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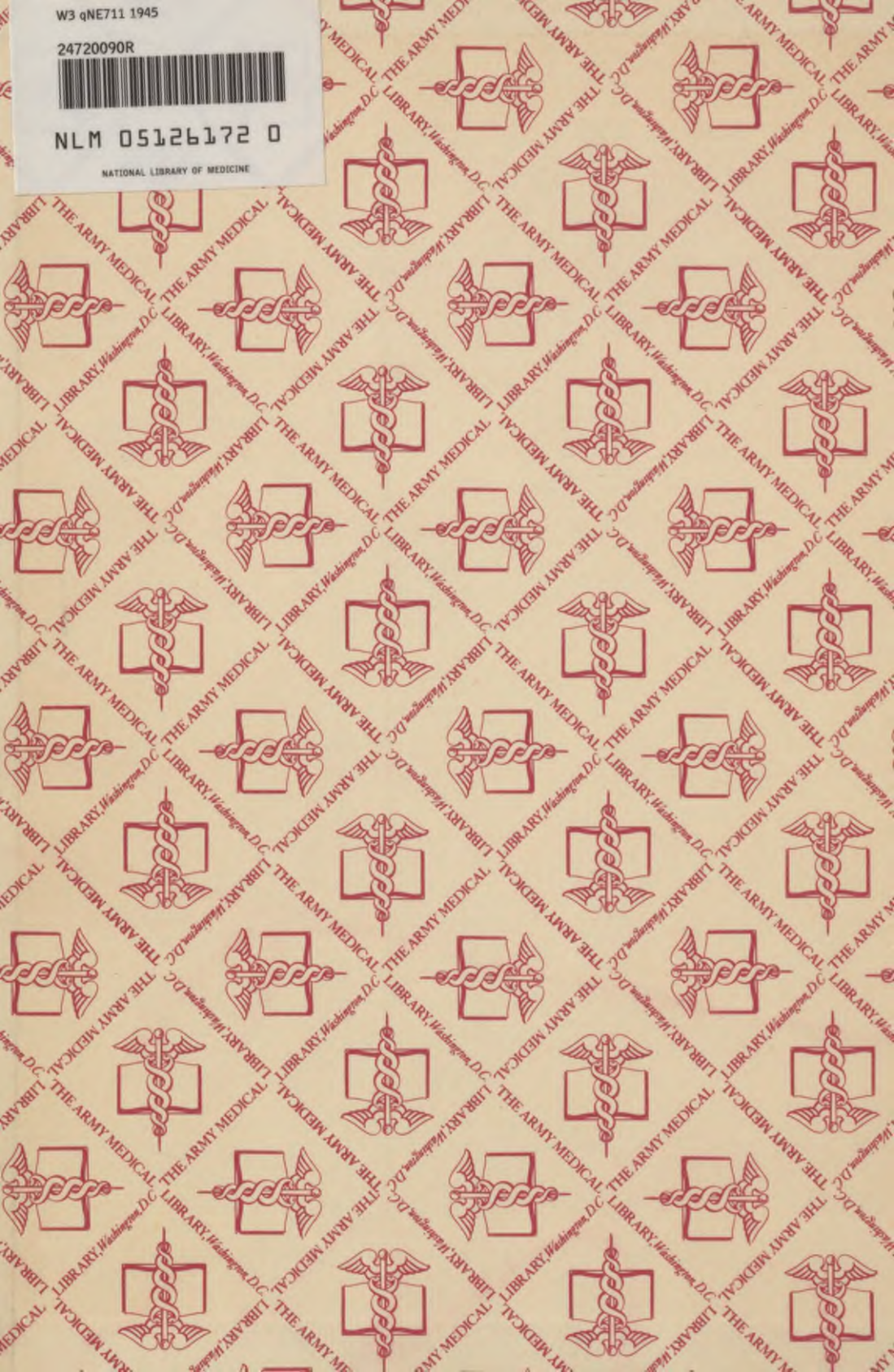
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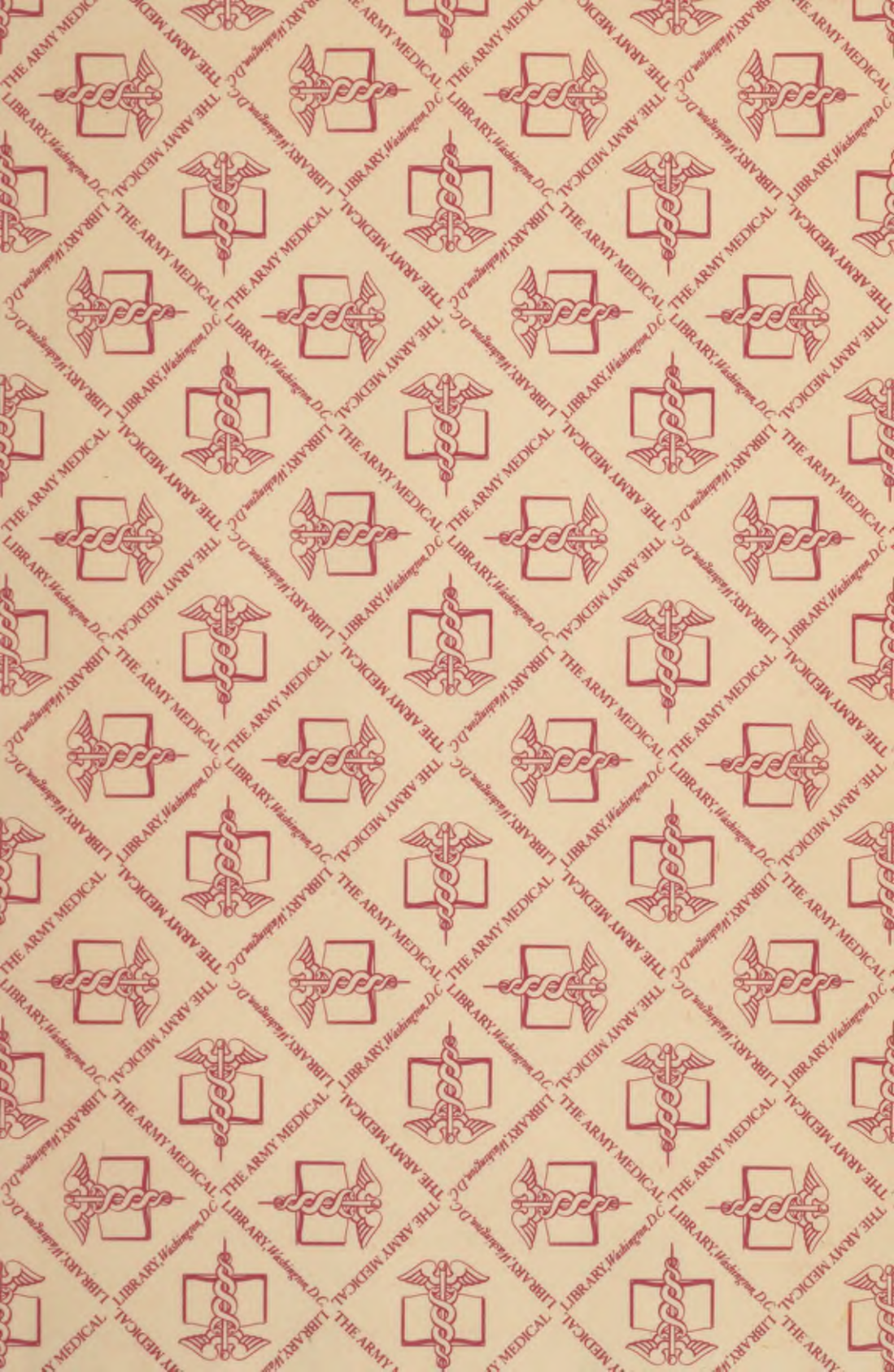
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THE USE OF MUSIC IN A NEUROPSYCHIATRIC SERVICE

BY

SQT. R. P. YEAGER, A.U.S. *

Music is being used at this psychiatric center for two principle reasons. (1) There is a possibility that there is real therapeutic value to be gained from its use and this possibility should be thoroughly exploited. (2) Even if the therapeutic value (in the strict sense of the word) is found not to exist, the music is at least a palliative agent in the administration of the various other types of therapy.

Our attitude, therefore, has been to provide an optimum of pleasure for the patient while, at the same time conducting experiments designed to investigate any specific therapeutic value of music.

The department at present is set up in a newly decorated, soundproof room, 54 feet by 17. Half of this is given over to a lounge and may be used for large choral groups or community sings. The other half is partitioned into 2 soundproof, airconditioned practice cubicles, a larger recording studio and a radio control room. This latter room is also the nerve center of a high fidelity public address system which extends to the various wards throughout the building. Other items of equipment are pianos, band and orchestra instruments and a library of approximately 500 recordings.

Patients are chosen for various phases of the program by referral of the medical officers, the case workers, or his own application. Experience has shown that optimum results are achieved when the patient participates in the production of the music being used. Many, however, are too disoriented for this type of work and so the program divides itself rather naturally into active and passive phases. If, after a period of passive listening the patient evinces sufficient interest, he is given private lessons on the instrument of his choice with the possibility of entering him into a group as the ultimate aim.

Obviously, careful thought must be given to the type of music that is used in any phase of the program. It must at least meet the patient on his own cultural plane and our experience has borne out Altschuler's findings that it must also approximate his emotional state and motor tempo.

All the music used must then be classified according to its cultural and physio-psychological content. There are, of course, no clear-cut border lines, but at any one particular moment music may be said to be acting on either the thalamo-hypothalamic level

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or on the cerebellar or cortical levels. At one extreme we find only gross rhythmic response and at the other extreme, music that is productive of mood changes, connotation and the like.

It will be seen also that music on widely varying cultural planes might well have almost identical physio-psychological characteristics. The Prelude to the Third Act of "Tannhauser", for example, will produce approximately the same thalamic response as "Alexander's Rag-Time Band". Further quantitative and qualitative subdivisions are used but which for lack of time will be given here in outline form without explanation.

Suffice it to say that they were culled from the contemporary literature and changes were freely made on an empirical basis.

A. Physiologically Functional

- 1) Depressant - Stimulant
- 2) Producing Kinesthesia

B. Psychologically Functional

- 1) Depression - Euphoria
- 2) Connotative
- 3) Picturesque
- 4) Requiring Attention

The various ramifications of the active aspect of the program are as numerous as there are branches of interest in music. One patient asks to be taught harmony, another wants to know what this "classical stuff" is all about, others like to sing but insist with obvious modesty that they have no voice. A number of ex-professional and amateur musicians ask for further instruction on their instrument.

The problem is to take up all these loose ends and knit them together into groups, large or small. One value of the group lies in the necessity for the individual to adjust his behavior (or in this case his playing) to those about him. A second value is to be found in the socializing influence of such a group. Third, the production of music entails bodily rhythm and co-ordination plus aesthetic and possibly spiritual affect. All of these tend to sublimate instinctual drives, smooth out aggression and relieve neuro-muscular tension.

Here the difficulty arises that to learn an instrument well enough to join a group takes a longer time than the patients average length of stay. This is answered partially by giving group lessons on the easier instruments such as the guitar.

The incentive for these patients to work at their instruments has been furnished by making periodic recordings of their progress. This method has a distinct advantage for some patients over public performance. It saves many an introverted type from

giving up in terror, while those who really desire an audience will usually have no trouble in finding one on the wards. Used in such a way as to furnish passive listening, music has been found to be of especial help as an adjunct to a number of other therapies. Among these is the insulin subshock therapy in which the original intention had been merely to provide a measure of enjoyment for the patients. Later, with experimentation, it was found that music of various types, and played in a particular order produced the following results. 1) The group as a whole was quieter and this reduction in the expenditure of energy on the part of the patient seemed to result in a smoother reaction. 2) The patient approached the confusion stage of the treatment with considerably less anxiety. It is interesting to note that upon post-treatment questioning, some patients were able to recall selections that were played after they were apparently out of touch with reality, and that kinesthesia (that is, tapping of the foot, or hand movements in time with the music) could be observed in otherwise unconscious subjects. 3) As a pelliative agent it helps to divest the patient of any ideas that the treatment is a form of punishment.

Music is sent up to the wards by means of the public address system. Treatment lasts from 8:00 AM until 9:45 AM. The first half hour of music is taken from the popular files. It consists of approximately 8 selections in a descending order of rhythmic value. From 8:30 until 9:00 the rhythmic swing is in the opposite direction and use is made of symphonic music which has greater elasticity. From 9:00 AM (which is the peak of the reaction) until 9:45 the music is again graduated into smoother rhythmic patterns and the content becomes more or less universally familiar. As the patient regains consciousness this type of music serves well as a stepping stone to a normal reality.

It is to be understood that the above observations are mere indications gathered through the clinical experience of the nurses and medical officers attending the treatments, and the nearest we have come to control has been during those times when, due to mechanical difficulties, it has been impossible to send the music up to the wards. It is then that the nurses report a more disturbed group and a lack of the indications just reported.

The use of music during hydrotherapy has also been productive of some interesting indications. Three manic psychotics entered the baths at the same time and remain there for one hour. On alternate days the treatment is accompanied by music. At the beginning of the hour the music approximates the patient's excited mood and overproductivity. As the treatment progresses the music goes downhill in tempo, volume and emotional stress. It has been found necessary to do this by degrees, however, or the resulting tautology will undo whatever depression has been effected. These steps might be represented numerically as (8765) (6543) (4321) (3211) where 8 is maximum of stimulation and 1 is its antithesis.

Used under these circumstances the action of music is in the nature of a synergism in that it adds more to the efficiency of the bath than could be effected by the use of music alone. But here again we must be content with clinical observation as there seems to be no objective method for measuring the reduction of mania.

Agitated depressed patients may also derive some benefits from music during hydrotherapy. The same method of step progress is used except that the order of graduation is reversed. With these patients, however, considerable caution must be used. If the music gets too far ahead of the patient in brightness, it may serve only to deepen his depression by pointing up the contrast between his mood and that of his environment.

A limited amount of work has been done in conjunction with electro-shock. The music used is identical in nature with that employed during the terminal stage of the insulin treatment. It is administered during the recovery period and seems at times to be of value in allaying the feelings of confusion or terror that are occasionally experienced.

CONCLUSIONS: 1) Whether or not one wishes to call the application of controlled music a "therapy" depends largely upon the definitions used. It has, in no wise, been found to be a radical therapy for anything. On the other hand, as a symptomatic or palliative therapy its range and flexibility are remarkable. It may excite or depress physiological functions. It may sublimate instinctual drives into acceptable channels. It may be used as an exercise for concentration time or as an agent in altering the emotional field of the environment. Its use as an adjunct to other therapies is promising. 2) The type of active work described is best suited to institutions where patients remain for longer than several months. 3) Further work with control groups in hydrotherapy, insulin and electroshock therapy is warranted. 4) A thorough-going study with a large group is needed to determine the effects of music on blood pressure, blood volume, pulse, respiration, muscular tension, ideation and emotion. 5) Another thorough study is needed to classify with certainty a large block of music literature into terms consistent with these findings.

BY

ESTHER GOETZ GILLILAND*

To those who have observed it in action, music has been revealed as a potent agent in therapy, when properly administered. The report of the program at Vaughan General Hospital on the Use of Music in a Neuropsychiatric Service outlines a well-planned and executed experiment that deserves to be shared in greater detail. The graduation of selections according to tempo and emotional intensity should prove very helpful to other music technicians who need guidance and are seeking to amplify their services.

The lack of a control group is a regrettable weak spot in this program which in all other phases is an excellent beginning toward the compilation of data. With the extensive music activities in force in many government hospitals, it is to be hoped that many other reports be made available.

Dr. William White's Organism-as-a-whole concept is helpful in understanding the therapeutic properties of music, the physiological, psychological and socializing effects of which have been so admirably condensed in this report on short term patients in an army hospital. To this I would like to add similar activities in a civilian hospital where I studied and worked under the guidance of Dr. Ira M. Altshuler. Here many psychotics remain for much longer periods and many are permanently institutionalized.

Group Music Therapy makes possible the treatment of as many as thirty patients at one time and is in many ways more potent than the spoken word, certainly less controversial. Two areas not stressed in this paper are the most regressed cases and patients about ready to be paroled, - those who have reacted favorably to shock or insulin therapy and need to be resocialized before being released.

Rhythm activity (the Rhythm Band and Dancing) is the first step in music therapy, through the thalamic approach. When properly administered it arouses a large percentage of catatonics and underactives and relieves hypermaniacs. Participation in such activities identifies these patients with the group, gives emotional relief in a socially acceptable manner, accomplishes ego aggrandizement as well as rapport with the leader. Close contact with reality is established and muscular coordination stimulated. Attendants are also benefitted and usually are attracted to spontaneous participation. A very noticeable lift in spirits and improvement in cooperation will continue for many hours after the music technician has left the ward.

A well-developed music program with wisely planned activities on the cultural level of the convalescent can be coordinated into the psychotherapy classes to speed recovery. A very noticeable improvement in posture, initiative, concentration, general appearance, self-control and many other personality traits was

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very evident in all participants of the choir which I directed. Those who have learned to use music to advantage are better able to adjust to home situations because of widened interests and the tolerance and enjoyment they have experienced through group activity.

Those incurables who are permanent residents find institutional life much more endurable for themselves as well as the attendants when their activities include music participation on their own level.

Another group whom music benefits are those whose music talents were developed to a great degree of proficiency before the onset of their psychosis. No matter how regressed or withdrawn, it has been observed that they retain their musical skill if properly guided. This one contact with reality can be expanded amazingly. Music technicians who are introverts can work singly with such patients very successfully because they understand Schizophrenics. Extroverted technicians get better results with groups of course.

Granted that these and many other musical activities have been largely empirical, many of us who have worked and studied in this field feel that enough knowledge is at hand to justify an extended program of research, if our resources were adequately organized. Granted that a foundation with an experimental center adequately financed is the ideal goal toward which we long, must we sit idly by, waiting for the dawn? Are there no adventurous souls among the medical profession who will unite their efforts in guiding kindred venturesome spirits among qualified musicians? We feel sure that our services will justify your time and effort. Other sections of the country are providing opportunities. New York University offered a survey course last summer with lecturers by Drs. Bernard Wortis, Loretta Bender, Morris Herman, Leida Berg and George Deavor besides an array of psychologists and musicians. From the large class of musicians attending, suitable personalities were selected to pair off with psychiatrists in order to carry on experiments.

In Boston, Flagler Fultz has established a course which is accredited by the Boston School of Occupational Therapy. His trained workers are carefully tabulating results of their efforts. Michigan State College has instituted a four year course which includes internship at Wayne County Board of Institutions at Eloise. Iowa State University has been experimenting. Many other institutions are contemplating courses of study.

My plea is that musicians in this locality be given a like opportunity so that music technicians may be trained to apply the music prescriptions of psychiatrists intelligently and effectively. A well integrated personality, successful with groups; sensitive to patient reaction with ability to adjust his technic accordingly is most important in dealing with the human equation.

RECOMMENDATIONS-1) That the report from Vaughan be extended to include details of materials and techniques. 2) That the experiences of this technician and many other warrant the establishment of courses of study in this locality so that properly qualified musicians may be trained to work with psychiatrists, both in army and veteran as well as civilian hospitals. 3) That further experiments with control groups be encouraged in clinics and veterous hospitals throughout this locality.

PSYCHIATRY AND ATOMS

by

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The small object which was parachuted over Hiroshima on August 6th ushered in an atomic age which found the world entirely unprepared for its advent. While Einstein, Rutherford, Meitner, Fermi, and others had been heralding its approach, their audience was limited and few suspected the possibilities in store for us. The bomb which announced the success of their efforts may prove to be the most catastrophic bit of human audacity since that celebrated contretemps in the Garden of Eden.

Though most of the details are still secret, it appears from the published reports that only approximately one-tenth of one percent of the potential nuclear energy in uranium is released when a chain reaction bomb is exploded. Professor Smyth states that if some scheme could be devised for converting to energy as much as a few percent of the matter of some common material, "civilization would have the means to commit suicide at will." What is implied, I take it, is that if some method could be devised for releasing about five percent of a material such as manganese, the means would be at hand for causing many times the havoc of one August 6th, 1945, model plutonium bomb. Thus has modern man by his ingenuity finally found the means by which he can destroy himself and his neighbors in wholesale lots.

In the newspaper accounts of the flight to Hiroshima and the dramatic moment immediately after the "bombs away," it was stated that one of the plane's occupants remarked, "Let's get the hell out of here." This being good advice and the pilot being foresighted--they did. Now in the wake of that ominous event as I mull over its significance, I am convinced that this is the best bit of advice thus far expressed on the subject and we would all do well if we could follow it. Unlike the men in that plane, however, there is no safe place for us to go, for extensive technological advances in aviation have rendered all parts of the globe vulnerable to attack from the air. After careful consideration, it becomes apparent that, if we cannot fight against or flee from this weapon, we must try to prevent all armed conflict in which it might be used. In other words, we have to stay and think and work out our problem;

*The opinions and assertions contained herein are the private ones of the author and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service as a whole.

that is what psychiatry teaches us to do anyway. Without being unduly lugubrious about it, we realize that atomic warfare would put an awful dent in civilization. If we fail to prevent it, there is grave danger that the meek will have no earth to inherit.

It would be idyllic if atomic energy could be controlled for industrial use, but it seems as though this realization is a long way off. For various reasons, it appears that it is much simpler to blow up the world with atomic energy than to move a ship or a locomotive with it. Even when it can be harnessed for industry at some future time, it may still remain a menace, a Damocletian sword which hangs over an uneasy world. On this point Einstein has remarked, "Perhaps it is well that it should be (a menace). It may intimidate the human race into bringing order into its international affairs--which, without pressure or fear, it would not do.

At the present time the heads of several great powers are meeting to discuss the control of atomic energy. Our own legislators, concerned about the problem, have been seeking expert advice about it. For the past month chemists and physicists have been appearing before the Senate sub-committee. Their thesis has been the need for controlling atomic energy. One day for a few hours some social scientists were heard; their topic was the need for controlling ourselves.

Physical scientists one month--social scientists one day. Billions for destruction--little thought for the disciplines which might help us to avoid future wars. To psychiatrists this is a familiar story. It is faintly redolent of millions of dollars spent annually for the custodial care of the mentally ill and a pittance for research which might prevent mental illness.

The precipitate arrival of the atomic age will of necessity bring a welter of books, articles and after-dinner addresses in its wake. Many authors, speakers, teachers, clergymen and educators will take the opportunity of examining their own particular field of endeavor in the light of the new development and will attempt to forecast its future. This, as you may have suspected, is my intention; and following upon the erection of a little more scaffolding, I would like simply to mention some possibilities for psychiatry of the future, in an atomic age.

Before developing my thesis further, I cannot help but note certain points of similarity between psychiatrists and the physicists who have pointed up this major problem for us. Heretofore the physicists always seemed to live in a tight little world. They seemed to be a group set apart from their colleagues. Like psychiatrists, they talked their own particular type of mumbo jumbo. Unlike the psychiatrists, their science was usually fifty years ahead of its important technological application. The essential unpredictability

of the laws of nature made their scientific research a voyage into uncharted seas whose very existence was in doubt. The essential unpredictability of man and his emotional actions makes ours a similar venture. As another point of similarity, in our college days the chemists used to look at the physicists with askance--shall we say, much like the surgeons look upon psychiatrists today? Suddenly this Cinderella-like science presents to its questioning colleagues an accomplishment which to some already holds promise of a fabulous push button age but which to others looms as a Frankenstein which had been better left undiscovered. Psychiatry will hardly present the world with anything so dramatic, but it does have a contribution to make to some of the problems which face our culture.

One of our difficulties in psychiatry has been the tendency at times to operate in a vacuum. We have been able to have our patients adjust and apparently recover in our sanatoria, but they frequently have not been able to hold their gains in society. This attitude comes to us naturally, for basically we have been physicians charged with the treatment of the mentally ill. The present age points up for us a little more sharply the fact that, in addition to our basic functions, we need to train our sights on the goal of positive mental health. Positive mental health is as dependent upon inter-personal, as it is upon intra-personal, relationships. In a world in which rapid transportation and communication and new weapons have made nations dependent upon the actions of other nations for their very existence, there will of necessity be an increase in social pressures. There is need, therefore, for a renewed interest on the part of psychiatry in social phenomena, an attention to the development of what be called Social Psychiatry. Because of our particular type of training, there are several adjustments which need to be made before we can expand, for we all realize that our tendencies have been to go in the other direction.

There are several major promises upon which our new planning may be based, and the atomic age furnishes us with a good opportunity to discuss them. It is axiomatic in psychiatry that we believe in the efficacy of our influence and treatment in mental and emotional diseases. Our treatment, of course, is predicated upon proper diagnosis of the ailment. Likewise, if we are to be of assistance in the treatment and cure of the ills of the body politic, it is first necessary to believe that they will respond to treatment after a correct diagnosis is made. It follows that a body of data on social psychopathology is required that will enable thinking men to arrive at a social diagnosis and begin to remedy the pathologic conditions.

The frame of reference in psychiatry heretofore established has been valid for individuals and as such is not necessarily applicable to the problems of groups. It is unjustifiable to speak of a people as being "schizoid" or a nation as being "paranoid." These are the symptoms of individuals. There is no data on record which indicates

that we can ~~transfer or~~ translate our concepts of individual psychopathology to group psychopathology and formulate a workable system. Therefore, a whole new framework of reference and inquiry is required for the background of the social psychiatry of the future.

With Gregg I believe that in the future "psychiatry will find great extensions of its content and of its obligations. There will be applications far beyond your offices and your hospitals of the further knowledge you will gain, applications not only to patients with functional and organic disease, but to the human relations of normal people--in politics, national and international, between races, between capital and labor, in government, in family life, in education, in every form of human relationship, whether between individuals or between groups. You will be concerned with optimum performance of human beings as civilized creatures."

This task requires the services of more than one group of specialists, for the complexities of modern society make its ills the responsibility of experts from many fields and calls for the pooling of their resources. The psychiatry of the present age must ally itself with educational disciplines. Its meetings should be attended by other scientists such as economists, sociologists, philosophers and cultural anthropologists. Because of our isolation, we have become inbred and new ideas are looked upon with suspicion. Our meetings are the occasions to rehash old ideas.

We write our books for one another and not for the people who would profit by reading them. A few years ago an excellent book on psychiatry in medical education was written. I have yet to meet one dean or medical educator ~~or~~ member of a curriculum committee who has read the book. In all fairness, I must say that I met one man who had heard of it. Who is at fault?

"If we are misunderstood we have ourselves to blame
Men sometimes are masters of their fates
The fault dear Brutus is not in our stars--
But in ourselves."

It is interesting to note that, having succeeded in releasing atomic energy--the no plus ultra of nuclear physics--the scientists are now discussing the philosophical aspects of the problem and the ethics and morality of atomic bombing. This is encouraging and negates the popular idea of the aloof, cold, rationalistic scientist interested only in his calculations and experiments.

It is an unfortunate commentary on the present state of our culture that the two main categories in which we have benefited from advances in science have been the development of creature comforts and instruments of war. It is much easier to get people interested

in a new electrical appliance or an automobile than it is to interest them in social progress and the welfare of their fellow men. This brings up my second point, namely, are we in psychiatry, like our brethren the physicists, not required to pay a little more attention to the morality and ethics of our concepts before releasing them on the world at large?

It seems as though in our present manner of thinking and experimenting in this century that something has been left out or forgotten. Too little attention has been paid to the essential virtues, to the dignity and worth of man. The same thing has happened to nations that has happened to individuals--loss of mutual trust and loss of a sense of values. In individuals in general it seems as though it is not the basic truths which count any more. We are off on the periphery and interested in inconsequential things. If it were announced that one of the eternal truths would be discussed tomorrow morning, it would attract but little attention, but if it were announced that a thousand pairs of nylon stockings would go on sale in a certain store, they would have to bring out an extra detail of mounted police.

It is certain that we will have to return again to the principles of first things first and a deep sense of individual responsibility and fundamental honesty before we can make strides toward either individual or international good will. It is these ordinary virtues which moor the individual securely when the gales are blowing. Every psychiatrist knows how difficult it is to treat a person who has no roots and nothing to tie to.

Already the cult of the inane has too great a hold, and there is too much emphasis on the inconsequential and the insipid. The desire for notoriety and the acceptance of the smart aleck and smooth operator bade our culture no good. These things are the result of false philosophies and the lack of a proper sense of values. If any of us in psychiatry ask the question: Do these things concern us and are we justified in preaching to our patients? I believe the answer is apparent. We can no more remain the cold, aloof scientists who simply toss off our beliefs with no regard for where they fall than can the physicists who now recognize their obligations.

My third point is that as we enter a new era it will be wise for us to calibrate the instruments upon which we are going to depend in our operations. Right now the ranks of psychiatry are being swelled by hundreds of young men who have seen the possibilities in our particular specialty. In their military service, they saw the necessity for psychiatric understanding and they now seek fellowships and residencies. It is our pleasure and our duty to see that they are well-trained. They, too, must learn that psychiatry cannot operate in a vacuum, but that it is intimately related to the general culture. I have always believed that the education of men for work in psychiatry is a sacred trust. I hold for a broader education than is being given at the present time. If men knew what had gone on in ages past, it

might help them to avoid falling into old errors. They might realize that some of the things which look up to them as now were tried and found wanting centuries ago. It would be interesting for them to know in the light of interest in psychosomatic medicine that John Haslam spoke of the mental causation of bodily symptoms in 1751. It might help them to know that the background of Jung's teachings may be found in Averroes, and that the modern naturalism taught by John Dowey can be found in the teachings of Titus Lucretius. Those students and fellows are going to deal with ideas and systems and the more they understand about backgrounds the less likely are they to fall into error. Sometimes one man influences the thinking of a discipline and of an age, and it is well to know how he arrived at his concepts.

I am particularly averse to allowing men to enter the field superficially equipped. It does not help our profession or our cause to have young men start out with only the knowledge of a few clinical entities and a mouth full of jaw-breaking jargon. I do not believe that the training of the men should be immediately pointed at passing their American Board examination but rather at a basic understanding of the whole field on sound promises. They can elaborate later as their training proceeds. It might be wise procedure, when a man does come before an examining board, to have him defend his thesis against his examiners.

