

Stress Awareness

Joseph J. Hurrell, Jr., and William H. Kroes
National Institute for Occupational Safety and Health
Cincinnati, Ohio

In the past five years, the topic of stress in policing has received increased attention from researchers, police officials, police unions and the public at large. As research uncovers more and more of the dire effects of job stress, those concerned with the performance, safety and well being of police officers are gradually beginning to recognize that stress is something more than mere griping or job tension. Perhaps Joseph Wambaugh comes close to capturing the enormity of the problem in the statement:

The physical dangers of being a cop are already vastly overrated by TV and movies, while no one pays attention to the more serious danger which is the emotional violence of the job that drives cops to divorce, suicide, alcoholism and drug addiction in greater numbers than any other vocational group.

Yet what are these emotional dangers? What is job stress and what are its consequences?

That we don't know all the psychological dangers in police work nor their consequences is painfully obvious. What is most disheartening, however, is that very few of those persons closest to policing are themselves aware, except perhaps superficially, of what job stress is and how it affects the physical and mental health of police officers and the health and well being of their families. This lack of awareness is evident from the questions and pleas for help which are directed to us by line police officers, union representatives and senior level police officials. Although lack of awareness is in many ways understandable, it is unfortunate. For when individuals are unaware of the nature of threats to their well being, they are less able to escape, avoid or directly confront them. Thus, in order to successfully cope with stress on an individual or organizational level, officers need to be made aware of the nature of job stress and its consequences, for awareness alone may serve to both prevent job stress and mediate its effects.

Awareness of job stress serves as a stress reducer in several ways. By being aware of the nature of psychological job stress, the officer is alerted to the potential danger facing him and is cognizant of the fact that stress is in part a function of his environment and not totally within and unique to himself. Stress awareness enables him to more easily mobilize his defenses. Another important function of awareness is that it places the unknown into the realm of the known. Awareness further serves a training or rehearsal function, so the officer will be prepared for what is to come and be able to monitor reactions to sometimes "overwhelming" events. In addition, awareness gives the officer the knowledge that stress is not just some little irritant that comes and goes, but can profoundly affect his health, life, and job performance. By knowing that job stress is a significant problem, the officer will be more motivated and willing to take the appropriate steps to see that it does not get

the best of him. As the old saying goes, "Forewarned is forearmed." Moreover, being aware of the cause of one's discomfort often brings about some relief, through a reduction in the anxiety and worry over the unknown. In the hope of creating such an awareness, the following paper will attempt to answer a series of the more common questions about stress in policing.

What is job stress?

To be sure, we all have some rough idea of what is meant by the term job stress, yet even among researchers there is no universally accepted definition. Indeed, uses of the term job stress have been so general and so diverse that the likelihood of complete agreement on any precise conceptual definition seems remote. One model of job stress, however, has generated significant research findings and is increasingly being accepted by the research community. In this "stress-strain" model, job stress is defined as the condition in which some factor, or combination of factors at work interacts with the worker to disrupt his psychological and physiological equilibrium. The factor or combined factors are referred to as job stressors and the disrupted equilibrium is called job-related strain. (Margolis & Kroes, 1975).

In the above definition the concept of factors interacting with the worker is significant, as it is quite clear that individuals respond to identical job situations in very different ways. One police officer, for example, may be upset at being assigned to a traffic detail, while another might find the work enjoyable. The strain (or disrupted equilibrium) which occurs as a result of this interaction between stressors and the individual may be manifested in a number of ways. To begin with, workers may experience short-term subjective states of anxiety, tension, anger and the like. Associated with these subjective states are transient clinical physiological changes, including changes in levels of blood pressure, blood lipids, catecholamines, and many others. If the stressors persist, or if the worker fails to cope with them, more chronic depression, feelings of fatigue, or alienation may become evident, or more serious physical health problems may develop.

No matter how job stress is defined, the most important thing to be aware of is that psychological stress at work is a serious occupational hazard. Like noxious chemicals in the working environment, job stressors are capable of causing serious health problems. How serious these problems are will be made evident in later sections of this paper.

What are the sources of stress in policing?

