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NEWS AND COMMENT

Central Crime Computer Project Draws Mixed Reviews

After committing a crime in Ohio, an offender from California, for example, may flee to Florida, having profitably disposed of his stolen goods in still another State. With all the marvels of modern transportation, all this can and does occur while the police pore over the fresh traces at the crime scene.

To solve crime in the space-age tempo of today's society demands that law enforcement officers have available immediately the facts of crime whenever or wherever they are likely to confront suspected elements of it.

—CLARENCE M. KELLEY, director, Federal Bureau of Investigation

The Federal Bureau of Investigation (FBI) is currently debating the future of a computerized criminal information system designed in the late 1960's to help police keep up with the modern, mobile criminal, who, as the director of the FBI wrote in the above passage in 1974, can be moving on across the country "while police pore over the fresh traces at the crime scene."

The system is called the Computerized Criminal History (CCH) and includes about 1 million people who have been arrested in recent years for federal or state offenses. The CCH is part of a larger system known as the National Crime Information Center (NCIC), which includes, besides CCH, files on stolen property, vehicles, license tags, boats, securities, and on missing and wanted persons.

Most of the publicity about the CCH file has concerned its civil liberties implications, and at least one state, Massachusetts, has declined to participate in CCH on civil liberties grounds. But CCH's future in its present form is in doubt, primarily because of less-publicized, practical problems which lessen its utility as a law enforcement aid.

It turns out that, whereas 48 states can have access to the CCH files, less than a dozen states have been turning over their records to the central Washington file principally because of the cost, time, and trouble. Hence, the CCH includes only 1 million of the 21 million persons with recent records of arrest for serious crimes. Not only is it incomplete, the CCH system lacks the one capability that would make it a vital tool for police, courts, and corrections officials—namely, the capability for virtually error-free identification of suspects through automated, instantaneous matching of fingerprints. For this service, the authorities still use the FBI Identification Division's file of 21 million sets of prints, which they reach through the U.S. mails. And, while the mail does not exactly travel at "space age tempos," the resulting service at least has the important benefit of providing reliable information.

Citing these and other problems, Kelley wrote a secret memorandum to the Attorney General, Edward Levi, in April 1976, requesting him to terminate the CCH altogether. Neither Levi nor his successor have acted on the request. However, the Carter Administration and the Congress are studying a controversial proposal which could be a step toward decentralizing the CCH and redistributing control of the criminal history files among the states.

Like many other incursions of new technology into the law enforcement sphere, the CCH grew out of research performed under the auspices of the Law Enforcement Assistance Administration (LEAA), the Justice Department's research arm which was lavishly supported

with federal funds in the late 1960's. In 1969 and 1970, LEAA funded a project called SEARCH or System for Electronic Analysis and Retrieval of Criminal Histories. Project SEARCH brought together law enforcement representatives and computer experts from several states and tested the concept of a data bank using information about 10,000 offenders in the state of Michigan. Project SEARCH concluded that such data banks were feasible but that, on a national scale, they should consist of a decentralized system, with states controlling their files but able to query each other about individuals (or the FBI about federal offenders) through a national "pointer" system that would indicate which states had a particular individual in their files.

In 1970, the FBI was authorized to implement a CCH system, and, since it already was keeping computerized records on stolen boats, cars, and the like in NCIC, the CCH was married to it. But the FBI also decided to have the states duplicate their records in Washington, so that other states seeking information would query Washington instead of each other.

But state criminal records vary notoriously both in form and in substance; what some call petty theft, others call grand larceny, and so on. Many states' files are in plain manila folders; others are converting theirs to computers. For the sake of uniformity and efficiency, therefore, the FBI laid down strict guidelines on what sort of information could be entered in the national CCH file. Besides uniformity, the result has brought the states added work, trouble, and expense.

Forty-eight states can get information from the system because a suitably programmed terminal is relatively cheap. But the cost of entering records, even when underwritten by LEAA grants, is very great. For example, the Arizona Department of Public Safety began entering records into the national file in 1970, but "right away fell behind," according to a spokesman. To date, after the expenditure of more than an estimated $300,000 in federal grants, and even more in state funds, records of only 40,000 of Arizona's 400,000 known offenders have been filed in the CCH. Thus, the cost per record has been upwards of $7.50.

