 paper along with Dana-Farber's Ellis L. Reinherz and Neil E. Richardson. After his Harvard colleagues notified him of their problems, Milanese, who had already returned to Turin, responded with a letter, which, Benacerraf says, "is in our possession."

In the letter, according to Benacerraf, "the type of admissions that have been made" involve "having added some reagents to a [test] tube, without the knowledge of other researchers, to make it appear as though something happened [in the experiment] that did not." Benacerraf said in the telephone interview that he considers the nature of the admissions to involve "tampering" rather than "fabrication" of an entire experiment.

In his telephone conversation with SCIENCE NEWS, Milanese would not comment specifically on how he manipulated the results. "I don't want to say anything about that," he said. But when informed of Benacerraf's statement that Milanese had tampered with the data, Milanese responded: "That's correct. . . . Whatever they [Dana-Farber officials] are saying is [correct]."

Benacerraf says a five-person investigating committee, with members from the institute, Harvard and MIT, has begun to probe the matter. The committee, he says, "will investigate this [incident] and anything [research] this individual has had any remote contact with, as to its authenticity."

In their March 7 paper, Milanese, Reinherz and Richardson reported they had identified a molecule that stimulates resting T lymphocytes, the major class of white blood cells responsible for cell-mediated immunity. The authors reported that the molecule, interleukin-4A, also induced the production of receptors for interleukin-2, which has had preliminary, promising results in the treatment of a limited number of human cancer patients and may hold possibilities in the treatment of AIDS (SN: 12/7/85, p.359).

The Nov. 28 letter is the first published retraction of original data in SCIENCE in about the last 25 years, according to a spokesperson for the journal. In their letter, the three authors write, "In our view, those biological data are not reproducible and are incorrect, and we wish, therefore, to retract the data and the conclusions based on them." Indeed, they write that the reported molecule "with the functional attributes described in that publication" does not exist. They add that a second paper on the subject, published this year in the June 1986 JOURNAL OF EXPERIMENTAL MEDICINE (Vol. 163, No. 6), "is similarly being withdrawn."

Finally, the three authors conclude: "We extend our apologies to the scientific community and trust that certain misinformation presented in that article can be rectified by publication of this retraction letter." Reinherz told SCIENCE NEWS, "I certainly have my views on it [the experiment and retraction] but it's not appropriate for me to comment on it at this time."

—J. Greenberg

Trapping antimatter: Antiprotons on hold

The trouble with trying to study antimatter is that, in our part of the universe at least, it is made only in high-energy activities of ordinary matter. The antimatter therefore comes out with a great deal of energy and a high velocity. To study antimatter precisely, physicists would like to slow it down, even perhaps to stop it. One experiment aimed at doing that at the CERN laboratory in Geneva, Switzerland, has managed to capture antiprotons in a device called a Penning trap and hold them for periods of up to 10 minutes.

"People are used to seeing antiprotons whizzing by at the speed of light," says Gerald Gabrielse of the University of Washington at Seattle, one of the experimenters. "Now we have captured and held them in a container a few centimeters long." The report appears in the Nov. 17 PHYSICAL REVIEW LETTERS.

This achievement could make it possible, among other things, to precisely measure the mass of the antiproton. The scientists in the group are working on an apparatus to do that. The group members, who include Xiang Fei, Kristian Helmerson, Steven L. Rolston, Robert Tjoelker and Thomas A. Trainor of the University of Washington, Hartmut Kalinowsky and Johannes Haas of the University of Mainz, West Germany, and William P. Kells of Fermi National Accelerator Laboratory in Batavia, Ill., intend to return to CERN with the apparatus late in 1987.

For the last 50 years, acceleration has been a large part of the history of nuclear physics and particle physics. Physicists have built ever more powerful accelerators to endow particles (protons, electrons or ions) with ever higher energies to study finer and finer details of the workings of matter. Now, for antiprotons, the word is *de*celeration. Only in recent years have proton *ac*celerators been powerful enough to produce such large numbers of antiprotons that *de*celeration of the antiprotons seemed like a useful idea. CERN has therefore built an apparatus, the Low Energy Antiproton Ring (LEAR), which takes antiprotons, as they are made, with several billion electron-volts energy and "cools" them to an energy of 21.3 million electron-volts.

The present experiment takes the antiprotons as they come out of LEAR and first puts them through a "degrader" made of beryllium, in which they lose energy by collisions with electrons. The antiprotons come out of the degrader with a wide spread of energies, and the thickness of the degrader is adjusted so that the average energy is zero. This means that half the antiprotons get lost in the degrader, but it also means that a sizable number will have energies just above zero. It is these near-zero-energy antiprotons that are employed in the next step.

The Penning trap itself is a series of three electrodes, which are evacuated cylinders and have a magnetic field running lengthwise through them. In the magnetic field the low-energy antiprotons follow helical paths that corkscrew around the field lines in the cylinders.

When the antiprotons enter the trap, the first electrode, known as the entrance-end cap, and the central one are both grounded. The third electrode, the exit-end cap, is connected to a −3,000-volts potential. Thus when antiprotons with less than 3,000 electron-volts energy reach the region of the exit-end cap, they