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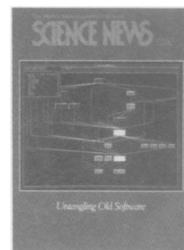
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Cover: The recent explosion of interest in the reverse engineering of software represents a recognition of the obstacles facing anyone trying to understand how a large, complex computer program, written years ago by programmers no longer available, really works. This illustration shows the output from one example of software developed to aid this process. (Illustration: McCabe & Associates, Columbia, Md.)



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Science Service, which publishes SCIENCE NEWS, is a nonprofit corporation founded in 1921. It gratefully accepts tax-deductible contributions and bequests to assist its efforts to increase the public understanding of science, with special emphasis on young people. More recently, it has included in its mission increasing scientific literacy among members of underrepresented groups. Through its Youth Programs it administers the International Science and Engineering Fair, the Science Talent Search for the Westinghouse Science Scholarships, and publishes and distributes the *Directory of Student Science Training Programs for Precollege Students*.

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Letters

Precision wise, accuracy foolish

Atomic clock NIST-7 may be wonderfully precise, but it will never achieve an accuracy of less than 1 second gained or lost in the next million years, as claimed ("Starting up an improved atomic clock," SN: 5/1/93, p.276). Mechanical failure, loss of funding, earthquake, civil war, and so on pretty much guarantee that this clock will not be operating in 1,000 years, and probably not in 100. Most likely it will be shut down within 20 years and replaced by an even more precise timepiece. Over a million years, then, it will lose nearly a million years.

Like the clock, your article was very precise but terribly inaccurate.

George Waxter
Wauwatosa, Wis.

Should we let Big Brother eavesdrop?

"Encrypting Controversy" (SN: 6/19/93, p.394) has it backwards when describing public-key encryption as a system in which "the

user has one key — kept secret — for encrypting the message and the recipient has a different . . . key to decrypt the message."

Your private (secret) key allows you to decrypt messages sent to you, while your public key allows anyone to send you encrypted messages. It is also possible to use your private key as an encryption device to electronically "sign" your messages; since your "signature" can be decrypted only by your public key, anyone can verify that you authored the message.

As for the controversy over whether the government should, in effect, have a master key to enable law enforcement agencies to intercept messages, the answer is clearly yes. An unbreakable encryption system available to criminals would be far, far more dangerous than an eavesdropping mechanism available to the state. Unbreakable encryption is no more necessary to ensure our privacy than the marketing of machine guns is to safeguard our right to bear arms.

Robert Pels
Burlington, Vt.

A number of experts consulted by Ivars Peterson appear to share the premise that there is a legitimate law enforcement or national security interest in preventing people from writing down messages in such a way that the government can't read them if it wants to.

In my opinion that assumption is completely bonkers. Must I leave duplicate keys to my house or safety deposit box down at the police station just in case they someday have some reason to use them?

Daniel D. Polsby
Kirkland & Ellis Professor of Law
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Chicago, Ill.

I must take exception to Lance Hoffman's statement that "for the first time in history, we have a situation in which individuals can use cryptography good enough that even governments can't read [the encrypted messages]."

This statement is false. Worse, it is misleading: It suggests that governments might be

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