Crime, Science, and Technology

See page 991 of this issue of Science, *for details about registration and hotel reservations for the AAAS Annual Meeting.*

The next decade may see the systematic application of science and technology as a dominant theme in law enforcement and the administration of criminal justice. Progress seems imminent on every front. The application of systems science, operations research, and contemporary economic techniques may restructure approaches and develop criteria to assess progress and guide the efficient organization and effective study of the criminal justice system. On the more technological level, new opportunities are increasing for the prevention and detection of crime and the apprehension, correction, and rehabilitation of the criminal. Technology applicable to police operations (especially computers, communications, transportation, and nonlethal weapons) is creating major opportunities for increased efficiency and effectiveness in day-to-day law enforcement.

The concern over mass violence is newly emphasizing the need for broader social action in regulating antisocial activity.

The five-part program in six sessions on the expanding role of science and technology in the war on crime is planned for 27–29 December 1967 as a General Symposium of the AAAS Annual Meeting in New York City.

Scientific crime detection is one of the oldest and most firmly established applications of science to law enforcement. But this field is by no means stagnant. The older technology will continue to find useful applications and new methods are continually expanding the capabilities of the crime laboratory. The old and new, for example, when combined in microscopy and microprobe chemical analysis, allow exquisitely sensitive identification of a limitless variety of materials. Recent developments in the law are increasing demands for technical, especially quantitative, evidence. While technology can meet the demand, substantial problems in training, support, organization, and administration of forensic laboratories are unresolved. Possible solutions include the establishment of regional laboratories to serve several communities. The role of scientific crime detection in law enforcement illustrates the interaction of technology with politics, public administration, and education.

The pathologist has unique problems. While homicides are likely to remain a most important aspect of his activity, the demands for quantification of data are not easily met. The handling of the case material and its interpretation and presentation to the user, that is, police or the court, again illustrates the interactions among investigators, data, experimental evidence, individual variation, circumstance, and investigative system.

Speakers addressing the problems of criminalistics and forensic science include Ralph E. Turner (Michigan State University), Paul L. Kirk (University of California, Berkeley), Walter McCrone and Michael Bayard (McCrone Associates), Cyril Wecht (Duquesne University), Charles Petty (Indiana University), and Alexander Joseph (The John Jay College of Criminal Justice).

The complexity and increasing urgency in police administration is turning some scholars to comparative studies of law enforcement. As an untapped source of knowledge and experience, the widely held view that democracy is best served by decentralized law enforcement requires careful review. Comparison of ideologically diverse areas such as Australia, France, India, Japan, Nigeria, United Kingdom, and U.S.S.R. suggest a need for reevaluating the stress on decentralization. Similarly, the relationship between the police and community varies in striking ways, as shown by public attitude surveys recently taken in India and the United Kingdom. Now the data stimulates the demand for more data as a prelude to operationally useful conclusions. A comparative review of arrest and interrogation, based on limited studies, suggest that this is a fertile area for study in view of the widespread concern and distress caused by current practice in the United States. These issues will be discussed by Raymond T. Galvin (Michigan State University).

High-speed computers may have a major impact on the allocation of police resources. The continual undermanning of police forces increases the need for effective and efficient utilization of resources. Encouraging these developments is an awareness, in police departments, of the need to determine the amount of time consumed in various services, as well as the need to adopt and exploit data available from census tracts and from other uniform-reporting programs. An ultimate objective in allocation is to provide feedback of information which would discriminate between events likely to be prevented by police presence or reduced in their impact by the timely arrival of police. Gordon E. Mizner and Richard B. Hoffman (University of California) will discuss the allocation of police resources.

Economics as a branch of social science has only recently begun to influence the criminal justice system. Economists have tended to confine their investigations of efficiency to market-connected phenomena, largely because of the absence of both price and profit as guidelines to the output or product of law enforcement. Robert Riggs (Planning Research Corporation) will discuss an operational definition of law-enforcement output which relates modern economic techniques to criminal justice.

As a specific example of economic applications, W. Michael Mahoney (Resource Management Corporation) will discuss cost-benefit, cost-effectiveness, and systems analysis techniques as applied to measuring the success of rehabilitation programs.

