Chapter II

THE PSYCHOBIOLOGICAL PROGRAM OF THE WAR SHIPPING ADMINISTRATION

George G. Killinger*
Sanitarian (R), USPHS, Chief, Psychobiological Service, War Shipping Administration

AND

Joseph Zubin†
Sanitarian (R), USPHS, Chief Medical Statistician, Psychobiological Program

The War Shipping Administration, created shortly after Pearl Harbor, controlled approximately 90 percent of all military cargoes moved in American vessels, and had in its employ approximately 250,000 merchant seamen. The task of recruiting enough personnel to man an industry whose manpower requirements increased fivefold in the course of the war, presented selection problems of a psychological, medical, and vocational nature which could not be met by the peacetime organization of the industry.

In order to meet these needs, an Office of the Medical Director was created in the War Shipping Administration, and later the President of the United States recognized the significance of this work by promulgating an executive order appointing the Medical Director, Dr. Justin K. Fuller, an Assistant Surgeon General of the United States Public Health Service. The medical staff of the War Shipping Administration was composed of four types of personnel: (1) commissioned officers of the United States Public Health Service, all of whom were detailed to the Navy Department and assigned to the War Shipping Administration; (2) commissioned medical and dental officers of the United States Navy; (3) technical personnel in commissioned and non-commissioned ratings in the Maritime Service; and (4) Civil Service employees.

By calling on the United States Public Health Service to supervise the medical program, advantage was taken of the existing facilities of that service, especially as regards personnel procurement, as well as marine hospitals and other medical relief stations, which have been serving merchant seamen since 1798. The demands of the war, however, required the supplementation of the existing program with facilities for examining seamen prior to each voyage, and providing both emer-


†A.B., Johns Hopkins University, 1921; Ph.D., Columbia University, 1932. Instructor in Psychiatry, College of Physicians and Surgeons, Columbia University, 1939-1944; Associate Research Psychologist, New York State Psychiatric Institute and Hospital, 1939-1944. Relative rank, Lieutenant Commander. Returned to former position as Instructor in Psychiatry and as Associate Research Psychologist.
gency treatment for certain minor physical disabilities and special
treatment for convoy fatigue cases and other types of neuroses. It is
the purpose of this chapter to describe the two major functions of the
Psychobiological Service, which are, first, the psychiatric and psycho-
logical program and, second, the statistical and research program.

PSYCHIATRIC AND PSYCHOLOGICAL PROGRAM—SCREENING

The screening of applicants for employment afloat, the first impor-
tant phase of the psychobiological program, was inaugurated at the three
largest Maritime Service training stations, located at Sheepshead Bay,
New York; St. Petersburg, Florida; and Avalon, Catalina Island, Califor-
nia. The principal function of these stations was to train apprentice
seamen. Extensive screening procedures were established at each of
these stations to detect trainees who were unsuitable for training be-
cause of emotional instability or other abnormal psychological or psy-
chiatric characteristics.

The results of these screening procedures indicated that a large pro-
portion of the unsuitable candidates could be eliminated at the enrolling
office in their home town, before government funds were spent for their
transportation to training stations. To make the screening at the en-
rolling office effective, a brief questionnaire was prepared, based upon
the elaborate Personal Inventory used at the training stations. In addi-
tion to the customary questions, this questionnaire includes social-his-
tory items such as a record of delinquency and incarceration, draft
board classification, previous service in the armed forces, and other
items which have been found useful in spotting persons incapable of
surviving the routine at training stations. Special instruction was given
to the medical officers and pharmacist's mates in the administration and
interpretation of these screening procedures.

After arrival at the training station, the following screening proce-
dure is employed: Trainees are assembled in large groups immediately
upon arrival at the training station. Before they are given physical
examinations, they are required to complete a personal inventory of
some eighty items of the forced-choice type. (See Appendix I, p. 321.)
The inventory is supplemented by a short Personal Data Sheet con-
sisting of some thirty items built around family history, educational
history, occupational history, and self-evaluation by the trainee of his
present state of health, together with a listing of any previous illnesses,
injuries, or operations. (See Appendix II, p. 324.) The trainee is also
asked to explain why he enrolled in the Maritime Service, in an attempt
to gain insight into his motivation for entering the Service.

