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For the Discussion of Mental Diseases in Their Various Phases

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Program, advertising page 35

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met their troubles face to face are confident that the psychical symptoms were merely side shows thrown in along with the big physical drama.

And since cases like these are constantly occurring and since we are constantly seeing other cases bud and bloom along the same lines, we feel that the physical side of all cases should be carefully gone into. It explains causes and in many instances, when the observer is keen enough, indicates treatment and brings results.

Of course, there are cases that cannot be explained along physical lines, but after working with the Wassermann test, after studying the blood and urine and physical findings of the patient, after following the literature regarding the results of the newer methods perfected by Abderhalden and other workers, and above all else after following the recent investigations of shock and anoci-association (Crile), showing the results of fear on the brain cells, I am convinced that wherever physical conditions are not shown to be the cause of psychical states, it is due to the weakness of the investigator and the immaturity of his methods rather than to the lacking of the physical cause.

Friday, July 17, 2 p. m., Hotel La Salle.

MENTAL STATES IN FAMOUS CHESS PLAYERS.

LOUIS MILLER,
TOLEDO, OHIO.

Although the literature of chess is said to be greater than that of any other game or sport and extends into the ancient history of India, Persia and Arabia, and from medieval Europe until the present there has been little contributed on the psychological side from a modern standpoint. This is the more singular since the play of chess is so purely an intellectual function. Only one author on the subject could be found in a search of the Congressional and Surgeon General's Libraries, namely: Psychology of Chess, an article by Dr. Alfred Cleveland which appeared in the *Journal of Psychology* in 1907.

Binet published in 1894 a work on the Psychology of Calculators in which Goetz (a chess player) contributed a brief analysis of processes involved in playing chess. Among the non-medical writers is the wise discussion of

Benjamin Franklin (Morals of Chess) and the short keen analysis of Edgar Allen Poe. The former finds that foresight, caution and circumspection are the morals to be derived from such exercise, while Poe gives attention and deduction as chief requisites. The laity, too, have also their own ideas concerning the game, believing that its chief characteristics is merely dry, hard work, and that excessive application may wreck the mind. Medical men likewise are not entirely free of this superstition, as I know from personal experience and from the published statement of Dr. Tarrasch, medical man and master chess player who did not want to feel the responsibility of allowing Pillsbury to undergo the strain of giving one of his blindfold exhibitions when in Nurnburg, Tarrasch's home. But he hastily adds that mental application alone can not produce serious consequence.

When Pillsbury died insane in 1905 newspapers generally blamed the strain of his simultaneous and blindfold performances for causing the mental breakdown. Morphy, Schiffers and Stienitz are other instances of insanity occurring among noted exponents of the game. These examples were sufficient to create a desire to inquire into the relationship existing between the facts cited.

These investigations, together with the writer's acquaintance and experience with professional as well as amateur players may also afford additional evidence concerning the question of mental overwork as a cause of neurasthenic states.

It may clarify to discuss a little the quality of processes involved in chess play.

The mental qualities most used and generally admitted are perception, memory, analysis and a constructive imagination. To these must be added the so-called "positon sense."

Cleveland defines the reasoning process as applied to chess in psychological terms as "A sequence of mental states due to shiftings of the focal point of attention, the associations working strictly within the limits imposed by the task or purpose." Memory is well developed in all first-class chess players. Dr. Tarrasch can remember the moves of most of his important games, as well as other matters of interest to him. Blackburne, the English champion, in 1899 reproduced from memory a game played by him in 1862. Morphy could make the moves of all the games played by

himself after he had chess maturity. He also knew four languages and could recite from memory nearly the whole of the Louisiana Law Code. He was a graduate in law before reaching twenty. Pillsbury, the late American champion was a brilliant player whose memory feats were remarkable. He easily could play twenty and more games simultaneously without sight of the boards. He often sandwiched in these exhibitions, several games of checkers, at the same time taking a hand at whist. If starting in the afternoon, such contests might be adjourned for dinner, after which they would proceed as if no interruption had occurred. In Philadelphia before starting a blindfold contest against twenty boards he was given thirty words to remember. At the end of the evening's entertainment he repeated accurately the words and then said them backwards.

Most master players can manage from four to eight boards blindfolded. Quickness of perception is called for especially in over-the-board simultaneous play. Players like Capa-Blanca will play and finish about thirty games in approximately three or four hours, *i. e.*, making close to a thousand moves at the rate of about five to eight moves per minute.

Morphy blindfolded beat the strongest teams of eight players of England and France successively, and with only one drawn game scored against him.

