**Psychopathology of forced movements and the oculogyric crises of lethargic encephalitis / by Smith Ely Jelliffe.**

# Psychopathology of Forced Movements in Oculogyric Crises

SMITH ELY JELLIFFE, M.D.

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# PSYCHOPATHOLOGY OF FORCED MOVEMENTS AND THE OCULO-GYRIC CRISES OF LETHARGIC ENCEPHALITIS

BY

SMITH ELY JELLIFFE, M.D., Ph.D.

OF NEW YORK, N. Y.



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# INTRODUCTION

It has been frequently said that the highest attainments of the scientific method have come by means of experiment. The honor of having more definitely introduced this principle has usually been given to Francis Bacon, yet no matter how incisive he may have been in the enunciation of the idea, it is unquestionably true that empirical experimenters have been slowly building up a world of science from the earliest times. Need one mention Archimedes in his bath, Empedocles with his water clock, or Protagoras' observations on the behavior of the color blind, etc., etc.?

Nature has been a vast experimenter and disease one of the most penetrating and definite of experimental processes. It is, therefore, no great wonder that the physician, the philosopher, and the poet should have been one ever since we have had records of human suffering. True it is that within the sphere of medicine there have been plenty who were willing alone to describe, and their merit has been great, but intrinsically the progress of medicine has been one long unremitting endeavor not only to describe but to understand.

To wrest from Nature her innermost secrets in order to obtain a life of greater happiness and duration has been the work of the physician for centuries.

Closely following or attendant upon and possibly most intimately related to the vast explosion of racial antipathies conditioned by the aggressive reach for possessions, called the World War, there occurred a vast epidemic extension of a disease process which, first called Lethargic Encephalitis by v. Economo of Vienna and adequately described so far as certain localized processes were concerned, has through the research of thousands of students come to be designated under the general title of Epidemic Encephalitis.

This epidemic encephalitis is no newcomer to the world. The historical outlining of its appearance and reappearance does not belong here. It is left to epidemiologists, to the studies of v. Economo, Stern, Cruchet, Crookshank, Wimmer, Kayser-Peterson, and countless others, for its more detailed portrayal. Similarly, the many fascinating efforts that have been made to track the process to a monistic understanding in terms of causation by specific organism,

special virus, mixed infection, etc., etc., cannot here be reviewed. Nor can the pluralistic viewpoint be outlined that would consider bodily constitution, infectious agent, geophysical, social, and psychological factors as participating and concurrent events.

What does interest us here is the old recurring fact that Nature, through disease, is a relentless experimenter and that medicine as a discipline has ever and always arisen to the opportunity to learn more of that " wisdom of the body " which, broken into by the ruthless invasion of an outside energy system, has so disarranged the inner harmony or integration of that wisdom that variations in behavior have arisen which are of transcendent scientific as well as of human social interest.

Man as a time-binding animal is the inheritor of countless eons of experience. This experience he has accumulated through mnemic inheritance and differentiated by organ structuralization. Such structuralization, because of such eons of gradual differentiation, is incalculably complex. It has been chiefly through the dissection by disease or through the intentional making of variables in the laboratory that the unravelling of Nature's time-bound structuralized experiences have been possible.

The early localizing studies of v. Economo indicated the chief tendency of the encephalitic process to burgeon itself within those portions of the nervous system in which some of the most complex bits of the integrating mechanisms of the human body were situated. The medulla, mesencephalon, and diencephalon were attacked, " shrapnel wise," to use Pierre Marie's graphic simile, with the general result that a richly variable, kaleidoscopic array of isolated symptoms or fairly rigid syndromes have resulted which have occupied the research student of neuropsychiatry for the past fifteen years and been recorded in thousands of smaller and larger contributions.

It is the purpose of the present presentation to single out but one of the innumerable events that have resulted from the encephalitis experimentation. It is an event which, by reason of its very striking character, possesses a dramatic interest, but also by reason of the fact that the peculiar type of behavior is related to certain phenomena of entirely different external manifestations, with however close internal associations, that its study is intriguing and important.

Here, as elsewhere in the effort at understanding the meaning of any manifestation of behavior, be it of kidney, of muscle, of bone,

of speech, of ocular movement, or of thought development, the entire organic unity of the human body and its milieu must be taken into account. There are no isolated, independent events in nature, *i.e.*, from the standpoint of explanation.

The oculogyric crises of epidemic encephalitis are here presented chiefly from one level of this integration of the body as a whole. The complex building up of the structures which permit of the fullest ocular movements have only been touched upon. To Muskens, to mention but one of hundreds of investigators, is left the elucidation of the structural formulae that permit such movements as purposes of the body's strivings. The present study focusses itself upon psychobiological events which in terms of purpose mean something for the individual involved in a wrestle with a disorder which threatens to disorganize the integrated personality. Certain internal and/or external events may precipitate these behavioristic reactions termed oculogyric and/or cephalo-oculogyric crises.

This study is but a partial glimpse at certain of these internal and external events which are interpreted as having an important connection with the behavior in question. It is not conceived of as a complete explanation. There are many dynamic factors of function and fixed bits of structure which are in need of being brought together to obtain a completely adequate explanation in terms of both structure and of function. That the emphasis here is laid upon functional psychological situations seems necessary in view of the findings. The time has gone by that needs any insistence on the value of the psychoanalytic methodology. There seems to have arrived that period of response as Jaspers admits of the significance of the dream, " Yes, 'tis all very true, but what of it? " That such an answer might have been applied to Archimedes in his bath, or Newton in his orchard, may be readily granted. Fortunately, medicine has rarely ever been satisfied with this attitude. It still has its illusions.

For the use of illustrations of numerous cases I wish to express my thanks to the authors, who have kindly provided me with original photographs, and for active coöperation in sending me reprints which have facilitated my study.

# CHAPTER I

## HISTORICAL NOTES

The history of the process called epidemic encephalitis is not taken up here. Stern, in the 1922 and 1928 editions of his monograph, has covered this fully. We are concerned with the eye muscle crises only.

It would take a colossal amount of research to learn who first described tonic muscular cramps of the eye muscles, and where. The older literature of Aretaeus, Actius, Forestus, and others who spoke of spasms cynique, rictus caninus, tortura oris, and others in the Roman period would need to be searched and appraised; later the literature of tics, hysteria, raptus states, Gower's tetanoid chorea, epileptiform eye spasms, etc., etc., would have to be carefully sifted. The classic of Sauvages offers many interesting ideas. The phenomena certainly occurred and were observed from the earliest times to the present, even before the 1917 epidemic of encephalitis. They have been explained in many ways and have been insufficiently observed.

Without doubt the eye positions have been recorded even if their understanding was by no means as full as now may be available. Compare the eye positions in the so-called epileptic of Raphael's Transfiguration and in numerous other paintings.

Even so far as the specific situations of encephalitic ocular symptoms are concerned earlier writers have referred to them. Netter has made some curious and interesting historical finds. It is not without historical interest that Johann Peter Albrecht of Hildesheim in 1695 published a pamphlet with the title, "*De febre lethargica in strabismus utrisque oculi desinente*," [1] in which he states:

"It is familiarly known that strabismus has arisen in those who are of a quite tender age from some vicious practice at the time when their eyes were being continually moved to a certain position, upward or downward, to the right or to the left; and it has often been observed that in the very first days of infancy, while they are yet lying in their cradles,

[1] Crookshank, F. G. Influenza. Heinemann, London, 1922, p. 89. See also Netter.

this same strabismus as well as the eyes have become fixed to that very same position by persisting in the practice, so that the eyes become

(1)

CÆSAREO - LEOPOLDINÆ
ACADEMIÆ
NATURÆ CURIOSORUM
EPHEMERIDUM
MEDICO-PHYSICARUM
DECURIÆ TERTIÆ
ANNUS
NONUS & DECIMUS.

*OBSERVATIO I.*

DN. D. JOHANNIS PETRI ALBRECHTI,

*De Febre Lethargica in Strabiſmum utriusque oculi deſinente.*

IN iis, qui tenerioris adhuc ſunt ætatis, ex prava conſuetudine, dum ſcilicet oculi ad unum aliquem ſitum, ſurſum vel deorſum, ad dextram aut ſiniſtram ſempet moventur, ſtrabiſmum oriri, eundemque præprimis in infantibus in cunis adhuc jacentibus ac aculos ad hunc vel illum ſitum fixos habentibus iſta, ut tali ſitui quaſi aſſueſcant & in eo poſtmodum permaneant, ſæpiſſimè obſervari, notiſſimum eſt. In ætate provectioribus, niſi â primis annis hôcce viſus vitiô correpti fuerint, idem malum ratiùs generari, mecum forſan plu-

*Dec. III. Ann. IX. & X.* A rimi

Facsimile of First Page of Albrecht of Hildesheim's Observation

accustomed to such a position and after a little while settle themselves permanently there. A great many experiences have indicated to me

perchance that as they (children) advance in life, unless their powers of sight had been destroyed by this blemish (defect), rarely do evil consequences spring up. Nevertheless, this sometimes happens, as the following case will show:

"In the year 1695, a maiden of this place, about twenty years of age, the daughter of the honest citizen, I. F., fell into a continued fever, characterized by acute headache, dryness of the mouth, and other symptoms which are customarily observed in acute diseases of this kind, the chief of these symptoms centering around this, namely, it consisted of a great inclination toward sleep, which took on greater and greater force in proportion as the pain in the head relaxed, with the result that as many times as she was roused from sleep, so many times did she sink back again into that most profound slumber. All remedies having been applied from that art which the 'Methodus Medendi' enjoins in such a case, by no means could the somnolent condition of this patient be kept from continuing without break up to the eleventh day; on which day at last, with a certain healthy perspiration having sprung up, certain symptoms of this lethargic fever became less pronounced, and with that unnatural sleep having been driven away, little by little her former strength and alertness returned to her limbs. The parents congratulated themselves and me because this sickness, which a little while before had been threatening no small degree of danger, was now happily subdued, and having thrown off all feeling of sorrow, which the infirmity of their daughter had inflicted upon them, they were not in the least doubtful concerning her full recovery; the result did not show this hope of theirs to have been vain, insofar as this so-called lethargic fever was concerned, since after having been entirely freed from it, she recovered her whole strength. But some unforeseen occurrence soon opened anew the already healed wound of their sorrow (the parents), causing again no small degree of grief and anxiety of mind, which seemed for a long time to have died away of itself. Doubtless, from the time she was gifted with better health, a distortion of her eyes had been noticed, of such a kind that it forced the pupil in each eye up toward the upper eyelid, with the lower part of the eyeball showing white for more than halfway up. There we have it! There was cross-eyedness (squinting) in each eye, and the pupils were by no means correctly situated for observing things, so that in order to look at objects she had to bend her head with a downward inclination. I was summoned to examine this sight and to bring help; I found the daughter sitting at lunch at table with her parents, where instinctively I at once diagnosed her sickness from the first, which became obvious enough from her actions. As many times as she attempted to reach within the dish for some edible with her knife, or even with her fork, so many times did she make an error, rarely reaching the dish

itself and even going beyond its edges. I remembered immediately how many diseases, their cause having been transferred through metastasis to other parts of the body, have not infrequently stood forth as the sources of new afflictions. That I may recall at least a few examples that will throw light in my case, Zacutus Lusitanus showed a case of lethargy cured by acute deafness [Prax. Med. et cetera]; and the Ephemerides journals make mention of cross-eyedness left after epilepsy [Nat. Cur. Dec. I. Anni 3. Observ. 162]. So also in the present case I judged that some matter of the disease had been transferred to the muscle-bearing nerves of the eyes, which anatomists customarily designate by the name of 'superborum' (the higher muscles), and had produced in the eyes a convulsive and rigid affliction, to which I therefore applied various anti-spasmodic remedies, not neglecting topical, vesicatory, and other remedies, by which I thought that this troublesome lesion of the sight might be cured. Although I was indeed zealous in applying cures, the ailment remained unconquerable for nearly three months, at the end of which time, it finally threw up its hands in surrender, with the aforementioned girl being completely sound in health and enjoying the best of sight." [2]

Also in the well known and frequently cited Tübingen epidemic, 1712–1713, Camerarius speaks of "oculis aegre asperiendis" as follows:

"All these four conditions were duplicated in the catarrhal fever of this year, 1712. The incidence was general, the people were afflicted with severe headache, and with the pronounced triad of symptoms: fever, catarrh and vomiting. It was regarded as due to contagion or as an epidemic. This condition was once called by the Germans: '*die Schlaf-krankheit,*' rendered more severe in some cases by agrypnia, in others by old age. I have not heard of this name as a synonym. The patients did not sleep much, with the exception of a few among those who did not use opiates. During the night, the patients were restless, frequently disturbed by hallucinations and complained also during the day of eye troubles which, although not inflammatory, were associated with pain upon opening the eyelids and photophobia. This disease was once called 'coqueluche' by the French."

We agree with Stern that this must be interpreted with caution as to Camerarius having observed these cases personally.

Just how far back it is even worth while to go is an open question—this busy world being chiefly interested only in what is called "new." Certainly in Sauvage's classic one finds many of the phenomena known to-day under different rubrics.

For general purposes, however, in this special field one can begin

[2] Translation kindly furnished by Louis Villano and viséd by Dr. Oliver.

with the Charcot era for here began that breaking down of some of the universal ignorance concerning the richness and complexity of the symbolic (or psychical) behavior of man, the phenomena and mechanisms of which obtrude themselves into every bit of medicine. A neohippocratic era began with the Charcot era in that so-called psychical events and so-called somatic events began to be interpretable, at first on parallelistic, and then later on monistic lines.

Were we inclined to write more than a limited monograph on the subject to be here discussed we would first call attention *in extenso* to the studies of Charcot and Gilles de la Tourette and their "Maladies de Tic," as an index of the initial period of study of many compulsive acts well known then as now. Thus Charcot (1888) in his Léçons du Mardi [3] speaks of parkinsonism in a young individual—Bachère by name, twenty years of age when he was taken sick and who at twenty-six had a masked face, drunken gait, diplopia, retropulsion and a typical parkinsonian attitude. Murri's very extensive study would have to be included here as well.

As terminating this phase of evolution one can turn to the very penetrating studies of Cruchet and of Meige et Feindel—Les Tics et leur Traitement, 1902.[3a] A special subchapter is devoted to tics of the eyeball by these latter authors and they speak of the frequent association of tics of the eyelids accompanied by spasmodic movements of the eyeballs. Isolated movements of the eyeballs, however, were well known and Brissaud (who parenthetically may it be recalled localized the movements of paralysis agitans as due to locus niger changes) in his "Léçons Cliniques" has reminded us of an interesting delineation by Saint Simon (1717) of a Russian sailor named Pierre le Grand whose eye tics gave him quite a ferocious appearance, and of whom Frederick the Great took notice and spoke of as "one of two men the most singular in his century."

Interesting as these historical researches may be, and which by dint of great industry would undoubtedly lead one back to Galen or Aretaeus or other ancient observer,[4] let us be content to start with Meige et Feindel at the beginning of the present century when the subject of conjugate spasm of the superior recti was an active subject of discussion at the Paris Neurological Society based upon a patient

[3] Charcot, J. B. Tome T, II Edit. Paris, 1892, p. 331.

[3a] Translated by Kinnier Wilson.

[4] See Jonathan Wright's study on Encephalitis by Caelius Aurelianus. N. Y. Med. Jl., 1927.

observed by Crouzon, Babinski, and Marie and presented before that society on three different occasions with much argument and counter argument by such neurological warriors as those just named with Ballet, Parinaud (a celebrated ophthalmologist), Brissaud, Joffroy and others. It is with this case that Wilder and Silbermann (1927) open their discussion in a quite recent monographic presentation of the tic problem. This incorporates the new knowledge gained from epidemic encephalitis, which disorder has stimulated Bing and Schwarz to their views relative to somatic and psychopathology, and has also furnished Stern the material for a careful study of the same problem, in which he specifically utilizes the oculogyric spasms as the nucleus of a discussion concerning the compulsive states which will be the main issue of this particular presentation.

