

ics, suggesting the occasional existence of a marked degree of hypersusceptibility; and in such cases doses which are relatively small, as compared with the average commonly employed, may actually be several times the minimum which would be fatal in the particular individual, so that even the most effective resuscitative measures may well fail under such circumstances.

While cardiac massage cannot be carried out so efficiently in man as in the cat, it can be performed sufficiently to cause the greater part of an intravenous injection of epinephrin to reach the heart; and several satisfactory methods are available for carrying on artificial respiration in man. These measures, also, are all such as can be applied without loss of time under most conditions, and they certainly seem to be the most effective means at our disposal for saving life after the development of symptoms of acute intoxication by the local anesthetics. Since acute poisoning in man occurs when least expected, those who frequently employ these local anesthetics should always be prepared to apply the three resuscitative measures of intravenous infusion of epinephrin, artificial respiration, and cardiac massage. All three should be used in combination, since no one alone is effective, except in rare instances.

Finally, in order to diminish the likelihood of intoxication from the subcutaneous injection of the local anesthetics—especially those of Group 1—in man, epinephrin should be added to their solutions as a routine, because by delaying their absorption it renders it more probable that the destruction by the liver can keep the amount present in the circulation at any one time at a point below that sufficient to cause intoxication. The use of epinephrin also has the further advantages of prolonging the anesthetic action of a given quantity of the drug and of reducing the amount required for anesthesia by permitting a larger proportion of the dose injected to remain in contact with the tissues to be anesthetized, and by maintaining the contact for a longer period of time than when the drug is injected alone.

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ABSTRACT OF DISCUSSION

DR. DAVID I. MACHT, Baltimore: I wish to say a word concerning the toxicity of the recently discovered new local anesthetic, phenmethylol or benzyl alcohol. If you inject into the saphenous vein of an unanesthetized normal dog (as can easily be done), a 1 per cent. solution of benzyl alcohol in doses of 20 c.c. per kilogram weight of the animal, the animal will get up and play as normal as ever. This is not the fatal dose of the drug. The fatal dose is at least forty times less than that of cocaine. As far as I know, this toxicity is less than that of all the commonly known local anesthetics. The low toxicity is due to the fact that the drug is not an alkaloid or a narcotic, but a simple compound, which is easily and rapidly metabolized and detoxified by the body and is excreted for the most part as hippuric acid.

Mother's Milk and Cow's Milk.—Many are familiar with the chemical difference of the two milks, but we wonder how many really appreciate the total difference in physical and chemical properties. The fats of the two milks contain different proportions of palmitic, stearic and oleic acids, have different melting points, and the fat globules are of different size, all producing a difference in digestibility and absorbability. The proteins contain different proportions of casein and globulin and a different amount of lecithin and chemically combined phosphorus that are very important in bone formation and brain development.—Julius Levy, M.D.

HYSTERICAL HEMIPLEGIA

REPORT OF CASE RESULTING FROM A SHRAPNEL
WOUND OF THE SCALP AND PRESENTING
INTERESTING CLINICAL FEATURES*

HARRY H. DRYSDALE, M.D.

AND

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CLEVELAND

While the history and clinical picture we are privileged to report may not be considered especially unusual by those medical officers who, during the great war, encountered all manner of functional nervous manifestations, the condition nevertheless does possess features of interest to the general practitioner and presents several points worthy of discussion by the neurologist.

REPORT OF CASE

History.—W. P. W., a married man, aged 29, American, marine diver, enjoyed good health during youth and obtained a common school education.

So far as we could determine, the family history presented nothing noteworthy. His mother and father were dead; the former died from a complication of diseases at the age of 62; the father succumbed to pneumonia a few weeks before. The patient had two brothers and two sisters. One brother died from wounds, in France, during the past year. The remaining brother and two sisters were alive and well.