The frequent use of voice communication equipment in some criminal activities has interested the law enforcement community in voice or speaker identification. Technology for speech analysis may also aid in the psychiatric evaluation of emotional stress, the study of the effects of drug and alcohol addiction, and the use of systems in which a voice input authenticates information.

(Left) Toxicological analysis by filtration method. (Right) National Crime Information Center instituted by FBI this year. [FBI]

This last factor may become essential to checkless computerized banking. Cecil Frost (Communications Systems, Inc.) will review these applications.

Like new technology, new legislation creates problems and opportunities in law enforcement. Nathan Glaser (University of Illinois) will discuss new legislation in New York State and its evaluation through research, on the control of narcotics addiction.

A broad, new front for science and technology to attack addiction is opening, by putting court-certified addicts in the control of a Narcotics Control Commission for up to 5 years. The Commission will provide treatment in new institutions with a 200- to 600-addict capacity both in and out of New York City.

Computers are becoming a major tool for information processing in criminal investigation. Charles R. Kingston, Charles E. Robinson, and Paul T. Veillette, all of the New York State Identification and Intelligence System, will discuss their program. Specific applications will illustrate the required resources and the research necessary to achieve practical working systems. For the short term, immediate applications and simple techniques will be necessary, but it is anticipated that computerized information-sharing systems will evolve so that advanced research using modern technology will pay larger dividends in 5 to 10 years.

A tremendous gap now exists between the police officer and the recipient of his services. The perception of the role played by the law enforcement officer is different from audience to audience. The officer, himself, may be confused about his own role as to whether he is a crime preventer, a protector, or a disciplinarian or some amalgam of all three. Learning by doing and so accommodating to these conflicting perceptions is a slow and expensive education. Game or role playing allows participants to develop and synthesize their roles by learning facts, processes and alternate strategies, as explained by Regina Herzlinger and Robert H. Rea (Abt Associates).

The alleged too-free use of physical and even deadly force as well as verbal abuse by the police is a major basis for community hostility. It is believed to be an obstacle to effective law enforcement and a ubiquitous basis for mass violence. Joseph Coates (Institute for Defense Analyses) will discuss moderating physical violence by the use of nonlethal weaponry and restraining verbal abuse with the aid of modern recording equipment.

The eruption of urban mass violence for four consecutive summers has led to fright in some quarters, outrage, and the cry of ungratefulness in others, a demand for stronger law enforcement on one hand and a demand for amelioration of basic causes on the other. The summers of violence have also engaged social scientists and public officials and those responsible for public order in a search for causes and remedies. Two sessions of the General Symposium will review present knowledge and understanding of the underlying and proximate causes of mass violence and some of the hopes and dangers in the many solutions proffered.

A conceptual framework for violent protest in urban societies will be presented by Louis Masotti (Case-Western Reserve University). He will present both a historical and an analytical framework. Allen Grimshaw (Indiana University) will consider three interpretations of the recent violence as civil disturbance, as racial revolt, and as class assault. John Spiegel (Brandeis University) will discuss the initiation, growth, and early stages of riots. Negro retaliatory violence is by no means a recent phenomena. Elliott Rudwick (Southern Illinois University) will assess current Negro violence in terms of its historical antecedents and the new ecology of race relations in American cities, paying particular attention to possibilities of organized Negro rebellion and the invasion of white business and residential areas.

The psychiatric aspects of violence will be discussed by Maier Tuchler. Tom Tomlinson (Office of Economic Opportunity) will particularly consider the Negro reaction to the Watts riot and its possible influence in developing a riot ideology. Joseph D. Lohman [University of California (former sheriff of Cook County)] will discuss the problems of police in riots, particularly considering whether structural deficiencies in police systems and organizations may not impair, if not stymie, many of their law enforcement functions. Justice, violence, and social change will be discussed by James Laue (U.S. Department of Justice).

A panel discussion among James Scheuer (Congressman from the Bronx), James W. Osterburg (University of California), Alfred Blumstein (Institute for Defense Analyses), Stanford Garelik (chief inspector, New York City Police Department), John deJ. Pemberton (executive director of the American Civil Liberties Union), and Daniel H. Watts (Editor of *Liberator*) will round out the General Symposium with an afternoon panel discussion on the subject given. Particular attention will be given not only to the opportunities but the risks and limitations in the expanding role of science and technology in law enforcement and criminal justice.

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