SCIENCE

Published by the **American Association for the Advancement of Science (AAAS)**, *Science* serves its readers as a forum for the presentation and discussion of important issues related to the advancement of science, including the presentation of minority or conflicting points of view, rather than by publishing only material on which a consensus has been reached. Accordingly, all articles published in *Science*—including editorials, news and comment, and book reviews—are signed and reflect the individual views of the authors and not official points of view adopted by the AAAS or the institutions with which the authors are affiliated.

Membership/Circulation

Director: Michael Spinella
Fulfillment: Marlene Zendell, *Manager*; Gwen Huddle, *Assistant Manager*; Mary Curry, *Member Service Supervisor*; Pat Butler, Helen Williams, Laurie Baker, *Member Service Representatives*
Promotions: Dee Valencia, *Manager*; Hilary Baar, Angela Mumeka, *Coordinators*
Research: Kathleen Markey, *Manager*; Robert Smariga, *Assistant*
Financial Analyst: Jacquelyn Roberts
Administrative Assistant: Nina Araujo de Kobes
***Science* Member Services**
Marion, Ohio: 800-347-6969;
Washington, DC: 202-326-6417

Advertising and Finance

Associate Publisher: Beth Rosner
Advertising Sales Manager: Susan A. Meredith
Recruitment Advertising Manager: Janis Crowley
Advertising Business Manager: Deborah Rivera-Wienhold
Financial Manager: Leslie Gelder
Marketing Manager: Laurie Hallowell
Traffic Manager: Tina Turano
Recruitment: Michele Pearl, *Operations Manager*; Dan Moran, *Traffic Manager*; Debbie Cummings, Millie Muñoz-Cumming, Angela Wheeler, *Sales*
Marketing Associate: Allison Pritchard
Reprints Manager: Corrine Harris
Permissions Manager: Arlene Ennis
Sales Associate: Carol Maddox

ADVERTISING SALES: East Coast/E. Canada: Richard Teeling, 201-904-9774, FAX 201-904-9701 • **Southeast:** Mark Anderson, 305-856-8567, FAX 305-856-1056 • **Midwest:** Donald Holbrook, 708-516-8882, FAX 708-516-8883 • **West Coast/W. Canada:** Neil Boylan, 415-673-9265, FAX 415-673-9267 • **UK, Scandinavia, France, Italy, Belgium, the Netherlands:** Andrew Davies, (44) 457-838-519, FAX (44) 457-838-898 • **Germany/Switzerland/Austria:** Tracey Peers, (44) 270-760-108, FAX (44) 270-759-597 • **Japan:** Mashy Yoshikawa, (3) 3235-5961, FAX (3) 3235-5852
Recruitment: 202-326-6555, FAX 202-682-0816
European Recruitment: AnneMarie Vis, (44) 223-424-695, FAX (44) 223-424-695
Send materials to *Science* Advertising, 1333 H Street, NW, Washington, DC 20005.

■

Information for Contributors appears on pages 40–42 of the 1 January 1993 issue. Editorial correspondence, including requests for permission to reprint and reprint orders, should be sent to 1333 H Street, NW, Washington, DC 20005. ***Science* Telephone:** 202-326-6500, TDD 202-408-7770. **Other AAAS Programs:** 202-326-6400.

LETTERS

The Oberrothenbach Catastrophe

The article "A grisly archive of key cancer data" by Patricia Kahn (News & Comment, 22 Jan., p. 448) describes a catastrophe in which a large population in the region around Oberrothenbach in the former East Germany was exposed to excessive amounts of uranium and hazardous compounds produced by uranium mining. The manner in which this catastrophe is described implies that a natural experiment is in progress and that some interesting data will be obtained. Some epidemiologists are cited as referring to "the world's biggest *treasure chest* of data on radiation and human health" and "[a] *treasure trove of data*" (italics added). No medical practitioner with expertise in cancer or other disease prevention is quoted.

"How do we help?"—not "How do we observe?"—should have been the major theme of the article. Had a similar catastrophe occurred in the United States, the focus would not have been on observation, but on the need for assistance to exposed individuals by every means available.

Lee W. Wattenberg
American Association for Cancer Research, University of Minnesota, Minneapolis, MN 55455

Kahn's excellent article about health statistics in the East German uranium industry sheds new light on an important and disturbing legacy of the East German nuclear effort. The same patterns of scientific censorship and callous disregard for miners' health occurred on the southern slopes of the Erzgebirge, in Czechoslovakia's famous uranium mines. A recently discovered secret agreement (23 November 1945) granted the Soviet Union exclusive rights to all uranium mined in Czechoslovakia and the mines around Joachimsthal were greatly expanded under Soviet supervision. Health records and vital statistics on the miners were coordinated by the state-run Health Institute of the Uranium Industry (HIUI) established in the mining town of Příbram in 1954 for this purpose. In 1960, Vladimír Řeřicha, an epidemiologist at the HIUI, was asked to prepare an overview of the incidence of lung cancer among Czech miners; between 1960 and 1965 he and his staff compiled epidemiological evidence that 27,000 uranium miners at Joachimsthal and Horní Slavkov were dying from lung cancer at about five times the rate of coal miners and the male Czech population more generally, results that were in agreement with findings for U.S. miners at about this time (*1*).

