THE AFTER EFFECTS OF INCARCERATION

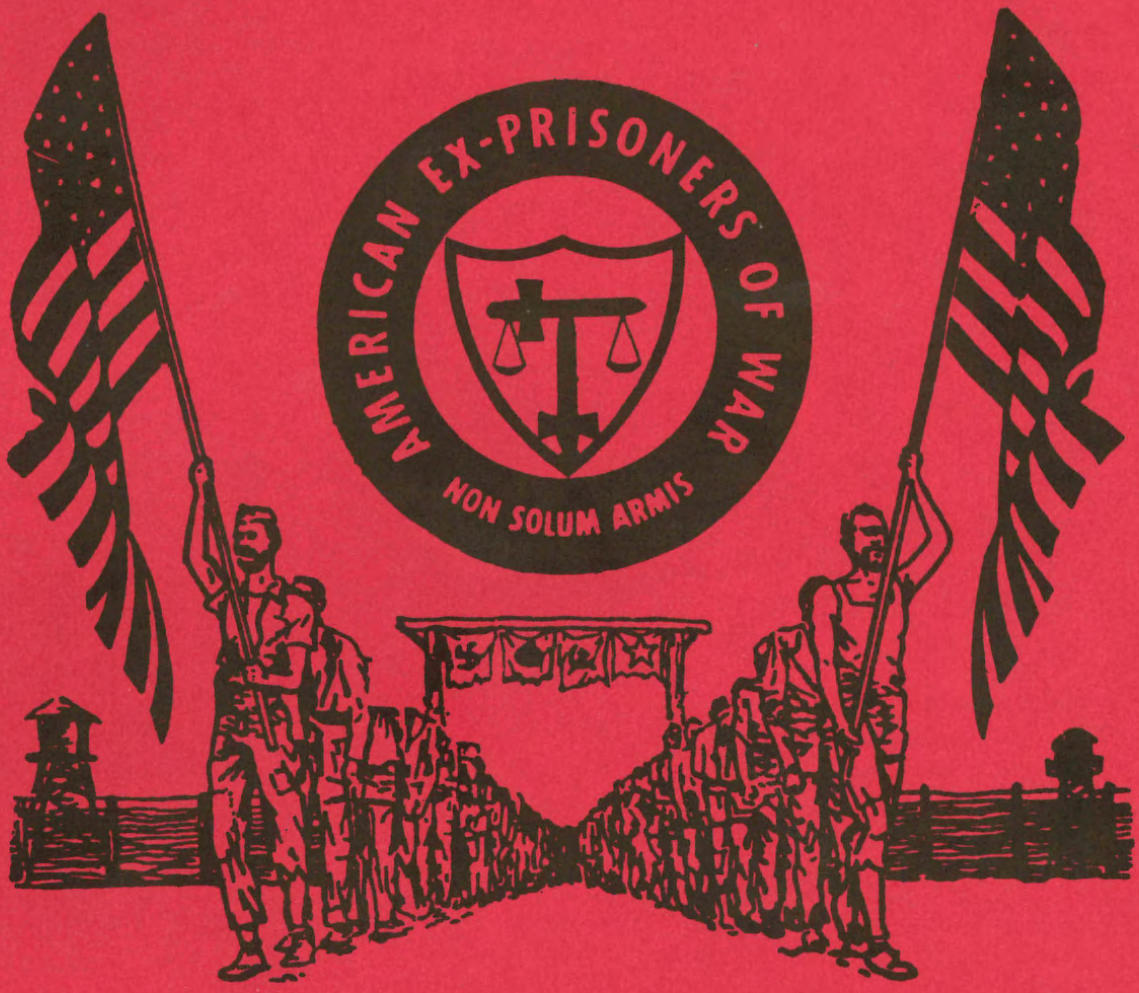
Part I

THE HEART , ARTERIES AND VEINS

Part II

CANCER

Packet 4



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"WE EXIST TO AID THE MAN WHO CANNOT HELP HIMSELF"

Contents

EPILOGUE

Never before in this country's history has such a large group been exposed to starvation, torture (both physical and psychological), and in humane treatment as have been the 130,000 plus Americans who have been held prisoner of war by the Japanese, Germans, other Axis Powers, North Koreans, North Vietnamese and Viet Cong.

Dr. Haas, New York University, believes that many symptoms found in former camp prisoners today are either misinterpreted or overlooked in diagnosis. He urges physicians in private practice to acquire more information about the late sequelae of starvation and stress, so that they will be better able to recognize and manage these conditions.

In this packet, requested by many ex-prisoners of war, we have attempted to give a general survey on studies that have been published on the after-effects of imprisonment and heart disease and related disorders. Included in this packet is "The Acceptance of Cancer as War Caused" by Sir Edward Dunlop, M.D.

The hospital admission rates for arteriosclerotic heart and essential benign hypertension were found to be significantly higher for Japanese POW's than for their controls during the period 1958-65. POW's Japan and POW's Europe, also showed significantly high number of deaths due to heart disease. (Morbidity, Disability, and Maladjustments, by Gilbert W. Beebe (1975) American Journal of Epidemiology.)

All study groups are still too young for cerebrovascular disease to have become a frequent cause of death. Yet in the three World War II control groups mortality ratios for stroke are above expectations. In corresponding POW groups, ratios for Korean War Prisoners is about twice that for Korean controls. Ratios for the residual category of other disease of the circulatory system or renal disease suggest that POW's fared the worst from these causes of death. Each POW group has a ratio about twice that of its control. (Follow-up Studies of World War II and Korean War Prisoners, by M.Dean Nefzger, American Journal of Epidemiology 1970.)

"Dr. Frantisek Blaha of Prague performed over 10,000 autopsies on prisoners who died during his own three years as an inmate at Dachau. He discovered that while many of the younger prisoners had eaten no animal fats for years, atherosclerotic changes appeared without exception in all prisoners between ages 16 and 34 who died of hunger in camp."

"Such findings amply prove that coronary heart disease in former prisoners of Nazi and Japanese terror camps must be the result of stress and strain during their imprisonment," says Dr. Albert Haas, director of the respiratory detection and fatigue laboratory at the New York University for Physical Medicine and Rehabilitation. (Prison-Camp Syndrome Found Widespread, Medical World News April 24, 1965)

The present knowledge in the area of after-effects of imprisonment is limited and more research is needed. The results of further research would help all ex-prisoners of war and all people who suffer throughout the world from starvation and the stresses of imprisonment now and yet to come. There may be preventative measures taken for the future misfortunates so they never experience our problems in the years to come.

If you have any questions about your health, PLEASE, consult your personal doctor or the Veterans Administration doctor -- they will help you.

Stan Sommers

THE HEART AND CIRCULATORY SYSTEM

To understand the problem of cardiovascular diseases, it is necessary to know something about the heart and the circulatory system.

The job of the circulatory system is to distribute blood throughout the body, bringing a steady flow of nourishment and oxygen to the billions of body cells, and removing wastes from the cells.

The heart is a muscular pump that keeps the blood circulating through the network of arteries and veins. A system of valves regulates the flow of blood through the veins and through the heart into the arteries.

The red blood going through the arteries carries nutrients and oxygen to the body cells. Blood in veins, which has turned a dark bluish-red, carries waste products, including food wastes and carbon dioxide, from the body cells.

Most waste products are filtered out of the blood by the kidneys. In the lungs, the blood gets rid of carbon dioxide and takes on a new supply of oxygen. This turns the blood bright red again. Then it flows back to the heart, to be pumped out through the arteries to the rest of the body. This cycle is repeated thousands of times a day.

When any part of this circulatory system is seriously impaired, the body cells it serves are deprived of their blood supply and will break down.

Regardless of the cause of heart disease, impairment results from one of two principal consequences: Congestive heart failure, or ischemia (deficiency of blood supply) of the heart muscle. Disease of the arteries and veins may impair the heart itself, the brain, the kidneys, the eyes, or the extremities. The most common type of heart disease is arteriosclerotic.

ARTERIOSCLEROTIC HEART DISEASE

In arteriosclerotic heart disease there is disease of the coronary arteries-blood vessels supplying the heart. There is abnormal deposition of tissue, including calcium, in the walls of these blood vessels. These structural changes are referred to as "degenerative" changes and result in reduction of the calibre (lumen) of the blood vessel. With reduction of the blood vessel Lumen there is a diminution of blood supply to the heart muscle, especially during activity. The extent of the disease process will determine the extent of reduction in blood supply and of muscle ability to remain healthy and work. The heart requires oxygen and other nutrients carried by the blood to maintain normal structure and function. With the diminishing of the blood supply, as occurs in this disease process, the heart muscle suffers for want of nutrients. At first only the strength or function of the heart muscle may be affected, but as the disease progresses, there may be definite structural and chemical changes in the organ itself.

The normal heart is able to increase its blood supply as increased demand is placed upon it by varying degrees of physical activity or

emotional stress. When a person has arteriosclerotic heart disease, the reduced lumina of coronary blood vessels may not allow a sufficient blood supply to the heart when increased demands are placed on the heart (by physical or emotional activity). Then there is a disproportion between supply and demand.

HYPERTENSIVE HEART DISEASE

Since we are generally dealing with an older population in a disability program, we might consider that the maximum normal blood pressure is approximately 150/90 for the older age group. Women tend to have slightly lower blood pressure. The 150 here designates the systolic pressure which accompanies the contraction of the heart. The 90 here designates the diastolic pressure or the pressure remaining in the arterial system during relaxation of the heart.

PERIPHERAL VASCULAR DISEASE

The peripheral vascular diseases affect the blood vessels serving the extremities--primarily the legs and feet, but sometimes the arms, hands and face. By interfering with circulation these disorders cause a variety of symptoms including mild discomfort, pain or swelling in affected areas.

If allowed to reach their most advanced forms, some peripheral vascular diseases result in such complications as skin ulcers or gangrene. In many cases, however, these complications can be prevented by timely medical or surgical care.

ARTERIOSCLEROSIS OF THE EXTREMITIES

Arteries in the legs and feet, and sometimes in the arms and hands, can be affected by the same process of atherosclerosis that takes place in arteries serving the heart and brain. By interfering with blood flow, this condition can cause such symptoms as a feeling of cold or fatigue, in the affected areas; or it may cause feelings of tightness or cramps in the leg muscles, which occur after walking a short distance and are immediately relieved by standing still.

When circulation is entirely cut off by a clot, and when infection complicates the picture, ulcers and gangrene can develop.

PERIPHERAL ARTERIOSCLEROSIS

Peripheral arteriosclerosis is the most frequent cause of severe, disabling peripheral vascular disease. Arteriosclerotic changes are produced by the deposition of fats, cholesterol (a fat-like crystalline alcohol) and calcium, with scar tissue formation in the walls of the arteries, and narrowing of the calibre of the vessel results.

THROMBOANGIITIS OBLITERANS (BUERGER'S DISEASE)

Thromboangiitis obliterans is a generalized inflammatory disease process involving arteries, veins, and nerves. The manifestations of this disease are most pronounced in the extremities, particularly the legs. There is a proliferation and accumulation of the cells of the

inner wall of blood vessels, resulting in gradual narrowing and occlusion (blocking). The development of vascular insufficiency produces ischemia, intermittent claudication, trophic changes, ulceration, necrosis and gangrene.

CARDIO-VASCULAR SEQUELAE OF THE CAPTIVITY

PATHOLOGY OF THE CAPTIVITY OF THE PRISONERS OF WAR Tome II Works Of The International Medical Conference Brussels November 1st to 4th 1962.

(In this article we travel across the world.)

"The first session of this work, given over to the study of the belated cardio-vascular disorders was held under the chairmanship of Dr. Valentin, Professor of Internalpathology at the University of Cologne.

In his report, Professor Valentin pointed out that the pathology of the very difficult living circumstances not only interested the 14 million German prisoners, but the 20 million detained by various countries and also the Third World Party. The aggressions made were constituted by infections, rheumatisms, alimentary dystrophy, over-exertion and psychic disorders.

Studying the actual cardio-vascular sequelae, Professor Valentin insisted in the role of rheumatism and alimentary distrophy in the aetiology of the illnesses of the myocardium, stated by the electrocardiogram; in particular, these disturbances of the E.C.G. were perceptible among 25% of the repatriated; among the patients of over 45 years old, they were permanent in the majority of cases, through hypoxemy of the muscle of the heart on a background or coronary sclerosis.

Endocarditis was frequent among young men subject to preventions and infections.

The German Legislation admits the presumption of origin for the valvular affections, during difficult circumstances of existence or after a certain delay.

The chronic pulmonary heart has as origin a respiratory insufficiency to the varied aetiologies which can be contributed by the dystrophy of the prisoners.

The disorders of the innervation of the heart have various origins among which one finds the difficult circumstances of existence.

Coronary sclerosis is certainly aggravated by the same conditions of living.

The infarctus of the myocardium, whose origin is often to be found in the coronary sclerosis, may be encouraged by psychic excitations and physical efforts.

Vegetative dystony, more and more frequent, has a base toxical or infectious processes, alimentary dystrophy, aggravated by psychic difficulties.

High blood pressure is a disease of the civilization with its multiple aspects: it can present itself under the form "of post-infectious or post-dystrophy hypertony; in this case, the difficult conditions of living still play an essential part" (Valentin) especially at the period of the convalescence.

Hypotension (low blood pressure) can also occur, and is a neurovegetative or hormonal origin; from statistics presented by the author, one can retain the following facts:

Pokorny & Hiller (G.F.R.) examining 2022 repatriated, find 30% of various heart disorders, more frequent among the aged patients.

Meyringh notices that the distonies of the heart are twice more frequent than among the civilian population.

Burgmann (G.F.R.) attracts the attention of the congress on the edema having as origin not disorders of the circulation but cirrhosis after hepatite, dystrophy or dysentery, he observed them among young men, contrary to the cirrhoses of alcoholic origin and cholangiopathies encountered after the age of 50.

In the German Federal Republic, these post-dystrophic cirrhoses are three times more frequent than the alcoholic cirrhoses.

Dr. Noordhoeck Hegt (Netherlands) is expert of the Retirement Council Organization, which, in Holland, judges the imputability to the services of the injuries noticed.

The determination of the origin is very difficult thing but out of 1700 cases, Dr. Noordhoeck found, among deceased persons, between the ages of 55 and 59, 32% of deaths among the war victims as against 26% among the civilian population.

Dr. Massart (Belgium) mentions his observations on the pathology of his comrades in captivity at the end of the war.

Dr. Gursky (G.F.R.) and Dr. Girgensohn (G.F.R.), during their interventions, studied the difficulties of the pathological researches of the repatriated and the conditions to be fulfilled in order to assure the work of the commissions.

On the following day, the report of Professor Blana-Czechoslovakia- was mentioned, who after 10,000 autopsies at Dachau, noticed that the degree of arteriosclerosis was in direct relation with the duration of the detention.

Dr. Kazuhiro Hashikura mentions one of his colleagues, Dr. Kasuo Kohinata (Japan) who, in the camp of Khabarovsk, observed 200 cases of hypertension out of a population of 988 prisoners of war.

One may add that the Doctors Dimitrov Szokodi, Policzer, and Collab (Hungary) at the Congress of Liege of the F.I.R. in studying comparative groups, found complexes of cardiovascular symptoms, among 50% of the ex-interned group whereas this figure was 36% among the witnesses."

ORGANIC LESIONS & FUNCTIONAL TROUBLES OF THE HEART & OF CIRCULATION UNDER DIFFICULT CONDITIONS OF LIVING

by Prof. Dr. Med. H. Valentin, Cologne University Clinic

"Difficult life conditions have been in the past, still are, and will be in the future, a world-wide problem. This fact remains true although the 2nd World War ended more than 17 years ago. For us, Doctors, who by instinct want to help our fellow-men, this implies an imperative obligation. Because these difficult life conditions cause troubles, diseases, or sufferings of all kinds.

Under extreme conditions of living, which are liable to lead to heart and circulation lesions, it is imperative to analyze all five generic factors, as shown by; difficult life conditions:

1. Infectious Diseases
2. Rheumatism
3. Nutrition troubles and Dystrophia
4. Physical exertions and over-exertions
5. Physic commotions and over-excitements

Undoubtedly, INFECTIOUS DISEASES must also be examined in the first place: under difficult hygenic and climatic conditions and with insufficient nourishment and care, they have not lost anything of their former terrible character. Moreover, and especially RHEUMATISM plays an extremely important role in the case of heart muscles and valvular system. Another characteristic which is very symptomatic of difficult life conditions are the NUTRITION TROUBLES AND DYSTROPHIA. The chronic rare faction of numerous aliments and the defective composition of alimentation cause high albumin losses and various avitaminosis. Alimentary dystrophia which occurs then is characterized by a disappearance of body reserves. As an accessory, it is accompanied by considerable regulation troubles and by characteristic, more or less extensive, modifications of the structure of most varied organs.....

In the same way, PHYSICAL EXERTIONS AND OVER-EXERTIONS must be taken into account during analysis. Especially in the case of men of a certain age, one must think about changes by coronary artery degeneration with its effect upon heart muscles. In this case, a maximum vitality service is demanded from a damaged heart and this may lead to a serious aggravation of the whole situation. PSYCHIC COMMOTION AND OVER-EXCITEMENTS intervene in a great proportion in the difficult life conditions. Clinicians and observers can only suspect them but cannot measure them.....

Therefore, when conditions of living are difficult, numerous possibilities exist of etiology influences on heart and circulation. Practically, each of these factors alone is sufficient to cause damage, troubles and suffering in these organs. If they occur in combination, the situation as a whole becomes definitely worse because then the dangers are not added but often multiplied. This is the only way to explain the high losses which take place under difficult life conditions.

Diagnosis and appreciation of organic lesions or of functional troubles of heart circulation, after long years of difficult life conditions, cannot be made according to rules and rigid principles, but they must

be carried out according to the requirements of each separate case. The thorough and expert annotation of the anamesis is here a condition of prime importance because the gravity and duration of alimentary dystrophy, the psychic situation and the effect of other diseases, especially infectious diseases, as well as physical exertions, have been very varied. On the other hand, due consideration must be given to evolutions due to age and individual situation, as far as heart and circulation are concerned, the ordinary physical examination must be completed by a detailed program of electrocardiogram, thorax graphies at two levels in order to determine heart size, as well as by a circulation test and objective quantitative examination of heart and circulation load reserves. It is only by completing the examination in this way that one can, in the scope of modern scientific medicine, determine properly the possible influence of difficult life conditions upon heart and circulation".....