There are many things in psychiatry which we would have difficulty in defending today. Some of them we simply assume gratuitously. I am fearful that we might be hard put to defend elementalism or atomization as it is found in psychiatry today. It originated in a habit of looking for an explanation of higher phenomena among the lower or elementary ones. It has led to the belief that disintegration will bring forth the constituent elements of an object. By blowing up a bridge one does not recover nicely separated bricks, concrete, and rivets. What is recovered is a mass of fragments which are definitely not integral parts of the bridge which was destroyed. Is it permissible to submit the postulate that the same thing can be said of most mental crack-ups? When we examine each of the elements of the illness and analyze them carefully, have we any proof that they really were integral parts of the real whole? If we were to state that 'intelligence' is a minimum of idiosyncrasy, we certainly would be criticized and the idea characterized as nonsensical. Are we or are we not likewise open to criticism when we take the concepts which we have learned from the study of abnormal minds, and without hesitation generalize them and apply to normal minds? This is a net result of atomization in our psychiatric thinking, and I am frank to say that I am not sure of the logic of it.

There is a fourth point which is requisite for the proper

functioning of psychiatry in a new era. It must be admitted that what is euphoniously known as our public relations has been poorly managed. If you need any proof, look at the way the public reacts to the terms "NF" and "psychoneurosis." Or even much worse, how they react to consultation with a psychiatrist. We must do a better job of it this time for the benefit of the people who are to profit by our ministrations. Some of the psychiatrists who objected to our use of the terms "combat fatigue" and "operational fatigue" thought we should desensitize the public to the terms "NF" and "psychoneurosis." They had no answer to the question as to why they had not done so in the twenty-five years between wars.

So badly had things been handled that early in the war we developed in psychiatry what has been called aptly a "state of siege mentality." It was plain that our colleagues and some of the public were blaming us for the conditions which we were diagnosing. This, of course, is as sensible as blaming the thermometer for the weather or the surgeon for the cancer. Fortunately the excellent work done by the military psychiatrists in selection and treatment has gone far toward dispelling some of the misinformation about psychiatry which had spread about.

We must be careful of our statements which get into print. There is nothing to be gained by making comments on the mental condition of historical or biblical figures nor of analyzing personalities from newspaper clippings. We know that we have something of value to teach and we cannot jeopardize our position by ill-advised interviews.

The last thing I have to say to you concerns our own interpersonal relationships. They are extremely important, and it is necessary to avoid all displays of emotional immaturity. There is a lesson to be learned from the fact that the psychiatrists in the Army, Navy, Public Health and Veterans have gotten along extremely well and were mutually helpful to one another. There was never any evidence in the Services of the justifiable lament of Dr. Alan Gregg, who speaking to psychiatrists noted, "Men who are personally delightful when armed with the saber of their particular belief and clothed with the toga of their knowledge become impossible with their medical brethren." It is always sad when physicians quarrel and it is inexcusable in psychiatrists who are charged with the education of the public to emotional maturity. It is hoped that the pleasant, mature relationships developed by psychiatrists in the Service will continue into civilian life.

It is apparent to you now that the title of my paper was simply a snare to attract your attention and to give me an opportunity to air my views about the psychiatry of the next decade. When the ideals for which our men have fought prevail, the future will offer all men some dignity and a chance to work out their destiny. I be-

lieve that psychiatry has an important part to play in that future. The return of our veterans and the insecurity of an oncoming atomic age render our ministrations doubly important and necessary! It will give us an unparalleled opportunity to be of service to our fellow citizens.

And finally I leave with you these words of Dickens from *Dombey and Son*:

"Bright and blest the morning that shall rise on such a night, for men, delayed no more by stumbling blocks of their own making, which are but specks of dust upon the path between them and eternity, will then apply themselves like creatures of one common origin, owing one duty to the Father of one family and leading to one common end--to make the world a better place."

STUDY OF ELECTROENCEPHALOGRAPHIC FINDINGS IN 209 CASES
ADMITTED AS HEAD INJURIES TO AN ARMY NEUROLOGICAL -
NEUROSURGICAL CENTER

by

Maurice W. Laufer, Capt., M.C., AUS *
Roy F. Perkins, Capt., M.C. AUS *

INTRODUCTION

At the outset, I must state that this is a rather different paper than was originally submitted. However, the other night I tried the experiment of reading the paper as originally written to some colleagues unversed in the intricacies of EEG and not particularly partial to a statistical approach. The state of manic stupor which was quickly induced was a sufficiently severe stimulus to force a last minute revision, leaving out as much statistical and similar material as possible.

This study was undertaken in an attempt to find out of what value electroencephalography had proven in 209 cases admitted to our neurological-neurosurgical center as head injuries. After clinical evaluation, observation over a period of time on our service and various psychometric tests, these cases were divided into "organic" of which there were 159 and "functional" of which there were 50. This was based on the factors already mentioned and was independent of EEG findings. The "functional" cases were those in which there was no actual objective evidence of organic trauma at all or the trauma was so minimal and remote in time as to not merit consideration, and there positive indications of an existing neurotic reaction.

The organic cases were then further sub-divided according to degree of severity of injury, into "mild", "moderate", and "marked". This was of necessity a subjective evaluation, but based wherever possible on: extensiveness of injury; duration of unconsciousness; evidence of actual brain penetration or destruction; severity and persistence of neurologic symptoms and signs; and laboratory aids such as x-ray and pneumoencephalogram. The organic cases were also subdivided into groups on the basis of time elapsed from date of injury to initial EEG. It should be noted that the study is based on initial records only and not on an analysis of consecutive EEG's on the same patients.

In general, in discussing the findings, most of the EEG classifications will be grouped into the following few categories. First is "borderline generalized abnormal" which presumably represents the mildest form of abnormality. Next is the "marked generalized abnormal," more severe, but as the name

implies still involving many different areas of the brain. Third is the "focal" classification. This refers to records in which the abnormality is limited to one specific area of the brain. Lastly there is "total amplitude asymmetry". Amplitude asymmetry refers to a consistent and definite difference in voltage between two sides of the brain, either entire hemispheres or specific portions such as temporal or parietal areas. Before classing a case as representing amplitude asymmetry, every attempt was made to be certain that this did not represent an artifact. This group included both otherwise normal and abnormal records.

EEG ABNORMALITIES FOUND

The first slide is to a certain extent a validation of the EEG criteria used. It compares the abnormalities found in the EEG's from our organic group of 159 cases with those found by Gibbs in a study of approximately 1000 normal control. These figures show that in our group normal records were only 1/3 as frequent as in the control group. Grouping the various abnormalities together, borderline records were found to be five times as frequent and marked generalized abnormal records twenty-eight times as frequent in the head injury cases as in the control group. Focal records, which never occurred in the controls, were present in 8.5% of our patients.

ORGANIC CASES COMPARED WITH FUNCTIONAL

The next point of interest was "How did the cases we called functional compare with those called organic?" The next slide visualizes this comparison. First, it will be noted that three-quarters of the entire functional group had normal records while only one-quarter of the "organic" group had records in this category. Moreover, of all the abnormal records in the "functional" cases, three-quarters were of the mildest form, the borderline abnormal, while in the "organic" group only half fell in this category. Equally striking is the fact that only 2% of all the "functional" records showed a marked abnormality as compared with 20% in the organic cases or 10 to 1 in favor of the latter. There were no focal records at all in the "functional" group but almost 10% in the "organic" cases, again approximately 10 to 1. There was a similar striking difference in the incidence of amplitude asymmetry which was six times more common in the "organic" than in the "functional" cases. Thus by all these criteria considering the group as a whole, the EEG findings correlated with impressions derived from other sources.

CORRELATION OF EEG FINDINGS WITH TIME AND SEVERITY IN ORGANIC CASES

Having found that the EEG results were of value in comparing organic with functional cases, the next problem was to find whether the EEG was of any assistance in different-

iating cases within the organic group. These records were therefore analyzed, correlating the EEG findings with both time elapsed and severity of injury. The next slide is concerned with findings related to time since injury. As can be seen, as time increased, from injury to initial EEG correspondingly so did the percentage of normal records found. Similarly as time increased the percentage of total amplitude asymmetry showed a steady decrease.

The next chart illustrates what is found when the EEG's are classified according to severity of injury. (Upper left hand corner) The greatest percentage by far of normal records is found in the cases with mild injury. A smaller proportion is found in the cases with moderate injury and least of all in cases of severe injury. Conversely, the greatest percentage of amplitude asymmetry is found in cases of severe injury. (Lower middle) Similarly, most of the markedly abnormal records occur in the severe injury group and least in the mild injury group. This relation is again borne out when considering the focal records where (lower right hand) the greatest number occur in cases of severe injury and none at all are found in the mild injury group. Thus, it was found that within the organic group incidence of the EEG abnormality is correlated with severity of injury, decreasing as time from injury increases. These two findings together suggest that the EEG does reflect severity of injury and also parallels clinical improvement. Special attention should be directed to the focal records which in our small group at least, did not occur in any of the mild injuries and therefore seem to be a particularly good indicator.

COMPARISON OF "CLOSED" VS "OPEN" CASES

Another approach to the organic group was by classification on the basis of type of injury. The next slide shows our findings in such a comparison. Three categories are listed. "Closed" represents all cases of undoubted head injury without resulting skull fracture. "Open without penetration" includes both simple skull fracture and skull defects without penetration of the dura. "Open with penetration" indicates that some foreign body entered the brain substance.

(Left hand side.) As can be seen, EEG normality was greatest in the closed cases, next in the cases that were open without penetration and least in the cases with penetration. Exactly the reverse was true when considering amplitude asymmetry on the right hand side of the diagram. As might be expected, focal records were most prominent in cases where the dura had been penetrated.

VALIDITY AND IMPORTANCE OF AMPLITUDE ASYMMETRY

We were impressed by the repeated appearance of "amplitude asymmetry" as possibly a valuable indicator. This led to an attempt to determine whether amplitude asymmetry merely re-

flected the presence of a skull defect. In such a case there would be no intervening bone to reduce the voltage of the signal received by the EEG machine and the amplitude asymmetry would represent merely a mechanical finding. If this explanation were true, percentage of amplitude asymmetry would naturally be higher in our markedly severe cases which included a larger percentage of skull defects than did any other group. To test this, the open group of 95 cases was divided into three categories; "simple fracture" (those without any skull defects at all) "skull defect without dural penetration"; and "skull defect with dural penetration" as shown in the next slide. This shows an ascending incidence of amplitude asymmetry following the order given.

However, this table also suggests in several ways that the presence of amplitude asymmetry is not entirely due to skull defects as such. First, almost one-third of the cases that showed simple skull-fracture (without any skull defect at all) showed amplitude asymmetry. Second, almost half of the cases of skull defect without penetration failed to show any such amplitude asymmetry and one would expect all cases with skull defect to show amplitude asymmetry if the mechanical explanation was the only one. Lastly, even 38% of the skull defect with penetration did not show amplitude asymmetry at all. Then there are records in our files of individual cases showing amplitude asymmetry in which the skull defect was on one side of the head, the higher voltage on the opposite side of the head and the clinical findings correlated with and suggested a lesion on the side of the higher voltage.

In the majority of cases of amplitude asymmetry the voltage was higher on the side of injury. In a few cases, however, it was lower; and in almost all of these there had been a significant loss of brain tissue at the site of injury suggesting that the lower voltage was due to a smaller mass of brain tissue giving off electrical discharges.

Thus, our observation suggests that the occurrence of amplitude asymmetry is a valuable indicator of cerebral trauma and an aid in localizing the site of injury. It is found six times as frequently in the organic as in the functional group. Its incidence increases proportionately to severity of injury and decreases as time elapses from injury.

CONVULSIVE SEIZURES

As the next slide shows convulsive seizures were noted in 19 cases or 11% of our total organic group, occurring in almost equal numbers for each time period since injury. It is interesting to note that of these 19, 3 had completely normal records and 7 had generalized borderline abnormal records; thus making one-half with either no EEG abnormality or only mild EEG abnormality. Three showed marked generalized abnormality and only six out of the entire total had focal records. Of these six with focal records, five were found in cases in

which more than six months had elapsed since injury. On the other hand, we had seven patients without seizures presenting focal records and all these cases had been injured less than six months before the initial EEG. These findings suggest the possibility that cases without seizures injured less than six months before the initial EEG and presenting focal records may at a later date develop post-traumatic epilepsy.

TANTALUM PLATES

In our group, 44 patients had EEG's both before and after insertion of tantalum plates over skull defects. It is realized that this is an insufficient number on which to base any definite conclusions. Nevertheless, some gross findings and their implications may be of interest. The next slide illustrates the affects we found.

Approximately half of the patients showed no change whatsoever in their record. The majority of this group had abnormal records both before and after insertion of a plate, and a small number were normal both before and after. As the next bar shows, somewhat less than half of the patients had some degree of improvement in their EEG. This improvement was manifested by a change from a borderline to a normal record, from a marked or focal abnormal to a borderline abnormal, etc. Finally approximately one-tenth became worse from an EEG standpoint after insertion of the plate. This group represents four cases and three of these four became worse by developing a focal type of record where before they had a normal or a borderline record. The fourth case may not properly be included in this group as the record changed from marked generalized abnormal to a focal record and may actually represent an improvement: EEG, the generalized abnormality clearing up and leaving only focal activity at the site of injury.

Two possible reasons for the improvement in almost half the cases presents themselves. First is the healing effect of time. Second is the role of the plate in restoring cerebral hydrodynamics. It is definitely not possible to rule out the effect of time on the basis of our data; and this is almost certainly a large factor. That it is not the only one is suggested by the fact of the 19 cases with the EEG improvement, 10 showed this improvement in a period of less than a month after insertion of the plate. It is also of interest that many of the patients showing EEG improvement related a coincident improvement in various symptoms such as the vertigo, tinnitus, syncope and headache.

CONCLUSION

1. EEG abnormalities are apparently a valid indicator of brain injury.
2. The percentage of EEG abnormality increases with severity of injury. It is most marked when the

dura has been penetrated, less in cases of open head injury without dural penetration and least in closed head injuries.

4. The percentage of EEG abnormality decreases as time elapses from injury.
5. Amplitude asymmetry is a guide to site of injury and an index of EEG improvement.
6. Focal records were not found in cases with mild injury but were more frequent with severe injury and penetrating wound and in our series occurred relatively soon after injury (under six months). The presence of focal records without accompanying convulsions was found almost entirely in cases that had been injured less than six months before initial EEG. Focal records and associated convulsions occurred in cases where the initial record was longer than six months after injury. This suggests the possibility that cases with focal records may eventually develop post-traumatic epilepsy though initially asymptomatic.
7. There is a suggestion that EEG improvement may occur after insertion of tantalum plates over skull defects. This may be due either to the healing influence of time or to a specific effect of the plate itself.
8. Although the findings here presented have shown the value of the EEG, they also make it clear that EEG reports are valid only on a percentage basis and must still be regarded as only one laboratory aid in making up the total picture.

Discussion of STUDY OF ELECTROENCEPHALOGRAPHIC FINDINGS IN 209 CASES
 ADMITTED AS HEAD INJURIES TO AN ARMY NEUROLOGICAL-
 NEUROSURGICAL CENTER

by

Frederick A. Gibbs, M.D.*

Captain Laufer and Captain Perkins have squarely faced the central problem of the correlation between the electroencephalogram and the clinical features of head injury cases. This is a statistical problem and boils down to a problem in bookkeeping, but the way in which the books are kept, cases classified and electroencephalograms interpreted is absolutely crucial. In all respects the authors have done an excellent job. They have succeeded in making their figures talk and this is the kind of talk we are most interested in hearing.

It may appear that the total series has been divided and subdivided unnecessarily, but this criticism is not justified. On the contrary, such factors as severity of injury and time after injury must be included if the data is to retain its full meaning. This fact is in itself of the utmost importance and should be recognized, not only by electroencephalographers but by clinicians. Head injury is too amorphous a classification to be of value except for the coarsest purposes. Precision and significance are obtained only when restricting criteria are employed to subdivide the total group. Age is a factor which ordinarily needs to be taken into account, but in the present study the age range is so narrow that it can be omitted.

Not much has been said about the value of serial electroencephalograms for extrapolating the recovery curve ut it is obvious from the tables on the relationship between the degree of abnormality and the time after injury that such serial studies can give prognostic information.

Of great importance is the finding that the electroencephalograms can be interpreted, even as regards amplitude asymmetry, in the presence of large skull defects and also in the presence of a large tantalum plate.

In certain classes of patient the present report deals with small numbers. The work has been so carefully done, however, that I am sure succeeding investigators will accumulate additional numbers and give statistical validity to certain of the relations which the authors point out. In time a sufficient statistical basis will form to permit expectancy tables to be drawn up, so that precise diagnostic and prognostic information on head injury cases can be obtained from the electroencephalogram. Army investigators are in a position to make a major contribution in this field for they have the numbers and the possibility of conducting long-time follow-up studies.

I wish to congratulate Captain Laufer and Captain Perkins for having injected a solid mass of concrete into the electroencephalographic foundations.

EVALUATION OF PATIENTS WHO HAVE SUSTAINED HEAD INJURY

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The opinion prevails among many physicians that the elicitation of such subjective symptoms as headache, dizziness, irritability, intolerance to heat and alcohol, fainting spells and loss of memory constitutes an entirely justifiable basis for the assumption that parenchymatous brain damage has occurred from injury to the head, that incapacitating degrees of disability from traumatic changes in the cranial cavity may exist in the absence of any objective changes in the commonly employed neurological diagnostic procedures, and that traumatic impairment in intellectual function is a permanent and irreversible change. To correct these misconceptions, it seems desirable to assess the reliability of our presently employed tests, determining the frequency with which positive results are obtained in cases of known parenchymatous brain damage secondary to trauma, and to show that improvement in intellectual function may continue for months after an injury.

These observations were made in a neurologic center in a zone of the Interior General Hospital receiving large numbers of combat injuries, usually within three to eight weeks after injury. The entering patients include military non-effectives of many types, directed to this installation because of complaints or disability due to head injury. To rapidly screen and evaluate large groups of these patients with limited numbers of neurologically trained medical personnel, the use of non-medical personnel has had to be exploited to a maximum degree consistent with a fair appraisal of the patient.

SLIDE 1.

On admission the patient receives a history, physical examination and neurological examination by the medical officer. Whether or not organic brain damage is apparent at the initial examination, a psychometric examination, electroencephalogram and appropriate roentgenograms of the skull are ordered for further assistance in evaluation; if signs of organic brain damage are not apparent or there appear to be associated psychogenic factors, a psychiatric social history is arranged for at the same time. The major portion of this information is secured by non-medical personnel. A body of pertinent data is usually available within 72 hours which permits further appropriate management to be instituted.

If the initial examination results show no pertinent organic findings, the psychiatrist may capitalize on the negative data to reassure the patient, strengthen the diagnosis of the personality reaction and promptly institute psychiatric measures before the symptoms crystallize in the new environment.

If the findings reveal evidence of organic nervous disease, appraisal of its degree is facilitated by the additional information, and the decision for further studies and management can be arrived at in the same period.

Using this general method of study 100 consecutive head injuries were employed for analysis of the reliability of the diagnostic measures, selection being based upon previous neurological examination findings of organic brain damage, previous operative observations of brain damage, roentgen evidence of a skull fracture in closed head injuries, roentgen evidence or operative observation of dural tear in the penetrating head injuries, and sufficient cooperation from the patient to make formal psychometric examinations reliable. All examinations were carried out in the period between one and six months following injury; sub-tentorial penetrating wounds and patients suspected of previous nervous or mental disease were excluded.

SLIDE 2.

For present purposes the clinical neurological examination refers to the usual examination of cranial nerves, reflexes, motor and sensory systems.

Our criteria for psychometric evidence of impaired intellectual function were a decline of eight or more points on the Army Wechsler score as compared with the Army General Classification Test Score secured at the time of entrance into the Army, a Shipley Hartford Retreat Conceptual Quotient below 85, and/or an "organic pattern" on the Wechsler examination with disproportionately low scores in the subtests for digit retention, object assembly and block design.

The electroencephalographic criteria are as defined by Gibbs and adopted as standard for the army. Borderling records were classified as abnormal in the present group of cases.

The pneumoencephalograms were conventionally interpreted, any bias being in the direction of conservatism.

Table I represents the incidence of abnormalities present on the various examinations in the 100 patients. It may be seen that the clinical neurological examination alone will reveal abnormalities in 64% to 80% of the cases, the electroencephalogram in 64% and 91% of cases, psychometric examination in 60% of cases, and pneumoencephalography in 50 and 85% of cases. It is thus evident that any single procedure may fail to give positive results in the presence of known parenchymatous cerebral damage.

SLIDE 3.

A combination of neurologic and electroencephalographic examinations (Table II) gives positive results in 92% and 97% of the cases, but, since EEG abnormalities may occur in 14 to 18% of the normal population one is reluctant to depend exclusively on an isolated abnormal finding, though the increase in diagnostic accuracy by 18% and 28% makes its value evident.

A combination of neurologic and psychometric examinations increases diagnostic accuracy by 7% and 16%. Pre-injury psychometric standards are not always available in the individual case,

abnormal psychometric patterns may have antedated the injury, such psychometric tests are notoriously open to psychogenic factors and the perfect test for detecting organic brain damage has yet to be devised.

SLIDE 4.

In addition to the help given by electroencephalography in localizing lesions and suggesting the presence of convulsive seizures, and the assistance in guidance for the future offered by psychometric examination, the addition of these procedures significantly increases diagnostic accuracy and reliability (Table III). All three methods of examination are positive in 32% and 47% of cases, two out of three methods give positive results 28% and 36% of the time increasing accuracy in 60% and 83% of cases, the fundamentally reliable neurological examination unsupported by positive electroencephalographic or psychometric results raises this average to 76% and 84%, and isolated psychometric or electroencephalographic abnormalities increase the proportion of positive findings to 96% and 97%.

This high proportion of one or more positive findings in the presence of known organic brain disease compares very favorably with the accuracy of diagnostic measures presently in use for evaluating disease in such viscera as the heart and gastrointestinal tract and renders unnecessary (at the period of time following head trauma) exclusive dependence on subjective symptoms for the diagnosis of head injury residuals.

Several features of the psychometric methods employed are best illustrated by individual test results.

SLIDE 5.

1. G. C. (closed head injury from fracture of the left frontal bone). Decline of 28 points in Army Wechsler score from AGCT score, scatter on Wechsler subtest items not corresponding to the typical "organic pattern" of Wechsler, and C.Q. of 87 or a borderline normal.

The clearest evidence of impaired intellectual function and of its degree is afforded by the drop in overall score, with equivocal results on the other two criteria. This illustrates the need for multiple standards to secure consistent and reliable results: Table II shows that the neurologic and psychometric findings agree 64% and 68% of the time.

SLIDE 6.

2. J. B. (penetrating head injury, anterior portion of left temporal lobe).

Decline of 15 points in overall score on the Wechsler test, disproportionately low scores in digit retention, object assembly and block design on the subtest pattern, and a conceptual quotient of 59.

Well defined evidence of organic brain damage by all three of our criteria is illustrated by these test results.

SLIDE 7.

3. D. J. (penetrating head injury, right parietal cortex).

When tested one month following injury there was a decline of 20 points on the overall score, low scores in digit retention and block design, and a Conceptual Quotient of 78. When re-tested 3 months later the conceptual quotient had returned to normal, together with improvement in the pathological subtests.

This illustrates that abnormal patterns may disappear with the passage of time, and that impairment in intellectual function following head injury is not necessarily irreversible.

SLIDE 8.

4. L. H. (penetrating injury, right frontal lobe).

As in case three, elevation of subtest items on the Wechsler pattern, reversion of the Conceptual Quotient to normal, and slight improvement in total score over a four month period; damage is still evident however by the decline in total score from the AGCT score.

SLIDE 9.

5. D. B. (penetrating head injury, inferior portion of both frontal lobes).

With no AGCT scores available for comparison and a vocabulary too low to give validity to the Shipley Hartford Retreat Test, pathological depression of digit retention and block design on the Wechsler subtest items supplied evidence for an organic deficit; substantial improvement occurred over a two and one-half month period.

Time does not permit elaboration on electroencephalographic data, but our results confirm other observations that abnormal patterns tend to improve with the passage of time following head injury.

Mosaic Tess

Koho block design; Goldstein modification

Rorschach

Babcock

The incidence of "frequent and severe headache" in the Cornell Index is 9%; the complaint of headache among a constellation of other complaints occurred in 85% of the outpatients in a psychiatric clinic.

Giving a dependent, neurotic individual the support and financial remuneration of an organic disability is uneconomic to the government and frequently devastating to the later social and economic adjustment of the individual, frequently closing the door on either self-initiated or otherwise motivated psychotherapeutic approaches or alleviation of symptoms and disability.

To separate individuals with neurosis, neurotic reactions, psychopathy and defective attitudes from the organically handicapped is essential to intelligent management and disposition to the preservation of group morale and to the best interests of the individual.

The selection of psychometric standards was based upon:

1. Ease of administration by relatively untrained personnel.
2. A quantitative score which can be compared with the AGCT score is made available.
3. A quantitative estimate of degree of impairment is made available.
4. A relatively short time is required for administration and scoring of the test.
5. Our records and patients are subject to review by medical officers and rating physicians in the Veterans Administration Facility who are unfamiliar with psychometric procedures; limiting the tests to the more concrete and quantitative tests enables them to grasp the patients problems and extent of disability more readily.

SUMMARY

From a study of one hundred patients known to have sustained parenchymatous brain damage from head injury, it is concluded that the combination of clinical neurological examination, electroencephalography and psychometric examination will reveal positive findings more than 95% of the time in the period from one to six months following injury. Use of this method has permitted the rapid and accurate diversion of patients with symptoms following head trauma into the proper organic and psychiatric channels.

Individual psychometric test results are cited to show that improvement in intellectual function may occur following traumatic parenchymatous brain damage; the value of comparing AGCT scores with post-injury Army Wechsler scores is pointed out, and the tendency for pathologic psychometric patterns to improve with the passage of time is exemplified to show the limitations of this method of analysis in the late stages following head injury.

Unselected
entering
patients
with
complaints
referable to
head trauma

Routine Medical History
Physical Examination
Neurological Examination

Electroencephalogram
Roentgenograms of skull
Psychometric Examination
Psychiatric Social History
(optional)

Psychiatric
Examination
and
Treatment

Further neurological
examination (lumbar
puncture, pneumo-
encephalography,
etc.) and treatment

Medical
Personnel

Largely non-medical
Personnel

Medical
Personnel

INCIDENCE OF ABNORMALITIES ON VARIOUS

EXAMINATIONS OF 100 BRAIN-INJURED PATIENTS

	<u>Closed head Injuries (25 cases)</u>	<u>Penetrating head Injuries (75 cases)</u>
Clinical Neurological Examination Abnormal	64%	80%
Electroencephalogram Abnormal	64%	91%
Psychometric Examination Abnormal	60%	60%
Pneumoencephalogram Abnormal	50% (4 cases only)	84% (25 cases only)

		Closed head Injury (25 cases)	Penetrating head Injury (75 cases)
Neurologic Exam	+	36%	71%
EEG	+		
Neurologic Exam	-		
EEG	+	28%	18%
Neurologic Exam	+		
EEG	-	28%	8%
		<u>92%</u>	<u>97%</u>
Neurologic Exam	-	8%	3%
EEG	-		
Neurologic Exam	+	44%	53%
Psychometric Exam	+		
Neurologic Exam	-	16%	7%
Psychiatric Exam	+		
Neurologic Exam	+	20%	25%
Psychometric Exam	-	<u>80%</u>	<u>85%</u>
Neurologic Exam	-		
Psychometric Exam	-	20%	15%

	<u>Closed</u> <u>head</u> <u>Injury</u>	<u>Penetrating</u> <u>head</u> <u>Injury</u>	<u>Closed</u> <u>head</u> <u>Injury</u>	<u>Penetrating</u> <u>head</u> <u>Injury</u>
Neurologic Exam +				
EEG +				
Psychometric Exam +	32%	47%	32%	47%
Neurologic Exam +				
EEG +	4%	25%		
Psychometric Exam -				
Neurologic Exam +				
Psychometric Exam +	12%	5%		
EEG -				
Neurologic Exam -				
Psychometric Exam +	12%	6%		
EEG +	28%	36%	60%	84%
Neurologic Exam +				
EEG -	16%	1%		
Psychometric Exam -	—	—	76%	85%
Neurologic Exam -				
EEG +	16%	11%		
Psychometric Exam -				
Neurologic Exam -				
EEG -	4%	1%		
Psychometric Exam +	20%	12%	96%	97%
Neurologic Exam -				
EEG -	4%	3%	100%	100%
Psychometric Exam -				

DISCUSSION: EVALUATION OF PATIENTS WHO HAVE SUSTAINED HEAD INJURY.

by Adrien Verbrughen, M.D., Chicago, Illinois

The problem of compensation is an intricate one and it is fundamental in human nature to expect some redress from injury. Neither the injury nor the compensation need be on a physical level, though in law suits it usually is. Evil doers caught red handed and those who have a strong desire or urge to continue with some plan rarely complain of minor injuries and especially those which cannot be demonstrated objectively. Doctors and lawyers are likewise swayed by their subjective perceptions and support the subjective complaints of the injured individual. In the absence of objective evidence of injury and disability, various ill defined conjectural causes of mental and physical suffering are offered as reasons for the justice of adequate compensation. In no field of injury has this been more conspicuous than in those of the head. When no objective evidence could be produced on which to base a claim for damages in a head injury, such terms as unresolved contusion, post-traumatic state, and post concussion syndrome were introduced. Despite the terms, objective evidence of lasting damage to the brain was not forthcoming. It was customary to assume that impairment to intellectual function secondary to this invoked but not proved damage to the brain, was permanent or at least not likely to improve, at least until the suit was settled.

It is with great interest then that we turn to an investigation of patients who have definitely sustained easily demonstrable injuries to the head and study the objective evidence produced by undisputed trauma. We find that in over 95% of patients known to have sustained injury to the brain substance there is objective evidence of that injury. The evidence, however, depends on using all the available methods of searching for abnormalities. The findings then must be correlated and evaluated so that proper treatment may be instituted. In the absence of objective evidence of damage to the cerebral substance, patients are sent to the psychiatrist, for it is from him that they are likely to get the most help. It would appear that improvement of intellectual function may occur after demonstrable injury to the brain, a point which is familiar to all neurological surgeons. There may be purists who feel that the word "demonstrable" is a very elastic one, (which indeed, it is), and that minute changes in the blood vessels and nerve cells may be associated with symptoms though not necessarily with signs of brain injury. This may be true, but it is not proved.

