## Retraction

WE ARE WRITING AS COAUTHORS ON THE following manuscripts published in *Science*, which were, in part, the subject of an independent investigation conducted at the behest of Bell Laboratories, Lucent Technologies. The independent committee reviewed concerns related to the validity of data associated with the device measurements described in the papers.

1) J. H. Schön, S. Berg, Ch. Kloc, B. Batlogg, Ambipolar pentacene field-effect transistors and inverters, *Science* **287**, 1022 (2000).

2) J. H. Schön, Ch. Kloc, R. C. Haddon, B. Batlogg, A superconducting field-effect switch, *Science* **288**, 656 (2000).

3) J. H. Schön, Ch. Kloc, B. Batlogg, Fractional quantum Hall effect in organic molecular semiconductors, *Science* **288**, 2338 (2000).

4) J. H. Schön, Ch. Kloc, A. Dodabalapur, B. Batlogg, An organic solid state injection laser, *Science* **289**, 599 (2000).

5) J. H. Schön, A. Dodabalapur, Ch. Kloc, B. Batlogg, A light-emitting field-effect transistor, *Science* **290**, 963 (2000).

6) J. H. Schön, Ch. Kloc, H. Y. Hwang, B. Batlogg, Josephson junctions with tunable weak links, *Science* **292**, 252 (2001).

7) J. H. Schön, Ch. Kloc, B. Batlogg, High-temperature superconductivity in lattice-expanded $C_{60}$, *Science* **293**, 2432 (2001).

8) J. H. Schön, H. Meng, Z. Bao, Field-effect modulation of the conductance of single molecules, *Science* **294**, 2138 (2001).

As a result of the committee's findings, we feel obligated to the scientific community to issue a retraction of the above articles. We note that although these papers may contain some legitimate ideas and contributions, we think it best to make a complete retraction.

ZHENAN BAO,[1] BERTRAM BATLOGG,[2] STEFFEN BERG,[3] ANANTH DODABALAPUR,[4] ROBERT C. HADDON,[5] HAROLD HWANG,[1] CHRISTIAN KLOC,[1] HONG MENG,[6] J. HENDRIK SCHÖN[7]

[1]Bell Laboratories, Lucent Technologies, 600 Mountain Avenue, Murray Hill, NJ 07974, USA. [2]Solid State Physics Laboratory, Eidgenössische Technische Hochschule, CH-8093 Zurich, Switzerland. [3]Max-Planck-Institut für Polymerforschung, D-55021 Mainz, Germany. [4]Microelectronics Research Center, University of Texas, Austin, TX 78758, USA. [5]Department of Chemistry, University of California, Riverside, 900 University Avenue, Riverside, CA 92521–0403, USA. [6]Department of Chemistry and Biochemistry, University of California, Los Angeles, 607 Charles E. Young Drive East, Los Angeles, CA 90095–1569, USA. [7]Summit, NJ, USA.

*Editor's Note:* For more information on the investigation, please see the summary and full report of the committee, which are available at www.lucent.com/news_events/researchreview.html.

## The Origin of a Most Contentious Rock

IN "METASOMATIC ORIGIN OF QUARTZ-pyroxene rock, Akilia, Greenland and implications for Earth's earliest life" (Reports, 24 May, p. 1448), C. M. Fedo and M. J. Whitehouse conclude that rocks previously interpreted as metamorphosed sedimentary banded iron formation (BIF) and thought to contain the oldest evidence of life are instead highly deformed and metasomatized ultramafic igneous rocks. This conclusion is based, in part, on a comparison of trace element characteristics in the banded quartz-pyroxene rocks and various mafic and ultramafic igneous rocks. Unfortunately, data for only one of the ten banded rocks analyzed are shown in all of their chemical discrimination diagrams (Fig. 3). Although this one sample (AK 38) is consistent with the hypothesis, data for the nine remaining samples are very different and reveal it to be a misleading "proxy for the entire quartz-pyroxene lithology" as stated. Indeed, ratios of Th/Sc, Cr/Th, Cr/Y, and $TiO_2/P_2O_5$ in the nine samples overlap those reported for the Isua BIF and are distinct from those in ultramafic rocks. It is unlikely that a combination of metasomatic gains and losses could have produced such a match. Given that the origin of banding in these rocks is equivocal and that some elemental data (rare earth element) are incompatible with either an ultramafic or BIF precursor, ratios of the least mobile trace elements would seem to be an appropriate means to constrain protolith identity. This being the case, the original BIF interpretation should be considered viable until more definitive evidence (perhaps oxygen isotopes) becomes available.