SEQUELAE OF THE CAPTIVITY - THEIR PSYCHO - SOMATIC ASPECT

(We would like to quote here from the main report).....Following is the main report of the Medical Conference of the International Federation of the Resistants which was held in Liege in March 1961, "Report which was signed by Professor Blaha (Czechoslavakia), who gave the conclusions of more than ten thousand autopsies, made in 1941,1942, and 1943 at the camp of Dachau; after having described the arteriosclerotical deteriorations of the endocardium, the valvulas, the coronary and other arteries, Professor Blaha added:

"The degree of the arteriosclerosis was in direct relation with
"The duration of the detention...after the return to normal life,
"These sclerotical or atheromatous deteriorations grew
"Worse in general, especially among persons, who - without
"Looking after their state of health-went back to work immediately
"And who have accepted the most difficult and most
"Responsible tasks thus undergoing new stresses.
"...Arteriosclerosis followed its normal course with cerebral
"And heart attacks, which immediately after the war, and also
"During the following years, have been the most part the
"Immediate cause of deaths.

One may admit that the privation of fatty substances and proteins which characterised the diet of the deportation camps must have had similar consequences but to a lesser degree among the prisoners of war who underwent, at certain periods and in certain camps a starvation diet comparable with that of the deportation camps.

MORBIDITY AND MORTALITY IN WORLD WAR II AND KOREAN PRISONERS OF WAR
STUDY I

(PWJ's - prisoner of Japan, PWE's - POW in Europe,PWK's - POW in Korea)

The unusually high early death rate among PWJ's was largely attributed to tuberculosis or to accidents. However, Cohen and Cooper also reported that PWJ's showed persistent chronic symptoms of cardiovascular disease, gastrointestinal disorders, ophthalmic changes, and psychoneurosis. These clinical conditions were observed so frequently by these investigators that they recommended further study in this area.

STUDY II

In 1970, Nefzger reported on mortality findings taken from a follow-up study of PWJ's and PWE's which extended the observation interval of Cohen and Cooper to about 20 years after the date of repatriation. Men captured during the Korean War (PWK's) were also followed for a period of approximately 12 years. Nefzger included a control group for each study group (i.e., PWJ, PWK, PWE) and two additional control groups so that spurious effects could be identified. Consequently, his findings, which were analyzed by appropriate statistical methods, can be taken as reliable data with a high degree of certainty .

A 50% excess of deaths among PWJ's over expected U.S. mortality rates was reported for the first 10 years following repatriation. Among PWK's the mortality rate was initially 40% higher than expected. While the mortality rate for PWJ's approached normal levels from 1960 to 1965, the mortality rate for PWK's continued at significantly high levels through 1965. Nefzger concluded the PWK's generally had higher death rates than their World War II counterparts.

Although the mortality rate among PWE's did not differ from the control rate, PWE's who were hospitalized for malnutrition experienced higher mortality than European prisoners of war in general. The import of this finding is uncertain, however, because of the small number of men included in the study group.

All study groups are still too young for cerebrovascular disease to have become a frequent cause of death. Yet in the three World War II control groups, mortality ratios for stroke are above expectation. In corresponding POW groups, ratio are about half those for controls. The ratio for Korean war prisoners is about twice that for Korean controls. Ratios for the residual category of other diseases of the circulatory system or renal disease suggest the POW have fared the worst from these causes of death. Only the ratio in the Korean prisoners exceeds 1, but each POW group has a ratio about twice that of its control.

Mortality due to disease accounted for the greatest percentage of deaths among PWJ's and PWE's. For example, the incidence of mortality caused by major cardiovascular-renal disease was higher for PWJ's than for the normal U.S. population. Accidents, tuberculosis, and cirrhosis appear to be the causes of death chiefly responsible for the excess mortality in Pacific prisoners. PWE"s also showed a significantly high number of deaths due to heart disease, but mortality due to all diseases was less for this group than for their controls. Consequently, heart disease appeared to be the major cause of death among PWJ's and PWE's with respect to control rates.

In summary of the Nefzger study, it appears that trauma was responsible for more deaths in Pacific and Korean POW's than in their respective control groups. Death at an early age also marked the mortality pattern for these groups. The causes underlying this phenomenon are unclear, but they certainly would seem to deserve further attention in future studies. PWJ's and PWE's showed a higher rate of deaths due to arterio-sclerotic disease. Prisoners and control groups differ in numbers of deaths assigned to the smaller category of other cardiovascular-renal disease, such as hypertension.

STUDY III

The third Follow-up Study of World War II I Korean War Prisoners was reported by Beebe in 1975. Hospital admission rates for these men were compared with controls from 1946 to 1965 (1954 to 1965 for PWK's). Symptoms, disability, and maladjustments were analyzed in 1966-1967 for all groups as well. Approximately 1000 PWJ's and PWK's, and about half that number of PWE's, were included in Beebe's study.

Hospital admission rates for individual diagnoses were also reported by Beebe. Forty-two diagnostic categories were included such as respiratory diseases (e.g., tuberculosis), nervous disorders (e.g., diseases of lymph nodes), heart diseases (e.g., arteriosclerotic heart disease), and psychiatric problems (e.g., anxiety and psychoneurosis). Ex-prisoners of war were compared with controls by statistical methods for each of forty-two diagnostic categories.

This analysis revealed some startling results. In all but six of the forty-two categories PWJ's differed significantly from controls. Some of the most frequent diagnoses for hospitalized PWJ's were pulmonary tuberculosis, nervousness, schizophrenia, anxiety reactions, alcoholism, arteriosclerotic heart disease and osteo-arthritis. PWK's differed from controls in fourteen of the forty-two categories with the greatest differences found in diagnoses of pulmonary tuberculosis, dysentery, infestations (e.g., worms), and anxiety reaction, psychoneurosis, nervousness, and upper gastro-intestinal tract symptoms. Again, these findings suggested that the severity of prison experience for PWJ's and PWK's was more pronounced in some respects than for PWE's.

REFERENCES;

BEEBE, G.W., Follow-up Studies of World War II & Korean War Prisoners II. Morbidity, Disability, & Maladjustments. American Journal of Epidemiology, 1975, 101 (5), 400-422.

COHEN, B.M.,& COOPER, M.Z., A Follow-up Study of World War II Prisoners of War. Washington, D.C.,Veterans Administration Medical Monograph, U.S. Government Printing Office 1955.

NEFZGER, M.D.,Follow-up Studies of World War II & Korean War Prisoners I.Study Plan & Mortality Findings. American Journal of Epidemiology 1970, 91, 123-138.

PRISON-CAMP SYNDROME FOUND WIDESPREAD
MEDICAL WORLD NEWS, APRIL 24, 1965

"Dr. Frantisek Blaha of Prague performed over 10,000 autopsies on prisoners who died during his own three years as an inmate at Dachau. He discovered that while many of the younger prisoners had eaten no animal fats for years , atherosclerotic changes appeared without exception in all prisoners between ages 16 - 34 who died of hunger in camp."

"Such findings amply prove that coronary heart disease in former prisoners of Nazi and Japanese terror camps must be the result of stress and strain during their internment," says Dr. Albert Haas, Director of the Respiratory Detection & Fatigue Laboratory at the New York University

for Physical Medicine and Rehabilitation. The Hungarian-born Doctor, who spent three years as a Nazi camp prisoner, is currently making a five-year study of fatigue in former prisoners of the Nazis and the Japanese."

CARDIOVASCULAR EFFECTS OF UNDERNUTRITION & STARVATION
by Ancel Keys, PH.D.
Published by the American Heart Association,Vol.XVII September 1948

"There is a widespread belief, supported by the textbooks by physiology and cardiology, that the heart is resistant to undernutrition and, unlike other tissues of the body, does not undergo important degeneration or functional changes in starvation. The prevalence of this erroneous concept may explain the fact that, except in beriberi, cardiologic research and practice has shown a remarkable indifference to questions of nutritional status.

Obviously, the relation of nutritional status to cardiovascular function and disease has been long neglected. The widespread famines produced by World War II have forced attention to a few of these questions. It should be realized, however, that undernutrition occurs in normal times and that, in fact, a large proportion of seriously ill patients are semi-starved. The results of alteration in the caloric nutritional status have much relevance to ordinary cardiovascular problems in the United States."

STRESSES AND CARDIOVASCULAR DISEASE IN FAR EAST POW'S
(British Medical Association)

"In recent years stress has become more and more recognized as a biological factor in the production of cardiovascular disease, and so much importance now is attached that in 1969, in United Kingdom, it comprised a major theme of the special booklet "How Not To Get A Coronary", which was published by the British Medical Association and is widely publicised through radio, press, and television and advised on sale at a popular price throughout the United Kingdom and Dominions. Part of its statements are quoted here:

Page 7 "....Anxiety are the villains."

Page 13 "In addition, the anxieties of day to day living on the whole strike men harder. They are usually the breadwinners. They often fear to take time off even when are are really ill. Their work is often more exacting and carries more responsibility. They more often drive a car in a hurry on crowded city streets. Clearly this applies more to the white collar worker than to others. So it is not surprising that it is they that are at greatest risk. Furthermore, when heavy physical exertion is called for - as loading the car for a holiday, changing a wheel, mowing the lawn, digging out an old tree - all this is traditionally "man's work" - it is actually the husband that does it; although his wife is probably often fitter to undertake the necessary than he is." And so forth.

If advice such as this is felt necessary for those who have never even known the stresses and strains anything like those who were prisoners of war, under the Japanese, or had to endure the privation of German concentration camps, how can it possibly be maintained, as by some, that stress plays no part as a contributor to their diseases, and does

not affect a claim? Or must here be two different applications of stress, one for the harassed public servant, another for those who had to endure being FEPOW, or in a concentration camp? Yet, in other countries, it is being recognized not only how severe have been their effects, but there is increasing evidence of delayed effects, many years later.

In 1966, the Canadian Pension Commission approved higher pensions for all their surviving FEPOW, special reasons being given, of their men having suffered various disabilities, including peptic ulcers, and conditions leading to hardening of the arteries. In 1971 the Canadian Government decided to grant all their surviving FEPOWS a minimum pension of 50%.

Concentration camp survivors have been subject of intensive follow-up studies and research; and of review. Thus, there appeared in the Lancet 19/2/66 an annotation, "After-math". This referred to the late effects of stress from prolonged starvation and semi-starvation, on the report of Strom and others on Norwegian survivors. It also referred to a collateral report from America to the effect that premature senescence can follow massive stress, in action, or in prison camps.

Again, on an annotation in the Lancet 28/9/68, "Late Effects of Torture", also based on studies of Professor Axel Strom and his co-workers, while there was evidence that a substantial proportion of Norwegian survivors had appeared to have made a good recovery, a few years later some began to suffer from disabilities which interferred seriously with working capacity and social adjustment.

Similiar findings on Danish survivors have been reported by Thygeson and his Colleagues, and reviewed in general practitioner "KZ Syndrome" on 4/2/72. These show also these effects may be progressive and that their onset may have been delayed for a long time. The Danish Government is so impressed with this evidence, that it is looking again at compensation claims. Also, in a review by the Lancet, 10/6/72, of the annual meeting of the International Committee of Mental Health, mental stress was considered a reason for increase of coronary heart disease in immigrants to Europe."

DELAYED DISEASE AND ILL-HEALTH

-A SEQUELAE OF EXTREME STRESSES DURING WAR AND DISASTER published by Norwegian Association of Disabled Veterans 1969 by Arve Lonnum

CARDIOVASCULAR DISORDERS OBSERVED AFTER WAR STRESSES

Some cardiovascular responses were mentioned in Packets 2 and 3 on stresses and strains during war and disaster, thus arterial hypertension following cold injuies. To the extent that such and other circulatory reactions have been intense they may quite conceivably have originated or accelerated a process which, in its turn, has resulted in permanent arterial hypertension and illness due to arteriosclerosis. In the following we shall take a closer look at this.

Increased blood pressure in frontline soldiers was recorded already during World War I (79). During the second World War this was observed on several fronts. In soldiers and officers who had been in the desert

war for at least one year, blood pressure measurements were undertaken under calm conditions in Tripolitania, 4-8 weeks after the fighting was over. The investigation lasted from 28th May to 28th June 1943 and included 695 men from 20 to 38 years of age. The blood pressure was measured with the subjects in supine position, following 5-8 minutes rest. The lowest value of 3 measurements was recorded. Mean blood pressure was found to be 154/90. One hundred and eighty-seven (26.9%) had a diastolic pressure of 100 or more, and for these mean blood pressure was 178/114. However, after two months the blood pressure had returned to normal in the 28 soldiers who were re-examined. A neurogenic cause was assumed to have originated the blood pressure (159).

Arterial hypertension has been observed in connection with certain deficiency disorders in undernutrition, thus elevated blood pressure was observed in the painful feet syndrome which may be caused by lack of niacin, possibly also of riboflavin (81,82). Arterial hypertension can be present in cardiovascular beriberi (387). This has been shown in numerous works, among which a study on pearl divers in the Persian Gulf in 1951. These, who lived on rice, were exposed to very hard physical efforts and 11 of them developed high-grade beriberi. Prominent features were edema, enlarged heart, and arterial hypertension with blood pressure of 150/90 or more. The high blood pressure may have been due to renal edema. The prognosis was apparently good in that the hypertension subsided, but in some cases lasting electrocardiographic changes were observed (387).

In the Minnesota-experiment one observed a number of symptoms from the circulatory organs, thus Bradycardia, arterial hypotension, blackouts, and vertigo, but these appeared to be reversible phenomena (223). Angiospasma in the lower extremities have been observed in connection with starvation. Raynaud's disease haas occurred and thromboembolic phenomena have been frequent. Thus the heart and circulatory organs are hardly normal in extreme undernutrition. Electrocardiography and autopsy have revealed multiple abnormalities, also degenerative changes and edema in the myocardium. Heart weights ranging from 110 to 350 G have been found. Some investigators found pathological changes of the heart similar to those seen in very old persons (223). Among 114 German prisoners of war in Russia who died during the years 1950-56, coronary arteriosclerosis was demonstrated in 16%, cerebral insults in 7%, cerebral arteriosclerosis in 2.3%, and endocarditis in 0.9% (137). Among 10000 patients in a German Prison Hospital in Russia during the period 1950-56, the diagnosis was organic heart disorder in 8.3%, arterial hypertension in 7.1%, endocarditis in 5.4%, and cerebral arteriosclerosis in 6.1%. When food became more plentiful, arteriosclerotic diseases also occurred among prisoners from 30 to 40 years of age and many died of apoplexia and infarct. Arteriosclerosis obilterans likewise occurred in young persons (137).

Autospy of 300 American soldiers, mean age 22.1 years, killed in Korea revealed in part extensive arteriosclerosis in 77.3%. The same was not the case for Japanese of the same age, a circumstance which was assumed to be due to differences in diet and to endocrine dissimilarities (120)

Thus a number of disturbances in the regulation of the functions of the heart and blood vessels have been registered during and after stressing situations experienced during World War I and II and the Korean War.

Consequently it is not inconceivable that summation traumas, during and after the war, may have provoked, contributed to, or accelerated arterial hypertension and arteriosclerotic disease. At any rate such a view is borne out by numerous experimental works. Even if experiences from animal experiments cannot off-hand be transferred to man, they can yield interesting information on reactions to the sundry forms of stress.

Thus arterial hypertension has been induced in gray Norway rats through air blasting (126). In one experiment 12 animals were exposed to a minimum of 167 air blasts, each lasting 5 minutes, and undertaken 5 times per week. Eleven animals were used for control experiments. Ten of the 12 animals exposed to air blast developed arterial hypertension, whereas none of the control animals did. The hypertension did not appear under ether narcosis and, therefore, was probably permanent (126).

EXCESS MORBIDITY - MULTIPLE DISORDERS

In France, one early became aware of the excess morbidity in former deportees through reports from World Veterans Federation (404). Already in 1964 a questionnaire investigation revealed a high incidence of digestive disorders, tuberculosis, heart trouble, mental disturbances, and rheumatic disorders such as lumbago, sciatica, and symptoms due to insufficient circulation in the vertebral arteries. A re-investigation in 1948/49 disclosed rising morbidity and by now the late sequelae played a more conspicuous part, especially in the form of nervousness, neurological, rheumatic, and gastrointestinal disturbances and tuberculosis.

In 1954 an analysis of the medical information on 2300 French Deportees who had applied for a pension showed that 35% were suffering from one to two serious diseases, whereas 18% presented multiple pathological conditions. Mental disturbances and asthenia were present in 74% and gastrointestinal disorders in 53%, 34% of whom had dyspepsia and gastro-hepatic disorders. 34% had various rheumatic disorders as arthrosis and spondylarthritis. 28% presented cardiovascular disturbances. Other findings were: premature aging, impotence, arteritis, and nephritis (115).

A similar excess morbidity has been observed also in later French investigations. Thus the incidence of cardiovascular disease rose from 26% in 1954 to 77% in 1961 (313,383). Also in France there has been an increased tendency to commonplace infectious diseases during the postwar period (313).

An excess morbidity among surviving American World War II prisoners in Japanese camps has been demonstrated by a 6-year follow up examination undertaken by the Veterans Administration, U.S.A. (70). The examination was based on records and questionnaires in a material of 5755 persons selected at random from an original population of 120977 ex-prisoners. The control material consisted of military personnel who had not been in Japanese prison camps. The vast majority of the ex-prisoners were below 30 years of age at the beginning of imprisonment. The duration of captivity averaged 38.4 months for those confined in Japanese camps and mortality rate was 34% against 1% in the European. Also the first two years after the war there was a very high mortality in the prisoners

from Japanese camps, specially because of tuberculosis and accidents (64% of the deaths).Mortality because of cardiovascular diseases has been twice as high as in the ordinary population. Among ex-prisoners from Japanese camps, cardiovascular diseases were five times as frequent as among the controls. The incidence of hospitalization and the length of the hospitalizations for ex-prisoners from the Japanese camps far exceeded the incidence for the prisoners from Europe and for the control. Incidence of disease per person was seven times as high as for the control persons, i.e. 2.88 attacks of disease against 0.4. For ex-prisoners from European camps the morbidity was twice as high as for the controls. It is pointed out that 58% of the latter ex-prisoners indicated that their state of health was not satisfactory. However, even so late sequelae have not been anticipated with reference to ex-prisoners from European camps in American quarters.

In the United States, investigations have likewise been undertaken among European immigrants exposed to similar stress situations. Among frequently occurring disorders were: cardiovascular disorders, arterial hypertension and adipositas (236,240).

Every second year since 1957, a team from Queen Mary's Hospital, London, has examined around 700 British Soldiers who had been prisoners in Japanese camps. The final results are not yet available, but there seems to be an excess morbidity of neurological diseases, mental disturbances, liver disorders, and cardiovascular diseases (388).