Undoubtably a police officer's working environment is replete with potential job stressors, and one could write a book just listing and explaining each stressor. As this is cumbersome, for discussion purposes it is helpful to group the specific stressors under some general framework. One such framework (Kroes, in press) makes a distinction between those stressors which are, by in large, unique to policing, and those which are present in other occupational environments. Table 1 presents a list of major job stressors found in policing (Kroes, in press; Kroes, Margolis, and Hurrell, 1974) categorized in this fashion. Although this list is certainly not exhaustive, it does give an idea of the diversity of stressors impinging on police officers. When one examines these two categories,

Table 1
Some Major Stressors in Policing

Stressors shared with other Occupations

Administration	Policies concerning work assignment, procedures and personal conduct
Role Conflict	Situations in which officers are caught between discrepant expectations
Second Job	Holding down an additional part-time job
Inactivity	Physical and/or mental idleness
Shift Work	Having work hours other than normal 8 AM to 5 PM
Inadequate Resources	Lack of the proper materials, equipment, etc., necessary to carry out one's job
Territoriality	Working in an alien environment
Work Overload	Having too much work to do in a given period of time
Responsibility for People	Having excessive responsibility for the lives and welfare of others
Promotional Procedures	Difficulties surrounding advancement within the department
Role Ambiguity	Not knowing one's exact role at work
Job Complexity	Having to deal with many different people, problems, and tasks
Inequities in Pay and Status	Being underpaid and under-recognized for one's work compared to other occupations

Police Specific Stressors

Courts	Court rulings, procedures, and treatment of police officers
Negative Public Image	Unfavorable attitudes held by citizens toward police officers
Racial Situations	Confrontations between police officers and minority group members
Line of Duty/Crisis Situations	Duty situations which either pose a threat to the officers physical well being or which may overwhelm him emotionally

it can be seen that not all of the stressors in either category are truly inherent in policing. Both categories may therefore be further divided into two sub-categories (or another framework): stressors inherent in the nature of police work and stressors which have evolved and become a part of policing (See Table 2). Thus divided, it appears that only the stressors responsibility for people, complexity, organizational territoriality and line of duty/crisis situations stem from the nature of police work and will always exist to some extent. All others, then, seem to arise from other sources and can under "enlightened" management be reduced or eliminated.

Examining those stressors shared with other occupations which have evolved and become a part of policing, one can identify two distinct sources: the organization and the community. Administration, promotional procedures, inadequate resources, shift work and second job are all in some way related to organizational practices and procedures. There is a very direct relationship between the nature of police organizations and the degree to which officers experience problems stemming from administration, promotional procedures and inadequate resources. Generally speaking, those departments which are more organizationally authoritarian seem to experience greater problems with these stressors.

Table 2
Stressors in Policing Classified as to whether they are Inherent in the
Nature of Police Work or have Evolved

Shared Stressors

Inherent

Responsibility
Complexity
Territoriality

Evolved

Administration
Role Conflict
Second Job
Inactivity
Shift Work
Inequities in Pay Status
Work Overload
Promotional Procedures

Police Specific Stressors

Inherent

Line of Duty Crisis

Evolved

Courts
Negative Public Image
Racial Situations

Work overload, inactivity, role conflict, inequities in pay and status, and role ambiguity are all shared stressors for police officers that have their sources in the community. Whether an officer is overworked or spends long periods of time in inactivity in part seems to depend on the socio-economic status and crime rate of the community and the size of the community's police department. However, the degree to which officers experience role conflict or perceive inequities in their pay and status often depends on the attitudes and expectations of the citizenry. Further, if the officer is expected by the community to perform a multiplicity of conflict roles (as is too often the case), he is extremely likely to experience both role conflict and role ambiguity. If the attitudes of the community members are hostile and if awareness of the difficulty of the job is minimal, officers are not only likely to feel inadequately compensated for their work, but they are also likely to feel that they are held in relatively low esteem.

Looking at the Police-Specific Stressors (Table 2) which have evolved and become a part of policing, it can be seen that both negative public image and racial situations also have their sources in the community. If the officer is held in high esteem by the majority of residents in the community he is not likely to encounter racial situations or be affected by the "cop" label both on and off the job. The courts stressor, however, is in many ways unique, in that it is not traceable in origin directly to the community or organization. The frustration experienced by police officers when a suspect is turned loose on "technicalities" or receives a "light" sentence can be traced only to the criminal justice system. Further, the discourtesy shown to police officer in scheduling court appearances at inconvenient times appears to be a result of lack of awareness on the part of court officials of the problems which police officers face. Also, the "rough treatment" given to officers on the witness stand is a function of the established court system.

