

THE INDUSTRIAL DEFENSE PROGRAM OF THE
DEPARTMENT OF DEFENSE, WITH SPECIAL REFERENCE
TO ARMY PERSONNEL ADMINISTRATION ASPECTS THEREOF

Thesis for the Degree of M. S.
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Albert J. Grazioli

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THESIS



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by

Albert J. Grazioli

AN ABSTRACT

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APPROVED

Leon W. ...
Chairman

Raymond T. ...
Member

James L. Le Grande
Member

ABSTRACT

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The outcome of two world wars has been decided by the weight of American industrial production in support of a determined fighting force. From the end of World War II until the present, the United States has been faced with some form of international tension. There are conflicting opinions as to the part that American industry will play in the event of a third world war. There is no dispute, however, as to its importance to the national defense posture. Our survival as a nation will depend upon our ability to cope with an attack and to recover from its effects.

Recognizing the need for adequate defense measures for industry, certain governmental agencies have been assigned the task of assisting defense production facilities in preparing defense programs. This study is concerned with the Industrial Defense Program of the Department of Defense. Acceptance of any recommendations made under this program is strictly on a voluntary basis. Therefore, the effectiveness of this program depends on its acceptance by managements. The purpose of this study is to determine

those factors which make the Industrial Defense Program more acceptable.

In order to determine those areas which are in need of improvement and to recommend constructive measures to be taken, two methods have been pursued essentially. The first is a historical legal approach whereby written materials have been reviewed concerning the origin and development of the program. The second method is to use interviews in two army areas. Representatives of approximately 350 key facilities and 50 civilian and military officers connected with the Industrial Defense Program have been interviewed.

Findings indicate that for the most part the Industrial Defense Program is well-planned. There are a few areas which are not well-defined nor carried out. There is a general lack of knowledge at all levels concerning the mission, purpose, and goals of the Industrial Defense Program. This lack of knowledge hampers the selection, training, and rating of survey officers. Selection of unqualified survey officers has resulted in a reluctance on the part of industry to accept recommendations.

Concerning the area of training for personnel of key facilities, findings indicate that this training is well-planned, well-instructed, and well-received. Training for survey personnel is negligent in some respects. For example, survey officers are not learning how to carry out

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their primary responsibilities of education and selling in the most effective manner.

The reaction of industry to the Industrial Defense Program is shaped by both internal and external factors. The major external factor is the survey officer and how well he performs his mission. External factors are (1) the attitude of management toward security, (2) size and location of facility, (3) previous experience with disaster, (4) type of product manufactured, and (5) the cost involved in effecting recommendations made. Industrial defense measures are more attractive to industry when translated into profit and loss factors for management.

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CHAPTER I

THE PROBLEM, SCOPE, AND METHOD

From the end of World War II until the present, the United States has been faced with some form of international tension. Since 1945, there have been at least twenty different "conflicts" of one kind or another--China, Indonesia, Israeli-Arab, Korea, Algeria, Hungary, Cuba, and Vietnam, to mention only a few.

The Soviet Union has threatened to "crush" the United States and its Allies. China now has atomic weapons and the world situation seems perilous. In a speech on August 9, 1961, Khrushchev boasted of a "superbomb" which would be five times as powerful as any hydrogen bomb in the United States' arsenal, twenty times as powerful as the biggest warheads on United States' missiles, 5,000 times as powerful as the atom bomb that hit Hiroshima. He said that Soviet scientists were prepared to make this bomb--equal to 100 million tons of TNT.¹

In spite of extensive publicity by all news media, the American people cannot visualize the effects which large-scale air attack could have. In the past, the crippling or

¹"Khrushchev's Threats--One More in a Long Line," U. S. News and World Report (August 21, 1961).

elimination of our home front production was an almost impossible feat for an enemy. Today it is not. Today, a single flight of enemy planes could carry more destruction than fell on all of Britain during World War II.² The explosive power of nuclear weapons makes the conventional type of weapons used during World War II seem almost harmless toys in the hands of a child.

I. THE PROBLEM

The outcome of two world wars has been decided by the weight of American industrial production in support of a determined fighting force. The possibility of a thermo-nuclear war, however, has raised questions as to the part American industry will play in the event of a third world war. A Rockefeller Panel Report tells of the changed significance of industrial potential.³ Previously, massive production of armament was necessary during the course of a war. The destructiveness of weapons was relatively limited and it was not feasible to stockpile a sufficient

²Governor Val Peterson, "The H-Bomb and American Industry," Businessmen's Conference on Industry Defense in the Atomic Age (Washington: Department of Manufacture, Chamber of Commerce of the United States, 1956), p. 13.

³Rockefeller Brothers Fund, Prospect for America. The Rockefeller Panel Reports (Garden City, N. Y.: Doubleday and Company, Inc., 1961), p. 100.

quantity prior to the outbreak of hostilities. An attack on industrial facilities, therefore, could have a serious effect on the outcome of a war. Because of the rapid and overwhelming destructiveness of thermonuclear weapons, a major power would be able to damage seriously production facilities in a short time with relatively few weapons. The Rockefeller Panel concludes, therefore, that industrial strength is a military asset "only to the extent that it can provide armaments before the outbreak of war."⁴

On the other hand, Dr. Lloyd V. Berkner, in a statement before a congressional committee, states that our most critical problem is maintaining industrial effectiveness after an attack.⁵ Despite the controversy over whether production facilities will be most vital before or after an attack, there seems to be no dispute as to their importance to the national defense posture. Both civilian and military spokesmen agree that our survival as a nation will depend upon our ability to cope with an attack and to

⁴ Ibid.

⁵ U. S. Congress, House of Representatives, Committee on Government Operations, "Twenty-fourth Intermediate Report of the Committee on Government Operations," Civil Defense for National Survival. 84th Congress, 2nd Session, House Report 2946, July 27, 1956 (Washington: Government Printing Office, 1956). Statement of Dr. Lloyd V. Berkner, President of Associated Universities, Inc., and member of Project East River, p. 97.

recover from its effects. If industry's major role is in the recovery state, then it must be capable of functioning in this period. In any future war, it is probable that an enemy would attempt to destroy or cripple the production capacity as well as the military capabilities of the United States and to wage direct attacks against civilian communities to disrupt support of the war effort and recovery.⁶

Few would dispute the fact that a thermonuclear war would be a catastrophe. To the uninformed, such a war presents visions of total destruction. To those who have devoted much time and study to the problem, however, the outlook is not quite so bleak. A catastrophe, yes, but a limited one dependent upon prior defensive measures taken. A RAND Corporation study suggests that a feasible combination of military and non-military measures can "come pretty close to preserving a reasonable semblance of our pre-war society."⁷ The Rockefeller Panel, in discussing the ability of modern weapons to disrupt production facilities, has stressed that industry will be rendered useless unless massive and reliable defense measures are taken.⁸ Testimony

⁶U. S. Code Congressional Service, No. 12, 1950-1951, pp. 4982 and 4983.

⁷Herman Kahn, "How Many Can Be Saved?" Bulletin of the Atomic Scientists, Vol. XV, No. 1, January 1959 (Chicago: Educational Foundation for Nuclear Science, Inc.), p. 30.

⁸Rockefeller Brothers Fund, op. cit. (Italics mine).

before a congressional subcommittee appears unanimous in supporting the contention that both military and non-military defense measures are necessary in order to insure our survival.⁹

In addition to the necessity of non-military defense measures for survival, there is another important factor to be considered. The national policy of the United States rests on a deterrent strategy. This deterrent strategy cannot be based entirely on military power; we must combine military power with a sound and effective non-military defense.¹⁰ Deterrence of attack will depend in large measure upon calculations of risk versus success.¹¹ These calculations would take into consideration not only our retaliatory capability but also the damage that could be inflicted on our industrial might. If a would-be aggressor has a much higher degree of non-military defense protection than we,

⁹U. S. Congress, House of Representatives, Committee on Government Operations, Civil Defense for National Survival. Hearings before a subcommittee of the Committee on Government Operations, 84th Congress, 2nd Session, May and June 1956 (Washington: Government Printing Office, 1956); see letter from H. Christian Sonne, National Planning Association, pp. 3053-3060; statement of General Maxwell Taylor, p. 439; statement of Dr. William H. Stead, National Planning Association, p. 1081.

¹⁰U. S. Congress, "Twenty-fourth Intermediate Report of the Committee on Government Operations," op. cit., statement of Dr. Lloyd V. Berkner.

¹¹Kahn, op. cit., p. 31.

then the damage he can inflict on us would be far greater than that which we can inflict in retaliation. Industrial targets that can quickly recover after an attack are much less attractive to the enemy than targets that have no protection. The ability of our nation to withstand attack through protection of vital industries can become an increasingly important deterrent.

The best possible solution would be, of course, to prevent war. However desirous of peace, we cannot ignore the possibility that all efforts to achieve a peaceful solution will fail. Even a disarmament program cannot exclude the possibility of accidental or premeditated war. Even with a disarmament agreement, we cannot be assured that such an agreement would not be repudiated or violated.¹² In the event of an attack, industrial and population centers probably would be second priority targets, the logical first priority target presumably being the Strategic Air Force.¹³ The National Plan for Civil Defense and Defense Mobilization recognizes the probable targets of a potential enemy as military bases of our nuclear retaliatory forces, other

¹²Ibid., p. 33.

¹³Ramsey D. Potts, Jr., "National Policy and Air Defense," Bulletin of the Atomic Scientists, Special Issue--Project East River--The Strategy of Civil Defense, Vol. IX, No. 7, September 1953 (Chicago: Educational Foundation for Nuclear Science, Inc.), p. 255.

important military installations, and centers of government, industry, and population.¹⁴

In spite of all the evidence supporting non-military defense measures, American industry is extremely vulnerable to attack. Ralph Lapp refers to our "industrial glass jaw".¹⁵ Two-fifths of our total industrial capacity is concentrated in fifteen prime target areas. Unless the effects of the first all-out attack can be blunted, our key industrial concentrations could be so badly crippled that we might lose the capability to wage the later stages of a war.¹⁶ Many plants not completely destroyed by an atomic blast would be gutted by fires, choked with rubble, or contaminated by radioactive fallout so that it would take critical weeks or months to get them back into production.

Industry must be prepared to survive attack by nuclear, biological, and chemical weapons, as well as attack by sabotage and incendiary and high explosive weapons. The threat

¹⁴Executive Office of the President, Office of Civil and Defense Mobilization, The National Plan for Civil Defense and Defense Mobilization, Annex 1, Planning Basis (June 1959).

¹⁵Ralph E. Lapp, Editorial, "Eight Years Later," Bulletin of the Atomic Scientists, Vol. IX, No. 7, September 1953 (Chicago: Educational Foundation for Nuclear Science, Inc.), p. 235.

¹⁶Virgil L. Couch, "The National Program for Survival and Continuity of Industry," Industrial Security, Vol. 4, No. 3 (Washington: American Society for Industrial Security, July 1960), pp. 7-8.

of atomic attack is by no means the only danger with which industrial management must concern itself. The threat of sabotage, espionage, and subversion must be recognized. If industry cannot be made aware of the threat to their facilities, and do not undertake the necessary defense measures, an enemy could destroy our key facilities leaving us without support in a war or recovery effort. Governor Val Peterson gives his formula for losing a short war, "To lose a short war, you lose enough productive people and plants--quickly enough--to demoralize the rest of the nation's defense production and destroy the nation's will to live."¹⁷

Recognizing the need for adequate defense measures for industry, certain governmental agencies have been assigned the task of assisting defense production facilities in the preparation of defense programs. This study is concerned with the Industrial Defense Program of the Department of Defense. At the outset, it must be understood that for all facilities, other than those having government contracts, acceptance of any recommendations made under this program is strictly on a voluntary basis. Therefore, the effectiveness of the program depends on its acceptance by managements. The purpose of this research is to determine those factors which will make the Industrial Defense Program

¹⁷Governor Val Peterson, op. cit.

more acceptable to industry. Certain basic assumptions are necessary before proceeding with this study. We must assume that:

1. Soviet Russia possesses weapons in sufficient quantity and delivery means adequate to launch a sudden massive attack against the United States using nuclear, biological, and chemical munitions.

2. There is no effective military defense against successful delivery of mass-destruction weapons. (Air Force estimates that at least 70 per cent of any enemy bomber force attacking the United States would get through to its targets.)¹⁸

3. Industrial production is vital to the security and survival of the United States.

4. Industry will be one of the first targets of enemy bombers and missiles.

5. Aside from direct attack, sabotage and espionage could have devastating effects upon industrial production.

6. Victory, in the event of war, could well rest with the nation whose industrial facilities could resume essential production in the shortest time.

¹⁸Marshall K. Wood, "Industry Must Prepare for Atomic Attack," Harvard Business Review (May-June 1955), p. 117.

II. SCOPE AND METHOD OF RESEARCH

Many factors have determined the scope and method of this research. Written material concerning the Industrial Defense Program is extremely limited and consists mainly of army regulations, Department of Defense directives, student reference texts of the U. S. Army Military Police School, excerpts from speeches, and magazine articles.

Some aspects of the Industrial Defense Program are classified. However, the findings of this study are not based on classified information. It is the writer's belief that the revelation of classified material would not alter or refute the findings.

The Key Facilities List, which designates the facilities coming within the scope of the Department of Defense Industrial Defense Program, is a registered, classified document. Its distribution is rigidly controlled. Therefore, the identity of facilities on this list could not be released for inclusion in this study.

It may appear that this study reveals mainly the shortcomings and neglects the merits of the program. This is because of the basic purpose of the study: to determine the factors which make for success or non-success, in terms of acceptance or non-acceptance by management. In order to determine those areas which are in need of improvement and

to recommend constructive measures to be taken to improve the degree of acceptance by industry, the writer has pursued essentially two methods. The first is a historical legal approach whereby written materials have been reviewed concerning the origin and development of the program. The second method is to use interviews in two army areas.

This study is limited to the Fifth Army Area with headquarters in Chicago and the Sixth Army Area with headquarters in San Francisco. This study is current to December 31, 1964. Fifth Army is the largest army area in the United States and encompasses thirteen states. This area was selected because of the number of its key facilities and geographic proximity to the residence of the investigator in order to hold down interviewing costs. Study of the Fifth Army Area was hampered by the limitations already mentioned. It was not possible to obtain a copy of the Key Facilities List in order to submit questionnaires or to arrange interviews at each key facility. Nor was it possible to obtain a scientifically adequate random sample by means of the Key Facilities List. Contacts with key facilities in the Fifth Army Area were made through the military representative in accordance with army regulations.

Through the cooperation of Fifth Army officials, however, it was possible to accompany survey officers while they were making surveys and to contact industrial management

in this manner.¹⁹ In addition, personal acquaintance with personnel in other key facilities enabled the writer to obtain valuable assistance and information. A total of thirty facility representatives in the Fifth Army Area were interviewed. Interviews were also conducted with approximately twenty survey officers, both civilian and military, officers who had previously held assignments as survey officers, and personnel in charge of the program at various army levels. Permission was also obtained to review the files of over five hundred key facilities. These files contained the completed survey reports for two fiscal years. Information gained from these files and personal interviews followed up by extensive correspondence, gave a picture of the degree of response to the program, actions taken to comply with recommendations, and reasons for non-compliance.

The Sixth Army Area covers the eight far western states. Study in this area was conducted while the writer was assigned as a survey officer at Sixth Army Headquarters. A survey officer is responsible for:

1. conducting industrial defense surveys to assess vulnerability to acts of sabotage and espionage.

¹⁹The formal title for survey officers is Facilities Protection Officer but the more convenient term "survey officer" will be used throughout this study.

2. rendering advice and guidance to management concerning measures to minimize damage resulting from enemy attacks and natural disasters.
3. rendering advice and guidance to management concerning measures for the prevention of sabotage and espionage.
4. coordinating with other governmental agencies which have an industrial defense related interest in the plant or its personnel.

Study of this area covered a period of two years. During this period the writer conducted interviews with personnel in over three hundred of the key facilities in this army area. Facilities covered were representative of every size and of every type of product or service on the Key Facilities List. It was explained to each facility that the writer was interested in learning about deficiencies in the program and in determining how the program could be improved. The main areas covered were:²⁰

A. Information and Education Concerning the Industrial Defense Program.

1. Objectives of program
2. Necessity for program
3. Why the program is voluntary

²⁰ A sample interview schedule is attached as Appendix B.

4. Survey and survey forms
5. Suggestions or criticisms

B. Conduct of Survey

1. Survey officer
2. Suggestions or recommendations

C. Survey Recommendations

1. Factors that influenced the decision to
accept recommendations
2. Factors that influenced the decision to
reject recommendations
3. Effect of cost

D. Suggestions or Criticisms Concerning Overall

Operation of Program

In addition to information obtained through interviews with industry in the Sixth Army Area, approximately twenty military officers who have been connected with industrial defense either as instructors, survey officers, or staff supervisors have been interviewed.

Due to the concentration of industrial facilities in the Chicago, Detroit, and West Coast areas, generalizations based on the status of the Industrial Defense Program in these areas are offered for consideration concerning the national status of the program.

The writer has assured sources of information that neither they nor the facilities they represent would be

identified. It is emphasized that the primary purpose of this study is to determine deficiencies of the program and to make recommendations for improvement. It is not the intent of this study to criticize individuals or facilities for their failure either to adopt adequate industrial defense measures in the case of management, or to sell the program effectively in the case of military departments.

In order to present adequately the factors affecting the acceptance of the Industrial Defense Program of the Department of Defense, this study is divided into four major parts: (1) Historical Background, (2) Organization for Industrial Defense, (3) Findings, and (4) Recommendations.

Chapter II gives a brief review of the industrial defense experiences of Europe and Japan during World War II; preparations taken by Russia; and experiences of the United States in the fields of industrial espionage and sabotage.

Chapter III discusses the organization for industrial defense, program operation, and assigned responsibilities. This chapter is concerned with the prescribed operation of the program.

Chapter IV discusses the operation of the program as it is done in practice and will present the findings.

Chapter V gives the recommendations and conclusions made as a result of this study.

III. DEFINITIONS OF TERMS USED²⁰

For the purposes of this study, the following definitions will prove useful to the reader:

Non-Military Defense. All measures taken by civilian agencies to (1) minimize the effects of enemy attacks on population, cities, industries, and government, (2) assure continuity of essential production, government functions, and community services in case of attack, and (3) restore essential industrial, governmental, and community facilities after attack. There are four major components of non-military defense: reduction of urban vulnerability, civil defense, industrial defense, and continuity of government.

Industrial Defense refers to all non-military measures to assure the uninterrupted productive capability of vital facilities and attendant resources essential to mobilization. These measures are designed to prevent and minimize loss or hazard and to provide for the rapid restoration of production after any damage.

Internal security relates to the prevention of action against United States resources, industries, and institutions; and the protection of life and property, in the event of a

²⁰All definitions used are taken from Army Regulation (AR) 320-5, "Dictionary of United States Army Terms," November 1958, and Department of the Army (DA) Pamphlet 39-3, "Effects of Nuclear Weapons," May 1957.

domestic emergency, in peace or war, by the employment of all measures other than military defense.

Industrial security is that portion of internal security which is concerned with the protection of classified defense information in the hands of United States industry.

Physical security (plant protection) is that portion of industrial defense which is concerned with the safeguarding of resources, premises, utilities, and industrial facilities by physical measures, such as guards, fire protection measures, fences, lighting, designation of critical areas and other similar means.

Key Facilities List (KFL) is a classified list of selected industrial facilities, utilities, and government-owned installations located within the Continental United States which are of outstanding importance in support of wartime production programs of the Department of Defense.