Captain Foster has done us a service in taking the trouble to point out so conclusively, the course to be taken in the proper investigation of a case of alleged brain injury. He leaves us with the feeling that where there is damage to the brain substance, objective evidence will be forthcoming. If

his criteria were accepted they would put an end to many a suit for damages in head injuries. But he need have no fear; for most people will still continue to believe what it is their interest to believe.

SURGICAL PROBLEMS IN THE LATE TREATMENT OF CRANIOCEREBRAL INJURIES.
AN ANALYSIS OF 170 CASES

BY
I. JOSHUA SPEIGEL, MAJOR, MEDICAL CORPS*

High-speed evacuation, meticulous surgery in the forward zones by trained neurosurgeons, and planned chemotherapy are together responsible for preserving life in many, heretofore hopeless cases of severe craniocerebral battle injuries. This has resulted in the evacuation to the zone of interior of relatively large numbers of patients suffering from the late sequelae of craniocerebral injuries.

The chief problems requiring treatment in such a series of patients are,

1. Skull defects
2. Infection
3. Convulsive seizures
4. The syndrome of trephine, or so-called, post traumatic syndrome.
5. Intracranial foreign bodies and bone fragments
6. Neurological defects.

Skull Defects

Debridement of penetrating head wounds was found to be the most frequent cause of skull defect in our series. Next in order of frequency were those due to debridement of compound skull fractures or elevation of depressed skull fractures not due to penetrating wounds (16 patients). The defects that were repaired varied from 2 cms. to 14 cms. in diameter. The average was 5 cms. Eight patients had multiple defects.

Indication for Repair of Cranial Defects

1. All pulsating defects anywhere in the skull were repaired if they were 3 cms. or over in diameter. Regardless of the size, all the following defects were repaired.
2. All disfiguring frontal and fronto-temporal defects.
3. All defects which were tender to the touch.
4. All defects which were covered with a thin layer of scar tissue (all such scars were excised)
5. All defects in patients who complained of the syndrome of the trephined, or the so-called, post-cerebral concussion syndrome.

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6. All defects in patients who needed surgical exploration for other reasons, such as removal of foreign bodies or bone fragments, resection of scar or uncapping of pore-cephalic cysts.
7. All defects in patients who complained of a feeling of insecurity as a result of the skull defect.

The only contraindication to the insertion of a tantalum plate in this series has been the presence of infection. Small temporal and suboccipital defects well protected by muscle were not required.

The material used for repair of the skull defects has, in all our cases, been tantalum — either the .0125 or the .015 thickness. Tantalum is an element chemically and electrically inert, non-magnetic, and causes a minimal tissue reaction when implanted into the living organism. It lends itself easily to bending, shaping and swedging, eliminating the necessity for casting the metal and limiting the surgical operation, generally, to a one-stage procedure.

There is insufficient time to elaborate on the details of the various techniques employed in the preparation of tantalum plates. It is sufficient to say that the most satisfactory method in our hands, has been the swedging of the plate from a plaster mold of the skull defect.

For the same reason, the surgical technique of insertion and fixation of the plates will not be described in detail except to mention that the plates may be fixed in place by screws, tantalum wires, or "glaziers points" of tantalum.

If possible, at time of cranioplasty, the scalp scar was resected. If this was not feasible, a musculocutaneous scalp flap was employed.

At the outset, much fluid developed post-operatively over the larger plates. This complication has been largely circumvented by perforation of the plate to permit absorption and drainage of the wound for 24 hours.

Postoperative Results

There were no postoperative infections or deaths. All the plates have, up till the present, remained firm. With the refinements in technique, perforation of the plate, and drainage for 24 hours, the development of fluid over the plate has been reduced to a minimum. One patient, whose plate was not perforated, continued to develop small amounts of clear uninfected fluid through the incision for 4½ months. It finally became necessary to remove the plate. The fluid was the usual type of serosanguineous fluid without a high sugar content and without evidence of infection. The deduction was that this patient's tissues could not tolerate tantalum. The plate was removed and the wound healed in six days without any further development of fluid.

A frequent complaint is that, in very cold weather, the plate can be felt by the patient to be cold and is slightly uncomfortable. There are no complaints in hot weather. In every case, satisfactory cosmetic results were obtained. Where tenderness previously existed, none was present postoperatively. The two patients who felt insecure due to the skull defect, lost this feeling. One very real difficulty, which will doubtless be encountered as time goes on, is that the tantalum plates, which are opaque to X-ray, will interfere with adequate visualization of the pneumoencephalogram, should one become necessary.

Infection

Analysis of our series indicates that the chief cause for infection of a craniocerebral wound is inadequate debridement or no debridement. In this series of 154 compound skull fractures, 9 cases were inadequately debrided, and of these 6 (66.6%) became infected. Seven cases were not debrided at all and of these, 4 (56.9%) became infected. It is our opinion, therefore, that inadequate debridement is just as dangerous as no debridement at all. Our definition of adequate debridement has been complete removal of all dead or potentially infected tissue and foreign bodies with an anatomical closure, undrained.

Of the 12 cases adequately debrided more than 3 days after injury, only 2 became infected. One patient was not debrided until 14 days following the wound and did not develop infection. The time interval between injury and debridement appears to be, therefore, a vital, but not decisive factor in the prevention of infection.

Besides the infections mentioned above, 3 additional infections were encountered. All three were instances of osteomyelitis of the skull with extradural abscesses. Two of these patients had free fascia lata grafts used to repair the dural defects, inserted at the time of debridement. The other patient had a free temporal fascia graft similarly employed. All three grafts eventually sloughed out. The areas were then debrided and plastic repair of the scalp and chemotherapy carried out. Four weeks later, tantalum plates were inserted without untoward sequelae. It is our opinion, therefore, that free fascial transplants for dural defects inserted at the time of debridement, although, in general, quite useful, can be responsible for the maintenance of infection in a wound. They should be used with that in mind in any potentially infected wound.

Convulsive Seizures

Accurate records of the development of convulsive seizures are available only from the time the patient received his injury to the time of his discharge from Mayo General Hospital. All patients were instructed to write or otherwise communicate with us if seizures occurred while at home. It is possible that some patients developed convulsive seizures without bothering to send the information in. It is significant

also in the interpretation of these statistics to bear in mind that the follow-up period varied from 2 years in the earliest cases to less than 3 months in the most recent cases. For the sake of accuracy in determining the relative proportions of those with and without seizures, any explosive set of clonic contractions, however mild, were labelled convulsive seizures regardless of whether or not consciousness was lost.

Seizures occurred, in this series, only in those patients where laceration of the dura and brain occurred at the time of injury. Thirty-five or (20%) of the patients in this series developed seizures at one time or another. Seven patients had seizures before cranioplasty was attempted. Of these, 1 had a porencephalic cyst with tantalum foil buried in cortical scar overlying the cyst. The foil had been used as a dural substitute. There were two other porencephalic cysts with dural defects and cortical scar in this group. The remaining four all had dural and cerebral lacerations. The three porencephalic cysts were uncapped and the cortical scars resected following which the dura was repaired by the insertion of fascia lata grafts.

In this series of cases, there were 41 patients whose dura was not repaired at the time of debridement and whose skull defect was occupied by galeal and meningo-cerebral scar. Of these 11 (25%) developed convulsive seizures at one time or another. Twenty-three (21%) of the remaining 113 patients whose dura was repaired at the time of debridement developed seizures.

It would appear that there is a somewhat greater chance for a patient to develop convulsive seizures if the dura had not been repaired at the time of initial debridement. On the other hand, our figures indicate, that a dura repaired some months after the original injury is no guarantee against the onset of seizures later.

In this series little or no effort was made to resect cerebral scar, except where the scar presented itself in the skull defect. In the three instances where porencephalic cysts existed, a wider exposure was made and the entire scar resected. On exposing the defect at the time of cranioplasty, if an intact dura was encountered, it was never opened. It is obvious, therefore, that the percentage of cerebral scars in this series is not known. It seems evident, however, that it is pointless to routinely resect every meningocerebral scar at the time of cranioplasty. The procedure of choice seems to be resection of the scar when it is easily available on exposure of the skull defect. If the scar is not easily available and there is no history of epilepsy, it is suggested that simple cranioplasty be performed. Resection of meningocerebral scar with its attendant danger of intensification of existing neurological deficit can be performed at a later date if clinically indicated.

The Post-cerebral Concussion Syndrome
or
The Syndrome of the Trepined

There was no correlation at all between the size of the bone defect and the development of the syndrome. Now was there any correlation between the onset of the syndrome and the length of unconsciousness, presence or absence of infection, or the presence or absence of a dural defect.

Of the 27 patients complaining of the syndrome, 2 had complete relief, 3 had partial relief, and 2 had no change in their symptoms following cranioplasty.

Intracranial Foreign Bodies and Bone Fragments

The following were considered to be indications of the necessity for removal of foreign bodies and bone fragments.

1. The presence of foreign bodies easily accessible without undue manipulation at the time of cranioplasty.
2. The presence of depressed or indriven bone fragments, foreign bodies and sequestra in infected areas.
3. The presence of foreign bodies or bone fragments causing neurological symptoms or signs.

Removal of a bone fragment or foreign body was considered contraindicated if it was deep in the substance of the brain and not causing symptoms or infection. In only one patient was the presence of a foreign body considered sufficient indication for its removal through a bone flap away from the site of the skull defect. Immediately following the surgical removal of this large shell fragment, lodged in the vermis just under the tentorium, complete relief from incapacitating dizziness ensued. In the remainder of the patients whose metallic foreign bodies and depressed bone fragments were removed, although a number showed clinical improvement in their neurological deficits, too much time elapsed between the repair and the improvement for any valid conclusions to be drawn.

Neurological Sequelae

The improvement in the various neurological deficits was remarkable. Of the 36 hemiplegic patients, all but one showed sufficient improvement to allow them to be up and about, helping themselves.

Of the 21 aphasic (varying in severity and type) patients, only one, a profound temporo-parietal brain destruction, is still unable to adequately express himself. It is obvious that neither resection of cerebral scar, nor repair of the skull defect, can be considered in any way as being responsible for the improvement.

Neither can the improvement be ascribed to the removal of foreign bodies or bone fragments. Careful physiotherapy, occupational therapy, reconditioning, speech training, encouragement and natural recuperative powers of the young seem to be the important factors in improvement of these neurological deficits. It is noteworthy that in the ten cases of homonymous hemianopsia in this series, none showed improvement.

THE THERAPY AND REHABILITATION OF MEN WITH BRAIN DAMAGE

BY John A. Aita, Capt., M.C. - AUS*

The overall picture of war casualties permits some segregation of anatomical-functional groups. We speak of amputees, the blind, the spinal paraplegics, the plastics and head injury cases as types requiring special care. The neurological-neurosurgical center has among its main problems that of men with head injuries. A certain group of these patients have severe brain injuries, severe to the extent that they are physically handicapped or even mentally handicapped. They are handicapped sufficiently that they cannot go to advanced reconditioning centers. They must remain under closer supervision of a neurological service because they cannot care for themselves outside of hospital wards. Besides impairment of cognitive and other personality function, there are also such things as hemiplegias, convulsive seizures and hemianopsia with which to deal. We are seeing far more cases of severe brain injury returned in this war than we did in the last. There is a better control of infection. We have progressed in our knowledge of intracranial physiology and pathology. Improved neurosurgical techniques are available.

Seeing head injury cases arrive at our hospital day after day, two to six months after injury, we are struck by what the human brain can take. Yet, in any series of men with head injuries incurred in action there is a definite and by no means small group showing mild to severe mental impairment. Responsibility for evaluating and rehabilitating these men falls on the neurological service.

Here is an example of one of the more severe cases. A 27 year old white male was wounded two months prior to entry to this hospital by machine gun bullets which penetrated the vertex and right parietal region of his head. He recalls being struck and soon after became unconscious for a prolonged period. It was soon evident that he had lost control of his left arm and both legs. A massive debridement of his skull and brain was necessary. On arrival at this hospital he is bedridden with a triplegia. There is cortical sensory loss on the left arm and leg. He has a skull defect 5 X 10 cms. His mental status reveals that he is easily moved to tears. His expression is somewhat fixed. He occasionally grins in a sudden, poorly-controlled way, reminiscent of patients with Wilson's disease. In conversation, he is naive, anxious, child-like and gives evidence of a shortened memory span. He is carefully worked up, neurological examination completed and EEG tracing is obtained. Even a pneumoencephalogram is performed. The neurosurgeon covers his skull defect with a plate. He is labeled encephalopathy, post-traumatic severe.

But the problem is more than just diagnostic labeling. It embraces more than physiotherapy and disposition to home or simple institutional life. There is more to this than just a patient with a greater or smaller hole in his brain, with loss of brain tissue or cerebral deficit. There is more to this picture than mere "organic deterioration". A condition exists which is not static but which calls for active assistance.

In this group of men with brain-damage, these things are found. There is often a disorganization of personality marked by loss of cognitive and intellectual function. Agnosic-aprasic disturbances are present, gross or subtle. There is a general lapse to a more child-like level of thinking. Higher social sensitivities, evaluations and responsibilities are gone. Interest and planning are deficient. Mood control is unstable or erratic. Rebelliousness and passive acceptance of invalidism are common. Yet these overwhelming liabilities do not remain rigidly set or go unbalanced. Just being alive, just living in a ward will serve to change things. In each case, a dynamic reaction takes place which is unique and individual.

The reaction of the total personality to cerebral deficit depends on several variables. On the 1 hand we have:

1. The trauma

- a. The extent of the lesion and its surrounding influences. This includes also a consideration of the reversibility of the damage.
- b. The location of the lesion.
- c. The suddenness of appearance of the destruction.

On the other hand we have:

2. The personality whose brain was injured.

- a. Age
- b. Endowment
- c. Life experiences
- d. Situational factors at present.
- e. A powerful force of restitution.

It is reasonable to believe that there are no two human brains quite alike. Lesions in the same areas of two brains do not cause exactly the same symptoms because the life experiences, conditioned reflexes and delayed reflexes of each person have made his own brain unique, and, if anything, unpredictable. Much depends on what was in that brain that was injured.

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There are memories, beaten paths, ruts, conditional reflexes and associative pathways that are the sole property of the individual involved.

It is our belief as we saw increasing numbers of these patients that many of them could be salvaged from institutional care, provided they received careful assistance in re-adjusting the wounded and remaining portions of their cerebrum and personalities. It was our impression that other men besides just the aphasic required special care and we should not passively discriminate against men with cerebral loss elsewhere than Broca's area.

Over a period of several months, a definite program of evaluation and therapy was evolved for men who are impaired because of brain injury. I should like to stress the following 12 needs:

1. Careful psychological testing. One of the first problems which concerns us is the present level of baseline of intellectual functioning of the patient at hand. Certain other important cognitive functions may be tested also if necessary. Agnesic-apraxic disturbances must be sought. We have found it well to evaluate simple reading, writing, spelling and arithmetic ability. Once these baselines are established, the patient's present state of deficit can be ascertained and progress measured from this point. Some of these patients may eventually take vocational interest and aptitude tests to assist in their re-education.
2. Psychosomatic orientation. Nothing can take the place of understanding and knowing the patient who had the injury. This is fundamental in handling men with brain injury. Personality traits, attitudes and conflicts may be important to recognize early as the individual strives to re-adjust with a wounded brain. It is well to know something of his previous assets, liabilities and modes of adjustment. At times the personality and individual brain involved are more potent factors affecting recovery than the lesion or its extent.
3. Red Cross, social service information. An intelligent, understanding social worker can assist greatly in eliciting the patient's previous assets or liabilities; whether there has been a personality change now evident to others; to what type of home situation he will return; what plans the family has in mind and what local resources and assets there are in the community which may continue his rehabilitation. The Red Cross worker on our service has a broad contact with these men. They discuss

many of their problems with her. She is aware of the general problem, and hence, able to assist the medical officer with additional data concerning mental status, anxieties and so on.

4. A special reconditioning and re-educational program under the supervision of one man. This man is, in turn, supervised by the medical officer in charge. This man is an instructor with teaching experience. He has training and experience in psychology and in the instruction of intellectually limited individuals. He is sensitive to the personality, the limitations, interests and aptitudes of each patient. He schedules and coordinates such things as occupational therapy, physiotherapy, educational movies, exercises and various instruction and sees to it that each patient attends. He teaches certain subjects and assigns patients to other instructors (in the reconditioning department) for more specialized subjects. He assists the medical officer in collecting information about each patient and his progress. Subjects taught and goals are practical and not academic. They are fitted to the patient and his likely vocational choices. They often concern chiefly reading, writing, spelling and arithmetic. This approach aids materially in an acquaintance with the patient which otherwise might depend only on psychological test scores.
5. Earlier interest of the separation classification officer who is the employment specialist, this officer should know about the patient's discharge several weeks before this occurs. Some of the non-confidential information obtained by medical examination, psychological tests, Red Cross notes and instruction of the patient should be, efficiently funneled to him. He will, in turn, furnish the medical officer with practical advice concerning specific jobs and rehabilitation which the patient may try on discharge. He knows practical details concerning employment possibilities and job classification. He has a full battery of tests designed to indicate skills, aptitudes and interests. His interest and cooperation are valuable.
6. Careful formulation and explanation to the patient: These men want to know how they have been injured and what it will mean. They often have many misconceptions which they will not spontaneously bring out. Some feel that head injury will lead to insanity later on. Some believe that it can cause a brain tumor. We can give them authoritative information and conceptions which will help materially. We should give them a chance to ask questions so that they will not leave the hospital confused or with misconceptions. At least one session

soon after arrival in the hospital and one prior to discharge is advised. These patients must know that they are expected to be able to do certain things. Passive concepts of invalidism must not be allowed to develop. "I was injured in the head" must not be pessimism, hypochondriasis or abnormal behavior.

7. Improved contact with patient's relatives. Patient's wives, parents and others are likewise concerned about the nature of the injury and what it means. Their attitudes are exceedingly important in influencing the patient's future. There is no doubt that they are as much in need of formulation concerning these things as are the patients. If they cannot come to the hospital, the Red Cross can assist in transmitting concrete, individualized formulations to them. These things should be done as soon after the patient arrives at the general hospital as possible. Otherwise time is allowed for misconceptions to develop and set.
8. Therapeutic trials at home. After the patient is stabilized and a change of routine is advisable, we found it valuable to send him home for a month or two. This helps in several ways: His folks get acquainted with him and his handicap. He gets reacquainted with his home setting. Plans can be made in a more practical light. Future difficulties can be anticipated. When the patient returns to the hospital, the Red Cross worker immediately gets a report of what transpired while he was home. The resulting information is exceedingly helpful in further planning.
9. Supervised physiotherapy, exercise and gymnasium activities. The medical officer should maintain regular check on physiotherapy and exercise activities. Progressive management and the patient's active participation must be sought. At least once a month, a careful objective study of the amount of weakness and spasticity of all involved muscles should be tabulated.
10. Occupational therapy. This is devised to aid in re-training muscle skills and to give the patient a daily sense of accomplishment. Mental as well as physical stimulation is sought.
11. Case conference. Once a week an hour's conference is held with the re-educational instructor, Red Cross worker, occupational therapist, physiotherapist, nurse, psychologist and separation officer. Here individual case problems of rehabilitation, progress and future plans are discussed. The medical officer

learns what everyone is accomplishing and what progress is being made. He, then, directly advises, instructs, and coordinates all of the efforts.

12. Follow through. The management, of these patients must not stop the day they leave the Army general hospital. There is a need to carry therapy and rehabilitation over into civilian life. His family, his family doctor, local and state agencies, Veteran's Administration and industry must know of this. Of course, nothing can take the place of a wise, understanding family. A job, however simple, if it does not tax the patient's remaining assets, is exceedingly valuable, especially soon following a period of readjustment after discharge. It is important for the family doctor to continue with a careful understanding of the personality involved, stressing good adjustment to a handicap, and avoiding concepts of invalidism.

Merely doing a "work-up", sending patients to physiotherapy, occupational therapy and reconditioning does not comprise sufficient therapy for these men. Their wounded personalities grope for re-integration. They must be treated as a special group needing stimulation and direction. When they are sent home, they need not lapse into the status of alcoholics, vagrants, village half-wits, or useless invalids. They and their families must be given healthy, reasonably optimistic conceptions and plans. Feelings of hope, usefulness and being restored to the community as a respected adult must be instilled.

The above program also can be carried out while the patient is in the neurosurgical ward for dressings, decubitus ulcers, tantalum plate and so on. There is no need for time spent in the neurosurgical ward to be lost time.

These men can learn to adjust with what they have left. They can bring new assets and compensations into use. They can be re-educated. Their management calls for hard work and they improve.

The old concepts of organic dementia, deterioration or cerebral deficit are not strictly applicable to these men. These patients are young and their brains were healthy. Their lesions and the biological adjustments to these lesions are phenomena with which medicine and surgery have had little acquaintance. There is an inherent tendency for restitution, stabilization and improvement. However, it needs stimulation and direction. There is no reason as yet to regard all of their deficits as permanent, static or progressive. There appear to be many possibilities for re-education, restoration and healthy adjustments. There is reason to believe in a reserve of cerebral neurones which can be re-educated.

The human personality is versatile in its ability to adjust with losses and to losses. Time does not permit us to cite fully illustrations of the interesting progress these men make -- in physical ability, handwriting, reading, spelling, arithmetic, mood stability, poise, self-confidence, and so on. The triplegic walks with a cane. The hemiplegic drives his father's tractor. They can read again and write enthusiastic letters home. They can plan now for the next 25 to 50 years. They have an understanding about themselves that is wholesome.

SUMMARY

We cannot rehabilitate all of these men to where they will be entirely self-sufficient, steadily employed and "as good as before." However, we cannot walk through a ward and simply relegate many of them to institutional care as vegetating automatons. We have yet to see a case where such pessimistic disposition was warranted. We have seen recovery of mental and physical function that heretofore would be inconceivable. I have seen only the rare case where one could, in a more pessimistic vein, argue that the individual would have been more fortunate had he not survived. But this is exceedingly rare. I have yet to see the man for whom a great deal could not be done in the way of active restoration and rehabilitation. With proper management now, the number who should require relegation to simple institutional care is small.

These men must be understood as individuals and individuals adjusting to a loss. They must be kept busy -- and I mean busy -- mentally and physically and socially. Invalidism, apathy, stagnation and neurotic adjustments to a handicap must be prevented, for men with head injuries are very susceptible to these things.

These men must be given concepts that they are expected to do and can do certain things. They must be given every help to adjust with and to what they have left. They must be re-educated in a general and practical manner.

These things are not done by merely covering a skull defect or routine assignment to physiotherapy, occupational therapy or reconditioning program. These things are not done by a great deal of diagnostic-anatomic workup and then easy relegation to institutional care. The wounds are fresh and the patient young. We must deal with both now and not two or five years hence. Let us again seriously consider what constitutes maximum benefit of hospital care in these cases.

ILLUSTRATIVE CASES

We found it convenient to divide the cases into three groups according to intelligence levels. These levels were determined by consideration of patient's previous educational and occupational attainments, advancements in the Army, Army General classification test scores obtained prior to injury, and clues furnished by psychological tests given in this hospital.

1. Dull normal group.

A 24-year old PFC entered this hospital three months after he was wounded in action by small fragments, which lacerated and penetrated the left posterior part of his head. There was definite brain injury, centering particularly around areas 39, 40 and 19. At operation, there was a tract into the lateral ventricle. A massive debridement was necessary and a few weeks later, the patient developed coma and signs of an intracranial infection. This was treated and responded well.

On arrival at our hospital, his only complaints concerned a right homonymous hemianopsia, difficulty in reading, writing and, to some extent, in expressing himself. Neurological examination revealed in addition a minimal right hemiparesis and cortical sensory loss. He demonstrated great difficulty in reading perception and written expression. He had moderate difficulty with nominal expression but during conversation, he would proceed without difficulty if kept on a simple level. Mental status revealed him to be bland, placid, contented with minimal complaining. Generalized intellectual impairment was immediately evident. Head x-rays revealed a large irregular bone defect in the left parieto-occipital region, 7 x $3\frac{1}{2}$ cm. There were multiple small metallic fragments in the soft tissues at the site of the lesion and many located inside of the cranial cavity in the extreme occipital region. There were also several small spicules of bone substance located in cranial cavity adjacent to the lesion. There were three radiating fracture lines, one extending forward through the temporal and frontal bones to the sinus; a second extended upward to the superior sagittal sinus, and a third extended downward to the mastoid area, a pneumoencephalogram demonstrated a definite enlargement of both lateral ventricles. There was a large porencephalic cyst located in the left temporo-parietal region. This was slightly irregular in outline and measured about 6 X 8 cm. in diameter. It communicated with the left lateral ventricle as well as the subarachnoid spaces. There was no significant displacement of the ventricular system. EEG tracings soon after entry into this hospital revealed a borderline, moderately slow, generalized type of tracing with amplitude asymmetry, greater voltage on the right, noted particularly in the occipital region of the head. There was no response to hyperventilation.

Surgery was performed two months after entry here by Maj. I. J. Speigel. A resection of roof of porencephalic cyst, insertion of fascia lata graft in the dura and insertion of tantalum plate to cover skull defect were performed. The operation revealed that as the galea was retracted in the left parieto-occipital region, there was a defect consisting of necrotic brain tissue about 2 cm. in diameter. This layer was very thin and on incision, the operator found himself in the porencephalic cyst cavity, which communicated anteriorly through a hole about $1\frac{1}{2}$ cm. in diameter with the left lateral ventricle. The cyst cavity itself was about the size of a small lemon. The lateral ventricle was markedly dilated.

Psychological investigation revealed the following: The patient's prior Army general classification test ¹ score was IV-67. That would place him in the dull normal classification.

On arrival at this hospital, the complete Wechsler mental ability scale ² gave him the following score. His aphasia hindered performance on verbal parts of the tests, but even so, his performance score was significantly lower. Extreme slowness, combined with trial and error technique were readily evident. Even so, he obtained a mental age equivalent of 9 years and 7 months. He could repeat only two digits in reverse. His Binet vocabulary was slightly less than 12 years attainment. Four months after admission, the complete Wechsler mental ability scale was administered again. At this time the patient had much less difficulty handling words. Now his performance standard score surpassed his verbal standard score. His mental age equivalent at this time was 11 years. The Horschach ink blot test revealed six of the Piotrowski's ten organic signs ³. It indicated his present intellectual functioning at a defective level. There was a paucity of associations and a narrowness of content. He gave no indications of a personality disturbance other than those involving cognitive function. Poor judgment, constriction and a loss of organizational, analytical and problem solving ability were readily demonstrated. An effective responsiveness and a somewhat practical, everyday approach to situations were indicated.

There was nothing outstanding or unusual about this patient's personality otherwise. He was always placid, contented, passive and willing to do anything within his range of assets.

His background revealed that his parents had been born in Czechoslovakia. He was the oldest of five siblings. Birth and early development were not unusual. At the age of 15, he graduated from grammar school with no failures. He attended a technical high school for one year, but then left because he did not like school. After, this, he worked on many different jobs, usually running drill machines, punch presses or lathes. He never seemed to stick to any one job long. He had athletic inclinations and played football and baseball. He was always more of a follower than a leader and could usually be easily swayed. He was sociable but always shy with girls. At 22 he married but separated from his wife six months before entering the service. There has been apparently no desire to return to living with one another. The present home situation (parents) to which the patient would return is congenial and comfortable. While patient was home on his furlough, his family noted no gross deviation from his previous personality traits. Mental slowness and difficulty remembering things were noted, of course. However, the patient was cheerful and his reactions toward family and friends were unchanged. He was able to find his way unaccompanied to various persons' houses at distances of many blocks. He showed no anxiety or depression. He realized that he had to figure out what he would like to do when he was discharged but he was in no hurry about this. He did not tire easily.

Aside from a good home setting in a large mid-western city, there was nothing more definite for the patient to return to. There were no definite plans concerning what he would do at this time or how he would occupy himself after discharge from the Army.

Soon after arrival at this hospital, the patient was put on the re-educational program. Agnosic-apraxic disturbances had to be dealt with as such, but on a general background of cognitive and intellectual impairment. However, he was easy to get along with and responded well to the enthusiasm and interest of others to advance himself. He made rapid progress in handwriting and frequently expressed a desire to "learn more about words". Simple handwriting and spelling and vocabulary work interested him and, hence, were started first. It was interesting that in "relearning" he recalled a trick his teacher taught him in grammar school: when learning to spell, he would repeat the work, spell it aloud and then write it as he spelled it. Later, arithmetic and other grammar school subjects were tackled. Definite improvement was noted month by month. Four months after entry into this hospital, the patient was taking a greater interest and activity in group discussions. He had an almost amazing interpretation of the G. I. Bill of Rights, and arguments about it. He became more sociable. He always seemed to have a sense of humor which carried him over the rough spots. He continued to say that he "needed to know a lot more about words and spelling and how to say things and how to write them down so that they make sense". His arithmetic ability returned fairly well. More time and effort had to be spent in reading, where week by week improvement was noted. However, it was noted that as he began to understand what he was reading, he had difficulty retaining it for any period thereafter. This was worked on as a special problem. His grammar school ability was on a second or third grade level on arrival here. He had to be watched and worked with because he became distracted easily. Now, five months after entry, he has passed all subjects of fifth grade and some of sixth grade level. His letters home revealed a good wit and ability to recall many incidents of the past week.

He was no problem on the ward. He never complained. He helped with his share of ward duties. He had a pustular acne of the face which required vigorous dermatological treatment. He was able to take this routine over by himself and carried it out daily with care.

His family was contacted through the Red Cross and helped to understand the nature of his disability.

He attended the occupational therapy shop daily and took part in gymnasium activities and swimming. He had two fur-loughs home with no difficulty. He has now, five months after admission here, reached a place where he may be sent to a more advanced reconditioning center. Special attention will be

given there to his residual agnosic-apraxic disturbances and continued re-education and vocational training. It is no longer necessary that he live in a hospital. He is now ready for a more active physical and social type of life, such as he will have at any advanced reconditioning center. Simple re-education along grammar school and trade learning lines will be continued. More definite plans must be insisted on before he leaves the service. After a period of rest and re-adjustment in civilian life, he can be occupied at least on a simple level.