April 22, 1902, he enlisted in the United States Navy; he contracted malaria during July, 1903, and was discharged for this disability, May 10, 1904. Shortly thereafter he was awarded a monthly pension of \$12, which is still in force.

After this country declared war against Germany, this man applied for enlistment in the military service of the United States, but was rejected at Detroit and Cleveland as "medically unfit," for what reason we are unable to ascertain; but it is presumed that the examining officers took into consideration the fact that he had been discharged from the Navy as physically disabled. May 1, 1917, he was accepted by the authorities at Windsor, Ontario, and went overseas with the Canadian Expeditionary Forces, June 27, 1917.

His service at the front was uneventful until on or about Aug. 1, 1917, when he claims to have volunteered to accompany a rescue party, at night, in search of their captain, who was reported lost in No Man's Land.

The officer was found severely wounded and in need of prompt surgical attention. In the face of a heavy German bombardment this soldier started back to safety, carrying the wounded officer. As he approached the communicating trenches, shells were exploding thick and fast; but he succeeded in delivering his charge to the stretcher bearers. At that moment he felt a sharp sting on the left side of the head and believes he fell forward into the trench. He was treated at the clearing station during the subsequent twenty-four hours and then removed to British General Hospital No. 8, where it was found he was paralyzed on the entire left side of the body, including the face. The period of unconsciousness, he stated, was brief. He was confined to bed for a period of one month. Since then he had been able to get about with the aid of crutches or a cane.

Oct. 28, 1917, he was transferred to England and received treatment and observation in several special military hospitals. During the many examinations he heard his condition discussed as a "hemiplegia" resulting from a shrapnel wound of the left scalp. He intimated that the examiners used the term contrecoup. The weakness of face, he avers, gradually disappeared in a few weeks.

* Read before the Section on Nervous and Mental Diseases at the Seventieth Annual Session of the American Medical Association, Atlantic City, N. J., June, 1919.

June 7, 1918, he was invalided to Canada and further observed. The disability, however, remained practically unchanged and he was discharged at Toronto, Jan. 2, 1919, as "medically unfit." A monthly pension of \$50 was granted him.

From the medical history of this soldier as recorded in the final report of the Canadian Medical Board, dated Toronto, Ont., Dec. 12, 1918, a copy of which was kindly furnished me by Major E. E. Fletcher, I quote the following:

"History: Wound of left side of head by piece of H. E. shell and struck on head by piece of timber. This was followed by hemiplegia on same side as wound. Hemiplegia may be due to contrecoup or more likely to some intracerebral vascular disturbance. X-ray of skull negative. Operation considered inadvisable.

"Present Condition (Objective): Power of left arm poor throughout, about one-third normal. Loss of all power for fine movements of left hand. Partial loss of power of left leg. Coarse tremor of left arm and sometimes of left leg. Sustained left ankle clonus. Plantar reflexes give Babinski response on left side. Left foot held in position of partial equinovarus. Can walk (using a stick) with marked limp on left leg. Sensation normal; no astereognosis. Small depressed area on left side of skull about 2 inches above left ear. Is somewhat emotional and at times hysterical. There is slight mental deterioration.

"Present Disability: (1) Partial loss of function of nervous system. (2) Defective eye sight.

"Final Conclusions of Board: Wassermann on spinal fluid and blood negative several times in England. Disability of soldier now 100 per cent. The report also states that this soldier told one of the medical officers there was a weakness of left side of body, following his attack of malaria in 1903; but he now denies having made this assertion."

Examination.—Our first examination, Jan. 20, 1919, disclosed a man of large frame and excellent development. He was exceedingly tremulous, anxious and depressed. He walked with crutches, carried the left arm close to the body, and dragged the left leg in a somewhat flexed position. The fingers of the left hand were firmly contracted but not of the Babinski and Froment type of reflex contracture. A partial left hemianesthesia prevailed; reflexes of the left side were quite sharp; a fairly well sustained clonus of the left ankle and left patella were detected, and as typical and complete a Babinski response of the left foot as we have ever encountered was elicited. The Oppenheim and Gordon signs, however, were absent. The left leg was paretic and slightly atrophied without appreciable change in the electric reactions. No vasomotor or thermic abnormalities existed.