CARDIOVASCULAR DISEASES IN CONCENTRATION CAMP SURVIVORS AND OTHERS EXPOSED TO EXTREME WAR STRESSES DURING WORLD WAR II

Among 307 Norwegian Concentration Camp Survivors examined by the Medical Commission, definite cardiovascular disease was demonstrated in 89 (29%) and probable cardiovascular disease in 48 (15.6%), total 137 (44.6%). The criteria for cardiovascular disease were: blood pressure 160/105 or more, cerebral insult, infarct, hypertensive retinopathy, angina pectoris, and pathological electrocardiogram. Fourteen presented arteriosclerosis obliterans which in some cases had started shortly after the war in persons who had suffered from phlegmons, infectious diseases as typhus and malaria, or been injured by leg clamps (257). Is this then a higher prevalence than in the overall Norwegian population? The question cannot be definitely answered on the basis of the available prevalence studies (41,245,378). The figures for the 307 ex-prisoners appear rather elevated, though. It is recalled that in many respects these persons represent a selective material. Also the incidence of arteriosclerosis obliterans may be somewhat high. In an investigation comprising 1542 women and 4888 men employed by a Swiss concern, arteriosclerosis obliterans occurred in 1% of the men from 40 to 50 years of age, in 44% of the men from 50 to 60 years of age and in 7.5% of the men from 60 to 65 years of age (391). In the Norwegian ex-prisoner material the total prevalence was 4.5%, but the age at onset was relatively low.

In the Norwegian ex-prisoner material there seemed to be a certain correlation between cardiovascular disease and premature aging during the postwar period. In the overall material this feature was present in 17.6%, in patients with definite cardiovascular disease in 23.1%, in patients with probable cardiovascular disease in 18.7%, and in patients with an entirely negative cardiovascular status in 14% (257).

Among active members of the Dutch Resistance there has been a relatively high mortality due to cardiovascular disease during the postwar period. Of 1700 men, followed from 1945 to 1961, 17% had died within the end of 1961, one third of whom because of coronary disease. During the same period the mortality rate for the rest of the population was 5% and, among these, merely 13% due to infarct. Even allowing for differences due to age, this represents an excess mortality among members of the resistance movement (283,284).

A high mortality because of cardiovascular disease was observed in American ex-Prisoners from Japanese camps in the Far East the first year after the war.

Among 391 Canadian ex-prisoners who had been in Japanese camps from December 1941 to August 1945, examination 12 years after the war revealed arterial hypertension in 69 of these, 10 had a diastolic blood pressure of at least 120, 49 had a diastolic pressure of 100-120, and 18 had a diastolic pressure of 90-100.Fourteen had coronary heart disease, and 9 died of this. Death because of cardiovascular disease was more frequent than the calculated incidence for the ordinary population, but the difference was not statistically significant. Arteriosclerosis obliterans was found in 8 cases. The electrocardiogram was pathological for 83, and a number of different cardiovascular abnormalities were observed in the overall material (72). A more recent Canadian investigation of 1967 confirmed the impression of a higher mortality due to cardiovascular disease among former Hong Kong prisoners than among the ordinary population (311).

Also in Poland there appears to have been an increased incidence of cardiovascular disease among concentration camp survivors. Of 240 ex-prisoners from 35 to 80 years of age, the majority from 55 to 65, 77.5% presented cardiovascular disease in 1964. Reportedly this is far higher incidence than in the ordinary population (366).

In Israel, one examined the occurrence of Buerger's Disease among concentration camp survivors (156). Of 97 patients, 80% originated from Eastern Europe and 50% from Poland. Mean age was 29.9 years with a standard deviation of 5.8 years. In 35% of the cases the affected limb had been exposed to cold, and in 5% to traumas. Nine had frostbitten toes. Most of the patients had thrombophlebitis and hyperhidrosis, indicating that the autonomic nervous system was affects.

In West Germany, a number of investigations have studied the possible relationship between circulatory disorders and severe imprisonment. One of the leading internists, Hauss (172), reckons that the imprisonment may have constituted an important contributory factor in the development of arteriosclerosis. Among 243 patients with infarcts recently admitted to his department, 48% had been exposed to severe and protracted war imprisonment. Hauss stressed that in many the weight had varied markedly, rising from extreme undernutrition during the war to considerable overweight after the war, and concluded that the possibility of acquired disturbances of the fat metabolism could not be excluded.

According to Herberg (182), the reason why arteriosclerotic disorders did not start to make themselves felt in earnest among German ex-prisoners until 1953 is that what is concerned is a summation in time

of multiple factors. Herberg has had patients in whom arteriosclerosis obliterians did not occur until 1956. He regards arteriosclerosis, arterial hypertension, diabetes mellitus and duodenal and peptic ulcers as reactive disorders. When these did not occur during captivity, this was because the prisoners were too weak to react. But these disorders reappeared after the war. In persons not exposed to severe undernutrition, they likewise occurred during the war. Thus angina pectoris, arterial hypertension, and gastrointestinal disturbances were most frequent among people living in illegality than among concentration camp inmates.

By arteriosclerosis Herberg understands pathosclerosis, that is a clinical condition characterized by dysfunctional manifestations due to apoplexy, angina pectoris, infarct, etc. Arterial hypertension and pathosclerosis are not solely dependent on congenital disposition, their course may be markedly altered by severe and protracted strains and stresses of various types.

Schenck (327) carried out very extensive investigations among German former prisoners. From 1950 onwards, an increasing number of ex-prisoners developed complications to arteriosclerosis. The author mentions cases of arteriosclerosis following exposure to cold and summation traumas. On examination of 334 survivors in 1955, Schenck found cardiovascular disease in 27.7% and arterial hypertension in 16.8%. Among 21000 ex-prisoners, examined as outpatients in connection with application for war compensation in 1967, Schenck indicates the following figures: in the age group 61-65 years, a blood pressure of at least 160/105 was found in 31.7%: in the group 56-60, in 15.5%: in the group 51-55 years, in 13.7%: and in the group below 40 years of age a blood pressure of at 160/105 was found in 6.1% (328).

One feature during the postwar period worthy of mention is that many veterans have suffered from nervousness and have smoked excessively. This may have been of significance for the development of arterio-sclerosis and arterial hypertension. A number of works indicate such a relationship. Doll & Bradford (100) investigated smoking in relation to mortality among British doctors. They found an increased mortality for cigarette smokers, especially among those below 55 years of age. Mulcahy et al. (277) examined the relation between smoking and coronary disease and arteriosclerosis obliterans in patients in Dublin. They found that the latter disorder was a rarity among non-smokers, but in persons above 60 years of age there was no difference between smoking and non-smokers in this respect. Nicotine likewise increases the tendency to Thrombosis (277). Doyle et al. (102) found an increased mortality rate associated with smoking in the Framingham study, and Auerback et al. (13) investigated the effects of smoking in an autopsy material from Veterans Administration, U.S.A.. Information on smoking habits was available for 1509 autopsy subjects. Mean age at death was 56.1 years for smokers and 65.7 for non-smokers. Degree of arterio-sclerosis showed a marked correlation to number of cigarettes per day: below 20, 20-19 or more than 40.

Finally shall be mentioned that many former prisoners have been suffering from a diffuse encephalopathy. There is a possibility that such a condition may influence the circulation in an unfavorable direction. Dutsch & Schleicher (108) are of the opinion that cerebral disorder may

be the cause of increased blood pressure and coronary disease. A pathological electrocardiogram has been demonstrated for many persons who have suffered brain injuries. Animal experiments have revealed electrocardiographic changes already few seconds after head traumas. Following head traumas, the vegetative nervous system is in a state of hyperirritability, which via the vagus nerve may lead to peripheral functional disturbances also in the coronary arteries. There has been described angina pectoris in epileptics, and autopsy has revealed myocardial degeneration. Infarct has likewise been observed, and Dutsch & Schleicher themselves observed a rise of the blood pressure immediately after epiliptic seizures. How frequent this might be is an open question though, and one which the authors abstain from mentioning.

It is hardly justifiable to draw definite conclusions from the reported works but, on the other hand, they do permit the conclusion that one can not EXCLUDE extreme war stresses as precipitating, contributory, or accelerating causal factors in arteriosclerosis and arterial hypertension. The stresses during the postwar period must likewise be taken into account in this country.

EVALUATION OF ARTERIOSCLEROSIS AND ARTERIAL HYPERTENSION IN CONNECTION WITH APPLICATION FOR COMPENSATION OR WAR PENSION

During the first year after World War II, the view prevailing among doctors and insurance experts was that the causes of arteriosclerosis and arterial hypertension were purely endogenous and that these conditions therefore could have nothing to do with hardships sustained during the war. Further research on cardiovascular diseases has subsequently shown that also exogenous factors enter. In many countries, this circumstance has led to a revised attitude when assessing the possible import of war stresses for the development of vascular diseases.

Bischoff (37), ordinarily not inclined to accept exogenous factors, has come to the conclusion that the extreme physical and mental stresses sustained during captivity may have been conducive to cardiovascular diseases. On the basis of the hypothesis of summation traumas, one should accept as contributory causes extreme mental and physical hardships, dystrophy, climatic, toxic and infectious diseases. Furthermore, allowance should be made for the stresses of the postwar period with its fight for survival, its vocational and familiar problems. Also Bachmann (17) takes his point of departure in the poletiology of the arteriosclerotic disorders and maintains that the war stresses may have constituted a contributory factor. The same view is shared by Hauss (172).

Consequent upon the expert opinion of the above mentioned and other well-known specialists, the criteria used in Nordrhein Westphalen since 1966 have been: to accept arteriosclerosis and other cardiovascular diseases as valid provided that: 1) the patient if below 50 years of age, 2) the symptoms started within 10 years after liberation from the concentration camp or other confinement, 3) the captivity has lasted at least 3 years. Cases outside this framework are subject to individual evaluation (338).

In France, liberal lines have since long been adopted in regard to

applications for war pension from former deportees. As a rule, pensions have been granted also in cases where the disability was due to arteriosclerotic disorders or arterial hypertension (115).

In Austria, one has taken the consequences of the uncertain relationship between war stresses and arteriosclerotic disorders by adopting a practical attitude when assessing applications for compensation (246). Thus arteriosclerosis has been accepted when accompanied by signs of premature aging. Heart and circulatory disorders have likewise ordinarily been acknowledged when following severe and protracted war stresses and when bridge symptoms have been present too. In cardiovascular disease, war stresses have often been admitted as a contributory cause, specially when a serious disorder has occurred at a young age.

In Holland, one has recently passed an Act to the effect that cardiovascular diseases are not to be regarded as war-conditioned if other, more likely, causative factors are not demonstrable (284). Specially, one has granted applications for war pension in cases where angina pectoris has occurred shortly after the war and also in cases where severe protracted stress in the form of constant anxiety or other troubles have been present in the postwar period. The severity of the war stresses has likewise been taken into account.

Thus, in one country after another, one has come to adopt a more flexible attitude when assessing the disabling effect of cardiovascular disorders in persons exposed to extreme war stresses. How far it has been possible to go in the different countries has depended both on the number of disabled persons and on the financial resources of the country. In Norway, it has been possible to go to considerable lengths, as evinced by the recently introduced amending act, because the number of war disabled has been relatively low. According to this amending act, a person who has been exposed to extreme war stresses will be granted a war pension unless it is quite evident that the disabling disorders bears no correlation to the war stresses.

Some readers may find that certain subjects and aspects have been incompletely treated in this packet. Such readers are referred to the works listed in references. Many of these give a detailed account of special topics and problems.

However, one reason for the incompleteness is that the present knowledge goes no further. Additional research is called for. It is important, therefore, that doctors in the future seize every opportunity to carry out prospective studies. An even more important point in the time to come is for doctors to bear in mind that people exposed to various forms of disaster situations require treatment. This could no doubt prevent many unfortunate late sequelaes.

REFERENCES

13 AUERBACH,O.,HAMMOND,E.C. & GARFINKEL,L.:Smoking in relation to atherosclerosis of the coronary arteries. New Engl.J.Med. 1965: 273:775:-779.

17 BACHMANN,G.W.:Erkrankungen der Herzkranzgefasse im Alter und ihre Begutachtung.Med.Sachverst.1966:62:133-142.

37 BISCHOFF,W.:Arteriosklerose und Vorzeitiger Tod als Schadigungsfolgea)Problematik der Anerkennung der Arteriosklerose.Kriegsopferversorgung 1965:14:101-103.
41 BOIX,E.:Mortality from Cardiovascular Disease in Norway.Working papers from Central Bureau of Statistics of Norway,Oslo 1965.
70 COHN,B.M. & COOPER,M.Z.:A Follow-up Study of World War II Prisoners of war. Veterans Administration Medical Monograph,Wash.1954 81pp.
72 COKE,L.R.;Late Effects of Starvation.A Twelve Year Study of Three Hundred and Ninety-one Veterans Who Suffered From Dietary Deficiency from Dec.1941 to August 1945, Med. Serv. J. Can. 1961:17:313-324.
79 CRILE,G.W.:The Mechanism of Shock & Exhaustion.J.Amer.Med.Ass. 1921:76:L149-155.
81 CRUICKSHANK,E.F.:Painful feet in prisoners-of-war in Far East. Review of 500 cases. Lancet 1946:II369-372
82 CRUICKSHANK,E.K.:Neuro-psychiatric disorders in prisoners-of-war PP.807-836 in Gruhle,H.W.,Jung,R.,Mayer-Gross,W.& Muller,M., ed. Psychiatrie der Gegenwart,Band III.Springer Verlag,Berlin-Gottingen-Heidelberg 1961.
100 DOLL,R.& BRADFORD HILL,A.:Mortality in relation to smoking:Ten years' observation of British doctors. Brit.med.J. 1964:I:1399-1410, 1460-1467.
102 DOYLE,J.T.,DAWBER,T.R.KANNEL,W.B.,KINCH,S.H.& KAHN,H.A.:The relationship of cigarette smoking to coronary heart disease.J.Amer. med.Ass.1964:190:886-890.
108 DUTSCH,L.&SCHLEICHER,I.:Zur Frage zerebro-kardialer Syndrome. Med.Mschr. 1961:15:613-618.
115 ELLENBOGEN,R.:Die Beurteilung der Folgen von Internierung und Deportation in Frankreich.Pp.34-43 in Herberg,H.J.,ed.Die Beuteilung von Gesundheitsschaden nach Gefangenschaft und Verfolgung.Nicolaische Verlagsbuchhandlung, Herford 1967.
120 ENOS,W.F., BEYER,J.C. & HOLMES, R.H.: Pathogenesis of coronary disease in American soldiers killed in Korea. J.Amer.Med.Ass. 1958:158:912-914.
126 FARRIS,E.J.,YEAKEL,E.H. & MEDOFF,H.S.: Development of hypertension in emotional gray Norway rats after air blasting. Amer. J. Physiol. 1945:144:331-333.
137 FLOTHMANN,K.H.:Typische Gefangenschaftskrankheiten und ihre somatischen und psychischen Enstehungsfaktoren. PP.35-53 in Schenck, E.G.& Nathusius,W.V.,ed.Extreme Lebensverhaltnisse und ihre Folgen, Band I.Verband der Heimkehrer,Bad Godesberg 1958.
156 GOODMAN,R.M.,ELIAN,B.,MOZES,J.& DEUTSCH,V.:Buerger's disease in Israel. Amer .J.Med. 1965:39:601:615
159 GRAHAM,J.D.P.:High blood pressure after battle.Lancet 1945:1: 239-240.
172 HAUSS,W.H.:Personal communication 1967.
181 HERBERG,H.J.:Vorzeitige Alterung und Krigesgefangenschaft.Arztl. Prax.1963:15:867-868.
182 HERBERG,H.J.:Herz-und Kreislaufsleiden in der Versorgungsbegutachtung.Pp.147-159 in Schench,E.G.& Natusius,W.V.,ed. Extreme Lebersverhaltnisse und ihre Folgen,Band VI,Verband der Heimkehrer, Bad Godesberg 1964.
223 KEYS,A.,BROZEK,J.,HENSCHEL,A.,MICHELSEN,O.& TAYLOR,H.L.:The biology of human starvation. In 2 volumes. The University of Minn. Press,Minneap.Oxford University Press,London 1950, 1385 Pp.

236 KRYSTAL,H.& NIEDERLAND,W.G.:Clinical observations on the survivors syndrome Proc.Amer.Phychiat.Ass.1965:121:136-138.
240 LEDERER,W.:Persecution & Compensation.Archgen.Psychiat.1965:12: 464-474.
245 Life Insurance Companies' Institute for Medical Statistics at the Oslo City Hospitals,Report No.3:Myocardial infarction.An epidemiologic & prognostic study of patients from 5 departments of internal medicine in Oslo 1935-1949. Kirstes bobtrykkeri, Oslo 1956, 58 pp.
246 LINGENS,E.:Die Situation in Osterreich.Pp.21-28 in Herberg,H.J., ed Die Beurteilung von Gesundheitsschaden nach Gefangenschaft und Verfolgung.Nicolaische Verlagsbuchhandlung.Herford 1967.
257 LONNUM,A.:Kardiovaskulaere lidelser hos norske tidligers konsentrasjonsleirfanger. Unpublished.
277 MULCAHY,R.,HICKEY,N.& KNAGGS,J.F.:The role of cigarette smoking in the causation of atherosclerosis.Geriatrics 1967:22:165-180.
283 NOORDHOEK-HEGT,W.G.:Discussion in Pathologie der Kriegsgefangenschaft,Band 2:Arbeiten der 1.Internationalen Artze-Konferenz der CIAPG,Brussels,Nov.1962.Verband der Heimkehrer,BadGodesberg 1964
284 NOORDHOEK-HEGT,W.G.:Die Situation in den Niederlanden.Pp.29-33 in Herberg,H.J.,ed.Die Beurteilung von Gesundheitsshaden nach Gefangenschaft und Verfolgung. Nicolaische Verlagsbuchandloung, Herford 1967.
311 RICHARDSON,J.J.:Mortality experiences conference on long term effects of chronic severe stress, New Haven, Oct. 1967.
313 RICHET,C.& MANS,A.:Pathologie de la deportation.Centre Charles Richet,Paris 1962, 255 pp.
327 SCHENCK,E.G."Lebens-und Krankheitsschicksale ehemaliger Gefangener.Schriftenreihe des arzlichwissenschaftlichen Beirates des Verbandes der Heimkehrer Deutschlands e.V.,Bad Godesberg1962,347pp.
328 SCHENCK,E.G.:Personal communication 1967.
338 SEILER,J.:Zur Begutachtung arteriosklerotischer Komplicationen. Pp.108-113 in Herberg,H.J.,ed.Die Beurteilung von Gesundheitsschaden nach Gefangenscaft und Verfolgung.Nicolaische Verlagsbuchhandlung. Herford 1967.
366 SZWARC,H.:Personal communication 1967.
378 USTVEDT,H.:Mortality from cerebro-vascular accidents in Norway in relation to mortality from cardiovascular-renal disease.Acta. Med.Scand. 1959:163:305-327.
383 WAITZ,R.:La pathologie des deportees.Sem.Hop.Paris 1961:37: 1977-1984.
386 WALTERS,J.H.:Neurological sequelae to prolonged malnutrition. Thesis, University of Cambridge 1947.
387 WALTERS,J.H.:Hyperpiesis in cardiovascular beriberi,Quart.J.Med. 1953P:22(N.S.) 195-214.
388 WALTERS,J.H.:Personal communication 1967.
391 WIDMER,L.K.& STAUB,H.:Morbiditat an Gliedmassenarteerienverschluss. Mschr. Unfallheilk. 1963: Suppl. 75:44-48.
404 World Veterans Federation (Federation Mondiale des Anciens Combattants. Comite Medical): Pathologie de la captivite. Rapports des annees 1950 - 1961. F.M.A.C., Paris 1961.