Before entering into the main issue of this thesis a brief retrospective glance at the "influenza" literature may not be amiss. Especially as with a few others—Crookshank *et al.*—it is well realized by those historically oriented, that what we now are in the fashion to call "epidemic encephalitis" is by no means a *new disease,* but is a trend which has prevailed at various times for several centuries. Further the ocular phenomena now under consideration then were observed and interpreted.

Epidemiological problems are not the purpose of this note. The ocular symptoms recorded during various "influenza"(?) epidemics, neither; but emphasis is emphatic—they did occur! are recorded! of the nature of those now under discussion, and that's that without more ado!

Personally I have put my impressions of this situation in print ten years ago and up to the present time find but few reasons for altering the conceptions there advocated; save possibly the thought that there was *an* organism, rather than several, which was responsible for all of the influenza syndromes. Among these the ocular syndromes, so richly recorded for epidemic encephalitis—Cords *et al.*—are certainly present.

As to "oculogyric crises," *specifically* related to the definite syndrome of epidemic encephalitis, however, Cords, who up to 1921 has given the most complete summary of ocular findings in epidemic encephalitis, has little to record.

A number of observers had seen these oculogyric crises in some of the so-called organic, as well as in the so-called functional, situations. Thus, in 1884, Nothnagel saw related phenomena. In 1895,

Vorkastner observed them in a patient with presenile paralysis agitans. And patients suffering from epilepsy, syphilis,[5] tumor of the brain, multiple sclerosis, cerebral abscess, hemiplegia, general paralysis, were known to have presented the phenomena under consideration, as seen from a clinical angle. (See Bibliography.)

Then came the deluge of the encephalitic cases after von Economo's important study. In 1921, Oeckinghaus related the earliest case here found directly related to encephalitis. Staehelin is frequently cited as having reported the first case, but after reading his paper carefully I feel that his case was a prelethal convulsive seizure in an acute encephalitis with well known eye movements, and does not belong in the group under consideration. Then Gabrielle Lévy, in her magnificent thesis, reported two excellent case histories. My reading of these cases does not entirely correspond to that of Roger and Reboul-Lachaux. From then on, as to be found in a following chapter, a hundred and more observers have occupied themselves with the problems presented, and over 200 case histories are here brought together. Houin offered (1922) an early collected study.[6] Lubrano (1926), in his thesis, collected about forty-six cases of the type under discussion.

The kind of oculocephalogyric crises that follow in the wake of epidemic encephalitis, while standing out as striking and apparently isolated phenomena, are really but parts of a much enlarged general picture with which neurologists are familiar. This is the general hypertonic or hyperkinetic, dyskinetic picture—the amyostatic syndrome of Strümpell, and particularly in encephalitic parkinsonism—out of which the oculogyric crises are here artificially isolated and intensively studied.

Most observers of these encephalitic oculocephalogyric crises have emphasized the rarity of these syndromes; on the other hand, Stern spoke of their frequency. As an example, Bing, in 1926, wrote that he had seen only three in 300 cases. In as many cases, Wimmer had but five to report, whereas Stern found twenty in 100 of his cases. Van Bogaert and associates collected twenty-five cases within four to five years in Antwerp. In the present study I do not offer statistics as I have seen most of the great number of cases I have observed but superficially in the clinics of Europe and the United States. In the year 1928, however, I saw four cases in private consultation work,

[5] See Pearson's rich bibliography and work by Krabbe.

[6] Not yet obtained by me.

three of which have been studied intensively. They were the stimulus to this study. These are to be found in a later chapter.

Holding the opinion that even one case investigated in great detail is of far greater value so far as understanding is concerned than 100 less intensively studied, the question of numbers is of secondary value from the standpoint of the present study.

Practically all of the cases summarized in this study have been in chronic encephalitic parkinsonism. For the most part, the ocular situations come on late in the progress of the disorder. Vivaldo speaks of the development of the crises simultaneously with the acute stages of the encephalitis. Stengel reports a case apparently developing as early as four weeks from the onset of the illness. These are among the rare early developing examples. A few have occurred within a year after the acute infection, but the majority have occurred from two to four or more years after the acute disorder. Wimmer reported one case in which the crises began as late as seven years after the encephalitis. In one of my patients the first oculogyric crisis occurred nearly six years after the acute attack of encephalitis. It is of no particular value to chart such temporal occurrences, for the facts which at present seem relevant are not temporal but belong in an entirely different category.

# CHAPTER II

## RÉSUMÉ OF LITERATURE IN DETAIL

I purpose first offering as complete a digest of the various cases as possible. More than a hundred authors have occupied themselves with these studies and over two hundred cases presented to the present time (1931). Lubrano gave a digest of part of this literature in 1926, but inasmuch as he has not taken up the main problem of the affective states seen in the majority of these cases this presentation has seemed to be not altogether without need. Blum's more recent thesis (1928) also passes over this important phase.

**Staehelin** (1920) is frequently quoted as an early recorder of oculogyric crises in postencephalitic cases, but in his original paper I find no trace of such observations. The various authors citing Staehelin have not read his paper carefully. They refer to his Case 16 (p. 205)—G. Wilhelm. This was a fatal case of a patient with pneumonia and apoplectic hemorrhagic encephalitis who had a generalized convulsion lasting one and a half minutes with "head and eyes to the left." He then became unconscious and died within a day, not having recovered consciousness.[1] This is the well known type of conjugate deviate ocular position in apoplexy and epileptic convulsions described long ago by Prevost and Landouzy and others.

**Oeckinghaus** (1921), Case III, p. 299, reports a farmer's daughter who in 1919, then fifteen years old, suddenly had double vision lasting eight days just before Christmas. She then slept for eight weeks uninterruptedly. In October, 1920, she was extremely quiet and moved her muscles very slowly and stiffly and had marked salivation. She then had tremors of the arms and legs and "gelegentlich ein eigenartiger Zwang nach oben blicken zu müssen, ohne es zu wollen." She entered the Greifswald Psychiatric Hospital March 14, 1920. On the 31st she complained of the rolling up of her eyes, which up to this time had not been observed. April 10—"The eyes are so strongly rolled upwards that only the under edge of the iris is observable. On command the eyes can be brought down." April 12—The patient is strikingly euphoric; apart from her complaints about the distressing—"*nach oben blicken,*" she complains of nothing.

[1] In a personal communication, May, 1928, Professor Staehelin states he is unable to understand how authors have interpreted this case as they have.

This is a typical description of an "oculogyric crisis," upward—whether to right or left is not stated.

**Duverger et Barré** (1921) give an extremely succinct discussion of ocular disturbances but do not deal with crises other than speaking of certain paroxysmal or hypertonic reflexes of the eyeballs and their relation to labyrinthine reflex disturbances.

**Claude et Dupuy-Dutemps** showed before the Paris Neurological Society, June 2, 1921, an interesting postencephalitic parkinsonian with excessive tear formation and upward fixation of the eyes which undoubtedly should be included in this study, although no mention is made of the compulsory and episodic nature of the upward eye movements. So far as can be learned from their report the eye movements partook of the generalized parkinsonian rigidity. Duverger et Barré's observations are noted (see Stern). As these observers were more concerned with the tachyphemia than the eye positions, the observations are of secondary importance in our general thesis.

This was the first case of this type that I myself had observed while at the Paris Neurological Society in 1921.

**Frigerio** (1921) before the Fifth Congress of the Italian Society of Neurology, October, 1921, reported the case of a twelve year old boy who came into the clinic in a state of great agitation, character alterations and violent outbreaks. This was followed by a period of apathy. Other characteristic postencephalitic situations arose and then a year or more after the initial symptomatology crises of opisthotonos and upward and to right rolling of the eyeballs took place. (Illustration.) These oculogyric crises also occurred apart from the opisthotonos.

Frigerio also calls attention, in a footnote, to another patient nine years old who had encephalitis in December, 1918, with psychical disturbances, insomnia, motor restlessness, mild right hemiparesis, without any marked ocular, reflex or sensory disturbances. He then developed parkinsonian rigidity signs, with marked retropulsion with upward fixation of the *eyes as in sleep*. Concerning the opisthotonos and eye movements Frigerio speaks of finding no reference in literature about them. Cantelli has spoken of infantile eye movements, rotation of eyes upward on passive extension of the head and *vice versa*—phenomena already spoken of by Widowitz as occurring in diphtheritic paralyses. Frigerio calls attention to one of Gower's cases of tetanoid chorea with closely related oculogyric crises.

**Rossi** (1922) in continuation of a general study (*Il Policlinico*—sez. prat. 1921) speaks specially of ocular symptoms in postencephalitic cases. He mentions oculocephalogyric crises and shows the earliest photograph of this condition with which we are acquainted (Fig. 7, p. 150). Here the eye movement is to the left. No details.

In June, 1921, while at the Paris Neurological Society reunion I saw a large number of postencephalitic syndromies demonstrated by Soques from the Salpêtrière service. In **Mlle. Gabrielle Lévy's** thesis (1922) (Vigot Fréres), founded largely upon this material, are to be found two striking cases of this oculogyric syndrome—No. 47 and No. 52—strangely overlooked by B. Fischer and many other observers. Comments upon these two cases may be pertinent since they are omitted in the monograph later published by G. Lévy—on the Late Manifestations of Epidemic Encephalitis (G. Doin).

First published illustration of case of oculogyric crisis in an encephalitic (Rossi).

*Case 47.* Syndrome parkinsonien chez un enfant, d'apparition tres précoce, persistant vingt-huit mois apres son apparition. Tremblement du coté droit. Crises oculaires. Troubles de mastication et de la deglutition.

Yvette D., thirteen years of age, was brought to the Salpêtrière April 18, 1922, for general rigidity and tremor. She was a typical parkinsonian after an encephalitis beginning February 15, 1920. It had a neuralgic onset with involuntary movements, insomnia and noisy delirium. She was thought to have an acute chorea. She then developed a lethargic stage and the movements disappeared. This lethargy persisted about fifteen days and no matter where or how she was placed she slept. She was rigid and had double vision. She was unable to enter her school

as she yawned, and slept all of the time. Salivation, sleepiness and rigidity advanced steadily through 1921. In May, 1921, tremors and difficulties in swallowing occurred. No notable character changes.

At the time of the examination (April, 1922), very detailed in original, she showed nystagmoid movements on looking to the left and for the past two weeks "*ocular crises*" lasting five minutes—during which the eyes turn *upward* and "dans tous les sens" without any capacity to bring them back to a normal position. In June, 1922, "ocular crises" also occurred.

*Observation 52:* Syndrome parkinsonien generalisé, reprenant apres un an de sedation. Tendance a la regression? Crises oculaires.

Lucienne G., eighteen years of age, enters the hospital in February, 1922, with a generalized parkinsonian syndrome. In December, 1920, she had acute severe pains in the shoulder, the arm and right hand. No other disturbances. She remained in bed two months for these pains. Then for three weeks she was unable to sleep, and began to develop a general tremor and had a definite delirious period without loss of general orientation. When she was able to get up she noted a mild generalized rigidity but her tremor was gone. Sleep was better but not as before. She improved gradually and in May, 1921, resumed her occupation. Towards July–August she felt fatigued and by October had to give up her work. She rested all day in a chair without doing anything. Her head became fixed. She laughed and cried without any appreciable reason and began to see double and to salivate. Her condition then began to grow worse. At the time of examination there were no ocular palsies, no nystagmus, but she had "ocular crises." Both eyes turn abruptly upwards and then go through a violent nystagmoid up and down rhythmical movement during which movements the patient cries, is fearful and says that she has the fear of becoming blind. All capacity to bring the eyes down or laterally is impossible. On being asked to close the eyes at these times she is able to do so incompletely and the eyelids flutter with the ocular movements. According to the mother these ocular crises occur once a day and last about two hours.

**Goldflam** (1922) after calling attention to the great epidemic of 1919–1920 which he states was probably much more extensive that the Tübingen epidemic of "Schlafkrankheit" of 1718 enters into one of the fullest descriptions of the acute and chronic phases of this syndrome that, up to this time, Jan., 1922, had been recorded. While Goldflam does not present any definite case histories of the oculogyric crises, his detailed descriptions of the various hyperkinetic symptoms are so full, rich and accurate that no student of the problems of postencephalitic tonic spasmodic states can afford to neglect the careful reading of this most valuable monographic presentation.

**Reys** (1922), in his small but interesting monograph, mentions a

case seen with a colleague, Dr. Morin, which was a postencephalitic oculogyric crisis and which he writes is unique in the literature. The eyes of this patient were compulsively fixed upward and to the left. He was unable to alter the eye balls. After a minute or so the eyes would resume their usual position.

**Felix Stern** in his justly celebrated monograph (1922), the first thorough work in this field, does not speak specifically of oculogyric crises but refers (p. 25) to Duverger & Barré's (1921) note upon disturbances of the associated eye muscles as hypertonic reflexes following vestibular disturbances. (See later study by Stern, and especially the second edition, 1928, of Stern's monograph.)

**LaTorre** (1923, Studii Sassari). This study we have thus far been unable to get in the original. It is cited in Bing and Schwartz's study (see later). The patient had upward oculocephalogyric crises which were accompanied by intense anxiety, and relieved only by going to bed in a dark, quiet room.

The literature seems silent about these oculogyric crises for a few years. Either they take some years in the making, as Wimmer and Stern have both commented upon, or have been considered so-called "hysterical" phenomena, or possibly by reason of their mildness they have been overlooked entirely. As most authors have noted their late appearance in parkinsonism probably the time element is of definite importance although here again the variation has been from one to ten years. As we shall here attempt to show (considered in the psychoanalytic frame of reference) the evolution of the personality of certain patients in their effort to handle the organic insult of the encephalitis virus, enters into a compulsion phase of adaptation (as Abrahamson early spoke of permutations and phasic states). These phenomena then develop possibly to handle certain impulses which we shall discuss more at length after a review of the symptomatology as it has been recorded in the rapidly accumulating series of observations.

Thus when we come to **Bruno Fischer's** (1924) report it is not surprising that he should think of his findings as new—which they were not by any means. We emphasize this since many writers have accepted this statement concerning their "noch nicht erwähnt" without further historical research.

B. Fischer presented his paper before the German Neurological Society, September 15, 1923, at Danzig (published in January, 1924) and after speaking of the rich symptomatology observed in the eye muscle palsy field, reviewed by Cords so ably, says, "Noch ein weiteres Symptom

erregt unser Interesse und ist meines wissens in der Literatur *noch nicht erwähnt* obgleich es gar nicht so selten vorzukommen scheint." He speaks of five patients coming under his observation in whom he found upward tonic spasmodic movements of the eyeballs which were uncontrollable and which some of the patients had described as "horribly painful." In these five cases vertical nystagmus was also observable and in one accompanied by tonic-clonic cramps of the eyelids (a feature already here spoken of as belonging to the early case of Crouzon, Marie, and Babinski). Fischer was particularly interested in his presentation in the vestibular features which he says have been seen in at least 50 per cent of the amyostatic syndrome of Strümpell as a postencephalitic situation. As this study does not intend to enter fully into the complex vestibular syndromies these features may be passed over for the moment. (Other observers have since taken up these studies to great advantage—van Bogaert *et al.*) Fischer here gives no details of his findings other than the vestibular ones. He simply records the fact that five of these postencephalitic cases had oculogyric crises, "nach oben"—and speaks of their possible relationship to vestibulo-striatal connections as experimentally studied by Muskens.

**Euzière, Claret et Pagès** (1923) in their first paper given before the biological society at Montpellier, December 7, 1923, report the case of a young soldier who, rejoining his corps at Allei, showed upward oculogyric crises. The crises occurred three to four times a week. Close questioning disclosed only two to three years previously an attack of severe headache and vomiting, no diplopia and no somnolence, and he was sick only a few days. Minute examination showed definite parkinsonism with salivation, sniffing, tic, tachycardia 120, with ocular pressure falling to 60.