Trainees are introduced to these questionnaires by the statement
that this is the beginning of their medical examination and that, were
sufficient personnel available, each trainee would be individually in-
terviewed; but since this is impossible, they are asked to co-operate by
filling in these forms as carefully as possible. In this way rapport is
are passed on to a completely private room for further examination.

The examinees who fail to come up to minimum standards on the Maritime Service Inventory are given an individual interview in a room such as this. Those not found acceptable by this interview are

Plate V
Merchants Marine Rest Center at Camp Kindawke, Pass Christian, Mississippi. Informal sessions are designed to help men overcome fears induced by hazardous wartime sailing.

PLATE V1
established and sufficient motivation aroused for careful completion
of the forms.

As a result of preliminary experiments at the stations, it was found
desirable to select for personal interview all trainees who make a score
of 20 or more on the test, that is, those who give twenty or more atypical
answers to the eighty items presented. In addition, several items from
the inventory are of themselves indicative of probable maladjustment;
thus, items dealing with headaches, fainting spells, head injuries, dizziness,
enuresis, visits to a doctor or hospital for nervousness, convulsions, arrests
and imprisonments, are termed "stop" items. A trainee who gives a deviant response to even one of these stop items is called in for special interview regardless of his total score. The personal back-
ground data are also scanned for possible indications of mental deviation.
The following items in the personal history are considered sufficiently
indicative to warrant a personal-history interview: discharge from
military service, termination of enlistment prior to normal time, arrests
or imprisonments, history of mental illness, head injury, sleepwalking,
and educational retardation.

Scores are computed immediately after the questionnaires are ad-
ministered, and the results are used in selecting candidates for special
interview by the psychobiological team stationed on the main exama-
tion line. The men so selected are given a short interview by the
psychologist or psychiatrist to determine whether they are grossly
abnormal, or mildly abnormal, or essentially normal and only acciden-
tally caught in the screening net. This last group is termed the "false
positives." False positives arise from a variety of causes; sometimes the
condition reported is found, upon interview, to be of such a minor na-
ture that no follow-up is deemed necessary; sometimes a positive re-
response to a stop item is found to be due to a misinterpretation of the
item, or to an accidental error in recording the intended response. The
interview with psychologist or psychiatrist usually lasts about four
minutes. The grossly abnormal individuals are immediately recalled by
the Psychobiological Unit for intensive case study, utilizing for this pur-
pose, among other things, the psychometric scores supplied by the
Classification Unit of the station, other psychological material uncovered
by clinical tests administered by the psychologists of the Psychobiolog-
ical Unit, psychiatric and neurological findings obtained by the psy-
chiatrist of the Psychobiological Unit, and physical findings discovered
by the internist. Individuals who show some mental deviation but who
do not give concrete evidence of being unable to succeed in training
and sea duty are asked to return for follow-up therapy within a week
after beginning training. These men are followed for several weeks.
Some cases eventually make an adjustment. Others are subsequently
disenrolled. The false positives enter training immediately along with
the normals and receive only the routine, group mental hygiene educa-
tion to which the entire population of the station is exposed.
The results of the screening procedure as used to date indicate that 65 out of every 100 men arriving at the training station require no further screening than that afforded by the written Inventory and Personal Data Sheet. Of the remaining 35 only about one or two were found after interview to possess personality defects sufficiently extensive to make it mandatory that they be immediately excluded from training. Some six or seven were found to have temporary or mild emotional conditions which, after a short stay at the station under the guidance of the Psychobiological Unit, became sufficiently ameliorated to permit them to continue training. The remaining number were essentially normal individuals who were caught in the screening net, usually because of some type of misunderstanding of the questionnaire. Thus, within one or two days after the arrival of a given group, nearly all of the unfit will have been disenrolled, and follow-up treatment schedules arranged for borderline and mild cases.

It should be obvious that no screening procedure can be perfectly effective, and this is true in the screening of trainees. In the course of the first month of their stay, some individuals not detected by the initial screening procedure are likely to be found to have conditions or defects which require their disenrollment. Among these are included small groups of individuals who misrepresented themselves either intentionally or unintentionally in their responses to the written part of the screening procedure. These are the enuretics, somnambulists, epileptics, and others who refrain from indicating their true condition for one reason or another. In addition there may be several individuals who develop severe emotional disturbances and even psychotic episodes after their admission to the station. Such persons, of course, are not likely to be detected on admission by the screening procedures, since the disqualifying condition is not fully present at the time, and only intensive observation over long periods can reveal the presence of the incipient psychopathological trend.