2. Average or high average level.

This 23-year old PFC entered this hospital four months after he was wounded in action by shell fragments in the right posterior parietal region. There was deep cerebral injury. He was unconscious for seven days. A left hemiplegia was immediately evident. Cerebral herniation developed, there was much infection, including abscess formation at the site and much of the right parieto-occipital area had to be excised. For a long time, he was desperately ill, bedridden and emaciated. His X-rays on arrival at this hospital showed an extensive, irregular triangular bone defect in the right parieto-occipital region, measuring $7\frac{1}{2}$ X $8\frac{1}{2}$ cm. Some bone fragments appeared to lie in the substance of the cerebral cortex. Two linear fracture lines could be seen extending into the right occipital bone from this defect. No pneumoencephalogram was performed. On arrival at this hospital, his scalp wound was still infected and draining. This gradually responded to treatment. When this had healed and it was certain there was no intracranial infection remaining, a cranioplasty with insertion of a tantalum plate was performed by Maj. I. J. Spiegel. This was performed about six weeks after admission here. The cerebral scar was densely adherent to the dura over a wide area. The periosteum surrounding the defect was incised, separated from the bone and removed from the dura as carefully as possible. For about two months after entering here the patient was bedridden. He was extremely weak and malnourished. There was complete loss of function of both left extremities with marked spasticity. A left homonymous hemianopsia and a loss of cortical sensibility in both left extremities were also present. His mental status revealed him to be not only intellectually impaired but also somewhat rebellious, irritable and given to severe bouts of depressed mood. At times he refused to eat and desired to die. He had insight into his gross disability. He complained bitterly of prolonged hospitalization without improvement and the feeling that surgery was just palliative and would not help his hemiplegia. Following the surgery described above, he improved physically and was given more psychotherapeutic attention. With the aid of physiotherapy and general push, he was gotten out of bed and into a more active routine. He responded well to this.

Four months after arrival at this hospital, his EEG tracings showed only a borderline, slow, generalized type of record.

with higher voltage on the right side and no response to hyper-ventilation. Three months later, there was no essential change in the type of tracing.

His prior Army General Classification Test score was 11 - 119, which placed him in the high average intelligence group.

Four months after this patient came to this hospital, when his mental and physical status were much improved, he was given the Wechsler mental ability scale. His performance scores were exceedingly low. He rated a mental age of 11 years, 6 months. His Binet vocabulary was at a superior adult 11 level. Two months later a Rorschach test was performed which indicated the following: Six of Piotrowski's ten signs were given. The record also indicated the presence of personality disturbance of a "neurotic" nature. There were anxiety feelings, based at least partially on feelings of personal inadequacy. There were indications of depression and that the patient withdraws from environmental contacts of an emotional nature. There was definite indication of intellectual impairment.

Some indication of the patient's personality has already been given. Since the day of entry, he had given indication of acute awareness of his disability. As his mood difficulties cleared up, he demonstrated a great deal of drive and willingness to cooperate in his rehabilitation. Yet he was always somewhat child-like and petulant. He apparently had always been independent and acutely resented any impression that something was being "stuffed down my throat". Those who worked with him realized that a certain amount of stubbornness, rebelliousness and touchiness were ever present. His physical drive was good and as time went on, his mood difficulties disappeared almost completely. He was exceedingly proud that he was a paratrooper and often stated that he had respect only for paratroopers. However, such an attitude did not prevent the establishment of good rapport with other individuals. During his furloughs home, he gave no indication of poor sociability. He was not martyred or hypochondrical. However, he was easily irritated by any "red tape", minor inefficiencies, or fumbling by the Army, by civilians or by the Red Cross. He demonstrated occasional outbursts of temper to the extent that he violently cursed the occupational therapist and another time threw his dinner plate to the floor. However, these were not without some justification.

The patient's family background was not unusual excepting that his parents were separated and his mother working. He had one older sister who lived in another town with whom he has always gotten along very well. Patient's birth and early development were not unusual. He always seemed to be in good health. He graduated from high school at 18, but it is admitted that some subjects were difficult for him. He excelled in track

sports and was credited as holding a high school title. He had many friends and got along well with his teachers. For two years after graduating from high school he worked for one of the large rubber companies in the East as a repairman. Conscientiousness was said to be one of his notable characteristics. With better knowledge of the patient, it became evident that he was estranged from his father. Too while he loved and respected his mother, he readily admitted that their dispositions were too different and he could not return to live with her. His sister would seem to provide the logical attachment and there appeared to be a strong mutual attachment for one another. However, his sister's husband was overseas and his sister worked full time. It appeared that when the patient would return home, he might be left to himself and his own devices much of the time at least during the day.

When first put on a special re-educational program, he was very erratic and stubborn. His main desire was to be left alone and he stated he had no interests in studies. The pressure was taken off and after a series of interviews, his attitude greatly improved and he was able to hold a good discussion on current events. He was given an opportunity, on his own, to decide that he would like to study typing, mathematics and to read more. At first, his functioning was at a 3rd to 5th grade level. Over a period of three months, he improved to the place that he was handling several high school subjects in an interested and competent manner. On the ward, he was no trouble. He learned to handle himself very well and required very little nursing care after he was here for three months. There were occasional episodes of rebelliousness. He would get very angry at the physiotherapists when they would not carry out his physiotherapy in as vigorous a way as he desired. He resented any "babying". He would flare up at the occupational therapists, now and then, if they tried to boss him too much.

Both his mother and his sister were contacted. Careful explanations were given to them concerning his condition and his likely future. Three months after his arrival here, he had become ambulatory to the extent that he could use a walker. A foot brace was ordered to prevent foot drop. One month later, he had graduated to using crutches or walk with someone assisting him. Five months after his entry into this hospital, he started using a cane. Soon after this, it was felt that he could take a furlough home, provided someone assisted him. This was arranged and his sister quit working temporarily to be with him. The furlough contributed in every way to his improvement. He socialized well, entered into discussions and showed a marked determination to triumph over his handicap. However, he did demonstrate periods of irritability. At times the family felt that he wanted to exert himself too much. Attempts to guide his activities were resented because he felt that they were trying to baby him.

During his 6th & 7th month at this hospital, he appeared more cheerful and stable. His instructor reported him "still stubborn as ever, but his stubbornness now has a purpose: he will do anything he thinks will make him improve physically or mentally. His judgment for the most part is much improved. Most of his bitter prejudices have disappeared and he is thinking more clearly and broad minded. He was getting around much better with a cane, and he was sent home again in his 8th month for six weeks. This time he appeared to be quite capable of visiting old friends around town with great facility. It was now learned that his sister's husband soon expected a discharge from the armed services. When he arrives home, his sister will not need to work and the patient has a more settled home to which to return.

At present, the patient has been in the hospital nine months. With a cane he gets around slowly. His left forearm and hand are useful only for gross, coarse movements. His mental function and emotional stability have improved markedly. There is no reason why, after a period of re-adjustment as a civilian, he cannot be employable, at least sedentary job. He has a good chance to return to the rubber company where he previously worked, as he has some seniority there. They have promised that they will find him a job that he can do.

3. Superior Group

This 21-year old Sergeant was wounded in action three months prior to coming here, by shell fragments which struck him in the left frontal region. There was some damage to both frontal lobes, particularly the left and a penetration into the left lateral ventricle. There was an almost immediate right hemiplegia and expressive aphasia. He also incurred a penetrating wound of his left leg and severe frostbite with gangrene of the three fingers on his left hand. On arrival at this hospital, he demonstrated a moderately severe, expressive aphasia and a right hemiparesis (arm affected more than leg). He was blind in the left eye due to injury to that optic nerve. He showed some urinary incontinence, which, however, rapidly disappeared. Mental status revealed him to be in excellent contact and slightly euphoric. He smiled too readily and excessively. There was a definite attitude of facetiousness. X-rays of the skull revealed an elongated defect in the frontal bone, which extended from just the right of the midline around into the left temple. There were long linear fractures extending posteriorly to the right frontal and parietal bones. Multiple, metallic foreign bodies were seen in the floor of the frontal fossa and at least one bony fragment in the left frontal lobe of the brain. The skull defect was repaired with a tantalum plate. EEG showed a borderline slow record with higher voltage in left occipital than the right occipital lead. Left temporal lead showed almost a flat tracing. This suggested loss of brain substance in left temporal area.

This man's prior AGTC score was I-149. Three months after entry to this hospital, it was felt that his aphasia had improved sufficiently that a Wechsler Mental Ability test was attempted. His performance standard score was slightly below his verbal standard score, but his total mental age was equivalent to that of a normal adult. (AGCT equivalent II-110). His Binet vocabulary placed him at a superior adult II level. The Rorschach test indicated impaired intellectual control, poor judgment and limited functioning intelligence. Inner living was fairly well developed with evidence of fantasy and creativity. Reaction to emotional situations was apt to be immature. He showed intense resistiveness against his conscious wishes and sexual preoccupation was indicated. No significant "organic" signs were present. There were several indications of schizoid responses.

Present personality is somewhat as follows: He is tall, well-built. At present facial expression is poorly controlled, somewhat like that of a person mildly intoxicated. He laughs and smiles excessively and inappropriately. He is energetic, good natured and has a good opinion of himself. His social inhibitions are sparse and similar to those of an over-confident college freshman. Insight into his present situation is only partial and he holds himself intellectually and socially aloof from the other patients. He likes to talk and argue a great deal but is always manageable and friendly.

Family background is not unusual. Patient's birth and early development were normal. He was always in good health and was outstanding in high school for athletic and scholastic accomplishments. He was in his second year at the university studying chemical engineering when he entered the service. His home situation is congenial. It has been taken for granted by all members of the family that the patient would return to the university.

Re-educational plans were made around three difficulties:

1. Frontal lobe deficit personality changes.
2. Expressive aphasia.
3. General intellectual slump.

Of course, the first difficulty was the most resistive. His expressive difficulty cleared up considerably but he continued to show a definite dysarthria. He showed ability to master high school and college subjects of the type that he had previously mastered. However, he showed difficulty in learning new material. It was difficult to maintain his attention on it. It was difficult to get him to accept

seriously the responsibility of studying although he always spoke of returning to the university in the fall. He had one furlough home but we have the impression that his family did not fully appreciate his limitations. His homiplegia showed a definite physical improvement. He got around quite well without a cane or assistance. However, his right hand functioned only for coarse movements, and he had to learn to write with his left. Physically and mentally, now he is about ready for a more advanced type of reconditioning. We believe that he is a person with sufficient remaining assets that he is worth more training. Consequently, we plan to send him to an aphasia center, where it is hoped that his speech will be made more distinct. At the same time there, he can be more constantly under a more concentrated psychological guidance, insofar as his other deficiencies are concerned.

He believes that he wants to teach mathematics now. However, it is likely that an immediate rush back to the university should not be advised after his discharge. If he does not return to the university, he has a good opportunity to enter his father's retail business.

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Discussion by Ward C. Halstead, M.D., University of Chicago.

It is a pleasure to open the discussion on this valuable contribution of Captain Aita. One looked almost in vain for contributions such as this (on the rehabilitation in brain deficit cases) during times of peace. They were even less to be expected in time of war. For those of us who have been associated with army hospitals in any capacity during this war know something of the many adverse pressures against which Captain Aita has been able to carry on his investigations and therapeutic activities. He has been especially fortunate in his associated team of colleagues at Mayo General Hospital. It is a further tribute to the medical direction of the Sixth Service Command that I and various colleagues in the medical departments of the University of Chicago have, as civilians, enjoyed quite similar relations with the staff of Gardiner General Hospital.

Certain features of Captain Aita's presentation seem to me to demand special comment. (1) His comprehensive view of the total job involved in the rehabilitation of individual brain injured patients. Captain Aita's carefully organized 12-point program finds ample support in the experience of my own laboratory where we have followed the post-operative course of individual neurosurgical patients over a period of ten years. I can agree with him heartily in his statement that "at times the personality and individual brain involved are more potent factors affecting recovery than the lesion or its extent." It is this fact which makes all of the other steps in his program so necessary. (2) His emphasis upon careful psychological testing. As one who is actively engaged in developing testing methods in this field, I can only deplore the fact that better psychological methods for evaluating the altered status of brain injured patients were not generally available during the war. That such methods may soon become available in no way alters the fact that Captain Aita made skillful use of those accessible to him. This is well-illustrated in his case histories where the therapeutic result is related to a realistically induced level of aspiration in the individual patients. The possible exception here is the patient with left frontal lobe damage who now aspires to teach mathematics. Our experience would suggest that while the individual described might still have limited ability to teach mathematics, he will probably ultimately fail of adjustment in the kind of environment where mathematics are normally taught.

(3) His emphasis upon psychosomatic orientation. It is apparent that this phrase is more than a shibboleth to Captain Aita. For at every point in his program he attempts to reinforce the security axis of the patient and to strengthen the social vectors of motivation. Here again, our experience supports him--these are necessary steps, for without them, the brain injured patient--far removed in time and space from zones of combat--may at any time experience the catastrophic reaction so well described by Grinker and Spiegel as "the dissolution

of the ego in the face of over-whelming anxiety." The findings in our laboratory indicate that this phenomenon exists not only in emotional terms, but in an altered neurophysiology of the injured brain as well.

We here are indebted to Captain Aita as are indeed those brain injured soldiers who were fortunate to come under his understanding care.

Vivian Mowat*

A little more than a year ago there occurred an amusing yet tragic incident which led to the beginning of the program of rehabilitation for aphasics at Percy Jones. At that time I was employed in the Battle Creek Schools as a speech correctionist. One afternoon my phone rang and one of the remedial reading teachers in the Ann J. Kellogg School asked somewhat desperately for help. "I have a soldier here from the hospital who was sent over to learn to read and write and he can't even talk! Can you come down to my room to see him?" I did, and from then on began to work with his kind - the brain-injured who have lost their ability to talk, read, write, calculate, and function socially to such a degree that they are not acceptable to society.

Naturally the program had its humble beginning and it has since undergone innumerable changes in organization, physical and material growth, and personnel, as well as in its aims and objectives. That is a story with which anyone who is a part of an Army hospital must be familiar, for every program of rehabilitation has proceeded thru similar phases of development.

It is my purpose to present to you a brief sketch of the type of program we have finally succeeded in producing and to attempt to show what we feel we are accomplishing thru such a set-up.

Any rehabilitation program for aphasics must necessarily be developed with consideration for both the general and specific difficulties which hinder the patients. Let me review briefly the problems which must be met and dealt with, for they have determined the different phases of the program.

When the aphasics reach our ward they have been thru surgery; they are ours to keep as long as we deem expedient. And even the several months may have elapsed since the onset of aphasia, their problems are acute.

They may be unable to speak or read, write, calculate, and understand. In other words their communication lines are badly damaged, perhaps on both ends - receiving as well as expressing. The result is a sense of frustration which may in turn result in despondency, tears, or complete resignation and apathy. Repeated failures earlier may have built such barriers as to now inhibit the return of that speech which is possible. And the individual may have withdrawn so far into his shell as to be almost oblivious to his surroundings and associates. Obviously the need for social adjustment is tremendous; the need for realization that speech is again possible is unquestionable; and the need for a feeling of success to erase previous failures is absolutely essential. An organized attack on these problems is necessary.

Still further problems beset the poor aphasic. He soon becomes aware that he can no longer do many simple things he once took for granted. Either he cannot talk at all - or not well enough; perhaps he cannot read, cannot write, cannot do the simplest arithmetic problems. Why, perhaps he cannot even hold a pencil because he is paralyzed, let alone copy or write spontaneously. Often he blames his paralysis for his inability to write, unaware that even though his hand could function he no longer conceives form normally. It

is an understatement to say this fellow needs to be given an opportunity to relearn the basic skills.

Even more serious difficulties arise from the usually reduced capacity for abstract thinking, from memory defects, from shortened attention span and lack of ability to concentrate or rather lack of ability to overcome or ignore distractions and from a general impairment of intellectual functions.

Add to these things the actual personality changes, the tension, the visual defects, the physical weakness, the convulsive seizures, the need for rest and sleep, the anxieties, or the contrary euphoric state, the concern about and yet lack of understanding of his condition, the almost complete lack of a sense of humor, and the hundred and one additional almost freakish neurological defects which may be involved in individual cases and you have a picture of the state of confusion which is typical of the aphasics. I am in no way trying to tell you what aphasia is; that you know better than I. I am merely reiterating and trying to group their problems so that you may evaluate the therapy I describe. For the test for any therapy must be - does it meet the need? and does it get the results it should?

We moved our aphasics to one ward of Percy Jones. We have had an average of approximately twenty at any one time, with a slow, steady influx and corresponding release. The ward is an ordinary one; most of the men live in the one large dormitory space. We have appropriated six of the small individual rooms and have furnished them as classrooms to suit their particular use. In addition the day-room and porch serve as other classrooms for larger groups.

Our patients are referred to us after careful medical and neurological studies are made and psychological testing has been completed. It is our task to fit the man into his proper place or rather to make a place for him. We must arrange for the help he needs, give him the classwork he must have.

Perhaps outlining a typical schedule will show a little better what we do. Let us say that we take Walt's case. His power of speech was lost three years ago in a Jap prison camp - cause undetermined. Walt has a speech class at 8:15, a reading class at 9:00 (for while he understands some of what he reads silently, he cannot read aloud.) At 9:45 he goes to Occupational Therapy for help in using his left hand. Following his dinner hour (10:45) he has Physiotherapy at 11:30 and then a period of free time until 12:45 when he joins the rest in a singing class for half an hour. At 1:15 he goes to class for writing, at 2:00 he has an arithmetic class and finally, between 2:45 and 3:45 he has an individual speech lesson of 15 to 30 minutes. In such a way his day is filled and he is kept busy with tasks he wants to do or with things he can accomplish. No brooding idleness here; no long stretches of loneliness.

Most of the classwork is carried on with small groups assembled on the basis of similar difficulties. We have stressed considerable group therapy because speech is a social function and can best be practiced in normal situations, and because the contact with others has therapeutic value in itself. It lessens self-pity and shame; it produces a sense of responsibility and a chance to help others who are worse off in another way. Nothing does more good for instance, for the boy who cannot understand what others are saying than to become aware that he can help to guide an almost blind fellow-patient about the ward.

Group speech classes usually consist of five or six members with somewhat similar needs as far as speech is concerned. We use imitation, repetition, and phonetic placement, coupling visual, auditory and motor images. We capitalize on involuntary speech and raise it to a voluntary level. We stress speaking in normal phrases and sentences, finding that oft-repeated groups of words are as easily said as single words, and promote a natural speech rhythm pattern. We do, of course, build vocabulary too, choosing to talk about the things the fellows need immediately - their names, home towns, greetings, names of families, money, colors, articles to be purchased at the PX, clothing, food, sports, cards, etc.

Reading classes are smaller, with two to four persons each. Both silent reading (for comprehension) and oral reading (for expression) are a part of the work. We find phrased materials and a combination of motor activity and speech facilitate the reading. We have made use of the Army manuals for illiterates, but have found it necessary to create and adapt most of the materials. As far as we can ascertain there are no materials with adult interests which are simple enough to serve our purpose.

Writing classes, with a roster of two to four, stress three things: penmanship (especially for those with a change of hand), spelling, and sentence structure, so that the patients can write their own letters. Outside of a few sets of wooden and metal letters, a blackboard, a list of Basic English words, and some spelling books, few materials are necessary.

Arithmetic is also taught in small groups of two to four. Often it is necessary to begin with number concepts and to re-teach number combinations and the four basic processes in arithmetic. In some cases more advanced work must be taught, depending upon the previous training and future needs of the patients.

Individual speech classes stress the work most needed whether this is learning to produce the sound thru imitation, or increasing vocabulary, learning the alphabet, etc. We use the tachistoscope, a mechanical device which capitalizes on the aphasic's inability to ignore distractions. It releases, quite suddenly, a given word, phrase, or sentence; the patient responds involuntarily, then tries to produce the same response voluntarily. The oral speech and reading involved are coordinated then with spelling and writing as the patient uses metal letters arranged on a black table to spell the words he pronounces. These same metal letters (which make use of the tactile sense, temperature sense as well as motor activity) are used for teaching the alphabet and numerals, both in and out of serial order.

These are the classes, the actual academic reeducation facilities we have developed. We do vary the program for the individual by encouraging classes in the Educational Reconditioning Program in typing, bookkeeping or perhaps even analytical geometry, if feasible. However, our own classes bear the burden of the most of the teaching.

We attempt to coordinate the speech and language training with the work in Occupational Therapy and Physio-therapy. We often confer on the patient's work, ability, needs, interests and attitudes, as well as progress.

Inserted throughout the entire program is the most vital element of mental hygiene. We are continually helping the patient to understand aphasia and to realize why he can't say his name even though he knows it. We use drawings of the brain, simple explanations, stories of others' eventual success despite their losses. We are busy offering encourage-

ment, getting rid of false notions, and overcoming disillusionment. We build a cheerful working atmosphere with plenty of informality and freedom from tension. We try to develop a sense of humor, through teasing, telling of jokes, pulling little pranks, etc. We try to help the men look forward to the future with a feeling of pleasant anticipation rather than dread - a simple task on paper, but a tremendous one in view of their physical and mental handicaps.

Good social adjustment, the ability to meet others and act freely and comfortably in small groups (and later in large ones), We find that a kitchen where we can gather for an occasional cup of coffee, or glass of milk, card games, informal parties which are not too demanding, picnics, small gatherings, etc., are all good means for promoting a sense of companionship and friendliness - and, as a by-product, good speech. Such activities also play no small part in helping the staff to gain good rapport with each patient.

home, read mail, straighten out pay checks, get service ribbons, keep up insurance forms, etc. These little odd jobs, simple as they seem, put the patient at ease and leave him less disturbed in an environment which cannot help but be too demanding and difficult for the brain-injured.

Of great importance in understanding the men we are working with are the visits and correspondence with members of their families. We usually explain to the family what aphasia is, how their boy is affected, what handicaps he must overcome, what we will try to do, what results can be expected in general, and how he must be treated when he comes home. We provide each family with a copy of the bulletin, "Aphasia in Adults" (published by the University of Michigan Speech Clinic) to further their understanding. When members of the family remain near the hospital and see the patient frequently we make use of them and give them actual instructions to follow in working with the patient.

Still another portion of the program is the "follow-up" which is attempted in an effort to help the aphasics adjust to civilian life or continue necessary reeducation once they leave the army hospital. By means of urging further training (either additional speech training or vocational training) and making arrangements for it, and through the media of correspondence and personal contacts, a check is kept on the men who leave.

These are all phases of our Speech Therapy. In this short time I cannot begin to mention all the details of the program: the types of cases, their causes, the functional cases of stutterers and the voice cases and others who wend their way to us for help. I cannot recount all the little things we find ourselves doing; cannot launch into an explanation of how, specifically, to teach a man to say his name, or to teach him to tell right from left, to tell time, to feed himself, or to find the correct place to sit on a chair when he can no longer understand or interpret spatial

relations and shapes, and when he has lost his sense of direction. These are the individual differences which we must meet every day; they are the things which make the scope of the program so very broad and the staff-patient ratio seem so large.

At best I am afraid I have only generalized, but then I sincerely hope I have at least a general impression of the work we are trying to do. We have felt it worthwhile; some of the results are measurable enough; others simply show in the healthier and happier attitudes of those who leave us. We feel we can conclude that we have been able to hasten the process of reeducation; that we have pushed it far beyond the level usually attained by the patient allowed to drift his own way without guidance and direction and professional encouragement; but above all we know that we can take credit for making life a brighter, pleasanter and more worthwhile venture for those who once dreaded its very existence.

Discussion of
"SPEECH THERAPY FOR APHASICS"
by
Clarence T. Simon, Ph.D.*

It has been stimulating and gratifying to listen to this presentation of a program of speech therapy for aphasics. It has been gratifying because it is tangible evidence of the growing belief that aphasics respond to remedial treatment and that time spent with them yields demonstrable results.

It has been gratifying also because of its demonstration that the language recovery of an aphasic patient can be accelerated by a comprehensive program of speech therapy. Far too often, aphasics are not provided with the over-all type of remedial program they need but are allowed to recover slowly, if at all, by a process of drifting. After the initial spurt of improvement following the occurrence of the lesion, too many patients are allowed to lapse into an inactivity which not only fosters discouragement and emotional depression, but also interferes directly with the redevelopment of the language process. An aphasic must have speech therapy to reach his maximum possible gain in language skill.

The paper has been stimulating because the working techniques suggested grew out of a concept of aphasia which is in accord with modern thinking in the natural and biological sciences. Fortunately, for those of us interested in the language re-education of aphasics, the structuralistic tradition fathered by Gall and carried on by Broca, Bastian, Wernicke and others has been giving way to the more dynamic concept begun by Pleurons and continued by Charcot, Jackson and Goldstein. So long as the localizationists and diagrammatists had their day, we tended to make an atomistic approach of the treatment of aphasia which yielded few satisfactory results. When, however, we began to interpret aphasia as the disturbance of process and to think of it as involving the language function as a whole, adequate remedial techniques became possible.

So long as our main interest in aphasia lay in deciding whether it was sensory, motor or mixed, or in determining whether the lesion involved Broca's, Wernicke's or other areas, the structuralistic approach prevented adequate language retraining.

Important as these data may be for the neuro-surgeon, they are of little if any value for the speech therapist. Any attempt at language development on the basis of conventional classifications of types of aphasia, or on the basis of the locus of the lesion, results in a partial and inadequate program. The speech therapist must approach his problem with a functional view of aphasia as an interference with a total language process. His task is the redevelopment of this process as a complete periphery to periphery behavior.

One other comment may be made concerning the language involvement in aphasia. Frequently we hear the expression, "language loss."

Our definition of that word "loss" is important. More accurately we might say that the aphasic presents a disturbance of the language function. He still has a language process, but he performs his language activities in more primitive and roundabout ways. Although these ways may be so primitive and roundabout that they are meaningless to us, he still retains a language process of sorts. It is true that he cannot use abstractions and symbols, or employ the shortcuts which we call thinking, but he still has a language process; a process which is very real and meaningful to him. Although we know that his primitive processes are closer to the intellectual life of the cave man than to our own, he tends to feel that the difficulty lies in our stubborn unwillingness to understand.

The aphasic retains a language process of sorts. The speech therapist stimulates this process by every means at his command, working always in a total language situation. As this process is stimulated, more and more it dominates and integrates undamaged neural structures to make them subserve the function of language.

This paper has been stimulating in its presentation of a modern program for aphasics and its indications of satisfactory results. In our enthusiasm for these service programs, however, we shall have to guard against too broad generalizations concerning our results. The speech therapist working in a service hospital deals with patients different from those found in more general practice. In the first place, at least most of the patients found in service hospitals are young and not too far from their learning days; they haven't settled down to an adequate and comfortable routine of established habits and skills. Second, for the most part, they are in relatively vigorous health. Third, they are looking forward to a productive and active life. Fourth, their lesions generally were produced by single incidents and their neural condition is static and not progressive.

In contrast to this, the aphasic patient whom we tend to see in general practice is older and therefore farther from his useful learning days, generally is not in the most robust health, is not looking forward to many more years of productive activity and last, and most important, generally faces a progressive rather than a static prognosis.

All of these differences indicate that the results obtained in our service hospitals should be more rapid and more complete than any we have ever obtained, or can obtain, in general practice. While in general practice, the speech therapist must determine which cases justify speech therapy and which do not, in the service hospitals relatively few such decisions must be made. Rather the issue is that of adequate personnel to achieve maximum results before the veteran sinks to the typical condition commonly seen in general clinics.

This paper has been stimulating and pleasing to hear. It recognizes aphasia for what it is, a disturbance of a total process which renders the patient unable to indulge in language behaviors in anything like the normal manner. Because of his lesion, he is compelled to carry on language processes in roundabout, primitive and

frequently non-understandable ways. It is the job of the speech therapist to rebuild this total process, using a wide variety of total language situations.

POLYNEURITIS ASSOCIATED WITH CUTANEOUS DIPHThERIA

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Diphtheria of the skin, particularly as manifested by wound infections, was rather a common condition during the nineteenth century. In more recent years it has been mentioned chiefly in reports of medical officers stationed with troops in tropical climates. During World War I there were sporadic outbreaks of cutaneous diphtheria among British soldiers in the tropics. During the recent war it has again been found that some of the soldiers in the islands of the Pacific who develop skin lesions referred to as "jungle sores" or "tropical ulcers" have virulent diphtheria organisms in these ulcers, the organisms entering as secondary invaders.

Skin ulcers are rather common in the tropics, particularly under combat conditions. The factors involved are trauma to exposed surfaces as result of living in the jungle, insect bites, enforced lower standard of hygiene, malnutrition, and inter-current disease. Various names have been applied to the resulting ulcers: -- tropical ulcer, jungle sore, desert sore, veldt sore, Barcoo rot, frontier sore or Nagi sore. Any of these ulcers may become infected with *Corynebacterium diphtheriae*, either from exposure to cases of faucial diphtheria or from carriers. The diphtheritic ulcer most frequently occurs on the lower extremities. It is rounded or oval, may vary from a few millimeters to several centimeters in diameter, has a rolled, firm edge which is undermined, with a base which is as a rule covered with a dirty gray sloughing surface. The ulcer is surrounded by an inflammatory zone which later becomes pigmented. The ulcers are practically always multiple. After healing the area of the scar will be insensitive to pin prick, the area of insensitivity extending for a short distance around the margin of the scar.

(Slide No. 1)

The important thing in the treatment of the ulcer is a thorough cleansing followed by application of sterile, warm saline dressings or compresses soaked in penicillin solution of 250 to 500 Oxford units per cubic centimeter. As soon as the diagnosis of diphtheria is made the patient should receive 20,000 units of antitoxin in an attempt to prevent later complications such as neuritis. Diphtheritic infections of the skin are not confined to ulcers such as those just described, but may also be complications of either surgical or traumatic wounds, scratches, insect bites, scabies, impetigo, staphylococcus, folliculitis, and epidermophyton.