Target. Any facility or group of facilities which, because of large population concentration and/or vital nature of the products or services to national defense, is presumed to be a likely mark for enemy attack.

Blast Damage. Damage caused by the air blast wave of a nuclear weapon detonation, as distinct from thermal (heat) damage and nuclear radiation injuries.

Nuclear radiation. The radiations emitted from the

nuclei of the radioactive atoms in the contaminant.

Thermal radiation. The heat energy radiated from the fireball.

Fallout. The process or phenomenon of the fall back to the earth's surface of particles contaminated with radioactive material from a surface or sub-surface weapon detonation. (The term is also applied in a collective sense to contaminated particulate matter itself.)

Fireball. The luminous, intensely hot mass of gas and fission products formed at the time of the nuclear detonation. It emits nuclear radiation, thermal radiation, and brilliant light.

Firestorm. Stationary mass fire generally in built up urban areas generating strong, in-rushing winds from all sides which keep fires from spreading while adding fresh oxygen which increases its intensity.

Kiloton weapon. A nuclear weapon having an energy release equal to 1,000 tons of TNT (the 1945 Hiroshima nuclear bomb had a strength of 20 kilotons).

Megaton. A unit of measurement of Nuclear weapon yield equivalent to one million tons of TNT or 1,000 kilotons.

CHAPTER II

HISTORICAL BACKGROUND

It is somewhat difficult for the American people to accept the reality of our peril in the event of nuclear war. In the past we have felt relatively secure shielded by wide oceans and beyond the reach of conventional weapons. Other more exposed nations have had to learn to live over centuries with the awareness that their existence might be imperiled by foreign attacks.¹ American industry has not been confronted with bombing attacks and with the exception of incidents of sabotage and espionage, industry has little in the way of past experience to serve as guidelines for preparedness. Despite the difference in destructiveness between conventional and nuclear warfare, a review of the experiences of other countries in previous wars will prove useful. What damage was caused to industry by espionage, sabotage, and aerial attack, and what protective measures were taken?

I. GERMANY

Germany began industrial defense preparations in the early 1930's. On the eve of the invasion of Poland, Germany

¹Rockefeller Brothers Fund, Prospect for America. Rockefeller Panel Reports (Garden City, N. Y.: Doubleday and Company, Inc., 1961), pp. 96-97.

was seriously dependent on foreign sources for almost all the basic materials of war. Only in coal was Germany reasonably self-sufficient. Even in coal she was vulnerable because most of the coal deposits were in the border areas of the Ruhr, Saar, and Silesia. About eighty per cent of the steel capacity of Germany was also located in this area.² Prior to 1933, the German aircraft industry was of little consequence. With Hitler's rise to power, the Nazi government reorganized the industry. An immediate increase in production of existing types of aircraft was ordered to be accompanied by new designs for military aircraft. The second step was to create plant capacity sufficient to support an air force inferior to none. The new construction in the industry emphasized protection against air attack, dispersal, separation of buildings within a plant, and shelters for workers.³ A series of short, victorious conquests were expected. Germany was not prepared for a prolonged war in 1939.

The National Industries Group, a department of the Ministry of Economics, was responsible for factory air-raid

²Stanford Research Institute, Impact of Air Attack in World War II: Selected Data for Civil Defense Planning. Division II: Effects on the General Economy, Vol. 1, Economic Effects--Germany. Part One. (Prepared for FCDA, Washington, D. C., June, 1953), p. 7.

³The United States Strategic Bombing Survey, Over-all Report (European War), September 30, 1945, p. 11.

protection measures. Each of its seven sections had supervision over a number of specific and related industries. The lowest direct representative had under his immediate control only as many plants as he could efficiently supervise.⁴

Industrial defense measures taken by Germany consisted of air-raid protection units, dispersal of factories, camouflage and concealment, air-raid shelters, factory fire-fighting organizations, plant medical services, and reconstruction and repair crews. The basic air-raid protection organization for small factories was a section composed of fire-watchers, fire-fighters, spotters, order guards, plant guards, messengers, gas-detection squads, decontamination squads, medical and first-aid squads, veterinary squads, and working crews.⁵

Initial air-raid shelters which were either reinforced basements or splinter-proof concrete "tube" bunkers proved inadequate. They were supplanted by shelters with thicker, reinforced ceilings, sometimes as much as twelve feet thick.⁶ Shelter protection for workers was often better than for their families at home. Blast walls, eighteen inches thick of loose brick, were erected around vital machinery in most

⁴Stanford Research Institute, op. cit., p. 25.

⁵Ibid.

⁶Ibid., p. 26.

plants and proved surprisingly effective in preventing damage except from direct hits.⁷

The German air-raid warning system which was changed from time to time, worked efficiently. Special twelve- and six-minute warnings were transmitted by confidential telephone to a selected list of war industries. Industries usually continued production until the six-minute warning was issued.⁸

Overall, industrial plants in Germany had excellent factory air-raid protection. Close cooperation was maintained with local civilian defense authorities, not only for the exchange of warnings and information, but for the rendering of assistance when it was required. Mutual aid was established between factory and municipality rather than between factory and factory.⁹ The reconstruction and repair crews were extremely efficient and plants were rebuilt considerably faster than allied intelligence considered possible.¹⁰

Plant utilities were especially vulnerable to attack.

⁷Ibid., p. 27.

⁸Ibid., Part Two, p. 352.

⁹The United States Strategic Bombing Survey, op. cit., p. 103.

¹⁰Department of Defense, Industry Guide to Planning for Restoration of Production (Washington: Government Printing Office, September, 1954), p. 24.

Lines were placed in underground trenches and suffered severe damage. Heavy machine tools were hard to damage. Buildings used to house such machines were difficult to destroy and separate roofs or covers were provided for individual machines to prevent weather damage if a roof was destroyed. Light machine tools were vulnerable to damage caused by fragmentation, debris, fire, and weather.¹¹ Incendiary bombs were not as successful against industries as they were against residential areas. This was because of the construction of industrial buildings and the removal of combustible material from plants.¹²

Experience in Germany showed that vigorous protective measures such as dispersal, construction of underground plants, bombproofing and erection of blast walls around vital machinery, and the rapid restoration and replacement of damaged or destroyed equipment, enabled production to return to adequate levels before stocks were completely consumed.¹³ Detailed analysis of production and trade in ten German cities that were attacked in 1944 showed that while production received a moderate setback after an air raid, it recovered substantially within a relatively few weeks. In fact, Germany's war production reached its

¹¹U. S. Strategic Bombing Survey, op. cit., pp. 91-92.

¹²Ibid., p. 93.

¹³Ibid., pp. 3-4 and 29.

highest level in the summer of 1944 when the main air attack had done its worst.¹⁴ There were no successful attacks on German underground installations in spite of positive knowledge of their location and unrelenting precision bombing by American and Allied air power.¹⁵

Hans Rumpf attributes the astonishing powers of resistance by German industry to modernization of industrial equipment, development of rationalized production methods, technical training, propaganda, production bonuses, and the self-sacrifice of the German working people. To attribute the success of industry to the Nazi police system, he states, is a gross oversimplification.¹⁶

In spite of fairly effective defense measures against a direct attack, it would appear that protective measures against sabotage and espionage in European countries overrun by Germany left much to be desired. In February of 1941, Russia was supposedly at peace with Germany. Yet in that month Moscow dispatched secret orders for all Communist cells in Germany to ready themselves for action.

¹⁴Hans Rumpf, The Bombing of Germany. Translated by Edward Fitzgerald. First Edition (New York: Holt, Rinehart and Winston, 1953), p. 167.

¹⁵Department of Defense, Underground Plants for Industry (Washington: Government Printing Office, January, 1956).

¹⁶Rumpf, op. cit., p. 168.

Four months later, Hitler turned on Russia and immediately acts of sabotage began. Two munitions works were blown up in Hungary, an oil refinery was destroyed in France, a power plant was blasted in Holland, and vital strikes were called in Belgium, Rumania, and Norway. In spite of the fact that all known and suspected Communists were rounded up, sabotage continued. Damage was wrought on the Ploesti oil fields in Rumania, the copper and bauxite mines in Yugoslavia, the Skoda works in Czechoslovakia. In 1942, the Forback power plant, one of the largest in Germany was made useless by an "accident".¹⁷

II. GREAT BRITAIN

Overall civil defense planning in Great Britain prior to and during World War II was a continuous process which passed through three distinct phases.¹⁸ Following World War I until the Spring of 1935, planning was conducted in secret by the top strata of government. The second phase began with the creation of the Air Raid Precautions Department at the Home Office in 1935 and ended with the Munich

¹⁷Fendall Yerxa and Ogden R. Reid, "Vital Plants Marked for Destruction in Event of U. S.-Soviet Showdown," The Threat of Red Sabotage. Reprinted from the New York Herald Tribune (Fourth Printing, June 1951), p. 7.

¹⁸Terence H. O'Brien, Civil Defence (United Kingdom Civil Series. Edited by W. H. Hancock. London: Her Majesty's Stationery Office and Longmans, Green and Co., 1955), p. 5.

crisis. During this time, plans begin to receive concrete application by a wider circle of central and local authorities who, in turn, began to involve the general public. The third phase began with the Munich crisis in 1938 and continued through the war. At this time, civil defense was placed on equal footing with other Defence departments and a cabinet minister was given this responsibility.

Post World War I to Spring 1935

Planning for vital industries during this phase was meager. The Cabinet, the Committee of Imperial Defence, and its subcommittees conducted planning sessions in secret. The Air Raid Precautions Committee's first report in 1925 recognized the vulnerability of industry in all of Great Britain, and especially in London. At the outset, British planners arrived at two conclusions: (1) organizing defense for industry should be regarded as a separate problem from organizing elsewhere, and (2) much variety of method in organizing of individual branches and units of industry should be allowed.¹⁹

From 1925 to 1935, consideration was given to utilities, transportation, docks, water, and gas. A practical scheme for an emergency telephone service had been produced, investigations into London's gas supply had taken place,

¹⁹Ibid., pp. 73-74.

and a plan for protecting London's docks was being completed in detail. Management was asked to take protective measures. Consultations with management were followed by confidential instructions and pamphlets for guidance. Action was voluntary.²⁰

1935 to 1938

This phase was one of frustration in endeavor. It was difficult to interest either the public or employer in civil defense. Any attempts to arouse interest were labeled as "war-mongering." In 1935, the Air Raid Precautions Department was created at the Home Office.²¹ The "First Circular" in 1935 invited private employers to cooperate with the government in creating A.R.P. machinery. Again, the offer was on a voluntary basis to respond to a challenge to share in a new kind of war service. Italy's attack on Abyssinia in the Fall of 1935 made it conceivable that Britain would be involved in war.²²

First consideration was given to water supply, gas, electricity, sewage services, and communications. Consultations were now open instead of secret and the Department extended its consultations and advice to industrial and

²⁰Ibid., pp. 41 and 74.

²¹The term "Air Raid Precautions" will hereafter be referred to as A.R.P.

²²O'Brien, op. cit., pp. 56 and 89.

commercial firms. Every factory employing more than 100 persons was urged to prepare a miniature A.R.P. scheme to include first aid, decontamination, and fire prevention. Firms were encouraged to become as independent as possible of local authority organization without overlooking the need to coordinate plans. In March 1936 the Committee of Imperial Defence approved the appointment of a subcommittee of the Home Defence Committee to investigate and coordinate all methods of protecting "vital points". These comprised factories and other places of special war importance. Methods were to cover not only passive defense but also active defense and the problem of location in relation to defense. The inquiries were conducted by a relatively few inspecting officers in conjunction with the A.R.P. Department.²³

The first approach to industry by the A.R.P. Department was made through the Federation of British Industries, Chamber of Commerce, and similar bodies. A general presentation of the problem was followed by specialized study and advice with respect to individual groups. By mid-1935, some 1500 firms were cognizant of the problem. Action taken depended upon the financial standing of a firm. Perhaps the biggest obstacle was that structural alterations

²³Ibid., pp. 75 and 86.

recommended were to be treated as capital expenditures for income tax purposes and earned no tax relief. The large London utilities took the view that any measures unnecessary in peacetime should be the responsibility of the government.

In 1937 the A.R.P. Department estimated a total cost of not less than ten million pounds to safeguard electricity, water, domestic gas, railroads, docks, and oil supplies over the whole country. It was proposed that the government subsidize half the cost.²⁴ This proposal was referred to a subcommittee for consideration.

A few advances were made in 1937. A.R.P. committees were formed in the electrical supply industry to work out more detailed plans. Some utilities and private firms appointed A.R.P. organizers. The department extended its efforts to coal mines, shipbuilding, and brickmaking industries. The Air Raid Precautions Act was passed in 1937 to become effective as of January 1, 1938.²⁵ Notice was given by the Home Secretary that "good employers" would be expected to provide adequate protection for their employees and plant from their own resources. No compulsion to furnish A.R.P. was contemplated and the government had no immediate attention of passing any Exchequer liability for

²⁴Ibid., p. 75.

²⁵Ibid., pp. 76 and 106.

the cost of any special measures necessary. The inter-departmental subcommittee which had been studying the problem of cost had proposed grants of 40--60 per cent for gas and electrical supplies and 80--100 per cent for fire-fighting in London and other big cities.²⁶

In March 1938 the Chancellor of the Exchequer clarified the financial responsibility. Expenditures for respirators, protective clothing, training, protection of glass with wire netting, and first-aid and decontamination equipment would be admissible as deductions for income tax purposes. Wear and tear allowance would be permitted for machinery, fire appliances, and air filtration units. Expenditures for structural alterations would not be deductible. Legislation was introduced, however, to prevent annual values of property being increased by expenditures made solely for A.R.P.²⁷

A national survey was completed in June of the protection needed against air attacks. Points of importance were classified according to anticipated risk, special weaknesses were noted, and proposals were made for strengthening defense of individual installations. Some government contractors, firms with large resources, and utility concerns proceeded with plans before a clarification of the financial

²⁶Ibid., p. 132.

²⁷Ibid., pp. 132-134.

issue was made. Oil companies took active measures to reduce fire hazards but made little progress in providing protected storage for oil supplies. By mid-1938 some 50,000 employees of railways and utilities were either trained or taking training in anti-gas measures.²⁸

A Technical Adviser Branch was added to the A.R.P. Department in 1938 to advise on structural precautions and other technical matters. This branch had a staff of only a few officials and could not possibly contact individual firms. They had to rely on publications and conferences with professional, employer, and labor associations.

Munich Crisis

The Munich crisis in 1938 provided two real contributions to A.R.P. in Britain. Up to this time the only visible measures were gas masks distributed to 38 million civilians, training in anti-gas measures, one million feet of trenches dug, and thousands of volunteers for A.R.P. The crisis gave a brief but practical test of the passive defense machinery and it transformed the apathy of both government officials and the public into a determined cooperative effort.²⁹ After the Munich Agreement in September 1938, Britain felt that it had gained time to make definite progress and that A.R.P. must be given

²⁸Ibid.

²⁹Ibid., p. 165.

stature equal to other defense departments.

A cabinet minister was given responsibility for the A.R.P. Department of the Home Office. The burden of A.R.P. duties was spread among all relevant departments. For example, the Ministry of Transport would be responsible for A.R.P. measures of railways and certain public utilities; the Ministry of Health would have the duty of maintaining water supplies in war.³⁰

Due to uncertainty over the government's financial plans, lack of precise technical advice, and lack of concerted action, industry's progress in A.R.P. had been slow. Negotiations had produced agreements with gas industry and the Metropolitan Water Board. The railroads were locked in deadlock in financial negotiations with the Ministry of Transport. Only seven or eight firms out of 100 engaged in aircraft production had taken active A.R.P. measures.

By the end of 1938, the Ministers had approved legislation to oblige employers to organize A.R.P. services and to provide some type of shelter for employees.³¹ An Advisory Board of Industrialists was appointed to advise on general defense measures. With reluctance, the panel approved the draft legislation but strongly criticized the government for not defining what was meant by "reasonable shelter protection".

³⁰Ibid., p. 166.

³¹Ibid., p. 219.

A Civil Defence bill was passed in 1939 which laid a specific legal duty on employers. Any firm employing more than thirty employees had to organize A.R.P. services and train its employees. The obligation to provide shelters applied only to firms employing fifty or more employees which were located in the most vulnerable areas or considered most likely targets. Later, in 1940, this obligation was extended to any firm employing fifty or more workers. The shortage of labor and materials and difficulty of construction work after attacks began seriously hampered the fulfillment of this obligation. Immediate action on screening of flames or glare was required of all factories, mines, and public utilities all over Britain. A specified time was given for compliance and a report made as to the measures taken. The Factory or Mines Inspectorate or the local authorities were empowered to compel industry to comply. The methods to be used to compel industry were not specified.³²

Factories and firms employing less than 500 were to train ten per cent in anti-gas measures, first-aid, and fire-fighting. Larger firms were given special scales for trained personnel and were to establish control and internal warning systems, first-aid posts, and more elaborate

³²Ibid., p. 220.

fire-fighting arrangements. Equipment for factory squads were steel helmets, civilian duty masks, and anti-gas clothing. The cost of training and equipping squads was deductible when computing profits for tax purposes. The government would contribute 50-80 per cent of the cost of special measures which utilities might have to take.³³

A survey of utilities in the middle of 1939 showed that most utilities had made progress in training employees, providing shelters, and taking steps to protect plant and ensure supplies of reserve and repair materials. In August of 1939 a Shelter Code for factories and commercial buildings in specified areas was issued. The areas were industrial centers over most of Britain containing 12,000 factories with $2\frac{1}{2}$ million employees, and mines and other establishments with $1\frac{1}{2}$ million employees. The code dealt only with shelters to protect employees and not with protection of plant and equipment. The desirable shelter standard was "a really good type of splinter and blast-proof protection," limited to fifty persons, accessible within seven minutes, and at least twenty-five feet apart.³⁴ An Industrial Wardens' Service was to be formed on the basis of one warden for each shelter.

By September 30, 90 per cent of the 12,000 factories

³³Ibid., p. 222.

³⁴Ibid., p. 221.

concerned had submitted shelter schemes. It was not until the end of 1939, however, after four months of war that a substantial portion of factories had completed their shelters. At first, a considerable number of factory shelters took the form of trenches but due to possibility of flooding, factories had to turn to underground rooms and various surface buildings. Only a few hundred A.R.P. industrial organizers had been trained by the outbreak of the war and industry adopted a leisurely attitude in this area. The supply of A.R.P. equipment was unsatisfactory. There was no large-scale supply of helmets, masks, or anti-gas clothing. No solution was provided for obscuring ordinary industrial lighting. Evacuation of firms in danger zones which were not directly concerned with war production was left up to the firm. The government encouraged permanent evacuation of such firms if they could do so without interfering with their efficiency. Whenever possible, new plants considered visibility from the air, alternative power supplies, restrictions of blackout, and problems of camouflage in their selection of sites.³⁵

The Ministry of Supply was given authority to direct factories on the "vital list" to protect plant, furnish alternate water and electric supplies, and any other

³⁵Ibid., pp. 223, 224 and 338.

necessary steps. The term used for these measures by the Ministry of Supply and Service Departments was Passive Air Defense (P.A.D.). Grants were made towards the cost of P.A.D. measures.

The first industrial town to be bombed was Middlesbrough in May 1940. On the 18th of June the Battle of France was over and Germany could concentrate its air power on Britain. By the last week in June many parts of the country were coming under long red warnings. War production began to suffer. Night workers went to shelters and day workers suffered from lack of sleep from having to spend the night in shelters. Workers were asked to remain at work after red warning until they heard the sound of gunfire or bombs. The problem of keeping workers at their post was partially solved by creating an industrial warning within the public one. Roof watchers were assigned to give the alarm when factories were in danger.

