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Letters

Shafted

The photograph in "Relying on geology to jail nuclear waste" (SN: 11/1/97, p. 277) is indeed of a tunnel-boring machine. However, as the name suggests, these machines bore tunnels, not shafts.

A horizontal or near-horizontal opening through rock is a tunnel; a vertical opening is a shaft.

*Thomas J. Hydock
Minersville, Pa.*

Leafing out the tree of life

I've read about species extinctions in connection with biodiversity but never species creations ("Population Diversity Crowds the Ark," SN: 10/25/97, p. 260). Since evolution is a continuing process, I assume that new species are being added to the tree of life.

Has anyone made a projection of the rate of species creation, or is that rate assumed to be at or near zero in the diversity calcula-

tions? If the creation rate is not known, how can we know whether the tree of life is becoming sparse or full?

A discussion of the rate of species creation would be an interesting article to balance out the picture.

*Bob Lind
Inverness, Fla.*

Depending on the type of organism and the time period, it can take from tens of thousands of years to millions of years for a species to be created—that is, for a single species to diverge into two (SN: 10/18/97, p. 251). Many biologists maintain that the present loss of biological diversity is on a par with the mass extinctions recorded in the fossil record, after which 5 million to 10 million years passed before species radiated and restored diversity to precrash levels. They also point out that the current large losses of tropical forests and other habitats that have been hotbeds of species creation

are clipping the evolution of whole groups of organisms.

—C. Mlot

Life imitates art, baffles computer

It is such fun when life imitates an art form I love, in this case science fiction. "Immersion for analyzing complex software" (SN: 10/25/97, p. 261) discusses how computer programmers are creating three-dimensional representations of computer programs in virtual reality.

Neither the author of the story nor the programmers involved mentioned the inventor of such representations: William Gibson, in his novel *Neuromancer* and his story "Burning Chrome." You shouldn't slight so good an author and envisions of the future!

*Fred Gilkey
Pittsburgh, Pa.*

A virtual reality arrangement for analyzing complex computer systems might be very

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Cover: Known as the Hubble Space Telescope of the X-ray universe, the \$1.4 billion Advanced X-ray Astrophysics Facility is scheduled for launch in November. **Page 8** (Illustration: TRW)

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