In conclusion, since the majority of the stressors listed have their source in either the department's organizational structure or in the attitudes of citizenry, organizational change and public awareness is needed.

Can job stress cause heart attacks?

Although the exact causal chain between job stress and coronary heart disease (CHD) has not been identified, research over the last 10-15 years has demonstrated a clear association between psychological job stress and coronary heart disease and its risk factors, such as high blood pressure, high cholesterol levels and heavy smoking (House, 1974). In fact, a growing number of researchers have concluded that stress is a more important factor in the etiology of coronary disease than diet, smoking and exercise combined (McQuade, 1972).

Generally, three lines of evidence link job stress to CHD. First, there are large occupational differences in morbidity and mortality from CHD and cardiovascular diseases in general, which appear to be related to psychological stress differences. Policemen, sheriffs, and marshals in 1940, for example, had a significantly higher death rate from diseases of the cardiovascular system than did lawyers and judges (Guralnick, 1963). Secondly, there is strong evidence (House, 1972; Sales and House, 1971) that specific psychological

factors such as low job satisfaction and low self-esteem in work (which are thought to be strain consequences of stress) predispose men to heart disease. A host of studies have documented relationships between specific job stressors such as work overload and responsibility for people as heart disease risk factors (e.g., Caplan and French, 1968).

Lastly, there are findings from studies of heart attack victims that point to stress as a significant antecedent. For example, Russek and Zohman (1958), studying 100 coronary patients and 100 controls, found that stress accounted for a greater difference between the two groups than diet, heredity, smoking or exercise!

With possibility of job stress being the most significant single factor in the etiology of coronary heart disease and the fact that this disease annually accounts for nearly one third of all deaths in the United States (CHD is the leading killer of working age males), we believe much more serious attention should be paid to the problem of job stress and CHD. This is particularly true for those in the police profession.

What are the consequences of shiftwork in policing?

In answering the question about the sources of stress in policing, shift work was identified as a significant stressor, not just because of the physiological effects of changing eating or sleeping habits, but also because of the psychological effects resulting from disruption of family and social life. Concerning the physiological effects, it is now recognized that there are over fifty fluctuating neuro-physiological rhythms within man, many of which are diurnal in nature. These rhythms include such things as basal metabolic rate, blood sugar level, blood temperature and mental efficiency. To what extent disrupted physiological rhythms impact upon individual health is an unanswered question (see Froberg and Akerstedt, in press). There is some evidence, however, which suggest that physical health problems are related to the rate of adaptation of time-oriented body functions to alterations of existing diurnal patterns. Mott, Mann, McLaughlin, and Warwick (1965), for example, found the incidence of ulcers and rheumatoid arthritis to be higher among shiftworkers who reported relatively more difficulty in adjusting rhythmic time oriented body functions.

How severe are the effects of the police officer's job on homelife in comparison to other occupations?

A definite answer cannot be given to this question as there is very little data available for comparison purposes. There are rumblings, however, that police indeed do have more family problems as a result of their work stress. The high divorce rate statistics that various police departments have reported seem to confirm this.

Unlike families of workers in other high stress occupations, "police families" are confronted with problems stemming solely from policing. One of the most difficult of these is the stigma of being a "cop's wife" or "cop's kid". Whether an officer brings the pressure of his work home with him or not, a segment of the community sees to it that the officer's wife and children are reminded that her husband and their father is a "cop". As a defense against these strong negative pressures on them, police families tend to close in among

themselves and turn to each other for support. The families in a sense become socially isolated from the rest of the community. They are viewed with suspicion and subjected to jokes and insults, especially when stories of police corruption appear in the media.

In a similar vein, a double standard is applied to police officers and their families. Children of police officers are expected by society to be beyond moral reproach. Their teachers, neighbors and even their police officer father often expect them to be better than other children. When they cannot live up to these exaggerated expectations they are told that "you should know better, your father is a policeman". Certainly this treatment if not tempered with some understanding can result in developmental problems.