By July the bombing attacks began penetrating inland more deeply. From the 7th of September to the 2nd of November, London was bombed every night by a nightly average of 200 planes. Attack was maintained against both ports and industrial centers. Having failed to subdue London, an attempt was made in November and December to systematically disorganize and destroy key factories and centers of war production up and down the country.

Coventry, with a population of 250,000, was a major center of engineering, automobile, and radio industries. On the 14th of November waves of enemy bombers, guided by incendiary bombs, dropped over five hundred tons of bombs. Twenty-one important factories, twelve of which were directly concerned with aircraft production, were severely damaged by fire or direct hits. The biggest obstacle to production was lack of services through damage to cables, pipes, and water mains.³⁶ There was a serious shortage of water. Gas and electric supplies were completely disorganized, and telephone communications were broken. The attack destroyed about 100 acres of the center of the city. All factories were closed the morning after the raid. War production was not brought to a standstill but was interrupted for about two months.³⁷

In the Spring of 1941 eight factories in Leeds were hit. Telephone communications were again put out of action and road transport was badly organized. Coventry was again bombed, damaging several important factories. Dockyards and other service establishments in Plymouth were badly damaged. The strategy of the German air offensive was

³⁶Basil Collier, The Defence of the United Kingdom (United Kingdom Civil Series. Edited by W. H. Hancock. London: Her Majesty's Stationery Office and Longmans, Green and Company, 1957), p. 265.

³⁷O'Brien, op. cit., p. 405.

widespread raiding, attempting to dislocate production by keeping large areas in the north under warning and dropping bombs at several places.

From June 1941 until July 1942, attacks on industrial targets were slight and caused little damage. The scale of attacks declined steadily in 1943.

Effectiveness of A.R.P. Measures

Pre-war planning for A.R.P. in Great Britain appears to be fairly well-balanced. The early concentration on the menace of gas rather than incendiary and high explosive bombs could be considered a weakness. Underestimated, too, were the large amounts of rescue, repair, and clearance work, the high number of unexploded and delayed action bombs, and the fire-fighting forces.³⁸

From September 1940 through May 1941, a large majority of the high explosive bombs used were of 250 kilogram weight. Later, the proportion of heavier bombs (1400, 1800, 2400 kg.) steadily rose. Anderson shelters proved the most successful throughout. Brick and concrete surface shelters were less successful as they were liable to penetration or distortion by groups of splinters. They were also seriously damaged by earth shock caused by the movement of earth displaced by bombs. Most of the faulty shelters were those

³⁸Ibid., pp. 564 and 576.

built after the outbreak of war with mortar containing much lime or of lime and sand only.

Workers in essential offices and factories found it impracticable to use existing shelters during short and frequent daylight attacks. The Prime Minister asked these workers to continue to work after the siren and asked management to work out special methods for their protection. Roof watchers could not give more than 15 to 20 seconds warning and these workers could not reach shelters which were more than 50 feet away. Improvisations suggested were to divide up the floor area as much as possible by dwarf walls, machinery, benches, or stacks of products, behind which workers could shield themselves. If the roof was of light construction, additional covering could be given by use of existing fixtures or materials being manufactured. Employers with more than 250 workers were compelled to safeguard them against flying glass. Supplies of wire netting for this purpose were difficult to obtain as they were reserved for vital factories.³⁹

The heavy bombing of a vital magneto production plant, the Supermarine Aviation Works, Coventry, Bristol, and Birmingham forced the issue of dispersal on the British government. At first, dispersal consisted only of the

³⁹Ibid., pp. 505-529.

enforced removal of bombed factories. Later, especially in engine and propeller production, dispersal was carried out as a preventive measure. In other areas of vital production, dispersal was not feasible due to the problems which it would have created for industry.⁴⁰

Present Industrial Defense Program

Industrial civil defense in Britain since 1951 has been the result of an agreement between industries and government. Every factory with more than two hundred workers is ordered to organize a civil defense unit. The situation today seems to be similar to that which existed in the pre-World War II period. Some larger firms have hired personnel and have invested in essential fire-fighting equipment. Others have done nothing.⁴¹ The primary emphasis is given to rescue and repair operations rather than to protective measures.⁴²

⁴⁰M. M. Postan, British War Production (United Kingdom Civil Series. Edited by W. H. Hancock, London: Her Majesty's Stationery Office and Longmans, Green and Company, 1952), pp. 164-165.

⁴¹United States Congress, House of Representatives, "Civil Defense in Western Europe and the Soviet Union," Fifth Report by the Committee on Government Operations, 86th Congress, 1st Session, House Report #300, April 27, 1959 (Washington: Government Printing Office, 1959), p. 16.

⁴²Stanley J. Tracy, "Industrial Defense in Other Countries," Industrial Security, Vol. 6, No. 3 (Washington: American Society for Industrial Security, July, 1962), p. 107.

III. JAPAN

The apparent immunity from air attack through the first years of the war gave the Japanese a false sense of safety and prevented the development of a realistic civil defense program and the taking of adequate precautions. Civil defense activity in Japan was practically neglected until 1937 when the National Air Defense Law was enacted. Although directives were issued as early as 1939 on air-raid shelter construction, very little was accomplished until air attacks began. By that time the shortage of construction materials and manpower permitted the construction of only a few adequate shelters.⁴³ Countermeasures taken by Japan against both primary and secondary effects of bombing were largely ineffective because they were predicated on the expectation of light pin-point attacks instead of the saturation incendiary raids that developed.⁴⁴

The plant manager was the head of the air-defense organization for his particular plant. Guidelines were issued by Tokyo but he could plan the organization as best fitted his needs. The usual arrangement was to have squads

⁴³Stanford Research Institute, op. cit., Division II: Effects on the General Economy, Vol. 2: Economic Effects--Japan, pp. 265-270.

⁴⁴Ibid., p. 22.

of guards, fire-fighters, rescue, first-aid, gas-protection, repair, and food and supply. Control centers varied from elaborate centers well protected from bombing, to improvised centers, to none at all.

Government orders were issued as late as October 1944, February and June 1945 to disperse industries. Dispersal consisted of moving whole plants to rural areas, small machinery to private homes, and tunneling. Although there were a few plants which had critical equipment up to 75 per cent dispersed, most factories were not more than 25 per cent dispersed and many heavy industries were not dispersed at all. Shelters were improvised basements, earth and wood structures, or slit trenches. They were neither gas-proof nor fire-proof and were insufficient in number. To conserve productive time, evacuation to shelters was only done at the last moment. The fire-fighting forces varied according to size and importance of plant. Poor equipment maintenance, insufficient hose, equipment failure, and lack of water pressure hampered fire-fighting. Rescue teams did not have any mobile equipment or listening equipment to locate buried.⁴⁵

Factories had highly trained technical experts and first priority of materials but management was lulled

⁴⁵Ibid., pp. 22-23.

into a false sense of security and failed to provide the necessary equipment. Their defense forces were not organized, trained, or equipped on a scale necessary to cope with saturation bombings.⁴⁶ No preparations were made to restore operation in industrial facilities. A government program of strategic evacuation of non-essential people from population centers reduced casualties somewhat. Overall, Japan was ill-prepared in defense procedures and facilities for conventional air warfare and this is reflected even more vividly by the damage and disorganization caused by the nuclear bombs dropped on Hiroshima and Nagasaki.

Hiroshima⁴⁷

A single atomic bomb exploded over the city of Hiroshima at 0815 on the morning of August 6, 1945. The bomb exploded slightly northwest of the center of the city. The attack came 45 minutes after the "all clear" had been sounded from a previous alert. The surprise, the collapse of many buildings, and the conflagration contributed to an unprecedented casualty rate. Seventy to eighty thousand

⁴⁶Ibid., p. 265.

⁴⁷The United States Strategic Bombing Survey, "The Effects of Atomic Bombs on Hiroshima and Nagasaki," June 30, 1946. All information on Hiroshima and Nagasaki is taken from this source.

people were killed, or missing and presumed dead. An equal number were injured. All utilities and transportation services were disrupted over varying lengths of time. Limited railroad service was possible on August 8, only two days after the attack; electric power from the general network was available in most of the surviving parts of the city on August 7. The electric power transmission and distribution system was wrecked. The telephone system was approximately eighty per cent damaged and no service was restored until August 15.

Industry in the center of the city was effectively destroyed. The bulk of the city's output came from large plants located on the outskirts of the city; one-half of the industrial production came from only five firms. Of these larger companies, only one suffered more than superficial damage. Plants ordinarily responsible for three-fourths of Hiroshima's industrial production could have resumed normal operation within thirty days of the attack.

Hiroshima, before the war, was the seventh largest city in Japan and was the principal administrative and commercial center of the southwestern part of the country. The city required complete rebuilding. The entire heart, the main administrative and commercial as well as residential section, was gone. In this area, only about fifty buildings, all of reinforced concrete, remained standing.

All of these suffered blast damage and all except about a dozen were almost completely gutted by fire. The official Japanese figures summed up the building destruction at 62,000 out of a total of 90,000 buildings in the urban area. An additional 6,000 were severely damaged, and most of the others showed glass breakage or disturbance of roof tile.

Nagasaki

Nagasaki is located on the best natural harbor of western Kyushu, a spacious inlet in the mountainous coast. The large industrial plants stretch up the west shore of the bay and up the Urakami Valley. Before the atomic bombing on August 9, Nagasaki had experienced five small-scale air attacks in the previous twelve months. The atomic bomb fell in the basin of the Urakami Valley. Because of this, the impact of the bomb on the city as a whole was less shattering than at Hiroshima. Utilities and services were again disrupted. Both gas plants were destroyed. Basic water supply was not affected but feeder lines were broken. Electric power distribution and transmission systems were effectively destroyed in the area of heaviest destruction but power could be supplied to other parts of the city almost immediately.

Because parts of the city were protected by hills, more than one-half of the residential units escaped serious

damage. The survival of a higher percentage of the buildings distinguishes Nagasaki from Hiroshima. So, too, does the damage to factories. In Nagasaki, only the Mitsubishi Dockyards among the major industries was remote enough from the explosion to escape serious damage. The other three Mitsubishi firms, which were responsible together with the dockyards for over ninety per cent of the industrial output of the city, were seriously damaged. In general (as has proved true with high explosive or incendiary bombs also), the damage to machinery and other contents of a factory was less than damage to the buildings. Shortage of raw materials had reduced operations at the four Mitsubishi plants to a fraction of their capacity. Had the raw material situation been normal and had the war continued, it is estimated that restoration of production would have been possible though slow.

From the experiences of Hiroshima and Nagasaki, certain facts are offered for consideration:

Terrain. The difference in total of destruction to lives and property at the two cities suggests the importance of layout and construction of the cities which affected the results of the bombings. In Hiroshima, the seven mouths of the Ota River furnished excellent fire-breaks in a city that is otherwise flat and only slightly above sea level. A single hill in the eastern part of

the city offered some blast protection to structures on the eastern side opposite the point of fall of the bomb. Terrain plays an important part in reducing damage. Uneven ground reduces the spread and uniformity of blast effect.

Shelters. One of the most instructive facts at Nagasaki was the survival, even when near ground zero, of the few hundred people who were properly placed in the tunnel shelters. Carefully built shelters, though unoccupied, stood up well in both cities.

The shells of reinforced concrete buildings still standing in both cities show that it is possible, without excessive expense, to erect buildings which would satisfactorily protect their contents at distances of about 2,000 feet or more from a bomb of the types used. Construction of such building would be similar to earthquake resistant construction, which California experience indicates would cost about ten per cent to fifteen per cent more than conventional construction. The elimination of combustible interiors and the provision of full-masonry partition walls, fire-resistive stair and elevator enclosures, and fire division walls would localize fires and lessen internal damage.

Decentralization. The fate of industries in both cities again illustrated the value of decentralization. All major factories in Hiroshima were on the periphery of

the city--and escaped serious damage. At Nagasaki, plants and dockyards at the southern end of the city were left intact, but those in the valley where the bomb exploded were seriously damaged. Medical facilities, crowded into the heart of the city rather than evenly spread through it, were crippled or wiped out by the explosion. These results underlined those in conventional area raids in Germany, where frequently the heart of a city was devastated while peripheral industries continued to produce, and where (particularly in Hamburg) destruction of medical facilities just at the time of greatest need hampered care of wounded.

IV. RUSSIA

Although the Soviet Union does not publicize its defense program, there are a few facts available for consideration. The Soviet Union has had a dispersal program for industry since 1931 which has resulted in the establishment of many new cities. After nearly three decades of orientation toward protection against conventional bombing and chemical attack, civil defense was modernized in 1954 to provide for atomic defense and in 1955 to provide for biological warfare defense.⁴⁸

Until January 1960, civil defense was under the

⁴⁸Tracy, op. cit., p. 109.

control of the Ministry for Internal Affairs. On January 13, 1960, this office was abolished and the present affiliation of civil defense is not clear. It is believed to be under the Ministry of Defense.⁴⁹

Industrial civil defense organization varies according to size and importance of a facility. The administrative head of a facility is the chief of the civil defense organization, assisted by the chief engineer, other technical personnel, and the Party Secretary. In addition, major facilities may have inspectors from high level agencies which have jurisdiction over the facility. The main services in the civil defense organization are warning and communication, public order, safety, medical, fire-fighting, repair and engineering, blackout, anti-chemical and radiation defense, and shelter and cover.⁵⁰

The Soviet Union has a compulsory civil defense training program for all men between the ages of 16 and 60 and all women between the ages of 16 and 55, if they are physically fit. The program consists of lectures and training exercises. Since 1955 they have conducted four compulsory training courses which totaled 64 hours of

⁴⁹Leon Goure, Civil Defense in the Soviet Union (Berkeley and Los Angeles: University of California Press, 1962), p. 18.

⁵⁰Ibid., p. 77.

training for the individual citizen by 1962.⁵¹

The primary emphasis in dispersal of industry has been toward the development of new industries in formerly underdeveloped regions rather than redistribution of existing production units. At the present, Soviet civil defense is giving priority to the protection of industry, Administration, and Party. Emphasis is placed on measures that limit industrial damage, facilitate the rapid recovery of disaster areas, and permit early resumption of vital production. Leon Goure suggests that these measures are based on the contingency of a war that develops slowly and becomes protracted, rather than a massive surprise attack.⁵²

A few facts not directly concerned with defense of industry but having a bearing on overall Soviet defense should be considered. Soviet urban population is less concentrated than in the United States. The ten largest cities in Russia have a population of 17 million as compared to the ten largest metropolitan areas in the United States with a population of 40 million. Subways in three major cities have a dual function as shelters. One million or more persons can be accommodated by the subways in Moscow, 200,000 in Leningrad, and 200,000 in Kiev.⁵³ In addition,

⁵¹Ibid., pp. 41-45.

⁵²Ibid., pp. 66 and 144.

⁵³Ibid., pp. 63 and 86.

the Soviets can get a rural fallout program for almost nothing. Most peasant housing has earth walls two to three feet thick with small windows. Most villages have "refrigeration cellars" which could be used for shelter.⁵⁴

V. NATO COUNTRIES

In 1960 the Civil Defense Committee of NATO made the following recommendations concerning industry.⁵⁵

1. Each country should adopt a general civil defense policy for industry.
2. Protection should be as good as that provided for the general public; an acceptable minimum would be protection against fallout.
3. Management should be responsible for establishing the civil defense organization.
4. Organization should be on a self-help basis for small firms.
5. The state should not attempt to run industrial defense.
6. Close cooperation should be maintained with local civil defense organizations by means of joint committees.

⁵⁴Herman Kahn, On Thermonuclear War. Second Edition with Index (Princeton, N.J.: Princeton University Press, 1961), p. 99.

⁵⁵Tracy, op. cit., pp. 109 and 122.

In many NATO countries, dispersal is mandatory under law. The dispersal policy is two-fold: (1) dispersal of existing facilities over wider areas above the ground and to place certain key assembly and production units in underground shelters, and (2) building of new facilities away from existing industrial concentrations.⁵⁶

Sweden. Sweden has what is considered the most advanced civil defense program in the world today. Industrial civil defense began in 1945. Aircraft factories, several ordnance works, and plants which produce precision instruments have been built into very large underground installations. The Swedes estimate that the initial cost was 25 per cent higher but that the cost of maintenance, heating, and insurance rates are less.⁵⁷ Hydrogen bomb shelters are being constructed in the center of each city of over 50,000 population.⁵⁸

Switzerland. In 1959 Switzerland embarked on a new and ambitious program to construct additional shelters and to improve existing ones. Swiss towns of over 1,000

⁵⁶Katherine G. Howard, "Industrial Survival Plans in Other Countries," Civil Defender Preparation for Peacetime and Wartime Disaster in Industry. Special Industrial Issue (Mobile, Alabama: Civil Defender, 1955), p. 62.

⁵⁷U. S. Congress, "Civil Defense in Western Europe and the Soviet Union," op. cit., p. 30.

⁵⁸Tracy, op. cit., p. 108.

population are required to maintain local civil defense programs and all organizations of more than fifty persons are required to have trained civil defense units or teams.⁵⁹

Denmark. The civil defense program in Denmark consists of shelters and highly trained mobile columns. The construction of shelters in private dwellings is required by law and public shelter construction is proceeding at a rate of 500--600 shelters per year.

Norway. Industrial organizations employing more than forty workers must have a civil defense organization. A federation of Norwegian industries is responsible by law for organizing and controlling self-protection measures in industrial establishments. Primary emphasis is being placed on dual purpose deep-rock shelters which are being constructed.

West Germany. An advisory body of representatives of industry and government has been constituted at the national level to assist in preparation of defense measures. New shelters are being constructed, old ones are being rehabilitated, and new buildings are incorporating shelters in their construction plans. The primary emphasis is on rapid warning and shelter protection with evacuation and rescue services as secondary measures.⁶⁰

⁵⁹Ibid.

⁶⁰Ibid.

Belgium and The Netherlands. Factories employing more than 30 workers in wartime are required to organize a civil defense unit in The Netherlands. Even though both countries have recently started shelter construction, the primary emphasis in each is toward post-attack measures.

France and Italy. These two countries are almost completely lacking in preparations for civil defense. France does require industrial firms employing more than fifty workers to organize a civil defense unit, but Italy has no civil defense law and no formal organization for civil defense.⁶¹

VI. UNITED STATES

Other than the attack upon Pearl Harbor in 1941, the United States has not experienced any direct attack by an enemy upon American soil in our time. We have, however, encountered acts of sabotage and espionage. Reviewing the experiences of Germany in World War II and the effect of Russian sabotage on war production, we should consider our industrial facilities as prime targets for sabotage.

Sabotage

Perhaps one of the first instances of proven enemy sabotage was the Black Tom incident of 1916. Black Tom

⁶¹Ibid., pp. 108-109.

is a promontory which juts out from Bayonne, New Jersey, for about a mile into the Upper Bay. On Sunday, July 30, 1916, at 2:08 a.m., Black Tom erupted in one of the greatest explosions prior to Hiroshima. New York harbor was rocked by a series of blasts; shock waves were felt in Philadelphia; hardly a window survived on the Jersey coast; and sheets of plate glass crashed in Manhattan. Most of the facilities on Black Tom were engaged by Russia and other allied governments for shipment of munitions. Railroad sidings which veined Black Tom were crowded with cars unloading into warehouses or barges alongside. Work had stopped for the weekend. Three dozen freight cars and several barges were laden with more than two million pounds of raw high explosives. This case was significant in that Russia and the other allied governments demanded payment from the United States for their losses in the explosion. The United States, in turn, tried to collect \$150,000,000 from Germany for this and other fires believed to be caused by German sabotage. The case went to a claims commission in later years and the German government offered to make settlement out of court.⁶²

Although never proven, a fire in Kingsland, New

⁶²Colonel Allison Ind, A Short History of Espionage (New York: David McKay and Company, Inc., 1963), pp. 155-189.