A healed depressed scar, about three-fourth inch in length, adherent to the skull, was found on the left scalp at a point about 2 inches above the left ear. This wound is said to have been infected. The small toe of the right foot was amputated some years ago following a crushing injury.

The heart, lungs, blood vessels and abdominal viscera were normal. The pulse rate was 110, regular and of fair volume. The blood pressure measured 115 mm. systolic and 98 diastolic.

The patient's record, as personally related, plus the physical findings, was strongly suggestive of an organic palsy, and not until his history was further scrutinized and a more careful study made of the symptoms did it appear that we were probably dealing with a functional derangement.

He went on to say that he had returned to Cleveland a cripple, and he became quite emotional as he told of his wife's unfaithfulness during his absence in France and how he had lost his American citizenship by enlisting in the Canadian army. He stated that he had applied at the U. S. Marine Hospital, this city, in the hope that the trouble in his brain might be located and possibly corrected by surgical means. If his condition was incurable he wanted to know it at once, as suicide was preferable to a life of invalidism.

Complete roentgenograms of the skull were made by Dr. T. J. Taylor at Lakeside Hospital, and not a single suspicion of fracture was detected.

Dr. Leo Wolfenstein made a painstaking investigation of the eyes, and reported that the patient claimed defective vision of the left eye, apparently about 20/100; but when he placed a plus 6.00 sph. in front of the right eye, the vision of the left eye was found to be at least 20/30. In the right eye, the patient claimed vision of about 20/70, but with a little strategy the vision of the right eye proved to be normal. During his observation of the case the vision seemed to vary from time to time. The eye grounds were entirely healthy, and no error of refraction was detected. The fields also varied considerably from day to day. There was no nystagmus.

The spinal fluid was obtained by Drs. Richard Dexter and C. L. Cummer, and their findings were: Pressure, not increased; globulin, not increased; cell count, none.

The Wassermann reaction read: 0.1 c.c., negative; 0.3 c.c., negative; 0.5 c.c., negative; 1.0 c.c., negative.

Treatment and Result.—Arrangements were then made to subject the patient to a systematic plan of therapy. He was candidly informed that his brain had not been organically damaged, and was assured that if he would cooperate with us a recovery might consistently be expected. It was explained to him that he undoubtedly had been severely shocked and his nervous system undermined thereby; but the trouble, fortunately, was functional.

Sedatives were used to allay the extreme emotionalism and to overcome a persistent insomnia. Saline baths each night, galvanism every other day, and regulated exercises were prescribed.

From the very beginning, a decided change for the better was noted. His nervousness gradually abated, and he became enthusiastic and hopeful. In less than two weeks his gait was very much more stable, and to our surprise the alleged Babinski phenomenon and clonus of the left ankle and knee disappeared. Crutches were discarded for a cane, and within a month he was able to go about unassisted. He complained, however, of difficulty in crossing congested streets. Crowds excited him, and he sometimes feared he might lose his control and be injured by some passing vehicle.

During the first six weeks the left hand remained more or less contracted. He told us, however, that sometimes when alone he was able to walk and use the left arm almost as well as before he was wounded; but the moment he came in contact with people the paralysis would recur. With the use of electricity we seldom failed to relax fully the contracted left fingers, but the result was temporary. As an additional suggestive measure, alcohol was injected into each left finger with the same psychic effect. On one occasion he remarked that the alcoholic injections seemed to release something in the left side of the head.