In a second paper, two years later, **Euzière et Pagès** (1925—Montpellier), after incorrectly saying they were the first to speak of oculogyric crises in France, report three cases.

*Case 1.* Parkinsonian—three years previously encephalitis.

*Case 2.* No appreciable encephalitis—oculogyric crises cured by gardenal—2 gr.

*Case 3.* Frequent crises—more in evening—lasting a minute only. Two to three a day—commence with vasoconstriction of the face—head back, eyes convulse above—vertical clonic movements—tic de salaam?—loss of consciousness during the crises—no fall, biting of tongue.

**Leroy** (1924) speaks of the contribution of G. Lévy and reports two cases of his own.

*Case 1.* Mlle. D., twenty years of age, who in January, 1921, had what she called the grip. Since then gradual parkinsonism more marked on the left side. In July, 1923, patient had vomiting spells and bilateral conjugate superior rectus spasms. These have continued, after several

hours or several days. The eyes ascend vertically, the head slightly extended. She cannot redirect them. No psychical modifications. She complains only of a sense of tension in the eyes. A pupillary inequality increases during the spasms.

*Case 2.* Mme. G., twenty-six years of age. Acute encephalitis two years preceding with gradual parkinsonian progression. Oculogyric crises occurred at intervals of eight or fifteen days—sometimes persisting twenty-four hours. As in Case 1 the eyelids and head are also raised.

**A. Meyer** (1924) of the Bonn Psychiatric Clinic, in December, 1923, published in 1924, contributes a very thorough study of all of the cases observed in the Bonn Clinic of epidemic encephalitis in the acute as well as chronic stages (97 cases in all from 1917 to 1923), 40 of which are recorded in 1920. Our concern here, apart from the most interesting material otherwise presented, is with the two cases of oculogyric crises (p. 502—Nikolaus A., and p. 503—Mo.).

*Nikolaus A.* A Luxemburg youth of tolerable development who in the course of a typical encephalitic parkinsonism, with slight psychical retardation, otherwise not changed, complains that from time to time he has the "Guck." By which is meant that both eyes were *compelled* to look "down and to the left." This compulsory eye position would persist for an hour or more. He is unable to do otherwise. No such symptom had ever been observed.

*Mo.* Also an amyostatic postencephalitic patient in whom for periods of fifteen minutes or more the eyes and head look upward in a compulsive manner. No subjective need seemed to precede the actual movement and only when in actual action was it complained of. In between the patient is quiet and without psychical disturbance.

Meyer comments upon these two very fragmentarily presented cases, that one can be in considerable doubt as to their significance. He thinks they are not true psychical compulsive states; the general attitude of the patient speaks against their hysterical nature. Patient *Mo* suggests the "Simon" symptom of rapid lowering of the head and raising of the eyes (French doll eye situation). He calls attention to the study of Duverger and Barré relative to the associated muscle movement as a hypertonic reflex of vestibular lesion. Further analogies to schizophrenic neologisms are mentioned. "In view of the rarity of the symptom it has no particular nosological significance" is the way in which he disposes of the phenomena. Further than this our author says no more.

**Rouquier et Lacambre** (1924) here report what they call a non-functional tic. It deals with a young man of twenty-seven who six months before had a febrile episode lasting five to six days with diplopia

and diurnal lethargy. Since he had had severe malaria while serving in the North African forces the attack was thought of as malaria—but he soon began to develop a right sided rigidity and tremor and excitomotor attacks. At irregular intervals, at least once a week, he showed tonic spasms of the erectors of the eyes which led to upward deviation of his eyes. These persisted about fifteen minutes. A flexing movement of the head on the chest also developed fifteen times a minute. He became mentally indifferent, lost his previous active qualities and did no more work. The picture on entering the hospital was a typical *tic de Salaam*. He also had an intermittent polyuria, on some days passing four liters—this would clear up completely and reappear.

**Stertz** (1924) demonstrated two cases: *Case 1.* Twenty-three-year-old man who, in February, 1923, had a grip. In the spring of 1923 tremor, stiffness, and upward oculogyric crises, which took place every fourteen days and persisted one-half to two. The head was bent backwards. At times the eyes were directed downwards.

*Case 2.* Seventeen-year-old male with mild grip in summer of 1921, with tremor of right arm shortly afterward. After three weeks an attack of oculogyric crisis, occurring often in the day and lasting one-half hour. While chopping wood he could not bring the eyes down. Mostly up and to right; occasionally down and to right. One attack lasted five hours, the eyeballs being directed downwards. Consciousness free. The parkinsonism was increased during the attack.

**Lemos** (1924) reports at great length an interesting case of oculogyric crises associated with masticatory and glossopalatolaryngeal spasms and spasms of the arms. The patient had a number of symptoms during his prolonged period of observation such as intermittent claudication and writer's cramp.

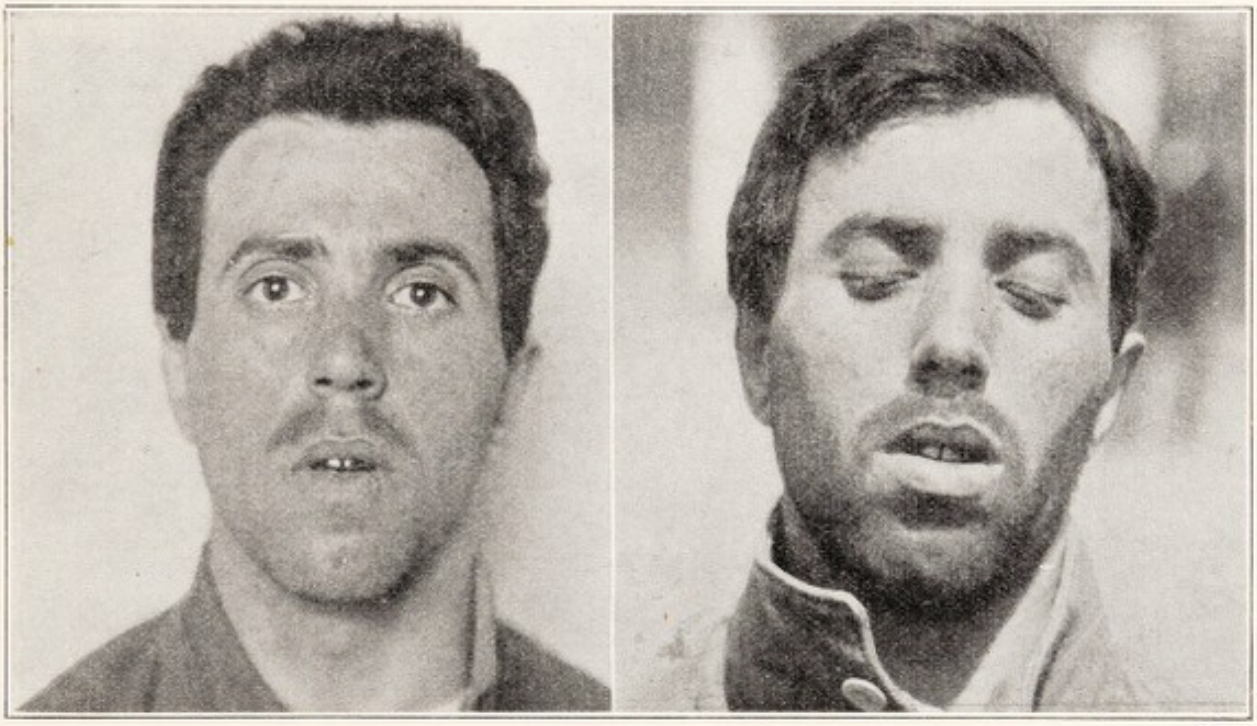
*Case 1.* Virgilio L., twenty-two years of age. At eighteen an acute encephalitis with insomnia, fever, and lethargy, fixed facies, diplopia and salivation. After a month he was able to resume his work as a laborer with persistence of mental depression, diplopia and sialorrhea. Gradual increase in parkinsonian signs until a year later he could no longer work. At this time definite neurological signs, much helped by scopolamin. For a time he resumed his work. In November, however, regression with loss of all his gains. Then his intermittent claudication began, associated with conjugate deviation of the head and eyes. (Lemos alone seems thus far to have read G. Lévy's observations—1922.)

In May, 1924, the oculogyric crises were well established. These were upward and to the left and the patient would stand immobile with the head also turned to the left during at least ten minutes. The jaws would close and the left arm be drawn up—the patient resting immobile and silent, his food in his mouth, holding his spoon in one hand, the bread in

the other. On being spoken to no response of any kind, yet he was not unconscious. After ten minutes he would continue his lunch, at times with other attacks of variable intensity. Later oculogyric and cephalic spasms occurred as isolated phenomena (November, 1924). Later writer's cramps were also noted.

**Beilin, B.** (1924), speaks of the Bell phenomena and other related eye position displacements but the abstract of the Russian communication does not afford full details. Popowa quotes this author.

**Falkiewicz and Rothfeld** (1925) open up this study with the mention of the numerous compulsory movements of encephalitic patients and they



Oculogyric crises in Falkiewicz and Rothfeld's patients.

first report striking cases in acute encephalitis. These cover part of their study (p. 278) and deal with three cases of (Zwangschauen)–(Zwangsdenken) in postencephalitic patients.

*Case 1 (3).* Giza D., twenty years of age, had an acute encephalitis in January, 1918. Two years later parkinsonism. For the past six months oculogyric crises at least twice a week. The eye movement is chiefly towards the right, less often up or down. Patient thinks attacks are more frequent when there are many people about. Thus Thursday, weekly market day, is one of special predilection. In the clinic the attacks were frequent and mostly up and to right with accompanying head movements. She feels weak and miserable. Holds her hands over her eyes. Can at times bring the eyeballs down on demand. At times the attack lasts three hours.

*Case 2 (4).* S. K., eighteen years of age, five years previously had encephalitis. For the past four years parkinsonism. Salbengesicht. Divergent strabismus. Daily attacks of upward oculogyric crises. During these the patient can direct the eyes, however, in any given direction on request. The patient feels very uncomfortable with these attacks. They often cease on resting.

*Case 3 (5).* F. G. had encephalitis in 1920 following which the patient had always to be on the go. In 1923 parkinsonism. The crises then began—upward movements—with capacity to move the eyes in all directions on demand. Compulsory thinking comes to conscious expression during them. They are prayers. "Gegrusst seist du Maria"—a thought that

Oculogyric crises in another of Falkiewicz and Rothfeld's patients.

recurs at every attack and all the "A's" have to be as if written, but without writing them, but the right hand seems as if it were doing it. The other letters are written in thought, but not with the hand. The compulsory ideas are not necessarily bound up with the eye movements. They occur in separate attacks and are particularly distressing.

**Ewald** (1925) before the Bavarian psychiatrists at Nuremburg in 1924 reported six cases from the Erlangen Clinic of "Schauanfälle" as he termed them, and speaks of them as not being recorded in the literature. They appear as late symptoms. Ewald's cases are of particular value for our presentation since the psychical state during the attack received special attention.

*Case 1.* G. S., student, twenty-four years of age. In February, 1920, he could not sleep for five nights, double vision and tremor followed. This was his encephalitic attack. Late in 1921 parkinsonian signs which first

showed as writer's cramp (*cf.* Lemos) and then Basedowoid signs. In November, 1922, the oculogyric crises began. His head would turn to the left and his eyes would also compulsorily go to the left. This position would persist for an hour or more at a time and he was unable to combat it. These attacks persisted, although atropin-scopolamin had seemed to materially help his amyostatic state. They came every three to four days, and only at rare intervals under strong effort could he bring his eyes back—they would resume their strongly deviated position to the left for hours at a time and would give way only when he could sleep. On one occasion the attack lasted from 3 to 12 P.M. They were very agonizing and he was in a peculiar mental state during the attack. Consciousness

Oculogyric crisis, from Ewald.

was clear but he was so occupied with his condition he could think of nothing else. He could not do anything and only heard the half of what one said to him; except with the greatest effort at concentration could he answer connectedly. Mostly questions would have to be repeated four to five times to get an answer. He was in great distress and wanted to be left alone. He was not negativistic. He was completely apathetic, somewhat depressed. Isolated depressed moments would also come and then usually the "attacks." During some attacks definite compulsive ideas and impulses would take place. He would go crazy (compare c. Jelliffe case). Letters had to be counted. Were they nine or ten? The vowels a, e, i, o, u, did they follow regularly in a row in a sentence? or were they reversed? By January, 1925 (a year later), he was in the same condition. The attacks now took place every four days. Atropin therapy made them worse—every two days with marked sweating. He felt that the attack was a kind of "discharge." A mild one—cut short by sleep—would be followed by a severe one. This "entladung" *must* take place. The

attacks began always with sadness, his words left him and he felt he needed someone to interest him in order to avoid the attack, which it rarely did. Let him alone—then the compulsive ideas.

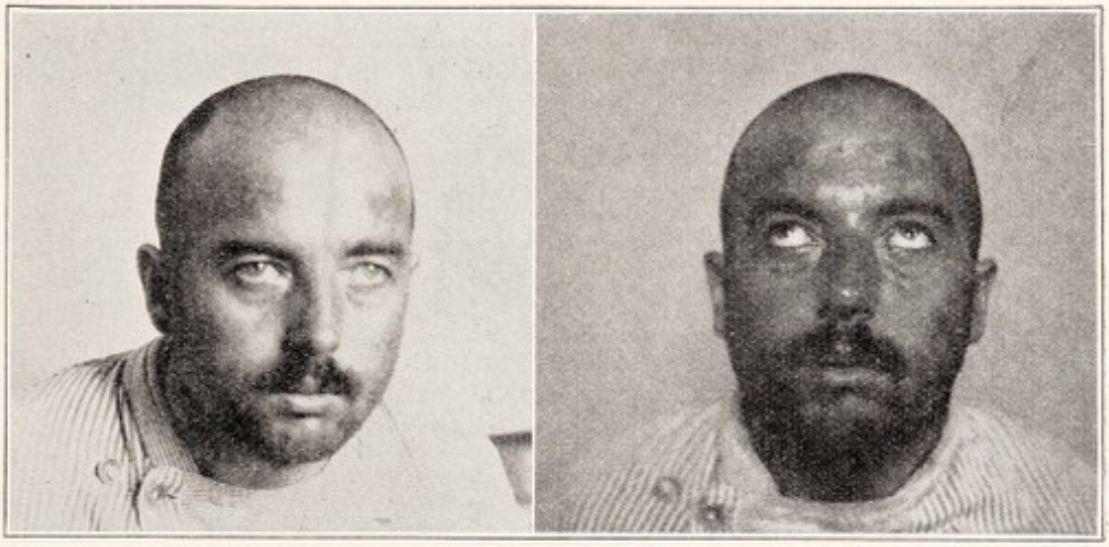
Then a new systematization took place. He would wait to see if somebody would mispronounce a syllable. (See Jelliffe case.) He knew it was nonsense but, according to the tone, some portent as to his getting better or worse was forthcoming. Then began a complicated series of ideas regarding esperanto consonants, and their proportion to the vowels 1½:1—6:3—2:1, etc., which were related to the prognosis of his illness. Sizes of objects—centimeter—decimeter—also were brought into relation with the probable length of his illness. Otherwise his personality was unaffected and even during these compulsory idea periods he could laugh at this senselessness.

Very minute and detailed observations of one attack are given—June 26, 1924 (pages 226, 227)—in which a sister seemed to play an important rôle in his ideas.