Such costs have been one reason that state participation in the CCH has been so slight. Kelley's 1976 memorandum said that of the eight participating states, neither Arizona, California, Illinois, Nebraska, North Carolina, nor Virginia was "fully participating." He wrote, "Florida, and possibly Michigan, are the only states that approach full participation."

As a result, the CCH has limitations as a law enforcement tool. Arizona, for example, has common borders with five states, but of them only California enters its records into the CCH. Therefore, to check on a suspect who may have just driven or flown into the state, Arizona must not only query CCH, but it also must telephone, radio, or write to Nevada, Utah, Colorado, and Texas.

Kelley's memo said that "The intergovernmental problems are legion" with CCH. He explained that, besides the states, the courts and correctional institutions around the country had been reluctant to participate. These number in the thousands and are accustomed to considerable autonomy in their affairs."

The effect of slight court and corrections participation, however, is that many of the criminal histories in the central file are out of date. For example, in 1975, a U.S. District Court Judge in Nevada threw out a case against a hitchhiker whom Nevada police had searched, after their query to NCIC turned up information that he was wanted in California on a parole violation. Subsequently, the police found a shotgun among his possessions and charged him with illegal possession.

But the NCIC file was out of date; the man had in fact satisfied his parole requirements months before. The judge's decision noted that, during the 5 months in which the NCIC computer recorded him as "wanted," the defendant was a "marked man" to law enforcement officials all around the country.

"This type of infringement of the rights of the defendant, perpetuated mainly with the assistance of a mindless automaton controlled by the government, cannot be tolerated," the judge's decision said.

(However, simply making all courts, correctional authorities, and police play ball with the NCIC may not solve the system's problems. Close observers of the system say that its cost to date of approximately $45 million, together with the large size of the existing CCH file, has come as an unpleasant shock to the FBI. Expanding the file to truly national dimensions would cost more than seven times this amount. It was for this, as well

Crime Computer Abused

Paradoxically, one of the chief goals of a computerized criminal file, namely, the ease of access to the file by police around the country, also makes such a system vulnerable to abuse. News accounts have reported several instances when information in the largest of these data banks, the National Crime Information Center (NCIC) of the Federal Bureau of Investigation (FBI), was passed to the wrong people.

In one case, Connecticut State Police, following complaints by a local civil liberties group, admitted to having supplied defense contractors with information on individuals from the NCIC computer in Washington, which has terminals in Connecticut and 47 other states. In another case, a nationwide private investigative firm, Factual Services Bureau, Inc., was found to have employed a number of deceits to induce police with access to the computer terminals to retrieve information from the FBI files. Factual Service Bureau representatives impersonated neighboring policemen, among other ruses, to get information for the company's insurance company clients.

Dale Tooley, the Denver district attorney who prosecuted some of the Factual Service Bureau cases noted how hard it is for police, who are already harried with other business, to check up on or keep records of requests for information: "When you have 40,000 arrests a year and thousands of small enforcement agencies contacting major police departments for information like this every day, it is impossible to keep records," Tooley said in an interview with *Computerworld* newspaper.

Present problems of unauthorized use are expected to multiply as the NCIC grows. At present, it has approximately 500 terminals around the country. When complete, it could have as many as 17,000. Clearly the security of access to all those keyboards will pose something of a problem, and put civil liberties advocates—who already dislike the NCIC—even more on their guard.—D.S.

as other reasons, that Kelley decided in 1976 that the only practical alternative to terminating CCH would be to decentralize it.

Identification and FINDER

Another problem is the fact that the computer does not always correctly identify people, especially people who have common names. For instance, according to newspaper reports, William A. Smith, a 25-year-old Concord, New Hampshire, man, was roused from his bed by police at four in the morning, taken to the station, and grilled for 4 hours. What had happened was that, after letting Smith go on a minor traffic violation earlier in the evening, the police had been informed by NCIC that the same Smith was a criminal who used the name "Barnes" and was wanted in New York.

It took William Smith several hours and a telephone call to a friend who was a policeman in neighboring Durham, to convince the authorities that he was neither "Barnes" nor wanted in New York. Smith has since filed suit for $100,000

Panel Calls for Global Food and Nutrition Research Drive

A combination of intensified agricultural research and "political will" could result in elimination of the worst aspects of the world food problem by the end of this century, according to a report released on 23 June by the National Research Council (NRC) of the National Academy of Sciences.