In addition to the problems created for the wife by shift work, there is always the shadow of potential danger. The fear of something happening to her husband at work is often extreme and difficult to cope with. Add to this fear, the problem of police officers trying to maintain a hardened image and show no emotion and serious marital problems may result.

In summary, policing has the potential to cause serious family problems. In addition to coping with the stress brought home by an officer, the police family must cope with a host of other serious pressures. These pressures include a negative image in the community and meeting the exaggerated expectations of community members. Thus, it may well be that the effects of policing on homelife are more severe in comparison to other occupations.

Is alcoholism job related?

Disentangling the web of interacting determinants in alcoholism is especially difficult. Traditionally there have been two views concerning alcoholism. The first and probably more established view is that alcoholics are people who drink because of some flaw in their personality. The second view, the medical model, is that alcoholism is a disease and like other diseases it may afflict anyone. In our opinion, however, both points of view are naive. Studies on alcohol addiction (e.g., Jellinek 1952; 1960) suggest the sequence from moderate social drinking to chronic alcoholism follows a fairly predictable path. First of all, social imitation gives rise to the practice of drinking. Once the practice of normal social drinking becomes established, however, the powers of positive reinforcement become more significant than those of imitation. In other words, after an individual begins drinking socially he may learn to his pleasure that alcohol can diminish stress and bolster his confidence. The rate at which he drinks may be determined by the amount of stress he experiences. Given the presence of high levels of stress, drinking can become a deeply ingrained stress coping technique. It is especially powerful in this regard since its effects are immediate, in contrast to the slow and delayed character of other more complicated forms of coping.

From the above discussion, it seems logical to assume that alcoholism is job related to the extent that the stress an individual experiences emanates from the working environment. A recent study by Margolis, Kroes and Quinn (1974) lends some credence to this assumption. Using interview data from some 1,496 employed persons, these researchers found that overall job stress was significantly related to escapist drinking, i.e., those experiencing high stress drank

more than those experiencing less job stress. Further they found significant relations between escapist drinking and a number of specific job stressors. Thus it might be stated that alcoholism can be job related depending on the pressures resulting from work.

Looking at policing, in particular, it would seem that the police setting is especially conducive to alcoholism. Since police officers frequently work in an environment where social drinking is common place, it is relatively easy for them to become social drinkers. The nature of their work and the environment in which it is performed provides the stress stimulus. All the officer need do is discover how easy it is to alay stress by drinking. Although there is no hard data to substantiate a high incidence of alcoholism among police, department officials have reported informally that as many as 25 percent of the officers in their respective departments have serious alcohol abust problems.

Traditionally police departments adhere to the "character flaw" theory of alcoholism explained above. This philosophy calls for the denunciation and dismissal of an officer with a alcohol problem because recongizing him as a symptom of underlying problems reflects on the department. What is not considered is that alcoholism may result from the extraordinary stresses of the job and that eliminating the officer does not do away with the sources of stress.

Does the existence of a police subculture intensify job stress?

Some maintain that "the existence of the police subculture probably greatly intensifies stress. Police officers who always associate only with other officers, talking shop, comparing experiences, exaggerating exploits, displaying their manliness, are living and reliving their stressful experiences at the same time that they are creating false and exaggerated expectations for themselves" (from Kliesment, 1975). In our opinion the contrary occurs; the existence of a police subculture does not intensify stress but reduces it. This building of "esprit de corps" serves a very positive function. Lacking positive feedback from other segements of society, the officer is often able to obtain needed social support only from his peers. Further, and perhaps more importantly, the reliving of stressful experiences helps the officer to get the trauma off his chest and allows others to see how difficult situations are handled, and also increases their stress awareness!

Social support appears to be one of the stronger factors in mitigating the strain consequences of job stress. Generally speaking, it seems to act as a buffer between job stress and strain. That is to say, men who have high social support from others in their work environment show few strain effects (Caplan, Cobb, French, Harrison and Pinneau, 1975). In fact, social support has been shown to condition the effects of job stress on cortisol, blood pressure, glucose, the number of cigarettes smoked, and the rate of quitting smoking (see Caplan, et. al., 1975). Again relating to the police subculture, the police peer group can and often does serve as a major source of social support for the individual officer.