THE HEART

As many ex-prisoners of war suffered from both wet and dry beriberi and beriberi heart we would like to hi-lite some facts concerning beriberi.

Public Law 91-376 91st Congress, S. 3348 Aug. 12, 1970 states.....

"(c) For the purposes of Section 310 of this Title and Subject to the Provisions of Section 313 of this Title, in the case of any veteran who, while serving in the active military, naval, or air service and while held as a prisoner of war by an enemy government, or its agents during World War II, the Korean Conflict, or the Vietnam era, suffered from dietary deficiencies, forced labor, or inhumane treatment (in violation of the terms of the Geneva Conventions of July 27, 1929 and Aug. 12, 1949, the diseases of--

"(1) Avitaminosis,
Beriberi (including beriberi heart disease),
Chronic dysentery,
Helminthiasis,
Malnutrition (including optic atrophy associated with malnutrition),
Pellegra, or and other nutritional deficiency,

which became manifest to a degree of 10 per centum or more after such service: or

"(2) Psychosis which became manifest to a degree of 10 per centum or more within two years from the date of separation from such service:

shall be considered to have incurred in or aggravated by such service, notwithstanding that there is no record of such disease during the periof of service".....

DEGENERATIVE HEART DISEASE RESEMBLING BERIBERI

by John J. Robinson, M.D., Lake City, Fl.
Southern Medical Journal 1960

Beriberi heart disease has been described uncommonly in the United States. It seems likely that the diagnosis is confused with that of arteriosclerotic heart disease. Serious consideration of the dietary intake is in order in the presence of chronic nonvalvular heart disease, especially in an alcoholic patient.

During the course of 208 consecutive autopsies from January 1, 1959 to May 8, 1960, twelve instances of fatal cardiac decompensation were encountered with extensive degenerative changes in skeletal and cardiac muscle compatible with beriberi. The clinical diagnoses in the twelve cases were arteriosclerotic heart disease and half of this group manifested significant arteriosclerotic changes. Numerous reports have described the classical features of beriberi and its prevalence in certain types of patients seen in America today. This report presents a summary of criteria for the diagnosis of beriberi and its pathologic manifestations.....

Beriberi heart disease was suspected because of the following combination of findings: first and of most importance, extensive hydropic degeneration without leukocytosis in all areas of multiple sections of skeletal and cardiac muscle; absence of other lesions such as myocardial infarction or inflammation which could adequately explain the grossly evident cardiac dilatation, frequent cardiac mural thrombi,

passive hyperemia, and variable anasarca; and finally a clinical pattern of refractory cardiac failure without hypertension, with high cardiac output, absence of thyrotoxicosis, and a nutritional background compatible with thiamine deprivation. The combination of detailed necropsy data, clinical course, and information concerning nutritional status was the basis for the assumption that occurrence of beriberi heart disease was a significant factor in the death of twelve patients.

The important clinical and pathologic features of beriberi heart disease are thoroughly presented in Wenckebach's monograph (1) and are more recently summarized by Saphir, (2) Gould, (3) and others. (4-17) The last few years have seen an increasing number of reports (18-20) of idiopathic heart disease and a tendency to lump cardiac failure of an ill-defined, refractory nature into this grouping. Idiopathic heart disease was not encountered in the 208 necropsies, which, however, disclosed one instance of extensive subendocardial fibroelastosis, and in the cases presenting severe emaciation there was atrophy of skeletal and myocardial muscle in addition to variable degeneration different from beriberi. The important feature of extensive, generalized, hydropic and edematous muscle degeneration characterizing beriberi is not seen in so-called idiopathic heart disease.

The evaluation of beriberi heart disease in the presence of advanced arteriosclerotic alterations was a difficult problem and required thorough postmortem study. Since the degenerative features of beriberi, as seen in small isolated tissue sections, are non-specific and identical with those, for example, near old myocardial infarcts, some have thought the diagnosis of beriberi is not anatomically definitive. However, study of many tissues and the entire composite pathologic picture disclosed the features of extensive changes attributed by Wenckebach (1) to beriberi. Undoubtedly, mild beriberi in patients having cachexia or extensive degenerative disease cannot be presently identified by anatomic methods.....

The diagnosis of beriberi heart disease can be suspected by history and physical examination as emphasized by Greeley (917). Pathologically, there are no isolated specific features, but the composite pattern of extensive hydropic degeneration of the skeletal and cardiac muscle, absence of leukocytosis, a dilated heart with accentuated right myocardial trabeculation, mural thrombi, and the absence of such other evident factors, as myocardial infarction or inflammation, can yield strongly supportive evidence for beriberi. Short of complete necropsy examination, the diagnosis of beriberi heart disease is often speculative and such cases may be confused with true idiopathic heart disease (19,10) or endocardial fibroelastosis (18). The administration of Vitamin B Complex and Thiamine in refractory cases of arteriosclerotic and obscure heart disease in persons suspected of improper diet would seem logical, although cases of prolonged beriberi may have irreversible changes and may not exhibit marked improvement, as discussed by Alleman and Stollerman (10) who observed them in prisoners of war.....

The incidence of beriberi heart disease in this series is higher than in the 48 cases reported by Blankenhorn (4,5) for the Cincinnati General Hospital in a 10 year survey, and closer to the 22 cases observed in a 3 year study by Benchimol and Schlesinger (8) in Rio de Janeiro. It is not surprising to find this number of cases in our

hospital population which includes large numbers of poorly educated, indigent and elderly persons who are prone to dietary deficiency. The local excessive heart and humidity for much of the year may be significant in Thiamine depletion as was noted in Java by Wenchebach (1). Statistics are difficult to interpret; without thorough necropsy studies all of the 12 cases herein reported would have had arteriosclerotic heart disease listed as the chief cause of death on the death certificates. Even at the conclusion of the autopsy when death certificates must be completed, the pathologist cannot confidently list beriberi as a cause of death since many microscopic sections of cardiac and skeletal muscle must be searched for the extensive degenerative changes characterizing beriberi. There are disagreements on final evaluation in the presence of significant arteriosclerotic heart disease, and pathologists differ in such interpretations.

Beriberi heart disease was found in 12 out of 208 routine necropsy examinations in the Veterans Administration Hospital at Lake City, Florida. It is often confused with and can be masked by arteriosclerotic heart disease. The diagnosis is dependent on data from the clinical history, physical examination, therapeutic source, and the observation of extensive hydropic degenerative changes in cardiac and skeletal muscles found in detailed postmortem studies. Judicious use of vitamin therapy is to be considered in the management of protracted cardiac failure.

REFERENCES

1 WENCHEBACH,K.F.:Sas Beriberi Herz.Morthologie,Klinik,Pathogenese. Berlin-Vienna J. Springer 1934.
2 SAPHIR,O.:The Heart in Nutritional Diseases.A Text on Systemic Pathology. Vol.1. New York, Grune & Stratton, Inc. 1958
3 GOULD,S.E.: Beriberi Heart, Pathology of the Heart, and Ed. Springfield, Illinois, Charles C. Thomas, Publisher, 1960.
4 BLANKENHORN,M.A.,Vilter,C.F.,Ccheinker,I.M.,& Austin,R.S.:Occidental Beriberi Heart Disease, J.A.M.A. 131:717, 1946.
5 BLANKENHORN,M.A.:Dificiency Diseases in the Cincinnati General Hospital. A Ten Year Study, J.A.M.A. 140:1315, 1949.
6 JERVEY,L.P.,Fr.:Prolonged Myocardial Disease Due to Beriberi, with Necropsy After 18 years, Am.Heart J. 54:621, 1957.
7 VEDDER,E.B.:The Pathology of Beriberi, J.A.M.A. 110:893, 1938.
8 SCHLESINGER,P.,& Benchimol,A.B.:Beriberi Heart Disease,Am.Hearrt J. 46:245, 1953.
9 SCHLESINGER,P.,& BENCHIMOL,A.B.:Cardiac Disease Simulating Arteriosclerotic Heart Disease.Am. Heart. J. 42:801, 1951.
10 ALLEMAN,R.J.,& STOLLERMAN,G.H.:The Course of Beriberi Heart Disease in American Prisoners of War in Japan,Ann.Int.Med.28:949,1948.
11 HENDERSON,F.W.:Beriberi Heart Disease in Elderly Patient,Geriatrics 15:398, 1960.
12 GELFAND,D.,&BELLET,S.:Cardiovascular Manifestations of Beriberi; Based on Study of Ten Patients,M.Clin.North American 51:341,1949
13 WEISS,S.,& WILKINS,R.W.:The Nature of Cardiovascular Disturbance in Vitamin Deficiency States,Tr.A.Am. Physicians 51:341,, 1949.
14 LAHEY,Q.J.,ARST,D.B.,SILVER,M.,KLEEMAN,C.R.,& KUNKEL,R.:Physiologic Observations on a Case of Beriberi Heart Disease, With a Note on the Acute Effects of Thiamin,Am.J.Med. 14:248, 1953.
15 BLANKENHORN,M.A.:Effect of Vitamin Deficiency on Heart & Circulation Circulation 11:288, 1955.

16 JONES,R.H.,JR.:Beriberi Heart Disease.Clinical Report on 2 Cases, Circulation 19:275, 1959.
17 GREELEY,H.P.:Beriberi Heart Disease, Geriatrics 13:232, 1958.
18 THOMAS,W.A.,RANDALL,R.V. & BLAND,E.F.:Endocardial Fibroelastosis, A Factor in Heart Disease of Obscure Etiology: A Study on 20 Autopsied Cases in Children and Adults, New Eng.J.Med.251:327, 1954.
19 BURCH,G.E., & WALSH,J.J.:Cardiac Enlargement Due to Myocardial Degeneration of Unknown Cause. Preliminary Report on Effect of Prolonged Bed Rest.J.A.M.A. 172:207, 1960.
20 FRANCES,R.,ATHERTON,C.W., & ALSOBROOK,W.L.:Fatal Congestive Heart Failure Associated with Cardiac. Enlargement of Unexplained Origin, Circulation 14:373, 1956.

BERIBERI IN JAPANESE PRISON CAMPS

by Ralph E. Hibbs, M.D.

Reprinted from Annals of Internal Medicine, Vol.25, No.2, August, 1946, & directly from AX-POW Bulletin Vol.32, No.8, August,1975 and Vol.32, No. 9 September 1975. EX-POW DR. HIBBS WAS A PRISON CAMP DOCTOR.

These observations on beriberi were made over a period of 34 months on approximately 8,000 Americans who had surrendered on Bataan & Corregidor. The 34-month period extended from April 9, 1942, with the surrender of Bataan, to January 30, 1945, with our release from captivity. We were handicapped by meager laboratory facilities, complete lack of cooperation of the Japanese officials, lack of supplies for records on these patients, inability to maintain follow-up records on the patients since they were moved in and out of the camp frequently, and also by the poor state of health of most of the medical officers. However, these obstructions to scientific study were over-compensated by abundance of clinical material. Hundreds of cases of any kind of vitamin deficiency disease were available at almost any time.

Beriberi was probably the most important vitamin deficiency disease encountered for several reasons. (1) Beriberi had the highest incidence, everyone in the camp having some form of beriberi at one time or another. (2) Beriberi had the highest morbidity. The disease was chronic in nature, incapacitating a soldier for months. (3) Beriberi had complications and sequelae, which were considered to be permanently disabling. (4) Beriberi was directly responsible for more deaths than any other vitamin deficiency disease.

The beriberi that was observed presented many novel features. It seemed far removed from the textbook picture.....

BERIBERI HEART DISEASE--Cardiovascular manifestations were encountered in the majority of patients with beriberi, but were extremely difficult to evaluate. The criteria for diagnosis of beriberi heart disease were (1) Symptoms and signs of peripheral neuritis, and (2) symptoms referable to the heart without any other demonstrable cause. The criteria of dietary inadequacy are not listed because all men were suffering from malnutrition and were good candidates for any kind of vitamin deficiency disease. Also, a therapeutic test with Thiamine Chloride would have been extremely valuable in establishing the diagnosis in these patients but unfortunately our supply was so limited that this was denied to us. Consequently, the diagnosis was controversial at times. Undoubtedly it was diagnosed too frequently since there were

meager laboratory facilities with which to discover other possible causes for the heart disease. These manifestations did not necessarily occur in the severest cases and usually no edema was present. All were of military age except for a few older civilians. Enlargement of the heart, either of the right side or left side, was not considered necessary for the diagnosis of beriberi heart disease. Extremely difficult was the differentation of neuro-circulatory asthenia and beriberi heart disease. Several well known neurotic patients developed beriberi and began to have cardiac complaints such as palpitation and dyspnea on exertion. The differentation was almost impossible without an electrocardiogram and an adequate therapeutic test. We had nothing more than advice to offer these patients, but it was questional whether to advise them to stay in or to get out of their beds.

The symptoms varied from dyspnea, palpitation, irregularities of the heart beat, and sudden attacks of pounding of the heart to the symptoms of congestive heart failure with orthopnea and prostration. Seldom was there complain of precordial distress.

Examination of these patients revealed the heart to be usually of normal size. More than a hundred poentgengrams of the cardiac shadow failed to reveal any cardiac enlargement. The heart was usually hyper-active. A precordial pulsation was noted. The rate was from 130 to 140. Irregularities of the rhythm were frequently found, premature beats or extrasystoles, dropped beats, attacks of paroxysmal auricular tachycardia, and rarely a bradycardia of 30 to 40 per minute. In one group of 60 men that I observed, six had repeated attacks of paroxysmal auricular tachycardia. Almost every kind of arrhythmia was suspected, but without an electrocardiogram they could not be positively identified. Frequently a soft systolic murmur was heard over the precordium. At times a third heart sound was heard and a bifid apex impulse beat could be felt. Blood pressure was slightly lower than normal, ranging from 100 mm. HG Systolic and 60 mm. Diastolic to 80 mm. Systolic and 40 mm. Diastolic. Usually there was no evidence of decompensation. These were the findings in over 95% of patients diagnosed as beriberi heart disease.

The second type of beriberi heart disease ran a chronic course, with enlargement of the cardiac shadow usually of the right side, and with cyanosis, hepatomegaly, rales in the bases of the lungs, dyspnea, dependent edema, and a fast, thready pulse. Only 20 to 25 patients were included in this group. The diagnosis was chronic beriberi heart disease with both left and right ventricular failure. Most of these patients died within a year without receiving adequate treatment. One patient who had been decompensated for about six months was finally given 10 MG. of Thiamine Chloride every day. Despite this the patient died. Autopsy revealed an enlarged heart estimated to be about 500 grams. There was a dilatation and hyperthrophy of both the left and right ventricle, but much more on the right. The auricles were slightly dilated. There was a large organized thrombus attached to the wall of the right ventricle, about 2 by 3 CM. This was the result of the long standing decompensation, dilatation of the heart, and sluggish circulation. It was obvious why Thiamine Chloride did not help this patient. Digitalis was tried in most of these patients but as expected, seemed to have no effect on the decompensation.

The third type of beriberi heart disease manifested itself in acute dilation of the heart, pulmonary edema, and death within a few minutes to 24 to 48 hours. These patients had peripheral neuritis and usually no edema. They occasionally had symptoms referable to the heart, such as palpitation or poor exercise tolerance. One minute prior to the onset they were walking around and the next minute they collapsed. We felt that exercise was extremely dangerous to patients with peripheral neuritis since their hearts were weakened. Acute cardiac death occurred in young as well as middle-aged men. The estimated number of these deaths was 50, undoubtedly, the figure would have been higher if painful feet had not prevented them from walking.

Beriberi heart disease was manifest in three ways; (1) Normal size heart with arrhythmias and decreased tolerance to exercise. (2) Enlarged heart with chronic left and right ventricular failure. (3) Acute cardiac dilation, pulmonary edema and death.

CONCLUSIONS: (1) Enlargement of the heart is not to be expected in the majority of cases of beriberi heart disease. (2) Thiamine deficiency may be the cause of almost any type of cardiac arrythmia. (3) Both left and right ventricles are involved in congestive heart failure in beriberi heart disease failure. (4) Digitalis is without benefit in the treatment of beriberi heart failure. (5) Beriberi heart disease is an acute medical emergency which must be treated energetically to prevent secondary irreversible damage or death.

"THE HEART, ARTERIES, AND VEINS"
by J. Willis Hurst, M.D., & R. Bruce Legue, M.D.

The following are references to beriberi in the text:

P 109: "Coronary flow is increased and oxygen extraction decreased in beriberi."

P 119: "Thiamine deficiency (beriberi) beriberi heart disease is one of the few instances of chronic heart disease which resulted from a primary deficit in energy production by the heart muscle." (Technical explanation follows.)

P1227: "Beriberi: Blankenhorn lists..."(Follows a technical paragraph) in general the given list of symptoms of beriberi.

"Occidental beriberi most commonly seen in alcoholic men, presents both right and left ventricle failure, often without evidence of a hyperkinotic circulation. It is not infrequently misdiagnosed as Atherosclerotic Heart Disease, alcoholic cardiomyopathy, or diffuse myocardial disease of unknown cause."

P 1228: "...Myocardial Fibrosis occurs after prolonged illness."

"However, Benchimole and Schlesinger noted only 40% regression of cardiomegaly after Thiamine therapy, presumedly because of irreversible myocardial fibrosis in the later stages of the disease."

P 1380 "Beriberi Heart Disease" - Pathological Physicology-
"....."
Patients with advanced beriberi heart disease display the usual findings of biventricular congestive failure."

"...The electrocardiogram in patients with beriberi heart disease is usually normal except for sinus tachytcardia and perhaps minor non-specific S-T and T wave changes...."

CLAIMS FOR CORONARY DISEASE BY OR ON BEHALF OF POW/FAR EAST

BY: D. FITZGERALD MOORE, M.R.C.S.,L.R.C.P.,D.T.M. & H.
Late Senior M.O. West African Med. Service

D.O. TWINGING, M.R.C.S.,L.R.C.P.
Physician (Rtd)

5/9/63 British Troops

About one-third of prisoners-of-war, Far East (POW/FE) died in captivity, mainly from nutritional causes.....

There was prolonged stress.....

Other effects may not be discernable in life.