Attention is so necessary to good play that Poe complains that if it flag a little the result may be so injurious that the player affected may lose to one of lesser acumen. That is true, and as it varies in the individual from time to time, so does the fortunes of his contests. Attention is apt to be affected by fatigue, either from playing, or from other causes, or apparent inattention and consequent blunder may spring from a very excess of attention to one field of the board, or to one plan of procedure, to the exclusion of others. That is, a sort of fixed idea arises. The attention must be directed to following the goal idea. The latter is determined by the judgment of position and the powers of forming combinations. As Cleveland says, the logical type increases in proportion to knowledge and skill, and arrives at the type of the syllogism.

The position sense is the result of knowledge derived from experience and study. It is the organization of the relations of different units into

whole complexes. Generalization results, and more or less automatism takes place. This releases the attention from many details and makes playing far less laborious: "favoring short circuit processes" (Cleveland).

The position sense may be likened to the strategies of military science, while the mere combining power resembles tactics.

Blindfolded playing, without sight of figures or board is not so easy of analysis, probably because this feat is not accomplished exactly in the same manner by all. Some visualize almost entirely, others are said to have verbal symbols or auditors, while with Pillsbury, it was accomplished by calculation, a mere record. One man grasps this easier by being reminded that a game of chess is not a mere series of kaleidoscopic moves, but every successive position bears relationship to those preceding, and also to the hypothesized future situations. There is always a plan or theme, or a number of these (leit motives) serving as a constant hold for the memory, and the various figures are in logical and harmonious relationship to these and to each other, and in consequence it is not so difficult for one who grasps the central idea of the play, to reconstruct what figures should rightly stand in association with it. That is why it is easier to reproduce from memory a game of forty moves, than twenty chess problems of two moves each. For in the latter there are twenty separate and distinct themes. I am inclined to believe that most blindfolded players are calculators, and that this process is assisted considerably by a partial visualization. I doubt if any visuals see distinctly the entire board at one time. One does not in over-the-board practice. The vision is fixed on only several squares two to four at one time, while the other squares are in the peripheral field according to their distances. Personally I see a board slightly foreshortened, the far side tilted upward apparently about six inches, and about four squares with the figures can be seen distinctly at a given time. To differentiate the black from the white pieces requires a slight but distinct additional effort. But one recognizes, or rather knows the particular squares, and further orients himself by passing rapidly from one set of fields to the others. This, in my experience, assists and clarifies mere calculation.

Engrammes thus repeatedly stamped and re-

called, may be readily and quickly revived at will. But a complete automatism is never reached, for no two games or problems are ever just alike, and so new deductions and calculations must ever be made. Hence it is that a chess player with great theoretical knowledge may and will sooner or later slip backward in practical performance. Ability varies also with the individual's varying conditions, mental and physical. Thus, the character of chess play is often a subtle index of the individual's condition; of a variant condition perhaps not noticeable in the performance of routine duties, where knowledge previously acquired serves well enough. In this connection occurs a chess malady, seen normally in novices, frequently in amateurs, and occasionally in masters, called chess blindness, or what Dr. Tarrasch has humorously termed "Amaurosis Scacistica." It is a condition in which the mind unexpectedly blunders, and fails to take cognizance of the most obvious position. Its etiology is too various to enter into here. The duration may extend over but a single move.

The emotions enter not greatly into the game, except of the gentler sort. But temperament finds expression in style, as the open game, the close game, the attacking style, and the more prudent defending type. The pleasure of the game has been said to depend upon the instinct for combat. Poe ascribes it to a love of exercising talents for analyses, solving cryptograms, etc.

The chess player is the mental prototype of the athlete, and bears about the same relation to others in mental pursuits that the athlete does to the physical status and health of others. Both are specially trained and possess ability along certain lines, but it does not necessarily follow that there is a superiority in general health or greater success in affairs. In general I can not speak of any characteristics peculiar to master players.

As regards mental diseases the biographies and records show but four in the past quarter century having developed insanity. These are Schiffers, Pillsbury, Minkwitz and Steinitz. Minkwitz, a German, is said by Dr. Tarrasch to have had a bad inheritance, as his father was very eccentric, and Minkwitz would have become a lunatic in any calling. The diagnosis was primary hallucinatory insanity. Of Schiffers, a Russian, Dr. Tarrasch describes him as a versatile, well educated man full of humor, amiable and entertaining—

in short "ein Kerl wie Samm't und Seide, nur schade, dass er suff!" This he did with great consequence and developed an alcoholic psychosis. Steinitz, champion of the world for twenty years, died in 1899 of parietic dementia, but was over sixty years of age. Pillsbury died in 1906 of undoubted parietic dementia. He was doubtless well advanced in the disease during the Cambridge Springs Tournament in 1904. At that time he suffered from insomnia and restlessness. For the first time in his career he was not among the winners. But he had a spark of the old fire and ability when at the same tournament he beat Lasker, world's champion, then resident in America, and Pillsbury's chief rival. He had saved for a long time an original variation of the Queen's Gambit for a contest against Lasker. Tschigorin, another Russian chessmaster, died at fifty-eight, after a long illness of diabetes. But his chess powers were diminished, too, long before, from the free consumption of $C_2 H_5 OH$. This alcoholism in the two Russians can not be ascribed to a chess temperament, but to a national tendency.