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Diphtheria toxin may affect the nervous system in several ways, and there may result delirium, meningitis, or encephalitis. Hemiplegia has been reported as a rare sequela of diphtheria, but in this instance the etiological relationship is indirect. The diphtheria causes a myocarditis. A mural thrombus forms on the wall of the affected heart from which a piece breaks off, lodging in a cerebral vessel as an embolus, causing the hemiplegia. The most common complication of diphtheria is a neuritis. Although it is stated that as many as 20% of the cases of cutaneous diphtheria later develop polyneuritis, such palsies do not present a numerically important problem in the casualties of this war. Of nearly one thousand cases seen in our neuropsychiatric section during the first nine months of this year, there were 46 cases of polyneuritis, of which 24 were associated with diphtheria. Of these only 12 were the results of cutaneous diphtheria.

The ciliary nerves seem to have a selective action for diphtheria toxin, as a paralysis of accommodation is by far the most common neuritic complication, and is usually the first to appear. It makes its appearance about two weeks after the acute stage of the infection and persists for about two weeks. For some reason the toxin absorbed from cutaneous diphtheritic lesions does not affect the peripheral nerves for some time after the skin lesions have healed. The average latent period is two to four months, and one interval of nearly five months has been reported. Regardless of the site of the lesion, the lower extremities are usually affected first. Sensory symptoms are the first to appear. Numbness of the toes, which spreads up the legs is followed by symmetrical ascending paralysis of the legs. The arms then become affected in the same manner, resulting in complete paralysis of all four extremities. Tendon reflexes are lost, and the muscles become atonic and atrophic. The cervical and back muscles may become involved to a lesser degree. Paralysis of the muscles of respiration has been described, but fortunately has not occurred in any of our cases.

At the height of the neuritis, examination of the patient will reveal generalized flaccid paralysis of all four extremities, or varying degrees between this and merely weakness of certain muscle groups. A foot drop is practically always found. Tendon and superficial reflexes are lost. Superficial sensation is symmetrically disturbed so that a stocking and glove type of anesthesia is present. Vibratory and position sense may be lost distally. Before the strength is entirely lost, or as it returns, an incoordination is noted, and the patient is staxic.

Recovery is slow, the signs and symptoms disappearing in the same order in which they appeared. First the sensory loss gradually recedes, then muscle power, substance and tone finally return to normal. Lastly the tendon reflexes return.

The time from complete paralysis to complete recovery may be six months or longer. There is no specific treatment for this type of polyneuritis. The usual precautions are taken to prevent tendon contractures. Physical therapy in the nature of electrical stimulation is used in the early stages, exercise in whirlpool baths and remedial exercises as strength returns. The patient is given a diet rich in vitamins, supplemented by vitamin preparations given by mouth and parenterally.

The polyneuritis associated with cutaneous diphtheria is essentially the same as that following the faucial infection, but there are differences. Paralysis of the palate and throat resulting in disturbances of deglutition and phonation is a common complication of faucial diphtheria but is rarely seen following cutaneous diphtheria. This would seem to indicate that in tonsillar infection the toxin is absorbed along the perineural sheaths causing a local paralysis. It appears that the toxin also circulates through the blood stream as the peripheral neuritis usually starts in the toes, regardless of the site of the lesion. Another difference between the neuritides seen in faucial and cutaneous infections is that in the first, the neuritis usually follows a few weeks after the acute stage of the illness, while in the cutaneous form it may be postponed for several months. One might postulate that the skin, the chief anti-biotic organ of the body holds the toxin in check for a longer period than does the mucous membrane of the throat.

A severe diphtheritic polyneuritis may be clinically indistinguishable from another condition; namely, the type of polyneuritis which is referred to as infectious neuronitis, or the Guillain-Barre syndrome. One of the important diagnostic criteria of the Guillain-Barre syndrome is an increase in spinal fluid protein not associated with an increased cell count; however, this can not be relied upon to distinguish this condition from the neuritis associated with diphtheria, for in this illness too the spinal fluid total protein may be materially increased. It may be as high as 400 or even 500 mg % but in most instances it is 100 mg % or less. In cases of Guillain-Barre syndrome the spinal fluid protein may be increased to as much as 1000% or more and it is my personal feeling that of the two, the protein in the diphtheritic neuritis cases tends to be lower. The differential diagnosis in the two disorders will have to rest on the history of isolation of diphtheria organisms from the skin, the appearance of typical insensitive scars on the legs, the history of paralysis of accommodation, and evidence of cardiac damage particularly as reflected by electrocardiographic evidence soon after the onset of the illness.

In conclusion, it should be stated that this condition will probably make its appearance in the practices of civilian neurologists during the coming year. Troops are now being returned in great numbers from overseas and most of these soldiers are being discharged from the Army rather promptly. Some of the men who had diphtheritic infections of the skin while in the tropics will probably develop neuritis after they have returned to civilian life.

DISCUSSION OF POLYNEURITIS ASSOCIATED WITH CUTANEOUS DIPHTHERIA

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As Captain Sanford has so well shown, the neurologic features of cutaneous diphtheria are similar to those of the faucial type. In both the toxin of diphtheria travels from the affected area - the throat or the skin - to the medulla oblongata, along the fibers of the nervus vagus or to the gray substance of the spinal cord, along the spinal nerves. If the parts of the medulla or the spinal cord that are connected with the nerves extending from the infected areas are emulsified and injected into a dog or a guinea pig, the animal either succumbs or develops a paralysis. Nothing happens if one injects other parts of the spinal cord or medulla or tissues from a healthy non-diphtheritic human being. It may thus be assumed that not only the nerve alone but the whole neurone -- the nerve endings, the nerve fibers and their centers -- the nerve cells themselves is involved, in short that we deal here with something like a neuronitis. This, of course, differs as Captain Sanford pointed out, from the classical Guillain-Barre type, mainly in its serologic characteristics. Much more does the clinical picture, especially of a protracted case of post-diphtheritic paralysis resemble that of tabes dorsalis, as evidenced by the loss of the tendon reflexes, the presence of sensory anomalies, ataxia, incoordination and occasionally of the Romberg sign. Such a symptomocomplex in connection with a peripheral nerve lesion is classified as pseudo-tabes because of the favorable course and prognosis. Yet, I have seen cases of post-diphtheritic paralysis in which loss of the tendon reflexes seem to have been a permanent feature.

ELECTRO-DIAGNOSIS

EXAMINATION OF PERIPHERAL NERVE LESIONS BY PERCUTANEOUS ELECTRICAL STIMULATION

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It is often impossible to determine by clinical examination whether loss of function following peripheral nerve injury is due to division or contusion of a nerve. Many nerves that are contused recover spontaneously. Those that are divided require operative repair. The final result in cases that require suture is better if the suture is done early. The need of some diagnostic method that will determine if muscle is neurotized is therefore apparent.

In 1868 Erb described the difference between Normal and denervated muscle in response to electrical stimulation. Many workers have applied these principles to clinical diagnosis. Partly due to errors of interpretation of this work and partly due to incomplete data in some phases of it, errors have been perpetuated down through the years without critical examination. Mostly because of this, the procedure of examination in common use at the outset of this war gave information that was inadequate and misleading. The purpose of this paper is to point out the common errors of interpretation and to describe methods of proven reliability. The opinions expressed have been elaborated from an extensive clinical investigation under way at Percy Jones General Hospital since February 1944. No claim to originality is made, for the work has been carried out in collaboration with and under the supervision of Doctors Pollock and Golseth and their associates at Northwestern University Medical School. It consists of wide clinical application of principles already elaborately studied by them in the laboratory and to a lesser extent in the human, much of which has already been published. It is presented now in elementary and preliminary form, with their full permission, that it may be used in the investigation of military casualties. Time does not permit presentation of all the data from which the conclusions have been drawn, but it is to be emphasized that the data has been verified by gross and microscopic examination of the surgical specimens.

Contraction of normal muscle may be induced by percutaneous stimulation either through its nerve supply or by direct stimulation of the muscle. If the nerve is divided, the distal end loses power of conduction within about fifteen days and stimulation no longer induces contraction of the muscle. The muscle remains capable of contracting if stimulated directly.

In, general, three types of current are used for examinations: A. Faradic, B. Alternating and C. Galvanic.

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Faradic currents: Consists of a rapid series of very short biphasic impulses (150-300 per sec) and is usually obtained from an induction coil. It has very limited application in electrical examination. It is generally capable of inducing contraction of muscle only when the nerve can conduct impulses. It will always induce contraction in normal muscle, or within the first fifteen days after injury if the nerve is divided. Faradic response rarely returns more than a few days before voluntary motion. This current has the added objection of being impossible to measure.

Alternating current: is also a biphasic current (60 cycle per sec) and is that type usually supplied for household appliances. The response of muscle to this current is similar to that with faradic stimulation. This type, however, is readily measurable, and is of great value for use at the operating table, but has had little application for percutaneous investigation.

Galvanic current is a constant monophasic electrical impulse which flows steadily in contrast to faradic or alternating which is biphasic and rapidly changing, flowing from positive to negative and vice versa. This current may be obtained from a battery or by conversion of alternating current through rectifiers. It is capable of inducing muscular contraction either through nerve conduction or by direct muscle stimulation. If its nerve supply is lost, muscle continues to be irritable to Galvanic current, but the character of contractions and the amount of current required changes. Interpretation of the latter phenomena is the key to sound electrical examination.

Methods of examination

The term electro-diagnosis is commonly used to identify the procedure of stimulation of muscles by applying electrodes to the skin. The terms bipolar and unipolar examination refer to the distance separating active and the indifferent electrodes. If the indifferent electrode is placed some distance from the muscle to be tested, i. e., the proximal part of the limb, the method is unipolar. If both electrodes are placed on the muscle in question, the method is bipolar. Either method is satisfactory, but the unipolar is usually more convenient.

Contraction of muscles may be recognized by direct observation or palpation of the muscle belly or tendon or movement of the part it supplies. Interpretation, however, depends upon the amount of current required to induce contraction. Therefore, it is necessary to establish a fixed degree of contraction as a standard. The minimal visible contraction is accented as that standard. Lopicque used the term "Rheobase" to identify that amount of current, necessary to induce such a contraction.

The term reaction of degeneration (RD) has gained much attention in the literature. It describes a state of progressive change in muscle irritability after loss of all or part of its nerve supply. It has long been recognized that muscle was more easily stimulated for a short period of time after injury to its nerve, thereafter it was believed that with passage of time higher and

higher thresholds of current were required to induce contraction, until eventually the muscle was no longer capable of contraction. At this period absolute reaction of degeneration (RD) was said to have occurred. From this state, recovery was considered unlikely or impossible. States short of complete (RD) were described as partial (RD).

Pollock et al, demonstrated in experimental specimens in cats that denervated muscle would respond to less current than normal; and that the threshold became progressively less for approximately 20-40 days when it leveled off and remained low throughout the denervated period. Certain specimens were observed for more than 300 days. Furthermore, they showed that the threshold required for contraction increased very abruptly after about 90 days in cases where the nerve was repaired. The change occurred when axis cylinders reached the muscle. We have since confirmed this phenomena in many humans. One case was examined 11 years after division of the ulnar nerve and another 5 years after injury. The paralyzed muscles contracted to low thresholds of current, yet within 4 months after suture the amount of current required for contraction was greatly increased. It was thought for a time that this phenomena of low threshold would be adequate to determine the state of neurotization of muscle. This hope was short lived, however, for it was soon apparent that local factors, such as edema, changes in the skin, temperature of the part, so common with war wounds, influenced the rheobase value sufficiently to render it unreliable.

It has often been reported that muscle contracted only on making and breaking of the galvanic current; that during the flow of current, the muscle did not contract. Pollock and his colleagues have called attention to the fact that either normal or denervated muscle may remain in sustained contraction or tetanus during the flow of current. This phenomena had been observed by many workers, but its significance in clinical study escaped attention. It has now been shown that the current required to induce tetanus in denervated muscle is much less than in the normal or recovering muscle. These workers have introduced the term "galvanic tetanus ratio" to show the relation between the threshold current required for a minimal visible contraction, and that required for a sustained or tetanic contraction. This value is relatively uninfluenced by above mentioned local factors. Normal muscle requires a certain value of current to produce a minimal contraction. From three to six times this value is required to produce tetanus. However, denervated muscle responds to minimal stimulation by a tetanus contraction. In other words, the same amount of current strength that causes minimal contraction in the denervated muscle, also causes tetanus. Perhaps the often mentioned "worm-like" response of denervated muscles were merely incomplete and unsustained tetanus of this type.

Galvanic tetanus ratio is determined by dividing the strength of galvanic current in milliamperes required to produce a constant or tetanic response in muscle by the minimal strength of the same current required to produce a simple perceptible contraction. In normal muscle this galvanic tetanus ratio ranges from about 3.5 to 6.0. In the denervated muscle it reaches unity or value of

1.0. By this unity ratio is meant, therefore, that in denervated muscle the minimal stimulating current is the same as that required to produce tetanus. In other words, when the minimal contraction is a tetanus, the ratio is 1. The tetanus ratio changes with the state of innervation in this way—normal, 3.5 to 6; denervating 6.0 to 1.0; denervated, 1.0 to 1.5; regenerating, 2.0 to 15 to normal again. (Slide) This ratio will apply to the evaluation of peripheral nerve lesions as follows: A ratio of 1.5 or below, ninety days or more after injury with a lesion (25mm) above the motor point, indicates continued denervation and an unfavorable outlook for recovery. Similarly, 100 days after suture, a ratio of 10.0 would be indicative of successful anastomosis, and that nerve fibers had reached the muscle. Time since injury is an important factor in determining the status of a nerve or muscle. The electro-diagnostic findings must always be considered in the light of the estimated rate of growth. If sufficient time has not elapsed since injury for re-innervation to occur, a denervated picture may be noted even though regeneration is progressing satisfactorily.

All patients with peripheral nerve injuries admitted to the Neuro-Surgical Section have received electro-diagnostic examinations prior to operation. In certain instances when electrical examination indicated that muscle fibers were neurotized, operation exposed a lesion which was considered incapable of satisfactory functional recovery. (Slide 2)

For a time this was confusing, but following operation when resection and suture was done, the galvanic tetanus ratio fell to one, usually within 30-40 days. This indicated that certain fibers which were reaching the muscle had been removed at operation. Pathological sections of the surgical specimens have shown that axis cylinders were present in the distal end. This confirmed our previous expectations concerning the galvanic tetanus ratio, but it also demonstrated the shortcomings of this method of examination. We have substantial evidence that the galvanic tetanus ratio is high or increased when the nerve fibers reaching the muscle are too few and too immature to accomplish satisfactory restoration of function. Indeed it appears likely that in general rambling nerve fibers may bridge the gap of a divided nerve and produce evidence of neurotization. It follows therefore that a single examination prior to operation cannot usually be absolutely relied upon unless there is evidence of complete denervation. Following operation when repeated examinations can be done, reliable evidence of regeneration can be determined weeks in advance of clinical recovery. (Slide 3).

Our present analysis of electro-diagnosis may be summed up in the following way. Faradic stimulation is valuable only as a rough screening test. If a muscle response is obtained, no further electro-diagnosis is carried out. Failure to respond to faradic stimulation does not provide any kind of diagnosis.

Ideally, we would like to have the following values using galvanic currents:

1. Galvanic-tetanus ratio
2. Strength duration curve
3. Chronaxie
4. Response to repetitive stimuli of various frequencies. (Slide 4) All of these values except the galvanic tetanus ratio, require apparatus which is used generally not available at present. (Slide 5) The galvanic tetanus ratio can be determined on any reliable galvanic stimulator which is equipped with a well damped ammeter and a current control key which makes constant true contact. The well damped ammeter eliminates needle oscillations, thereby permitting accurate readings. The current control key should be independent of the electrode. (Slide 5)

SUMMARY AND CONCLUSIONS

The inaccuracies of interpretation and the misleading use of reaction of degeneration studies has been presented. A new concept is discussed in clinical galvanic electro-diagnosis, that of galvanic tetanus ratio. This ratio may be very simply determined by using any reliable galvanic stimulator. The quotient or number obtained by dividing current strength required for tetanus by the current strength required for a minimal visible contraction is the galvanic tetanus ratio. The application of this galvanic tetanus ratio in determining the necessity for neurosurgery on peripheral nerve injuries is discussed. Other values such as chronaxie, strength duration curve and repetitive stimuli supplement this procedure, but are not considered in detail here. By use of these electro-diagnostic values prognosis of the nerve suture may be determined long before sensory or motor return.

CAUSALGIA

A Study of Seventy-five Cases

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and

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The term "causalgia" was first used by Mitchell, Morehouse, and Keen¹. in 1864 to designate a bizarre symptom complex occurring after injury to peripheral nerves. The main features of this symptom complex are severe burning pain and hyperesthesia, in association with trophic and vasomotor changes in the injured extremity. Little is known about the fundamental cause of this condition, and the theories advanced to explain it are so numerous that no attempt shall be made to develop them. Suffice it to say that in certain individuals following injury to one or more peripheral nerves a painful reflex mechanism is set in motion which is accompanied by abnormal vasomotor activity, manifested by varying degrees of vasodilatation or vasoconstriction. Relief can be obtained in most instances by surgical interruption of the appropriate sympathetic pathways.

In this paper we present the data from 75 patients who showed this symptom complex. Fifteen of these cases have previously been reported by Lt. Col. Mayfield with Capt. Devine². (Slide #1). These 75 cases were encountered in a series of 1477 peripheral nerve injury cases admitted to the neurosurgical service of Percy Jones General Hospital from January 15, 1943, to May 31, 1945, an incidence of approximately 5 per cent. Three patients were officers and 72 enlisted men. The ages ranged from 19 to 39 years.

(Slide #2). The peripheral nerve injury was incomplete in every instance and resulted from penetrating shell fragment or bullet wounds. The sciatic nerve was involved in 29 cases; the median in 16 cases; the brachial plexus (predominantly the lateral and medial cords) in 13 cases; the median and ulnar in eight cases; the median, ulnar, and radial in three cases; the tibial and peroneal (below the knee) in two cases; the tibial in two cases; the median and radial in one case; and the femoral nerve in one case. The nerve injury was proximal to the elbow or knee in 66 cases (88 per cent) and distal in nine cases (12 per cent). No patient had accompanying major vascular injuries.

In 44 of the 75 cases the burning pain developed immediately after the injury, in 14 within the first 48 hours, and in the rest (17) in from 72 hours to two months. The symptoms had been present for periods of time ranging from 3 1/2 weeks to 15 months. The majority of cases were treated within four months from the time of injury.

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Symptoms and Signs

The cardinal symptom in each case was burning pain of a throbbing or aching character. The pain was always referred to the distal part of the involved extremity and was not confined to the autonomous zone of the injured nerve though it was usually more intense in that zone. In the hand it was referred chiefly to the palms and fingers; in the foot, to the instep, sole, and toes. The intensity varied from less severe states to the unbearable. The pain was continuous but subject to exacerbation by the slightest emotional or physical stimulus, and most of these patients appeared in a perpetual state of defense and went to absurd extremes to protect the painful limb. The severity of the pain rendered an accurate assessment of the nerve injury impossible in many cases.

The vasomotor manifestations were of two types, vasodilatation and vasoconstriction, and in no case was there noticeable alteration in the type while the patient was under our observation. (Slide #3). The skin of those in vasodilatation was usually reddish, dry, scaly, and warmer than that of the normal extremity, and the hair (Slide #4), long and coarse. The skin (Slide #5) of those in vasoconstriction was usually cold, thin, and glistening, and sweated profusely. In this group there was usually loss of hair, tapering of the digits, and trophic changes in the nails.

Sixty-eight of the seventy-five patients obtained some relief from the application of moisture. Thirty-eight preferred cold water; thirty, warm water; and seven noted no significant effect of moisture. It seemed that warm water gave relief where there was vasoconstriction and cold where there was vasodilatation. (Slide #6). (This patient inadvertently blistered his hand by submerging it in hot water to secure relief from the burning pain.)

Most of these extremities showed gradations of joint stiffness brought on by painful splinting and disuse. This was one of the greatest residuals after the relief of pain but proved amenable to physical therapy if treated early.

In the more severe cases, the patients were usually malnourished because of low food-intake.

Most of these patients were irritable, shut-in, critical of attendants, and showed no interest in family or friends even though they had been overseas for many months. (Slide #7). Their facial expression manifested evidence of anxiety, weariness, and distress. These findings suggested that the disorder might be functional, so psychiatric examinations were carried out in some of our patients before and after operation (Slide #8). After relief of the pain, all appeared essentially stable and normal, and without exception they became pleasant, cooperative, and happy. In our cases there was no evidence of any definite predisposing constitutional factor responsible for the development of this syndrome.

There appeared to be no correlation between the severity of the nerve injury and the intensity of symptoms. The nerve lesion was incomplete in each case.

Methods of Study

These patients were studied to correlate subjective symptoms and trophic disturbances with blood flow in the injured part. Blood flow was determined by means of oscillographic and skin temperature readings in the first 15 cases and by skin temperature readings alone in the rest. Those in vasodilatation usually showed skin temperature readings from one to four degrees higher than readings of corresponding areas of the normal extremity; those in vasoconstriction showed readings from two to six degrees lower.

One patient in vasoconstriction developed malaria (*Plasmodium Vivax*) and during the periods of elevation of temperature was completely free of pain. The pain returned, however, when the malaria was controlled. Because of this observation, artificial fever therapy was tried in five patients, one of whom remained well after three treatments. The others received as many as five treatments, with relief for the period of elevated temperature only. Subsequent sympathectomy was followed by relief in these four patients.

X-ray of the painful part was made in 20 cases. Each showed some degree of demineralization of the small bones of the hand or foot as contrasted to the normal. The changes were more marked in those in vasodilatation. However, the demineralization appeared no more pronounced than in cases of comparable nerve injuries without causalgia.

Treatment

Seventy-two of our patients were treated by surgical procedures, -- seventy by surgical interruption of the sympathetic chain, which included preganglionic ramisectomy of the second and third dorsal ganglia for the upper extremity and removal of the second, third, and fourth lumbar ganglia for the lower extremity. Sixty-three of the seventy were cured by the initial operation.

Two patients with severe but incomplete lesions of the sciatic nerve were treated by resection of the injured segment and neurorrhaphy. This procedure relieved the pain in both instances.

In every case, procaine block of the appropriate sympathetic ganglia was done before definitive treatment was carried out. This procedure invariably gave immediate and dramatic relief of the pain for periods ranging from one to three hours, but in most patients it reached its previous intensity in a very short time. In a few, partial relief persisted for several days. During the period of remission, the patient became cooperative and permitted a more thorough sensory and motor evaluation of the

involved extremity, whereas examination was unreliable before the pain was relieved. Frequently, where no motor function had been observed previously the patient began to move the extremity immediately. This suggested that in some of the cases the pain had initiated a reflex paralysis (Livingston⁵).

Since numerous reports have been made of permanent cures from one or more sympathetic blocks, some patients were injected four to six times. There was always immediate relief of the pain, but no patient obtained complete and permanent relief from this procedure. However, the sympathetic block served two useful purposes: First, by relieving the pain temporarily a more accurate evaluation of the nerve injury was obtained; and second, it established the indication for sympathectomy. In the last 55 cases, this procedure was used for diagnosis only.

Neurolysis was done in five cases and periarterial sympathectomy at the level of the injury in three cases, but the pain was not influenced by these procedures. Later these patients were sympathectomized, with relief.

Discussion

In each case of this series, symptoms resulted from high velocity missile wounds of large mixed peripheral nerves and we feel that they represent true causalgia. From a time it was felt that causalgia was a distinct entity, but the underlying disorder is no doubt related to that of a heterogeneous group of painful posttraumatic dystrophies, including Sudeck's atrophy, posttraumatic painful osteoporosis, and other so-called minor causalgias (Homans⁶). The chief difference is one of degree, perhaps, varying with the size of the nerve involved.

The vasomotor disturbance was of two types, vasodilatation and vasoconstriction. Forty patients of this group were in vasodilatation and 35 in vasoconstriction. The subjective symptoms were identical but the objective signs varied, yet interruption of the sympathetic chain relieved the pain in both groups. Therefore, it would appear that alteration of blood flow was not responsible for the pain.

In the majority of our cases the intense burning pain occurred immediately after the injury, which rules out infection and irritative scar formation as significant etiologic factors. In fact, with rare exception the traumatic wounds healed without gross infection.

The trophic manifestations in some cases were essentially the same as those seen in comparable nerve injuries without causalgia, but the secondary joint changes with resulting fibrous ankylosis were more severe because of voluntary immobilization of the painful extremity.

Seven patients of this group failed to obtain complete relief from the initial operation upon the sympathetic chain. Five were patients with wounds involving the sciatic nerve at the buttock or above. Removal of the second and third lumbar ganglia had been effected in each case. Subsequent removal of the first lumbar ganglion in three of these resulted in complete cure. In two, removal of the eleventh and twelfth dorsal and first lumbar ganglia were required. In the other two cases which involved the upper extremity, incomplete sympathectomy was done at the initial procedure when the fourth rib was removed instead of the third. One patient was then relieved by neurectomy of the median nerve. In the other case, neurectomy of the eighth cervical and first dorsal roots did not affect his symptoms. However, he has since improved to the point where no further surgical interference seems indicated.

Those patients not relieved by the initial sympathectomy showed evidence of incomplete sympathetic denervation, not only to the area of referred pain, but to the area of injury. This was verified by sweating in these areas as shown by starch-iodine tests and evidence of lowered skin resistance to electrical conduction. This has been more noticeable in the cases involving the lower extremity where the injury was high in the thigh.

From these observations, it would appear that the sympathectomy must include the injured segment of nerve. However, the possibilities of anomalies of the sympathetic chain must be considered. It can be stated that removal of the second, third, and fourth lumbar ganglia may be inadequate for lesions high in the thigh. In these cases it may be necessary to remove the first lumbar as well as the eleventh and twelfth dorsal ganglia. For lesions of the upper extremity preganglionic sympathectomy of the second and third dorsal ganglia is necessary. The segment of the sympathetic chain removed has been identified postoperatively by x-ray through the use of a metallic clip on the proximal end of the chain when the lumbar operation was done and by identity of the rib removed when the dorsal operation was done.

Various medical and surgical treatments have been advocated for the cure of causalgia but in our experience surgical interruption of the appropriate sympathetic ganglia has been the most effective procedure. It has provided relief in each case and has the advantage of carrying a minimal penalty, in contrast to more radical surgical procedures such as regional injection of alcohol, rhizotomy, and chordotomy.

Summary and Conclusions

The data from 75 cases of causalgia due to war wounds of large mixed peripheral nerves have been presented and the following conclusions are drawn.

1. The pathologic mechanism is obscure.
2. The disorder is characterized by burning pain in association with vasomotor disturbances in the distal part of the extremity.
3. The vasomotor disturbances are of two types, vasoconstriction or vasodilatation. The possibility that the vasomotor state may vary in any case is recognized but has not been observed.
4. The pain can be relieved by appropriate sympathectomy. The sympathectomy must be complete, however, and with lesions involving the upper portion of the sciatic nerve removal of the sympathetic chain as high as the eleventh dorsal ganglion may be required. For lesions of the upper extremity preganglionic operation is adequate.
5. Procaine block of the appropriate chain is a necessary diagnostic procedure.
6. Repeated procaine block as a therapeutic agent has not been effective in our hands. Certain patients have improved with this procedure, but none have been completely relieved.
7. Resection of the injured segment of nerve will provide relief. Neurolysis and periarterial sympathectomy at the level of the injury are ineffective.
8. Sympathectomy should be done as soon as the diagnosis is established; to prevent the psychic trauma of prolonged pain and crippling joint stiffness.
9. Causalgia has been noted only with incomplete nerve lesions.
10. Recovery of function is often rapid after relief of pain. Consequently, primary neurorrhaphy is rarely indicated.

NOTE: Our series of causalgia cases treated by sympathectomy now total 102 cases as of October 31, 1945, and the results and conclusions remain the same. For the same period 2205 cases of peripheral nerve injuries were admitted.

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THE POSITION OF THE PSYCHOLOGIST ON THE PSYCHIATRIC TEAM

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It is the purpose of this paper to describe the role and functions of the clinical psychologist in a psychiatric team. Until the end of 1942, there were only six psychologists in the Medical Service of our Army. It was not until 1943 that clinical psychologists were being used as such in several of the general hospitals and some mental hygiene clinics. With the expansion of the Neuropsychiatric Service as presented in a War Department Bulletin 3 August 1944, the clinical psychologists were made part of a psychiatric team with specific duties. In this directive it states "the combined efforts of psychiatrists, psychiatric social workers, clinical psychologists, occupational therapists, instructors in arts and skills and reconditioning officers and instructors are needed to make the program succeed."

The present organizational plan of the neuropsychiatric section of the Convalescent Hospital is that of a regiment with four battalions. Each battalion is further broken down into four companies, each with a capacity of 100 patients. Hence, at maximum capacity, there would be 1600 patients in the neuropsychiatric section. There are 11 commissioned psychologists and 10 enlisted psychologists allotted to assist the psychiatrists in the diagnosis and treatment of a possible 1600 patients.

At the regimental level there is a chief clinical psychologist who is the psychological consultant to the commanding officer of the regiment. The commanding officer is also the Chief of the neuropsychiatric service of the Convalescent Hospital. The duties of the Regimental Psychologist are primarily to supervise and coordinate the psychological program for the four battalions. He holds weekly meetings in which each psychological unit of each battalion may express itself as to improving the psychological services. Results of techniques and methods used by the different psychological units are discussed and modifications may be made to attain the best ones so that the psychologist will make a maximum contribution to the psychiatric team. He puts into effect policies and plans bearing on psychological work that the chief of neuropsychiatric service may request.

The Regimental Psychologist has the secondary but major duty of also being the Regimental Officer which places him in the position of coordinating the program for the regiment.

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Since the daily activities made available to the patients are a large component part of the treatment given the neuropsychiatric patient control by the professional staff is essential. The psychologist is able to aid the chief psychiatrist in seeing that at all times, the several aspects of the daily program are observed for their effect upon the neuropsychiatric patient. Frequent meetings with the chief psychiatrist result in certain types of films being censored, extreme types of physical reconditioning being barred, whereas general athletics are encouraged, more time is made available for group and individual therapy. Also as regimental operations officer, a close liaison is kept with the occupational therapy and educational and physical reconditioning sections of the Convalescent Hospital.

At the battalion level, there are usually two commissioned and two enlisted psychologists in each battalion. It is at this level that the real psychological work is done. The battalion psychological unit performs three main functions: one, psychometrics; two, individual and group therapy; three, vocational counselling and placement. All three functions are closely coordinated with the psychiatrist and the psychiatric social worker.