THE MULTIPLICITY OF DEFICIENCY AND OTHER DISEASES, THE LONG DURATION OF CAPTIVITY, AND LACK OF TREATMENT HAVE COMBINED TO CREATE PROBLEMS OF GREAT COMPLEXITY AND DIFFICULTY IN ASSESSING EFFECTS. IT IS NOT MADE EASIER THAT NUTRITIONAL DISEASE MANUALS AND TROPICAL TEXT BOOKS DO NOT COVER EFFECTS OF A COMBINATION OF NUTRITIONAL DISEASES, PARTICULARLY IN ONE AND THE SAME PERSON. NOTHING IS TO FOUND OF THEIR EFFECT ON OTHER DISEASES, AND SO INFLUENCING IN THAT ASPECT EXPECTATION OF LIFE.

ATHEROMA - fatty degeneration or thickening of the wall of the larger arteries.

The cholesterol theory on which the Ministry of Pensions and National Insurance has depended so much in their rejection of claims for coronary disease has a quite different application for POW/FE to that of POW in any other theatre of war because of this difference in diet. While it is correct to maintain that the intake of fat was low and this may at first sight appear to support the Ministry's contention, what has not been drawn attention to, nor even mentioned by the Ministry, is that there was a gross deficiency of unsaturated fatty acids. As these are the protective elements in the prevention of cholesterol deposition and vitamin, and therefore cannot be sythesised or compensated for in any way by the body - and accepting the cholesterol theory is correct - their deficiency was by far the more serious. It follows this must have had an adverse effect on any atheroma which may have been present.

It is now a well-established principle of treatment by cardiological experts to order patients suffering from coronary disease to cut down animal and hardened fats (rich in saturated fatty acids) to a minimum, and not only to replace these with vegetable food oils (rich in unsaturated fatty acids) but to raise their consumption much above ordinary food levels: and therefore, a therapeutic measure. .....

Ancel Keys in his book "Biology of Human Starvation" quotes an extract from Lamy and others (1948) as follows:

"The most significant effect of starvation on the blood vessels is an early appearance of changes seen at a more advanced age. In one case a 17 year old boy showed marked lipoid infiltration of the intima of the major blood vessels with oedema of the adventitia and sub-intimal vessels. Other patients also showed deposits and intimal changes of the atheromatous type."

Chronic cardiac beriberi in a former prisoner of the Japanese

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(*Received* 2 *June* 1980 – *Accepted* 9 *June* 1980)

1. A case is described of an Englishman who suffered severe 'wet beriberi' whilst a prisoner of war (POW) of the Japanese in World War II.
2. Following release he developed a congestive cardiomyopathy which increased in severity until his death 31 years after repatriation.
3. Autopsy findings were consistent with chronic cardiac damage due to beriberi.

Heart failure due to thiamine deficiency ('wet beriberi') is now rare, even in the tropics. Vitamin treatment is usually successful, but occasionally irreversible myocardial damage results. We report here a British patient who suffered from wet beriberi whilst a prisoner of war (POW) of the Japanese during World War II, and developed a congestive cardiomyopathy due to this which was diagnosed post mortem over 30 years later.

Case report

In early 1976 a 60-year-old man was referred to hospital with moderately severe biventricular heart failure. He had been fit until imprisoned in the Far East during World War II. There he suffered from malaria, dysentery, peripheral neuropathy ('dry beriberi'), and severe and prolonged oedema due to wet beriberi. On repatriation in 1945 he was given vitamin therapy and he recovered. However, some 5 years later he began to experience episodes of oedema with breathlessness and occasional chest pain. He was found to be in atrial fibrillation and mild heart failure, and was treated subsequently with digoxin, and intermittent diuretics. His heart disease was presumed to be ischaemic in nature. In 1974 he had been assessed at the Liverpool School of Tropical Medicine where atrial fibrillation and slight cardiomegaly were found, but no signs of heart failure (he was taking diuretics at the time). He was also noted to have paraesthesia of the extremities and possible strongyloidiasis.

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When referred in 1976 his main symptoms were of swelling and orthopnoea, and his physical signs included atrial fibrillation, oedema up to the thighs, cardiomegaly, basal pleural effusions and basal crepitations. He also had a left recurrent laryngeal nerve palsy. Blood pressure and pulse rate were normal and he had no murmurs or added heart sounds. Electrocardiogram (ECG) confirmed atrial fibrillation with no other specific features, and chest X-ray showed cardiomegaly, pulmonary oedema, and small bilateral basal pleural effusions. He was treated vigorously with diuretics, and improved somewhat. In November 1976, however, he was admitted urgently with pneumonia and severe heart failure, and despite treatment he died the next day.

Autopsy confirmed the presence of pneumonia, and a pericardial effusion was also found. The heart weighed 650 g and both ventricles were dilated. The coronary arteries were grossly normal, and a small area of fibrosis at the tip of the left ventricle was noted. Histology of the myocardium (Plate 1) revealed congestion and interstitial oedema, generalized interstitial fibrosis, and a variation in size of the myocardial fibres. The coronary arteries were histologically normal. No other significant gross or histological abnormalities were found in other systems. The features were thought to be those of a congestive cardiomyopathy with no evidence of coronary atheroma.

Comment

Though the histological features of beriberi cardiomyopathy are not specific, the abnormalities in this patient are similar to those found by other workers (Weiss, 1940; Alleman & Stollerman, 1948; Schlessinger & Benchimol, 1951). It thus seems probable that our patient suffered irreversible cardiac damage due to severe wet beriberi, and that this caused a symptomatic cardiomyopathy over the subsequent 31 years. Atrial fibrillation has been described in cardiac beriberi, albeit rarely (Weiss & Wilkins, 1937), and cases have previously been mistaken for ischaemic heart disease (Schlessinger & Benchimol, 1951). It is probably of significance that our patient had persisting paraesthesia since his POW days, and also a recurrent laryngeal nerve palsy (nutritionally-induced recurrent laryngeal nerve paralysis has been described rarely in former Far East POW's by Walters *et al.* 1971).

Persisting cardiac beriberi, despite vitamin treatment, was described in two American ex-Far East POW's by Alleman & Stollerman (1948), but these men died soon after the war. We have come across no other cases in British ex-POW's, but as diagnosis in this instance was largely by chance, it seems highly likely that other cases must exist. In the light of this, former Japanese POW's with heart failure should perhaps be reassessed and in the event of death an autopsy sought.

The authors would like to thank Drs D. R. Bell, J. J. Daly, J. McCarthy and H. H. Pilling for their help.

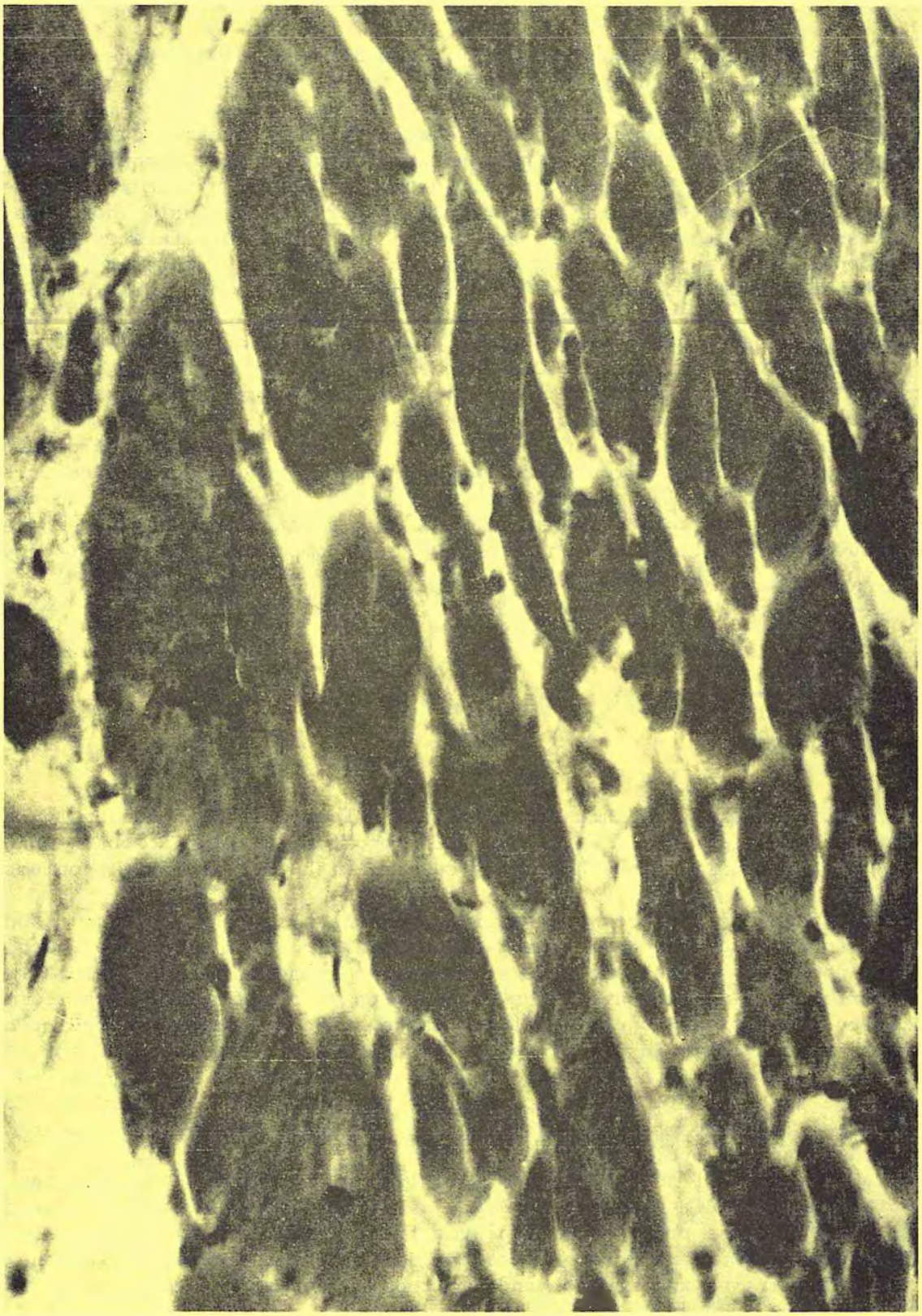
REFERENCES

Alleman, R. J. & Stollerman, G. H. (1948). *Ann. int. Med.* **28**, 949.
Schlessinger, P. & Benchimol, A. B. (1951). *Am. Heart J.* **42**, 801.
Walters, J. H., Caplan, J. P. & Hayward, E. W. (1971). *A FEPOW Survey*. Report to the DHSS from Queen Mary's Hospital, Roehampton, London: H.M. Stationery Office.
Weiss S. (1940). *J. Am. med. Ass.* **115**, 832.
Weiss, S. & Wilkins, R. W. (1937). *Ann. int. Med.* **11**, 104.

EXPLANATION OF PLATE

Section of myocardium showing hypertrophy of fibres with irregular nuclei, and interstitial fibrosis.

Printed in Great Britain



(*Facing p.* 274)

THE AFTER EFFECTS OF INCARCERATION OF HEART, ARTERIES AND VEINS

FOREWARD

I was quite privileged to be asked by Mr. Stan Sommers to write the introduction to this excellent booklet regarding the effects of incarceration on the cardiovascular system.

It has been very well documented that the aging of the cardiovascular system is affected by a wide variety of factors, for instance, stress, diet, smoking, etc. What remains unknown is the exact factor or combination of factors which will cause accelerated aging of the cardiovascular system in a specific individual. Those who would debate the issue of whether or not incarceration does cause accelerated aging, would do well to consider these facts. As a researcher I would agree that it is difficult or impossible to attribute the scarring found in the myocardium of a POW some 30 years after incarceration to beriberi heart disease. Certainly, there are many other conditions which produce such residuals. However, consider the factors known to accelerate aging of the cardiovascular system. Can anyone say with any degree of certainty that incarceration did not accelerate the aging process? Remember, there is a known increased mortality in those who were incarcerated.

I would ask those in the Veterans Administration who manage affairs relating to POW's to demonstrate that incarceration had no effect on the acceleration of the aging process in the cardiovascular system, with the same degree of certainty as the POW's who suffer from cardiovascular disease are asked to substantiate that their malady is service related. Certainly, a person with a whit of compassion, if there is any doubt, would vote in favor of the POW.

R D Sautter

RICHARD D. SAUTTER, M.D.
Thoracic-Cardiovascular Surgeon

COMMENTS

Publications of packets of summarized medical information is a continuing project of the American Ex-Prisoners of War, Inc. This important dissemination of information is of value to the families and physicians dealing with the enigmatic problems of ex-prisoners.

Despite the fabulous advances of medicine over the past 30 years, ex-prisoners of war continue to present a broad spectrum of physical problems which are vascular in origin. Why do we as a group show the stigmata of premature aging, exhibit symptoms consistent with senility and suffer the discomforts of claudication with minimal physical activity. Many ex-prisoners developed these symptoms during incarceration and these have persisted relentlessly since the second and third decades of our lives. A similar physical deterioration is noted in Korean rice farmers who subsist on a basically inadequate diet and are doomed to physical inactivity in the third and fourth decades of life. The "papa sans", whose photographs are known world wide, are in truth rarely over 35 years of age.

Hopefully some medical solution to our problems will be found. Naively one might hope the problems will die with us; however, as history repeats itself, others will be prisoners of war and the problems will plague future generations.

If solution eludes the medical profession, don't deny the existence of the problems, American ex-prisoners of war are not and never have been malingerers.

Thos. H. Hewlett

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Thoracic-Cardiovascular Surgeon

In a personal communication 4/1/62 Col. E.E. Dunlop, OBE (P) suggested to Fitzgerald Moore the high incidence of coronary disease post-release in POW/FE might well be in part explained as follows:

"As regards coronary disease and the "cholesterol pundits", my own explanation of P.W.J. incidence relates to the possible bad effects of rapidly lost weight. When a man has carried on at half his usual weight, or less, gets back to his usual weight and more, within a year, is it not likely that as well as sub-cutaneous fat deposits, that there well may be plentiful sub-intimal deposits in his vessels".....

Brock, J.P. (Lancet 21st & 28th November, 1959), Nutrition and the Clinician raised the following issue:

"Can acute deficiency of nutrients cause irreversible functional and structural change on the analogy of the effects of anoxemia on the myocardium or cerebrum. Certainly long continued acute hypoglycaemia can cause irreversible cerebral damage. The same may be true of long continued thiamin deficiency on the myocardium. Perhaps the most important effects of malnutrition however may be accumulative and manifest themselves through a long-term effect on constitution with resultant lack of resistance to infections and other stresses, and liability to degenerative changes.".....

SOME PERSONAL COMMUNICATIONS from J.H. Walters 2/1/53, Kuwait, Arabia.

"The occurrence of permanent myocardial damage as a sequel to severe cardio-vascular beriberi is a matter about which I have little doubt. As you will appreciate in hospital practice when no long follow-up is ever possible one has to base one's prognosis on analogous conditions, which are well known and in the balance of clinical experience. My affirmation that permanent myocardial damage may ensue is based on the case cited in the paper (no.8) and a very similar case, an Indian P.O.W. from Japanese hands on Bourgeville Island in the Pacific and on appearances of the myocardium when sectioned shortly after death. The Indian EX/POW had only just survived a long and very grave attack of cardiovascular beriberi when he fell into Australian hands and received admirable treatment for 3 months after which he was evacuated to my hospital in India. I found him completely bed-ridden by reason of extreme myocardial weakness with electrographic evidence of grave generalised myocardial degeneration. His age was 35 and he showed no evidence of other contributory disease. He made no further progress during two months treatment in my hands. I considered it beyond reasonable doubt he would do so.

The histopathological changes in the myocardial fibres of recently dead cases of severe beriberi are so marked that one cannot visualise the complete return to normality of such a specialised and active structure in patients who barely survive s similar death.".....

From D.A. LONG 20/12/62, Milroy Lecturer for 1954 & Director, Wellcome Bureau of Research:

"There is no doubt at all that nutritional deficiency can cause areas of fibrosis in the heart."

OTHER FACTORS THAN VITAMIN B-1 DEFICIENCY.....

CRAWFORD (P) AND REID (P) - Canad.J.Res.April 1947- states that they learnt early in captivity it was rare indeed to find cases that were clear cut "single" syndromes such as beriberi, et. and even preferred not to refer to them as such. Of heart conditions they state that tachycardia was almost universal. Extra systoles on effort were common. Paroxysmal tachycardiac attacks, partial heart block, were also common. The latter were prone to appear in the course of acute infections.

They have also recorded - "It was our impression that the cardiac age under these conditions was advanced some 20 years."

In a Post-release follow-up of Canadian Survivors they state 17% were found to have a low E.C.G. voltage.

MITCHELL (P) AND BLACK (P) (Lancet, Dec. 1946) - "Many cases of unexplained tachycardia which did not respond to Thiamin. The worst cases had evidence of cardiac involvement. Some patients collapsed suddenly when recovering."....

PALLISTER, J.A. (P) - Med.J.Maley June 1952 - "Many disorders of the heart have been described by doctors who were in P.O.W. camps in the recent war with Japan. Some were beriberi but some may have been due to another cause, perhaps a different deficiency."

STITT'S TROPICAL DISEASE MANUAL 1950 Refers to fatty changes, Brown atrophy and fibrosis of heart muscle in pellagra. But more generally literature is inconclusive.....

<u>RAISED BLOOD PRESSURE,"BURNING FOOT" SYNDROME, KIDNEYS & GENITO-URINARY</u>
Ancel Keys (Jolliffe's Clinical Nutrition 1950)

"When reasonably good diets are re-introduced after severe undernutrition there is evidence of diabetes and hypertension increases and hypertension increases beyond the normal (pre-starvation) level. After the relief of the siege of Leningrad (1941-42) there was a veritable epidemic of hypertension, and somewhat similar findings have been reported in repatriated war prisoners and internees from the East."

STAPLETON, T. (Lancet 8th June 1946) observed transient hypertension in released POW/FE on a normal diet and with a return of their oedema.

PAGE,J.A.(P) Brit.Med.J. 28th June, 1946). Describes redness, swelling, hyperalgesia, sweating, raised skin temperature, increased reflexes, raised blood pressure, and also gangrene of toes in the "BURNING FOOT" syndrome, primarily affecting peripheral arteries. He quotes Kinoshita of Osaka University who examined amputated limbs of returned Japanese soldiers, and who found thickening of blood vessels and obliteration of small arterioles of the feet and legs.....

PANTRIDGE (Brit.Med.J. 28th June 1946). Describes conditions of acute non-pitting oedema with raised blood pressure in starved POW/FE after release and when extra food was being given.....

CRUIKSHANK, E.K. (P) (Lancet 14th September 1946) gives a report on 500 cases of burning foot in POW/FE of whom 189 developed hypertension.....