The last case I have to cite is that of Paul Morphy, the most noted figure, and greatest chess player in history. He was born of well-to-do and cultured parents, in New Orleans, in the year 1837. His uncle and father taught him chess at a very early age. Lowenthal, the Hungarian master, visited New Orleans in 1850, and played three games with Morphy who was then not thirteen years of age. Morphy won two games and drew the other. He was never beaten, and after conquering the world of chess by visiting, and playing against all comers, both in America and Europe, issued a final challenge to give odds of pawn and move. No one raised the gauntlet and Morphy never played again, excepting a few games with personal friends.

His tournament and match games covered but a period of two years. He first won the New York tournament in 1857. He then went to France and England where he defeated in match play the strongest, such as Anderssen, the German champion, Lowenthal, and others. He had then just reached his majority. He is described as slight in figure, dark, but comely, and of possessing polished, pleasing and modest manners. He scorned professionalism in chess, considered himself but an amateur, and when there happened

to be a purse or prizes offered, always gave them away.

On returning home from Europe by way of New York he was received with honors by admirers, and presented by the president of the chess club, a handsome set of gold and silver chessmen. He created a scene, however, by objecting to the implication in the presentation speech, of the profession of chess. It was harmless and meant nothing in particular, but Morphy's sensitiveness was too great and as a result, the speaker retired in confusion. The chess pieces are at present in the Manhattan Chess Club, New York. This incident, I think, likely, the very first manifestation of the malady which later clouded his life. He accepted a contract for writing a series of articles for the *Herald*, at a salary of \$3,000 a year. He returned to New Orleans and attempted to practice law, his father's calling, but his chess reputation was greater than his legal, and the realization of the fact soon embittered him, and he could never be induced to play again in public. Then to make the bitter, gall, a young lady with whom he became enamored permitted the information to leak out that she could never marry a mere chess player.

He became more seclusive, and gradually developed delusions of persecution. His father being deceased, a brother-in-law was administrator of the estate and it was against him that Morphy suspicioned and then became convinced that his relative was stealing from the estate. As a matter of court record, however, everything on this score was in order. Morphy then became litigious and being learned in the law himself was able to create difficulties. He feared poisoning from the same source, and would eat nothing that his sister or mother did not prepare, and when a friend offered some sweets would not partake until the friend had first eaten of them. There is plenty of evidence to show that in other respects his mind was quite in order. He would go about the city alone, and was considered quite harmless, reticent, and perhaps eccentric. Mr. C. A. Buck of Kansas City has given a detailed account of Morphy's later days, and in it I can find no evidence pointing to a diagnosis of dementia praecox.

At one time his family proposed for his improvement placing him in a Catholic institu-

tion, but he argued his legal rights so clearly that the authorities were afraid to take action.

In 1882, after several futile attempts, he consented to permit Steinitz, then champion, to call, on condition that chess would not be mentioned. It was a poor meeting.

But there is evidence that through all these years he kept pace with the current affairs of chessdom, kept a board, and still liked chess. He played occasionally with his personal friend, Charles Maurian, and although these even ceased in the last few years, yet it is believed by those who knew him best that he never lost any in chess ability, nor did he show any dementia. He died suddenly in 1884, aged 47. Supposed cause was heart disease.

I have thought the diagnosis of his mental condition paranoia or paraphrenia.

In the foregoing histories there is nothing that one can hold chess responsible for.

Moreover the mental strain involved by tournament matches does not seem to produce neurasthenia or any of the psychoneuroses. Teichmann, Mieses, Kohn, Alapin, Lasker, Bardeleben and other professional players I have known or know of, do not appear or suffer from any such disorder. Yet tournament and match play contests commonly extend over a number of weeks, and often one such contest will closely succeed another. The strain, of course, is considerable and fatigue ensues but it is normal in character and the participants quickly resume their average tone. This evidence, therefore, tends to exclude over-work and mental application alone as the cause of the neurasthenia. It is more probable as Dejerine has so well argued that emotional influences of a depressive character must accompany the various mental acts to produce such a disorder.

450 Spitzer Building.

DISCUSSION.

