users away from another groups's data, and it is being used by the Air Force within the Pentagon to store secret and top secret information. Honeywell has submitted the Multex design to the NSA's Computer Security Center for certification that it is as secure as advertised. So far, the NSA has reached no decision on it. But the problem of keeping three classes of data on the same computer is still unsolved.

Although computers linked to outside networks are potentially much more vulnerable, security has improved considerably in recent years. Until fairly recently, for example, it was easy to break into computers that are linked together by systems like Telenet simply by dialing the computer on your telephone and then continually guessing at likely passwords until you hit on one that the computer accepts. (This was the tack that succeeded in *War Games*.) It was not too difficult to hit on a password because people tend to choose words that are easy for them to remember, such as their names. But after Morris and Ken Thompson of Bell Laboratories in Murray Hill, New Jersey, published a paper showing that they could guess 50 percent of the passwords at Bell Laboratories, people have become more cautious about the words they choose. In addition, many computers no longer let you keep guessing away at passwords. Now, says Courtney, "Most of the better business systems let you try two times, but on the third try they either shut you out completely or let you in to see some insensitive information while they trap you by tracing the call."

The passwords at Sloan-Kettering were not peoples' names and therefore, say officials there, they should have been difficult to guess. Radhe Mohan, who is director of the medical physics computing service at the hospital, says no one has any idea how the Milwaukee youth got into the computer through Telenet. Radhe explains that the computer was linked to Telenet so that 80 other hospitals could have access to medical data stored there.

Password-type security cannot be made foolproof, however. Morris says people often get passwords from exemployees, family members of employees, or even by walking into a computer room where, frequently, passwords and access codes are taped to a terminal.

The type of security used in the Los Alamos and Sloan-Kettering computers, says Simmons, is like a lock on a car door. "You might lock your car and leave your groceries in it, but you wouldn't leave your jewels inside."

A number of corporations and banks are now taking steps to increase their computer security. At AT&T, says Morris, computer hacks "don't have a prayer of getting into computers containing corporate information. Those computers have no outside connections." Even computers that contain relatively insensitive data are getting increasingly hard to penetrate, and if a break-in does occur, it is possible to get an extensive audit trail to trace the source of the break-in.

Morris no longer finds that he can get any data he wants out of Bell Labs computers with impunity. "If I'm messing around, I have to go extreme lengths to avoid detection. The days are long gone when I could pick up the phone and log into a computer without getting caught. Now if I do something bad, chances are they will catch me for that single instance." Morris emphasizes that he is specifically authorized by Bell Laboratories to try and break into computers and that his background as a computer designer gives him some advantages.

This is not to say that there is no longer a computer security problem. Although corporations like AT&T are in the forefront of protecting computer data, other corporations and much of the federal government lag far behind. But more and more people are becoming aware of the problem of computer security and are beginning to take steps to foil computer crime or to catch the criminals in the act.—**GINA KOLATA**

IOM Elects New Members

The Institute of Medicine has elected 36 new members, raising the total active membership to 456 when their terms begin next 1 January. Five persons were elected to senior membership, bringing that total to 194.

The new members are: **Ronald M. Andersen**, Center for Health Administrative Studies and Graduate Program In Hospital Administration, University of Chicago; **Howard L. Bailit**, department of health administration, School of Public Health, Columbia University; **James W. Bawden**, department of pedodontics, Dental Research Center, University of North Carolina, Chapel Hill; **Steven C. Beering**, Purdue University; **Allan Beigel**, Southern Arizona Mental Health Center, Tucson; **George B. Benedek**, department of physics, Massachusetts Institute of Technology; **J. Robert Buchanan,** Massachusetts General Hospital; **William B. Carey**, private practice, pediatrics, Media, Pennsylvania; **Purnell W. Choppin**, virology, Rockefeller University; **Peter B. Dews**, psychiatry and psychobiology, Harvard Medical School.

Rhetaugh G. Dumas, School of Nursing, University of Michigan, Ann Arbor; **Mitzi L. Duxbury**, School of Nursing and Center for Health Services Research, University of Minnesota, Minneapolis; **David M. Eddy**, Center for Health Policy Research and Education, Duke University; **Charles C. Edwards**, Scripps Clinic and Research Foundation; **Edward V. Evarts,** Laboratory of Neurophysiology, National Institute of Mental Health; **Charles J. Fahey**, aging studies, Third Age Center, Fordham University; **Howard E. Freeman**, sociology, University of California, Los Angeles; **Jerome H. Grossman**, New England Medical Center; **Melvin M. Grumbach**, department of pediatrics, University of California, San Francisco; **Curtis G. Hames**, private practice, medicine, Claxton, Georgia; **Edward W. Hook**, department of internal medicine, University of Virginia, Charlottesville; **Lyle V. Jones**, department of psychology, University of North Carolina, Chapel Hill; **Robert Katzman**, department of neurology, Albert Einstein College of Medicine.

Stuart A. Kornfeld, medicine and biochemistry, School of Medicine, Washington University; **Paul E. Lacy**, department of pathology, School of Medicine, Washington University; **Claude Lenfant**, National Heart, Lung, and Blood Institute; **Lawrence S. Lewin**, Lewin and Associates, Inc., (health policy consultants), Washington, D.C.; **C. S. Lewis, Jr.**, private practice, internal medicine and cardiology, Tulsa, Oklahoma; **Hugh O. McDevitt**, medical microbiology and medicine, Stanford University School of Medicine; **James A. Pittman Jr.,** School of Medicine, University of Alabama, Birmingham; **Charles E. Rosenberg,** department of history, University of Pennsylvania, Philadelphia; **Louise B. Russell**, economic studies program, The Brookings Institution, Washington, D.C.; **Bruce J. Sams, Jr.**, The Permanente Medical Group, Inc., Oakland, California; **Robert T. Schimke,** department of biological sciences, Stanford University; **Margretta M. Styles**, School of Nursing, University of California, San Francisco; **Sheldon M. Wolff,** department of medicine, Tufts University School of Medicine.

The new senior members are: **Tibor J. Greenwalt**, Hoxworth Blood Center, University of Cincinnati Medical Center; **Robert Hofstadter**, physics, Stanford University; **Moshe Prywes**, University Center for Health Sciences, Ben Gurion University of the Negev, Beer Sheva, Israel; **Malcom Randall**, Veterans Administration Medical Center, Gainesville, Florida; **John R. Seal** (retired), disease prevention, Office of the Director, National Institutes of Health.