DAVIES, J.M.P. (Liver Injury, John Macy Foundation 1950) describes hyalitation and amyloid deposition in the kidneys of Kwashiorkor. He stated that: "Kidneys of many young children with this condition are like those of old men."

SEE ALSO LEADING ARTICLE Brit.Med.J. 11th October 1952.

Renal Calculi were a common occurrence in POW/FE prostrated or immobilized by illness. COATES, A.E. (P) (Surgery in Japanese Prison Camps, Australia and New Zealand J.Surg. January 1946) said - "It is not surprising that when the end came there were about 65 patients with nephro-lithiasis awaiting the ministrations of a properly equipped surgical staff.

There can be little doubt there have been many others not all of whom developed stones but nevertheless may have received damage to Glomeruli and Tubules by deposition.

Captivity diary records 1942-43, 1943-44, 1944-45 give some idea of the extent of genito-urinary bacterial infections in captivity, sometimes almost universal. As these diaries record also, it was only possible to check for bacillery infections in some camps.

CONCLUSIONS;

The basis of these submissions is that if effects of multiple nutritional diseases as experienced by POW/FE could have caused damage to the cardio-vascular system in even a preciously healthy heart and vessels, so much more must this be considered in relation to a heart damaged by a further condition even if that condition was not directly due to POW/FE experiences: and so be a contributing factor in worsening and therefore hastening death. It is difficult to escape the conclusion that many POW/FE who have died since release from coronary and other heart disease have had their deaths hastened in this way, and SO LONG AS DOUBT EXISTS BENEFIT SHOULD BE GIVEN TO THE DEPENDENT RELATIVE OF THE PERSON CONCERNED.....

YET ONLY TOO OFTEN IT IS TO BE SEEN THAT INSERVICE CAPTIVITY HISTORY PREPARED FOR THE HEARING AT THE APPEALS STAGE HAS BEEN RELEGATED TO MERELY A FEW LINES. IS THERE ANY REASON AT ALL EVEN AT THIS STAGE WHY A SMALL SELECTIVE PANEL OF POW/FE MEDICAL OFFICER SURVIVORS SHOULD NOT BE CONSTITUTED AND BE ON CALL TO HELP TRIBUNALS WITH THE BENEFIT OF THEIR KNOWLEDGE AND EXPERIENCE.

CANADIAN PENSION COMMISSION MEDICAL GUIDELINES May 7, 1976

PRISONERS OF WAR OF THE JAPANESE

STRESSES OF CAPTIVITY:

1. Diet - Grossly inadequate in calories and protein.
   No nutritional balance
   Vitamin deficiency was universal, particularly Vitamin B-complex
   Loss of weight averaging 20%, but up to 40% in some instances

2. Medicines - these were stored in prison compounds and were in short supply or not available and at times deliberately withheld by the Japanese.

3. Lack of communication - isolation was almost complete with no mail to or from families, no radios, no newspapers, or other sources of reliable news from the outside world and disturbing rumors were rife

4. Forced labour was common.

5. There were cases of deliberate brutality and torture by the Japanese guards.

RESIDUAL DISABILITIES RECOGNIZED BY THE COMMISSION AS RELATED TO AVITAMINOSIS AND DIETARY INSUFFICIENCY:

VASCULAR - The majority of P.O.W.'s of the Japanese had shortness of breath, palpitations and chest pain on release from captivity, usually temporary but persisting in some cases without evidence of organic heart disease. The deal rate from arteriosclerotic heart disease was excessive up to about 1960 to 1965, and since then has returned to normal. Non-specific persistent symptoms would be assessed, if found under the diagnosis of avitaminosis with residual effects. Peripheral vascular symptoms in association with sympathetic over-activity resulted in some sympathectomies in the early post-discharged period. These symptoms overlapped with those of the neurological component and, when etiologically related to the neurological damage, are assessed with that component.....

ARTERIOSCLEROSIS - Consequently rulings can be considered for arteriosclerosis relative to its three major manifestations - arteriosclerosis heart disease, cerebral vascular disease and peripheral vascular disease.

STATISTICS:

Original number of force.....1,975
All surviving POW's of the Japanese as of March 31,1976...1,153

REPORT TO THE MINISTER OF VETERANS AFFAIRS OF A STUDY ON CANADIANS WHO WERE PRISONERS OF WAR IN EUROPE DURING WORLD WAR II
by J. Douglas Hermann, M.D.,F.R.C.S.(C),F.A.C.S.,1973

MORTALITY DATA

1. Based on known deaths, the death rate since repatriation among Dieppe POW is slightly higher than for the control group and substantially higher than for other POW groups.

2. Based on known deaths, former prisoners of war showed a significantly higher death rate at an earlier age than control veterans who had not experienced incarceration. On a sub-group basis this tendency was most pronounced for Air Force POW.

3. Based on known deaths, the Dieppe POW experienced a significantly higher mortality rate from cardiovascular disease in general and ischemic heart disease in particular than any other study group.

SUBMISSION TO THE PARLIAMENTARY COMMITTEE (CANADA) ON VETERANS AFFAIRS
BY THE WIVES & WIDOWS OF THE NATIONAL POW ASSOCIATION
(EUROPEAN THEATRE)
ON PENSIONS & WIDOWS BENEFITS FOR ALL WIDOWS OF POW'S 1977

...CARDIO-VASCULAR DISEASE (HEART - ARTERIES). Although Dr. Hermann (1) refers to the significantly higher instance of death due to cardio-vascular disease there is no reference to the much greater numbers that are at this time under medical care for this problem, with the associated long term loss of income and increased medical expenses.

CANCER reports by Dr. Hermann and Sir Edward Dunlop show that approximately the same percentage of POWs and controls have died from cancer but the POWs are dying at an earlier age. These reports do not state the number of living POWs with cancer but in one group of ex-prisoners in the Windsor area, eleven out of seventy in the 50-60 age group are being treated for this disease. According to the Darling Cancer Foundation this 15% involvement should not be expected till the 80th year.

Although cancer is a long, finance depleting disease, it is almost impossible to have the Pension Board consider it as a pensionable disability unless the patient was discharged with a condition which could be regarded as a precursor to carcinoma.....

The involvement of the five most prevalent diseases in which the ex-POW age 44-64 were significantly higher than the National average were heart, cancer, diabetes, ulcers, and arthritis.

****

CURRECT REVIEW

MALNUTRITION AND THE HEART

John G. Webb. MD
Marla C. Kiess, MD, FRCPC
Clifford C. Chan-Yan, MD FRCPC

CMAJ, VOL. 135, OCTOBER 1, 1986

Earlier concepts that the heart is spared in malnutrition have been shown to be incorrect. In adequate intake of protein and energy results in proportional loss of skeletal and myocardia, muscle. As myocardial mass decreases, also the ability to generate cardiac output; however, various compensatory factors come into play. Nutritional supplementation for malnourished patients reverses the compensatory factors and may increase the short-term potential for heart failure. Severe cardiac debility results in poor nutrition, which may in turn produce unsuspected but clinically significant myocardial atrophy. Nutritional support may play a role in improving cardiac function in selected patients with cardiac cachexia who are being prepared for cardiac surgery and in patients with rapid weight loss who are at risk for sudden death due to arrhythmias. Malnutrition is common in hospital patients, and many patients in hospital now receive nutritional supplementation; both facts have important cardiac implications.....

AMERICAN EX-PRISONERS OF WAR
NATIONAL MEDICAL RESEARCH COMMITTEE

November 1988

HEART DISEASE AND RELATED DISORDERS

A POW suffered from dietary deficiencies, forced labor or inhumame treatment, the diseases of Avitaminosis, Beriberi (including beriberi heart disease), Chronic dysentery, Helminthiasis, Malnutrition (including optic atrophy associated with malnutrition), Pellagra, or any other nutritional deficiency. (P.L.91-376 91st Congress, S.3348 Aug.12,1970.)

The hospital admission rates for arteriosclerotic heart and essential benign hypertension were found to be significantly higher for Japanese POW's than for their controls during the period 1958-1965. POW's Japan and POW's Europe, also showed a significantly high number of deaths due to heart disease. (Morbidity, Disability, and Maladjustments, by Gilbert W. Beebe (1975) American Journal of Epidemiology).

All study groups are still too young for cerebrovascular disease to have become a frequent cause of death. Yet the three World War II control groups mortality ratios for stroke are above expectations. In corresponding POW groups, ratios for Korean War prisoners is about twice that for Korean controls. Ratios for the residual category of other disease of the circulatory system or renal disease suggest that POW's have fared the worst from these causes of death. Each POW group has a ratio about twice that of its control. (Follow-up Studies of World War II and Korean War Prisoners, by M. Dean Nefzger, American Journal of Epidemiology 1970).

Beriberi heart disease is often confused with, and can be masked by, arteriosclerotic heart disease. The diagnosis is dependent on clinical history, physical examination, therapeutic course, and the observation of extensive hydropic degenerative changes in cardiac and skeletal muscles found in detailed postmortic studies. (Degenerative Heart Disease Resembling Beriberi, John J. Robinson, M.D. 1960, Southern Medical Journal.)

ADVICE TO THE NEXT OF KIN

In case of the death of an ex-POW, the widow should have an autopsy performed and the findings given to the VA. They should advise the funeral director that the decedent is a veteran. Funeral directors will assist in making application for burial benefits and grave marker. VA Regional Office in the area then automatically provides necessary forms to the next of kin for making application for benefits for which they may be entitled.

In those States where County Veterans Service Officers are located: the next of kin should make application thru that office and will receive assistance and guidance. If no County Service Assistance Office is located in your State of Residence, contact the nearest Service Organization Commander who will provide assistance without charge. The veteran need not have been a member of any service organization.

The following is a statement from Dr. Albert S. Evans in the case of a POW's death. Dr. Evans was Chief of Cardiology for 12 years at the Northeast General Hospital and has been Geaugo County Coroner and a staff member at Geaugo Community Hospital, Chardon, Ohio.

Stan Sommers
PNC Stan Sommers

EVIDENCE PRECEDENCE:

1. Case of veteran----------
who was awarded 100% Service Connected Disability for Beriberi Heart Disease on this evidence enclosed.

2. Quoting from research of Col. Donald H. Wills, U.S.A.R.Ret.: "It has been widely stated by many authorities among them Schlesing, Weiss, and Blankenhorn that extended periods of thiamine deficiency will cause permanent, irreversible damage to the heart and circulatory system. Blankenhorn mentions that 90 days is the time limitation beyond which permanent damage will be caused."

"..POW's suffered latent, irreversible damage to a number of organs: and that these damages to organs will sooner or later make themselves manifest. At this point we list the pathological evidence of this damage that would most likely be found either by medical examination or by pathological examination at necropsy.

HEART:

1. Possible enlargement above the norm for specific body weight.
2. Myocardial fibrosis of varying extent.
3. EKG abnormalities involving Q-T interval, flattened or inverted T Waves, and low amplitude of QRS.
4. Endocardial fibrosis in ventricles.
5. Distended or flabby pulmonary artery."

3. Boyd's Pathology states "Beriberi Heart Disease fibrosis at later stage.."

STATEMENT: I have reviewed all of the available information on----- and in my opinion he had Beriberi Heart Disease while a Prisoner of War in the Philippines and that this was a major contributing factor in his coronary disease to which he later succumbed.

There is considerable evidence throughout the literature that Beriberi either alcoholic or nonalcoholic in etiology, produces irreversible heart damage which may not be manifested clinically or by physical examination or current laboratory methods. Diffuse myocardial fibrosis has been found in such cases at autopsy.

Coronary artery disease also causes scaring or fibrosis, the two can not be differentiated. When the scar or fibrosis has been found in such cases at autopsy.

In my opinion Beriberi played a major part in the demise of this patient.

Albert S. Evans, D.O.

LATER EFFECT OF IMPRISONMENT AND DEPORTATION
International Conference organized by the
World Veterans Federation - The Hague
November 20 - 25, 1961

LIBERATION AND THE FOLLOWING YEAR
by Charles Richet (of the "Academie de Medicine" Paris)

Myocarditis, tuberculosis and denutrition, when these are untreatable disorders or lesions, continued to destroy.

From 1947 to 1955 --THE STAGE OF EARLY AFTER-EFFECTS
All the organs affected:myocarditis, stomach ulcers, psychic disturbances, rheumatism, tuberculosis, the latter, it is true, being already less frequent. In this period, morbidity and mortality were higher than among our contemporaries.

Today, we are living in the PERIOD OF DELAYED AFTER EFFECTS.

The present Conference exponds the teaching of the Oslo meeting which demonstrated that all systems, all organs affected in the past were still affected sixteen years later.

Before going into detail let us mention the three main factors which have turned the deportee into a constantly ailing person.

1. Job fatigue does not appear at the beginning of old age, but in Adults who are still young.
2. Old age is premature
3. Early death occurs.

The cardiovascular and nervous systems, although not the only ones to be impaired, are more often those to be affected and this always leads to serious developments.

I do not wish to anticipate the reports which will be submitted to you but I trust I may be permitted to mention the most important points.

The nervous system in disturbed in the case of more than half of our comrades. The commonest sign, so common that we now regard it as normal, is fatigue. This appears after any slightly long walk, as a result of going out in the evening, getting up too early, or any overwork. Hypersomnia is invariable: lengthy daytime rests are essential.

The Norwegian and French experts at Oslo emphasized psychic disturbances. They are studying them again today and the opinion of these phychiatrists - Osvik, Rogan, Eitinger, Strom, Gronvik, Lonnum, Targowla, Raveau - is of the greatest value. Psychic and characterial functions often cease to be normal. Cardiovascular disorders are very frequent. Our friend Inbona shows the development of myocarditis cases since 1944 which continue to advance. They lead to those delayed deaths due to a heart disease which Mans and I emphasized, death through sclerosis of the myocardium, of the coronaries, of the aorta or by senile myocarditis.

FOLLOWING ARE THE CONCLUSIONS & FINAL RECOMMENDATIONS OF 48 DELEGATES, WHO ARE EXPERTS ON THE LATER EFFECTS OF IMPRISONMENT AND DEPORTATION.

"In conclusion, the Conference was of the opinion that there exists ailments and disabilities which appear long afterwards among persons who were interned or imprisoned in concentration camps.

These effects can become manifest at any time after liberation, and no time limit can be set for their appearance.

Similar effects can be observed among persons who have lived under dangerous and stress conditions as a result of their fight against Nazism.

These effects can be found among former prisoners of war who lived under exceptional conditions of stress".....

"The Conference was of the opinion, on the basis of the above medical conclusions, that it is necessary:

1) To eliminate, for the persons concerned, all legal time limits for submitting application in connection with disability.

2) To have them benefit from the presumption of origin and aggravation, without time limit, which excludes any provision tending to reduce the disability rate on the grounds of the applicant's age or because of the time when application for pension was made.

The Conference recommends in general, the adoption in the various countries of a system of reparation based on the principles set down above.

Without prejudice to more favorable or similar legal provisions, the Conference recommends in particular the following measures:

1) Granting to Deportees who were subjected to the concentration camp system an outright disability percentage intended to compensate for special physical and psychic diminution suffered by the persons concerned as a result of the exceptionally severe conditions of their interment, this percentage to be granted in all cases and possible to be added, arithmetically, to the disability rate already recognized for specific ailments.

2) Creation of commissions established solely in connection with the medical examination of former deportees.

3) Possibility of applying for early retirement and payment of the entire salary and for all other possible advantages, which would be guaranteed with the legal pension age.

4) Completely free medical care, both preventive and curative.

The Conference requests the World Veterans Federation to call upon the governments and the medical profession to promote specialization in post-concentration camp pathology. It urges that the conclusions of the studies that have already been pursued in this field and that new medical knowledge resulting there from be widely publicized.

CARDIOVASCULAR DISEASE IN EX-POWS' DEATH CERTIFICATE

July 6, 1987

Over the past several years there has been an alarming number of former prisoners of war dying of cardiovascular disease - many of the deaths being a MYOCARDIAL INFARCTION.

When a widow applies for SERVICE CONNECTED DEATH BENEFITS she is told there is no way you can link incarceration with later cardiovascular disease.

I believe there IS a link between the later development of cardiovascular disease and incarceration - the KEY WORDS are avitaminosis, malnutrition, beriberi, starvation, and stress.

REFERENCE:

In a meeting at the Clement J. Zablocki Veterans Administration Medical Center, Milwaukee Wisconsin, March 19, 1087 with Dr. Chesley Erwin, Department of Pathology Medical College of Wisconsin, I asked Dr. Erwin (who has performed hundreds of autopsies) when it came to filling out the death certificate of a former prisoner of war who had died of a cardiovascular disease if he can state death WAS NOT RELATED to prolonged malnutrition. IF NOT than can the wording read MAY BE RELATED to prolonged malnutrition. He said, of course. The pathologist statement if so worded would go far to the granting of DIC (Dependency and Indemnity Compensation - service connected death benefits).

Two months later at a MedSearch Seminar at Jacksonville Arkansas on May 13th, Dr. Wayne Pullen, POW Sr. Medical Clinical Coordinator for Medical District 19, gave an comprehensive presentation on the POW episode with its malnutrition and starvation and how it can effect later health.

I asked Dr. Pullen if he was the attending physician at the death of a former prisoner of war who had died of a cardiovascular disease if on the death certificate he could state a contributing cause was malnutrition. His answer was yes. Again this statement on a death certificate of an ex-POW who died of cardiovascular disease would be very helpful to the widow's claim for DIC Death Benefits.

Enclosed is an excellent paper by G.M. Hargreaves, M.D., "Heart Disease and the Ex-POW", POW MedSearch 1979 which links cardiovascular disease with our incarceration.

Stan Sommers

PNC Stan Sommers
POW MedSearch Chairman
American Ex-Prisoners of War
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Marshfield, Wisconsin 54449

HEART DISEASE AND THE EX-POW

Little Tresawsen,
Callestick,
Truro,
Cornwall, TR 4, 9HG,
England

14th. July 1979

Dear Mr. Sommers,

At long last I can report some measure of success in connection with pension claims. The enclosure - a brief for use by the local Welfare Officer (service officer) - condenses the bulky material which appeared in earlier correspondence.

Paragraph 15. The Appeals tribunal announced final judgement after this was written and ruled in favour of the appellants who will now receive compensation. Through this is a breakthrough which should benefit others suffering from cardiovascular disease, it is unlikely to achieve the objective set out in paragraph 16 - hence a proposal to call on the Ombudsman.

He presides over an independent office which examines complaints of departmental injustice or maladministration and remedies genuine grievances. Few such complaints succeed but, in view of available evidence and support given by an independent arbitrator, it seems reasonable to expect favourable judgment in similar cases. I will keep you informed of developments as they arise.

Your help in preparing the enclosure has been acknowledged in the text. May I again thank you for guidance and for all the trouble you have taken.

With all good wishes.

Yours sincerely,

G.M. Hargreaves, M.D.