Jersey, in January 1917 where 500,000 three-inch high explosive shells were discharged in a continuous bombardment was believed to be caused by sabotage.⁶³ Captain Franz Von Papen's sabotage ring in World War I is claimed to have cost the United States more than \$150 million in direct physical damage to essential war resources. More than forty industrial plants and freight yards were wrecked, not to mention the forty-seven ships in which fire-bombs had been planted before they left American ports. The same source tells of an Index of American Industry which contained detailed information concerning defense factories. This index could furnish names of workers classified politically, racially, and religiously--what work they had done previously, what type of work they were presently doing, and the future use that might be made of them.

During World War II, the Federal Bureau of Investigation investigated thousands of cases of suspected sabotage but none were proved to be enemy-directed. One writer believes that the fate of Operation Pastorius was responsible for the lack of sabotage in World War II. Four German saboteurs were landed from a submarine at Amagansett, Long Island, on June 14, 1942. They quickly

⁶³Michael Sayers and Albert E. Kahn, Sabotage! The Secret War Against America (New York: Harper and Brothers, 1942), pp. 5-23.

buried four waterproof cases filled with explosives, timing devices, and detonators. Their operation was to bring production in key industrial plants to a halt. These four constituted one team which was part of a group of saboteurs trained in Germany. Another team of four were landed on the Florida coast, twenty-five miles southeast of Jacksonville. The targets of the team which landed in New York were the aluminum plants in Alcoa, Tennessee, East St. Louis, Illinois, Massena, New York; the cryolite works at Philadelphia; and the locks in the Ohio River between Pittsburgh and Louisville. The second team was to concentrate on railroad bridges and tunnels, New York's Hell Gate Bridge, and New York's water supply system. Both teams were to plant bombs in public places to promote panic.⁶⁴

Before sending the teams out, Germany had paid \$50,000 each to the leaders and \$4,400 to each of the members of the team. The leader of the first team noticed that a large quantity of the money was in gold notes which had been withdrawn from circulation nine years before. The money was changed but the saboteurs became suspicious. Two of them turned themselves into the FBI and revealed

⁶⁴Lawrence Elliott, "Hitler's Undercover Invasion of the United States," Reader's Digest, March, 1960 (Pleasantville, New York: The Reader's Digest Association, Inc.), pp. 164-178.

the entire operation. On July 2, a military tribunal was appointed by President Roosevelt to try the eight saboteurs in secrecy. Six of the saboteurs were executed, one was sentenced to life, and one received a thirty-year sentence. In 1948 President Truman granted clemency for the remaining two and both were transported to West Germany. Elliott believes that as a result of heightened vigilance and constant surveillance of suspected enemy sympathizers, there were no cases of enemy-directed sabotage in World War II.

Espionage

Since World War II, we have had many instances of espionage which have been publicized. Considering the efficiency of the Soviet program of espionage, we must assume that their capability for sabotage is substantial. A Communist Party member was followed on a trip through the Western mountain states during the winter of 1939-40. At each meeting he gave detailed instructions on the use of emery dust and steel shavings to cripple rolling stocks of trains and simple ways to start fires and put freight cars out of commission.⁶⁵ As late as the Spring of 1946, ten top Russian experts complete with their staffs made a

⁶⁵Fendall Yerxa and Ogden R. Reid, "Vital Plants Marked for Destruction in Event of U. S.--Soviet Showdown," The Threat of Red Sabotage. Reprinted from the Herald Tribune of November 30, 1950 (New York Herald Tribune, Fourth Printing, June, 1951), p. 10.

tour of the United States under the sanction of the State Department. They assembled all the documents and blueprints they could obtain. They photographed at will. They crawled over and under machines. Some of the places they "studied" were La Guardia Field, the Astoria filtration plant, water supply and water tunnels, bridges and highways in Chicago, gas and electric plants in New York, the Golden Gate Bridge, gas and electric plants, airports, road systems, and private industries in San Francisco, San Diego, and Los Angeles.⁶⁶

In 1950 an American ship was moored at a Philadelphia dock. Some crew members were told to dispose of spoiled canned goods stored in the hold. As they were throwing cases of food over the side, one of the crew members decided to see if any of the canned sardines were edible. When he opened the can, he found thirty-three pamphlets inside printed in Spanish. The cover of the pamphlets carried the title "Official Regulations of the Game of Football". Inside, however, were instructions on sabotage to low and high tension electrical lines, transformers, central electrical headquarters, waterfalls, dikes, sluices, and pipes. The crew member took one of the tins and placed the remainder on a table with the intention of finding out who would claim the sardines. He failed to catch whoever took the

⁶⁶Ibid., p. 9.

crates of sardines and the remaining tin was turned over to the Federal Bureau of Investigation. In addition to the manual on football, there were similar booklets on hockey, boxing, tennis, baseball, and basketball: a complete catalog of sabotage methods and techniques.⁶⁷

Yerxa and Reid state that a complete sabotage survey was made by the Communist Party in 1947 of every major industrial center in the United States. This survey is said to have covered the port, transportation facilities, railroad communications system, water supply, and food lifeline of New York City. Warplane production was studied in San Francisco and Los Angeles; tank arsenals in Detroit; steel furnaces in Pittsburgh; shipyards and electric power facilities in Philadelphia; naval base at San Diego; hydro-electric plants in Oregon and Washington; and atomic plants in Tennessee, New Mexico, and Hanford, Washington.⁶⁸ In 1948 a re-check of the survey was made which concentrated on the spotting of industries and facilities which were vital to our defense effort. At this time communications and transportation centers were also emphasized. An attempt was made to determine whether it would prove more effective to

⁶⁷Yerxa and Reid, op. cit., "Sardine Cans Used to Import Communist Manuals on Destruction," pp. 3-6.

⁶⁸Ibid., "Vital Plants Marked for Destruction in Event of U. S.--Soviet Showdown," p. 7.

sabotage a series of plants involved in the production of a finished product or to sabotage a single facility which supplied vital parts to these plants. At what decision they arrived is not known.

What is important, however, is that we realize that an enemy is capable of devastating destruction by the use of sabotage on a relatively few well-chosen targets. Understanding this, it is then necessary that we take preventive measures to assure that any plan of sabotage cannot be carried out. In the next chapter we shall examine the organization for industrial defense in the United States.

CHAPTER III

ORGANIZATION FOR INDUSTRIAL DEFENSE

After the entry of the United States in the first World War, the problem of providing quickly a substantial number of dependable guards for key defense facilities was met by the organization of an element of the Army known as the United States Guards. Men from the Army, mostly those rejected for overseas service, were assigned to protect war plants, bridges, airfields, and other important production and distribution facilities. At the peak, there were more than 100,000 on duty. These men relieved combat Army personnel who were assigned to this duty and supplemented civilian guards deputized as United States Marshals.

From the outbreak of the war in Europe in 1939, the importance of American production grew steadily as European nations fell. Industry realized the necessity for security and began hiring guards--some of them well-trained but many which were unfit for other work. With the entry of the United States into World War II, combat troops were used to a considerable extent to guard vital facilities (87 military police battalions were activated, trained, and committed to this type activity, and it is estimated that 300,000 troops were utilized Army-wide. To alleviate the drain on combat troops, the Auxiliary Military Police was formed. Each

member was obligated to execute an oath of allegiance to the United States which stated specifically he would not permit any activity or occurrence to interfere with the performance of his duty to protect war material, war premises, and war utilities. The essential civilian status of the Auxiliary Military Police was maintained. Control continued to be exercised through plant management except at drill and in emergency. Service commanders exercised court-martial jurisdiction while plant guard officers had summary disciplinary authority. The Auxiliary Military Police reached a maximum strength of about 200,000 in the summer of 1943.¹

I. INDUSTRIAL DEFENSE

The Industrial Defense program grew out of the fundamental premise of the War Department that primary responsibility for the protection of all properties, excluding military installations, rested upon the owners, operators, and local and state governments. The War Department's responsibility for internal security activities was designed to assure that responsibilities were, in fact, observed and carried out.

The program originated with publication of an

¹Office of the Provost Marshal General, World War II, A Brief History (Washington: January 15, 1946).

Executive Order which authorized and directed the Secretary of War and the Secretary of the Navy to establish and maintain guards and patrols and to take over appropriate measures to protect from injury or destruction national defense material, premises, and utilities.² The Navy's responsibility was limited to the safeguarding of vessels, harbors, ports, and water-front facilities.³ Responsibility within the Army was delegated to appropriate military commanders, chiefly the Commanding Generals of the Army Service Forces, Army Air Forces, and Defense Commands. The Provost Marshal General was charged, under the direction of the Commanding General, Army Service Forces, with supervision of the Internal Security Program, and with the coordination of the internal security activities of other agencies, both within and without the War Department.

The War Department's internal security activities had the general purpose of assuring a continuous flow of war materials to the armed forces. Activities fell in three closely related major categories: (1) plant protection, (2) emergency protection, and (3) passive protection. The program was essentially one of inspection, advice, and assistance to management. The Provost Marshal General

²Executive Order 8972, December 16, 1941.

³Executive Order 9074, February 25, 1952.

selected facilities to receive inspection services and published and distributed lists of such facilities to military commands concerned. The lists were based largely on the findings of the Resources Protection Board on which the Army and Navy had representation. Security inspectors, military and civilian, were trained under the supervision of the Provost Marshal General in counter-sabotage, personnel investigations, fire protection, and industrial accident prevention. When a security inspection uncovered unsatisfactory security conditions, recommendations for correction were submitted to the management of the facility. Recommendations involving governmental expenditures required approval of the procurement agency having a major interest in the product or service rendered by the facility. The procurement agency was responsible through its contractual authority for obtaining compliance with all recommendations it approved.

As the tide of war in Europe turned in our favor, and as the threat to the home front diminished, pressure from General Staff level with the backing of the Secretary of War shifted emphasis from the Internal Security Program to requirements of the combat forces. By October 10, 1945, activities of the Office of the Provost Marshal General in the Internal Security Program and organizational elements concerned with the operation were eliminated. The

Auxiliary Military Police was demolished and eliminated by November 16, 1945.⁴

It should be noted that the underlying need for protection of the home front and specifically for a protection of war production facilities in both World Wars grew out of a real threat of enemy sabotage exemplified in such incidents as the Black Tom case and the landing of the eight German saboteurs. Public and official indignation and concern demanded protection of the home front on a scale beyond existing or planned capabilities at the time. Manpower resources were committed hurriedly and extravagantly. The Department of Defense Industrial Defense Program, as it is presently constituted, is designed to prevent such a drain on national manpower resources in another national defense emergency and through prior planning, realistically to match resources to requirements.

Recent Developments

The National Security Act of 1947 was enacted by Congress to provide a comprehensive program for the security of the United States.⁵ This act established the National Security Council, the Central Intelligence Agency, the National Security Resources Board, and the National

⁴Office of the Provost Marshal General, op. cit.

⁵U. S. Congress, Public Law 253, 80th Congress, 1947.

Military Establishment headed by a Secretary of Defense and consisting of Departments of the Army, Navy, and Air Force. The Defense Production Act of 1950 required, in part, development of preparedness programs and the expansion of productive capacity and supply in order to reduce the time required for mobilization.⁶ The functions conferred upon the President by this act were delegated to the Director of the Office of Defense Mobilization.⁷ A portion of these functions were, in turn, delegated to the Department of Defense. The following are some of the more important responsibilities which apply to the Industrial Defense Program.

1. Advise and assist in the development and review of standards for the strategic location and physical security of industries, services, government, and other activities for which continuing operation is essential to national security.
2. Exercise physical security cognizance over the facilities for which such responsibilities have been assigned.

The Federal Civil Defense Act of 1950, as amended,

⁶U. S. Congress, Public Law 774, 81st Congress, 1950.

⁷Executive Order 10480, August 14, 1953.

stated the intent of Congress to provide a system of civil defense for the protection of life and property in the United States from enemy attack.⁸ The Federal Civil Defense Administration, set up as a result of this act, originated an industry defense program which was based largely on a public relations and educational approach with American industry including but not limited to those enterprises on the Key Facilities List. The Federal Civil Defense Administration was reorganized in 1958 with the Office of Defense Mobilization into the Office of Civil and Defense Mobilization. This agency, in turn, was reorganized in 1961 when most of the functions of the Federal Civil Defense Act were transferred to the Secretary of Defense, and the other "emergency planning" functions were given to the Office of Emergency Planning in the Executive Office of the President.⁹

Upon its establishment in 1947 and continuing until the Korean War, the Department of Defense engaged in studies and developed plans and programs to accomplish internal security objectives in the event of war. In order to plan for the industrial defense of certain vital industrial facilities and to facilitate long-range planning for all-out

⁸U. S. Congress, Public Law 920, 81st Congress, 1950, as amended by Public Law 85-606, 1958.

⁹Executive Order 10952, July 20, 1961.

mobilization, the Department of Defense instituted the Industrial Defense Program in 1950.

Although the primary concern of this study is the Industrial Defense Program of the Department of Defense, this is not to infer that the Department of Defense has the sole responsibility for defense of industries. Various governmental agencies share this responsibility. The Departments of Agriculture, Interior, and Commerce have industrial defense programs covering their major areas of interest. Other programs are conducted by the Federal Reserve Systems, Federal Home Loan Bank Board, Food and Drug Administration, Interstate Commerce Commission, Federal Power Commission, and Federal Communications Commission. Each agency advises and assists those industries with which they normally deal regarding the necessary protective measures.

II. DEPARTMENT OF DEFENSE

The basic authority for the Industrial Defense Program of the Department of Defense stems from an executive order wherein the President assigned to the National Security Resources Board the responsibility for (1) prescribing policies and programs governing the activities of federal agencies with respect to the physical security of facilities, (2) developing and promulgating standards of physical

security to be applicable to facilities, and (3) assigning cognizance of facilities to appropriate government agencies for the purpose of surveying physical security measures and rendering advice and assistance to management of facilities.¹⁰ Although cognizance assignment of facilities to federal agencies has not been fully accomplished, the Department of Defense by the inherent authority of the Secretary of Defense under the National Security Act of 1947, implements requirements of this executive order for those facilities in the Department of Defense program.

The present organizational responsibility within the Department of Defense for supervising the Industrial Defense Program was established in 1954. Prior to that time, the program was administered within the Office of the Assistant Secretary of Defense for Manpower in conjunction with the Department of Defense Industrial Security Program which also had its basis in authority in the National Security Act of 1947.¹¹ In 1954, in recognition of its importance in logistics, the Industrial Defense Program was transferred to the Assistant Secretary of Defense for Installations and Logistics. The Facilities Protection Branch

¹⁰Executive Order 10421, December 31, 1952.

¹¹The Industrial Security Program is concerned with the protection of classified defense information in the hands of industry.

was established as the responsible office for implementation and supervision of the Industrial Defense Program.

Purpose and Objectives of Program

The program is governed by army regulation and is based upon the assumption that in time of peace all plants occupy a place in the national economy; in time of war, under full wartime mobilization, all plants will contribute to a greater or lesser degree to the conduct of the war.¹² The program is designed primarily to encourage and assist management of a limited number of facilities, considered to be of vital importance to the defense of the United States, to strengthen the industrial defense of their facilities.

The objective of the program is to minimize the loss of vital production capability through the application of vulnerability reduction measures, passive defense measures, and restoration measures to key facilities. The goal is to develop, with management, a complete, well-balanced industrial defense program which is fitted to each particular facility; a program which will insure wartime continuity of both personnel and production despite overt and covert enemy actions.

¹²Army Regulation 580-20, "Armed Forces Industrial Defense Regulation," Revision Number 2, October, 1960; also Army Regulation 580-21, "Armed Forces Industrial Defense Activities," February 11, 1963.

Responsibilities

The Assistant Secretary of Defense (Installations and Logistics) is responsible for:

1. Designation of industrial facilities for inclusion on the Key Facilities List (KFL).
2. Developing standards for evaluating industrial facilities and determining their relative importance to wartime production programs.
3. Assigning industrial defense cognizance for privately-operated facilities on the Key Facilities List to one of the military departments.
4. The Industrial Defense Education Program, which consists of the preparation and distribution of informative and technical guidance materials to be furnished to indus-

Military Departments. Industrial cognizance for a given facility is assigned to one of the military departments: Army, Navy, or Air Force. Initial assignment is based on the Armed Service Procurement Planning Officer (ASPPO) assignment as shown in the Register of Planned Mobilization Producers unless the Assistant Secretary of Defense (Installations and Logistics) and the services involved agree to assignment on a different basis. Where there is no ASPPO assignment, cognizance assignment is

based, in part, on status in Departmental or National Industrial Reserve, primary interest in the product of a facility, similarity of a product to those in facilities already assigned to a military department, desires of management, consistency with assignments of other plants in a corporate structure, and geographical location.

Within the naval establishment, the responsibility for administration of the industrial defense program is assigned to the Chief of Naval Materiel. The Commander, Air Materiel Command, has this responsibility in the Air Force, and the Deputy Chief of Staff (Logistics) exercises staff supervision for the Army. The operation of the program in the field for the Department of the Army is accomplished by provost marshal personnel from the Army Area level. The Air Force has Procurement Production Industrial Planning personnel operating from Air Materiel Area and Air Procurement district offices. Navy survey personnel operate from various Naval district offices representing the Office of Naval Materiel. Regardless of the military department which they are representing, their responsibilities are as follows:

1. To act for the Department of Defense in the discharge of industrial defense responsibilities.
2. To conduct comprehensive Industrial Defense surveys of a facility to assess vulnerability of the

facility to acts of sabotage and espionage.

3. To render advice and guidance to management concerning measures for the prevention of sabotage and espionage. (e.g. guard forces, protective fences, alarm systems, lighting, visitor control, protection of critical areas, fire protection, et cetera).

4. To render advice and guidance to management concerning measures to minimize damage resulting from enemy attack and natural disasters (e. g. disaster and restoration planning, plant dispersal, protection of personnel, development of mutual-aid programs, protective construction, use of underground sites, et cetera).

5. To coordinate as appropriate with other governmental agencies which have an industrial defense related interest in the plant or its personnel.

6. To contribute recommendations for changes in the Key Facilities List to the Assistant Secretary of Defense (Installations and Logistics).

7. For reporting results of industrial defense surveys to the Assistant Secretary of Defense, the district office of the Federal Bureau of Investigation, and the Commanding General of the Army Area (in the case of Army cognizance) in which the facility is located, and to management of the facility surveyed.

Department of the Army. The Deputy Chief of Staff for Logistics (DCSLOG) exercises general staff supervision of the industrial defense activities assigned to the Department of the Army. This supervision includes implementation of Department of Defense directives and instructions, developing and issuing supplementary policies, and reviewing all changes to the Key Facilities List recommended by the army operating elements.

The Provost Marshal General is responsible for:

1. Advising the Deputy Chief of Staff for Logistics on matters pertaining to the Industrial Defense Program, particularly in the formulation, coordination, supervision, and execution of plans, policies, and procedures pertaining to physical security.

2. Monitoring and coordinating industrial defense survey reporting and, as Department of the Army reviewing official, forwarding to the Assistant Secretary of Defense (Installations and Logistics) one copy of each approved survey report.