*Case 2.* J. A., barber, twenty-five years of age. In 1917–1918 in service, paratyphoid(?) with severe pains in back of neck and frontal headache, two weeks fever and hallucinations. Then some time later much yawning, then insomnia, in 1919 gradual development of parkinsonism with preliminary crying and laughing, and once when visiting a sister he had a peculiar attack. He saw himself in a mirror, was shocked, had turned brown. "Now I shall waltz in the snow" and became quite confused. Found himself at his parents' house—and "wished to bite his mother's nose off." This was but the beginning of a very complicated psychotic episode (reported in great detail) which lasted some time. In April, 1921, the oculogyric crises occurred. One evening on his way home from work "he always had to look to the right." At first the attacks lasted only ten minutes, then they lengthened. The eyes went up and to the right (photo) and would stay in this position for one-half to three-quarters of an hour. Sleep would bring him freedom. These attacks and his increasing stiffness gradually lost him his work. He was much depressed and tried to suicide with sleeping powders. The attacks were so agonizing he would cry and press his handkerchief deep into his eyes. The attacks then occurred weekly, then daily for half an hour. In company sometimes he would be free but alone he was in great distress—wanted to sleep all of the time and yet found it hard to go to sleep. He was absolutely unable to concentrate. When spoken to he endeavored to pay close attention to each word and then in the effort to bring the entire sentence together he would be in a daze—the compulsion to get the individual words interfered with the whole configuration. Thus being spoken to was unpleasant because of this (stickiness of the thought processes). His answers would often be quite the opposite even though there was no

real negativism (in the schizophrenic sense). He really wanted to be left alone to sleep, not eat, not drink, not smoke, but would wait for hours for sleep to come. He felt his personality was not altered save that he felt "imposed upon." He could laugh or cry at the slightest provocation. (Psychoanalytically, a most interesting document, but not viewed by the author from this point of view.) Luminal and scopolamin, paraldehyde, etc., might bring momentary relief but no real cure.

This case is of special value as falling in a large group of unusual and atypical forms of encephalitis so far as their initial signs are concerned; quite similar to cases more recently discussed by a number of observers (see Skalweit, 1928). Also the general kinships to narcoleptic, epileptic, trance states are illumined and also discussed



Myostatic syndrome complex with oculogyric crisis, from Ewald.

by the author. These dämmerzustände and their relationship to the schizoid-paranoid reaction types are also pointed out as of special import in the patient's "delirium."

*Case 3.* M. J., eighteen year old girl, not so dramatic, not personally investigated, but reported upon by her parents. In December, 1920, at age of fourteen she had a "grip." Later insomnia. By February, 1922, very tired, and much lethargy. May, 1922, tremors and "nervous." Gradually sicker, more tired, and stiffer. In July, 1923, oculogyric crises, for a moment, upwards. Long periods of sleeping—weeks at a time. The mother kept a diary in which were recorded the many hours spent in bed and the oculogyric crises through December, 1923, to January, 1924. Some of the crises lasted an hour or more. Efforts to correct the child were without value. Scopolamin pills in June, 1924, which held the attacks off for four weeks; then they recurred every other day. During the attacks she had severe headaches, and wished to sleep but could not by reason of the eye attacks—when she could sleep they ceased. The eye

position was not extreme. It seemed she was looking at the ceiling with slight inclination of the head backwards in the later stages. No voluntary control and no loss of consciousness. Depression quite marked during the attack. Only on rare occasions was there stickiness of the thought processes. Typical though mild amyostatic motor situation.

*Case 4.* M. S., sixteen years old—severe case—not personally observed, but reported by Dr. Hoch of Beyreuth who provided the history and photographs. In 1918 she had an attack of "head grip," since which time she has been nervous, sleepless, forgetful; would not work and talked foully. This situation got worse and she was sent to a home in August, 1923, where she showed a definite amyostatic syndrome. Later in the month she developed the upward oculogyric crises (photo) with epileptiform trance-like states. September, eye attack with petit mal-like characters but would answer question "I don't know." Conduct disorder in form of hitting people so pronounced as to need an arm girdle. Frequent attacks of upward oculogyric crises with almost catatonic-like holding of head backward and stiff parkinsonian holding. Occasionally an opposite eye and head position. The attacks would occur about every two to three days, sometimes several in one day, last from three-quarters minute (petit mal-like) to one-half to three-quarters hour (catatoniform or cataleptiform). On command the eyes can be pulled down but go right back again. After her cataleptic-like states she almost invariably cries. Asked to explain she says that she must look into the eyes of another patient five minutes. If she does not then she must look to the ceiling.

*Case 5.* G. S. Student twenty-eight years of age, who in summer of 1920 had a severe head grip with diplopia, fever, delirium, and lethargy which persisted one-quarter year. The sleepy tendency persisted. Took up his studies again. Three years later he noted the upward compulsory eye movements. These began to appear regularly every four days and occurred more or less about 5 to 6 in the afternoon. A half-hour before an attack he notes fluttering of the eyelids. Then the upward movement rarely a little to the left. He can move his eyes right and left, more easily left, also on demand down for an instant. The head is also pulled back a bit and tilted to the right. Consciousness is clear but he has no particular wish to be spoken to. He is apathetic. He craves to lie down and sleep—this will terminate an attack. The attacks are usually mild. He can play cards and go in company during them.

*Case 6.* This is a very short account of a patient of Dr. Rad of Nuremberg in a twenty-one year old boy with beginning signs as the previous case and oculogyric crises occurring in 1923 closely resembling those of G. S.

Then follows Ewald's discussion which is full and illuminating. He emphasizes the tonic nature of the conjugate deviation, the vari-

able capacity to be overcome voluntarily, the subjective state of compulsion, the participation, in severe cases, of the head position, clear consciousness, chiefly, cessation of attack after sleep, sleep need, emotional antecedents chiefly depression, inability to concentrate, certain tendencies to periodicity which are discussed at length and brought into relations with other periodic situations (epileptiform, etc.), and close similarity of eye symptoms to other extrapyramidal disturbances.

His explanations are physical and anatomical. Irritation of supranuclear quadrigeminal in localization. Psychogenic factors as "obviously absent" is his *thoroughly irrational* conclusion. Such factors are quite apparent in his histories if one has the wish to see them.

**Filimonoff** (1925), in a paper dealing with three patients with peculiar motor attacks, describes in his case 2 one apparently of oculogyric crises:

*Case 2.* Nikolai, Gr., twenty-two years of age, medical student, had an influenza in 1919; temperature five days; diplopia two weeks; 1920 o. k.; 1921, polyarthritic then tremors began; 1922, typhus and malaria followed, when definite parkinsonism began, salivation, stiffness. Ocular crises began in April, 1923, after reading in bed a long time. The eyes went up and to the left with compensatory head movements. It lasted fifteen minutes. Then daily or twice daily attacks, usually in the late afternoon. Washing his face in cold water, crying, singing or reading aloud would help the eye spasms. Some of the attacks lasted two hours. Fatigue and excitement seemed to bring them on. No psychical alteration and the patient noted slowness of ideation.

Filimonoff speaks of the attacks as isolated fragments of the first phase of an epileptic attack.

**Popowa** (1925), with a limited knowledge of the literature (she speaks of only three observations having been observed, those of Dupuy-Dutemps, Beilin, and Lemos), reports five cases:

*Case 1.* G., thirty-four years of age, domestic, married, who in 1919 had an acute encephalitis. Beginning in 1923, parkinsonism, followed in a few months with eye symptoms which without warning consisted of an upward rolling of the eyes which stayed in this position for hours. Some attacks lasted only a few moments and were repeated many times during the day. Periods of two to three days were observed. Later the patient spoke of special twice-a-week intervals, Tuesday and Saturday, or Wednesday and Sunday. These periodic types of attacks were observed by Popowa. The eyes would roll up slightly to left and there was rotatory nystagmus often accompanying. She could bring the eyes down on request but they soon rolled up again and were accompanied by much

tremor of the eyelids. If the patient could get to sleep the attack ceased. Atropin and adrenalin injections .001 would stop the attacks after five to thirty minutes but in twenty to thirty minutes they would recur.

*Case 2.* K., twenty-eight years of age, farmer's wife, who in December, 1920, had an acute encephalitis, followed very quickly, fifteen days, by parkinsonism. In the summer of 1922 she had eye crises, usually on Tuesday, lasting an hour or so with gradual improvement. Sleep stopped the attack. The patient was unable to look down or to the side while the attacks lasted. Clonic vertical movements lasting fifteen to twenty minutes were the rule. Atropin and adrenal injections cut short the attacks, but the relief was temporary.

*Case 3.* G., a sixteen year old girl with acute encephalitis in 1921 and several weeks following parkinsonism. Just when the oculogyric crises occurred the patient was unable to state. These attacks began with an inward rolling of the eyes, then the eyes became fixed in a median position and after a few seconds were pulled downward. After ten minutes the eyes were pulled upward without outward rolling. The entire attack would last twenty-five minutes.

*Case 4.* K., thirty-four year old married nurse, who in the summer of 1921 had the initial encephalitic attack followed gradually by an increasing parkinsonism. In the summer of 1924 downward and up movements of the eyes began daily, nearly always 3 to 4 P.M., and lasted an hour or more. These attacks observed by Popowa usually began with a strong downward pull, the left more than the right, then both eyes quickly turned to the right, still looking downward, with slight periods of voluntary control. If sleep were possible they ceased. Water injections caused no cessation but adrenalin (5 m.) and pilocarpin (10 m.) injections interrupted the attacks.

*Case 5.* G., twenty year old girl, who in 1920 had encephalitis with parkinsonism some months later. Eye signs followed much later but not definitely timed. One attack observed with marked upward movements lasting five to seven minutes with rotatory nystagmus.

The authoress adopts Grünstein's hypothesis of a hypothalamic (striatum) involvement, especially since sleep causes a termination of the movements. She further discusses the pharmacological (parasympathetic) influence upon the sarcoplasmic component of the muscle—applying a too rigid adherence to vagotropic (pilocarpin), parasympathetic paretic (atropin) and sympathetic exciting (adrenalin) hypotheses from which she deduces some hazy generalizations as to the striatal origin of the ocular cramps. Her conclusions accent the upward movements, the tonic—at times tonic-clonic movements, the cutting short by sleep, the probable affection of the corpus

striatum, possibly an " ubergreifen " of the process from pallidum to neostriatum (whatever this means). Atropin and adrenalin can cut short the movements—speaking in favor of the parasympathetic origin of tonic cramps and contractures. Psychical factors, quite apparent, as periodicities, etc., and the subjective attitudes of the patients are not commented upon.

**Reys** (1925), in a second communication, recurs to the oculogyric crises mentioned by him in his monograph and speaks of two new cases which are discussed together.

They are examples of oculogyric crises upwards—lasting for variable lengths of time—external strabismus (to left) also occurred.

In one case the crises occurred regularly at 3 P.M. and continued until the evening—occurring every ten minutes.

**Scharfetter** (1925) reports five cases from the Innsbrück Clinic. One in detail and the others more briefly since, as he states, they resemble one another so closely.

*Case 1.* Bertha H., thirty-four years old, had an acute encephalitis in 1918 after which to 1921 she was apparently well. Then there began attacks of upward movements of the eyes lasting about one-half hour and occurring frequently in the same day. Since 1922 parkinsonism which at the time of examination had attained a definite severity. The conjugate eye attacks occurred mostly every other day and were in extreme vertical or upward and to the left, sometimes to the right. The patient had a great desire to lie down as this would stop the attack if she could sleep. Consciousness remained clear. In the free intervals slow movements of the eyes following the finger were found and there was distinct difficulty in downward movements; convergence capacity was also involved. The head is also held backward during the attack. She could not bring the eyes down but the eyelids could be brought down with much fluttering, occasionally the globes would come down a bit but they promptly rolled up again on opening the eyelids. Passive movements of the head caused the compensatory eye movements. Atropin .001 stopped the cramp in fifteen minutes.

*Cases 2 and 3,* not reported more fully, behaved in a similar manner, but these patients complained of " feeling badly " during the attack, they did not wish to speak and also what was said to them did not register.

*Case 4.* Maria W., twenty-five years old, in 1920 a severe lethargic type of encephalitis followed by advancing parkinsonism. For three years upward oculocephalogyric spasms every other day between 2 and 4 P.M., lasting many hours with insomnia, mouth half open, no thought disturbances but patient does not talk or talks with difficulty, low and indistinct. Generalized hyperkinesis. Can follow finger to side and up but not below middle line. Involuntary laughter and lack of interest. Head

drawn back and moved with difficulty. Nystagmoid twitchings. Attacks seem to be induced by emotional disturbances. Head eye reflexes by passive movements could not be tested out.

*Case 5.* Howard W., nineteen years old, who in 1920 had an encephalitis followed by an akinetic-hypertonic syndromy; at time of observation definite parkinsonism.

Oculocephalogyric spasms for the past year every three or four days, no definite time. They last from five minutes to many hours. In the beginning five minutes of cramp-like contractions in the toes and supination of the foot. At theater or drawing brings on an attack. The eyes go up or down with corresponding head movements. The eyes cannot be voluntarily controlled. During the attack the patient is nonresponsive, his tongue seems to be asleep or the body is bound. At attack coming on during eating—the hand holds the spoon or fork in cataleptic position. He feels as if he has a compulsion to pay attention to something but what it is does not come to consciousness—once regarding his mother's wedding day—and again on what side of the room his bed was located. On recovery the thought comes to him—(no further details).

The author then discusses the phenomena in detail and compares his findings with those of others and leans heavily upon Bielschowsky and Steinert's conceptions of an interference of the pathways between the vertical ocular centers and the cortical end stations. Much excellent discussion of the accompanying associated reflex movements and valuable comments upon variability in intensity of these and similar observations in the literature. The author's comments lead him almost to the portals of the significance of the emergence of unconscious material (p. 247) but he does not enter into this important field of "purpose" of the intention activities of the regressive (Hughlings Jackson) individual.

One bit of unique observation is worthy of record, namely, bony formation in response to continued contraction of muscular activity in the pectoralis and in the mouth musculature.

**Marinesco, Radovici et Draganesco** (1925) contribute a very complete study of paroxysmal attacks of conjugate deviation of the head and eyes in postencephalitic parkinsonism. These belong to the large mass of postencephalitic motor disturbances as yet but little known. They, with others, would seek some systematization in this vast array of hyper- and hypokinetic phenomena and their various intermediaries and combinations.

Like so many other observers they would describe a hitherto undescribed form. These are the oculocephalogyric crises so well outlined by Gabrielle Lévy (1922) in her thesis. (Cases 47 and 52 already abstracted). They present five new cases.

*Case 1.* S. S., twenty-three years of age, who in April, 1921, had an acute encephalitis attack. After this mild parkinsonian development. In May, 1922, he had his first eye and head attack which lasted two hours, followed by sleep. Following this weekly attacks lasting several hours to a day. During the first five or ten minutes of the attack the eyelids close and the patient looks downward to the left, then the head and the eyes turn upward and to the right. Some slight voluntary control at times is possible, but rarely. Hyoscin controls them temporarily (photo). Vestibular tests.

*Case 2* (photo). V. J., twenty-one years of age, who in March, 1922, had an acute encephalitis. Since November, 1922, parkinsonism. The first oculocephalogyric spasm took place in June, 1923. His attacks often last for hours with head turned back and eyes in extreme upward and to

Oculogyric crisis in one of Marinesco's patients. Case 2.

right position. At times the eyes can be brought to the median position. During the attack the general hyperkinetic reaction is exaggerated; intense sweating and increased salivation. Vestibular tests.

*Case 3.* B. Leizer, twenty-three years, had an acute encephalitis in April, 1920. In spring of 1922 parkinsonian development. August, 1922, oculogyric crises similar to the preceding case occurred, dating, however, from March, 1922. They come on weekly and last five to eight minutes. During the attack he is speechless, does not react to a burning match.

*Case 4.* Avram T., eighteen years of age, who had an acute encephalitis in 1920. First attacks in May, 1923. He had a definite parkinsonism in April, 1923. During the attack (photo) the head deviates to the right and is pulled back, the eyes up and to the right (left in photo). He does not respond during an attack which may persist for ten hours.

*Case 5.* A. R., twenty years of age, with acute encephalitis in December, 1920. By March, 1923, mild parkinsonism and attacks of conjugate deviation of the eyes lasting twenty minutes and occurring several times

a day. During the attacks the eyes are directed upward, the head turned back, the chin to the right. Scopolamin cuts the attacks short.