Time after time this soldier would report for treatment remarkably improved and highly encouraged. At other times he was tremulous, fearful and deeply depressed. Trouble of some sort continued to cross his path. Always impressionable, the slightest annoyance invariably aggravated the disability and increased his nervousness. A chance meeting with his alleged unfaithful wife, a death in the hospital and the notification of his father's demise were some of the numerous perturbations which retarded his progress. As our observations proceeded, we finally were convinced that the Canadian medical officers made a proper interpretation of his mental state. He was not only poorly equipped to withstand ordinary strains and stress but wholly incapable of adapting himself to his environment. Many of his statements proved to be base prevarications, and he made claims that were extravagant and oftentimes sensational. His chief ambition was to pose as a wounded hero, and he habitually feasted on pity and sympathy. One day I saw him marching in a military parade, leaning heavily on a cane and carrying the left arm in an unnecessarily awkward position for the evident purpose of attracting attention. His expression of sadness and dejection was pronounced.

For a while the condition, though greatly improved, remained somewhat stationary, and we decided to take a firm stand with him. Instead of remaining at the hospital to follow instructions, he was wandering about the streets mak-

ing acquaintances of a questionable character. The odor of liquor had been detected on his breath; but this he stoutly denied. He did, however, admit that persons had stopped him on the street and urged him to forsake medicine and seek relief at the hands of various cults whose cures, they declared, were more permanent.

We openly accused him of loafing on the job, and he was told that it looked very much as if he was not especially anxious to regain his health so long as he enjoyed monthly pensions in the amount of \$62. This seemed to jar him, so to speak, and he instantly retorted that if he could be convinced that the paralysis would never recur, a full recovery would probably follow. He also admitted that his general sense of well-being was greatly improved; that the paralysis was ever so much less; that the nervousness and insomnia had practically subsided, but that he was constantly haunted by the fear that a piece of shrapnel had penetrated his brain, as the examining officers so often declared. Another interesting assertion was the confession that more than once he felt as if his health had been restored, but some excitement would arise to blast his hopes.

At the final examination, May 15, 1919, the patient looked well and was adequately nourished. He had gained 10 pounds in weight. He walked alertly with a slight limp, favoring the left leg. He was able to stand erect with the heels and toes together, and could stand on either foot unassisted. No clonus or Babinski toe response prevailed. He carried the left arm in an almost normal position, but there remained a moderate contraction of the thumb and first finger of the left hand which interfered with the fine movements of the left hand. The grasp of the left hand and the strength of the left arm and left leg were vigorous. The heart action was normal. The pulse rate was 88. The blood pressure measured 130 mm. systolic and 98 diastolic. The depressed flesh wound of the left scalp remained unchanged. The patient was able voluntarily to extend the great toe of each foot while the remaining toes retained their normal position. The tendon of each extensor hallucis longus was still prominent.

Mentally he was quiet and self composed. He had lost much of his emotionalism and apprehension, but was still morbidly impressionable. He was optimistic as to his recovery, which he believed was not far distant. He stated that during the excitement incident to the recent socialist uprising in the Cleveland streets, May 1, he almost forgot that he was a cripple.

COMMENT

The case is of interest in consequence of the confusing nature of the neurologic symptoms. Our initial examination disclosed a contracted left hand, a decided weakness and limp of the left leg, plus an apparently complete Babinski phenomenon of the left foot with a more or less pronounced clonus of the left ankle and patella. These clinical observations were also detected and recorded by the Canadian medical officers, and unquestionably influenced their opinion that the affliction was an organic hemiplegia and therefore a total disability.

At first we readily would have agreed with this classification; but the facts that the soldier sustained a slight flesh wound of the left scalp followed by paralysis of the same side of the body, including the face, and that subsequent roentgenograms of the skull and Wassermann tests of the blood and spinal fluid were reported by competent observers to be negative aroused sufficient doubt in our minds to warrant delay in forming a definite conclusion.