As stated, one's peers can play a positive role in terms of stress reduction. However, there are negative factors in the police subculture which diminish the potential force for good. There is often an extreme competitiveness

between officers which is disruptive of good psychological functioning. Also, at times there is a fear to relate all to one's peers, fear of looking bad, or fear that officers might pass on damaging information which may hurt their career. It must be remembered that promotional opportunities in policing are poor and only a few advance up the ranks. This creates a sort of juggling for positions which hinders a true group cohesion.

Does exercise help reduce stress?

Although this specific question has received little research attention, a great deal of literature indirectly suggest that achieving physical fitness through regular systematic physical activity may reduce stress or mediate its effects. To begin with, there is evidence which suggests that habitual exercise produces a decreased susceptibility to cardiovascular incidents (e.g., Fox and Skinner, 1964). In fact, two recent studies (Paffenbarger and Hale, 1974; Kroener, 1973) strongly indicate that repeated bursts of strenuous exercise establish a plateau of protection against coronary mortality. In simple terms, exercise helps develop a collateral blood supply network which in an emergency, such as a blood clot, will provide an alternate pathway for blood flow.

Exercise may also benefit individuals psychologically, since through exercise the individual is able to unwind and release some built-up tension. The benefits suggested by the literature from regular exercise include greater relaxation, greater participation in family and social activities, improvement in work attitudes, and increased capacity for work and recreation (Kroener, 1973).

One caution concerning exercise: just being "physically fit" is not, by itself, adequate insurance against experiencing the health consequences of job stress. We mention this caution because there appears to be a tendency in policing to hit upon one answer in stress reduction, and to proceed as if it was the panacea, immediately installing or crusading for that technique as the answer. In the particular case of formalized physical fitness programs, it is just one technique, and one which we would consider a "down the line variable" (i.e., one that may have less payoff than some others for stress reduction in policing).

Given that policing is a high stress occupation, what can be done about it?

Though stress reduction may be accomplished in a myriad of ways, the various methods all fall within one of the following categories: eliminating the stressors, increasing the individual's stress coping ability, or providing the stressed individual with help (Kroes, in press). Although the following paragraphs discuss these three types of methods individually, one must bear in mind that every person is somewhat unique in his reaction to stress and no single method can be expected to work optimally for all individuals. Thus, what is most desirable is a systems approach combining various methods to meet the special needs of a particular department.

Of the three types of stress reduction methods, probably the most effective approach involves identifying and eliminating the job stressors. Although there are a number of ways to go about identifying stressors, one of the easiest involves using the "consultant" services of the rank and file officer. The officer on the street has built up a wealth of experience and intimately knows the stressors which impinge on him. By getting a group of experienced officers together to talk about stress problems, the most significant stressors can be identified. Once the major stressors are known, ideas need to be developed on how they may be eliminated. Since organizational change may be necessitated, the full cooperation of management is necessary in this process. It is also especially important to allow individual officers to participate in any decision about eliminating a stressor which directly affects their job should it be found that a particular stressor is "impossible" to eliminate, job rotation may be helpful. That is, personnel could be rotated on and off assignments so that they are faced with as little of the stressor as an individual's stress coping ability might be used in a comprehensive stress reduction program. In a practical sense, these techniques involve training in stress awareness, insights into self and others, and specific skill training. Since the advantages of training in stress awareness were discussed in some detail earlier, they will not be reiterated in the following discussion.

Most individuals have available a major untapped resource to help them cope with stress--themselves. Yet this resource will remain untapped as long as the individual is ignorant of how to use his full potential. Therefore, an officer needs training to understand his own reactions to various stimuli. Since the officer's job to a large extent involves interacting with people, he also needs training in what roles personality, motivation, cognition, emotion, fear, etc., have in affecting human behavior. Although it is unreasonable to expect an officer to become a fully trained behavioral scientist, there is a body of practical psychology that the officer needs to know and be trained in. Since there are college courses and instructors available around the country this training is readily available and should be considered.