These five patients present very closely related pictures. In all fatigue seems to aid an attack. Other evident causes seem lacking. The labyrinthine tests pointed towards vagosympathetic involvement. The eye crises were always accompanied by other variable hypertonic signs. Vegetative symptoms also occurred, the most outstanding of these were increased cardiac and respiratory rhythm, increased oculocardiac reflexes, and secretory and vasomotor disturbances. These all closely paralleled in intensity the intensity of the oculogyric crises in general, including the labyrinthine reflex disturbances, which were not pathological in the attack-free intervals. They observe that the oculocephalo hypertonicity of one side opposes itself to an inverse deviation of a nature that the vestibular

Oculogyric crisis in another of Marinesco's patients. Case 4.

reflex seems abolished in this direction although the labyrinth remains excitable. Intravenous injections of atropin and scopolamin—1 mg.—caused instantaneous abolition of the crises and also modified the general hyperkinesis. In two cases a loss of speech was immediately recovered. Subcutaneous use of hyoscin or scopolamin was responded to more slowly. Adrenalin, pilocarpin, eserin increased the difficulties. Injections of water caused no results.

The authors then discuss questions of localization and of the physiological mechanism. Extrapyramidal tonogenic localization are generalized (pallidum and locus niger). Labyrinthine controls participate in the reaction. The authors are convinced that the reactions are extremely complex and thus far are not satisfactorily explainable in all details.

**Bing and Schwartz** (1925) after calling attention to the frequent finding of more or less permanent paretic phenomena in the eye musculature (notably weakness of convergence—70 per cent) speak briefly of the

paroxysmal tic or epileptiform discharge situations often encountered in postencephalitc cases—report three cases of their own and briefly digest cases of Rossi, La Torre, and speak of those of Frigerio, Fischer, Reys, and the two cases of Gabrielle Lévy.

*Case 1.* Frieda H., thirty-nine years old, who in 1918 had an encephalitis (grip at first, then somnolence for several weeks). She apparently recovered but in the winter of 1920–1921 she began with vague nervous signs, irritability, fatigability, palpitation, oppressions, anxieties and sweating attacks. In the spring of 1922 after vague increase of subjective difficulties, parkinsonian signs developed, which by March, 1923, was definitely established. Retropulsion. In January, 1923, she began her oculogyric crises, occurring every week. The eyes first were fixed forward or a little downward. Rigidity of facies increased, then the eyes slowly went upward, the brows contracting as well (photo). The attack lasts three hours. The patient could control the eye movement for a few seconds only. She could not close the eyelids during the attack. She is absolutely inactive. On two occasions the Magendie position was demonstrable, sometimes the right, sometimes the left eye being the more elevated. The patient usually had these attacks towards the evening. She feels vertiginous, fatigued and a slight involvement of consciousness. In the free intervals the eye movements were practically normal and there were no vestibular lesions demonstrable in the normal period. No record as to her inner subjective state.

*Case 2.* Amelie S., seventeen, a nervous phobic child. In 1918 a typical grip after which she became distrait, querulous and a bad scholar. In March, 1922, an encephalitis. In bed five days with lethargy which persisted. In the autumn of 1922 some rigidity, which increased, with right sided predominance and tremors. In April, 1923, vertical oculogyric crises. In February, 1924, she showed typical parkinsonian features. The eye attacks were as in Case 1, only up and to the left. The position persisted several hours. They would occur usually towards the evening and emotions or fatigue could induce them. A bath taken late in the afternoon would often cause them. During the attack the patient has great anguish. She seeks the dark, holds herself immobile and reacts to nothing about her. If she can get asleep the attack passes. Scopolamin has a rapid beneficial action.

*Case 3.* Robert J., twenty-two, always nervous. In the spring of 1920 classical encephalitis with enlarged liver—no jaundice. Four months of absolute lethargy. In the summer of 1921 beginning stiffness and by 1922, a year later, complete parkinsonism. Arsenic, atropin, and scopolamin in December, 1923, seemed to help—but following a pilgrimage to Lourdes May, 1924, all the symptoms returned. After this vertical oculogyric crises which occurred every five to six days towards evening. The attacks were as in the previous cases save they rarely lasted over a half hour. He would feel a great heaviness in the head, and a great fatigue and then the eyes would go up.

Then follow the few cases in the literature noted by the authors—from which the authors pick out the features of anguish, the search for the dark and the seeking for sleep. The authors then speak of G. Lévy's cases and of Gamper and Untersteiner's interesting case of nipple seeking activity; this feature, however, they omit to go into more exhaustively.

Bing and Schwartz speak of these as "release phenomena." Release of *what* they do not say.

**Verger and Aubertin** (1925) report briefly three cases of upward or downward oculogyric crises, without detail, using the terms *anoblepsie* and *catoblepsie* respectively for such movements. They refer to the communication of Reys and speak of their cases as undoubtedly of encephalitic origin. There were no accompanying head movements. In the discussion Cruchet called attention to the work of Meige and Feindel on the tics of incantation and the celebrated discussion of 1889 at the Paris Neurological Society and also spoke of a St. Jean de Luz fisherman who showed typical catoblepsia following encephalitis observed by them at Bar le Duc in 1916–1917.

**Cruchet** (1925) Anoblepsie (Verger), a woman of thirty—six years previously encephalitis—insomnia for a year. Apparent recovery—1924 some slowness of movement. January, 1925, while riding bicycle suddently felt her eyes roll up and to the right. She could not pull them down—this first attack lasted only fifteen to twenty seconds. Eight days later she had another attack—following this almost weekly—at various hours the attack repeated itself. Then they became more frequent and longer—until they occurred several times a day and almost all day—in spells from five to six minutes to a half hour. As the eyes turn up she must "léver la téte et tourner a gauche."

Verger speaks of *anoblepsie*—up, and *catoblepsie*—down, and Cruchet adds *parablepsie* to the side right or left—a case of which he also describes in a fisherman, thirty-seven years of age, who three and one-half years after the onset was a typical parkinsonian and then had a short ocular spasm to the right. He was conscious of it and tried to pull them back. No attacks for several weeks and then a recommencing of the spasms.

**Bériel et Bourrat** (1925) before the Medical Society of the hospitals of Lyon (February 17, 1925) gave a cinematographic demonstration of several cases of oculogyric crises (photos).

*Case 1.* Woman twenty-four years of age. Encephalitis in 1920. Parkinsonism in 1923. Ocular spasms in 1924, lasting several minutes several times a day, up and to right with reflex head movements.

*Case 2.* Woman thirty-two years of age. Parkinsonism in 1922 when slight ocular spasms occurred. Marked parkinsonism by 1925. The crises

occur every three days regularly starting between noon and 1 o'clock and lasting until 9 P.M. The movement is vertically upward with slight extension of the head. After forty to fifty minutes the eyes are pulled downward, the change taking place regularly just within an hour.

*Case 3.* Male, twenty-one, acute encephalitis in 1920, ocular crises in winter 1923–1924. These occur regularly, two times a week and persist an hour. The movement is up and to the left. Attacks are increasing in frequency, nearly every afternoon, but last ten to twenty minutes. The attack usually terminates with the eyes depressed.

**Froment** in the discussion speaks of having seen two cases—eyes up.

**Borremans, P.** (1925). This eighteen year old patient developed a parkinsonism from 1921 with tonic and clonic convulsive spasms of the eyes upward lasting several hours. The right inferior rectus also would contract. At the same time there was a very rapid rhythmical spasm of the eyelids. Slight flexion or extension of head compensatory to the eye position.

**Paulian** (1925) in his first communication presents two case histories, one of eyelid fluttering in a postencephalitic respiratory parkinsonian.

*Case 1* (photo). R. M., twenty-three years of age, who in 1921 had a febrile attack with lethargy lasting several weeks with apparent recovery for two years. In July, 1923, he began to develop parkinsonism. In 1924 he had rapid eyelid movements and oculogyric spasms upward, lasting at least five minutes and without voluntary control. At times compulsory blepharospasms occurred.

*Case 2.* Mme. X, female who had an encephalitis in 1922. This was followed by parkinsonism and later by a number of spasms of various muscles including upward oculogyric spasms, retraction of the eyelids. The spasms persisted three to five minutes.

A second communication before the Paris Neurological Society (July 1, 1926) presents another case.

*Case 3.* C. St., twenty-five years of age in December, 1922, had a period of sleepiness and diplopia lasting six months followed by a rebellious insomnia with gradual parkinsonian development. Then peculiar attacks in which the eyelids would close and the head bent down, the chin on the chest. Then later the head would be thrown back and turned slightly to the right and the eyeballs turned upward and to the right, the face reddened and the mouth half opened (photo). This position could not be overcome but the eyes could be made to follow the finger for a time. These attacks would persist for thirty minutes and occurred two to three times a day. There was an opposite peripheral facial palsy. Scopolamin could stop them. A malarial treatment gave no beneficial results.

**Cabannes et Montoux** (1925, Bordeaux) speak of anoblepsie and catoblepsie of Verger, general article—only no cases.

**Nicolesco and Bazgan** (1925) (available only in abstract in Rev. Neur.) here report their results of a series of anatomical researches upon rabbits subjected to pontine puncture through the fourth ventricle. Immediately these rabbits show (1) A rotation of the head with conjugate deviation of the eyes and nystagmus due to a lesion of the posterior longitudinal fasciculus; (2) a hyperextension of the head (similar to that observed in decerebrate animals) probably produced by a lesion of the pontile (calotte); (3) important disturbances of equilibrium and a movement of rotation of the body around its anteroposterior axis due to implication of the middle cerebellar pontine systems. The animals showed dyspnea during the twenty-six hours they survived the puncture.

The needle has touched the floor of the fourth ventricle—in the middle line in front of the sixth nerve nuclei. The lesions were in front of the frontal plane of the vestibular nucleus. The changes involved the posterior longitudinal fasciculus, the pontine floor and notably the large cells of the reticular formation, those of the anterior pontile region and in rapport with the middle cerebellar peduncle.

The authors call attention to the similarities of the oculocephalogyric movements to those seen in oculocephalogyric crises observed in post-cephalitic cases. They make a distinction between the deviation of the head and the eyes in their animals and the deviation seen in encephalitis from the point of view of the mechanisms. The phenomena in question are realizable thanks to the implication of the posterior longitudinal fasciculus. In the rabbits the fasciculus is involved—but in the extrapyramidal hypertonus there results a phenomenon of abnormal excitation of the posterior longitudinal fasciculus. This phenomenon is to be conceived as an expression of a true transitory liberation analogous to that of decerebrate rigidity or to that of a tetaniform state following hyperventilation.

**Giraud** (1925) reports a case of tonic oculogyric crises in a man twenty-seven years of age—who was distinctly parkinsonian although unable to locate the original difficulty other than a confusional period in 1918. At present, 1925, the parkinsonism is distinct. The eyes and eyelids are raised strongly in tonic spasms and he can do nothing about it. No tremor and no nystagmus. The head is also hyperextended, voluntary adaptation to see—the length is variable but he has suffered twelve hours and they occur almost every other day. The spasms were not painful.

**Hohman** (1925) reported these oculogyric crises first among American observers in November, 1923. After a brief historical note and short description (faulty when he states the attacks [generally speaking] are not painful) he reports four cases.

*Case 1.* Twenty-three year old taxi driver. Time of acute encephalitis not stated. Was seen while in parkinsonian condition with upward oculogyric crises. Few details. Scopolamin relieved temporarily.

*Case 2.* Twenty-six year old girl who had sleepy period in 1920. In 1923 gradual development of parkinsonian rigidity. Upward and outward oculogyric crises occurred three or four times a week, persisting a few minutes to two hours. She was depressed and hopeless. Scopolamin relieved.

*Case 3.* W. H. B., thirty-one years of age, with acute encephalitis, lever, lethargy, diplopia in October, 1919. Recovery partial. In 1920 another febrile attack with insomnia. In June, 1922, marked parkinsonism. In September, 1924, he spoke of "looking in the air" attacks. These oculogyric crises last from a few minutes to twelve hours. In some attacks being drawn to the left and then upward. They occur at intervals of from ten days to a month. Scopolamin inefficacious.

*Case 4.* C. P., aged thirty-one, who in May, 1920, had a sleepless delirium with fever. September, salivation. 1921 respiratory-polypneic attacks. January, 1922, beginning parkinsonism. Helped by scopolamin. Then upward oculogyric crises after first oculosynistric movements. These spasms occurred from one to four a month and persisted from fifteen minutes to two hours. They were not painful.

On the basis of other studies upon the pathology of chronic encephalitis made by Hohman in Marburg's Institute he believes in the physical irritation hypothesis as causing them.

**Benton** (1925) describes case encephalitis five years previously—eyes caught up and unable to bring them down—bilateral horizontal nystagmus.

**Pascheff, C.** (1925) speaks of "ophthalmoplegic nucleaire progressive" as a special ocular tic characterized by associated and periodic upward deviation of the eyes. Acute stages—one autopsy. Part I. Pictures 3. Part II. Ocular tic; oculogyric crises—three cases.

*Case 1.* Mc., twenty-four years of age, who six months before observation (1924) had had attacks in which the eyes turned up so forcibly as to make it almost impossible to find her way. This phenomena was preceded by a slight noise in the head and a slight loss of memory without migraine. She would sleep and then be all right. Two weeks later another attack. Eyes normal between crises. Later the attacks would occur every four days and then three. Slight parkinsonian rigidity—slow in speech and work and sleepy. During the attack the patient may turn her head slightly to the right, the eyes upward, the left a bit to the left. Conscious—unable to bring her eyes down. No definite knowledge of an encephalitis.

*Case 2.* T. Y., twenty-eight years old. had an encephalitis five years previously. After three years the eye attacks began. They would go upward and he was unable to bring them down. After prolonged sleep the eyes were O.K. The attacks began to come on every three or four

days. Generalized tremor began about the same time as the eye attacks. Slowness in movement, vertigo, Parkinsonism marked. Eyes normal between crises. In these both eyes turn up and slightly to the left. Slight divergence. No loss of consciousness but a bit etourdioculogyric righting reflex movements. The attacks last several hours and are cut short by sleep.

*Case 3.* H. M., twenty-six years of age. In February, 1919, fever, diplopia, sleepiness. Insomnia then for seven weeks. Two years later hand tremors and one year later extreme fixity of leg movements. Then difficulty in reading and gradually the upward crises developed. These last five to ten minutes and got to be as frequent as twenty-seven times a day. The patient hears noises in the head and sees double. Slight divergence.

**Pascheff** (1926), a fourth case, speaks of complicated motor syndrome eyes up, eyelids open, frontal muscles folded, fixation on a nonexistent point. In one case pseudo hallucinatory visions. H. M., twenty-six years of age, speaks of this as a fourth case but really Case 3 of previous paper.

**Hesnard** (1925) gives a brief case report of a patient who five years previously had an acute encephalitis. He suffered at the time of presentation of respiratory crises, *crises of eye fixation,* and hypertonic crises. He also showed functional, or neuropathic symptoms which confirmed the belief that the crises were very manifestly influenceable within certain limits of intensity and of frequency by the will, the emotions, persuasion and morale.

**Kolle, K.** (1925), at a meeting of the Jena Medical Society, February 11, 1925, reports a patient K. H., twenty years old, who five years previously had a grip, fever, headache and nausea. Eight days later restless at night, sleepy in day, then sleepless and began to phantasy with much anxiety—saw a cat with burning (glühenden) eyes. Then parkinsonism and personality changes—he became quarrelsome. For the past two years peculiar binding back of head with chin to right (and in picture deviate conjugation of eyes up and to right).

**Aurand, M.** (1925), showed before the Lyon Society of Ophthalmology, a young teacher of twenty years who three years previously, 1920, had an acute encephalitis. In October, 1923, he began to have slight lateral and intermittent contracture of the upward associated movement of the eyes and lids. Entering his regiment a month later these increased and he was discharged after three months, by reason of their force and frequency. He returned to his teaching but the spasms occurred three times a week—lasting five to ten minutes. This had been going on for a year before seeing the ophthalmologist. There is a great pain. Sometimes there is a tendency to pull them down as low as they are pulled up.