P.S. I have mentioned the case of a man who was working in Nagasaki dockyard when the second atomic bomb was cast and who died from cancer two years ago. His widow claimed the special compensation which would be her due if any connection between exposure to direct radiation and the subsequent appearance of cancer could be established. Though such a link cannot be proved, evidence - as in Sir Edward Dunlop's monograph and American and Japanese publications - must have been sufficient to create doubt. Formal notice to effect that the widow's claim has been accepted came by yesterday's post.

Ref: GMH-JS 10th May 1979

1. Correspondence extending over three years reveals differences of opinion regarding the origin of cardiovascular disease among former Far East Prisoners of War (FEPOWs). This summary compares opposing points of view and suggests how a fair solution may be reached.

2. At this point it is convenient to examine the law governing disability pension awards granted by the Department of Health and Social Security (DHSS). A FEPOW whose illness arises more than seven years after discharge from the Forces is obliged to show that it is related to service conditions. But formal proof is not essential. If official records or other reliable corroborative evidence are sufficient to establish reasonable doubt, the claimant benefits from that and is entitled to expect that the claim will be met (1).

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3. In 1946 the Ministry of Pensions ruled that cardiovascular disease could not be accepted as a pensionable disability. At that time it was generally believed that its cause was purely endogenous but, since then, expanding knowledge has revealed the existence of external factors which promote or hasten its development, either directly or indirectly by aggravating an inborn tendency.

4. Items (2) to (21) listed for reference show that :-
The incidence of cardiovascular disease has been significantly higher among FEPOWs than among other groups, controls or national averages.

Among men who were fit before capture, vascular changes only came to light long after repatriation or from the late fifties onwards.

Many were affected at an unduly early age.

Excess attack and mortality rates are due mainly to protracted stress but are also influenced by permanent aftereffects of starvation.

5. Stress. A recent report published by the Royal College of Physicians and the British Cardiac Society reveals two significant points. Most physicians believe that stress is an important risk factor for coronary heart disease and removal from a stressful situation will not necessarily reduce that risk. But, despite their own impressions, the authors see no way to prove that chronic stress contributes to the development of CHD.

Stress is a force which cannot be measured by statistical analysis but its effects are recognised by observers whose opinions carry weight.

6. Starvation. Cases of cardiac beriberi have been reported among FEPOWs after their repatriation but records are so scanty that it is impossible to estimate its extent. Since male deaths from beriberi in England and Wales averaged 1.6 per year between 1946 to 1960, it seems that FEPOW deaths would have been reported as "heart disease" without mention of the primary cause. That diagnostic omission would doubtless

apply to survivors who remain permanently damaged by malnutrition or some other after-effects of starvation (22) to (24).

7. FEPOWs are as much heir to common degenerative disorders as non-FEPOWs and, in any given case, it is impossible to prove a relationship between service conditions and the subsequent development of cardio-vascular disease. But, since all FEPOWs have been exposed to recognised risk factors, the link cannot be disproved and available evidence, judged in the light of probability, must at least create that element of doubt which entitled claimants to benefit.

8. Apart from Britain, five European countries were so impressed by this evidence that they decided to compensate former POWs or deportees who suffer from cardiovascular disease (25).

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9. Five Duchy members who developed Atherosclerosis or Ischaemic Heart Disease long after repatriation entered claims for compensation. All were disallowed. The DHSS argues that, on account of a long lapse of time between discharge and the onset of symptoms, the claimed conditions must have been caused by inborn constitutional factors and cannot therefore be attributed to service.

10. The "over seven year" rule creates an unfair bias against FEPOW interests. A man charged with a criminal offence is deemed innocent until evidence proves guilt, whereas a FEPOW is obliged to produce evidence in support of his claim. Though it plays no part in etiology, a rigid date line is used to determine how disease does or does not originate. This enables the DHSS to disregard a long "incubation period" and to find no room for doubt.

11. Departmental staff have stated that their views are in accord with the consensus of medical opinion. This estimate can only be based on opinions which tally with their inclinations and cannot represent the true picture since it excludes the quantity and quality of opinions expressed by extra-mural observers with practical experience in the assessment of FEPOW ills.

12. Why does Britain oppose cardiovascular claims? Should this condition become listed as a pensionable disability, a spate of claims would soon flood departmental offices and so create embarrassment. Hence a fear that compensation for war damage is largely influenced by political considerations.

13. Appeals were lodged on behalf of the five Duchy members whose claims were rejected by the DHSS. During hearings their interests are represented by the Royal British Legion and supported by evidence as quoted above.

14. The first (heard at Exeter in January 1978) was disallowed. The Tribunal assessors preferred the departmental line of agrument and found that the Atherosclerosis claimed was of constitutional origin because there was too long an interval between discharge from the Armed Forces and the onset of the claimed condition. This judgment is binding and prohibits any subsequent reference to the Ombudsman.

15. Two more appeals were heard late last year and proceedings were adjoined in order to obtain the opinion of an eminent Cardiologist. In his view, evidence was sufficiently reliable to justify the establishment of reasonable doubt, in one case "nothwithstanding a close family history".

16. I submit that evidence, supported as it is by an independent arbitrator, is sufficient to warrant an attack on departmental policy in an attempt to bring about (a) abolition of the "over seven year" rule and (b) recognition that cardiovascular disease can be service-conditioned, unless some other or more likely cause can be demonstrated.

17. Earlier successful appeals (17) have had no effect on DHSS policy and a change by discussion cannot be expected. In such circumstances I see only one way to achieve the above-mentioned objectives, to wit, that one or two cases be withdrawn from the appeal list and referred to Members of Parliament for test by the Ombudsman on grounds of injustice - the Department's failure to appreciate and apply the "when in doubt" rule.

18. I recommend that the Royal British Legion be invited to join forces with the National FEPOW Federation in an endeavour to reach a just solution to this FEPOW problem.

G. M. HARGREAVES
A former Welfare Officer
The Duchy FEPOW Association

REFERENCE

I am greatly indebted to the Research Director of the American Ex-Prisoners of War Association for guidance and for much of the information which follows.

(1) The law governing pension awards is defined in a letter written by a Parliamentary Secretary, Department of Health, on 18 June 1973. It ends with these words, "...the staff of the FEPOW unit ensure that the benefits of any reasonable doubt is always given".

(2) A 1967 report by J.J. Richardson compares deaths from arteriosclerotic heart disease among Canadian FEPOWs with predicted mortality rates. In Pension Appeal Tribunal case No. 1/26155, "there were 47 such deaths ... where 29.94 would be expected, a highly significant excess.

(3) M.D. Nefzger, American Journal of Epidemiology, 1970,81, found that the incidence of mortality caused by major cardiovascular-renal disease was higher for PWKs (FEPOWs) than for the normal U.S. population. Heart disease appeared to be the major cause of death among PWJs and PWEs (European) with respect to control rates.

(4) Gilbert Beebe, American Journal of Epidemiology, 1975, 101, reports that "In the 1962-1963 interval the (hospital) admission rate for cardiovascular disease was higher among PWJs than for the WJs (controls). Arteriosclerotic heart disease was the main contributor to this excess". His report ends with these words, "Although most morbidity differentials do not forecast a return of the higher mortality seen among PWJs in the early years after repatriation, those

for cardiovascular disease do not fit this pattern and future rates of cardiovascular disease among PWJs should be watched.

(5) A personal follow-up of 29 fellow FEPOWs from 1946 to 1970 revealed that just under 25% died from coronary heart disease and that the peak rate was between 1958 and 1963. This small and uncontrolled count means nothing to a statistician but the high rate is confirmed by reliable evidence.

(6) In 1973 forty-two surviving members of the Duchy unit answered a questionnaire and eight revealed the existence of cardiovascular disease with degrees of impairment varying between slight and severe. One subsequently died from a massive coronary blockage.

(7) The Canadian Pension Guidelines of May 1976 confirm that the FEPOW death rate was excessive up to about 1950 to 1965.

(8) The Roehampton Survey. Among 4,684 FEPOWs examined between 1967 and 1971, 599 or 12.8% had definite cardiovascular sequelae.

(9) From the Medical World News of April 24th 1965, "Permanent after-effects (of captivity) - ranging from organic brain and arteriosclerotic damage to loss of memory and inability to function - are now being found increasingly among more than 500,000 U.S. citizens who suffered persecution and imprisonment by Nazis and the Japanese in World War II"

(10) In a 1973 report to the Canadian Minister for Veteran Affairs, J.D. Hermann, MD. FRCS (Can), found that POWs captured at Dieppe experienced a significantly higher mortality rate from cardiovascular disease in general and Ischaemic heart disease in particular than in any other study group.

(11) A submission to the Canadian Parliamentary Committee for Veteran Affairs in 1977 compares the involvement of heart disease on the basis of national average against a representative number of POWs. Average for males aged 44 to 64 - 9.7%. Ex-POW males of the same age - 25%.

(12) H. Szwacz in a personal communication recorded by the American Ex-POW Association. Among 240 Polish concentration camp survivors, 77.5% presented cardiovascular disease in 1964, a far higher incidence than among the ordinary population.

(13) Richet and Mans, Pathology of Deportation 1962. The authors differentiate between early and late after-effects of captivity. In the later group the most important are cardiac and nervous accidents.

(14) A conference organised by the World Veterans Federation was held at the Hague in November 1961. Extracts from proceedings are:

"...there exist ailments and disabilities which appear long afterwards among persons who were interned or imprisoned in concentration camps".

"These effects can also be found among former prisoners of war who lived under exceptional conditions of stress".

These effects "can be manifest at any time after liberation and no time limit can be set for their appearance".

Delegates concluded that it is necessary "to eliminate for the persons concerned all legal time limits for submitting application in connection with disability" and "to have them benefit from the presumption of origin and aggravation, without time limit, which excludes any provision tending to reduce the disability rate on the grounds of the applicant's age or because of the time when application for pension was made".

(15) A pamphlet published by the Research Committee of the American Ex-Prisoners of War Association, refers to the syndrome known as Premature Ageing which is manifest by general appearance and the state of the circulatory organs. "Under-nourishment, heavy labour, perpetual anxiety and fear are regarded as the most important etiological factors ...In most works on concentration camps inmates, the under-nourishment is not indicated as the sole responsible factor. What seems to have been decisive is the cumulative effects of protracted strains and stresses".

(16) A review of the "Concentration Camp Syndrome" in the General Practitioner of February 4, 1972, described premature ageing (as manifest by vascular changes) as a long term after-effect of captivity

"Cardiovascular disease which is particularly difficult to diagnose in relation to war-time suffering has caused administrative problems. There are no medical statistics available but heart disease is now recognised as grounds for compensation..."

"The long-term effects of stress ... are not officially recognised in Britain ... Only recently it has been recognised that the effects on health may be delayed for as long as 20 years..."

(17) Pension Appeal Tribunal cases 1/26155 and 1/2776:27777. These papers contain lengthy reports by a Consultant with years of experience in the case of FEPOWs. His recognition of a link between service conditions and the subsequent development of cardiovascular disease enabled the Tribunal assessors to reverse DHSS decisions and find in favour of the appellants.

(18) H.J. Herberg (source of information available for translation) considers that arterial hypertension and pathosclerosis are not solely dependent on congenital disposition. Their course can be markedly altered by protracted strains and stresses of various kinds.

(19) A pamphlet recently published by the Royal College of Physicians and the British Cardiac Society - significant points are described in paragraph 5 of the covering note.

(20) "How not to get a Coronary" - a pamphlet published by the British Medical Association in 1969. Anxieties are considered to be the villains.

(21) "Aftermath" - The Lancet of 19 February 1966. This describes the late effects of stress.

Other publications of a similar nature are recorded in files belonging to the National FEPOW Federation and need not be quoted here.

(22) Jolliffe's Clinical Nutrition (1950). "When reasonably good diets are re-introduced after severe under-nourishment, there is

evidence of diabetes and hypertension increases beyond the normal (pre-starvation) level. That is confirmed in a recorded interview with Dr. Hoffer, President of the Huxley Institute for Biological Research, Victoria, British Columbia.

(23) Hypertension seen during the immediate post-war years was generally of a transient nature, but sometimes it persisted well into the stage of delayed after-effects of captivity and would then favour the development of degenerative changes, L.R. Coke, Medical Service Journal of Canada, 1961:17, reviewed 391 Canadian FEPOWs 12 years after their repatriation and found 69 cases of hypertension, with 9 deaths from cardiovascular disease. E.G. Schenck, in a personal communication to the American Ex-POW Association, refers to 2,000 Germans who had been held in Russian hands. In 1967 67% had blood pressures of at least 160/105 (6.1% in the group below 40 years of age).

(24) Extracts from the Biology of Human Starvation (1948) - "The most significant effect of starvation on the blood vessels is an early appearance of changes (usually) seen at a more advanced age...patients also showed deposits and intimal changes of the atheromatous type". Professor Frantisek Blaha, Prague Pathological Archives 1965:23, reviewed 10,000 autopsies performed in the Dachau concentration camp and found atherosclerosis in most. It seems that these changes were due mainly to starvation or wastage within the circulatory organs followed by the laying down of harmful tissue. Some of his findings are consistent with those found in cases of death from scurvy.

(25) Evaluation of War Damage in countries outside of Britain.

Nordheim Westphalen accepts that atherosclerosis and other cardiovascular disease can be attributed to service conditions, provided (i) the patient is below 50 years of age, (ii) captivity had lasted for at least 3 years. This is the only known instance when time and age limits have been set.

Austria accepts that premature ageing and arteriosclerosis can follow war stresses and claims for compensation are met.

In Holland cardiovascular disease is regarded as being war-conditioned in the absence of any more likely cause.

In Norway a person who has been exposed to extreme war stresses is granted a pension unless it is obvious that the disabling disorder is unrelated to service.

France awards disability pensions to former deportees when their disabilities are due to hypertension or arteriosclerosis.

In 1966 the Canadian Pension Committee approved higher pensions for all their surviving FEPOWs on account of... and hardening of the arteries. Five years later the Canadian Government granted all surviving POWs a minimum pension of 50%.

The above is certified to be a true copy of the manuscript of Dr. G.M. Hargreaves.

Stanley G. Sommers
Chairman, POW MedSearch
June 20, 1987

LISTENING IN /George Vukelich
May 10, 1985 ISTHMUS

STRESS CAN KILL

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'THAT MORNING I WAS ANGRY AND THAT'S PRECISELY WHAT STARTED THE HEART ATTACK.'

Frank Custer, whose half-time cartwheels at Homecoming are a UW tradition, was born in Madison in 1912. He attended the old Central High School and graduated from the UW-Madison. "My twin brother, Rudy, majored in journalism and wound up as business manager of the Chicago Bears, he says. "I majored in German as a reporter for the Capital Times." Custer started at the Cap Times as editor-publisher William T. Evjue's confidential secretary in 1939, spent 42 months in the army, then returned to be a reporter. He stayed with the paper until the newspaper strike in October of 1977, and, years later, he was the very last striker off the picket line. "Reporting and deadlines never stressed me," he says. "My stress started with the strike." He has been married to Sally since 1949, and they have four children. On Jan. 25, he suffered a heart attack that almost killed him.

"We had a snowfall that night--three or four inches--and I was going to take my wife to work, so I went out and shoveled the driveway. Just when I got through,the snowplow came along and jam-packed the driveway. I was furious.

"I waded into that pile like hell hath no fury. It was packed and heavy, and I just threw it onto the terrace. When Sally came down, I noticed that for the first time while shoveling snow, I really felt fatigued and tired.

"Now, the previous July, I had been having some stress problems and had trouble sleeping. I had gone to the doctor and he had talked about stress causing sudden death--the heart and so on--but I didn't pay much attention to it.

"That morning I was angry, and that's precisely what started the heart attack. I was tense. I began to challenge the other drivers, and as I drove I had this feeling of something going on in my chest. I don't remember now if it was pain--my doctor says my subconscious probably wiped it out--but I thought it was something connected with my heart, because I remembered then what the doctor had told me in July about stress and death.

I dropped my wife off at her office and I said to myself: I have got to stop at Madison General and have them check me out, because something is wrong here. Looking back on it. I would say there had to have been pain or I wouldn't have wanted to go to the hospital, but I don't remember pain.

"I made a left turn off Regent Street and up on Brooks into the emergency ramp. Then I thought, 'Well, it isn't that bad, Frankie. Why don't you just go on home?' So I actually drove up to the Mound Street intersection, and it was there that I said to myself, 'Custer, you're a

damn fool. Don't go home. Turn around. Go back to the hospital and check this out.'

"I did a U-turn, went back in the emergency entrance, parked the car and walked in. The young lady at the desk asked, 'What can we do for you?' And I said, 'I think I'm having a heart attack.' Things really moved--they flew. She asked me my name and if I had ever been there before and I said, 'Yes, last July for stress.'

"They got out my records, wheeled me into a section beyond the automatic doors, put me on a bed, strapped me up with stuff on my chest and arm--blood pressure, EKG, all that. I was in darkness and I said to call my wife. I don't remember anything after that.

"I came to about five days later, and since then I've been informed that my heart stopped three times. My wife and daughters said someone came out and told them I wasn't going to make it. My wife called all the family to come and they did, including my father from Milwaukee. He's 96 years old.

"They tell me my eyes were open, but I was in darkness. I remember my wife came in and said, 'Squeeze my hand if you hear me.' I squeezed her hand and each of the children said, 'Squeeze my hand.' My father said the same thing. Those are the only moments I remember.

"I had let myself go physically. I was overweight. Now I'm in the rehabilitation program with other people in the same boat, and we work out on the rowing machines. I've just started on the weight lifting, and we work on handling stress, too. If I feel a stressful situation coming on, I walk away from it.

"We've learned a lot of meditative things: lying on the rug and imagining that we're tree stumps and what a tree stump feels. I'm walking a lot now too, and I told the doctor I was going to do cartwheels--at least one--at Homecoming this fall. He said that remains to be seen. He also said, 'Well, maybe one.'"

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PATHOLOGY OF THE CAPTIVITY OF THE PRISONERS OF WAR
Tome II Works of the International Medical Conference Brussels
No. 1st to 4th 1962 by Charles Richet of the
"Academie de Medicine" Paris

The two most important medical points amongst deportees are on the one hand, their mortality in the camps, and on the other, the existence of sequels amongst many of them. Mans and ourselves have stressed the frequency of this and have indicated the clinical and pathologic features thereof. They are admitted by all thee European Clinicians. This notion of sequels is of particular interest to you in your capacity as doctors of prisoners of war. We have classified these sequels into PRECOCIUS SEQUELS, occurring 1 to 12 months after the return of the prisoners (tuberculosis, enterities, etc.): SEMI-RETARDED SEQUELS, appearing between the 1st and 8th years, (tuberculosis, rheumatism, stomach ulcers, etc.): RETARDED SEQUELS, occurring sometimes after 15 years, the two most important of which as they often involve death are cardiac and nervous accidents.