3. Maintaining liaison on industrial defense matters within the purview of 1 and 2 above with other agencies.

The Commanding General, U. S. Army Continental Army Command (CONARC) is responsible for:

1. Directing the implementation of the industrial

defense activities prescribed by AR 580-20.

2. Reviewing industrial defense survey reports.
3. Maintaining a central file of completed industrial defense survey reports.
4. Recommending changes to the Key Facilities List.
5. Distributing completed survey reports.
6. Conducting training for selected personnel in the techniques and procedures of surveying the non-military measures adopted at an industrial facility, including evaluating effectiveness, and formulating recommendations regarding those non-military measures designed to prevent and minimize loss or disruption of productive capability from any cause or hazard, and provide for the rapid restoration of production after damage.

The Commanding General, Zone of Interior (ZI) Armies and the Military District of Washington, a total of five army areas, assume industrial defense cognizance for the Department of the Army. In all army areas, responsibility for the industrial defense program has been assigned to the Provost Marshal. Guidance is provided by USCONARC which outlines the following steps for use in implementation of the program.

1. Assume industrial defense cognizance for the Department of the Army of each designated facility or company located in their area.

2. Assure that there is only one point of contact within the army area to which the management of any company or facility should look for advice and information concerning industrial defense activities.

3. Assist management by conducting a comprehensive industrial defense survey of the facility; furnishing recommendations, advice, and guidance in attaining an optimum industrial defense status; and in assisting in the preparation of industrial defense plans.

4. Recommend changes to the Key Facilities List.

5. Recommend changes in the category of the facility.

6. Prepare and conduct industrial defense symposiums at least biennially, as one measure of rendering advice and guidance to management concerning measures to minimize damage resulting from enemy attack and natural disasters.

The Survey Officer. The Provost Marshal of each army area assigns survey officers who are the sole Department of Defense representative in industrial defense matters. Under the supervision of the Provost Marshal, the survey officer performs those responsibilities assigned to the military departments.

The Key Facilities List

The Key Facilities List is a register of selected industrial facilities, utilities, and government-owned

installations located within the Continental United States. It is revised periodically in order to reflect changes in the Defense Mobilization Program. The Key Facilities List is a registered, classified document and its distribution is rigidly controlled. It is used primarily for three purposes: (1) for planning the military defense of the continental United States, (2) for designation of those facilities coming within the scope of the Department of Defense program, and (3) for assessing vulnerability stemming from geographic or product concentration of essential defense industry.¹³

The purpose of the Key Facilities List as it relates to the Industrial Defense Program is to designate those vital industrial facilities, within the United States, which are of outstanding importance in support of wartime production programs of the Department of Defense. Inclusion or exclusion of a facility on the KFL is determined by the Assistant Secretary of Defense (Installations and Logistics). This determination is made after examination of current procurement and mobilization planning data, relating to requirements, production schedules, sources of supply, production capacities, and other pertinent

¹³E. Ray Hjortsberg, "The Industrial Defense Program of the Department of Defense," Civil Defender, Special Industrial Issue, 1955, pp. 54-55.

information available in the Office of Secretary of Defense. When such information is not available in the Office of the Secretary of Defense, the military departments are requested to provide the necessary information. The military departments may also recommend additions or deletions, changes in category rating, et cetera, to the Key Facilities List.

Program Operation

In operation, the Industrial Defense Program consists of an industrial defense survey or re-survey of the facility. When a plant is identified as a key facility, an assignment is made to a single military department for industrial defense cognizance. The military department advises management, by letter, that his plant has been identified as a key facility; outlines the program and solicits management's voluntary cooperation; and informs management that arrangements will be made for an industrial defense survey of the facility.

During a visit by the survey officer, the purpose and operation of the program is explained, and a physical survey of the facility is completed including the critical points in the production processes, measures currently in effect to protect and safeguard production capability, and plans to insure continuity of production. Recommendations are then made for the improvement of security conditions. Management is then encouraged to develop an industrial

defense program especially suited to the particular facility by making use of the recommendations resulting from the survey and other advice and guidance afforded by survey personnel.

The survey or re-survey is accomplished by survey personnel through on-site observation of existing industrial defense conditions, unless otherwise directed by the Assistant Secretary of Defense (Installations and Logistics). Certain non-manufacturing facilities in remote locations have been designated by the Assistant Secretary of Defense (Installations and Logistics). These facilities need not be re-surveyed on-site provided that a responsible management official of such a facility states that conditions have not changed since the last on-site survey.

Recommendations made should include those measures required to provide protection and safeguards common to all types of facilities; those required to meet special hazards peculiar to specific types of industry; and those requiring consideration and advanced planning for application under emergency, disaster, or damage conditions. Specific, practical, and reasonable recommendations should be made when inadequate ratings are shown, and should be such that adoption by management would serve to change the rating to adequate.

Survey Forms¹⁴

Industrial Defense Survey Form (DD Form 395) and Industrial Defense Survey Checklist (DD Form 395-1) are authorized and prescribed for use by the military departments in conducting industrial defense surveys for all facilities other than communications industry. A special survey form and checklist (DD Form 395-2 and 395-3) have been devised for communications facilities.

DD Form 395 is used to identify the facility, summarize the prevailing status of industrial defense measures, show disposition of previous recommendations, and give the current recommendations for improving the defense of the facility.

DD Form 395-1 is a checklist of items grouped in numbered sections which correspond to the sections listed on DD Form 395. The survey covers the following major areas:

1. Organizational measures - identification of critical areas and industrial defense plan.
2. Measures to prevent sabotage - guard forces, control of entry, and control of critical areas.
3. Protective measures - fire protection and civil defense.

¹⁴See Appendix A for sample survey forms.

4. Measures for production continuity - minimizing effect of damage, and restoring production.

5. Measures for personnel continuity.

The survey forms, when completed, are classified as Confidential or higher, if warranted, and the information is to be protected in keeping with the pertinent provisions of the Department of Defense "Industrial Security Manual for Safeguarding Classified Information."

III. MILITARY POLICE SCHOOL

Army regulations provide that the Commanding General, Continental Army Command is responsible for conducting training for industrial defense personnel.¹⁵ In 1951, the Industrial Defense Survey Course was initiated at the Provost Marshal General's School at Fort Gordon, Georgia.¹⁶ This course was designed primarily for training in the techniques and procedures of surveying industrial facilities.

The Continuity of Essential Operations Course was offered in January 1958 to provide training for both military and civilian personnel in disaster planning. This course was designed to train commissioned officers,

¹⁵Army Regulation AR 580-21, op. cit., par. 3c(6).

¹⁶Now called the U. S. Army Military Police School.

Department of the Army civilian employees, and industrial management personnel in the principles of installation protection, recovery operations, personnel continuity, disaster planning, and the assessment and reporting of damage caused by nuclear attack or natural disasters.¹⁷

Today there are two courses offered at the Military Police School in continuity of essential operations. The first of these is the Industrial Defense and Disaster Planning Course for those officers and Department of the Army civilian employees who are assigned as survey personnel. This course is of two weeks duration consisting of 76 hours of academic instruction as follows:

Industrial Defense	11 hours
Nuclear, Chemical, and Biological	
Considerations	11 hours
Disaster Planning	50 hours
Examinations and Critiques	4 hours

The second course is the Industrial Defense and Disaster Planning for Privately-Owned and Privately-Operated Facilities Course (POPO). Attendance is limited to executives of privately-owned and privately-operated facilities, with priority given to those facilities appearing on the

¹⁷Major Chester R. Allen, "Non-Military Defense," Military Police Journal, March 1959 (Augusta, Georgia: Military Police Association, Inc.), p. 11.

Key Facilities List, or executives of governmental agencies whose duties include national emergency, mobilization, or disaster planning. The length of this course is five days with 37 hours of academic instruction:

Industrial Defense	5 hours
Nuclear, Chemical, and Biological Considerations	5 hours
Disaster Planning	27 hours

In addition to the above courses, a physical security supervision course is offered for those personnel responsible for the physical protection of military and industrial facilities. Similar instruction in both physical security and industrial defense and disaster planning is provided for the regular officer courses conducted at the school.

IV. INDUSTRIAL DEFENSE EDUCATION PROGRAM

To supplement the Industrial Defense Program, the Assistant Secretary of Defense (Installations and Logistics) is also responsible for the Industrial Defense Education Program which consists of the preparation and distribution of informative and technical guidance materials to be furnished to industry. The program is designed to acquaint industrial management and employees with the principles of industrial defense, to alert them to the dangers, and to suggest preventive measures which industry may adopt to

avoid such dangers.¹⁷

In consultation with representatives of the military departments, the staff of the Assistant Secretary of Defense (Installations and Logistics) prepares appropriate material for dissemination in execution of this program. The representative of the cognizant military department will recommend to management that they use the appropriate Industrial Defense Education Program materials at their facilities and will also advise and assist management in the most effective exploitation of the material. Industrial facilities and activities of the military department may be placed on the mailing list to receive wall posters, leaflets, cartoons, editorial, or security letters by writing directly to the Industrial Facilities Protection Branch, Office of the Assistant Secretary of Defense (Installations and Logistics).¹⁸

From the foregoing discussion it would appear that our federal government is well aware of the importance of industry in our national defense posture. The organization for industrial defense seems to be well-planned. The channels for dissemination of information and submission of reports are simple and logical. Training for both survey officers and industrial personnel concerned with industrial defense

¹⁷Army Regulation 580-20, op. cit., p. 11.

¹⁸Ibid.

is available.

Why, then, does not each facility have a complete, well-rounded industrial defense program? What prevents the attainment of the stated goal of the program? What improvements can be made? The following chapters will offer possible answers to these questions and make recommendations based upon the findings of this study.

CHAPTER IV

FINDINGS

As stated in the previous chapter, the industrial defense program consists of an initial survey and an annual re-survey of key facilities in order to determine the current status of their industrial defense plans and to make recommendations for improvement. When cognizance for a facility has been assigned to the Army, one of the five army areas becomes the operational level for the industrial defense program. Let us examine the program at this level to determine if there are any deficiencies.

I. ARMY AREA

Each Army Area headquarters has a Provost Marshal. Within his office is an Industrial Defense Branch. Upon notification of cognizance assignment, this branch advises management of a given facility by letter of their identification as a key facility; that a survey will be conducted on a convenient date; and briefly states the nature of the program. This letter contains the following notation:

This document contains information affecting the national defense of the United States within the meaning of the Espionage Laws, Title 18, U.S.C. Sections 793 and 794, the transmission or revelation of which in any manner to an unauthorized person is prohibited by law.

In the Fifth Army Area, the Industrial Defense Branch

is decentralized. Administration, supervision, and records are maintained at Fifth Army Headquarters with survey officers maintaining an office and working out of the larger cities in the Army Area, i. e., Detroit, Chicago, Denver, et cetera. In the Sixth Army Area the branch has been centralized until just recently. Prior to July 1964, all survey officers in the Sixth Army Area were assigned to the Presidio of San Francisco and based all their operations from this point. Due to the large number of key facilities in the Southern California area, a decision was made to transfer one survey officer from San Francisco to Los Angeles to accomplish the industrial defense mission in the southern area of California. This decision was based on a desire to effect a savings in both travel expense and time so that the survey officer may devote more time to his assigned facilities.

The question of centralization or decentralization appears most frequently in those army areas which cover large geographical areas. Both Fifth Army and Sixth Army are such areas. In the Sixth Army area, for example, there is such a heavy concentration of key facilities in the Southern California area that it was necessary for at least one survey officer to be in that area almost constantly. Although the travel time and expense for one trip was not excessive, the total number of trips required on a yearly

basis proved to be costly. Conversely, many key facilities are located in areas which are a considerable distance from the centralized headquarters (Colorado in the Fifth Army Area; Utah and Montana in the Sixth Army Area). A survey officer can spend a total of six days travel time to and from these areas in order to spend five days performing his industrial defense mission. Budget-conscious supervisors are faced with this cost factor with the result that Fifth Army is almost totally decentralized and Sixth Army has taken the first step toward decentralization.

The cost of travel and per diem is certainly a factor for consideration. The economy, however, may be a false one. The cost of maintaining a separate office, the cost of office equipment, and the cost of clerical services which may become necessary will often offset any savings made. The one factor which should be the decisive one is frequently not even considered when the question of decentralization arises. This factor, which should be of primary importance in any decision concerning industrial defense, is the question: Will the proposal enhance or hinder the performance of the industrial defense mission?

For both the military and civilian survey officer, the main disadvantage in decentralization is one of lack of direct contact with the supervisors who pass judgment on the quality of their performance. For the military man,

this disadvantage can be disastrous in that he has very little face-to-face contact with the very officers who are rating his job performance and efficiency. A survey officer without previous experience in industrial defense has a definite disadvantage when assigned to a decentralized area. He is not familiar with the area, the facilities, nor his responsibilities. One survey officer was assigned to a decentralized office without having any previous experience in industrial defense. He did not receive any training in industrial defense until almost a year after his assignment. This officer was conscientious and tried to do an effective job but his knowledge of industrial defense was extremely limited. The placement of such officers in decentralized areas is detrimental not only to the officer but also to the program itself.

The supervisor, on the other hand, has no definite criteria upon which to base his judgment and, therefore, must rely on the capability of the survey officers in decentralized areas. Decentralization is not considered a disadvantage by the inept, incapable, and unconscientious survey officer who prefers not to have a close scrutiny of his performance. The damage to the program caused by incompetent and inadequately supervised personnel is extremely difficult to repair.

Provost Marshals

Provost Marshals of the continental Army Areas are senior military police officers with the rank of Colonel. Normally, they have attended the Military Police Officer Advanced Course at Fort Gordon, Georgia, and the Command and General Staff Course at Fort Leavenworth, Kansas. They are thoroughly informed in military police operations, criminal investigations, traffic control, confinement, prisoners-of-war, and other areas of provost marshal activities. Concerning the industrial defense program, however, provost marshals are almost completely uninformed. In the advanced military police course which they attended, they received a few hours of instruction concerning the program, but usually have it confused with physical security or the industrial security program. This is not only true of Army Area provost marshals; it is a lack of knowledge that is common to most military police officers not directly involved with industrial defense activities.

One military officer in discussing the attitude of provost marshals concerning industrial defense related this typical reaction as, "I have worked for two provost marshals at this headquarters. When they first take over, they have no use for industrial defense. They feel that the industrial defense officers are just wasting a lot of time and money. It takes from six months to a year for them to realize what

industrial defense is all about. Once they do, then they want to jump on the bandwagon." The point to notice is that once the importance of the program is recognized, then provost marshals are eager to lend their support. How much more smoothly the transition from provost marshal to provost marshal would be if this knowledge was made available prior to an officer becoming a provost marshal.

Looking for some tangible evidence of the performance of the industrial defense branch, uninformed provost marshals are interested in statistics such as total number of key facilities, total number of recommendations made, and total number of recommendations accepted or rejected by industry. While statistics such as these give a partial picture of the success or failure of the industrial defense program, they fall far short of presenting a complete picture. Far more important considerations, i. e. examination of the types of recommendations made; the reasons given for non-compliance; the attitudes of industry toward the program; and the manner in which the survey officer attempts to convince industry of the merits of the program, are completely ignored--ignored only because of a lack of information as to the importance, mission, need, and goals of the industrial defense program. Determination of these more important factors can only be made with a thorough knowledge of the program, followed by taking an active

interest by accompanying survey officers, and by inviting comments from industry on their understanding, acceptance, and criticism of the program and its operation. This is not being done by provost marshals or at any other staff level.

Provost marshals are inclined to take the "let sleeping dogs lie" attitude. As long as there are no derogatory comments from industry concerning the survey officer, the recommendations made, or the program operation, provost marshals are content to assume that the program is being accomplished in a satisfactory manner. For the inept or lazy survey officer, this attitude is fine in that he is not bothered because no one is aware of what he should be, or could be, doing. Another facet should be viewed to round out the picture of attitudes of provost marshals toward industrial defense. This is the newly assigned provost marshal who decides to "make a survey or two with the industrial defense boys". Unless the provost marshal is thoroughly informed, such visits can produce harmful results and usually fail to improve the provost marshal's knowledge or understanding of the program. A provost marshal who is not entirely familiar with the program may ruin years of groundwork prepared by a good survey officer. The provost marshal may demand that a facility accept the recommendations made or he may display

his ignorance of the entire program thereby causing management's non-compliance with any recommendations. If the provost marshal and the survey officer visit a facility that has an active, aggressive security officer who has convinced management of the need for security, the provost marshal will believe that it is not difficult to sell industrial defense. In such an instance, the survey officer will be greeted warmly, all of his recommendations made on a previous survey will have been put into effect, and new recommendations eagerly accepted. The provost marshal believes that he has an excellent survey officer who can successfully sell the program to any facility.

Another facility may have had some disaster in the past year that indicated a lack of security. The home office may have issued a memorandum to the branch facility that they were not up to company standard in security measures and that immediate action should be taken to improve. When the provost marshal and the survey officer arrive, they are again greeted warmly as the specialists who will make the necessary recommendations and solve the security problems of the facility to the satisfaction of the home office requirements. Whatever the survey officer recommends at this time will be favorably considered and accepted. Once again, the provost marshal believes that his survey officer is an excellent one and the program is successful.

At the other extreme, is the facility which is family-owned, sole producer of a product, and interested only in measures which are related directly to profit. In this case, the provost marshal and the survey officer find management reluctant to be even civil. The survey officer may complete his survey, make his recommendations, and be advised that the facility does not plan to accept any of the recommendations. The provost marshal leaves this facility with the feeling that he has an incompetent survey officer and that the industrial defense branch is not accomplishing its mission. After having made a few survey trips, the provost marshal, when reviewing surveys, tends to relate or compare all types of facilities to those few he visited.

In the decentralized areas, the provost marshal is completely out-of-touch with the program operation. He must rely on the statistics referred to above and any reports from the survey officer concerning his progress. If he has selected an extremely capable man, either civilian or military, as a survey officer, then he can feel assured that the mission is being performed adequately.

The difficulty lies in the lack of knowledge of the requirements for a successful survey officer and the number of officers a provost marshal has available for consideration. The provost marshal who believes that industrial

defense is merely a matter of making a physical security survey of an industrial facility could very easily and quite correctly choose almost any field grade military police officer and know that he would perform adequately. Conducting a physical security survey, however, is neither the difficult nor the major part of a survey officer's job. Having little knowledge of the program and even less knowledge of the necessary requirements of a successful survey officer, provost marshals have selected both military and civilian survey officers who are unqualified and who are, in some instances, seriously damaging the program. The qualifications which are most generally lacking in survey officers are those normally associated with salesmanship--self-confidence, ability to deal with top-level management on an equal footing, thorough knowledge of their product, and ability to convince management of the merits of their product. Many survey officers now in the industrial defense program could develop at least a portion of these qualifications with proper training.

Survey Officers

Survey officers in the Fifth Army Area are either civilian employees with a minimum grade of GS-9 or military officers of field grade (Major or above). In the Sixth Army Area, survey officers are military officers of field grade. United States Continental Army Command outlines

desirable qualifications for survey officers as:

1. Have anticipated assignment of at least two years.
2. Be an officer of field grade or a civilian employee of minimum grade of GS-9.
3. Should have appearance, bearing, and personality which enables them to meet people easily and create a favorable impression.
4. Must complete the Industrial Defense Disaster Planning Course at the U. S. Army Military Police School prior to or shortly after assignment to the program.
5. If possible, complete the U. S. Army Military Police School Physical Security Course.