The report—"World food and nutrition study: the potential contributions of research"—was ordered by President Ford after the 1974 World Food Conference. But its recommendations, particularly those which would put the Department of Agriculture (USDA) in a pivotal international role vis-à-vis world agriculture and nutrition, are receiving high level attention from this Administration, and are clearly more consonant with the initiatives taking shape under President Carter than with the policies of his predecessors.

The report is definitely a creature of the 1970's. It pulls away from the moonshot mentality embedded in the Green Revolution, recognizing instead that obstacles raised by politics, population, and poverty have to be overcome if increased production is to make a dent on the food problem. It puts heavy emphasis on the need for nutrition research and points out that affluent countries have their own brand of malnutrition. It calls for developing lines of research—such as nitrogen fixation, genetic manipulation, and efficiency of photosynthesis—that will make minimum energy demands. The report also reinforces the new dogma of the '70's that research will have to be designed to be appropriate to local needs, and calls for more social science and behavioral research as part of the overall program.

The panel, headed by Harrison Brown of the California Institute of Technology, states that food production in developing countries will have to be doubled by the end of the century. Very little of this increase will come from putting new land under cultivation, said Brown at a press conference announcing the report; rather, it will come from increased yields and better food preservation.

The panel made it clear that the United States has to take the leadership in broadening and speeding up international food and nutrition research. First priority, therefore, is improvement in U.S. agricultural research, a pan-governmental effort involving in particular the Agency for International Development, the National Science Foundation, and the National Institutes of Health, as well as USDA.

The report says AID money to developing countries for research should be tripled from the current level of $30 million per year. It wants NIH to reorient its nutrition research toward problems of more relevance to developing countries, and suggests a heavier commitment by NSF to nutrition and related social and behavioral research.

As for USDA, the report echoes recommendations that have frequently been made in the past, to wit: the department needs an undersecretary devoted solely to research; more basic research is needed; a new competitive grants program on food and nutrition research is needed; and more research money should be made available to universities and private research institutions outside the land-grant system. An immediate increase of $120 million a year for research is called for.

The recommended shifts in priorities are all in line with the report's contention: "In our view, the Secretary of Agriculture speaks not just for the interest of American food producers but also for the broader interests of all American citizens in a world moving to alleviate hunger and malnutrition."

The USDA, under the leadership of Secretary Robert Bergland, is clearly more amenable to these changes than it was in the Earl Butz days. "We largely concur with what is in this report," says James Nielson, the new deputy assistant secretary for conservation, research, and education. In fact, the report as a whole feeds right into current Administration thinking on what to do about world food. It contains a "very good set of recommendations," according to Gilbert Omenn of the Office of Science and Technology Policy, and is "getting the highest possible level of review" in the Executive Office of the President. Omenn observes that the Administration has already made some moves along the lines proposed in the report—it has, for example, asked Congress to appropriate $27.6 million for a competitive grants program in USDA that would focus on research on nitrogen fixation, photosynthesis, and genetic manipulation.

The report lists 22 areas of high-priority research, putting special emphasis on investigations likely to produce workable results in the near future. Included are such categories as management of tropical soils (where annual production might be raised up to 200 percent); beefing up aquatic food sources (with more efficient processing, fish protein available for human consumption could be doubled without increasing the present world catch); and research on the implications for nutrition of general government policies.

Says the report: "If there is the political will in this country and abroad . . . it should be possible to overcome the worst aspects of widespread hunger and malnutrition in one generation." That is a big "if." The members of the panel can at least find some justification for their optimism in the fact their report is being read.—C.H.

against the policemen who wrongly held him. It is easy to see how the incident has not endeared the NCIC system to New Hampshire police.

What would it take for the NCIC to make correct identifications of people? Ray Young, the assistant chief of the section of the FBI in charge of NCIC, declines to estimate how often people are misidentified by the computer. He says that the only foolproof system is fingerprint matching. For NCIC to include an automatic fingerprint matching capability, so that a suspect at the terminal could be clearly designated as the same as someone in the central files, would be "a tremendous boon" says Young.

The FBI Identification Division, which is separate from the division containing the NCIC has, in fact, sponsored work on automated fingerprint matching for years. But the problem, which at first sounded simple, has proved difficult to solve despite research by the National Bureau of Standards, Argonne National Laboratory, the Calspan Corporation, Sperry Rand Corporation, and Rockwell International.