Specific skills training differs from the above two mentioned approaches in increasing an individual's ability to cope with stress in that the officer is taught how to act and deal with specific situations. Training in dealing with events which are highly stressful and which the officer is very likely to encounter is especially called for. These events include family crisis situations, racial conflicts, and child tragedies. Through training, the officer's skills are improved and his overall stress level is decreased when he faces the situations, as he is somewhat desensitized to the events.

Another distinct type of specific skill training involves the learning of psychological processes pertinent to police work (such as human communication, group dynamics, and organizational behavior). Take the stress of administration for example. One way to better handle it is to know more about the human side of organizations. To do this specific training in group dynamics and organizational psychology would prove useful, as it would give the officers new awareness into the nature and dynamics involved in organizations. Another type of training would be toward developing improved communications skills, much of the friction in policing is a result of either police-citizen interaction or police-police administration interaction.

Training in direct relaxation techniques may also prove to be useful in a stress reduction. One of the more promising of these techniques involves the use of biofeedback. As the name implies, the individual is given feedback on his biological processes. From this feedback, he may learn to relax and eliminate problems such as tension, anxiety and migraine headaches. Another relaxation technique of some benefit to policing is neuromuscular relaxation. Here the officer is also trained in how to relax his body, but in this case by conscious effort to detect and subsequently control residual muscle tension (without the aid of monitoring devices). There are more exotic but no less effective relaxation techniques such as yoga, transcendental meditation and the like. All have one thing in common--they help the individual become more aware of himself and his body and help him to physically relax. As suggested earlier, the third category of stress reduction techniques includes those methods which are aimed at providing the stressed individual with help. Either an acute situational crisis or a slow buildup of job-related strain to a chronic and dangerous level can cause a police officer to need professional help. In most communities there are mental health professionals available, yet these professionals are often ill prepared to deal with police personnel because of their lack of familiarity with the nature of police work and the pressures a police officer experiences. Therefore, it is advisable to have a full-time mental health worker on the police force. This arrangement has several advantages. For one, the consultant gets to know on an intimate level the workings of the police force and the problems involved. For another, the men learn to trust and find it easier to discuss their problems and the problems of their families. The full-time health consultant also is more able to provide viable inputs to the department on stress matters.

Stressed officers may also be provided with help in more informal ways. Social support, as mentioned earlier, is one of the more important avenues available for reducing stress. A supportive supervisor is a tremendous resource to his men in times of trouble. Social support from the family is also extremely important and can be encouraged in a number of ways. One is simply to encourage a get-together between experienced police officers' wives and the wives of new recruits. The senior wives can relate their experiences, and in so doing begin to prepare the younger wives for what is to be expected and the difficult periods their husbands may go through.

REFERENCES

- Caplan, R.D., Cobb, S. French, J.R.P., Jr., Harrison, R.V. & Pinneau, S.R., Jr. Job demands and worker health, Contract No. HSM-99-72-61, U.S. Department of Health, Education and Welfare, HEW Publication No. (NIOSH), 1975.
- Caplan, R.D. & French, J.R.P., Jr. Final Report to NASA. Unpublished manuscript, University of Michigan, 1968.
- Fox, S.M. III & Skinner, J.S. Physical activity and cardiovascular health. American Journal of Cardiology, 1964, 14, 731-735.
- Froberg, J.E. & Akerstedt, T. Night and shiftwork effects on health and well being. In Levi, L. (Ed.) Society, Stress and Disease: Working Life, Vol. 4, London: Oxford University, (in press).
- Guralnick, L. Mortality by occupation and cause of death among men 20-64 years of age, United States 1950, Vital Statistics--Special Reports, 1963, 53.
- House, J.S. The relationship of intrinsic and extrinsic work motivations to occupational stress and coronary heart disease risk (Doctoral dissertation, University of Michigan 1972). Dissertation Abstracts International, 1972, 33, 2514-A. University Microfilms No. 72-29094).
- House, J. S. Occupational stress and coronary heart disease: a review and theoretical intergration, In J. O'Toole (Ed.) Work and the Quality of Life, Cambridge, Mass.: M.I.T. Press, 1974.
- Jellinek, E.M. Phases of alcohol addiction. Quarterly Journal of Studies in Alcohol, 1952, 13, 673-678.
- Jellinek, E.M. The disease concept of alcoholism. New Haven, Hillside Press, 1960.
- Kliesmet, R.B. Job stress in policing. Shield and Star (a publication of the Milwaukee Police Brotherhood), 1974, 3, (1), 4-8.
- Kroes, W.H., Margolis, B.L., & Hurrell, J.J., Jr. Job stress in Policemen. Journal of Police Science and Administration, 1974, 2 (2), 145-155.
- Kroes, W.H. Society's victim--the policeman. Springfield, Charles V. Thomas, 1976.
- Margolis, B.L., Kroes, W.H., & Quinn, R.P. Job stress: An unlisted occupational hazard. Journal of Occupational Medicine, 1974, 16 (10) 659-661.
- Margolis, B.L. & Kroes, W.H. Occupational stress and strain, Occupational Mental Health, 1973, 2, 4-6.
- McQuade, W. What stress can do to you. Fortune, 1972.