The commissioned psychologists in each battalion are experienced and well-trained in the administration and interpretation of a variety of tests. Many of the enlisted personnel are equally capable. No longer is the psychologist limited to determining an I.Q., measuring the educational achievement, and discovering the vocational interests or aptitudes of a man. Of greater importance are the methods and tests used as diagnostic aids and personality evaluators. The psychologist's armamentarium includes: The Rorschach Psychodiagnostic, the Bender Gestalt, Sentence Completion Test, the Shipley-Hartford Test for Mental Deterioration, The Bellevue-Wechsler Intelligence Scale, The Kuder Vocational Preference Test and others.

Many of our psychiatrists, particularly in the early stages of the program, were unfamiliar with the tests used by the psychologists and the value of the interpretations. However, the psychologists have done a good job of selling and propagandizing the psychiatrists. Today our psychiatrists appreciate the assistance of the psychological units, and what is more, they know exactly which tests to request for the specific information desired. Some have reached the point of confidence in the psychologist at which they request information and let the psychologist decide his methods and means of arriving at the answer.

Tests are usually administered only upon the request of the psychiatrist with the exception that all men who received a Grade V score on the AGCT are given the Bellvue-Wechsler Intelligence Scale. The results and interpretation of the tests are written up and become part of the medical chart. The

results of the tests plus the case histories made by the psychiatric social worker give the psychiatrist a most complete personality configuration when added to his own observation.

All new patients, in the course of their processing, are seen by the psychologist. If at this time the psychologist notes any man to be unfit for an immediate furlough he consults with the psychiatrist and psychiatric social worker regarding him. The psychologist is aided in his estimate of the patient by quick screening devices such as the Bender Gestalt and Sentence Completion tests. Occasionally we will get men who don't want furloughs or are frightened about going home even though they may have been away from home for two years or more. They feel the stigma of being "nervous" is more than they can stand among family and friends. Here the psychologist does much to reassure the man, renew his confidence in himself and prepare him for a really good time while on furlough. Now that the war is over and there is no need to return men to duty, the patients are urged to use at least part of their furlough time for making post-army plans. Once a neurotic starts planning and knows there is a job waiting for him upon discharge, many of his anxieties and tensions disappear. However, this creates another problem upon their return. They feel that they are completely well and should be discharged immediately. When this is not possible, their tensions and anxieties start all over again. This makes for a good therapeutic setting during which you can point out to the man what he allows to happen when he meets frustration.

When he returns from furlough, the man is guided into the school program from which he will derive the most benefits both vocationally and therapeutically. This will be discussed more fully in a later paper. Those who have absolutely no plans, no skills or training, or those whose vocational or job problem calls for greater industrial contact than we have, are referred to the vocational section of the convalescent facility.

In the treatment field the psychologist has been able to make a good contribution. Under supervision of the battalion psychiatrist he has been able to carry a full load of group therapy. The psychologist has been especially well adapted to the preparing of topics and carrying on group therapy. As a therapist he is well able to present an elementary discussion of the anatomy and physiology of the nervous system. He can discuss the symptomology of the group. He can intelligently present the concepts of fear, emotions, personality, mental conflicts, the unconscious and many others.

Whenever an individual can not derive benefits from group psycho-therapy and can be helped with individual therapy, the psychologist can be of assistance to the psychiatrist. In many cases the psychologist is well qualified in giving insight to individual problems. With his knowledge of learning he can help a patient develop confidence and a sense of security. Since he is able to place men in the Convalescent Hospital program he can integrate the patients activities toward his getting well.

DISCUSSION OF THE POSITION OF THE PSYCHOLOGIST
ON THE PSYCHIATRIC TEAM

Discussed by Captain Ray S. Miller,
Armed Forces Induction Station
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To anyone who has observed the activities of the Convalescent Hospital at Percy Jones it is evident that the authors of this paper have done an excellent piece of work in delineating carefully the functions of the clinical psychologist on the psychiatric team. Since the paper also serves to lay the groundwork for other papers which follow it, we should try to avoid emphasizing at this time specific problems in diagnosis or therapy which will be considered in later papers or discussions.

As one reads the paper it is well to keep in mind some problems of a general nature with which the members of the team have to contend in carrying out a program of this kind:

1. Censorship of films at the regimental level. When we consider the individual quirks of a neuropsychiatric patient we see what a problem it is to provide censorship which will accommodate an entire group.
2. There is the problem of the general athletic program which must now be adapted to winter weather and carried on largely indoors.
3. The authors mention "selling and propagandizing the psychiatrists" on the use and value of tests. Since this discussant is not a clinical psychologist in the technical sense of the word it is in order to suggest that the psychiatrist has been sold first of all on the skill and efficiency of the clinical psychologists who have been assigned to work with him. The effectiveness of the team work outlined in this paper probably depends more upon the individuals of the team than upon the tools with which they work.
4. To some extent, the therapeutic program must take into account problems in connection with the patient's free time, e.g., his evenings or weekends.
5. There is also the problem of how much time shall be spent in the enlightenment of the patients' families. Undoubtedly many families would prefer to see their sons come home "heroes" rather than patients in what they might call a "mental" hospital.
6. At one point in the paper the psychologist as a group therapist is mentioned as presenting "an elementary discussion of the anatomy and physiology of the nervous system". There is the possibility that this type of

discussion, although elementary and non-academic, might require a group of better than average intelligence and that some therapists might achieve equally satisfactory results without mentioning these organic backgrounds.

7. To what extent has a shortage of time been a problem? These team members must have felt pressures from the patient's home community or from the patient himself which would tempt them to stop short of a satisfactory reconditioning.
8. What were the results, if any, of the announcement of the cessation of hostilities on V-J Day? In this connection we will recall the reports of the sudden clearing of some hysterical conversions immediately after the Armistice in November of 1918.
9. And finally, those of us who have spent a considerable amount of time in Induction Stations can not refrain from asking how many of the patients are war casualties in the real sense, and how many of them should never have been inducted in the first place?

Certainly all of us hope that the team work outlined in this paper demonstrated the value of coordinating the activities of so many professional interests and that such team work will be carried over into our institutions and industrial organizations in civilian life.

EDUCATIONAL VOCATIONAL RECONDITIONING*

Lts. J. J. Lasky, F. Kobler, and S. K. Wineberg, A.U.S.

This paper will discuss first, the objectives of a convalescent hospital school program for psychoneurotics, second, a description of the courses offered and third, an evaluation of the benefits of such a program. The term, Educational Reconditioning, is intended to mean a process of stimulating the minds of convalescent patients through education and information in an effort to encourage mental attitudes conducive to health and normal activity. This general aim is accomplished through the media of an extensive school system, vocational - educational guidance, and orientation talks on current topics. The educational-vocational reconditioning phases of the convalescent program in the Neuropsychiatric regiment of Percy Jones Hospital Center at Fort Custer, Michigan, occupies approximately one-half of the patients' treatment time.

This program is somewhat unique in its application and purpose. The experiences gained during the past 13 months are offered for consideration in building efficient and practical group treatment programs for psychiatric patients in the future.

Initially, the patient is occupied for an entire day after his convalescent furlough in becoming oriented to the program. During the morning he is informed of the opportunities offered by the educational program. He then uses the latter half of the orientation day in taking a conducted tour through representative schools. In this way, the patients gain an overall first-hand picture of the program before they are required to make a specific selection. The patient is encouraged to interest himself in the educational phases of the program for the following four reasons or objectives.

First, it offers trial introductory training in technical skills that may either explore capacities, skills, and aptitudes or may further lead to successful rehabilitation and useful employment. The basis of the instruction offered is intensely practical and devoid of pedantic impediments. The beginner is permitted to make definite progress toward further civilian education or job training. The course may serve as a refresher for other men with some experience in order to get back the feel of old familiar terms and practices. It will enable advanced students to progress from whatever achievement they may have made to higher levels in their particular fields. For the undecided, the course may be exploratory. A definite appeal may be discovered, or the discovery of the lack of such an aptitude in a particular field may save a man time and money later.

Secondly, it redirects the soldier's thoughts away from a narrow "sick" concept to a realistic attitude of being useful, capable and independent. The convalescent hospital is the last stop in a long hospital chain. Up to this point, the patient has been in a formal hospital setting for a period of several months. A frequent complaint from these neurotic patients is that the inactivity often attendant with formal hospitalization breeds tension and ennui. Here, in an army camp setting, the patient is given useful and appropriate mental stimulation similar to that he will encounter in his community.

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Thirdly, it provides opportunities for general education which will enable individual soldiers to continue educational pursuits interrupted by entry into the armed forces. The United States Armed Forces Institute correspondence courses on high school and college levels offer excellent instruction in the more academic studies. The near-high school graduate can refresh or complete his high school credits and perhaps investigate freshman college subjects. The college student can earn college credit while still in the army. On a lower academic level, there are classes for illiterates in elementary reading and writing. If an individual expresses interests not included in the school program, he may be assigned to study in the library or be encouraged to use his own materials in an adequate study room.

Fourthly, it maintains liaison with public and civilian agencies charged with the rehabilitation and the adjustment of the soldier to civilian life. One course of study covers Civil Service opportunities and examines sample Civil Service tests. Through the orientation program the patient will cover a selection of topics taken from the provisions of the G. I. Bill of Rights, from publications of the Veterans Administration, the United States Employment Service, and various state and local agencies.

After the patient's day of orientation, he visits the psychologist and makes an educational selection or vocational alternative. The guidance by the psychologist, like the balance of the therapy, is based on a study of the total individual in a total setting. Such factors as current vocational opportunities, illness of the patient, personality factors, intellectual capabilities, and the ambitions and interests of the patient are weighted. This information is gained from clinical observation, study of the previous clinical history, and noting current labor trends or opportunities. Patients requiring more intensive guidance may be given personality, vocational and/or intelligence tests in order to arrive at more reliable and useful vocational and educational guidance. Initial guidance and selection may be modified to suit the changing interests and capabilities of the patient at any time during the patient's stay. Modifications are based on additional clinical experience gained in therapeutic interviews, further vocational study, and actual try out in specific courses.

The patient may choose courses from three areas of study; pre-technical, pre-cultural, and pre-professional. The courses, in order of patient popularity, are as follows: Automotive, Typing, Welding, Carpentry, Machine Shop, Agriculture, Business Administration, United States Armed Forces Institute correspondence courses, Radio, Mechanical Drawing, Photography, Motorcycle, Salesmanship, Commercial Art, Plumbing, Business Law, Printing, and Fine Arts.

In a study based on 441 men from each of the five battalions in the regiment it was determined that 54% of patients tested believed that the school program contributed in making them feel better.

One patient expressed himself by saying, "When I do something I like I forget myself and become interested in what I'm doing. This makes me feel better after I'm through with it."

Another man states that, "When a man makes an object that he takes home to his wife or to his mother and she sees and admires it, he feels that he has "done something that's of some use and that builds him up."

Another good effect of the program expressed by the patients is that it acted as a socializing influence. Observing a group busily engaged seemed to be a spur to engage in cooperative constructive activity.

Attacking this problem from another direction, instructors were interviewed and the following are some representative statements.

An Occupational Therapy instructor stated that, "Self-creativity is built up in a man who has been pushed around and doesn't have any confidence in himself."

It is interesting to note that mixing psychoneurotic patients with physically disabled patients, as is done in a few of the courses, resulted in greater interest and better morale. Another Occupational Therapy instructor stated, "When we mixed the groups from the two regiments, the cheerfulness of the ones in the second regiment (physically disabled) influenced those in the first regiment (psychoneurotics) and they took after them and began to work harder at what they were doing after a while."

Thus far we have been considering the opinions of the 54% who feel that the educational program is aiding in their recovery. Incidentally, the instructors believe that 50 to 70% of the students benefit from the instruction offered.

It would appear that not every patient and instructor feels that school participation is necessary. There are at least nine such groups of patients.

First, there are those who are returning to occupations they left prior to induction. The value of off-duty hobbies and recreation through the arts and crafts is emphasized to this type of individual. It is known that this type of neurotically predisposed individual will materially benefit from the interest and relaxation such pursuits afford in the civilian adjustment period.

A second group insists that they are unable to attend school because of disinterest, lack of concentration, and restlessness. The therapeutic benefits of regained interests, goals, planning for the future and purposeful activity is emphasized to this patient and he is carefully followed up. Occupational therapy, with its more personalized instruction and individual projects is often a good solution for this type patient.

A third group, men who are older than the average, are at first reluctant to "go back to school" again. These individuals are told that the school is a school in name only. It is primarily an integral part of his treatment program and its benefits are explained to him.

In a fourth group are a few individuals who have psychopathic tendencies and have adjusted with difficulty during most of their lives. Because of their resistance as reflected by absenteeism and attitudes, alternative jobs more in line with their personalities are selected. Incidentally, the motorcycle school with its outdoor work has been very valuable in releasing the aggression this type of individual exhibits.

A large fifth group of men are represented by the soldier who stated, "The essence of the matter is that some soldiers feel that they went and fought a war, now they want to get home. They see this schooling as an interruption in getting home." The reality of the situation is presented to these men. They are told they will be here for treatment and observation because they have been upset in the past. If they were perfectly well they wouldn't have been sent to us. A large part of their convalescent recovery and future health depends on attitudes and mental set during their stay here.

A resistant sixth group strongly dislikes the army and all things connected with the army. It is not the province of the educational system at this level to treat specific adjustment and attitudinal problems. This work is better handled in group and individual psychotherapy sessions. It is felt that when anxieties and aggressions are relieved, attitudes are more amenable to reason.

A seventh group are the mentally dull who are well adjusted on the lowest vocational levels. Such men willingly engage in such constructive activity as barracks orderly, supply helper, charge of quarters, etc.

An eighth group are those few men who arrive at this hospital in need of no further hospital treatment. Any further delay would be pointless and irritating so these men are dispositioned promptly.

The ninth group of patients who don't seem to benefit from the program are those whose main conflict areas center around unsolved domestic and home problems that demand their personal intervention. Such men are properly dispositioned as rapidly as possible.

It appears that the majority of the patients who feel they don't benefit by the school program are in need of further explanation and understanding as to the purposes and values of the educational system.

In summary, the educational reconditioning program assists in taking the emphasis off a sick individual in a hospital setting and centering his focus on healthy ego ideals, his future job, his independence, and self-sufficiency by means of mental stimulations and socialization. The good results obtained from this type of program indicate that it is a necessary component of an adequate treatment program for psychiatric patients.

DISCUSSION

Educational Vocational Reconditioning

Dr. Richard M. Page, Chicago, Ill.

I am certain that it is not possible to convey in a paper a clear and adequate conception of the operation and benefits of as broad a program as the one described by Lieutenants Lasky, Kobler, and Wineberg. To appraise the plan intelligently, one should have an opportunity to actually visit the school, observe the classes, and talk with the teachers and with the student-patients.

Lacking this opportunity, the listener is still very favorably impressed by the general description, and finds gratification in learning that our men in need of rehabilitation are being offered such excellent opportunities of finding mental health through education.

A program such as the one described has, of course, ample theoretical as well as practical support. It is unnecessary to defend the soundness of educational, occupational, or recreational work as therapeutic procedures.

In giving detailed consideration to the paper, however, several points appear concerning which one might wish for more information.

One point which strikes the listener as being open to question is the apparent imposition of authority and pressure upon the patient in some phases of the program. It was reported, for example, that patients are required to make a selection of courses after just one half day of orientation. This would appear to be a rather short time for some patients to be able to find themselves, and even with psychological guidance, there might appear to be some hazard involved of forcing a premature decision.

One also gains the impression that the counseling itself may be highly directive or even coercive in character. It is described as "guidance. . . based on a study of the total individual in a total setting." If there is provision for the development of independent insight on the part of the patient, such provision is at least not made clear. In fact, some reference is made to "patients who require more intensive guidance," which appears to emphasize the coercive aspect of the counseling.

The handling of six types out of the nine types of patients who do not accept the therapy willingly also indicates varying degrees and types of pressure upon the patient to conform to the program.

Broadly speaking, the program is constructive, wholesome, and progressive. In view of the mass demands that are made upon it, and in view of the special problems entailed by the military setting, the entire project is most gratifying. The question still remains, however, whether less directive techniques could not be worked out in the psychologist's contribution to the program.

AN ANALYSIS OF THE USES OF THE SHIPLEY-HARTFORD RETREAT SCALE
FOR MEASURING INTELLECTUAL IMPAIRMENT

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Raymond A. Thurow, 1st Lt., Ord. Dept*
Frank Kobler, 2nd Lt., MAC*

You have been told something about the role of the psychologist in a convalescent hospital. You have heard a review of some of the psychological techniques which are utilized in our work. This afternoon I want to describe in more detail the uses we have made of one particular test, the Shipley-Hartford Scale for measuring intellectual impairment.

The Shipley-Hartford was designed as an aid in detecting mild degrees of intellectual impairment. It may also be used as a rough measure of intelligence. It is a simple paper and pencil test made up of two parts, vocabulary and abstractions. It is based on the clinico-experimental observation that in mental deterioration and other conditions involving mental impairment, vocabulary is relatively unaffected, but the capacity for abstract (conceptual) thinking declines rapidly. This scale, then measures the extent to which the individual's level of abstract thinking falls short of his vocabulary level. This difference is expressed conveniently in the C.Q. or conceptual quotient. It is the ratio of the patient's vocabulary age to his abstraction age. The conceptual quotient in itself tells nothing of the permanency of impairment. In some conditions the impairment will be transitory, in others, especially deterioration, it will be permanent or progressive.

This scale may be administered individually or in groups. It requires no personal attendance for each case. The directions are self-explanatory. It consists of two parts, each of which must be answered in a maximum of ten minutes, but the final analysis of the results is not dependent entirely on the number of parts answered. The test is based on an analysis of the vocabulary level as compared with the power of abstract judgment. The first portion of the test consists of forty words, for each of which are given four words from which one appropriate synonym must be chosen and underlined. For example: Permit: allow, sew, cut, drive. The second portion of the test consists of twenty questions, all based on abstract reasoning. Each question consists of a variable number of words, phrases or letters which have some common characteristic which must be discovered to complete the answer. For example: Complete the following: white black, short long, down ____.

The scale was standardized on 1500 normal and psychotic individuals and from the results tables were evolved from which can be calculated or read the C.Q., vocabulary, abstraction and mental ages. Of the results, the most important is the C.Q. which assumes parity in the development of the vocabulary level and abstract thinking levels in adults. A quotient of 90 or above is considered to be "normal". A quotient between 85-90 is considered "slightly suspicious," 80-85 "moderately suspicious,"

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75-80 "quite suspicious", 70-75 "very suspicious", and below 70 is "probably pathological". Furthermore, a quotient of 90 does not necessarily signify mental normality. It simply indicates that the patient's ability to think abstractly in the testing situation has not yet become seriously impaired. The available evidence indicates that the C.Q.'s obtained from subnormals are not valid. Feeble-minded and borderline cases tend to earn low quotients. For this reason extreme caution must be observed in interpreting quotients from individuals with vocabulary scores below 23.

At the Convalescent Hospital of Percy Jones Hospital Center a number of psychoneurotic patients were admitted with a history of blast concussion. The severity of their symptoms led some of the doctors to believe that their condition might be due to organic rather than emotional factors. These patients were given the Shipley-Hartford scale to determine whether or not any mental deterioration was present. They showed low C.Q.'s, usually in the "probably pathological" group. The fact that deterioration was indicated on the test substantiated the belief that some organic pathology was present in these patients. They were then referred to the neurology clinic for checkup and electro-encephalogram. In no case was organic pathology found. This led to the feeling that the lack of mental functioning found in these patients was due to some condition other than organic.

In order to study the problem further, 500 psychoneurotic patients were selected at random and the results of their tests were studied. It was found that 78 per cent of them made C.Q.'s below normal. Furthermore, 26 per cent of the group had C.Q.'s below 70 which placed them in the "probably pathological" group. A study of their clinical records showed few if any to have a history of organic brain damage. Even though the author of this scale states that the vast majority of psychoneurotics studied earned normal C.Q.'s we found that of the psychoneurotic patients at the Convalescent Hospital less than 30 per cent receive normal quotients.

It was thought that if this lack of mental efficiency is due to impaired emotional functioning then one should find an improvement after a period of convalescent treatment. The problem then was to determine whether or not the Shipley-Hartford scale measures any effective change in the patient while at the Convalescent Hospital. The answer to this question was pursued by selecting 100 psychoneurotic patients at random. They were given the test upon readmission into the hospital after furlough. On the average of fifty-two days later they were retested and the following results were found. The average C.Q. was 87.0 on the first test and 95.5 on the retest. The group showed an 8.5 increase in their conceptual quotients. This improvement or increase has been treated statistically and found to be due to factors other than chance.

Just where did the improvement occur--on the vocabulary, on the abstractions or on both portions of the test? It was found that on the abstractions section of the test the average score for the original test was 20.0 and on the retest the average was 25.3. This is a statistically significant difference or increase. On the vocabulary section the

average score on the first test was 26.5 and 27.6 on the retest. Here, as was expected, the increase is slight and when treated statistically is insignificant and due to chance factors. In other words, the patients showed little or no improvement on the vocabulary test after a period of convalescent treatment, but a significant improvement on the abstractions.

An identical study was conducted in another battalion using a group of fifty psychoneurotic patients selected at random. For this group the average C.Q. on the original test was 76.3 and 86.4 on the retest. Here the increase is 10 points. On the abstractions the original average score is 15.1 and 23.4 on the retest with an increase of 8.3 points. On the vocabulary the averages are 26.4 and 26.9 with an increase of five tenths of a point.

We have then a scale which gives us an index of change. Apparently, the psychoneurotic patient has a reduced mental efficiency at the time of admission to the convalescent hospital. However, this efficiency is usually restored after a period of convalescent treatment.

SUMMARY: A statistical analysis of the Shipley-Hartford Scale administered to psychoneurotic patients at the time of admission to the Convalescent Hospital and again approximately eight weeks later shows an increase in their ability to think abstractly. From these studies it appears possible to reach a generalization that in psychoneurotic patients one finds a reduction in mental efficiency which improves after a period of convalescent treatment.

This scale gives a rough index of change in patients who come to the Convalescent Hospital and improve. It is a simple measure of intellectual impairment, but a valuable addition to our present diagnostic methods of investigation.

DISCUSSION

Frances C. Perce*

This paper was read with real interest since civilian clinicians, as well as those in the army, have been concerned with the study of impairment of mental functioning. Those of us who work with disturbed children as well as with adults, feel the need of a valid instrument to estimate the true or innate ability when organic or functional disturbances cloud the picture. To what extent traumatic experiences have affected the mental capacity of the patient, is a question often asked of the psychologist.

Shipley has accepted two premises in the selection of test material, 1) that vocabulary is a reliable measure of true, unaffected ability, and 2) that the level of abstract thinking (based on 20 questions) is a reliable measure of mental efficiency. Research by Shakow, Thurstone and others would lead us to question the reliability of the first premise, and the work of Goldstein and Sheerer would suggest the need for further inves-

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tigation of the second. However, if the test results give a rough, quick estimate of the presence of mental deficit, then those patients with low C.Q.'s might be studied more intensively.

The results of the first use of the test reported by the authors were those found on patients with a history of blast concussion. Since these patients showed low C.Q.'s and "no organic pathology was found," it would have been interesting if a follow-up study had been made to ascertain whether convalescence effected any changes in their scores on the Shipley-Hartford Scale.

Twenty-six per cent of the group consisting of 500 psychoneurotics, were found to have C.Q.'s below 70, placing them in the "probably pathological group." Why did these patients obtain such a low score, since Shipley found that the majority of his group of psychoneurotics earned normal C.Q.'s? Was the army group comparable to that of Shipley's? Did the classification of psychoneurosis in the army delineate the same type of disorders as the Shipley group, or was one group more selective?

Before accepting the test-retest results on the 150 selected patients as indicative of improvement of mental efficiency, further questions should be raised. Did practice effect influence the patient's ability to do better on the abstractions? Was there more improvement manifested among those patients having the longest period of hospitalization? Was the improvement greatest among those having the highest vocabulary score and, therefore, considered the more intelligent, or among certain types of psychoneurotics? The group of 100 patients obtained an average C.Q. of 87 on the first test, which, according to Shipley, would classify them as "slightly suspicious". One would wonder whether or not there was real intellectual impairment, considering the probably error of the scale. The smaller group of 50 patients who were retested did secure an average C.Q. of 76 which would classify them as "quite suspicious". However, in both of these groups, the vocabulary averages were only 26 and as indicated by the authors, vocabulary scores below 23 suggest that caution should be observed in interpreting the quotients. In view of the small discrepancy between the earned vocabulary scores and minimum of 23, there is a suggestion that there were a number of patients included in the group whose intelligence, as revealed by the vocabulary, was limited. One more question could be raised: were there discernable clinical differences in adjustment between those patients who made a high score on the abstract tests and those who made a low one?

It would seem to have been worth the effort if the authors had followed this quick and simple evaluation of mental impairment with further investigation, using the techniques of Goldstein, Vigotsky and others, and also had chosen a control group of patients with whom no therapy was undertaken, or a group of normal individuals and retested them after the same period of time had elapsed. Moreover, clinical evaluations of degree of improvement then might have been compared with the test findings.

The authors have made an excellent start in the investigation of a difficult problem by searching for scales which will attempt to measure quantitatively the impairment of mental functioning. Psychoneuroses offer a rich field for psychological study and investigation of the effect of emotions upon intellectual functioning. It is hoped that the authors will continue their interest in this field.

SOLE GENERAL CONSIDERATIONS ON THE RORSCHACH TEST IN AN
ARMY GENERAL HOSPITAL

By Lieutenant Samuel Pearlman, MAC*
and
T/4 E. J. Lotsaf*

The status of the clinical psychologist as a member of the psychiatric team has been emphasized at a number of points in the present discussions. His specific functioning within the team framework has not been a new development, certainly, but it has served in some part to meet the needs of the army for more adequate coverage of neuropsychiatric patients, and thus from the broader viewpoint to set off his role in a less fore-shortened perspective. It was the apparent intention of the higher army headquarters to fix the locus of operation of the clinical psychologist at general and station hospitals of 1000 beds or more, but it took less than a year for the assignment range to be broadened to include such other types of military installations as training centers and disciplinary barracks.

No matter where he has been sent, however, the clinical psychologist has been accorded a heartier welcome if he included within his psychological arsenal an ability to handle projective-test techniques. It was not that psychiatrists favored any one instrument over another or that personality tests were thought of as furnishing new royal roads to diagnosis and therapy. It was simply felt that the ability to apply projective methods implied greater psychological capabilities and more extensive clinical experience on the part of the newly assigned individual, and in addition offered greater prospects of developing the personality dynamics of neuropsychiatric patients in a pressure-ized army atmosphere.

There is little doubt that of all the personality instruments in use within the army, no one has achieved the same high degree of acceptance as the Rorschach. No statistics are available to compare test usages within this category, but the general hospital experience of my colleague and myself may well illustrate the point that is being made. Early this year monthly referrals for Rorschach analyses could be counted on the fingers of both hands, and were almost altogether made by a single psychiatrist. Requests for other tests were somewhat higher in number. Passage of a half year saw a rise of nearly 1000% in the Rorschach referrals, and these were now being received from every one of the staff members. Considerably less stress was placed on related tests. The sharp increase was due not only to the marked rise in the patient load, but also to the growth of understanding of the doctors of the potentialities of this particular instrument and to the quality and accuracy of the inter-

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protations. Probably all factors combined in small or large degree to build up a working atmosphere favorable to the Rorschach technique.

Frequent mention has been made of the inadaptability of the Rorschach to most army situations, because of the time-consuming aspects of its administration and analysis. The line of reasoning was that very few army stations were adequately manned, with personnel shortages more clearly evident in the psychological specialties than in most others. Under the circumstances to allot a minimum of two hours to a single test on a single patient was to devote a disproportionate number of professional manhours to a single task. Admittedly, the Rorschach was a refined personality tool, but if it could not be adjusted to an assembly-line procedure, then its practical military uses had to be severely circumscribed. It was felt that the group Rorschach only partially met the demands for the mass handling of men, since it discriminated with less speed and facility than other screening devices.

The logic of this development, however, does not relate to the situation normally encountered in the army general hospital of the zone of the interior. The rush and bustle of the induction station, reception center, training camp, or overseas medical unit are not typical of this type of installation. In almost every instance the patient has been passed on from hospital to hospital, and has gone through a number of psychiatric screenings prior to his arrival. He has been diagnosed and re-diagnosed, and has perhaps undergone various forms of high-speed therapy. His admission to a general hospital in this country is expected to lead to a final disposition involving either a return to duty status or a separation from the armed forces. Of necessity his handling will be characterized by more careful management, more extended specialized treatment, and deeper probing into the personality structure and background. The time factor, while still considered, is not the essential element it was previously, and the time devoted to the individual Rorschach examination under these less strained circumstances is more than repaid by the large number of resulting psychiatric loads. Indeed, it has proved possible to repeat the testing on small groups of individuals as a measure of improvement and a guide to further therapy.

To re-emphasize a senseful cliché: a test is no better than the clinician who uses it, and an otherwise valuable test may be rendered ineffective by careless administration and naive interpretation. The Rorschach is not an easy instrument to work with when real depth of interpretation and analysis is required. It may or may not be a point of derogation, but the fact is that relatively few of the men and women commissioned by the Army in

clinical psychology were "exposed" to projective techniques prior to their army service. This is a far cry from the experiential prerequisites widely accepted for active Rorschach practice. There is no desire here or at any other point to belittle their competency in their own special field of operation or their capacity to adjust to new psychological demands and procedures. As a matter of fact, many within the group have managed to acquire a goodly measure of facility and flexibility in the application of the Rorschach technique. But the development has often been a strained one, comparable at its start with a plunge into ice-cold water, and has involved many pitfalls. Recognition by the Army of the clinical gap has led to the inclusion of a substantial number of lecture-and-practice hours on projective methods in the course on clinical psychology at The Adjutant General's School. This has been by no means the definitive solution to the problem. It certainly did not supply all that was necessary to cope with situations in the field.

There has been much controversy over the comparative values of the different Rorschach scoring systems. At least two major schools of scoring methodology are in existence in this country, and almost as many minor schools as there are clinicians using the Rorschach. At our own unit we have gone through various phases of scoring development, only to arrive at the conclusion typically reached by many psychologists that the precise tabulatory method is not of itself crucial, but rather the basic clinical capacity of the psychologist to remain sensitive and receptive to pattern development and deviant test behavior.