After one month's observation and treatment we became convinced that the disability was none other than the expression of a hysterical disturbance. The early subsidence of the suspicious nerve signs and the marked general improvement by suggestive measures

only, the abnormal impressionability of the individual, his inability to withstand the ordinary pin pricks of life, the pronounced emotionalism, and the eye manifestations did much to shape our diagnosis.

Little significance was placed on the clonus of the left ankle and patella, as this symptom frequently occurs in functional disorders and is therefore worthless as a pathognomonic sign.

The possibility of an admixture of hysteria and an organic lesion was carefully considered and eventually excluded. Nor did we overlook the importance of the reported observations of experienced neurologists that hysteria has never developed on the battlefield or when the soldier is still in danger, but only when he finds himself in relative safety. This patient is unable to give any reliable data as to when the paralysis first appeared. During the first twenty-four hours he was dazed and confused, but he entertains a vague impression that the condition developed while en route to the hospital in a military train.

The question now arises as to whether or not the alleged Babinski response of the left foot was genuine and therefore pathologic. We are inclined to doubt it and prefer to interpret the phenomenon as a psychogenic movement of resistance. On the other hand, when the sole of the left foot was gently stimulated there was a prompt, though slow, dorsal excursion of the large toe, and a simultaneous plantar flexion of the four external toes, symptomatic of the Babinski reaction. Perhaps the undue prominence of the tendon of the extensor hallucis longus as well as the patient's ability to cause voluntarily a full dorsal movement of both large toes, while the other toes retained their normal position, may have influenced the behavior of this symptom.

In medicolegal work, instances are on record in which litigants have ingeniously succeeded, after some practice, in producing a full upward movement of one or both large toes, in much the same manner as certain persons have learned to wriggle an ear or wrinkle half of the forehead; but this patient emphatically denies that anything of the sort ever entered his mind.

The man has been under systematic treatment for a period of four months; and, while he is still partially disabled, a full recovery, we believe, may reasonably be anticipated.

Unfortunately, he has been subjected to innumerable examinations and tests; has listened repeatedly to discussions and controversies concerning his condition; and during his long residence in various special military hospitals, has come in intimate contact with all sorts of nervous invalids. All of this has undoubtedly tended to impress on his susceptible mentality the conviction that he is an incurable paralytic. It is also important to note that as a result of his extensive medical experience he has acquired a knowledge of "traumatic hemiplegia," which is interesting if not instructive. Then, again, if his disability has earned for him monthly pensions sufficient to satisfy his ordinary needs, without exertion on his part, there is little incentive to call into action his higher control. On the contrary, it is apt to operate, consciously or unconsciously, as a deterrent to his recovery.

Finally, it may be added that this clinical report serves the additional purpose of pointing out with what degree of perfection hysteria may simulate organic disease, and also emphasizes the difficulties one experiences in avoiding errors in diagnosis.

ABSTRACT OF DISCUSSION

DR. ALFRED GORDON, Philadelphia: The Babinski sign has been reported to have been found in cases of hysteria, but a careful examination will always reveal some error in the procedure or the method of bringing out the reflex. One has to stroke very gently the sole of the foot in order to bring out a genuine Babinski without dorsoflexion of the entire foot. With reference to the knee jerks in hysteria one must equally be careful in interpreting the reflex. A brusque, abrupt, sudden elevation of the leg is more in favor of a diagnosis of functional disease than of organic disease. Here again the case reports do not give a detailed account of the procedure employed or a detailed description of the phenomenon. With regard to the compensation question in functional nervous disease, there is a tendency at present to regard hysteria as malingering on the part of the patient. At the meetings of French neurologists the question was raised especially and for a special detailed discussion by the most eminent men. At first there was an inclination to decline compensation for cases of functional nervous disorders, hysteria included, and only one man, Pitres, of Bordeaux, raised his voice against such a decision, discussing at length the injustice rendered the individuals in this class. Another meeting was held for the same purpose and finally the entire association came around to Pitres' views, and 20 per cent. disability was considered as a standard for hysterical paralysis or other functional manifestations.