Mott, P.E., Mann, C.F. & McLaughlin, Q. Shiftwork. Ann Arbor, University of Michigan Press, 1965.

Paffenbarger, R.S. & Hale, W.E. Work activity and coronary heart mortality. New England Journal of Medicine, 1975, 292 (11), 545-549.

Russek, H.I. & Zohman, B. Relative significance of heredity, diet, and occupational stress in coronary heart disease of young adults. American Journal of Medical Science, 1958, 235, 266-277.

Sales, S. M. & House, J. Job dissatisfaction as a possible risk factor in coronary heart disease. Journal of Chronic Diseases, 1971, 23, 861-873.

APPENDIX A

Bruce B. Barker
Chief, Littleton and Boxborough Police Departments
Littleton, Massachusetts 01460

Stanley L. Brodsky, Ph.D.
Department of Psychology
University of Alabama
Box 2968
University, Alabama 35486

Terry Eisenberg, Ph.D.
Patrolman, San Jose Police Department
201 W. Mission Street
San Jose, California 95110

John R. P. French, Jr., Ph.D.
Program Director, Institute for Social Research
University of Michigan
Ann Arbor, Michigan 48106

Mark Frustenberg
Director of Personnel
Boston Police Department
154 Berkeley Street
Boston, Massachusetts 02116

Carl Goodin
Chief, Cincinnati Police Department
310 Lincoln Park Drive
Cincinnati, Ohio 45214

Judith M. Grencik, Ph.D.
Department of Criminal Justice
California State University
Long Beach, California 90840

Neal Q. Herrick
Director, Ohio Quality Work Project
8 East Long Street, 9th Floor
Columbus, Ohio 43215

Joseph J. Hurrell, Jr.
National Institute for Occupational Safety and Health
1014 Broadway
Cincinnati, Ohio 45202

Jerome H. Jacobi, M.D.
816 Hollywood Boulevard
Los Angeles, California 90069

George L. Kelling, Ph. D.
Director of Evaluation, Police Foundation
1734 East 63rd Street, Suite 104
Kansas City, Missouri 64104

George L. Kirkham, Ph.D.
School of Criminology
Florida State University
Tallahassee, Florida 32306

William H. Kroes, Ph.D.
National Institute for Occupational Safety and Health
1014 Broadway
Cincinnati, Ohio 45202

Robert M. Mills, Ph.D.
Department of Criminal Justice
French Hall, Room 402
University of Cincinnati
Cincinnati, Ohio 45221

Lourn Phelps
Department of Criminal Justice
University of Nevada
Reno, Nevada 89507

Martin Reiser, Ed.D.
Department Psychologist
Los Angeles Police Department
150 N. Los Angeles Street
Los Angeles, California 90012

Wayne Richard, Ph.D.
Dede Wallace Center
700 Craighead Avenue
Nashville, Tennessee 37204

Michael Roberts, Ph.D.
Director of Psychological Services
San Jose Police Department
201 W. Mission Street
San Jose, California 95110

Cindy Schwartz, Ph.D.
Law Enforcement Training and Research Associates, Inc.
1321 20th Avenue
San Francisco, California 94122

Jeffery Schwartz, Ph.D.
Law Enforcement Training and Research Associates, Inc.
1321 20th Avenue
San Francisco, California 94122

END