**Pappenheim** (1925) reports three cases very briefly.

*Case 1.* H. S., in 1920, then fifteen years of age, grip with the delirium followed by lethargy. By September, 1921, parkinsonism. Eye palsies. In January, 1923, first oculogyric crises—at first lasting a few moments, then persisting a number of hours. The movement has an accompanying feeling of compulsion. The head is also pulled backward with increased tonus of neck muscles. The movement is upward, the right divergent eye also diverting to right in the extreme upward pull. Slight retropulsion and body binding. The attacks are painful. Occasionally the eye movement will be downwards—with forward movement of head and body. Also less often an outward movement of the eyeballs takes place.

Case 1 is the case reported before the Vienna Neurological Society, December 12, 1923.

*Case 2.* A. P. at twenty-five had an attack of "grip" with confusion and epileptiform convulsions (?). One year later siallorrhea, beginning parkinsonism. Oculogyric crises began (time not stated) especially after emotional excitement or fatigue. They were usually vertically upward with cramp like retraction of the head, sometimes upwards and to the left—the left eye even further divergent to the left than the right. These may last for hours. Closing the eyelids at times stops the cramp or lying down in bed and closing the eyes even better.

*Case 3.* V. H., twenty-four at time of observation with mild parkinsonism. Occasional attacks of upward crises are reported very cursorily.

Pappenheim gives a short discussion of vestibular tests and their effects upon the eye movements as reported upon by B. Fischer, and also cites the older cases of Nothnagel and Kunn.

**Bakker** describes a man, thirty-two, about nine years after lues, which was treated, began to show signs resembling paralysis agitans, viz., bent forward attitude, slowness of movement, stiffness of face. He then noticed that his eyes turned upwards involuntarily; both eyes were turned upwards without any shock, and his head was bent far backwards. In the severer attacks he could not shut his eyes or turn them downwards at command. He became listless, depressed, and impotent. His tendon jerks were very feeble. He sweated greatly in the face. Wassermann negative in blood and spinal fluid. He improved under specific treatment to a large extent. The case resembles the condition described by Salomonson as "tremoparalysis tabioformis," a combination of signs of tabes and a condition resembling paralysis agitans. In Bakker's case the lesion of lues had probably affected the mid-brain, and the anterior corpora quadrigemina, and so produced the ocular condition and the paralysis agitans-like affection.

**Bertolani** (1925) in his study gave the only résumé which shows any pretention to historical accuracy up to this time. He first calls attention to Murri's important contribution and then deals with the

postencephalitic oculogyric crises citing cases of Staehelin, 1920 (incorrectly); Frigerio, 1921; Reys, 1922; Lévy, 1922; LaTorre, 1923; Leone, 1923; Pappenheim, 1923; Rossi, 1923; Marinesco, Radovici and Draganesco, Fischer, B., 1924; Lemos, 1924; Ewald, 1924; Bing and Schwarz, 1925; Kolles, 1925; Rittershaus, 1925;[2] Falkewicz u. Rothfeld, 1925, and Krisch, 1925.

He then presents six cases (two illustrations), brief extracts of which are here presented.

*Case 1.* R. Bruno, born in 1903, entered the St. Lazarus psychiatric clinic in July, 1922. He had an encephalitis in January, 1920. His oculogyric crises first came on one year later. He was a typical bradykinetic parkinsonian with generalized myoclonic manifestations. Vertical nystagmus. In his crises the eye balls were pulled upwards in extreme position after a series of up and down vertical oscillations. During the attacks the patient would not speak and paid no attention to anything. They persisted a few minutes—in some attacks half an hour. After the attacks the patient would state that during them he "felt very badly"—and could not tell why they occurred. Bertolani reports some valuable findings with labyrinthine testing. These lie outside of our inquiry at this point.

*Case 2.* G. Gelma, thirteen years of age, taken in January, 1920, with fever and sleepiness lasting several days. Rigidity, salivation, transient diplopia, and insomnia followed with typical parkinsonism. About one year later oculogyric crises with upward movements during which she became fearful, cried in anguish and was unable to respond to questions. Her head was erect and immobile, vertical oscillatory movements of the eyeballs would also occur. Asked to look sideways she might answer, "I cannot." After the attacks she could give no reasons for their occurrence, nor for the fear and anguish. Codein and scopolamin helped for a time.

*Case 3.* M. Guermo, thirty-one years of age, had had an "influenza" four years previously with double vision. At time of examination his face was rigid, parkinsonian attitude. For several months he had had oculogyric crises which had brought him to a desperate condition. The eyeballs were directed upwards (and Fig. 1 to the right) the head a bit inclined to the left (chin right). During the attack the patient would not speak, became red in the face, perspired, felt alarmed, anxious and cried like a child. After the attack he would say, "it seemed as if he would die," "he felt something curious, as if 'empty in the head,' he sought something he did not know why," "a feeling of vertigo." Sleep would cut short the crises and seem to liberate him.

[2] Rittershaus expressly states his patient did not have oculogyric crisis. The "epileptoid" attacks, however, started often with "staring eyes."

*Case 4.* O. Orland was nineteen on entering Reggio Emilia. At thirteen, January, 1919, suffered a typical encephalitis. On entrance was marasmic, marked myoclonic movements, rigid facies, mouth half open, marked mental retardation. From time to time—patient not precise as to when—but chiefly in the morning on awakening at 6 would suddenly have upward oculogyric crises. These would occur frequently during the day. The attacks would persist half an hour, especially in the morning and shorter ones would occur in the daytime. On account of her mental state no information of her subjective sensations could be learned.

*Case 5.* M. Possido, twenty-five years old, celibate, had an encephalitis in February, 1922. On observation showed parkinsonoid attitude, salivation, clonus of right foot, diplopia. In June oculogyric crises to the right with similar movements of the head. This position persisted several minutes. During the attacks was rigid "as if set," "dazed." After the attacks felt necessity for rest.

*Case 6.* B. G., twenty-three years of age, admitted in Reggio Emilia August, 1924. In January, 1920, had an attack of encephalitis, fever, insomnia, diplopia. Gradual development of mild parkinsonism after about two years' latent period with more marked psychical disturbance, anxious depression, suicidal, with two minor efforts at same. Palilalia, tachyphemia. Oculogyric crises in which the lids would become rigidly fixed, but could be opened. The eyes would move back and forward and then would become rigidly fixed (Fig. 2), staring and the head rigid. From time to time nystagmoid movements. These attacks might last an hour, during which she would complain—"cannot see well," "cannot move the eyes," "see colored lights, white, yellow," "eyes seem to get big."

In his discussion Bertolani calls attention to the analogous observations of Oppenheim, Uhthoff and Roth, entitled "nach blicken."

In five of these cases the movements were prevalingly upward. In case 6 they became so. The neck musculature nearly always joined in and thus the head was turned upwards as well—slightly to one side—and in enopisthotonos. The compulsive character of the whole attack is evident, eyes, head, and psychical state.

Cephaloöculogyric phyletic developments in their synergistic adaptive capacities to respond to sound, light, tactile, painful or gravity stimuli are touched upon and the researches of many authors upon cortical centers cited. The pathological situation as related to complicated problems of localization does not escape him.

Bertolani on purely mechanistic lines of reflex activities gives an excellent discussion of the whole process but nowhere do we find any consideration of why these patients are "anxious" or have a "compulsion"—or in terms of patient 6—"thinks of dirty things"—

" what men have " and other related problems, which spot the entire landscape of these oculogyric crises with questions indicative of something more fundamental than what may be purely " physiological level " processes.

**Van Bogaert and Nyssen** (1925) report an extremely interesting case in which there were no oculogyric crises but inasmuch as lingual, buccal, masticatory, neck and respiratory movements were so pronounced that the case is said to be an exact replica of that of Lemos, here reported, save for the conjugate deviations of the eye. This case should not be overlooked by the student however as it is fairly clear that obsessive ideas were linked up with the tongue movements. This association has been made the subject of special attention by van Bogaert in other papers in 1928, to be abstracted in full later.

This patient, Van T., was thirty-two years of age. In February, 1923, a febrile attack without other signs and in two to four weeks the patient seemed well. Three months later, however, a tremor of the left hand and then of the arm began. A few days later salivation began and the left leg began to tremble and a generalized parkinsonism then developed with left side predominance. In 1924 tonic tongue movements began, as if to remove the saliva. These then developed into classical tic movements which will not concern this study, although as indicated in the section on symptomatology—they are an integral part of the picture, the separation of the oculogyric crises being but an arbitrary procedure for present purposes of this thesis. Then there developed definite myoclonic movements, 50 to 60 a minute, of the deltoid pectoralis major, rectus abdominis and fascia of the right side; occasionally the diaphragm is implicated. Tonic masticatory cramps with fixation of all movements then occurred. When the neck was involved there was a torticollis to the left. These cramp-like states would persist several minutes. The bradykinetic lingual palatal-facial movements became more systematic, complicated (pictures of tongue) with palilalia and synchronization. The encephalitis they write had released at different levels a series of automatisms; psychical automatism represented by obsessive words and images, verbal automatisms of which the palilalia is a striking example, graphic automatisms (paligraphia) and finally the stereotyped impulsive motor automatisms such as repeating salutes, etc.

Then nasal sniffing, and a classical tachypnea developed (curves). A special section is devoted to the respiratory movements (published too late to be incorporated in my Postencephalitic Respiratory Syndrome monograph).

Anxious obsessive states during the attacks with perspiration, and increase of her palilalia, tachyphemia. During these times her mind is fixed on " duty things." In particular she thinks insistently on " what the men

have"—"one could die of such thought." These attacks came on periodically, two to three times a week without appreciable cause. They are painful in the light. Sleep puts an end to them. In the past two months the crises have taken on a vertical character upward. The head takes on a corresponding movement bending backwards—looking upwards.

**Springlova** (1925; only accessible through the abstract in the Rev. Neur.) gives a clinical description of a parkinsonian patient who had very painful vertical oculogyric spasms lasting from several minutes to several hours. Vestibular tests indicated irritability of the central pathways between Deiter's nucleus and the central grey nuclei. Bizarre concomitant symptoms are mentioned.

**Zingerle** (1925) reports the case of E. Johann, seventeen years old, who in February, 1919, had an acute grip with fever, headache, and kidney involvement. He was in bed four weeks and was for months very weak. In 1921 a marked tremor of the right hand began which in a year extended to the left side. Gradually increasing restlessness and confusion at night, slow speech, mouth shut and open and tongue movements (tic-like), ideas that tongue is "too long," and at times upward oculogyric crises with tilting back of the head lasting one-half to one hour, with no involvement of consciousness. Typical parkinsonism. Mentally has ideas of reference to which he states he pays no attention. An oculogyric attack is described (p. 21)—May 7—lasting from 2 to 7 P.M. The patient lying on his abdomen, the head pulled to left and behind. The mouth is open, salivating. Dorsal flexion of left great toe. Eyes up and to right. The eyes can be brought down on request, but they fly back again almost immediately, neck muscles very tense. Photophobia, pupils react slowly, dilated. Cramp-like movements of the mouth (cinema), fifteen-minute-long cramp like closing of the lids; conscious, but apathetic. Other generalized motor signs are present. The attacks occur many times weekly. Magnus "haltung" and "stell" reflexes present. Great fatigue follows the attack and increased parkinsonism.

Zingerle was among the earlier observers to speak of this whole type of situation as a cramp of the brain stem. Zingerle also calls attention to the sucking action in the mouth movements, as has been so well discussed by Gamper and Untersteiner, and refers the whole situation as they do quite correctly to a reliving of a physiological automatism of early childhood.

Why this release of an automatic sucking act occupies the author. The whole problem of "the repetition compulsion" as a "rhythmic disturbance" is discussed, but the *why* of the eye movements is not taken up save the author speaks of the hyperkineses in the eye, head muscles; makes the statement that they bear a superficial resemblance only to the tics and compulsive neurotic movements, and said he found no "psy-

chische Grundlage" for the movement, but gives no indication of *how* he sought for such "psychische Grundlagen," and concludes that they have "subcortical localization" causal endogenous factors.

**Pameyer** has shown photographs of a case of spasmodic upward movement of the eyeballs in parkinsonism to the South Holland Neurologists' Society. A girl of fifteen began about two years ago to show a slowing of movements and a general tremor; about a year previously she had for some weeks a rise of temperature and headaches but no somnolence. Her symptoms gradually increased so that she is now a typical parkinsonian; can scarcely walk and cannot use her hands; has strong tremor, speech disturbances, salivation, and sometimes difficulty in swallowing; propulsion and very great hypertonia. For about a year she has had attacks of spasm of upward movements of her eyes of forced character; her eyelids are very widely separated and her head goes backwards during these attacks; her mouth is opened, her tongue and limbs tremble, her salivation becomes greater, and her respiration quick and irregular; there is no blurring of consciousness, but she has then a very unpleasant sensation. The attacks increased in pregnancy, and of late have occurred twice a day; they last from fifteen minutes to some hours. If she fixes an object with her eyes she can for a moment overcome the ocular spasm, but it returns at once. Emotions tend to bring on the attacks. Three of her brothers died from juvenile amaurotic idiocy. The lesion in this girl's case may be in the corpora quadrigemina.

**Van Londen** reports a case of a young man who had lethargic encephalitis two and a half years previous to 1925, which was followed by a characteristic parkinsonism in which occur attacks of what he called ocular torticollis. There is a forced condition of conjugate spasm of the eyeballs to right and upwards; this may last a very short time or a quarter of an hour; once it lasted for a whole day. During this spasm to the right the head—and also the body when the ocular spasm is very strong—is rotated so that he has to hold on to the back of his chair to prevent falling. The spasm of the eyeballs to the right (which is the first stage of the attack) is sooner or later succeeded by the second stage, in which the globes are forced to the left and downwards. The direction of the spasmodic movement is always of the same character in this patient; they are specially prone to appear owing to any emotional disturbance.

**Van Bogaert** (1925—December) reports the case of M. H., forty-three years of age, with grip in 1921, with later developing parkinsonism, with improvement to August, 1924, when rapid aggravation took place with return of all of the symptoms and more, among them oculogyric crises to left or up and to left after palpebral fluttering. The head turned back and to left, the whole body also axially distorted. Salivation and

urination at the same time. The crisis persists two to four minutes and appears mostly daily. Emotion and hunger seem to facilitate the attack. With this patient there was excitability of the ipsilateral labyrinth. Two other cases studied showed no labyrinthine disturbances.

**Van Gehuchten** (1925) in a preliminary report cites the case of a man of twenty who had encephalitis five years previously, with gradually developing parkinsonism. During the past year he has developed cephalo-oculogyric crises to the left or right. They occur almost daily, mostly in P.M., persisting one to two hours. At first the eyes go to the left and down, the head following; the ambitendent position then follows, up and to right. The direction may change three to four times during an attack.

He further cites a case of Dr. **Buys** of oculogyric crises up and to the right, with no variables in the vestibular function.

**Gernez and Druon** (1926) give an excellent resumé of the situation up to February, 1926, showing a knowledge of the French literature and supplementing report by **Ingelrans and Spindler**.

Patient married, twenty-eight years of age, had encephalitis in 1920, with somnolence, vague ocular troubles, no diplopia, ptosis or strabismus. In 1923 a baby was born and two to three months later she developed parkinsonism which by 1924 was well advanced in the head and upper extremities. She has had attacks up upward and to right oculogyric crises (illustrated) for two years (1924–1926) following even slight emotional disturbance. These may persist five to six hours, on the average two to three hours. There is hyper-extension of the head at the same time. The patient tends to fall.

**Gründler** (1926) presents a short historical résumé of the development of the new knowledge of compulsory movements following encephalitis and reports more fully upon two cases shown by Krisch (1925) at the Greifswald Medical Society and adds a third case.