Selection. Both military and civilian survey officers are selected by the provost marshal of the Army Area following the guidelines listed above. The difficulty in selection stems from two sources: availability and knowledge of requirements. In the case of military personnel, there are only a limited number of field grade officers assigned to the Army Area provost marshal. As vacancies in the Industrial Defense Branch occur, the provost marshal must consider all the activities of his office and usually finds that he has only one or at the maximum two officers who can be considered for assignment to industrial defense. Having a thorough knowledge of long-standing activities,

such as criminal investigations and plans and operations, et cetera, provost marshals place primary importance on the selection of personnel for these activities. When these activities are taken care of, then consideration is given to the industrial defense vacancies. Lack of availability, lack of knowledge of the entire industrial defense program, plus lack of knowledge as to the criteria for a competent survey officer result in provost marshals frequently selecting officers who are ill-equipped to perform the industrial defense mission.

In the case of civilian personnel, the provost marshal usually relies on retired military police officers as a source for selection of survey officers. In many instances, these retired officers are personally known by the provost marshals who have served with them in the past. Perhaps the retired officer performed adequately in other military police activities, but such experience does not automatically qualify him as an outstanding survey officer. Even though the selection base is wider for civilian survey officers, the provost marshal typically is still hampered by not understanding the requirements. One provost marshal, upon learning of a vacancy in his industrial defense branch, stated, "I know just the man for the job, he can really write". This, despite the fact that the man in question had a speech impediment and was apprehensive about trying

to talk with top-level management. This provost marshal's knowledge of industrial defense, even after accompanying a survey officer on a few trips, was confined to the reports written by survey officers. He decided what was needed in industrial defense was a man who could "really write".

Whether military or civilian, the selection process for survey officers which is prevalent at this time is similar to a game of chance. Occasionally a provost marshal selects an extremely capable officer, but more often the caliber of survey officers reflects the inadequate selection process.

Duties. The governing regulation states that the duties of a survey officer are, in brief, conducting comprehensive surveys, rendering advice and guidance to management concerning measures for the prevention of sabotage and espionage and measures to minimize damage resulting from enemy attack and natural disasters, and coordinating with other agencies.¹ What the regulation does not state is that a survey officer can perform all these duties in a creditable manner and yet be a failure as the sole contact in the industrial defense program. The duties listed above are actually secondary duties which can be handled easily

¹Army Regulation (AR) 580-20, "Armed Forces Industrial Defense Regulation," Revision Number 2, October, 1960, p. 2.

if the survey officer has performed his primary duties in an effective manner. The key to the primary duties of the survey officer is found under a paragraph in the regulation entitled "Notification".

Upon the initial assignment of a facility to a Military Department for industrial defense cognizance, that Department will transmit a letter to the facility's top management. The letter will outline the program and policies pertaining thereto and solicit management's voluntary cooperation. When the original industrial defense survey is made, management will be more fully advised of the general purposes and limitations of the program.²

This particular instruction sounds so simple and yet the program and its policies cannot be explained adequately in a letter nor can one expect management to cooperate voluntarily without fully understanding the reasons for their cooperation and what the program can do for them. The survey officer is the sole contact with industry and, therefore, this duty devolves to him.

The survey officer, then, must have a thorough understanding of the need for industrial defense and of the importance of industry in our national defense stature. Not only must he understand, he must also be able to fully explain the reasons for the program to management, the necessity for his recommendations, his belief in the principles of industrial defense, and his willingness to assist

²Ibid., p. 5.

industry in their planning for industrial defense. This explanation must be given at various times to boards of directors, senior executives, engineering departments, junior executives, security departments, and to other plant personnel. The survey officer's primary duties, then, are, first, the education of industry at various levels concerning the industrial defense program and, secondly, the selling of the program.

Many survey officers are either unaware of this responsibility, uninformed as to how they can successfully accomplish this duty, or are not capable of doing so. When the survey officer himself is unaware of this responsibility, it is easily understood why the provost marshal who has not been involved directly with industrial defense is also unaware.

In the past few years there has been a tendency in all army areas to select officers for industrial defense who were on their last assignment prior to retirement. Provost marshals frequently used this assignment as a reward to enable officers to contact civilian industry for employment after retirement. Many survey officers thus selected have been more interested in surveying facilities for future job possibilities than for industrial defense capabilities. Some have been conscientious but unqualified to perform in more than a barely satisfactory manner. This practice has

resulted in damaging the program in the eyes of industry. It must be remembered that industry is quick to discern flaws and faults and very slow in forgetting them. In addition, this practice fails to develop well-qualified industrial defense officers who can be used at a later date in an instructor or advisory capacity, and also fails to develop well-informed future provost marshals. The few survey officers who have been both conscientious and capable who retire at the completion of the assignment are a complete loss to the program.

Continental Army Command suggests that survey officers have at least a two-year assignment. This requirement is a very necessary one. It is impossible for a survey officer to do an effective job in less time. For an officer familiar with the industrial defense program, and especially so for the average officer who is not, there is a definite time-span before he becomes even somewhat productive. Consider the officer newly assigned to an Army post and then assigned to the industrial defense branch. He must become familiar with all of the local policies and plans. He must have the usual security briefings and must read the local industrial defense standing operating procedure if one is available. Following this he must be informed of the area covered, types of facilities, means of transportation, et cetera. The new survey officer at this

time is completely unaware of the budgeting or scheduling done in industrial defense. In most instances the budget has been prepared and submitted prior to his arrival and the branch chief does not consider that the information is of any value to the new officer. The scheduling of survey trips for the year is another function with which the survey officer often does not become familiar within the first year of his assignment. Despite the recommendation of a two-year assignment, many military survey officers, including chiefs of industrial defense branches, have been reassigned in lesser periods with the result that the survey officer has learned little about industrial defense and the program has suffered from lack of qualified personnel much longer than necessary.

In the Sixth Army the new survey officer accompanies one of the experienced survey officers on as many surveys as the budget will allow prior to attending the Industrial Defense Course at Fort Gordon, Georgia. This, in the opinion of the writer, is an excellent procedure. It affords the new survey officer the opportunity to learn procedures and methods of accomplishing the industrial defense mission and provides time for discussion of unknown areas or policies. It must be remembered, however, that experience alone does not insure that a survey officer is competent. Many times a new survey officer learns what

not to do as a result of his trips with other survey officers. The theory behind this practice is valid and experience gained in this manner can be extremely valuable when the new survey officer attends the Industrial Defense Course.

After returning from schooling, the new survey officer must be integrated into the industrial defense trip schedule. If possible, time and budget permitting, his first surveys are again made with an experienced officer. Prior to his making the trips alone, the new survey officer must do an enormous amount of research concerning the facilities he is going to contact. He must become familiar with a variety of facilities--communications, water systems, power, manufacturing, et cetera. This can only be accomplished by diligent reading of periodicals, trade journals, and technical manuals in conjunction with conversation with experienced survey officers who have previously visited the facilities. The Sixth Army industrial defense branch has an unusually good collection of technical material for use by survey officers. The writer has learned from other survey officers that this situation is not found in all army areas. Without such information, a survey officer has a much more difficult time trying to do an effective job.

When contact is made with a facility, management makes a quick but thorough appraisal of the survey officer. If this appraisal indicates that the survey officer does

not know his duties, he is merely given "courtesy time"--polite listening, a smile, and a hand shake--but no compliance with recommendations. If the first impression is favorable and management is given to understand that the survey officer is both competent and capable, then management is inclined to be receptive.

In order for a survey officer to become familiar with a variety of facilities and to learn the best methods for selling industrial defense, a two-year assignment is the minimum time in which this can be accomplished. Another factor which should be considered is the necessity for personal contacts which the survey officer must make. When a police officer is concerned with an area, town, municipality, or beat, it often takes years to make the personal contacts which enable him to perform his various duties in the best possible manner. So too, but not to as great an extent, the survey officer must make contacts with special agents and security officers of various facilities.

Military survey officers are encouraged to wear their uniforms. Whenever the subject of uniforms or civilian clothes is discussed among survey officers there is bound to be controversy. The area provost marshals also have varying opinions concerning the wearing of the uniform. In discussion with various industries in both the Fifth and Sixth Army areas, the reaction has been that

industry prefers the survey officer to wear civilian clothes. Perhaps the following example will explain.

After a survey had been arranged with a large manufacturing plant in the Fifth Army area, a representative of management called the survey officer and requested that he not drive or arrive in a military vehicle and that he wear civilian clothing. The survey officer complied with both requests. Puzzled by the request, the survey officer asked about it during the course of the survey. He was quite specifically informed that the local union had an office in the plant and was very active. If the survey officer had arrived in uniform complete with briefcase, the union could and would arrive at only one conclusion--that the plant was to obtain a large government contract. Being an aggressive union they would immediately start agitating for an increase in wages that could be included in the cost of the contract. The survey officer stated that this problem could be easily solved by merely telling the union representative who the survey officer was and just why he was at the facility. The reply by management was to the effect that this would not suffice in that the union would not believe this answer because they expected to be lied to by management. The wearing of civilian clothes averts such a situation.

There are many other reasons why the wearing of the

uniform should not be encouraged. Management is not impressed by a uniform. In many instances they question why a Military Police officer is making the survey rather than an officer from the Corps of Engineers. If it is a communication facility, they expect a Signal Corps officer. The time spent in explaining that Military Police Corps officers are the specialists in security is non-productive and at times may leave management confused and/or not convinced.

In most instances when the uniform is worn while surveying a plant valuable time is consumed answering questions concerning where the survey officer has been stationed, length of time in the service, opinions of local and foreign happenings, and a multitude of non-productive questions and answers. At other times, the uniform is a safety hazard. When a survey officer in uniform accompanies a member of management through a plant, he is somewhat of an unusual sight. Employees welcome any break from the routine and follow, with their eyes, the pair inspecting the plant. Inattention to their work while sitting at machines may cause injury.

Another disadvantage to the wearing of the uniform is the appearance that the survey officer is expected to maintain. Consider the survey officer who is restricted to forty-four pounds of luggage, boarding a plane in uniform in the summer. By the time he has arrived at his

destination, obtained his rental car, and driven to a hotel or motel, his appearance is somewhat wilted. He could not be expected to call on management that day and present a sparkling appearance. Needless to say, management does not care in the least what you have done before you arrive. You are judged as you appear before them. Let us follow this survey officer on his trip in uniform for a few days longer. The weather is still warm and he has made a call at a facility located in an isolated area. His uniform is immaculate. This survey requires him to proceed through a shop area, complete with overhead cranes, forges spewing smoke, dirty floors, et cetera. It also requires that he go outside and walk through weeds and climb a few rocky ledges. He has made a very complete survey but how will he appear when he makes an office call on the vice president of another firm that same afternoon. There may be grease and dirt on his hat; his shirt is unsightly; and his shoes appear as if he had just returned from a two-week bivouac. The immediate response is that the survey officer has scheduled his trip poorly. In some instances this may be true but not in the majority of the cases when the given amount of time in any one area is limited.

Let us now take the same trip with a survey officer in civilian clothes. The first item is a lightweight civilian hat that has no cap insignia that needs to be

shined. The suits are of a lightweight material that resists wrinkles and is cool. The footwear does not demand the spit shine gloss of the military. The shirt is also a lightweight wash and wear material. If the survey officer makes a call such as the one described above and becomes a bit disheveled, all he need do prior to making his next call is change to a clean shirt which he has in the car, wipe off his shoes, and he is again presentable. He does not have to send the shirt out to have it cleaned as it can be washed in his room in the evening and be ready for wear in the morning. Many facilities are located in isolated areas where cleaning and pressing establishments are not available. The survey officer in civilian clothes is able to spend more time preparing his surveys unencumbered by the task of shining shoes and polishing brass for the following day. This is in no way meant to indicate that the survey officer may appear disheveled in civilian clothing. As previously stated, management is very aware of appearances. The main point is that it is easier to maintain an outstanding appearance, while in a travel status, in civilian clothing. In addition, the survey officer is trying to sell a product to industry and should present himself in the manner most acceptable to industrial managements.

The question invariably arises when considering the

time necessary to develop good survey officers, effective personal contacts, knowledge of facilities, and knowledge of areas: why not use civilian survey officers exclusively? The civilian survey officer can be an asset in that he, in time, will know the complete army area and can advise a new chief of industrial defense. The main problem lies, of course, in the selection of qualified personnel, but this is also true with the military. Another problem is that after a period of a few years the civilian survey officer has a tendency to lose the fresh approach. After having been to a facility several times, he believes that he has been there before, nothing has changed, and there is no way to convince management of the need for industrial defense. He is merely relegated to marking x's in the squares and leaving. If this situation were true, then a considerable savings could be effected in time and money by making a phone call. Each facility should be a challenge to a good survey officer. An incompetent civilian survey officer who has tenure is extremely difficult to remove from his position. In addition, a civilian survey officer will never be useful as an instructor of the Industrial Defense Course or the Privately-Owned and Privately-Operated Course; will never be a provost marshal; nor ever be useful in an advisory or supervisory capacity at CONARC or Department of the Army level.

There is no such thing as a typical survey officer. They are as varied as are all individuals. The methods they use will vary with their intelligence, personality, background, aggressiveness, and desire to do the job. It has been stated that the survey officer must have certain qualifications--field grade or GS-9, schooling, et cetera. Additional criteria should be developed. For example, the integrity and honor of the survey officer (military or civilian) should be beyond reproach. The survey officer signs out of his office on temporary duty and may be gone for a period of seven to twenty days. Unless something serious happens no one ever checks on how or what he is doing. A passable survey could be made by a phone call from a motel and no one would know until the survey is made by a different survey officer. How and where a survey officer spends his time or how well he performs his job no one knows but himself.

With some survey officers, the industrial defense mission is merely the process of presenting themselves, shaking hands, marking the squares on the survey form, and leaving. Other survey officers, both military and civilian, are so awed at the thought of dealing with a vice president of industry that they try and finish the survey in the shortest possible time. Still others, again both civilian and military, do not feel that the facilities or their

personnel are important enough to warrant wearing a clean shirt and tie to present a good appearance. Fortunately, this latter group is in the minority. Approximately fifty per cent of the survey officers want to do the job well but are uninformed as to how to present the program in an exceptional manner. Most important, there are a few dedicated, highly qualified, and extremely successful survey officers. These officers which, unfortunately, are also in the minority, are a credit to the program and especially so since they have had to teach themselves. A few illustrations of the different types of survey officers the writer has encountered or learned of from industry and other survey officers follow.

The writer is still being asked at a few facilities about the whereabouts of the "guy with the knobby knees". It so happened that the survey officer in question had made previous surveys at these facilities. He was getting on in years and was quite thin. His attire was the tropical uniform (short trousers, short sleeve shirt, and knee socks) which he topped off with a pith helmet. This uniform caused no end of amusement to management in the Pacific Northwest. Fortunately, the officer has been retired for some years now. The tragic part is that in reviewing his surveys, few, if any, of his recommendations were complied with even though they were sound and necessary. The same recommendations,

some of which were very costly, were presented in later surveys and immediately put into operation.

The writer remembers most vividly and ashamedly accompanying a survey officer who was shabbily dressed and whose first inquiry to management was "what restaurant are you going to take me to lunch at this time?" Even as a neophyte doing thesis research it was evident that the techniques used by this survey officer left much to be desired. This survey officer was treated with contempt and disdain by management of this and other facilities not only for his method of conducting surveys but also for his complete lack of table manners and social graces. The provost marshal who inherited this survey officer from a previous provost marshal thought and perhaps still thinks the man was doing a satisfactory job.

Another senior survey officer was making a presentation to a group of managerial personnel. He was giving a fine presentation, all personnel were eagerly paying attention, taking notes, and nodding agreement with his comments. In the middle of explaining his recommendations and the reasons for them, the officer took a pocket knife and proceeded to pare and clean his fingernails. Needless to say the presentation which had begun so successfully ended in failure. A small incident such as this seems so petty and yet this officer's usefulness with this particular

facility was finished. In addition, a new survey officer has a more difficult time trying to convince management of the facility that industrial defense is handled by capable, qualified personnel. When the survey officer was discreetly asked why he decided to clip and clean his nails at this time, he replied that his nails were dirty and needed cleaning.

Lest the reader be left with the feeling that the Industrial Defense Program is staffed by crude and incompetent personnel, let us look at another survey officer. This officer is an excellent salesman and instructor. He arrives at the facility at the appointed hour neatly and properly dressed. He presents to all available management personnel information concerning the principles of industrial defense, the goals of the program, and the importance of their facility to national defense. He also explains the role of the survey officer as one of advice, assistance, and guidance. When he has surveyed the facility and made his recommendations, he explains the reasons for the recommendations and the necessity for their acceptance. He also invites questions and comments. This same officer is available to management of facilities at any time to answer questions and to present the industrial defense picture to other employees of the facilities. In order to accomplish all this, this officer must spend many otherwise free hours

in research, preparation of material for presentation, and presentations.

Document Control

The Department of Defense 395 series of reports are classified confidential. The military or civil service personnel who prepare and view these reports must have the appropriate security clearance. The completed reports must be safeguarded accordingly. However, there is no provision for the safeguarding or security of the 395 reports when the survey officer is in a travel status. His trips may be of an overnight or two-week duration. He will be traveling by air or automobile and staying in hotels or motels. He will have in his possession 395 reports, but no guidance is given for their security.

The regulation requires that a completed copy of the 395 report be mailed either to the facility surveyed or to the home office of the facility.³ Even though this document is classified, there is no method of determining that the recipient has a clearance to receive this document. The Industrial Defense Branch has no control over the handling or dissemination of the report after it has been forwarded. If the facility is also under the Industrial Security program, then this matter becomes a responsibility of that

³Army Regulation AR 580-20, op. cit., p. 7.

program. Many of the key facilities, however, are not under the Industrial Security program.

Another problem in document control is the reluctance of some finance officers to accept travel vouchers which do not state the specific point to which travel was made. Information of this nature would divulge the complete key facilities list for an army area and would require classification. This, in turn, would necessitate the clearance of all personnel who handle the vouchers and the vouchers would require safeguarding.

Findings Concerning the Army Area Level

There is a general lack of knowledge concerning the mission, purpose, and goals of the industrial defense program. This lack of knowledge hampers not only the performance of the provost marshal but also of the survey officer, and hampers industry's acceptance of the program. The provost marshal is unable to select the best qualified officers and has little information upon which to base his rating of the quality of performance of the survey officer. In many instances, the survey officer finds himself trying to perform satisfactorily a job for which he is not qualified. In other instances, he may be qualified and yet untrained in the methods and techniques of performing in an exceptional manner.

The effect this lack of knowledge has upon industry

acceptance of industrial defense is perhaps the most damaging. Industry is quick to discern the caliber of the survey officer and quick to reject any recommendations made by a survey officer which they do not recognize as competent. This acceptance or rejection can be based on personal habits, manner of dress, knowledge of business courtesies, social grace, as well as quality of instruction and knowledge of the industrial defense mission.

Survey officers are being assigned to industrial defense on their last tour before retirement with the result that their usefulness in industrial defense is limited. Other officers are not remaining in the program long enough to acquire a thorough knowledge of the program. No concerted effort is being made to train qualified industrial defense personnel who can be utilized as instructors, informed provost marshals, or in other staff and advisory positions.

The survey officer is expected to present a neat personal appearance to industry and is encouraged to wear the uniform in the case of military personnel. It is sometimes impossible to present a neat appearance in a uniform while in a travel status and surveying all types of facilities. In addition, many industrial facilities prefer that survey officers wear civilian clothes while surveying their facility. In the Sixth Army area, military survey officers

wear civilian clothes almost entirely while conducting surveys. This necessitates the purchase of additional civilian suits, shirts, ties, socks, and shoes. Yet, no clothing allowance is provided for this added expense.