Řeřicha prepared an in-house paper detailing his findings for the HIUI in 1966 (*2*) and simultaneously sought to publish his results in a more conventional scientific journal. The report and its contents were classified by the State Security Police, however, and the ban was not lifted until the "velvet revolution" of 1989. As Řeřicha recently recalled (*3*), Czech security authorities were apparently afraid that from uranium health statistics one could calculate either uranium production levels or the quality of uranium being mined, or both. The cynicism of such a ban was made apparent in the 1970s, when Řeřicha was again refused permission to publish, despite the fact that the administrative chief responsible for Czechoslovakian uranium mining, Karel Boček, had defected to West Germany in 1970. With details of the nature and scope of Czech uranium mining no longer secret from the West, Czech authorities may have feared that revelation of the sacrifice of its miners for Soviet atomic power might not sit well with the Czech public.

Kahn notes that many East German uranium miners were forced laborers in the early years, but that coercion proved unnecessary, as food and work were in short supply and miners' wages were high. In Czechoslovakia, however, forced labor was an integral part of the uranium mining program for more than 15 years. The recently opened archives of the State Security Police show that the Czech government organized 17 forced labor camps at uranium mines. The number of political prisoners in the mines is recorded precisely in secret police archives, growing from 64 in 1946 (all Germans, presumably Nazis), to 5,500 in 1950 (all Czechs by this time), to a peak of 11,816 in 1953. All uranium mine political prisoners were released as part of a general amnesty granted in 1963; after this time, the only prisoners working in the mines were "ordinary" (that is, nonpolitical) criminals. Officials at the HIUI estimate (*4*) that, altogether, as many as 50,000 political prisoners may have worked in Czech uranium mines from the beginning of the camps in 1946 until the amnesty in 1963. Some of these prisoners continued working in the mines even after their release: civilian miners were paid very well—about ten times the average salary of physicians. Today, all Czech uranium miners are eligible for 60,000 kronen for health and hardship compensation; political prisoners became eligible for compensa-

tion only after 1989. There is evidence also that forced labor of this sort was used in the Soviet atomic project (5), although the magnitude and extent of the practice deserve further study.

Robert N. Proctor
Shelby Cullom Davis Center for Historical Studies, Princeton University, Princeton, NJ 08544

References

1. V. E. Archer, J. K. Wagoner, F. E. Lundin, *Health Phys.* **25**, 351 (1973).
2. V. Řeřicha and J. Šnajberk, *Sb. Ved. Odbor. Pr.* **4**, 21 (1966).
3. Interview with V. Řeřicha, 27 May 1992.
4. Interview with J. Jerabek, 27 May 1992.
5. A. Shifrin, *The First Guidebook to Prisons and Concentration Camps of the Soviet Union* (Stephanus Edition, Uhldingen, Switzerland, 1980).

■

Contamination of cDNA Sequences in Databases

We have evidence for heavy contamination of a large data set of human complementary DNA (cDNA) sequences in the nucleotide data libraries by sequences of an unknown prokaryote. We have retrieved from the databases 4888 putatively expressed human cDNA sequences that have been deposited recently from different human genome sequencing projects and have compared them [for a description of methods, see (*1*)] with the latest version of the SWISS-PROT protein database. The search showed that the largest of these collections of sequences [2366 entries in the European Molecular Biology Laboratory (EMBL) database as of 5 February], representing one set of cDNA clones derived from a T lymphoblastoid cell line, is heavily contaminated by prokaryotic sequences (Table 1).

Table 1.

cDNA library	Total sequences	Eukaryotic-like	Prokaryotic-like
T lymphoblastoid cell line	2366	120	278
Skeletal muscle	356	35	0
Cardiac muscle	291	81	0
Fetal and adult brain	1875	386	1

The contamination is a major one involving more than 700 kilobases of human expressed sequence tags, of which at least 83 kilobases are of nonhuman origin. The contaminated sequences will remain in the database for the next few months, characterized as "human partial cDNAs." We propose that all sequences from the contaminated cDNA library except those that are clearly of human origin be moved from the "primates" section of the databases to the "unannotated" section.

Charalambos Savakis
Greek EMBnet Node, Institute of Molecular Biology and Biotechnology, Foundation of Research and Technology Hellas, Heraklion 711 10, Crete, Greece
savakis@myia.imbb.forth.gr
Reinhard Doelz
Biocomputing, Swiss EMBnet Node, Biozentrum der Universität, Klingelbergstrasse 70, CH 4056 Basel, Switzerland
doelz@urz.unibas.ch

References and Notes

1. The human cDNA sequences used for our search were retrieved from EMBL database release 33 and the EMBL daily updates until 5 February 1993. Sequences submitted by the Genexpress cDNA Program were selected by searching for the string GENEXPRESS in the author line (3013 entries from three cDNA libraries), and sequences from the United Kingdom/Molecular Research Council Human Genome Mapping Project were selected by searching for HSAAA as the first five characters of the entry name (1875 entries from two cDNA libraries). We used the program