Dr. Towne: I happened to have the good fortune to have spoken to Mr. Pillsbury about the mental processes he used in playing chess. He had used the imagery, visual method until he tried to play so many games. Then he found the visual method inadequate; he had also used a finger or hand movement and in playing chess developed a sense of position to such an extent that he was able to play 21 games at once. He also said he built the foundation of accurate memory on his childhood experience—his father had a paper and he took charge of the paper

route; he simply memorized the addresses of all the places where the papers were to be delivered.

Dr. Davis: I used to play chess in my young days when a student but one or two of my friends were compelled to leave school on account of chess. What affected me in the Doctor's paper is that he utterly disagrees with the idea that chess is a mental strain. I believe from a mental standpoint it is a beneficial thing to learn chess and to play it. I was also glad to hear that ordinary so-called mental fatigue has never produced neurosis.

CHAIRMAN: We are going to take 10 or 15 minutes recess and if the gentleman will kindly step into the adjoining room—smoking room—and Drs. C. E. Sidwell and Louis Smith, Chicago, will give a "Microscopical Demonstration."

DEMONSTRATION OF THE LIVING AND STAINED SPIROCHAETA PALLIDA.

C. E. SIDWELL, M. D.,

Pathologist to St. Elizabeth Hospital.

AND

LOUIS D. SMITH, M. D.,

Urologist to Washington Boulevard Hospital.

CHICAGO, ILL.

That the *Treponema pallida* is the cause of syphilis is an unquestioned fact established by its fulfilment of Koch's laws. It has been found in

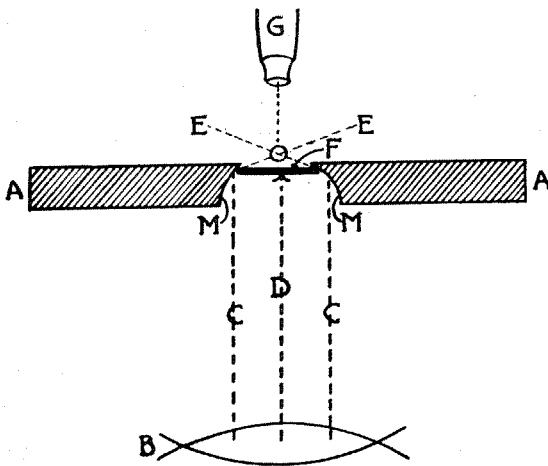


Fig. 1.—Longitudinal Section of Dark Field Slide. A, Slide; B, Mirror; D, Reflected Light Unable to Pass Through Dark Field; C, Light Reflected From Concave Mirror; F, Dark Field; G, Microscope; E, Point of Junction of Reflected Peripheral Rays.

every syphilitic lesion, produces an antibody, has been cultivated, and finally has reproduced the disease in experimental animals with recovery of the organism from the lesions produced. Again it has been recently established that so-called

parasyphilis is in reality syphilis. Graves has been able to produce syphilitic lesions in the testicle of the rabbit by inoculation with the blood of the tabetic and paretic, and Noguchi and Moore have been able to show the *Spirochaeta Pallida* in the paretic brain and tabetic cord.

The *Treponema pallida* discovered by Schaudinn in 1905 belongs to the Genus *Spirochaeta*, pathogenic to the higher animals, namely: *S. recurrentis*; *S. pertenuis*; *S. microdentium*; *S. gallinarum*; and is an intermediate group between bacteria and protozoa.

The importance of the search for the identity of the pallida in the living state in the chancre to establish without doubt the nature of the infection, lies in the fact that with early recognition arises the possibility of early treatment; hence, we can most efficiently institute prophylactic treatment against the later nervous manifestations.

The method of choice for the discovery of the *Spirochaeta pallida* is with the dark field illuminator. This is a slide so constructed that only peripheral rays of sunlight, arc light, or in fact any strong white steady light such as the Nernst lamp furnishes, are able to be reflected above a dark field.

Briefly, the dark field illuminator consists of a perforated glass slide. The diameter of perforation on the under surface of the slide is greater than that of the upper surface. This beveled edge is concave and is mirrored. A disk or dark field, impervious to light, so completely fills the opening in the upper surface of the slide, that rays of light reflected from the mirror of the microscope are unable to pass directly up through the objective of the microscope; but peripheral rays of light, striking the concave mirror in the dark field slide, are reflected above the dark field or disk in such a manner that they converge about one millimeter above the upper surface of the slide. Any object placed where these rays of light converge, diverts them upward, so that some of the diverted rays pass up through the microscope.

STEPS IN THE SEARCH FOR THE LIVE, SPIROCHAETA PALLIDA.

1. Remove the Abbé Condenser from the microscope.