The efficiency of the screening procedure as a whole is approximately 85 percent. That is to say, approximately 85 percent of the total number of men eventually disenrolled for neuropsychiatric reasons are caught in the initial screening net and forthwith eliminated soon after arriving at the station. Of the 15 percent who escape the initial screening net, but who eventually are disenrolled, the majority "get by" the psychobiological screening procedures through misrepresentation or falsification of a conscious or unconscious sort. It may appear that a valid measure of the efficiency of the screening procedure has not been employed, since some of the disenrollees might have been able to complete training successfully had they been given an opportunity to do so. However, in accordance with United States Maritime Service policy, every effort was made to utilize all possible sources of manpower, and consequently no trainee was disenrolled prior to a trial period in training unless he was frankly psychotic or grossly incompetent.
Another way of measuring screening efficiency might be to compute the percentage of men eventually disenrolled for neuropsychiatric reasons but who are not "spotted" at the time of initial examination. At the Sheepshead Bay Training Station only 1.8 of every 1,000 men (less than 1/5 of 1 percent) who survive the screening routine are subsequently disenrolled for neuropsychiatric reasons. Expressed in this manner, the screening efficiency in predicting neuropsychiatric survival is 99.82 percent. At the St. Petersburg, Florida, Training Station, efficiency measured in these terms was 99.43 percent and at Avalon, California, 99.75 percent. (See chapters iii, iv, and v, pp. 33, 51, and 67.)

It should be noted at this point that those who are disenrolled are given a careful exit interview which aims to prepare them emotionally and advise them vocationally in the matter of finding a better outlet for their patriotic motives.

Screening does not stop at the enrolling office or at the training station but continues throughout the active wartime career of every seaman. A special wartime order requires that each seaman receive a sign-on examination before each voyage to determine whether he is mentally and physically capable of making the trip. As part of this examination, a special psychobiological screening technique has been introduced. The screening questionnaire used consists of some 39 questions, and deals chiefly with traumatic episodes such as torpedoings and air raids, as well as hospitalization overseas, treatment at rest centers, and special problems which may have developed since leaving the training stations and while employed in the Merchant Marine. (See Appendix III, p. 325.) Upon completion of this questionnaire, the seamen are interviewed very briefly by a psychologist on the sign-on examination line, and those who are found to be grossly unstable are given intensive psychobiological and psychiatric study in order to make the best possible disposition of their cases. Between August 1944 and August 1945, there were 85,689 sign-on screenings conducted at the Port of New York alone. From such interviews it is hoped that eventually we can determine the various personality patterns of successful seamen, and on the basis of these findings reorient our selection program so as to obtain for the industry the most suitable and effective types of personality.

THERAPY

The second important phase of the psychiatric and psychological program is that of therapy. Maladjusted trainees are cared for by the Psychobiological Units of the training stations. Maladjusted seamen are cared for by the medical program of the Recruitment and Manning Organization of the War Shipping Administration and United Seamen's Service, which is headed by Sr. Surgeon (R) Daniel Blain. This program is primarily concerned with the provision of psychiatric and medical service to seamen who show evidence of occupational stress such as
convoy fatigue, war neuroses, and other psychopathological symptoms. The psychiatrists of this unit work very closely with the Psychobiological Service, serving at times as psychiatric consultants to the medical-examination program. In connection with its program, the Recruitment and Manning Organization has established on the East, Gulf, and West Coasts, informal noninstitutional types of rural residence units called rest centers, each under the direction of a psychiatrist. These centers provide care for all seamen requiring a brief therapeutic regime of rest and recuperation. As Dr. Blain has well pointed out: ". . . the aims of this short-term therapeutic program are to build up the seamen, eliminate their symptoms, give them psychological security and prophylaxis against the hazards of subsequent voyages, and send them back to sea."

The vast majority of seamen active in the industry are essentially normal and require no special therapeutic attention. Those who do require therapy fall into two categories—the mildly maladjusted and the grossly maladjusted. In the training program the more grossly deviant are usually disenrolled and returned home immediately after their diagnostic work-up is completed; therefore, no extensive therapeutic procedures need be provided for them by the War Shipping Administration. The group of mildly maladjusted trainees, who are to be kept in the industry if this can be profitably accomplished, are provided with a well-planned therapeutic program.