In 1972, the FBI began testing a demonstration system called FINDER; to date it has a million individual prints encoded, representing 139,000 people, according to the FBI. But although the FBI has ordered two more FINDER machines, the FBI Identification Division is still a long way from having its entire file of 21 million individual fingerprint cards stored in the FINDER system.

The results of fingerprint matching tests, however, have improved dramatically in the last few years. For example, the Department of Public Safety in Arizona is buying the Sperry Rand system because, on a recent test, the system matched fingerprints accurately in 92 percent of cases, whereas a control group of manual searchers were accurate only 55 percent of the time. Nonetheless, FBI's Young estimates that the day of nationwide, automated fingerprint matching, and hence quick, reliable identification of suspects from remote terminals, "is a long way off."

CCH Future in Doubt

In recent weeks, the Carter Administration and some members of Congress have been debating the future of NCIC and CCH, and, specifically, the question of whether the FBI should be granted the authority for "message switching" among certain state records. Several people, primarily representative Don Edwards (D–Calif.) and civil liberties lobbyists, have raised the question of whether such a capability might give the FBI control over interstate police communications and expand what some regard as the FBI's already overblown "Big Brother" powers. Any central message switching, they say, should be run by someone other than the FBI.

But, from a technical standpoint, "message switching" may not neccessarily mean that the FBI would be able to intercept, or control, state-to-state communications. Furthermore, as Kelley's 1976 memorandum pointed out, "In order to make decentralization possible, a message switching capability is required to switch a request for a record from the national index to the state [having the] record and to switch responses back to the inquiring state."

Also in recent weeks, scientific interest in the CCH has revived. The Scientists' Institute for Public Information (SIPI), which is interested in techology and law enforcement generally, has been appointing a task force of experts to study first CCH, and later other crime information systems. Robert J. Gallati of Northeastern University, who was on project SEARCH and will be on the SIPI task force, believes that decentralization is the proper course.

For one thing, Gallati says, it will eliminate the cost of duplicating state records in Washington and expansion of computing machinery at FBI headquarters. For another, the reassertion of the state's responsibility for their criminal records will be an added incentive for them to proceed with the necessary, but costly, process of automating their fingerprint files.

Most important, Gallati says, is the issue of devising a technological system that will mesh smoothly with the historical pattern of law enforcement authority in the United States. As a matter of tradition, this authority has rested with the states, not the FBI. Gallati says, "Once it was determined that the CCH was to be a clearly national thing, the states lost the initiative. . . . But the Constitution doesn't vest the authority for law enforcement in the federal government; that authority is left to the states. So there is the philosophical problem of where we are headed as a bureaucracy and as a democracy, too."

—DEBORAH SHAPLEY

Science in Europe/Mr. Justice Parker and Plutonium

British nuclear power plans came under unaccustomed scrutiny last month when a public inquiry into nuclear fuel reprocessing started work. The inquiry was called by Peter Shore, Britain's environment minister, to examine plans for extending the existing reprocessing plant at Windscale on the northwest coast of England. Since it is in theory a local inquiry, it is meeting in Whitehaven, a small industrial port near Windscale; but its implications are national or even international.

Windscale, established in the 1940's to produce plutonium for the British bomb, is a sprawling nuclear factory consisting of several reactors, a reprocessing plant, and storage facilities where long-lived nuclear wastes are kept. It is run by British Nuclear Fuels Ltd. (BNFL), a nationally owned company set up to run the nuclear fuel business built up by the U.K. Atomic Energy Authority. BNFL wants to expand the Windscale plant to reprocess uranium oxide fuel from Britain's advanced gas-cooled reactors, and from light-water reactors abroad. Over the past year, the plan has been running into increasingly heavy weather, as critics charged that it would turn Britain into the world's nuclear dustbin. President Carter's renunciation of reprocessing increased the pressure and obliged Shore to call the inquiry—which is now seen in Britain as a major examination of the dilemmas of reprocessing and the plutonium economy.

As is normal with such inquiries, one man has been appointed to run the hearings and produce a report. He is a judge, Mr. Justice Parker, who in normal life specializes in commercial law. At the end of 5 or 6 months of constant session, after he has heard millions of words from hundreds of witnesses, he will write a report indicating whether or