J. MICHAEL PALIN
Department of Geology, University of Otago, Post Office Box 56, Leith Street, Dunedin 9001, New Zealand. E-mail: michael.palin@stonebow.otago.ac.nz

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**The rocks under discussion.**

### Response

OUR STUDY INTEGRATED (i) DETAILED structural observations, (ii) mineralogy, (iii) geochemistry, and (iv) regional geologic events for interpreting rocks that have been repeatedly deformed and metasomatized over approximately 2 billion years. Palin questions our proposed metasomatized ultramafic igneous origin for quartz-pyroxene rocks on Akilia solely on the basis of assessment of a few geochemical ratios that overlap the field of Isua banded iron formation (BIF) (see Fig. 3A), suggesting that they support previous claims (*1*, *2*) for a BIF protolith.

We are not surprised by the broad compositional range in Cr/Th versus Th/Sc or $TiO_2$ versus $P_2O_5$ for the quartz-pyroxene rocks and pyroxenite boudins, considering that metasomatic quartz (and likely carbonate) has diluted their original ultramafic composition by in excess of 90% in some samples. In addition to overlapping the field of

Isua BIF, which spans a factor of 20 in Cr/Th and a factor of 60 in Th/Sc, these ratios overlap average Early and Late Archean basalt, Early and Late Archean andesite, Early Archean graywacke, and Early Archean cratonic shale (*3*) and therefore cannot be used to constrain a unique BIF protolith. In $TiO_2$ versus $P_2O_5$ space (Fig. 3C), our samples do not lie in the field of Isua BIFs, as Palin claims. Furthermore, Y/Ho and Zr/Hf ratios for all samples of the quartz-pyroxene rock show no affinity for sediments crystallized in equilibrium with seawater (*4*) but instead have values similar to ultramafic samples from Akilia. Palin rejects structural geologic, mineralogic, and geochemical data indicating that sample AK 38, a thick pyroxenite band not invaded by metasomatic quartz, is integral to the lithology, preferring instead to call it an "exception" relative to other quartz-pyroxene rocks. We categorically reject Palin's claim that the thin banding has an "equivocal" origin, for we clearly demonstrated that it is mineralogically similar to and associated with the boudinage of thicker pyroxenite bands (Fig. 2, B to D).

A BIF origin for the quartz-pyroxene rock was hypothesized on the basis of magnetite layering and "comparison" with other units, such as BIF at Isua (*2*). We reiterate, there is little magnetite in the quartz-pyroxene rock, some enclosing ultramafic rocks contain magnetite, and all pertinent rocks on Akilia possess a penetrative tectonic layering (foliation). Banding in the quartz-pyroxene rocks does not result from quartz-magnetite alternations, as is common at Isua. Consequently, the initial BIF hypothesis has little intrinsic merit and cannot be vindicated by a few, non–source-specific geochemical ratios.

The Fedo and Whitehouse report is also under disussion in this week's Technical Comments (www.sciencemag.org/cgi/full/298/5595/917a).

CHRISTOPHER M. FEDO[1] AND MARTIN J. WHITEHOUSE[2]

[1]Department of Earth and Environmental Sciences, George Washington University, Washington, DC 20052, USA. [2]Laboratory for Isotope Geology, Swedish Museum of Natural History, Box 50007, SE 104 05 Stockholm, Sweden.

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## The Search for an Amyloid Solution

THE AMYLOID HYPOTHESIS HAS GUIDED research on Alzheimer's disease (AD) for the past decade. The central tenet of the hypothesis has been that aggregation of fibrillar amyloid β (Aβ) into insoluble plaques directly causes neurodegeneration. This viewpoint has been challenged by observations from in vitro models, transgenic mice, and human studies, which suggest that Aβ plaques do not cause neuronal loss, dementia, or tau-positive tangles [for review, see (*1*); c.f. (*2*)].

J. Hardy and D. J. Selkoe had previously championed the neurotoxic role of Aβ from slightly different perspectives (*3*, *4*), but their recent Review ("The amyloid hypothesis of Alzheimer's disease: progress and problems on the road to therapeutics," *Science*'s Compass, 19 July, p. 353) provides a unified view. This reformulation is a departure from the original hypothesis [c.f. (*5*)] and abandons the postulate that fibrillar Aβ plaques are directly neurotoxic. Instead, they propose that soluble oligomers of Aβ42 are neurotoxic. This new view makes predictions about neurotoxic mechanisms and sites of action of