This group is retained in the training program on a trial basis and is kept under constant observation in a carefully planned therapeutic regime. Weekly or more frequent treatments are given until they are fully adjusted, or have demonstrated that they are definitely incapable of acceptable adjustment. By the time of the second follow-up interview, the majority of the trainees have shown marked improvement. The normal fears and apprehensions which are expected with the beginning of a highly regimented life have been dissipated by actual station contacts, and the trainee no longer resents the restrictions which station life demands.

Some of the trainees, however, present more persistent problems before becoming independent and self-sufficient. The most prominent syndromes presented by these trainees are: (1) homesickness, especially in the case of men who have never been away from home before; (2) psychosomatic complaints; and (3) dizzy spells, blackouts, and other symptoms which either prevent the trainee from making a satisfactory adjustment, or are themselves produced by the maladjustment.

The manner of dealing with these types of men varies in detail from station to station. At some of the stations emphasis is placed on individual therapy and attention over a period of weeks, until they make a desirable adjustment, or fail to do so and are disenrolled. At other stations there is a continually growing tendency to employ recently developed group therapy approaches, which serve the double purpose of reaching greater numbers of subjects, "multiplying" the time of the
therapist, and providing a socially beneficial atmosphere for discussion and catharsis. These group sessions treat such topics as homesickness, causes of nervousness, the futility of worry, sex and social adjustment during training, fear—especially fear of water and high places—and a wide variety of similar topics. Considerable success in the organization of such groups was attained at one station by asking the incoming trainees to list their chief worries. These worries were classified by members of the Psychobiological Unit into such major categories as homesickness and insecurity. These constituted the basis for lectures and discussion groups which helped considerably in ridding the majority of the trainees of their emotional difficulties. Trainees presenting especially persistent problems were asked to visit the Psychobiological Unit for more thorough individual study and guidance.

An outstanding advantage of treating such problems by group approach is that it enables the individual to realize that he is not alone in his difficulties, that there are others who have similar problems. This sets the stage for a catharsis which is beneficial to all who participate and brings about a reduction in the extent of the problem.

Thus far we have described only the work with the deviant trainee who is in need of care and special treatment. There are, however, problems arising in the station life of the average normal trainee which require attention and are provided for through a special mental-hygiene program. These problems may be classified into the following categories: (1) those arising from the stresses and strains of group living in general; (2) those arising from the special nature of regimented station life; and (3) those reflecting the future hazards and dangers of life at sea.

The general requirements of normal group living that became apparent at the stations include general adjustment to the group, recognition and adoption of group goals, a sense of belonging, tolerance, cooperation with fellow trainees, and other factors which are prerequisite to good esprit de corps and a high level of group morale.

The special problems of life aboard a maritime training station grow out of the necessity for regimentation, obedience to authority, acceptance of discipline, and the need for inculcating in the trainee the importance of the Maritime Service as an integral part of the war effort, and providing him with necessary motivation to survive the rigors of training.

In order to prepare the trainee to meet these problems successfully, he is given an understanding of the role of the psychiatrist and psychologist as counselors who can provide him with insight into his own emotional reactions, as well as into the underlying causes of deviant behavior in others. Armed with this insight, he is better able to cope with such problems as hypochondriasis, chronic homesickness, etc., which may confront him during his subsequent career.

Problems of special importance to satisfactory adjustment at sea are dealt with in lectures and group discussions which analyze such psychological phenomena as fear, showing the trainee what fear is, how it is
brought about, what physical and mental signs it can produce, and setting forth practical suggestions for dealing with it when it arises. In this way the seaman is both instructed in proper conduct in times of stress, and psychologically fortified against such harrowing experiences as bombing, torpedoing, strafing, and abandoning ship.

The special problems of living aboard ship, with the resultant close contact and working relations with other men, are analyzed in group discussions, and an attempt is made to give practical suggestions for meeting these problems.

One of the most important elements in maintaining group morale is competent leadership. With the rapid expansion of the maritime industry, the need for a large number of capable leaders of all types arose. The dictum that no chain is stronger than its weakest link can be truly paraphrased to: "No service is stronger than its weakest officer." An inept officer in a strategic location aboard ship may be the unwitting cause of tragedy. The problem of training leaders is twofold: first, to prepare them with the basic professional knowledge and information which is prerequisite to good leadership, and second, to develop within them traits essential to the attainment of effective leadership.

