hood philosophy, that of Dr. Seuss's "Cat in the Hat"; to paraphrase, if you eliminate all error, you'll be left with the truth.

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Chiron's Licensing Policy

The article "The scientific challenge of hepatitis C" by Jon Cohen (News Focus, 2 July, p. 26) contains a number of characterizations that I would like to clarify regarding Chiron's role in the discovery of hepatitis C virus (HCV) and the development of important diagnostic and therapeutic products to address this epidemic disease. In particular, the sidebar entitled "Chiron stakes out its territory," in describing Chiron's actions related to its HCV patents, does not adequately recognize Chiron's liberal policy of granting HCV licenses in many areas in order to assure the availability of new technology to meet important medical needs.

HCV protease, covered by Chiron patents

Chiron has announced it will license other companies under its HCV patents for drug discovery work. To our knowledge, no other company has made a similar offer with respect to such significant drug discovery technology. Five major pharmaceutical companies that are working to develop novel HCV therapeutics have taken licenses, and Chiron is collaborating with one of its licensees, Pharmacia & Upjohn, Inc. The companies we are suing refused to take a license on essentially the same terms as the others have accepted.

In diagnostics, Chiron has licensed Ortho-Clinical Diagnostics, Inc.; Gen-Probe, Inc.; Abbott Laboratories; Bayer Corp., and Pasteur Sanofi Diagnostics, among others. The HCV probes litigation against Roche followed its refusal of the licensing terms Chiron had offered. While Chiron has not yet granted an HCV vaccine license, we have had discussions with several companies.

We believe that highly innovative companies are the best hope for the patients who need new treatments. Chiron's policy is to bring the benefits of its innovations to the public through the most effective means, including collaborations and licensing. The company has never used its patents to block products addressing unmet health needs. No company can afford to invest in innovation, however, if others are able to appropriate and commercialize that technology by infringing patent rights without compensation.

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Response

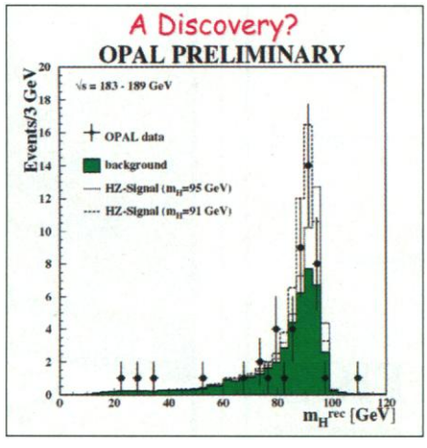
My article quoted Chiron representatives, including Blackburn, making nearly every point he makes in his letter. **—Jon Cohen**

Uncertainty About the Higgs

Although I appreciate the articles in general, I would like to clarify two statements derived from my talk at the 7th Interational Conference on Supersymmetry at Fermilab quoted by James Glanz in "Will the Higgs particle make an early entrance?" and "A tentative nondiscovery of the Higgs" (News Focus, 25 June, pp. 2079 and 2080).

1) Calculations presented at the conference actually showed that it would not take much more than 1 year of low luminosity running at the Large Hadron Collider (10 inverse femtobarns) to claim observation at the 5–standard deviation level, of a low-mass Higgs.

2) Regarding the apparent excess of events seen by the OPAL collaboration, possibly suggesting a Higgs of a mass of around 91 giga-electron volts, I must say in retrospect that it was presumptuous of me to say that it was "probably a misunderstanding of backgrounds." First, being a member of OPAL, I know well the extreme care with which the analyses are performed and how well the detector is now understood. Behind any such result are detailed technical notes analyzing thoroughly all possible sources of error. Of course, it is a suspicious coincidence that the excess of events occurs just near the mass of the Z boson, and this may suggest that there is some misunderstanding of background. It would, however, require a major correction to the estimated efficien-



Viewgraph showing a possible Higgs mass

CREDITS: (CLOCKWISE FROM LEFT) STRUCTURE: NANHUA YAO AND PATRICIA WEBER/SPRI/EILAM GROSS/CERN; OPAL

cies to explain the discrepancy just on the basis of such a systematic error. For the moment, as Eilam Gross is quoted as saying, one cannot claim a signal, but we should reserve our judgment and possibly explain the results as a "statistical fluke." We should have a clearer picture soon, with the data being taken this year at higher energy.

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Development of DNA Sequencer

The News Focus article by Eliot Marshall titled "A high-stakes gamble on genome sequencing" (18 June, p. 1906) states that the PE Biosystems model 3700 DNA sequencer was developed by industry. While PE Biosystems invested significant resources in their outstanding engineering work for the instrument, the original prototypes were developed by H. Kambara's group at Hitachi and my group at the University of Alberta; a 15 May 1998 article about the instrument's announcement (E. Marshall and E. Pennisi, News & Comment, p. 994) featured a photograph of one of our instruments. Our first instrument was developed as part of Jianzhong Zhang's Ph.D. thesis, and later instruments were developed by John Crabtree and Sue Bay as part of their Ph.D. theses. The development of our instruments was funded by the Canadian government (the Natural Sciences and Engineering Research Council, the Canadian Genetic Diseases Network, and the Canadian Bacterial Diseases Network), Canadian industry (Sciex, which is a division of MDS Health Group), and the U.S. government (the Department of Energy's Human Genome Project). Although the Department of Energy dropped its funding for this project long before the technology was commercialized, it is not quite right to imply that the U.S. Human Genome Project had nothing to do with the development of the model 3700 sequencer.

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Miss Washington's Engineering Career

In the 11 June issue (Jeffrey Mervis, News Focus, p. 1757), it is reported that "Engineering student Mariana Loya, the current Miss Washington, has been presented as the new face of engineering. Yet even she says she may not pursue an engineering career....she illustrates part of the problem: 'I want to go to graduate school, but I'm thinking about an MBA.'"

I really feel that this can be misleading. Yes, it is true that I want to pursue an MBA; however, that does not necessarily mean that I am leaving the engineering work force. I am still pursuing an engineering career.

One of the biggest concerns of companies that hire engineers is that the engineers do not have good social, writing, and/or communication skills. I want to pursue an MBA to strengthen my talents and be more marketable in the engineering field. As we approach the 21st century, we will see engineering become more and more integrated into the worlds of business, biomedicine, technical communications, and much more. This type of diversity was well represented at the National Summit on Women in Engineering Conference. Diversity in careers, in sex, and in race—you can't beat that. Diversity is what gives the engineering work force a cutting edge, and I am proud to be a part of it.

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