Guidelines concerning the control of classified documents which the survey officer has in his possession while traveling are non-existent. This is also true when the completed document is forwarded to a facility which is not covered by the Industrial Security program. In addition, finance officers at army area levels are sometimes reluctant to accept travel vouchers which do not state specifically the point visited. The solution to this problem is usually handled on a personal basis between the industrial defense branch and the finance officer. Each time a new finance officer is assigned, the problem again has to be resolved. There is no directive which requires the finance officer to accept such vouchers and yet there is no reason why the survey officer should be penalized in the collection of travel pay, as sometimes occurs.

II. U. S. ARMY MILITARY POLICE SCHOOL

The United States Army Military Police School at Fort Gordon, Georgia, conducts a two-week Industrial Defense and Disaster Planning Course. The academic subjects taught are eleven hours of Industrial Defense, eleven hours of

nuclear, chemical, and biological considerations, fifty hours of disaster planning, and four hours for evaluation. The eleven hours devoted to industrial defense are further broken down into: one hour for course orientation, one hour on the communist threat, two hours on the Department of Defense Industrial Defense program, one hour on the Department of Defense Industrial Security program, and six hours on industrial defense surveys.

The program of instruction lists the purpose of the eleven hours of industrial defense to provide a working knowledge of the industrial defense program and the techniques of conducting and preparing for industrial defense surveys. The scope of this eleven hours is planned as follows:⁴

Course orientation to cover Department of the Army logistical planning objectives; course objectives; and orientation on model facility.

Communist threat to cover orientation on the history, objectives, and tactics of the Communist Party.

Department of Defense Industrial Defense Program to cover the industrial defense program, objectives, scope, and responsibilities; introduction to survey forms.

⁴The Provost Marshal General's School, U. S. Army, Fort Gordon, Georgia, "Industrial Defense and Disaster Planning," Program of Instruction for 19-G-9210, June 1961, Draft, pp. 8-9.

Department of Defense Industrial Security Program to cover explanation and discussion of the objectives and responsibilities of this program.

Industrial defense surveys to cover techniques of conducting industrial defense survey utilizing forms of the 395 series; administrative preparation and approach to management in conducting industrial defense surveys.

The survey officer is expected to attend this course prior to or immediately following his assignment to industrial defense. The classroom and surroundings are excellent. The instructor personnel are dedicated and intelligent, and it would appear that the program of instruction is well-planned. In most instances, however, instructors of the course are completely inexperienced in the field of industrial defense. Their techniques of teaching are excellent but their knowledge of the program, especially at the operational level, is limited. Normally, the instructors are required to accompany a survey officer on at least one survey in order to gain an insight into the program. As discussed previously, one survey cannot possibly present the spectrum of problems that will arise in industrial defense.

The time allotted in the program of instruction for explanation of the program is devoted to the information covered by the army regulation, the criteria for selection

as a key facility, the category definitions, and the survey forms. The survey officer does not learn about his primary responsibilities of educating and selling the program. He also remains uninformed as to the importance of the industrial program to national defense.

Time is also allotted for six hours of instruction on the techniques of conducting surveys, administrative preparation, and approach to management. During this period, the survey officer learns how to survey a facility and complete the survey forms. How to convince management of the importance and need for industrial defense is not taught. A great deal of information is not forthcoming from the course. For example, the survey officer does not learn how to plan and schedule survey trips; how to gather background information on the facilities in his area; business courtesies that must be observed; how to plan trips; typical reactions that he will encounter; and how he can counter these reactions. In other words, he does not learn how to carry out his responsibilities.

Some of the survey officers attending the course return to the army area as Chief of the Industrial Defense Branch. They are expected to be the authority on industrial defense in their area. You can imagine the consternation of one such survey officer who, out of sheer frustration, stood up in class near the close of the two-week course and

stated, "I've been here for a week and a half and I haven't learned how to make a survey yet". The survey officer attends the course expecting to learn not only the overall picture of industrial defense but also his own responsibilities and how he can perform them in the best possible manner. Failure of the school to teach the survey officer the importance of his mission and the techniques which he can use to gain greater acceptance by industry of the industrial defense program is one of the main weaknesses of the program.

The program of instruction and lesson plans prepared by industrial defense instructors are subject to review by higher authority at the school. Here, again, many of those who approve lesson plans and make critiques of classroom presentations are unaware of the problems and other aspects of industrial defense. During the two-week course which the writer attended, an instructor gave an excellent presentation on map reading. A senior officer was present as a visitor to rate the quality of instruction being given. After his critique was submitted, the instructor was reprimanded for teaching map reading entirely wrong. The instructor was teaching the method used by civil defense agencies (i. e., northings and eastings, et cetera) but the rating officer was unaware of this aspect of industrial defense.

Several factors always affect the quality of any course of instruction. The time allotted for the instruction, the control of instruction, and the caliber of instructor personnel are all important. However, the most important factor is for those who are doing the teaching and those who are doing the reviewing and approving of lesson plans to have a thorough knowledge of the subject being taught. Either this is not the case at the military police school or there is a failure to impart this knowledge to the survey officer.

The military police school also conducts a five-day Industrial Defense and Disaster Planning for Privately-Owned and Privately-Operated Facilities Course (POPO). The academic subjects taught are five hours of industrial defense, five hours of nuclear, chemical, and biological considerations, and twenty-seven hours of disaster planning. This course is similar to the course offered to survey officers except that it is planned for executives and other key personnel of facilities on the Key Facilities List. The purpose of the course is to provide those personnel with a working knowledge of the principles of disaster planning, recovery from disasters or nuclear attacks, personnel continuity and protection, and techniques of damage assessment and reporting. The program of instruction follows very closely that of the course provided for

survey officers.

The writer has discussed this course with representatives of varied facilities in both the Fifth and Sixth army areas. These representatives have ranged from vice-presidents, to officers in charge of security, to special agents. Their opinions of the course have been extremely favorable. They are impressed with the treatment they have received at the school, the classrooms, the quality of instruction, the material presented, and especially the guest speakers. They are also extremely happy with the tours arranged for them while at the school. They speak highly of visits to the signal school, criminal investigation laboratory, and the few who have attended the course during the Masters' Golf tournament were very impressed with attending portions of the tournament. Attendance at the school by members of industrial facilities is a great help to the survey officer when he attempts to sell industrial defense. After having attended the school, personnel of key facilities are well-informed as to the need for industrial defense and much more receptive to recommendations made by the survey officer.

It was stated earlier that officers received instruction in industrial defense in the advanced course for military police officers. As with the course for survey officers, this period of instruction is involved more with the physical

security aspect than with the reasons for and the importance of the industrial defense program. Military police officers are not learning of the need for and the importance of industrial defense activities.

Findings Concerning the U. S. Army Military Police School

The Industrial Defense and Disaster Planning Course is staffed by intelligent and capable instructors. The weakness in the course is a result of lack of experience in and thorough knowledge of the subject on the part of the instructors and the personnel responsible for reviewing, approving, and rating classroom instruction. The survey officer is not learning as completely as he could about his responsibilities for education and selling, and the techniques with which he can best perform his responsibilities.

The POPO course is well-planned, well-instructed, and well-received.

The advanced course for military police officers stresses the physical security aspect of industrial defense rather than the importance of, reasons for, and methods of gaining acceptance by industry. This deficiency is reflected in the lack of knowledge of industrial defense on the part of all military police officers.

III. CONTINENTAL ARMY COMMAND

The Continental Army Command (CONARC) is responsible for directing the implementation of industrial defense

activities, reviewing survey reports, recommending changes to the Key Facilities List, and conducting training in the techniques and procedures of surveying non-military defense measures. The responsibilities delegated to CONARC are extremely important in developing the overall effectiveness of the industrial defense program. Each of the responsibilities requires extensive research, planning, and programming. There are two officers assigned to Industrial Defense at the CONARC level. Each are extremely dedicated, capable, and conscientious military police officers with little prior knowledge of industrial defense. In addition to their primary duties in industrial defense, these officers are assigned additional duties which require many hours in other than industrial defense activities. It is impossible for these officers to do more than a limited amount of necessary research and planning in industrial defense. In addition, much of the time in the first six months of the assignment must be spent in learning just what industrial defense is all about because of lack of prior knowledge or experience.

Time and personnel are just not available under the present organization to do justice to the responsibilities. Survey reports can only be reviewed to the extent of noting recommendations, acceptance or rejection, and completeness. Reviewing surveys with an attempt to determine which

facilities consistently reject recommendations; why recommendations are rejected; can something be done about these facilities; if not, what changes can be made in the Key Facilities List to lessen the seriousness of this failure--is impossible to do with the present manpower. Also impossible is the determination of the most effective techniques and procedures which the survey officer can use to effectively accomplish the industrial defense mission. Nor is there time to question management of facilities concerning their criticisms or suggestions for improvement of the program.

The officers assigned to CONARC are doing the very best that they can to carry out their industrial defense responsibilities with the limited manpower and time available. However, much more could be accomplished with an increase in personnel who have a thorough knowledge of industrial defense at the operational level and who are assigned on a full-time basis to industrial defense.

IV. DEPUTY CHIEF OF STAFF FOR LOGISTICS

The staff supervision for which the Deputy Chief of Staff for Logistics is responsible is assigned to one officer on a part-time basis. This officer is an especially competent and capable man but one without any previous knowledge of or experience in the field of industrial

defense or other military police activities. In addition to lack of experience in the program, this officer is expected to perform adequately this function not as a primary duty but as an additional duty. This, of necessity, relegates supervision of industrial defense to a secondary position of importance which is reflected in the overall organization and operation of the program. No man, no matter how capable, can do a satisfactory job of staff supervision of industrial defense on a part-time basis. The same man cannot be expected to perform adequately without knowledge based on experience in the field of industrial defense.

V. INDUSTRIAL DEFENSE EDUCATION PROGRAM

The army regulation states that the Assistant Secretary of Defense (Supply and Logistics) is responsible for the Industrial Defense Education Program. This program consists of the preparation and distribution of informative and technical guidance materials to be furnished to industry. The regulation further states that the survey officer should recommend to management the use of such material which can be obtained by writing to the Industrial Facilities Protection Branch of the Office of the Assistant Secretary of Defense (Supply and Logistics).⁵

⁵Army Regulation (AR) 580-20, op. cit., p. 11.

As far as the writer can ascertain, this program is not even in existence. Despite requests in writing concerning information about the program, no information has been forthcoming. The writer was informed through correspondence with the Office of the Provost Marshal General in 1961 that his requests for information had been received by the office in question. It was stated that assignment to various other special projects had made it impossible to reply. Survey officers in three other army areas have advised that they requested information in 1963 and 1964 from the address listed in the regulation and received no reply. Another officer who is assigned to and doing research in the Washington area spent many hours in 1964 in telephone conversations and going from office to office trying to determine if this program was in existence. He also experienced failure. Both present and former instructors at the military police school for the past three years fail to have any information concerning the program.

The writer has received information from approximately five different sources that this program has been transferred from the Assistant Secretary of Defense (Supply and Logistics) to the Office of the Assistant Secretary of Defense for Manpower and Reserve, and just recently to the Department of the Army. It would appear that the army regulation desperately needs revision to indicate if such

a program is in operation and to correctly identify the responsible office.

VI. REACTION OF INDUSTRY

Both external and internal factors influence the reaction of industry to the industrial defense program. The major external factor is the survey officer and how well he performs his duties. How well does he explain the need for and purpose of the program? Does he explain the reasons for and necessity of putting into effect his recommendations? How valid are his recommendations? Does he relate industrial defense measures to sound business practices? Is he proficient? Does he understand and use approved techniques for selling a product? Answers to these questions will readily determine the extent and nature of influence, whether favorable or unfavorable, which this external factor has upon industry reaction. The other external factor is the status of the world situation. When a crisis develops, industry is much more receptive to industrial defense than it is in a time of relative peace. After the crisis subsides, the tendency is to delay putting into effect industrial defense measures that seemed so urgent.

Internal factors which determine the reaction of industry are (1) the attitude of management toward security

(in branch offices, this attitude usually reflects the position of the home office), (2) the size and location of the facility, (3) previous experience with disaster, (4) type of product manufactured, and (5) the cost involved in effecting recommendations made.

The selling of industrial defense to a facility whose management is security-conscious becomes a relatively simple task. Normally branch offices will follow the lead of their home office. The word "normally" is used because this does not have to be the case. Through excellent ground-work and planning on the part of survey officers in the Sixth Army area, one communications facility led the way for their home office. An education and training program was established not only for special agents but also for engineers and top management. This program was so successful that the home office is using it as model for all of its facilities in the United States.

The size and location of a facility also has its bearing upon industry's reaction. In facilities with a relatively small number of employees, management is sometimes reluctant to do background investigations, require employees to wear identification badges, or have controlled access areas. Large facilities may see the necessity for identification badges and controlled access areas, but do not want to run background investigations on such

a large number of employees due to the cost involved. In addition, the location of a facility has an influence on the acceptance or rejection of industrial defense measures. Facilities which are located in or near what is generally considered a prime target area, approach industrial defense with two extreme views. One view is that the area is a prime target and, therefore, if a disaster occurs, defense measures will not help. At the other extreme is the view that being in a prime target area, extra attention should be paid to any defense measures that will contribute to recovery. Facilities which are further removed from the target areas usually agree that industrial defense measures are worthwhile but frequently do not deem their situation serious enough to require urgent consideration or acceptance.

Another factor which influences industry's reaction is their previous experience with disaster. Managements who have been subjected to a natural disaster or acts of sabotage readily understand the need for a disaster plan and security measures. Experience has taught them how pre-planning in the form of disaster plans could have softened the impact of the natural disaster and how security measures could have prevented the sabotage.

Manufacturing processes which contain hazardous elements, such as the use of high voltage, chemicals, et cetera, are prevalent in certain manufacturing facilities.

These facilities are more receptive to defense measures which will minimize danger to employees and damage to equipment.

The cost involved in effecting recommendations made also has a bearing on the acceptance or rejection of recommendations. How much of an influence is difficult to determine. When both the external and other internal factors have been favorable to industrial defense, cost presents very little problem. When there is a significant resistance based on other internal and external factors, then cost is usually given as the reason. It would appear that cost is used as an excuse rather than a reason.

Not all of these factors enter into the acceptance or rejection of industrial defense by an individual facility. Each of these factors does, however, have a bearing on the overall reaction by industry. Understanding that these factors do exist and why they exist is the biggest step in learning how to control them.

It has been stated previously that industry is quick to judge the proficiency of a survey officer. Once this judgment has been made in favor of the survey officer, his task becomes much easier. Industry's reaction in this situation is extremely favorable. The survey officer recognizes that the external factor has been controlled and he must now attempt to influence the internal factors. Consider

a facility whose management is not security-conscious and feels that the cost of initiating security measures is money spent for which there will be no return. The survey officer realizes that this facility wants to know what they are going to get for the money they are being asked to spend. They are not interested in the future when a disaster might occur. They are interested in now. The survey officer discusses the annual cost of industrial crime and the amount of savings that can be garnered from prevention of pilferage alone. He can illustrate the effect of a visitor wandering into the facility and becoming injured. The cost of crime, injury to visitors and employees, and safety hazards must be translated into profit and loss for management. The survey officer may not be speaking of industrial defense as it relates to national security but he is gaining acceptance of the program. The survey officer's interest in the facility is to assure that they will be able to continue producing during a national emergency. The important issue is that they will be able to do so and not their reasons for accepting industrial defense.

Due to the cost of background investigations for large facilities, management is often reluctant to initiate this procedure. Here again, the survey officer through excellent relations with security personnel can offer advice and guidance. Security agents of a large corporation in

the Sixth Army area were trying to convince management of the worthiness of this measure. They were finally given permission to do background investigations on fifty employees picked at random by the personnel manager. These fifty investigations revealed one convict who had just been released from prison after serving three years for theft, one escapee from a mental institution, two shoplifters, three prostitutes, and one man wanted in another state for unlawful flight to avoid prosecution. This corporation which advertised "send your daughter to work for us where you know that she will be safe" quickly revised its opinion of background investigations.

The important thing to remember is that almost all of these factors can be altered to the advantage of the industrial defense program if they are recognized and steps taken to correct them. There are relatively few facilities on the Key Facilities List who will not accept the industrial defense program. Despite the efforts of various survey officers, some excellent and some incompetent, these facilities have resisted all attempts to sell the program to them. Yet these facilities remain on the key facilities list. Some of these are small, family-owned facilities who are not interested in doing things any differently from the way their father or grandfather did. A few provide service to the public and counter

with "to whom shall we sell our service if the bomb falls?" They state that when civil defense can protect the people, they will protect their plant. These types of facilities are small in number, probably not more than one per cent, but they are still looked upon as a source of supply in the event of a disaster. Year after year they remain on the Key Facilities List with an annual survey being made, but, as far as the writer can determine, there is no attempt made to find a replacement facility which would be more receptive to industrial defense.

The writer has found that industry is usually receptive to recommendations made by a qualified, competent survey officer. They understand the reasons for the recommendations, the dual benefits they can receive (complying with the program and savings in pilferage and insurance rates, for example), and realize that it is just good business to be security-conscious. When all of these advantages are not made known to management, then compliance is more or less a matter of luck.

Another type of industry reaction is the effect that an unqualified survey officer in one area can have on an excellent survey officer in another area, or vice versa. Consider the situation of a home office in an army area contacted by a survey officer who is unable to sell industrial defense to this office. The branch offices are

reluctant to accept recommendations made by the local survey officer due to the reaction of the home office. Many survey officers have especially good relations with branch offices and would have no difficulty if the survey officer in the home officer area would do an effective job.

Many facilities have expressed an interest in an education program for their employees at all levels and yet material is not available. The area survey officer works on a time schedule and budget that does not permit him to take extra days in a locality to speak to employees. The writer has spent as many extra hours as possible at facilities talking to supervisory personnel and other employees. Some industries have even offered to close down operations during working hours in order that the employees could learn about industrial defense. The interest is there: what is needed is the time, manpower, money, and instructional material.

It was stated earlier that attendance by industry personnel at the POPO course could prove beneficial to the industrial defense program. The goal is to get as many representatives as possible to the course. Many facilities have reported hearing of the course but never being contacted personally with reference to sending representatives. Other facilities have sent one man who so jealously guards his knowledge gained from the course that he does

not want another member of his staff attending. When the survey officer outlines the course to management at a decision-making level, response to the course is excellent. Many survey officers do not understand this guarding of job security in civilian industry or if they recognize it, do not know how to combat the problem.

VII. SUMMARY

For the most part the industrial defense program is well-planned. There are a few areas which are not well-defined or carried out. Foremost among these is the primary responsibility of the military departments which devolves to the individual survey officer. Even though the responsibilities are itemized in the regulation, no mention is made to the effect that these responsibilities can only be accomplished through an excellent selling and education campaign on the part of the survey officer.⁶

The regulation also states that the survey forms, when completed, are classified as CONFIDENTIAL or higher.⁷ Military or civilian personnel who handle this information at the military level must have the proper security clearance and take the necessary security precautions. Because

⁶Army Regulation (AR) 580-20, par. 1-201, p. 2.

⁷Ibid., par. 2-315, p. 7.

the information on the forms originate with the assistance of management of a given facility, they may receive this information without being cleared for access to classified information. The reasoning behind this ruling is logical; however, it is well to understand that there may be no control over the document once it reaches the facility. Once again, the survey officer may advise but he has no method of control over the document after it is received by the facility. Also in the area of document control, there is no provision for the security of documents which are in the possession of the survey officer while in a travel status.