The Psychobiological Service has devoted its chief efforts to the development of those leadership traits that make for stamina and dependability in the management of crews, leaving to the other divisions of the Training Organization the development of specific leadership techniques.

**STATISTICAL AND RESEARCH PROGRAM**

The second major function of the psychobiological program is its statistical and research activities. These activities are devoted to gathering statistical information on the mental and physical health of trainees and seamen, evaluating these data, and conducting research projects aimed at providing improved techniques for selection and therapy.

A continuous survey of the health of the men in the industry is maintained through the mandatory annual examination of each seaman, as well as through regular interim sign-on examinations.

The annual type of examination consists of a thorough physical and mental examination, including microfilm X-ray of the chest, serology, urinalysis, personality evaluation through the combined use of personality inventories and follow-up personal interviews, dental examination and emergency treatment, immunization, and any other special studies—such as electrocardiography or electroencephalography—that may be indicated. The results of this annual survey and the noteworthy pathological findings of interim sign-on examinations are punched into IBM cards, and periodic tabulations of these cards provide the Office of the Medical Director with up-to-date statistics on the basis of which medical policies can be formulated.

1 International Business Machines Corporation.
A special feature of these statistical procedures is the so-called "Central WSA Medical Register" of the War Shipping Administration. This register provides for the interchange of significant medical information between the WSA medical facilities and co-operating agencies. Its primary function is to distribute IBM punch-file cards on seamen who are found at the time of the sign-on or annual examinations, to be medically unfit for sea duty, and to disseminate information about seamen with chronic diseases dangerous to themselves and to others if not properly or continuously treated. The purpose of this clearinghouse is to prevent seamen who are unsuitable for sea duty from shipping out through ports where the medical-examination facilities are not sufficient to diagnose all possible diseases and defects. This register has become necessary because of the high mobility of seamen from port to port. When a seaman whose name appears on the register comes for a sign-on examination, the examining physician searches the IBM card file in his office and obtains from it a complete history of the seaman's previous medical condition, treatments, and disposition.

The research activities of this unit are based upon the particular needs arising within the Psychobiological Service. During the past year, the greatest need was to develop the most effective screening techniques possible for the maritime industry. This was effected by the co-operative efforts of all the Psychobiological Units working in conjunction with the Research Unit, and resulted in the development of the Maritime Service Inventory now in use at all stations.

The Research Unit co-ordinates the research efforts of the separate Psychobiological Units and disseminates the results of these researches throughout all WSA medical activities. This unit also serves in an advisory and consulting capacity for all researches undertaken within the Service.

A special type of research carried on by this unit deals with follow-up studies of the sea career of trainees after graduation. As more and more of the trainees have taken their places in the Merchant Marine, follow-up studies have been initiated to validate the screening procedures and other psychobiological and medical therapeutic techniques by the criterion of subsequent performances at sea. Many of these studies are still in progress, but when completed will constitute a basis for even sounder selection procedures than those now in use.

The ultimate goal of the Research Unit is to provide an integrated picture of the various types of men who make successful seamen. From the data now being accumulated, we hope to be able to discover the particular characteristics that make for success at sea. About the eventual picture of the successful seamen that may emerge, we can now only hazard a guess, but sufficient clinical evidence has already been accumulated to indicate that the undesirable traits traditionally attributed to peacetime merchant seamen do not hold true for the wartime cross section of the industry. On the whole, the merchant mariners of the
moment are capable, industrious men who compare favorably with any other industrial group doing work requiring the same degree of capacity and skill.

REFERENCES


Fuller, Justin K., "Medical Care Afloat—War Shipping Administration Protects Merchant Mariners," Hospitals (journal of the American Hospital Association, April 1944), 18: 44-46.

Oldfield, Madeline, "Medical Social Service Program of the War Shipping Administration," reprinted from The Compass, March 1944.


Trippe, Alton D., Lt. (j.g.) USN, "Hospital Corps School Serves the Fleet," Hospitals (journal of the American Hospital Association, April 1944), 18: 46-47.

Trippe, Alton D., Lt. (j.g.) USN, and Kruglak, Theodore, United States Maritime Service Hospital Corps School, Hospital Corps Quarterly (Supplement to the United States Naval Medical Bulletin), June 1945, 18: 31-34.