DR. TOM A. WILLIAMS, Washington, D. C.: Two fallacies in such cases must be guarded against. One is mistaking for the extensor reflex the true Babinski, the defense reaction. Another is the simulation of the Babinski on the part of the patient. The defense reaction can readily be differentiated from the true Babinski phenomenon, if one knows the behavior of each. With reference to ankle clonus, it is not difficult for a patient to simulate this. The experienced neurologist, however, can make the differentiation, and if not an experienced neurologist, by a kymographic tracing. There is another interpretation in some of these cases, namely, that the patient has had a lesion capable of producing disorder of the pyramidal tract which will produce that sign and which rapidly disappears, such as meningeal irritation. The patient grafts the hysteria on the organic condition, and when he is examined one discovers only the hysteria and wrongly imagines the former reactions are due to the hysteria. The criterion of the case is the fact that the phenomenon can be induced and removed by persuasion and suggestion, in which case it cannot be an organic phenomenon.

DR. ALBERT E. STERNE, Indianapolis: We have practically all had similar experiences, or will have like experiences at this time of returned soldiers, for reexamination is often requested by the war risk department and a number of cases will present similar complexities which we are somewhat at a loss to interpret. We are laboring between two emotions, ourselves, in making our reports on these cases; namely, that we want to do justice to all the boys coming back who have been injured, but at the same time protect the government and ourselves from fraud. Whether organically injured or functionally disabled makes little difference, because a man functionally disabled is almost as badly off and sometimes worse off than one with a palpable bodily injury. The government compensations will amount in time to terrific figures and we are all anxious, naturally, to see that compensation is not awarded where it is not due. The suggestions grafted on these men in their prolonged convalescence in various camps must not be overlooked. I am convinced that the great majority of these boys do not desire to remain invalids; they are not in the malingering class, but they exaggerate. There is a tremendous proclivity in the average normal individual to exaggerate symptoms, either through self-pity or the desire to excite sympathy. We must not be too sure about the revelations the reflexes present. Where the reflexes are seemingly positive, if tested and retested often enough they may be found changed. They are not always consistent. You should make the patient feel that you are with him, as much as possible, but are not going to encourage any unfit-

ness on his part that can be cured, or encourage him in functional invalidism.

DR. LEWIS J. POLLOCK, Chicago: The important fact as to compensation for the war neuroses is not that the patients are not going to be compensated enough for their disability or that the government is going to be cheated out of money wrongly applied. The important thing is to get the boys well. If you hold out the promise of a compensation to a hysteria patient you will afford him an opportunity for continuing the functional condition. If it is decided that there is to be no compensation for functional disease that disease will disappear much more rapidly. The best compensation for a neurosis is its cure, and any other form of compensation is a sad commentary on our therapeutic efforts.

DR. HUGH T. PATRICK, Chicago: I understood Dr. Williams to say that if this were hysteria it would immediately disappear under persuasion or suggestion. If he would modify that to "immediately disappear under effective persuasion" I would agree with him. But the fact remains that some do not disappear under persuasion or suggestion. Hysteria in soldiers is more easily treated than hysteria of civil life and yet the records show that they have been subjected to persuasion and suggestion for many months at a time and have not been cured until they reached the man who made the suggestion which appealed to the patient and then they got well. I think it should not go abroad as the sense of this section that hysteria will at once disappear under suggestion or persuasion. I would like also to support what Dr. Pollock said about these functional cases. They also can be compared to the same thing in civil life. If a man or woman has traumatic hysteria and sues for \$20,000 it is well known that in the vast majority of cases after litigation is ended the hysteria disappears. A few days after the signing of the armistice the vast majority of the war neuroses had disappeared. Consequently, the giving of compensation to a purely hysterical disability is a great mistake. In the prewar period any one who had the opportunity to see the thousands of cases of traumatic hysteria in Germany and found practically none in France because the laws of the two countries were so different, would come to the same conclusion.