*Case 1.* Elise V., twenty-two years of age (Krisch, case 2, p. 626), began in September, 1924, to have upward oculogyric crises without any known encephalitic antecedents. These movements came once or twice a week. In December, 1924, marked sleepiness and gradual parkinsonism more marked on the right side.

During an attack the patient would suddenly become moody and quarrelsome with patients. The eyeballs would turn way up. She would then lie on the bed, cover her eyes and cry with pain. The eye could be brought down for a few seconds only following the finger. In twenty minutes the patient would sleep. The attacks last half an hour or longer, are always preceded by the change in mood but nothing like an aura develops. She answers questions slowly and seems to have to devote her entire attention to the compulsory movement. There is great agony throughout the attack, the headache being specially complained of. At

one time there are several attacks in a day, then one a day, then every two or three days, but no definite periodicity.

*Case 2.* Otto S., thirty-five years of age, 1920 grip of no particular moment apparently. The eye signs began suddenly in November, 1923, when the patient had to look up for several minutes. These attacks were repeated one to two times a month. In the summer of 1924 they occurred weekly. The patient showed a definite parkinsonism. No compulsory thinking during one of the attacks, but the patient says his thinking is slowed. No head reflex. He can bring his eyes down on request for a short time, they can be made to look in all directions and then the extreme upward position is resumed. The affect situation is not marked save the patient feels it to be a calamity. The attacks last fifteen to thirty or more minutes and are mostly cut short by sleep. They occur every two to three days, sometimes four or five in one day.

*Case 3.* Wilhelm R., twenty-nine years of age. In October, 1924, had a fever and felt tired and worn out. Then tremors developed; he wanted to sleep all of the time and slow typical parkinsonism developed. The eye crises began a few months before entering the hospital (1926). They occurred as often as fifteen to twenty a day and behaved as cases 1 and 2 without obsessive thoughts or psychical changes.

Scopolamin helped temporarily only. A striatal pathology is postulated.

According to Gründler's statement in this article he reports in detail the two cases reported by Krisch (1925). Case 1 here abstracted is case 2 of Krisch; but case 1 of Krisch is said to be a twenty-four year old man, whereas Gründler speaks of a thirty-five year old man. In the Krisch report this is probably a typographical error as the cases seem to correspond.

**Mirallié, C.** (1926) reports the case of M. O., thirty-seven years of age; had encephalitic attack in 1918 with profound lethargy lasting five to six months. On his return to army he would sleep—even while at work. Seen in December, 1922, he showed marked Parkinsonism. Seen in September, 1925, the patient reports that for two years he has had oculogyric crises of upward and to right with head also turned to the right. At times there are spasmodic right arm flexions, the hand going to the mouth, the fingers stuck out, the face red and vulture-like. No loss of consciousness. During the crisis the patient can with effort for a time hold his head and eyes. This eye position is for him a repose (bien être). (Bravais Jacksonian attack.)

**Leone** (1926) presented to the Ancona Medical Society in September, 1923, a young woman from Modena's service who in 1920 had a typical encephalitis. There followed the slow evolution of a parkinsonism. Six months previous to observation she noted attacks of compulsive movements of the eyes upwards. These would come on every three or four days. They would last from a few moments to a quarter or half an hour.

Then the eyeballs would slowly resume their usual position. Voluntarily she could neither influence nor induce the movements. When they occurred she had a nondescribable vague premonitory hypermotivity. There was no disturbance of consciousness.

**Petit, Bauer et Chatagnon** (1926) presented to the Societe de Psyciatrie of Paris Mlle. C.. twenty-two years old, who three years previously had a severe encephalitis followed by psychotic behavior disturbances sufficient to intern her. She was a backward child to begin with. She had even at the beginning upward oculogyric spasms without loss of consciousness. She became anxious, desperate, irritable, variable as to her moods, euphoric and depressed. The ocular spasms occurred about three times a week—they were accompanied by tickling sensations, burning at the base of the head and tremors. Often she would have the impulse to suicide following these attacks. She made three attempts to do so—water twice, and throwing herself under an auto a third time. The suicidal ideas apparently appeared before the parkinsonism was definite.

**Dupuy, Bauer et Chatagnon** (1926) presented three cases of chronic encephalitis with strong suicidal impulses at this same meeting (p. 709)—the first being the case here reported.

**Dalma** (1926) discussed the whole problem of compulsion thinking and actions in postencephalitis, utilizing among other studies those upon oculogyric crises of Ewald, Falkiewicz and Rothfeld, Bertolani, and Scharfetter.

He contributes a very short footnote of a case of his own with oculogyric crises. Dalma is one of the few at all oriented to the psychoanalytic studies upon compulsion neuroses and his discussion will be taken up later, especially as he would offer some contribution to the mechanism of obsessive ideas and to the psychology of moral perversities in postencephalitic cases.

**Vivaldo, J. C.** (1926), reports a twenty-seven year old patient who was interned by reason of mental disturbances. At twenty-five he had a febrile attack diagnosed as pneumonia. This was followed by the sensation of dismay with loss of consciousness lasting several hours. Later extreme lethargy and reversal of the sleep formula. During the course of the affection the eyes showed a tendency to extreme upward turning noncontrollable by will and which movements became an obsession and were attended with much suffering. At the time of observation definite parkinsonism. Palilalia. Mental depression and psychical blocking.

**Schuster** (1926) describes a patient with peculiar attacks of (brüllen). D. M., nineteen years old, at thirteen had a mild grip, diplopia and lethargy, recovered and eight months later beginning of parkinsonism. A fearful period of two years during which the patient rarely slept. Char-

acter changes. For the past eight months attacks of unconsciousness during which the patient brüllt and grunts—like a wild dog and like the squealing of a stuck pig. These attacks take place daily or two to three times a day, lasting three to four hours—or more. There is a conjugate spasm of the eyes to the right. Later true clonic spasms.

**Tinel et Baruk** (1926) presented a case to the société de Psychiatrie de Paris.

*Case 1.* Mme. V., thirty-nine, who for two and one-half years, since May, 1924, has had almost daily upward oculogyric crises. They persist for an hour—she has an invincible desire to sleep and the attack terminates as she falls asleep. They are painful, accompanied by a violent headache, beating of the arteries. Imperious desire to sleep which cannot always be realized by reason of the headache. Sometimes the attack persists several hours—save when an hypnotic be taken. No other encephalitic sign during the crises. Only a congestive reddening of the face takes place with slight pulse acceleration. The only sign of an encephalitis is a slight slowing of the movements, a slowing of the mental activities and slight masked face.

Certain reference to anxiety states make this report valuable, especially the relations to migrainous epileptic attacks. This patient had attacks which were most pronounced at the menstrual period. Increase of urinary alkalosis as in migrainous and epileptic attacks. Provocation of attacks by hyperpnea (not when treated by soda-salicylate), nitrite of amyl has relieved the attacks, hence their angiospastic nature, they argue. Salicylate of soda has caused the attacks to disappear or attenuated their intensity or diminished their number. It can thus be seen that the character of these paroxysmal oculogyric attacks of encephalitis approach at the same time the epileptic or migrainous or even the convulsive attacks of hysteria.

The rapprochement is close enough so that one can logically ask if there does not intervene in all of these cases an identical mechanism, *i.e.*, an angiospasm of mesencephalic centers. That this angiospasm may be in certain cases spontaneous, primitive and in a sense essential—or, that it may be with the others and particularly in the case of encephalitis, added to organic alterations, inflammatory foci or periarterial sclerosing processes, there may be realized without doubt in favor of almost identical biological conditions vagosympathetic tonus disturbances, ruptures of colloidal equilibrium, auto- or hetero-toxic fixations or modifications of humoral ionic equilibrium.

**Van Bogaert and Delbeke** (1926) report here the history of a third case and call attention to "psychical contagion" (see also case Maria A. and her cousin—Skalweit? and Marinesco, Radovici reports).

*Case 3.* Mme. W., twenty-five. January 18, 1920, childbirth and acute confusional psychosis one week later—thought of as puerperal—followed by lethargy to March 18. Then choreic movements and active hallucinosis. In Gheel two years with large, slow choreic movements; transitory confusional states, visual hallucinations and slowing of mental activities. Home two years. April, 1925, had slight febrile state and then gradual parkinsonian advancing by September, 1925, to a definite clinical picture of the same. Hallucinations of a black man who comes to bed with her and "as I am lying in my bed, my hands clasped, he comes to put his organs in contact with my hands." She has had this hallucination in the daytime. "He says nothing. It is neither agreeable nor disagreeable to me. Only his weight annoys me and I turn over in my bed and the vision leaves me. At other times I do not feel his weight but he grasps me by the throat as if to strangle me. I also see him nude in front of me. He looks at me without saying anything. I am frightened. I have never been able to recognize him. It is not my husband, and I know of no one resembling him. He never speaks to me. At times I fly in the air in a gray atmosphere in great circles like a bird planing. For four to five months I no longer see the man but a hand appears in the window and disappears. Twice I have seen an old neighbor, very wicked, and who comes to accuse me of having deceived my husband; she says she has seen a man slide out of my bed."

Since March, 1926, patient has upward oculogyric crises which may last all night and occurred once only until she came in contact with a patient having similar crises when she began to have them nearly every day.

*Case 4.* Mlle. L. had an encephalitis in 1920—febrile attack in 1922 with lethargy and diplopia. In 1925 lethargy returned—became excited one day and told her friend she was pregnant, when he told her he did not wish to see her again and then the attacks of the eyes began. These return every time she sees her friend. Their recurrence seems to be favored when she arises and washes her face with cold water; sudden bright illumination of the eyes, needle work, emotional excited visits to her child.

In R. L., a case previously reported, the crises have appeared on the occasion of great anger and are accompanied by a series of vegetative reactions, blushing, tremors, perspiration on left side of body, salivation and at times urination, apneic respiratory difficulties. This state of anxiety may be replaced by a state of intense and unjustifiable fear. The authors speak of the anxiety and paradoxical fear as reversibility of the affective motor equation.

*Case 5.* E. L., seventeen. In August, 1924, grip, asthma, lethargy—ten days. November, 1924, akinesis with fatigue. January, 1925, salivation and diminution of intellectual activity. Since December, 1924, blepharospasms.

**Helsmoortel, Jr.** (1926) presented the case of Mlle. H. S., aged twenty-two years, who in 1920 had a sleepy period lasting eight days. In 1922 tonsillitis and headache, fever and somnolence. August 27, 1924, she became pregnant and this was followed by suborbital pain with upward and to left tonic ocular crises. Salivation, normal birth without increase in symptoms. Lactation ceased one month after birth. The patient had a definite though mild parkinsonism. The ocular crises were accompanied

Patient of Dr. Helsmoortel.

by dizziness and tendency to fall forward and to the left. Some cyanosis with moisture of hands, seborrhea of face. The crises begin with slight clonic jerkings of the globes with wide opening of the lids. Then there follows an abrupt upward vertical movement of the globes, occasionally downward and to the left. No lateral movements (see later report by van Bogaert, 1927). There is painful tension. Definite fixity of the gaze.

These attacks persist several hours and at times all day. At times they can be cut short by lying on the left side.

Marked hypoexcitability of the left labyrinth in the interval between the crises and with bilateral deficiency of the functions of the vertical semicircular canals (see picture).

In this study Helsmoortel refers to a case presented by van Bogaert of deviate conjugation of the eyes with torsion of the head and axial

deviation of the body during the tonic crises and a homonymous vestibular hyperexcitability in the interval between the crises. (See later report.)

**Barkas, Mary R.** (1926), speaks only of the Marinesco and Radovici's study and calls attention to three cases briefly.

*Case 1.* Progressive lenticular degeneration with parkinsonism; has spasmodic laughing and crying and began to complain her "eyes got fixed." This was associated with great distress. At first it occurred rarely and lasted only a few moments, but it has become more frequent and the attacks will last for any time up to an hour. She can move the eyes voluntarily, by effort; they return to upward and to left conjugate deviation.

*Case 2.* This patient was suicidal because of her "eye fixations." These came on a year previously and emotional distress concerning the husband was an attributed cause. There is no history of encephalitis given but the patient has a nystagmus, diplopia, spasmodic torticollis and right hemiparkinsonism. The eyes move up and to the left; can be brought down.

*Case 3.* A young man who had had encephalitis with transient diplopia. He was a bank clerk. The ocular spasms occurred on Mondays. There was depression with the eye symptoms.

**Fischer, M.** (1926), before the East Prussian Society of Psychiatry, January 9, 1926, gives an excellent account of the phenomena. He first dwells upon the very great frequency of eye involvements in both the acute and later stages of encephalitis. This is true for the akinetic to a greater extent than the hyperkinetic symptoms of the eye muscles. Scharfetter (1925) is incorrectly cited as first describing these cases (p. 305) under the title of "extrapyramidal looking spasms," which title M. Fischer adopts. Rey's citation of 1923 is given but Fischer overlooks the monograph of *1922,* where cases of oculogyric crises are described.

*Case 1.* Emma D., twenty years of age, who had encephalitis in 1920 (fever, hallucinations, sleepy six months) followed by character changes and parkinsonism. In 1924 marked loss of convergence and upward oculogyric crises. At first almost weekly. They would persist an entire afternoon. Further observation was lost.

*Case 2.* Franz L. A nineteen year old boy (October, 1925), who since the age of fourteen had eye cramps of a painful nature and also some tremor and stiffness of the body had been noted by his physician. No history of an acute disorder. At examination there was definite parkinsonism with some mental retardation. An attack was ushered in by antecedent pain an hour or more before. The crisis lasted a short time only, then would recur and persist several hours, at times only a few minutes. The eyes became as if fixed on some object and are directed up and to the right. The face is mask-like; when spoken to he may direct his vision for a moment but the eyes resume their compulsory

Fischer's case of oculogyric crisis.

position after a few up and down movements. The position is very painful. At times the head is bent backwards. In sleep the attacks cease. Hypnosis was possible at first and the patient slept and the crisis ceased

and did not recur for three weeks. An accompanying cramp-like opening of the mouth and salivation was also hypnotically influenced (two periods of 24 hours' sleep having taken place). After leaving the hospital the condition returned.

Fischer also speaks of a case he saw while assistant in the Freiberg Clinic in 1923, which was not published. The patient also showed the lower jaw cramp features.

Other muscle cramp states are referred to by Förster, Cassirer, Babinski, Higier, etc. Kolle and B. Fischer, neck cramps and menagery movements. Schuster and Benedeks, "brüllens."

**Kulkow** (1926), in a meeting of the neurologists and psychiatrists of the Moscow University, November 27, 1925, reports a case of oculogyric crises.

*Case 1.* K., twenty-six years of age, farmer. In 1923 he had an attack of lethargy with initial fever, lasting three to four months; about January, 1925, parkinsonism began to develop with diplopia and salivation. In June, 1925, in the clinic he showed definite amyostatic syndrome with some eye palsies. During his stay in the clinic the oculogyric crises began and took place every three to four days. He felt a pain in the eyes and they turned against his will strongly to the left. During these attacks the patient becomes completely fixed. He can close the eyelids but cannot bring his eyeballs back to a central position, to the right, up or down. His arms are usually brought up towards the body, elbows flexed. He can answer no questions, though conscious. "As though sunk in his thoughts" is his description of his subjective state during the attacks. Anisocoria, l>r pupil, also all reflexes absent. Siallorhia and perspiration. Sleepy afterwards. The attacks last ten minutes to three hours. They are shortened if he can lie down and go to sleep. In some attacks the eyes just look straight ahead.

**Marinesco and Radovici** (1926) in a further contribution add three new cases to those already reported and cite the studies of Lemos, Ewald, Filimonoff, Popova and Bing and Schwartz—also cite the work of Lévy, Rossi, Frigerio and Reys, Souques and Blamontier, Claude et Alajouanine, Vincent et Chavany regarding various divergent points of view. Furthermore they enlarge the field of the inquiry and cite a study which with the inclusion of the views of the Vogts and Schilder, indicate to them how closely the problems impinge upon the pithiatique (hysterical) field.