One of the handicaps encountered by the clinician at the general hospital is the lack or sketchiness of psychological data in patients' records received from other installations. Materials from zone of interior units usually reach us in good order, even if condensed and brief. The significant dearth is to be found, however, in the reports from overseas. It is easy to make allowances for the clinical personnel in combat or rear-echelon areas, but it is still grievously disappointing to find an individual's case papers containing no psychological work-up at all or at best a half-sentence impression, when the patient himself indicates a test experience with the Rorschach. It may be well to note, as an aside, that Rorschach reports have been received by us only from about four or five medical stations abroad (plus one from a replacement depot "down under").

Opportunities for Rorschach research are numerous and multiple within the general hospital set-up. Vaughan General Hospital is the Service Command Center for the treatment of the more severely disturbed patients, and has a wide enough range of psychiatric types to afford a base for clinical test projects. An attempt is being made at present, for example, to gauge the relationship of

Rorschach forecasts to the actual responsiveness of patients in group-psychotherapy meetings. Some long-range work is also being done on pre-and post-insulin-shock records. One of the doctors has recently asked us to establish a standard operating procedure for the Rorschach handling of those of his patients undergoing hypnotherapy. Ambitious projects all, to say the least, but gravely circumscribed by a shortage of trained personnel.

DISCUSSION OF: SOME GENERAL CONSIDERATIONS ON THE RORSCHACH TEST
IN AN ARMY GENERAL HOSPITAL

Discussed by: S. J. Bock, Ph.D.
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This paper describes the Rorschach test situation in the army general hospital. As a description it hardly offers much material for disagreement. Those of us who use the test are naturally interested in what is happening in the setting reported by the authors. This is the more true for those who are using it in the civilian general hospital.

The one point on which I do want to comment is in respect to what, as reported by the authors, is happening in scoring the test responses; particularly "the conclusion typically reached by many psychologists that the precise tabulatory method is not of itself crucial, but rather the basic clinical capacity of the psychologist to remain sensitive and receptive to pattern development and deviant test behavior."

The question is here raised to what extent does this "conclusion" amount to disregard for the formal structure found in a Rorschach test record. This formal aspect was recognized and accounted by Rorschach as essential in use of his test. It is always the first point of departure for interpretation in personality terms, -- the objective result that gives the examiner a visible projection of the human psyche in three dimensions: the intellectual, affective, and unconscious **spheros**.

As such an objective picture it is no stronger, psychotherapeutically, than the factors that comprise it, - those that enter into the "precise tabulatory method" which are reported as being looked upon as not crucial. These component factors that pattern out the structure are represented by certain, now well-known, scoring symbols. They

are valid only insofar as they are experimental and verifiable factors objectively delved out in accordance with usual scientific method. The prerequisites in regard to those Rorschach test factors differ not at all from those for psychological tests generally. From the history of these tests we know that every psychological test is likewise an experiment, the Rorschach test differs from others in psychology only in that it consists of a number of tests (or experiments) in one; about 14, I should say, -- this being the number of variables into which we break up a Rorschach record as we use the test in Michael Reese Hospital. When the summary has been so constructed, i.e., out of objectively valid symbols, we have Rorschach's essential formal pattern. Not until then does the examiner's clinical experience come into play.

An example will clarify my point. A patient gives a Rorschach record in which we find (a) grey-black shock; (b) heavily saturated color responses; (c) notably more than the normal amount of white space associations; (d) aggression implements in the content. From the grey-black shock we conclude to anxiety of deep character force; from the saturated color, energetic, but not well-controlled, feeling contact with the world; from the white spaces, the opposition attitude; from the aggression implements, combativeness. But how do we know that there is actually in this record grey-black shock, saturated color, much white space, aggression content? We cannot know this unless we compare our patient's response record with a normative sphere of reference. In regard to grey-black shock we know how many seconds are usually required for the first response to Figures IV, VI, V, VII, -- a quantitative measure. We can recognize too whether the patient quantitatively varies in these figures in respect to F plus, M, P, among other factors. Similarly, we know how much color to expect in an individual of our patient's level, normally; how much white space; about what kind of content. So we know from what he does that he is or is not deviating from the norm. This is the essential, prerequisite, quantitative, and objective approach to any Rorschach record. From such factors, themselves referable to a stable sphere of reference, we construct a formal pattern, which is the Rorschach personality representative.

Then, and only then, does our clinical sense enter; but then too it becomes a sine qua non. In the patient exemplified, we can say he is in rebellious attitude (s), has hostile thoughts (content), is liable to be carried away by his impulses (color), hence his anxiety (grey-black shock); -- as a self-saving measure. It can be seen then that the clinical insight becomes equally important with the objectivity on which the test rests. It is in this way that the understanding of personality on the one hand; and on the other, objective foundation for the Rorschach test, interlocks. No instrument can do any measuring, or inspecting in itself; it can only be as good as the person who uses it.

USE OF PSYCHOMETRY IN EVALUATING PERSONALITY

Lt. Fred Y. Billingslea, MAC

Lt. William Karp, MAC*

In dealing with the physical area of the individual, the physician is constantly searching for new instruments that will help raise his analysis of an organic condition out of the realm of guess-work. Certain of these instruments are complicated laboratory procedures; others are rapid and applicable on the spot. The physician has a feeling of security in using the findings from such procedures that is in keeping with the degree of reliability of the tests. We in psychology have attempted to develop similar instruments to objectively measure the mental and emotional areas of the individual; i.e., to reduce as much as possible the guess-work in the analysis of these areas. These instruments, too, have their limitations of reliability, but when adequately administered, their results give the clinician the same feeling of security that the physician has when the laboratory report comes back negative or positive.

In the convalescent hospital, we are constantly faced with the necessity of objective evaluation in the following sub-areas:

A. Mental Area

1. Level of intelligence.
2. Inter-cranial organic pathology.
3. Mental inefficiency or deterioration.
4. Adequateness of recent or past memory.
5. Special skills, abilities, or areas of interests.
6. Adequateness of reasoning and judgment.

B. Emotional Area.

1. Personality dynamics.
2. Diagnostic classification or label.
3. Social adjustment.
4. Evidence of sexual maladjustment.
5. Screening out the emotional deviates from the normals.
6. Evidence of dissociation or degree of contact with

reality.

We employ various tests to meet this need with varying degrees of success. These are some more frequently used: Rorschach, Thematic Apperception Test, Bonder-Gestalt, Modified Bornreuter, Minnesota Multiphasic Personality Inventory, Bellevue-Wechsler, Wechsler-Memory, series of army intelligence and aptitude tests, Kuder and Cloetson blanks, Shipley-Hartford, Sentence Completion, Goldstein-Schere's battery for organics, Serial "7" Subtraction, Draw a man and woman, and other individual units that have been collected over a period of years.

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Perhaps some of our experiences with these tests will be of interest to you. The 'Individual Rorschach' continues to be one of our best aids. Its findings consistently substantiate the clinical symptoms evidenced by the patients, and have been often used to throw the weight of opinion either to or away from psychosis. It has proven particularly useful in organizing personality dynamics, giving evidence of dissociation, pointing out sexual maladjustment, and in estimating prognosis. It has helped us in suggesting the presence of inter-cranial organic pathology and post-traumatic syndromes. Finally, it is spectacular upon occasion when it has been the stimulus for causing a patient to bring forth traumatic battle incidents which he has heretofore suppressed. On the other hand, the test has occasionally failed us, too. This is especially true of the Harrower-Erickson multiple-choice modification, which has proved ineffective in our situation.

From the Thematic Apperception Test and our own selection of pictures, we have been able to get the usual suggestions of personality dynamics, but employ it more to supplement the Rorschach by obtaining references to definite situations; i.e., parental rejections or dependencies, asocial attitudes, and strong identifications. War traumatic situations have been revealed by these pictures, and they have been found further therapeutically helpful by so selecting the cards that the patient builds his stories around increasing age levels, thus reviewing his life and attitudes in retrospect without having to tell the examiner that this is what he is doing. Masochistic depressives have been greatly helped by this method.

Little has yet been published on the Bender-Gestalt drawing test. Lt. Max Hutt has been responsible for its dissemination among the army clinical psychologists. It is composed of nine geometrical drawings shown individually on separate cards. The examinee is given a pencil with an erasure, sheets of 8" x 10-1/2" paper, and is told to copy the drawings in any fashion he sees fit. It takes about five minutes. The drawings are interpreted in terms of norms for such things as anxiety, emotional lability or flattening, intellectual level, regression, sexual maladjustment, compulsivity, perseverative tendencies, constitutional psychopathic state characteristics, withdrawal behavior, and others. Four syndromes of these factors have already been organized; i.e., mental deficiency, organic brain pathological involvement, psychoneurosis, and psychosis. In the short time we have employed it, it has often been the means of picking out hidden organic inter-cranial problems, and of pointing the way to further investigation of hidden sex problems. It promises well to be the fad of the immediate future, but much standardizing work needs to be done first.

Draw a man and a woman test is on the same order as the Bender-Gestalt, but is even less well standardized for personality dynamics interpretation. There appears to be a positive relationship, however, between the manner in which the hands and arms are placed and sexual interests, between the differences in ability to draw the two sexes and the individual's identification with a certain sex, and between the elaborateness of the

details of the drawing and mental efficiency level. It does well in supplementing other tests.

The Sentence Completion test is being employed more and more. If the right constructs are offered, it can often be used to take the place of the autobiography, since it quickly indicates areas of conflict, and neurotic characteristics, and is a means of establishing rapport and orientation for future interviews.

Those are the purely non-structured and semi-structured projective techniques that we find helpful. By that, we mean the test's stimuli have not been so organized as to evoke a predetermined response on the part of the examinee; his responses are fashioned by his own personality pattern, how he is set to interpret or perceive his environment. The modified Benreuter and the Minnesota Multiphasic Personality Inventory are two fully structured personality tests which we employ. That is, the stimuli, printed question, are so selected as to be answered by either "true", "false", or "cannot say". The modified Benreuter is less needed now, but it is excellent to about 80% reliability for a quick screening of the neurotics and constitutional psychopaths from a group, and suggests to some extent the degree of abnormality present. We are frequently using the Minnesota Multiphasic Personality Inventory because it gives us a diagnostic label and it can be administered without taking up too much time of the examiner. It gives a profile of behavior classifications plus an estimate of their validity, and it can be easily specially scored for unusual responses to any key questions the examiner may select. We have followed the author's suggestion and reduced the 550 cards to 354, thus saving the patient's time and patience, and reducing the scoring time. We are also in the process of trying the total profile method developed by Schmidt for the constitutional psychopathic state, sexual constitutional psychopathic state, psychoneurotic, and psychotic. So far these have helped in a more accurate labeling in approximately 68% of the cases evaluated. They are not useful in detecting the dynamics involved, however.

We have been employing the Army-Wechsler for an individual test of intelligence because it attacks a variety of skills with greater validity than our paper-pencil tests, and permits clinical qualitative judgment of the patient while he is operating in these situations. Lately, however, we have substituted the Bellevue-Wechsler because of its greater validity and reliability and because we feel more secure in the interpretation of the sub-score scattergram. Besides I.Q.'s in the verbal and performance skills areas, this test tells us much for diagnostic labeling and gives us many suggestions toward the individual's basic dynamics. Wechsler's own techniques have been helpful, but those being developed in the psychological section of the Menninger Clinic are most productive. A measure of the mental efficiency level and mental deterioration is easily obtainable on the test, too. Use of the individual

sub-tests has been extremely helpful for investigating specific problems such as recent memory, organic brain involvement, and vocabulary level.

The Shipley-Hartford test of mental deterioration has become widely used in the Army when time is limited. We find it to have fairly good validity in the middle I.Q. ranges when correlated against the Bellevue-Wechsler. It gives a mental age level, too. This mental age, however, is not too accurate, and the index of deterioration does not adequately tell us whether the lowering of the mental level is simply emotional inefficiency, impairment, or progressive pathological deterioration.

One of our therapeutic devices at the hospital is to give the patient vocational counseling when he requests it. We utilize Kuder's or Clopton's interest inventories plus information from various Army abilities tests as interview orienting devices, and then combine this knowledge with our understanding of his emotional difficulties in an effort to help him take positive steps toward adequately solving his future vocational problems. We do not attempt to advise him in obtaining a specific job.

This is the overall picture of our psychometric program at the Percy Jones Convalescent Hospital. In many ways we have found our efforts worthwhile in helping the patient to adjust himself, and in our understanding of his difficulties. More adequate use of our available tools is still greatly needed. New devices and better standardization of our present ones are a "must." We are attempting to add our bit, in that phase of the work, with validating studies of the Shipley-Hartford, Bender-Gestalt and re-evaluation of some of the Rorschach interpretations.

Discussion of Use of Psychometry in Evaluating Personality

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The paper represented by Lieutenant Billingslea covers so much ground that one does not really know where to begin; what points to emphasize and at the same time, give it the consideration which it commands.

So starting from the end, it may be noted that the authors are unnecessarily apologetic and modest when they understate the value of their contribution. Their selection of a battery, including the Rorschach, the TAT, the Goldstein-Schere's battery for organics, the Bender-Gestalt, and the drawing of a man and a woman - and the Wechsler-Bellevue as well - indicates a basic appreciation of the many problems involved in the evaluation of personality. Anyone who can evaluate the findings with the Bender-Gestalt and the drawings of a man and a woman so as to detect organic brain involvement and hidden sex problems must have an understanding and intuition.

of the many implications of the body-image. The authors probably are acquainted with a study in which the drawing of man differentiated prisoners committed for homosexuality and those who were committed for other offenses. It will be a long time before such devices can be standardized, before the drawings will be more than drawings to those who do not fully appreciate the importance of investigating the body-image.

Lt. Billingslea's experience with the self-administering tests is what is to be expected. They serve a valuable purpose in screening. But in the investigation of the dynamics and structure of an individual personality they yield little information of immediate value. They rely too much on the individual's own cognitive appraisal of his attitudes towards his experiences. This is not too apparent if the examiner himself does not stay with the individual subject while he is filling out the forms or assorting the cards or if the examiner has not had extensive experience in group testing. If the examiner stays with his subject-or even his group-it is surprising how many nuances of the personality are revealed which ordinarily are obscured in percentile ratings or in diagnostic labels. An obsessive-compulsive, for example - and here it may be categorically stated that his psychic ego is over-developed is apt to place all his experiences, all his reactions in an either-or category. So when confronted with a third possibility - cannot say - his doubt is accentuated and he often underlines the true, false, or cannot say without too much -if any- consideration for the content of the questions. Regarding the content, as one boy, suffering from an examination neurosis, put it - it would be "intellectually dishonest" for him to commit himself on so many vaguely formed issues.

But even more important with regard to self-administering tests is the emotional setting. The soldier in the convalescent hospital, now, more than ever before needs the guidance and comfort which are afforded by the presence of the examiner. For over and beyond the ravages wrought by his war-time experiences, he carries a further emotional burden - that involved in making the transition from an organized, group life in which the decisions so vital for the moment were made for him and in which he derived emotional support from the other members in his group. General speaking, as Dr. Benedek shows in her forthcoming book on the Individual in the War - Before and After, there must be many among the soldiers in the convalescent hospital whose dependent needs were brought to the fore by the fact of war-time experiences in general and by the fact of physical injury and disablement in particular. While such men are going through the process of learning to adjust to their new self and of accepting their new body-image, exposing them to self-administering tests may merely reinforce their feelings of helplessness. Certainly the scores of such tests will add little information concerning the dynamics and mechanisms of this emotional state.

This leads us to the Rorschach and the TAT. Here it seems to me that the authors have over-stressed the importance of

traumatic experiences encountered in the war. I have the feeling that a similar finding would be obtained with soldiers who returned to civilian life with their psychic and physical health presumably "intact". A soldier cannot merely take war in his stride; every soldier must have had some experience or experiences in and out of battle which were more or less disturbing and these will not have been completely assimilated into his total personality just because he has finally returned to the United States soil. The elation of the point-happy soldier will certainly be revealed through these techniques as well as the subsequent let down feeling when he finds that he has to wait and wait for passage home. So the important thing to discover in the case of the convalescent soldier is not the trauma or traumas of war, but the pattern of the experiences underlying these - to see how he handles the anxiety, fears, guilts or hostility reinvoked by his disablement - be it physical or psychical. In many cases, I believe, the fantasies will show that these affects and attitudes are projected into the future and will be related to the soldier's apprehension concerning his future adjustment within his family and within his community.

The problem of the psychologist is not so much to create new devices but rather, as Lt. Billingslea intimates, for an enrichment in the use of the available repertoire of tests. The Rorschach for example, is really incomplete without the TAT and vice versa. The Rorschach reveals and delineates how the individual acts when he is confronted with situations which stir up deeply-buried experiences, many of which are closely related to the body-ego and many of which have never really reached the level of verbalization. The TAT delineates how the individual reacts when confronted with situations which more or less correspond or approximate actual experiences in life. It may be said to delineate the defenses; but this is only partly true since many subjects will arrange these situations - the Rorschach and the TAT - in much the same manner as they do life situations. One claustrophobic for example insisted upon making an analysis test of the Rorschach, and at almost every step further insisted that no two people would react alike, whereas he was sure everybody would respond alike to the TAT. In other words, he had rearranged the testing situation so as to avoid temptation and fear just as in real life he had devised many means - including inability to ride in elevators - to master his fear.

I have always been accustomed to asking the subject how he liked or felt about the test given him - even in the case of intelligence tests. The subject's aid is thus enlisted in helping the psychologist evaluate how the subject evaluates his experiences and attitudes. In the case of the Rorschach and the TAT - given in this sequence two other questions are added: which of the two was easier and which was preferred? The answers are found to be differentially diagnostic and delineative. Generally speaking, the neurotic prefers the TAT but finds it harder than the Rorschach - he prefers the TAT because he prefers reality to concentrating on a fantasy life; he finds it more difficult because he is aware of how much he reveals himself in it. The more seriously emotionally disturbed

usually find the Rorschach very difficult and the TAT easier and preferable; they have not learned to build up defenses against the irruptions of their inner life whereas they are unaware that they are giving full expression to their fantasies in the TAT, that they are not really subscribing to the rules, as it were, of the latter. As a 17 year old referred for solitary drinking bouts put it, telling stories was "fun", but the Rorschach was "brain work". In other words, his defenses were not adequate to dealing with the unconscious content evoked by the ink-blot, which was deeply regressive in the repeated expression of wanting to be a new-born babe again, while he had no anxiety or guilt and did not hold himself responsible for his stories which dealt with murder, fear, and disparagement of women, all of which were a cover up for his anger over having been abandoned. Some subjects break the answer to these two questions even further. One, for example, found the main part of the Rorschach very easy, but reacted to the inquiry as though it were an ordeal. The inquiry took about three times longer than the main part. The questions "how" and "where" seemed to express to him that the examiner was questioning his honesty in the main part and this plus the weakness of his defenses merely accentuated his doubts and he seemed to be lost in a maze from which he could not extricate himself-even with the examiner's help.

In a similar fashion, the inquiry may be related to immediate memory. Many subjects respond to it as though it were another test, an entirely new situation. Obviously, if viewed from this point, the inquiry will throw added light upon the personality of the organics and of the feebleminded or low in intelligence as well as upon that of others.

Going even further, it has been found fruitful to devise a categorizing test out of the Rorschach. After the test is completed, the subject is asked to make three assortments into two piles each, they need not be equal. First on any basis at all; second on the basis of which easier, and third on the basis of which he liked more. And each time he is asked the reason for his assortment. Sometimes the answers overlap, more often they do not-but again one obtains additional information without much added work upon how the individual handles his conflicts, on how he reacts to life situations. One subject, for example, whose Rorschach was devoid of color responses, the same subject who found the inquiry such an ordeal, made his assortments on the basis of color. His reasons revealed that he had learned to see all colors as gradations of black and white. It can be easily inferred why he was finding the biological sciences so uncomfortable and why he was in need of treatment. So much emotional and mental energy was being used to see all situations as either-or that he was easily often taken off-guard in his actual handling of them.

The authors indicate the need for a re-evaluation of the interpretations of the Rorschach scorings. Long and varied experience with personality investigative techniques seems always lead to this realization. I am finding that M should be

scored in the sense as originally defined by Rorschach himself. It may then be related to identification, perhaps even to the body image as delineated by the Bender-Gestalt and the Goodenough test. The small m, as defined by Piotrowski, may be interpreted as a projection on to the outside world of inner sensations. The depth responses seem to indicate the presence or absence of a tendency to correct or realistically test the identifications and projections by assaying the fantasy element in them. The integrated personality should give a certain number of depth responses to balance the M's. Further, it seems that the texture responses may differentiate between the hysteric and the obsessive-compulsive patterns of reaction. Some confirmation of the reinterpretation of M is gained from the doctorate thesis of A. Rieger, here a high correlation was found between the number of M's and the number of persons interpolated into the fantasies.

Only one point seems unclear in this presentation; namely, the rationale in the selection of pictures and the type of pictures used. Both these aspects are, of course, a function of the problem investigated, in this case, presumably the ways in which the soldiers have reacted to and assimilated or failed to master their experiences in war and also the ways in which they almost consciously expect to face their future civilian life. Both the rationale and the type of pictures have to be empirically determined; they cannot be decided on *apriori*. Therefore, it seems to me that they should not be exclusively oriented towards the system in which the soldier had to adjust during the war. They should highlight pictures which easily and sharply define displacement and even depersonalization, the latter in the sense of the unconscious getting ahead of the conscious.

I would like to spend more time on the TAT, largely because it is one of the most malleable of techniques. The course of the emotional readjustment can be delineated by using the TAT from time to time. Such use will also define the reactions of the subject, be he soldier or civilian, to the treatment or counseling situation. In the case of a boy of 17, for example, his fantasies showed that he felt impelled to return to a situation which he really did not want and at the same time, they revealed that he might be restrained from any untoward, impulsive act in this direction by the psychiatrist who appeared in his stories as a kind-hearted detective who took him under his wing. In another case, a young boy's fantasies on the eve of a tonsilectomy revealed many fears and much hostility which were greatly diminished in a later series obtained a short time after the operation.

Obviously, as Lt. Billingslea intimates, the use of psychometry in evaluating personality must be thoroughly and cautiously evaluated before the role of the psychologist in counseling and in psychotherapy can be defined. Those interested in fundamental research as well as those interested in psychodiagnostics will eagerly await the publication in detail of the results of the authors' extensive and intensive experience.

RED CROSS PSYCHIATRIC SOCIAL SERVICE IN A MILITARY HOSPITAL

ESTHER OLICKMAN, AMERICAN RED CROSS

The specialized function of the Red Cross psychiatric social worker in military installations for patients depends on the following three factors: 1. Her professional equipment in terms of training, experience and interests; 2. The particular needs and functions of the military installation to which she is assigned, whether it is screening or treatment or evaluation and disposition; 3. The attitude of the psychiatrist toward the service she offers and the use which he wishes to make of her skills.

The major part of this paper, therefore, was based on the individual experience of this worker located at an observation and disposition center of an army hospital in a large city. The largest part of the work was in conjunction with the psychiatrist in the work-up of the patient. The part played by the social worker in this study of the patient was to secure a diagnostic social history taken directly from the patient and supplemented, whenever indicated and feasible, by information secured from other informants. The diagnostic social history, which included subjective material from the patient himself, was found to be more useful and revealing than the outside history secured from the relatives through chapter resources. The latter history was helpful largely in giving factual information of the patient's life story. On the other hand, a diagnostic social history, taken from the patient himself, and sometimes from relatives, was geared to ascertain the kind of a person the patient had been in civilian life as well as during his army service, prior to the onset of the present disturbance. Early personal history and family relationships, as well as the patient's own expressed attitude toward these experiences could point out dynamics of personal behavior which helped the psychiatrist evaluate whether or not the patient's problem was predominantly a deep-seated one or something in reaction to a current situation. If it appeared to be a deep-seated problem, then the diagnostic social study should supply information as to how the patient managed his neurosis previous to the current disturbance and the extent to which it disabled him in civilian life. This account aided the psychiatrist in evaluating what could be expected in the way of adjustment to further army service. If the history pointed up that the disturbance was more in the nature of a reaction to a current situation, the picture of the patient's earlier adjustment helped the psychiatrist determine what could be expected of the patient in terms of handling the present disturbance.

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The social study should also include information to answer such questions as to how well did the patient previously meet emotional strain, disappointments and other difficult situations. What type of defenses had he built up during civilian life to secure him against anxieties and other neurotic manifestations, and had these defenses been broken down by the army situation, thereby releasing a disabling neurosis? It was found that such a social history greatly facilitated the work of the psychiatrist and thereby helped to meet the increasing demands on his time. It was soon learned also, that "his kind of information could frequently be secured from the patient by the psychiatric social worker more readily than by the psychiatrist, as the social worker does not have military status, which sometimes proved a barrier in securing frankness and cooperation from the patient. In some instances, it was found that the patient could talk more easily to a woman. Most frequently the psychiatric social worker was able to give more time to the patient than was the psychiatrist, and if she were skilled in interviewing, she could help the patient elaborate more extensively in an unhurried situation.

When patients have been referred from other medical services in the hospital for psychiatric consultation, the psychiatrist referred these patients first to the social worker for a history as described. A copy of the social history was then attached to the report of the psychiatrist, which was forwarded to the referring medical officers. Several chiefs of medical services had since referred some of their patients directly to the psychiatric social worker for a history of personal and social adjustment before deciding on referral to the psychiatrist. These medical officers would then use this social study as another clinical device in determining the presence and extent of emotional elements in physical complaints. If the social history helped to confirm such factors, the medical officer would then refer the patient to the psychiatrist for evaluation and recommendation. The social history then reached the psychiatrist who used it as a guide in his examination of the patient.

It seemed inevitable that when the patient was discussing emotional material with the worker, she found him to be obviously in need of help right then with his disturbance. However, such treatment was not felt to be the responsibility of the worker nor was it the purpose of the interview. Yet it hardly seemed constructive to open painful areas necessitated by the history, and thereby leave the patient feeling more disturbed than before. We believe that a circumscribed type of treatment could be used in this situation by the psychiatric social worker. In the beginning she tried to be careful not to open up painful areas which were not pertinent, and even relevant material was guarded in this respect. First, if the patient were helped to express his feelings without too much probing, he could gain some measure of relief by doing so. Especially after he was helped in expressing negative feelings, such as hostility, fear, grievances, etc., with a sympathetic reception, could he be given a dynamic

reassurance which stresses the positive factors in his situation. Our contacts usually consisted of one or two interviews, as it was found that more valid history material could be secured in the second interview, after the "ice is broken". Sometimes subsequent interviews were undertaken when the patient indicated a need of discussing his feelings about a social problem or an objective matter. In such instances the discussion was limited to the immediate situation and was related to the objective problem. Such interviews were aimed to help the patients think out loud and thereby gain a better perspective. At times, a series of interview was undertaken with a patient to give him a supportive relationship. This was found most useful with patients returned from combat, who were tense and jittery and who complained of a feeling of strangeness toward civilians, even their immediate family, and were anxious about their inability to relate to them emotionally. In talking about his combat experiences, which were highly charged with emotion, to a Red Cross worker, who herself was a civilian located in a military setting, the patient was frequently helped to bridge the gap emotionally between his military associations and his civilian relationships. This was achieved only in a small measure but it seemed like the beginning of the way back for the patient.

An important phase of the Red Cross worker's responsibility is the service to families of the patients. While securing histories from relatives who visited the hospital, an attempt was made to give them reassurance and some interpretation of the patient's emotional and mental illness. Such service was also given families who lived at a distance, by sending information to local Red Cross Chapters for interpretation. Preparation of the family for the patient's home-coming and in arranging for civilian hospital care, as indicated, was effected in a similar manner.

Beyond the specialized function described above, the psychiatric social worker of the Red Cross in military hospitals is committed to certain definite services similar to those rendered by Red Cross throughout the hospital program. According to army regulation, these universal functions consist of the personal services such as loans and grants, health and welfare reports regarding patients to their families, social investigations of home conditions which are troubling the soldier patients, and any other personal or family problem in the patient's social situation. In addition, social histories required in the evaluation of the psychiatric patient, especially needed for corroboration of factual material, are secured from the family and other sources through the Red Cross chapter service located in the vicinity where the family lives.

In addition the Red Cross psychiatric social worker also attempts to guide the recreation and the arts and skills worker in planning their diversional activities for psychiatric patients. For this purpose she gives the recreation worker in general terms the kind of information about the patient's condition that will help in planning diversional activities according to the patient's needs and the difficulties which may be anticipated. Since the psychiatric patients of this hospital were almost entirely ambula-

tory and the psychiatrist wished that they participate in the general recreation program of the hospital rather than be set apart, no extensive recreation program was planned especially for them as at psychiatric services in other military hospitals. Another function of the Red Cross psychiatric social worker is to help the arts and skills worker in her individual approach to the psychiatric patient. It was found that a patient was more readily interested in creative and diversional activity if it was related to something emotionally close to him. For this reason the psychiatric social worker gave the arts and skills worker a description of the patient's family ties, previous interests and occupation, as well as his present condition. For instance, the following use was made of information passed on to the arts and skills worker. Upon learning that a patient was tense, anxious, worried and upset because, upon return from overseas service, he found he could not relate himself to his family including his fifteen year old son, of whom he was very fond, the arts and skills worker, using this information as a guide, interested him in making attractive toys for the child. This soon engrossed the patient and helped him find his way back emotionally to his family. Incidentally these toys are so ingenious that they are placed on display among the exhibits at this meeting. Another example was of a depressed patient, whose life-long occupation and interest was farming, and who was greatly attached to his parents whose large farm he had previously managed. When this background information was given to the arts and skills worker, she was able to interest the patient in making building plans of a house, and other buildings on a farm near his parents, to which he expected to return after his discharge.