The regulation also provides for an Industrial Defense Education Program. As reported earlier, the writer has been unable to determine if such a program is functioning. Survey officers and industry have expressed an interest in educational material which could be utilized to strengthen the industrial defense program, yet this material is not available.

In the area of program operation, there are many failures. Perhaps the most important one is an overall lack of knowledge concerning the industrial defense program. This lack of knowledge runs the gamut from reasons and necessity for the program, purposes of the program, responsibilities in the program, to the judging of the quality of the program. This lack of knowledge is prevalent at

all levels, from top to bottom. This lack of knowledge weakens the implementation of the program, the selection of qualified survey officers, the training of survey officers, and the rating of the program and the officers involved.

This is certainly not meant to indicate that there are no successes in the program. In recent months, there has appeared to be an increase in awareness of industrial defense at all levels. There has been a placement of more qualified officers in industrial defense slots. The Sixth Army Industrial Defense Branch is recognized army-wide for its accomplishments and serves as a model for other industrial defense branches. The Industrial Defense symposiums which were started in 1963 show promise of becoming very effective. As stated earlier, the purpose of this paper is to determine deficiencies and to make recommendations for improvement. Therefore, the writer may appear to dwell more on failures than on successes. There is little improvement needed for successes but much that can be done to overcome the failures.

A few typical reactions encountered by the writer will demonstrate those failures caused by lack of knowledge. A chief of an industrial defense branch states, "I have just returned from the school. I don't even know how to make a survey. I'll have to rely on the capability of

survey officers I have until I get my feet on the ground". This officer knew nothing of budgeting, scheduling, or techniques of selling industrial defense. Another chief of an industrial defense branch stated, "Why worry about what you don't know about industrial defense? No one cares enough to do anything about".

A survey officer in commenting on how he makes surveys states, "I just look around and tell them what they should have. They either say yes or no. I don't know how to convince them". Another survey officer stated, "They usually reject my recommendations so why should I bother trying to change their minds". Still another survey officer states, "I've never been in civilian industry. How should I know what makes them tick?" And lastly, a survey officer says, "I've been doing the job for a year without any help or instruction. I'm just now getting ready to go to the school".

An instructor relates, "I never heard of industrial defense until I was assigned as an instructor in the department". These reactions are typical and not isolated instances.

The result this lack of knowledge has on the selection process is disastrous. Survey officers are the sole contacts with facilities acting as representatives of the Department of Defense. Their performance has a decided influence on

the acceptance or rejection of the program. Due to lack of knowledge on the part of provost marshals, survey officers are being selected without any qualifications in salesmanship or ability to instruct.

Schooling also is negligent in that the physical security aspect is stressed rather than techniques for selling and teaching. Even if a qualified man is selected by chance, he is not receiving the proper training. If he becomes an outstanding survey officer, it is only through self-teaching. Discussion of the problems that a survey officer will encounter are not covered at the school. Survey officers in many instances have difficulty reaching the level of management which can be most helpful in securing acceptance of the industrial defense program. Survey officers do not understand the factors which shape industry's reaction to industrial defense. Nor do they understand how they can solve these problems as they arise. These and other problems which they may have are not considered in their schooling.

Military survey officers are encouraged by their superiors to wear the military uniform even though management of most facilities would prefer that the survey officer appear in civilian clothes. In addition, it is much more difficult for a survey officer to present a neat appearance at all times in uniform. In army areas where civilian

clothes are worn almost exclusively, no clothing allowance is given to survey officers. The purchase of additional clothing presents a hardship to most military survey officers.

The weaknesses which exist in the operation of the program are caused by:

1. lack of knowledge in all areas and at all levels of industrial defense.
2. a selection process based on insufficient knowledge of the criteria or a misconception of the requirements for a successful survey officer.
3. unqualified, incapable survey officers.
4. insufficient manpower.
5. insufficient budget.
6. insufficient training.
7. failure to understand the factors which influence industry's reaction.
8. failure to understand how these factors can be altered, and failure to attempt to do so.
9. failure to effect the interchange of ideas and information of mutual interest between industry, survey officers, school personnel, and Continental Army Command.
10. failure to solicit criticism and suggestions from industry concerning the effectiveness of the program.
11. failure to provide educational material for the use of both industry and survey personnel.

Even though the list of failures is impressive, the failures are not insurmountable. In the following chapter recommendations will be made which could strengthen the industrial defense program and give the program the status it needs to fill a vital need in our national defense posture.

CHAPTER V

RECOMMENDATIONS

All of the recommendations made are based on the result of findings over a period of three years of research into the industrial defense program. The writer has interviewed and questioned anyone in two army areas who could provide an insight into the problems of industrial defense. The response has been exceptional. There has been general agreement that industrial defense is a vital and worthwhile program. Even with its weaknesses, strides have been made to reduce the vulnerability of our key facilities. There are many facilities which have identified critical areas of production and maintain control over entry to these areas. There are also many facilities which have adequate guard forces and controlled entry to their plants. A lesser number have adequate disaster plans and adequate measures for personnel continuity. How much more, then, could be accomplished by a well-planned program staffed by competent personnel who can elicit a positive reaction by industry? This is the basis for the recommendations.

The intent is not to criticize any individual or group of individuals for their shortcomings, but to offer constructive steps to be taken to enable survey officers to do a more effective job. The weaknesses have been

caused not by a lack of concern but by a lack of knowledge at all levels. Improvement must come by direction from the highest level. With this in mind, the following recommendations are made.

I. DEPARTMENT OF DEFENSE

It is recommended that a determination be made at this level as to the worth of industrial defense. If the defense of industry is considered to be vital to national defense, as the writer believes it to be, then certain action is necessary to improve the quality of the industrial defense program. First, a statement of policy should be issued to subordinate commands indicating that the industrial defense program is recognized as a vital and worthwhile program which will be given the status and attention it deserves. Secondly, the program should be given an increase in manpower, budget, and training. Lastly, responsibility should be assigned and a follow-up should be made to insure that there is a provision for an industrial defense education program and that educational materials are made available.

II. DEPUTY CHIEF OF STAFF FOR LOGISTICS

After the statement of policy has been made, the Deputy Chief of Staff for Logistics who is responsible for

the general staff supervision should have a staff assigned solely to industrial defense. This staff should be thoroughly familiar with all areas of industrial defense. They should understand the problems encountered by the survey officers and by management. They should be able to explain the needs and problems of industrial defense in order to obtain increased manpower and budget for industrial defense.

In addition, consideration should be given to a continuing evaluation of the effectiveness of the industrial defense program. This can only be accomplished through requests for criticisms or suggestions directly from industry or through personal contacts with industry. This evaluation could either be handled at DCSLOG level or delegated to the Provost Marshal General or Continental Army Headquarters. The important point is that a provision should be made for such an evaluation.

Consideration should also be given to a solution of the problem of facilities who remain on the Key Facilities List without actively participating in the industrial defense program. It is recommended that an all-out effort be made to convince these facilities of the merits of the program and to solicit their compliance with recommendations made. If this attempt fails, then alternate facilities, if available, should be selected and changes made to the Key Facilities List. In the event that a facility who

refuses to participate in industrial defense is a sole producer and there are no alternate facilities or products then this fact should be made known to planners who are depending on the products of this key facility in the event of a disaster.

In the area of document control, guidelines should be issued covering the control of classified documents which the survey officer has in his possession while in a travel status.

Lastly, concerning the auditing of travel vouchers, it is recommended that liaison be made with the Chief of Finance with a view to obtaining cooperation in this area. A directive outlining the problems of security of the key facilities list and directing army area finance officers to honor travel vouchers which list a specific location "and vicinity" would be helpful.

III. THE PROVOST MARSHAL GENERAL

The Provost Marshal General should recognize that a survey officer's mission is much more than performing a physical security survey. A survey officer should be viewed as one whose primary duties are selling and education. Once this is recognized, then a concerted effort should be made to identify those qualities which indicate that an officer would be an outstanding survey officer.

There are several reliable aptitude tests, personality analysis, or interest tests which could be used in making this identification. Testing could be accomplished at the Military Police School for those officers assigned to or attending any of the various courses offered by the school.

Once it has been determined that an officer has an aptitude for and an interest in selling and teaching and the personality traits necessary to become successful in this field, this information could be made a part of his record. Such tests could be extremely useful in identifying those officers who could not perform the industrial defense mission in a satisfactory manner. Tests results which indicate that an officer is not qualified for an industrial defense mission would not necessarily reflect an incompetence in other areas of military police activities and should not influence assignment in these areas. However, the results of these tests could also indicate an aptitude for teaching which could be helpful in selecting instructors for the Military Police School.

This recommendation is not meant to be construed as advocating that certain military police officers specialize in industrial defense to the exclusion of other military police activities. The writer agrees that military police officers should be well-qualified in all

areas of military police activities and should not be limited to a specialty in one area. The recommendation is made in order that industrial defense will be given the recognition that it deserves among provost marshal activities, staffed by competent and capable military police officers.

The Provost Marshal General must recognize the value of industrial defense and understand the need for selection of well-qualified survey officers who will receive the necessary training in order to reflect favorably upon the Military Police Corps. Industrial defense could and should become an important function of military police officers as specialists in security. This can only be done with an improved selection process, improved training, and positive direction accompanied by an increase in manpower.

The Provost Marshal General should be able to justify and accomplish the assignment of a military police officer or officers who understand fully the industrial defense mission, responsibilities, and problems, on the staff of the Deputy Chief of Staff for Logistics for staff supervision of industrial defense. He should also insure that every military police officer will become better informed about industrial defense and the status it will have in military police activities. This can be accomplished through changing the method of presentation of

industrial defense at the Military Police School, through policy statements, and through provost marshal conferences. The army area provost marshals especially should be given a better understanding of the importance of the program and the need for selection of qualified survey officers.

Consideration should also be given by the Provost Marshal General to the findings concerning the wearing of the uniform in an industrial defense capacity and the added cost of wearing civilian clothes. It is recommended that the encouragement for wearing the uniform be withdrawn. It is also recommended that a clothing allowance be granted to military police officers assigned to industrial defense.

In addition, guidelines should be issued to army area provost marshals which will more fully and accurately describe the qualifications necessary for a successful survey officer. Particular attention should be given to qualities necessary for selling and teaching.

Finally, the Provost Marshal General must have an increase in manpower in order to accomplish an outstanding job in industrial defense.

IV. COMMANDING GENERAL, CONTINENTAL ARMY COMMAND

Continental Army Command responsibilities under the industrial defense program are long and impressive. None of these responsibilities can be handled effectively unless

the Commanding General, CONARC, assigns a full-time staff of knowledgeable personnel to industrial defense. At this level, survey reports should be reviewed with a view to determining answers to the following questions:

1. Are the recommendations made by the survey officer valid?
2. Which recommendations are more often rejected than accepted? Which more often accepted than rejected?
3. Are there managements which consistently reject recommendations? Who are they?
4. Are there managements which consistently rejected recommendations made by one survey officer but accepted them when made by another survey officer?
5. If so, what was different in the approach of the two survey officers?
6. Are there managements which have rejected all recommendations for a number of years? Did they or the survey officer give reasons for this rejection?
7. Are alternative recommendations possible which would elicit a more positive response?
8. Are there certain types of facilities which are more amenable to industrial defense?
9. Is there evidence of branch offices which are being hampered by the lack of enthusiasm for industrial defense by their home office?

research material, and budgeting. The time allotted in the present program of instruction for explanation of the program should be used to inform the survey officer of the importance of industry to our national defense. He should learn at this time how facilities are selected as key facilities, why they are important to national defense, why the program is voluntary, and what action will be taken when his surveys are reviewed at higher levels. In other words, first sell the program to the survey officer who, in turn, will be able to do a more effective job of selling to industry.

The Commanding General, CONARC, should also maintain a three-way flow of information between the survey officer, industry, and instructors. Comments received by the school from industry personnel concerning the operation of the program should be made known to survey officers. Survey officers should have some means of transmitting suggestions and criticisms received from industry as a means of improving training of survey officers. This information occasionally is transmitted on a purely personal basis between survey officer and instructor but there is at present no way for this information to become useful to all survey officers.

In the area of budgeting, consideration should be given at this level to the desirability of survey officers

attending conferences or courses offered either by other federal agencies or organizations in the field of industrial defense. The American Society for Industrial Security holds conventions or seminars which could be extremely beneficial in increasing the survey officer's knowledge of industrial security and related industrial defense problems and the methods used to solve these problems. There are also courses offered by other agencies which could prove helpful. In order to encourage attendance at these conventions and courses, an increase in budget will be necessary. At least one representative should attend these courses who could disseminate the information to survey officers in all areas.

Additionally, funds should be provided for subscriptions to various publications which provide useful information in the field of industrial defense. The survey officers should also have funds for business cards. The cost is so trivial and yet many survey officers are using their military calling cards, writing in their titles and phone numbers.

Lastly, the Industrial Defense conference held annually at CONARC would be an ideal setting for further amplification of the responsibilities and requirements for selection of survey officers. Provost marshals quite often attend these conferences and could gain useful information which could enable them to utilize a better selection

process for survey officers. Survey officers should learn of successful approaches used in other areas.

V. INDUSTRIAL DEFENSE EDUCATION PROGRAM

There is a vital need for this program. The program should consist of a pamphlet explaining the nature and importance of industry to national defense, how industries are selected as key facilities, why the program must be a voluntary one, and how industrial defense measures are nothing more than good business practices. The program should also include a number of films which could be shown to employees at all levels in industry. Some of these films should be aimed at the management level, others at the supervisory level, and still others for the rank-and-file employees. Reprints of magazine articles on the following subjects related to industrial defense would prove helpful to the survey officer and to industry:

1. What other facilities are doing to solve their industrial defense problems.
2. The cost of industrial crime per year (theft, pilferage, or embezzlement).
3. Sabotage--and measures to prevent it.
4. How serious is the problem of dishonest employees?
5. Value of comprehensive personnel security procedures.

6. Value of security education and indoctrination programs for all levels of personnel.

7. How to convert crime factors to profit and loss factors.

8. The public relations value of security measures.

9. Continuity of management.

10. Protection of records and personnel.

11. Disaster Plans.

12. Natural disasters and what can be done to minimize their effects.

13. Safety programs and their relation to industrial defense and how they can effect savings in insurance rates.

14. How other companies handle mutual aid agreements.

The survey officer does not physically have the time to do the research necessary to find articles on all these subjects. Neither does he have an allocation of funds to cover the cost of reprinting such articles. Many times the survey officer is asked if he has films which could be used to explain industrial defense to all employees. None of these materials can be supplied. There must be some source for material which can be utilized as an aid in selling industrial defense.

Additionally, there is a need for a brochure which explains the training available for key personnel. It has been stated that the attendance at the POPO course by key

personnel increases the awareness and cooperation of industry in the industrial defense program. In order for the survey officer to obtain increased attendance by industrial personnel at the POPO course, it is recommended that a brochure describing the course be issued. This brochure would give the dates of the POPO course, subjects covered, length of course, who is eligible, and how to apply.

Finally, there is much that could be accomplished through a comprehensive education program for those industries who have branch offices all over the United States. Many of the home offices of these facilities are located in one or two general areas and it should not be too difficult to arrange conferences which would fully explain the purpose, objective, and limitations of industrial defense.

VI. CONCLUSION

There are certain areas of industrial defense which need further clarification. For example, industrial representatives have requested information concerning the policy or procedure of informing facilities in an emergency. Survey officers need policy, guidance, answers, and decision on the following questions: When does industry go into emergency operations? Who informs them? By what authority? How is message given? How is the emergency condition called off? What if sub-contractors are doing contractual work at

the facility? Who pays for the stoppage of their work? All of these questions are being asked the survey officer for which he has no answers.

There must also be an understanding reached between industrial defense and civil defense concerning the use of industrial shelter areas. It is natural for civil defense to view industrial shelters as possible shelters for the local population. Industry, when approached by civil defense officials, is reluctant to refuse the use of shelter areas when space is available. Industrial defense personnel are concerned only that the facility will be able to produce in the event of a disaster. Unless there is control of all individuals using shelter areas, the best security measures and disaster plans could become worthless. Industrial defense personnel do not get involved with the internal organization or policies of a facility, nor do they wish to counter civil defense measures. They do not want, however, to encourage or permit a saboteur to enter a facility through means of a shelter area. This position should be made known to civil defense officials.

Another problem has recently come to the attention of the writer for which there are no guidelines. A facility located approximately seven hundred miles from Sixth Army headquarters were confronted with a problem which they felt required the presence of the survey officer for "advice

and guidance". Instead of calling the Sixth Army headquarters direct, the management personnel called the nearest military installation requesting that the Sixth Army survey officer be advised that he was needed at the facility. In this instance, the message was never relayed. Even in the event that the message had been relayed, the survey officer would have experienced difficulty in obtaining the necessary funds, time, or authority to make the trip. Yet management expected the survey officer to respond to their request for assistance.

The goal of industrial defense can never be that of complete preparedness on the part of every key facility. There will always be a certain amount of reluctance by industry to effect industrial defense measures. When these measures are related solely to atomic attack or sabotage by foreign agents, compliance with recommendations is negligible. These facts should be recognized by those involved in planning, supervision, training, and operation of the program.

The goal should be to obtain the maximum amount of cooperation from industry. In order to do this, industrial defense measures must be related to natural disasters, sabotage by disgruntled employees, industrial crime and pilferage, accident prevention, profit and loss factors, and public relations. In addition, the program must be

represented by better-selected, better-trained, and better-informed survey officers.

The main emphasis on the presentation of the program should be in the initial survey. At this time, the survey officer should have available films, handout materials, and the time to sell the program to as many personnel as possible. In addition, if additional material is requested or assistance is asked in training other personnel, the survey officer should be able to comply. As personnel leave the facility or are transferred to other positions, it will be necessary to make additional presentations.

With a more complete knowledge concerning industrial defense at all levels and an exchange of information and ideas, the program could accomplish far more. All of these recommendations are made with the belief that industrial defense could become an even more vital part of national defense which could not only insure survival in the event of a disaster but could also act as a deterrent to an act of aggression against the United States.

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APPENDIX

APPENDIX B

SAMPLE INTERVIEW SCHEDULE

I. INFORMATION AND EDUCATION CONCERNING THE INDUSTRIAL DEFENSE PROGRAM

A. Upon first being advised that your facility had been placed on the Key Facilities List:

1. By whom were you contacted to explain the program, its purpose, and its objective?

2. Did the explanation consist of printed material, films, or personal visit?

3. Did you feel that a satisfactory explanation of the program was given? Were there any questions left unanswered?

B. Was any further contact made with you and the members of your staff (other than a re-survey) which helped you understand further the need and importance of the program?

1. If so, by whom?

2. How effective was the follow-up?

C. Did anyone explain the Industrial Defense Survey Forms and the reasons for the inclusion of specific defense measures?

D. Do you have any suggestions or criticisms concerning this portion of the program?

II. SURVEY AND SURVEY OFFICER

A. Was the survey conducted in a satisfactory manner?

B. Were recommendations fully explained and reasons given for recommended defense measures justified to your satisfaction?

C. Did the survey officer explain the program adequately?

D. In your opinion, did the survey officer appear adequately trained to perform his mission?

E. If you were selecting survey personnel, what qualifications and attributes would you desire?

III. PROGRAM OPERATION

A. Would you desire better coordination and cooperation at any level of the Industrial Defense Program?

B. Do you feel that there would be any value in a film that could be shown to management and perhaps even other employees?

C. What factors influenced the decision of your facility to put into effect the recommended defense measures?

D. What factors influenced the rejection of measures?

E. How important is cost of recommended defense measures in acceptance or rejection?

F. If you were in charge of the program, what changes and improvements would you make?