The pattern amongst former deportees is, or was, very frequently as follows:

A) Diminution in occupational work capacity;

B) Premature senescence (muscular, articular, cardiac, nervous,etc.)

C) Death, on the average, premature. We encounter confirmation of this later point in Ellenborgen's statistics: in 1961, he lists only 0.7% over the age of 70 among former deportees.

DAVID-DOCTEUR EN MEDECINE--BELGIUM It is obvious to anybody that certain diseases occur more frequently in former war-prisoners than in other people. I have personally, been able to ascertain a greater frequency of following diseases: 1) Digestive diseases, more in particular gastro-intestinal ulcers, sometimes cancerised in its chronical form. 2) Cardio-vascular disease, mainly of coronary type. Moreover, although my personal experience does not permit a valid statistic to be made up, I am firmly convinced, that one should add to this list T.P. mainly belated and psycho-neurotic troubles.

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THE ACCEPTANCE OF CANCER AS WAR CAUSED

There is an increasing awareness of the fact that cancer is in most cases an acquired disease related to environmental factors, and exposure to certain cancer producing agents sometimes termed "Carcinogens".

The W.H.O. now accepts that 70% of cancers have external causes.

There may be a cumulative effect in which countless repeated exposures occur as for example in smokers' cancers related to sunlight exposure, or there may be a single deadly exposure such as experienced by the victims of atomic bombs and other sources of ionizing radiation, and there is a complete spectrum in between these poles.

Modern researches have discovered some chemical substances so deadly in this regard that a single exposure will cause cancer.

It may be asked why this relationship to environment has been so slow in emerging?

There has been a tendency to seek a single cause of cancer rather than multiple causes and this preoccupation has had stultifying effects. In the main however, the relationship has been obscured both by the subtlety of the causal effects, and by the fact that the causal factor seems remote.

This subtlety is illustrated by the fact that in some parts of Wales, women have a quite unusually high incidence of cancer of the oesophagus (gullet) and larynx. This is considered to be due to the faint radioactivity of certain igneous rocks and slates. Most old houses in Wales are built of stone and slate from local quarries and the women in general spend more time in the houses than men. Moreover in some districts where men work in slate quarries they have been demonstrated to have much higher death rates for cancer of the oesophagus, larynx and stomach than the general level.

Similarly it has become known that workers with asbestos may suffer from cancer of the lung, and malignant tumours of the pleural and peritoneal lings termed mesotheliomata.

Crocidolite (blue asbestos) is particularly indicted in association with mesotheliomata, whilst bronchial cancer is not related to any one fibre (International Union Against Cancer of the Chest 1965).

Most sufferers from mesotheliomata have had many years of exposure but this can be as short as a few months. Some have merely had a relative in the industry e.g. wife washing her husband's clothing.

It is however, quite significant that Newhouse and Thompson (1965) reported that 31% of a group of sufferers lived within half a mile of asbestos factories. The same authors in 1966 stated that the interval between first exposure to dust and development of the tumor ranged from 17-55 years (mean 38).

Ashcroft (1968) reported a much higher incidence to this tumor in the ship-building areas of the Tyneside than in rural areas and a corresponding variation in asbestosis of the lungs.

The individual responses to the exposure seems to be markedly variable.

There are strong clues as to cancer producing effects in the distribution of cancer.

1. GEOGRAPHICAL: The incidence varies greatly from country to country, and may vary greatly from area to area within countries.

For example, skin cancer is extremely high in Australia and especially in Queensland whereas in India there is proportionately little skin cancer and much cancer of the mouth in comparison. The Japanese have a high incidence of gastric cancer.

2. RACIAL DIFFERENCE: For example, Chinese are prone to nasopharyngeal cancer and cancer of the gullet whilst Malays in the same areas are relatively immune. Darker skinned people are relatively free of skin cancer.

3. There are marked economic, social and occupational effects.

Mouth cancer is more common in the under-privileged with poor mouth hygiene. Cancer of the oesophagus is more common in barmen and brewers. Certain cancers may affect workers in the rubber and asbestos industries, in certain mining activities and in work with aniline dyes.

These examples can be expanded almost endlessly.

Obviously the deduction can be drawn that when a service man or woman is sent to another climate and a very different environment, that he or she is likely to be exposed to carcinogenic factors which would not have operated under normal circumstances and this may determine cancers which are not in evidence until middle age or old age.

Some of these cancers may be harboured for years without clinical evidence of their presence as well contained foci, e.g. cancer in-situ

or inconspicuous and well supported lesions. Cytology studies may show the presence of cancer cells for years before a cancer of the cervic becomes evident in the female who is affected.

A soldier who contracted Bilharzia in Egypt with bladder or rectal involvement could develop a cancer in these organs after a latent period of years.

Dr. E.V. Keogh has marshalled in a most convincing way the case for the soldiers who did not smoke prior to service in World War I or II but acquired the habit due to the handing out of tobacco as comforts by numerous well meaning organisations under circumstances in which it relieved boredom, anxiety, hunger and fatigue. His death from carcinoma of the lung years later must be regarded as likely cause and effect. If he ceased smoking when the war ended the moral responsibility seems absolute. If however, one considers his addiction established during the stress and strain of war, the various difficulties of re-establishing himself in civilian life again were likely to maintain the type of anxiety often associated with heavy smoking.

It would appear from the work of the Anti-cancer Council of Victoria that chronic smokers of more than 30 cigarettes a day have a one in ten chance of dying of cancer of the lungs.

Nevertheless despite all obligations to give the "benefit of the doubt" to the ex-serviceman, repatriation authorities appear to have almost consistently avoided this plain responsibility. However recently I was one of several supporters of an appeal for the widow of a West Australian ex-Prisoner of war which was upheld. In this case the further agrument was submitted that the deceased, a heavy smoker, was obliged to smoke ill prepared coarse lampangs of native tobacco rolled in unsuitable papers and other materials. He died of lung cancer.

It must be stressed that mouth cancer, throat cancer, and oesophageal cancer also have a higher incidence in smokers, and in this regard pipes and cigars, through less lethal for lung cancer, have a special significance.

As one who attended the Peter MacCallum Clinic for cancer over many years, in the mouth and throat clinic, and who has visited many cancer clinics around the world I must stress that this causal factor is accepted by the clinician as very obvious. The smoking habits of individuals are written in their mouths and throats often as dangerous patches of irritation and thickening (leukoplakia) related to the favored position of pipe holder or cigarette and the pathway of smoke. Those who chew tobacco and beetlenut often keep the quid in the cheek with similar local effects which become cancer.

Even more alarming is the fact that smoking has been shown to be associated with a higher incidence of kidney and bladder cancer due to absorption of the dangerous products into the blood and concentration in the excretory areas.

Having in a general way referred to these examples of cancer producing agents which could affect the ex-service man or woman, I propose to discuss the broad general effects that could have a bearing on acceptance of cancer.

1. The individual could obviously be exposed to cancer producing factors by the nature of his war service and the resultant cancer might appear much later.

2. There is an important factor of the resistance of the individual to his tumour and this may be affected by impairment of his health and altered immune processes which could result from war caused disease or nutritional disturbance.

3. Sometimes the death of an individual from cancer is greatly accelerated by the presence of another disease resulting from war service.

For example, I wrote a submission on behalf of a widow in a case where tuberculosis, and necessary treatment had greatly reduced the available functioning lung tissue before a cancer of the lung arose causing early death.

I was supported by the late Professor E.S.J.King, the distinguished professor of pathology in supporting a case where death occurred rapidly, and at an early age, from cancer of the large bowel in an ex-service man with accepted lung tuberculosis.

Some cancer producing agents must be considered:-

1. CHEMICAL SUBSTANCES OR CHEMICAL CARCINOGENS-

These are a complex and ever growing list to which additions are made at a bewildering rate. Early classical observation included "Chimney Sweeps Cancer" related to coal tar derivatives and "Mule Spinners Cancer" due to lubricating oils.

Tobacco smoke and asbestos dust contain such chemicals and similar effects occur in workers exposed to haematite, nickel refiners and in aniline dye workers.

2. PHYSICAL AGENTS:

(I) SUNLIGHT (actinic cancer) - Exposure to sunlight causes skin cancer including epitheliomato rodent ulcer and almost certainly melanoma which has a much greater killing significance. It will be apparent that under conditions of desert and tropical service, and life at sea, that service men could in five or six years acquire an exposure time equal to a life-time of sendentary occupation.

(II) BURNS - These can be repetitive burns as with hot clay pipes in the mouth, or in the practice in India for example of smoking the burning end of the cheroot, and again in India the "Kangri Cancer" where the kangri basket is applied to the skin of the kashmiree.

(III) MARJOLINS ULCER (epithelioma) which may be in a burn scar or a chronic ulcer of many years standing.

(IV) STONES IN THE GALL BLADDER OR URINARY BLADDER - The latter are particularly related to war service in such areas as Egypt, and Burma or Thailand.

(V) IONIZING RADIATION - This is considered separately as "irradiation"

3. IRRADIATION: This may be related to radio-activity occurring in nature or to x-rays. This is significant in the occupation of radio-therapists or perhaps even those who have frequent x-rays.

It has however extreme significance in those who have had x-ray treatment (radio-therapy). The treatment of tumours may be followed in due course by x-ray induced tumours and a mathematical risk can be given an equation related to a number of nantgens per unit of tissue and the time factor. However, deep x-rays are quite often given for non-malignant conditions, rheumatism, even dermatitis.

I have seen sarcoma of bone following irradiation for fibro-cystic disease, and even syringo-myclia. Irradiation of goiters in early days produced a later incidence of neck cancers.

4. VIRUS INFECTIONS: This may be a very important group. Burkitt's Mymphoma is the classical case and very likely naso-pharyngeal cancer will emerge as another and leukaeria has been indicated.

Burkitt's tumour is thought to be due to an insect transmitted virus and the same E.B. virus appears to be related to naso-pharyngeal cancers of Chinese.

5. INFLAMMATORY CONDITIONS: Chronic low grade inflammatory conditions may be associated with cancerous change. We have noted this association with the presence of stones, and bilharzia (schistosomiasis). Cancers occur in the mouth in association with chronic syphilis .

A very important association in ex-service men is the strong association of ulcerative colitis with colon and rectal cancer.

Chronic dysentery including amoebic dysentery does not appear to have any very obvious association but it must be remembered that dysentery may be followed by non specific colitis and the "irritable colon" difficult to distinguish from mild ulcerative colitis.

Most prisoners of war of the Japanese suffered from dysentery and as a group they suffer a good deal from "irritable colon" disorders.

There is an association of chronic gastritis and gastric ulcer with gastric cancer and ex-service men who can establish a service factor in causation of chronic gastritis or gastric ulcer should have a subsequent gastric cancer accepted.

Both Tanner and Dunlop found that in a large series of surgical patients with histal herniae about 10% had associated cancers of the upper stomach or oesophagus. I reported to the world gastroenterology meeting in Tokyo 1966 that of 100 strictures of the gullet associated with hiatal heriae, one third approximately were cancerous.

It may be possible that a chronically ulcerated skin or mucosal lining is more vulnerable to chemical effects.

Liver inflammation and damage in hepatitis and subsequent cirrhosis relates to liver cancer. I have known the Repatriation Department to accept cancer of the pancreas following chronic pancreatitis accepted as due to war service.

6. HORMONAL: Cancers of certain organs, especially the breast and prostrate are influenced by hormones and when present may be "hormone dependent".

There is a good deal of evidence to show that hormonal factors could be related to tumour development, and this in turn linked to dietetic and environmental factors with global variation.

7. NUTRITIONAL: There is an extraordinary geographical variation in certain cancers linked to nutritional factors as for example liver

cancer in relationship to cirrhosis of nutritional origin in Bantus and Eastern races, and in post cricoid throat cancer related to iron deficiency states. (A reference in Ewing's "Neoplastic Diseases" to the Association of Starvation Disorders with multiple myeloma of bone has enabled the acceptance of this disease to be secured in some ex-prisoners of war.)

The influence of nutrition upon the individual's ability to show resistance to his tumour is another important factor.

Some individuals live for years both with primary cancer and metastases, and then suddenly the tumour gains ascendancy with death of the individual.

CONSIDERATIONS ARISING FROM THE RELATIONSHIP OF TUMOURS TO ENVIRONMENTAL FACTORS:

It will be quite obvious that as a majority of cancers have already been shown to be due to environmental factors, and that the "incubation period" may be very long, that any ex-service man and especially those with years of service under changed geographical conditions have some claim to the "benefit of the doubt" in claiming war causation.

There have been claims made for certain groups meriting special consideration such as prisoners of war suffering long exposure to malnutrition and disease, and reference to some facts stated above will provide some rational basis for these claims.

As things stand even if the ex-service men suffering from cancer ultimately gains acceptance to his condition as due to war service it is usually too late to provide the early treatment necessary, and not infrequently it is the widow who received some recompense.

Nevertheless quite a high percentage of ex-service members will die of cancer in the latter half of life and it does not seem a fair charge on repatriation services that all be accepted as due to war service even those with transient service under fairly tranquil conditions.

Medicine channelled into a single institution or a public service is not always good medicine.

There is I consider, an acceptable alternative, and that is that the Repatriation Department apply the normal consideration of the effects of war service, and the "benefit of the doubt" with a much greater enlightment as regards cancer causation and with a manifest desire to widen where necessary the counsel which guides the boards and tribunals dealing with entitlements.

In these complex matters to my mind nothing could be more inappropriate than guidance by purely departmental officers with an unimpressive clinical background in cancer work, and little knowledge of the immense advances in knowledge over the last decade.

Nevertheless the recommendations to entitlement appeal tribunals often appear over the signature of doctors with modest experience and qualifications, backed by a reference to Willis "Pathology of Tumours" or some other not so recent standard work.

A reference to the files of two claimants will illustrate the point.

I was called upon to operate upon an ex-R.A.A.F. Member ages 47 with multiple obstructing and intussuscepting tumours of the bowel. He had previously had a secondary brain tumour removed for which no primary was found,though suggestions were made on the basis of tumour histology that the tumour could be of lung origin, or possible from amelanotic melanoma.

Prior to his death he developed subcutaneous deposits. Tumour tissue was demonstrated in lymphatic nodes in the retroperictoneal region.

My personal view was that the tumour was an amelanotic melanoma on the basis of the fact that in many years of work in cancer surgery, I had seen two other cases of obscure primary tumour with secondary brain tumour, sub-cutaneous and lymphatic node deposits, and intussuscepting bowel tumours ultimately shown to have a small malignant mole.

The ex-member had some 4 1/2 years of service in New Guinea including arduous service with "Kanga Force". He had unusual exposure to tropical sun, great stress, malnutrition and diseases recorded and unrecorded.

In my submission I stressed the view that death was due probably to melanoma and that Lancaster and Nelson (1957) had shown most convincingly a relationship between melanoma and exposure to sunlight.

The advising Department Officer rejected my submission, and others as "fresh evidence" and adhered to the view that death was due to cancer of the lung, not war caused.

In a letter to Dr.W.E. Langford, OBE, Chief Director of Medical Services, 19th May, 1967, I commented -

> "This causes me grave concern in that the subject matter of my opinion is based on the greater part of a lifetime devoted to the surgery of cancer. It therefore surprised me that a departmental medical officer will not admit that my opinion has even sufficient force to allow the admission of "fresh evidence".

Another ex-service man died of cancer of the rectum in the early forties after service in the Philippines with a remote wireless unit. There was a good deal of unofficial evidence that he suffered from colitis and that it persisted post war. He had a persistent eosinophilia.

Professor L.J.Ray of the Department of Anatomy, Melbourne University, who had served with a wireless unit in the Leyete Gulf area stated that schistosomiasis and dysentery were highly prevalent in the areas occupied by the unit.

I collected a great deal of material upon schistosomiasis japonica in relationship to cancer. One writer had studied 90 cases followed by rectal cancer over periods of up to 20 years.

I made enquiries in the Philippines during a visit from distinguished physicians who supported the Association.

For a long time this was rejected as "fresh evidence" but finally it was admitted and accepted.

During a long battle to secure this admission I found it necessary to write-

> "It does not appear to me that Departmental competence alone forms an adequate basis to rule on difficult problems involving special knowledge of tropical diseases, let alone the exceedingly complex problems of carcinogenisis which have been the subject of vast researches in recent years since Willis wrote his "Pathology of Tumours".

The doctor concerned, lacking any special authority of experience, rejected my views and quoted Willis to support his view that the only known predisposing factors in rectal cancer were congenital polyposis and ulcerative colitis.

I do not wish to decry either the splendid services, or magnanimity of the Repatriation Department.

Very many ex-service men have been accepted for benefits after suffering from cancer.

I wish however to make a strong plea for the greater use of expert advise to guide Repatriation Boards and Tribunals.

This could if necessary, be obtained as an opinion from any authority outside the Department, even though there is a strong body of experts available for advice inside the Department.

CONCLUSIONS:

1. The expanding knowledge of environmental causes of cancer supports the contention that many cancers affecting ex-service men later life may have been determined by factors operating during their service.

2. The total effects of war service upon the health of the individual, and the presence of other diseases have significant effects upon the progress of cancer and the time of death.

3. The subtlety of cancer producing factors and the complexity of the subject gives ample scope for the application of the "benefit of the doubt".

4. In my opinion this does not justify the automatic acceptance of all cancers for all ex-service men.

5. In order that cancer sufferers should receive just consideration as regards entitlement it is considered to be important that the most expert advise available be sought by Appeal Board and Tribunals.

A FOLLOW-UP STUDY OF WORLD WAR II PRISONERS OF WAR

V.A. Medical Monograph September 1954 Cohen and Cooper

In a six year period following liberating Pacific area prisoners principal causes of death were tuberculosis and accidents which occurred about five and 2.5 times respectively more frequently than expected. Other causes of death were cardiovascular disease, MALIGNANT NEOPLASMS disease of the digestive system, and suicide. All of which occurred at a rate about twice that expected from white males in the United States.

FOLLOW-UP STUDIES OF WORLD WAR II AND KOREAN WAR PRISONERS

American Journal of Epidemiology 91:123-138. Nefzger. M.D. 1970

In the Korean POW's following liberation to 1965, the ratio of 1.01 raises the possibility of a greater frequency of death from MALIGNANCIES in this group.

Five deaths from MALIGNANCIES in European prisoners hospitalized with malnutrition are almost double the expectation for U.S. white males.

IN CLOSING it should be noted that the findings discussed here and in Packets 1, 2, and 3 are based on summary data that are contained in the studies previously cited. One must exercise caution in generalizing from these results, which are based on group averages, to individual cases because individual differences often are greater than group averages suggest. In other words, the individual should view his particular case independently of any other case, but he should seek adequate medical advice and treatment with consideration given to the information contained in these studies.