DR. W. S. LINDSAY, Topeka, Kan.: I understood Dr. Williams to say that he did not consider that this case was organic. I have known of a case of cerebral tumor attended by convulsions where it was possible for the attendant to avert the convulsive seizures by engaging the attention of the patient. We cannot exclude cerebral disease because we must take into consideration the fact of cerebral inhibition.

DR. FOSTER KENNEDY, New York: The question of compensation of discharged soldiers suffering from hysteria is a matter of most potent interest at present and we should get our minds clear on this question. The British government pensioned about 25,000 soldiers for what was called shell shock up to May, 1918. This involved a very large sum of money and a large number of men. Those cases furnished the medical view of what shell shock is. The doctors were wrong and the soldiers were right. The soldiers knew it was a neurosis associated with the desire to preserve life, also a breakdown of the man's adaptation to environment. It was not the result of petechial hemorrhages in the brain. The medical men advised the government and the result was this method of compensation. I understand the French take the position that they will not compensate for a functional condition. That seems to be a serious thing for the individual and in these days of the civilian army the individual should be given a certain amount of consideration. It is not true that you will cure your hysteria patients if you do not compensate them. You will have to decide what is hysteria and what is organic disease first. If you can be sure of your diagnosis then you can decide accurately. As a matter of fact, most people when they get an injury of the arm in war go through a period of defense immobilization. If they are told that the arm is paralyzed then the seed of hysterical paralysis is sown. You must make it a rule to be very sure of your diagnosis, or you must have a very strong compensation board to decide what is hysteria in some cases and

what is organic in others because the chief error that is being made all the time is a question of diagnosis.

DR. EDWARD E. MAYER, Pittsburgh: I do not believe it wise to assume the same attitude toward war hysteria now as was done before the armistice. I agree with Dr. Patrick and Dr. Pollock that the feature of noncompensation was advisable during the war and that it would have been better had all the armies practiced it from the beginning. But there is a different angle to the problem now. Though the fear of the battlefield has been removed and the instinct of self-preservation is no longer disturbed, nevertheless continued disability not only implies a fixation of symptoms but a protective mechanism which needs removal and which is in most cases due to other factors than the war situations and experiences. They are unable to care for themselves and must be given hospital facilities, vocational work and competent neurologic oversight until recovered and after-care help so that no economic worry affects them after discharge. The War Risk Insurance Bureau, I know, realizes this problem but it is complicated I find by the fact that many of the war neuroses have been discharged and must themselves take up with the War Risk Board their problems instead of its having been done by army neurologists in advance of discharge. Let us, therefore, separate the compensation problems of the war and the compensation problems of after-war. In the latter case, compensation is deserved and necessary and we neurologists must above all recognize it.

DR. JULIUS GRINKER, Chicago: At the meeting of another section I heard some one remark that the diagnosis of hysteria is only a sign of the examiner's perplexity. I did not think I would hear a similar expression voiced in this section. Many people mean different kinds of disease when they speak of hysteria. In hysteria there is simulation, but it is of the unconscious kind. This we know to be only one of the many symptoms of hysteria. I think the speakers who preceded me had in mind conscious as much as unconscious simulation when they spoke of war hysteria. After everything has been said on hysteria one thing is certain, namely, that it exists and is a functional disease and must be treated as such. Not all cases of traumatic hysteria which have been awarded compensation in industrial life have thereby been cured because the disease is not synonymous with simulation. No one remedy will cure all forms of hysteria. Whatever name you give the disease, it exists, and as medical men we are justified in recommending compensation to those who become genuinely hysterical as the result of trauma whether in peace or war.