Another service rendered by the Red Cross psychiatric social worker was that of assisting the patient at the time of his discharge from the army, when plans for civilian adjustment were discussed and assistance rendered in connection with them. At the same time, he was helped in filing a claim for compensation if he wished to do so. We found that suggestions for post-discharge could not be too specific as the patient was still at a loss as to what to expect upon return to civilian life after an absence of some years. Sometimes the patient did not even know what he wanted to do nor did he know what is available. Resources in the community as to where he could get pertinent information to help him work out his own plans were given him, according to his general interests. Referral to the local Red Cross Chapter was made, if he wished, for guidance in this. Information regarding resources in the community for psychiatric help was also given him, either upon specific recommendation by the psychiatrist or when the patient expressed a need or an interest in such help. In many cases, as indicated, it was suggested to the patient that he might expect much spontaneous improvement upon release from the strains of army life. However, it was further suggested that should he not be satisfied with his own adjustment after a reasonable length of time in the community, it might help him to know the kind of treatment he could obtain and where it might be secured. Great care was taken not

to give the patient an idea that there would be magic in psychiatric treatment which would solve all of his difficulties. Frequently this discharge interview with the psychiatric patient could be used to mitigate some of his anxieties about the label of "psychoneurosis" as formerly used, by interpreting it in terms of his symptoms which were familiar to him, such as the "nervous stomach" he had had for years; or by pointing up for example, that many other individuals in the general public have similar nervous conditions, yet function adequately in the community. It was further suggested that many prominent and capable individuals in civilian life would be incapable of carrying on in a military capacity.

Since the military installation referred to in this paper is located in a large mid-Western city where there are no through trains, it caused admission to this hospital of many soldiers passing through the city on their way to their posts. This afforded a wide variety of clinical pictures. The hospital is located near a large university and the latter selected this center for the field work training of a unit of graduate students in psychiatric and medical social work where they have an unusual opportunity to observe many different psychiatric problems as mentioned. This has added stimulation to the work as well as having aided in the preparation of more workers for the future needs of ex-servicemen as anticipated.

DISCUSSION OF RED CROSS PSYCHIATRIC SOCIAL SERVICE IN A MILITARY HOSPITAL

BY

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The development of psychiatric adjunctive services has been a military necessity productive of many varied and useful devices which have permitted broader utilization of psychiatry. This paper illustrates how a circumspect, qualified psychiatric social worker may apply her talents in serving the multiple psychiatric needs in a general hospital. There are a number of interesting special functions mentioned here which I believe merit emphasis.

It is a safe guess that others here have experienced a sense of frustration in wading thru a long and detailed factual history in search of information of practical value in appraising the patient. This is understandable when we realize that many histories obtained thru Red Cross channels come from all over the country and are often reported by untrained individuals. But we have seen beautifully constructed histories reflecting training and experience, which seem to have lost their purpose in adherence to rote and composition. Miss Glickman has attempted to remedy this fault in what she has designated here as a diagnostic social history, a psychiatric history which is concerned with dynamics of behavior at various levels in the individuals adjustment rather than a mere chronicle of events and relationships. This type of history is the outgrowth of certain needs in the evaluation of patients in the military setting. The psychiatric social worker whose efforts are closely integrated with those of the psychiatrist soon becomes aware that disposition of patients is always a primary function which demands an answer to specific questions. The diagnostic history is designed to help thru ascertaining individual resources, how the individual has adjusted in the past and, based on this knowledge, how he is likely to adjust in the future. This becomes the background for further psychiatric evaluation, recommendations for disposition and is the initial step in therapy. The patients attention is directed toward an evaluation of himself and painful material is encountered which lead to questions demanding immediate interpretation. How much of this may be done by the social worker depends upon her particular insight and how well her efforts are correlated with those of the psychiatrist. It should be pointed out that interpretations of psychiatrists and social workers may be at variance and that even psychiatrists do not always agree. At least the patient should have the benefit of a uniform approach upon which to build his understanding of himself.

In addition to this work with patients in the neuropsychiatric section this program includes direct consultation with physicians on other services. I am sure that Miss Glickman has found herself in the role of interpreter and teacher of the intricacies of psychosomatic relationships on many occasions. It should be emphasized that the type of history developed about the present:

ing problem and which strives to evaluate emotional factors and distinctly correlate them in the total picture of the disease is of particular importance when working with medical officers not too well founded in the complexities of psychogenesis.

I should like to commend the interesting job done in planning an individualized occupational therapy program. Miss Clickman has worked closely with the occupational therapist in an attempt to reach patients with some type of occupational or recreational activity which would permit a constructive use of individual interest in working out emotional difficulties. In some of the paintings we have been able to trace the progress toward recovery. In one individual the strangeness felt toward his family and children became the basis for a program of toy building and resulted in considerable alleviation of depression. I am sure this has been one of the most interesting and gratifying experiences in the psychotherapeutic effort of this hospital.

MILITARY PSYCHIATRIC SOCIAL WORK
IN AN ARMY CONVALESCENT HOSPITAL

T/3 Robert W. Crusor*

When the neuropsychiatric section of Percy Jones Convalescent Hospital was first activated in September 1944, the role of the psychiatric social worker received careful consideration. The object was to set up within the military framework the same coordination of psychiatry, psychology, and social work that has for decades operated so well in civilian clinics. For each company of one hundred patients there was to be a psychiatrist and a social worker; for each battalion of four companies, a chief psychiatrist, a chief social worker, and a clinical psychologist with one or more assistants. This basic pattern has required little modification as the section grew from battalion to regimental size. When, in June 1945, the War Department issued Medical Technical Bulletin No. 154, entitled Psychiatric Social Work, we were gratified to find that no changes of program or policy were needed, and that we were already carrying on all of the functions outlined in the bulletin.

In a paper as brief as this the early development of the program cannot be outlined in detail, but a description of present social-work functions on the regimental, battalion and company levels will show how it eventually crystallized.

The regimental psychiatric social worker is responsible directly to the regimental commanding officer and chief psychiatrist for the professional quality of social work in the regiment. He supervises the battalion psychiatric social workers and delegates to them the supervision of the company psychiatric social workers. In consultation with the regimental and battalion commanders and the battalion psychiatric social workers, he establishes useful standard practices, makes arrangements for the training of new workers and recommends suitable duty assignments. He coordinates and participates in a program of in-service training and is responsible for keeping the social workers oriented to their basic responsibilities and to changes of regimental program and policy.

The battalion psychiatric social worker is responsible primarily to the battalion commanding officer and chief psychiatrist, and secondarily to the regimental psychiatric social worker, for two duties: (a) supervising social work in the battalion, and (b) actively participating in the battalion group therapy program. As case-work supervisor, he is responsible for the quality of social work in the battalion and for the professional development of workers on the job. In group therapy, he coordinates his activities with the psychiatrists and psychologists, and conducts some of the meetings himself, or arranges for another qualified social worker to do so. In actual practice, most of the battalion social workers were also

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responsible for the social work of one company.

The company psychiatric social worker functions as assistant to the psychiatrist in a specified company of the battalion, and his primary responsibility is to that psychiatrist. However, because the social workers in the battalion must frequently work as a pool, and because of the need for coordination, training, and establishment of standard practices, he is also under the supervision of the battalion psychiatric social worker. Duties of the company psychiatric social worker include: interviewing newly arriving patients individually, and evaluating and recording their social adjustment; obtaining medical histories when previous records need amplification; obtaining psychiatric social histories in cases specified by the psychiatrist; conducting a company counseling service along case-work lines; observing and reporting on the adjustment of patients to their program; liaison work between the company and other agencies, such as the Red Cross and the Personal Affairs Office; fostering the company cadre's understanding and awareness of patient's problems; occasional special assignments, as in group therapy; and, in general, working to define and improve standards of case-work practice within the regiment.

As the patient enters the battalion, he is interviewed by each of the three members of the clinical team. The social worker sees him first, and outlines the local program and the different functions of the professional staff. Vocational and classification matters and scheduling of the regular daily program, as well as psychological testing, are handled by the psychologists; medical matters are of course referred to the psychiatrist, but almost any other questions, except those handled routinely by the company administration, can be cleared by the social worker in his capacity as a company counselor. This is explained to the patient, and in the course of the interview he frequently brings up problems that can be cleared up by administrative manipulation of the local environment, by giving information, or by referral to an appropriate agency such as Red Cross or Legal Assistance.

After this initial processing (which is briefly recorded), the patient goes on a convalescent furlough, in most cases, and returns to his convalescent treatment program. The case worker remains available for counseling, and fulfills among other duties some of the functions of the Personal Affairs counselors in non-psychiatric sections of the hospital. Psychiatric social histories are taken at the doctor's request, and progress notes are recorded whenever there is a significant contact. The psychiatrist takes the worker's evaluation into account in his final summary for the disposition board, and in many instances the worker attends the board. Throughout the patient's stay of perhaps two months there is a continuous coordination of the three services for treatment and disposition, with frequent brief, informal professional conferences.

A wealth of case material lies in the completed records.

Our experience has shown that the great majority of case-work problems fall into two groups: those that can be quickly managed on a simple environmental basis or by referral, and those that are open or thinly disguised expressions of anxiety about dispositions. Underlying neurotic patterns group themselves around the duty-or-discharge insecurity so massively that any attempt to deal with other aspects of the life situation often seems irrelevant and trifling. Thus both military necessity and the patient's own drives have oriented the professional services, including case work, toward settling the main questions of potential usefulness to the Army, and meanwhile furnishing an environment in which individual strength are carefully fostered.

At first the social workers were all men, most of whom had spent at least a year in some other military occupation. Then the WACs began coming, a few in December 1944, a group of fifteen in March 1945. From then on the sexes were about equally represented. Early misgivings about the effectiveness of WACs with patients who lived in a barracks rather than a ward proved groundless, and they fitted into the professional organization very satisfactorily. Men and women have had the same type of work.

Qualifications varied greatly, both in academic background and experience. Only four or five of the social workers had both a Master's degree and several years' experience in psychiatric social work. One or two lacked a bachelor's degree, but had had close contact with psychiatric patients for many years on a semi-professional level. Of the remaining twenty-odd, the typical social worker had had some graduate courses in social work and a few years of experience with a public agency.

The program of in-service training for social workers was kept to a minimum expense of time; we were too busy to attend many meetings. Psychiatrists and case-work supervisors taught the newer and less experienced workers on the job. A guide was prepared to outline standard procedures and practices, such as initial processing, and preparing psychiatric social histories. (Care was taken, however, not to carry standardization to the point of hampering professional ability.) These measures still fell short in one way. Many of the workers, although skilled interviewers, needed to know more about some aspects of psychiatry in order to take more useful histories. A series of lectures and discussions was started, with all the workers in the regiment meeting for two one-hour periods each week. One of the battalion commanders, Captain Alexander Hirschfeld, lectured on psychodynamics for one hour; the other hour was a discussion of case-work applications by Mrs. Margaret Schilling, Field Director of the American Red Cross at Percy Jones and formerly on the faculty of the University of Michigan. We feel that it has contributed notably to the effectiveness of our group.

Group psychotherapy by social workers has intentionally been kept to a definite content. The worker led discussions on topics connected with the social welfare of the patients. The G.I. Bill of Rights, National Service Life Insurance, Reemployment Rights of Selective Service, Veterans' Preferences in Civil Service, location and function of state and federal veterans' agencies, of civilian psychiatric clinics, of social welfare agencies, and so on. These discussions afforded an opportunity to stimulate healthy attitudes toward numerous questions of social adjustment. This led into the field of mental hygiene, the enunciation of whose principles became an important feature of the social worker's contribution. When discussion verged on specific medical problems, the workers could better clarify the potential usefulness of a psychiatrist. In the intense give-and-take of those meetings there was often plenty of hostility worked off. At the same time the worker had an enlightening contact with morale problems of the patients as a group.

This paper is written just after the collapse of Japan, when both social workers and patients are sharply confronted with post-war adjustment. The social workers have little to fear. Demand for their services can be expected to keep up; and they have lost nothing, except financially, by their military experience. They have had the unique opportunity to work in an authoritative setting with large groups of patients with neurotic or less serious diagnoses, most of whom have been reasonably well adjusted as civilians and as soldiers until the stress of combat led to a breakdown. The psychiatric social workers at Percy Jones agree that their experience in the army has been valuable. In another paper a few impressions gained from this experience will be presented.

REFLECTIONS OF THE MILITARY PSYCHIATRIC SOCIAL WORKER
APPLIED TO CIVILIAN-CASE WORK PRACTICES

Private First Class Vincent Garoffolo*
and
Corporal Howard Book*

At the neuropsychiatric section of the Percy Jones Convalescent Hospital, the enlisted military psychiatric social workers have interviewed and recorded data on a large number of men who have been treated and discharged for psychiatric conditions. These men have been veterans of overseas service as well as, in the majority of cases, men with front-line combat experience. We have thus had an unusual opportunity to develop a body of observations and knowledge regarding the attitudes, conditions, and needs of these men.

The enlisted military psychiatric social worker is in no ordinary relationship to the neuropsychiatric patient at Percy Jones. We live in the same barracks with them, share the same mess halls, use the same recreational facilities, and we often become their intimate friends. We sometimes know more about them than appears in their clinical charts. Hence, we believe that our knowledge and understanding of these men has a completeness that is not to be found in the orthodox case worker relationship. Also, as members of the clinical team (psychiatrist, clinical psychologist, psychiatric social worker), we have participated in the evaluation of the patient's convalescence and, ultimately, his disposition.

In this paper, our comments are restricted to that NP patient whose symptomatology, condition, and apparent needs were most frequently and, we believe, most characteristically present. It is this NP casualty that civilian agencies will need to be most knowledgeable about. This NP patient's condition corresponds to the clinical entity, the combat syndrome. This clinical picture was described yesterday in a paper by two neuropsychiatrists, Major Hersloff and Captain Brodsky, of the neuropsychiatric section at Percy Jones.

It is our general impression that, for the majority of men we interviewed, previous adjustment history did not signify any notable disposition to breakdown. Childhood, school, family, marital and employment adjustments were, for these men, reasonably effective. Those with strong neurotic backgrounds were, we feel, in the minority, and represent broadly those to whom we refer as the "usual social agency client". We did find and we did learn that their condition was almost wholly related to the nature of their military experience and the severity of their combat duty.

Our experience has shown that these men assimilated and developed bewildering preoccupations with home and family problems. This engrossment with family economic and health conditions became attached to an entangled in their anxiety state. Absence, idealizations, their lack of confidence,

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their generalized sense of insecurity, all make current home situations something which requires thoughtful and meticulous guidance. The burden of this work will fall almost entirely upon the civilian case-worker. The effectiveness of the military worker in dealing with these problems was limited, both by the feeling on the part of the patient that these problems would best be taken care of by an army discharge, and by the fact that the patient was still removed from the actual situation. These problems were discussed with the patient by all members of the clinical team and possible courses of action suggested. The civilian case-worker will have to take over from that point, in the specific situation in which the veteran lives, with due regard both to the uniqueness of that situation and the individuality of the veteran.

This, then, is, in general, the NP patient whom we know best and about whom we have developed certain conceptions for their further rehabilitation. Now for more specific suggestions.

It would be a great saving of the discharged patient's time and endurance, if civilian case-workers, and others were able to utilize the medical and psychiatric clinical records of these patients. Here are detailed accounts and chronological histories of hospitalization, of therapeutic measures, of response and of the sequence of treatment. If the civilian worker is forced to ignore this material, and, of necessity, to proceed independently to prepare routine case data from this NP patient, the consequent waste will be only incidental to the immediate hostile and uncooperative response of the patient.

In many ways, these men have been "processed" into a state of unyielding infuriation. They have filled out countless forms and answered countless questions and they have had to tell their story over and over again; their answers have become stereotyped. As the social work interview began, there was the unfailing and not unvehement, "What, again?" We too learned that by skilled use of their overseas records, we could avoid partly, at least, some of their impatience with the dizzying duplication of record-taking, history-taking, question-asking and guidance-giving. We can only hope that steps will be taken to make this information more accessible to the civilian agencies responsible for the handling of the veterans problems.

Along with our recommendation for the use of these records, a word or two about the evaluation of one section, namely the military adjustment. Part of our work was to evaluate the patient's adjustment in view of a possible return to military duty. Under such circumstances the military adjustment of the patient was of paramount importance. In a civilian setting the veterans military adjustment should take on less importance than we were forced to give it. The case-workers evaluation of the individuals potential possibilities for adequate future social and economic adjustment should not be influenced too strongly by apparent irregularities during military service. In the day to day life of these men as civilians the stresses and strains which they will now face will not be as severe or as strange as those which they experienced in the Army. But these experiences should not be completely overlooked and the civilian social worker will be faced with the problem of evaluating the military adjustment of a veteran. The actual information will be meager in most cases and it would be a serious mistake to try to secure detailed information by prolonged

questioning. The chance to forget about army experiences was, almost without exception, an inextricable part of the "get out of the Army" feeling which dominated these men when we talked to them.

A pertinent example should help in clarifying this discussion of evaluation. It often happens that a soldier with a completely satisfactory and even praiseworthy military record is never advanced in rank even after two or three years service. There are a multitude of reasons for this, none of which reflect upon the soldier. He is often resentful over this and in fact, disappointments concerning promotions has been recognized as one of the contributing factors leading to war neuroses. At all times, in dealing with this problem, it should be remembered that the veterans own evaluation of his military experiences will change as he becomes further removed in time, from these experiences, and the case-worker should keep pace with these changes.

On first contact many veterans will face the civilian worker with an attitude reflecting a type of distrust. He expresses this attitude in the statement "No matter what they do, the GI will be left holding the bag sooner or later." A cold factual comparison of present legislation with veterans legislation of the last war will do little to change this attitude. It can be changed best by action, action which is of immediate tangible assistance to the veteran. Most efforts, however skillful, to present a morale building sales talk on any legislation now in force will have the opposite effect and will confirm his suspicions. Those opportunities which do exist in veterans legislation should be explained factually and related specifically to the veterans individual needs. Then, if he can qualify and receive direct benefit, that fact, in and of itself, will be sufficient to induce some revision of his distrust as to what happens to the ex-soldier.

We too, learned that, if a patient needed advice or help from his legal assistance officer; or information about back pay, awards, decorations; or advice regarding medical care for his family; or his rights under the G. I. Bill—that it was not enough to tell him to see somebody else, in a certain building, blocks away, and then forget about it. We tried to get the answer ourselves. If we didn't have or know the answer, we arranged for his appointment to get the answer. Then we made certain that the appointment was kept and that he returned to discuss with us what he had learned and what he had decided to do about it. In this way, the social worker participated in the developing adjustmental process as well as reinforcing his total relationship with the patient.

Civilian case-workers must add a new term to their conceptual apparatus. This is: "To sweat out." It is at once a penetrating concept of army life as well as a critical description of a soldier's reaction to virtually all orders, all promises and, ultimately, his total predicament. It is a concept of resignation; but as a civilian this resignation is apt to become, instead, instantaneous aversion if the patient senses himself in a situation which represents a "sweating-out process." There is, already, some evidence of where this is most likely to occur. It is what can only be designated as "The Referral Run-around", and it is a practice which is guaranteed to delay as well as obstruct the rehabilitation of the discharged NP casualty. We believe it to be a matter of the first importance that this referral run-around be entirely absent in any case-work with these men. The real problems of job-placement, medical care, housing and

family understanding must be effected in terms of the patient's total needs, directly, and not in any loose, indiscriminate referral manner.

It may appear that we have overemphasized the "let the veteran alone" approach in our concern about over-questioning, and his sensitivity along stated lines. In reality we have set the stage for another important suggestion. We believe it would be advisable to allow the veteran to "set his own pace" in the solution of his problems. The civilian worker will have one advantage which was absent in most situations when we interviewed the patient. That is, the veteran will have assumed the initiative in seeking assistance from the social agency. In our set-up he entered our initial interview as an apathetic if not unwilling participant. Subsequent appointments that suggested, unavoidably, a military order were rarely conducive to genuine spontaneous conversation.

In the civilian environment the social and economic adjustment of the veteran will be his primary concern; he will have assumed some responsibility for the solution of his own problems; and he will discuss these problems with more spontaneity than when he phrased answers in terms of "what effect will what I say now have upon my discharge?"

Allowing the veteran to "set his own pace" is, we think, basic to the important problem of restoring self-confidence. As the veteran sees the solutions to his varied problems being worked out with him on his own schedule he will develop insight and self-confidence far more effectively than if he felt himself "pushed" or "forced" to accept a solution. This practice may be more time consuming, during the actual solution process, but we believe it will be worthwhile in the over-all picture of the veterans rehabilitation.

CONCLUDING REMARKS:

Colonel William J. Bleckwenn: If the attendance record is a criterion I am certain you will agree our meeting has been a real success. We have had a total of 702 individuals register in the two days. Yesterday, by actual count, there were 450 people in the auditorium.

May I express my personal appreciation for the remarkable cooperation of all who participated in this program? I feel more than repaid for the effort of arranging the program and details of the conference. The generous and constructive discussion of our distinguished guests has been inspirational. I feel that this joint conference with all groups interested in post war care of our neuropsychiatrically disabled will send us on our way with renewed hope and determination for the future.

I declare the conference officially adjourned.

LIST OF DISCUSSANTS OF PAPERS

- Dr. Franz Alexander, Chicago, Illinois
Director, Chicago Institute for Psychoanalysis
- Eva Ruth Balken, Ph.D., Chicago, Illinois (University of Chicago)
Assistant Professor of Psychology in Department of Psychiatry
- Samuel J. Beck, Ph.D., Chicago, Illinois
Michael Reese Hospital
- Major Nathaniel J. Berkwitz, Chicago, Illinois.
Psychiatrist, Cardiner General Hospital
- Captain Francis J. Braceland (MC) USNR, Washington, D. C.
Chief, Division of Neuropsychiatry, Bureau of Medicine & Surgery
- Dr. Hugh T. Carmichael, Chicago, Illinois
Associate Professor of Psychiatry, University of Illinois
- Dr. Loyal Davis, Chicago, Illinois
Professor of Surgery, Northwestern University Medical School
- Dr. Francis J. Gerty, Chicago, Illinois
Professor and Chairman of Department of Psychiatry, Univ. of Illinois
- Dr. Frederick A. Gibbs, Chicago, Illinois
Illinois Neuropsychiatric Institute
- Esther Goetz Gilliland, Chicago, Illinois
Director of Music, Wilson Branch, Chicago City Junior Colleges
- Dr. Maxwell Gitelson, Chicago, Illinois
Director of Psychiatric Service, Michael Reese Hospital
- Dr. Ward C. Halstead, Chicago, Illinois
Department of Psychiatry, University of Chicago Medical School
- Dr. Ralph C. Hamill, Chicago, Illinois
Associate Professor of Psychiatry, Rush Medical College
- Dr. George B. Hassin, Chicago, Illinois
Professor Emeritus, University of Illinois College of Medicine
- Lieutenant Commander R. S. Lourie, (MC) USNR
U. S. Naval Hospital, Great Lakes, Illinois
- Dr. John J. Madden, Chicago, Illinois
Professor and Chairman, Department of Neuropsychiatry, Loyola Univ.
- Dr. L. J. Meduna, Chicago, Illinois
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(List of Discussants - continued)

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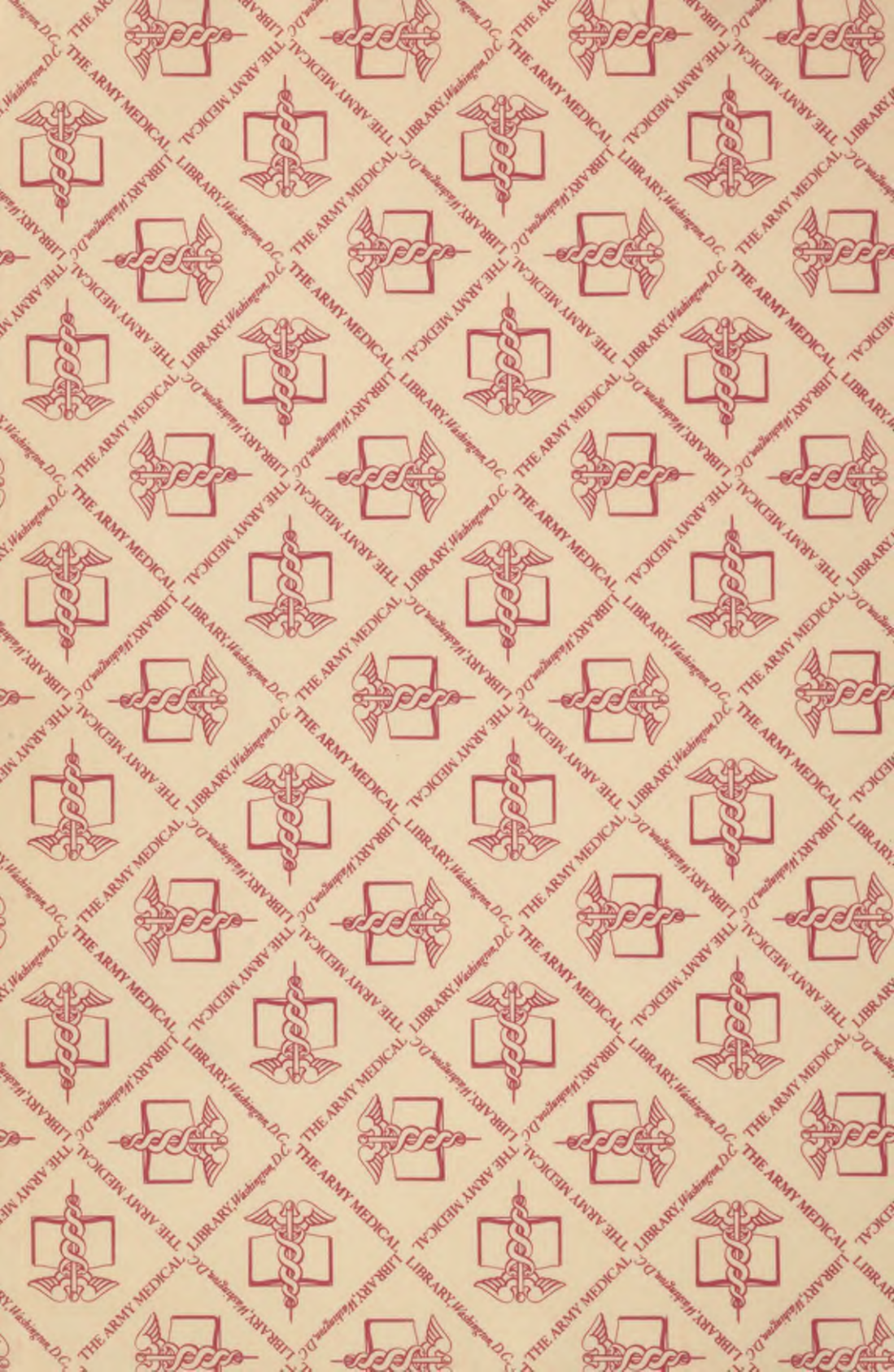
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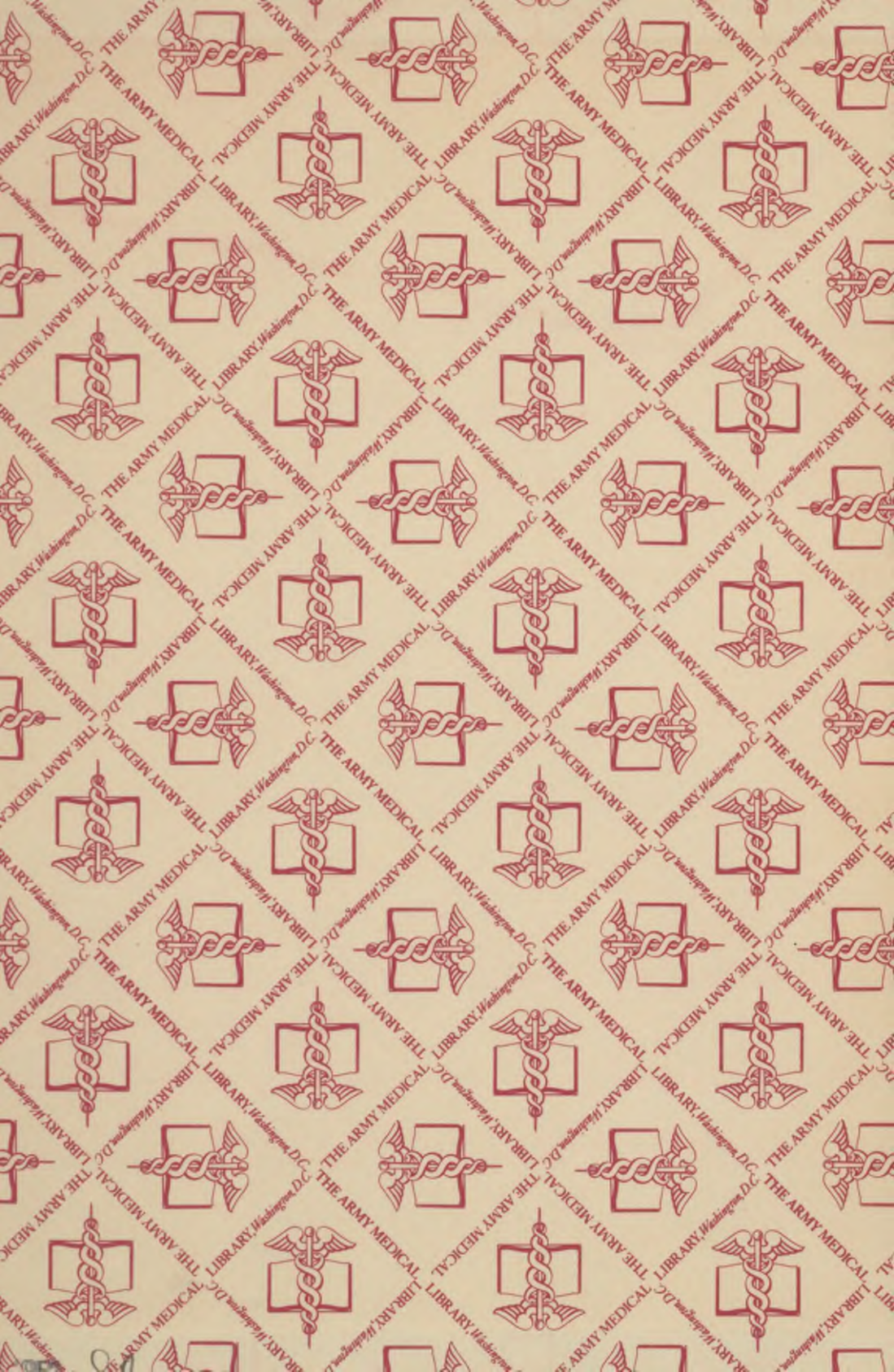
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