DR. HARRY H. DRYSDALE, Cleveland: Dr. Williams is inclined to regard the curability of hysteria a rather easy matter, but it has not always been so with us, especially in the cases of long duration. The case I have brought to your attention was complicated by the award of a liberal pension which consciously or unconsciously has served to deter recovery. The differentiation between simulation and true hysteria should not be difficult if the investigation is carefully conducted. When necessary, suitable observation will clear up any doubtful points. I am heartily in accord with the remarks of Dr. Pollock and Dr. Patrick.

Industrial Tuberculosis Experience in 1918.—The industrial department of the Metropolitan Life Insurance Company has recently published a report of the department's tuberculosis mortality experience for the year 1918. The death rate from tuberculosis (all forms) has decreased every year for the Metropolitan since 1911, when the rate was 224.6 per hundred thousand. In 1918 the death rate had fallen to 187.4, which is, however, only slightly lower than the rate for 1917—188.9. With this experience rate of the Metropolitan company may be compared the general mortality rate for 1917 throughout the death registration area in continental United States, which was 146.4. It would be interesting to study the causes as to why the death rate of those insured by the company should have been 42.5 higher in 1917 than the general rate for the whole United States. In view of the fact that those insured averaged doubtless younger one would naturally expect the rate lower.

UROBILIN AND UROBILINOGEN OF STOOL AND URINE IN PER- NICIOUS ANEMIA

THEIR VALUE IN DIAGNOSIS AND PROGNOSIS *

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AND

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The material for this study consisted of twenty-seven cases of pernicious anemia, and as pathologic controls nine miscellaneous conditions which included one case each of chlorosis, carcinoma ventriculi, purpura, familial hemolytic icterus, Banti's disease, lymphosarcoma, acute cholecystitis, hemochromatosis, and tabes dorsalis.

The method was a modification of Wilbur and Addis¹ spectroscopic method. The modification was instrumental and has been described recently by J. D. Boyd,² working in our laboratory under the direction of Dr. Louis Baumann. The instrument "was constructed from a Hellige colorimeter and a hand spectroscope and consisted essentially of a hollow glass wedge which can be moved vertically before a fixed spectroscope" (8 cm.). The sample is prepared in the usual manner. "The cell, which holds about 10 c.c., is filled with the solution, and the point is found when the spectrum just disappears with moderate light³ but reappears when the light is diminished by changing the light screen of the spectroscope." It is essential to obtain a uniform sample of the stool mixture. The results were reduced to terms of 1 cm. of liquid.

Calculations for the stool are made from the formula:

$$\frac{2,000}{5} \times \frac{100}{2} \times 8 \times \frac{1}{2}$$

The 2,000 = dilution of stool; the 5 = Wilbur and Addis' concentration unit; 100 = instrumental reading; 8 = previous dilution; $\frac{1}{2}$ = results reduced to 1 cm. divided by the size of the top of the wedge.

For the urine the formula is slightly modified, thus:

$$\frac{24 \text{ hour volume}}{5} \times \frac{100}{R} \times 2 \times \frac{1}{2}$$

All attempts to separate accurately the stools for a given period with carmin, charcoal, barium sulphate and bismuth subcarbonate, though a constipating diet was used, yielded no constant results. This uncertainty was due first to the occasional administration of purgatives to the patient by the medical staff without the knowledge of the laboratory; secondly, to the individual constipation so often present in bed patients which necessitated, with laboratory approval, the administration of a cathartic and consequently the evacuation of a soft stool in which demarcation was impossible; and thirdly, to the occasional presence of a diarrhea.

Further, even if a correctly demarcated stool was obtained, the length of time necessary for the collection of the stools is so great that the true amount of urobilin and urobilinogen may be reduced by oxidation, either in the intestinal tract or in the laboratory container. These difficulties seem insurmountable from a clinical standpoint. An attempt was made to overcome

* From the Medical Clinic of the University Hospital of the State University of Iowa.

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2. Boyd, J. D., Jr.: *J. Lab. & Clin. Med.* 4: 495, 1919.

3. We found full light better.