*Case 1.* Dr. Cap., thirty-five years of age. In 1920 she had an encephalitic attack with later respiratory (tachypneic) phenomena and unreasonable irascible attacks directed against her brothers and sisters. She sought comfort in the religious devotion. In September, 1925, her father was drowned in the Danube and three days later her mother died

suddenly. Then her oculogyric crises developed. While embroidering, the eyes would turn upward and to the right after a period of horizontal fixation. Emotions cause them to appear more readily, the head is extended and to right (photo). No voluntary control. The attacks last ten minutes and are very fatiguing to the patient. There is an accompanying contraction and raising of the forearm on the arm. The whole trunk also being slightly twisted to the right. Respiration and pulse frequency increased, tears. The attacks may cease on manipulation of the head and in two minutes recur. They can be induced when the eyes are directed to follow the finger up and to the right, and by hyperpnea. These attacks are shorter and are not repeated. On recalling the death of her parents the attack comes on with crying. The attacks occur several times a day and for the most part persist ten to thirty minutes. A generalized hypertonicity makes all movements difficult. Sometimes there is complete mutism. Hyoscin stops the attacks, also water, strychnin and faradic current.

*Case 2.* L. Aug., aged fifteen years. In July, 1922, a febrile attack with lethargy and delirium. Much sleepiness following. In April, 1923, during a dance, the first upward and to right crisis with deviation of head and a torsion 90 degrees of the body. She complains of severe pains in the neck. She cries and makes efforts to reduce with the hands her neck stiffness. Conscious throughout. Postural reflex. Nystagmus movements. Emotional disturbances may bring on attack. Hyoscin or 10 per cent calcium chloride caused the attack to disappear and hyoscin regularly administered lengthened out the intervals. Water injections have cut short an attack. Since then attacks every three to four days with tremor of the left side lasting several minutes to several hours. At the clinic definite parkinsonism.

*Case 3.* F. P., aged twenty-six years, seen first in 1925 with marked parkinsonism without any definite encephalitic history ascertainable, but a year before the stiffness began first in one arm then in the other. Retropulsion. Since the commencement she has had upward spasms of the eyes lasting about a minute—later an hour. The attacks are accompanied by nystagmiform movements. One mg. hyoscin causes an attack to cease after seven minutes. They come on daily but regular hyoscin use held them off for a week; distilled water did the same. One attack described lasted four hours. Rotation of the trunk as in the Magnus tests caused increase, when to the right caused left eye deviation to be increased. Rotation of trunk to left brought the eyes and head to a fixed position and then head and eyes turned to right. Similar results came from passive motion of the head. The patient had an attack while witnessing an attack of patient Dr. Cap.

The authors cite the observations of the Vogts as to a possible

striatal pathology of hysteria saying that striatum injury causes "greater suggestibility," hence "pithiatique" nature of these cases.

**Marinesco et Radovici** (1926) here rediscuss certain observations already recorded under the older conceptions of "hysteria" and the ideas of C. and O. Vogt relative to the striatal physiopathology of "hysteria" motor manifestations.

In this paper after commenting upon the fact that Westphal's pseudosclerosis, Wilson's lenticular syndrome, Ziehen's torsion spasm were considered hysterical by Charcot and Oppenheim, these authors enter into a wide discussion oblivious of the fact that the concept of "hysteria" has made as much advance since the days cited as have the notions concerning lenticular disease. The fact that the psychoanalytic conceptions have changed the entire map of the psychoneuroses since the days of Charcot and Oppenheim is lightly passed over.

A return to this paper will be made later.

They speak of ten cases of oculogyric crises in chronic encephalitis. In their 1925 paper the cases of S. S., V. J., B. L., A. T., and A. R. are reported. In the 1926 paper are added Dr. Cap., L. Aug., and F. P. In the present study the two new cases are not explicitly set forth. *N. D.* are new initials but the history seems to correspond with that of Dr. Cap.—the photograph is that of D. C. A careful reading of this interesting discussion does not reveal the (two) extra cases sufficiently to report them.

**Laignel-Lavastine et Bourgeois** (1926). Two cases.

*Case 1.* L. J., twenty-three year old domestic who in 1925 had an infectious syndrome with lethargy lasting two months. Four months later a kind of progressive motor disturbance of the right arm, with gradual loss of strength and fixation. Hemiparkinsonism of the right side. Two months later upward oculogyric crises. During the ten minutes or more while they persist no ability to move the eyes. The patient is unable to do anything else and when taken in the street must be led out of danger. These attacks occur two to three times a day and are accompanied by anxiety. Myoclonic movements of the jaw also occur during the crises with involuntary opening of the mouth. Just before the menstrual period the attacks are apt to be more frequent. The mouth attacks often last an hour or so. The tongue movements are active and the patient is able to control them at times. Marked vagus excitability and much relief from atropin. The authors call attention to Ballet's (1907) observations of similar phenomenology.

*Case 2.* Mlle. R. L., nineteen years of age, in 1920 had an infectious syndrome with six weeks lethargy. No marked parkinsonism. In February, 1926, upward oculogyric crises began. They occur several times a day, persist about half and hour and the patient can do nothing while

they occur. Accompanying myoclonic movements of the muscles of the chin take place. These are more or less incessant but are partly under voluntary control.

**Perkins** (1926) reports two cases in both of which there were vertical nystagmus movements as well as oculogyric crises.

*Case 1.* H. C. J., twenty-four years of age, with (influenza) acute encephalitis in June, 1921. After five weeks apparent recovery. In October, 1923, he had uncontrollable upward eye movements two to three times a week, persisting from two to thirty minutes. May, 1924, the upward movements were so severe he could not attend to anything else. He was quite anxious about these. Seen in June, 1924, he was a typical parkinsonian.

*Case 2.* E. A., seventeen years of age, who at thirteen had an acute encephalitis. Eighteen months later there was pronounced left hemitremor chiefly of the hand and arm and later both legs and fully developed parkinsonism, in motor and psychic sphere. At about time of tremor evolution eyelid fluttering and then upward oculogyric crises with vertical nystagmus.

**Cruchet** (1926) showed a patient before the Medico Surg. Soc. of Bordeaux, November 26, 1926, of a woman who in 1917 had an encephlitis with delirium. Insomnia a year. Slowly developing parkinsonism. Since 1925 ocular spasms upward and to left—short time, rarely an hour; two to three times a day, ten to thirty minutes. Verger's anoblepsie.

**Georgi** (1926) speaks of the rarity of these crises, mentioning Staehelin, Oeckinghaus, B. Fischer, Stertz, and Ewald. He has overlooked the French literature entirely.

In the Breslau clinic to this time (February, 1926), nine cases had been observed. Kehrer had first reported upon them. This present communication deals with certain hyperventilation experiments following the Rossett, Foerster procedure which were capable of inducing the attacks.

*Case 1.* Twenty-three year old farmer's daughter who five years previously had a "köpf grip" from which she had never recovered. A few weeks after the grip, a hyperthyroidism followed a struma and she was operated. She came into the clinic in 1925 with definite amyostatic syndrome with more marked involvement of right side. Grip serums and sufrogelin were tried. No results in three months. Three days after one of the sufrogelin injections conjugate oculgyric crises occurred to the right with the head to the right. The patient insensible to direction. Lasted five minutes—with great fatigue and later with vomiting—*not aware of the eye movement.* Three days later after recovery from rapid and irregular heart and mental disturbance. Then the typical crisis began. January, 1926. These were similar to the first one but were not accompanied by the lack of awareness of the attack. She could also momentarily pull the eyeballs back into place. The attacks followed every three to

four days, then daily, two and then three a day in February. They lasted one to ten minutes and were followed by sense of weakness and fatigue, sleepiness, during sleep no Bell phenomenon. Round pennysized, erythematous patches would occur on the thighs, greater on the right side, which would fade when the eye position became usual. If the patches remained red another attack supervened.

The patient was then "hyperventilated." In six minutes after the first test the oculocephalogyric crises and erythema occurred. After the second, in four minutes (photo).

*Case 2.* A. P., thirty-six years of age. Five years previously sleepy period (attributed to death of sister), recovery; she could work until October, 1925. She then became very sleepy in the daytime, not at night; peculiar sensations in the head, legs and body. Incomplete amyostatic syndrome. Attacks past six months beginning with twitches in the mouth, then often during the day semi-unconscious; eyes often stiff and immovable for an hour. No froth, tongue biting, or urination. Sleep. She says since the sister's death she "sees things." "A man on the ceiling with a knife in the hand." Also "flowers" frequently. When these images appear she will call someone to know if they are real and realizes they are hallucinatory. She is not conscious of the attacks. She feels anxious, it mounts to the head and she then loses consciousness.

Oculogyric crises occur with the attacks of unconsciousness. The eyes are rolled upwards and to right or left (photos). The attacks last one to sixty minutes. Hyperventilation brought on the eye crises, but it was noted that for two minutes no attacks occurred after the hyperventilation had been practiced. This patient was considered a postencephalitic anomalous amyostatic case with loss of consciousness attacks.

The author brings up some interesting interrelationships between the oculogyric crises, disturbances of consciousness, skin signs, endocrine (electrolyte) unbalance, hyperventilation and the epileptic phenomena.

**Tchlenoff and Toulaeva** (1926) report an extremely complicated case in a girl of twelve years of age. She came into the clinic in 1924 having been sick four years. Apparently after a nervous shock she had a difficulty in her speech—then was sleepy—probably fever, "excited" for a week. Then "stupid," insomnia. At the time of observation peculiar explosive speech with extraordinary synergistic arm movements. Every two to three days, sometimes oftener, she has oculogyric crises up and to the right with right external strabismus. Tonic and clonic movements of the eyeballs, the attacks lasting a few minutes to half an hour. During the attack the patient becomes pale and more rigid, but not unconscious and can fix the eyes for a second or so. She does not feel badly but wishes to lie down. There is a cephalogyric activity to right, the mouth

opens. Numerous extremely variable extrapyramidal signs are also present.

**Levy and Boyé** (1926) report a case citing Euzière's et Pagé's (1923) as the only one similar.

*Case 1.* Woman twenty-seven years of age. Early history negative for any known febrile disturbance, diplopia, lethargy, or what not. Following great fear two years previously when a drunken man attacked her husband she had a severe spasm of the elevators of the eyeball. She was unable to pull them down for five minutes. These continued every week and lasted five to fifteen minutes. They then became more frequent and would last two to three hours. A bilateral tremor of the arms began after eighteen months of the eye signs, then six months later stiffness in movements. Some headache and nausea would follow the attacks. The patient shows typical parkinsonism. Emotional disturbance was quite likely to induce attacks. Stramonium helps the attacks somewhat.

**Wimmer** (1926), whose studies upon chronic encephalitis as he prefers to consider it are among the best in the literature, gives a very painstaking account of tonic ocular fits (oculogyric crises) in chronic encephalitis. He speaks of them as rare—quoting Bing who reports 3 cases in 300 of encephalitis and 5 of his own in about the same number of cases. (See Stern on the other hand who has observed 20 in 100 cases and in his footnote, page 527, even oftener than 20 per cent.) Wimmer gives an excellent résumé of the objective findings condensed from his own observations and those of a few reported in the literature.

*Case 1.* Girl, twenty-three, who in 1918 had an acute encephalitis, followed by moderate parkinsonism which by 1925 completely invalided her. Divergent strabismus. During the past year (1925) she had oculoencephalogyric crises upward with nystagmoid jerkings when the eyes turned to the left and increased tremor and rigidity. Severe pains behind the eyes. Sweating and no loss of consciousness but great distress and fits of screaming. Caloric vestibular hyperesthesia. Cold water irrigation (Wilder and Silbermann) would suppress an attack.

*Case 2.* Male, twenty-seven, with encephalitis in 1920 with progressive parkinsonism. In 1925 oculogyric crises to the left persisting some minutes to quarter of an hour. Myoclonic jerkings of right corner of mouth and chin. In other attacks the eyes turn up and to the left and persist two hours. No unconsciousness.

*Case 3.* Twenty-three, with typical encephalitis in 1920 with later choreatic myoclonic parkinsonian developments, sighing and gasping respiratory attacks. By 1924 bradyphenic hemiparkinsonism, myoclonia in arms and yawning tics—four to ten in a series. Compulsive suicidal ideas, with definite attempts (gas, hanging) developed in association with

the crises because he was forced to "look out of window at the sky." "His eyes told him to commit suicide." These spasms occurred every fourth day. He was terribly distressed about these attacks. They would last several hours. He is very giddy and can hardly stand up. No vestibular disturbances.

*Case 4.* Female, twenty-three, encephalitis in 1919, later periodical diplopia, dysarthria and gradual sluggishness of movements and nervous. In 1924 oculogyric crises strongly upward especially if she has faced some white object. During them cannot find herself about and she cannot control the movements. They would last for from fifteen minutes to one to two hours—no other accompanying spasms or reflex positions. Deviation of left arm in pointing tests. No vestibular disturbances. Slight staggering to the left and adiadokokinesia of the left arm. Later intense yawning attacks.

*Case 5.* Female, twenty-one, with febrile attack in 1921 and febrile relapse in 1925 with pains, diplopia and tetanoid paroxysms with respiratory fits, salivation, dysphagia—these tetanoid spasms might persist for several hours but always stopped during sleep. During these tetanoid states conjugate deviation of the eyes and head mostly to the right after or before the other spasms. In some attacks the eyes stayed fixed straight forward. Hyperexcitability of the right labyrinth to caloric tests. No distinct parkinsonian signs.

Complete and interesting discussion of neostriatal, cerebellar pathological possibilities and a short note upon hysterical "diseases" operating on the same nervous structures apropos of Marinesco and Radovici's discussion.

**Roger et Reboul-Lachaux** (1925, 1926, 1927) have contributed a number of studies on these oculogyric crises. They form the basis of a Montpellier thesis by Lubrano (1926).

In their first communication (1925) they incorrectly state that Euzière (1923) had given the first description and report one case.

*Case 1.* Mme. X. (Lubrano Observ. XXIII), female twenty-two years of age with encephalitis five years previously. By May, 1925, after a second febrile attack there was a complete parkinsonian syndrome. A few months after this the patient noted the eyes would turn up. The eyes would stay in extreme position three to four seconds—the head somewhat retracted. These attacks came on three times a day or even oftener—preferably towards evening. No pain—only annoyance at not being able to use the eyes. She also had an aphonia without any laryngeal indication for the same.

In a second communication (1926) a second case is reported.

*Case 2.* D. Alexandre (Lubrano Observat. XXXVII), twenty-six years of age. In 1919, when mobilized, he had an encephalitis—marked

lethargy. Continued his service—a mild tremor showing in 1920. By 1923 gradual parkinsonian features and at time of examination marked. Since 1923 he had spasms during which the eyes went downward. They remain thus ten to thirty minutes. He can see nothing and hence raises his head in order to be able to see. The eyes finally come to the middle position slowly and then tend to turn upward for a time—ten to twenty minutes—an hour, several hours—and once thirty-six hours in upward tonic spasm. Conjugate lateral spasms also took place right and left. Short time to right and long time to left. Whereas the up vertical is invariable—right or left lateral movements seem to follow no rule, save they rarely last as long. The attacks may come on two to three times a week. The trend is towards greater frequency. Some spasmodic movements of the mouth usually accompany the crises.

At the Congress of Alienists and Neurologists of France (August, 1926) these authors present a further study of this syndromy, saying that enough material has been gathered in the past three years to warrant a systematic presentation of the facts. They present five new observations.

*Case 3.* M. N. M. (Lubrano Observat. XXXVIII), eighteen years of age. In January, 1920, an infectious state with dental neuralgias, three days hallucinatory delirium and insomnia for months, when a parkinsonian stiffness and asthenia developed slowly. A nasal tic was present. Three years after the initial episode and two years previous to observation oculogyric crises vertically upward or downward in one or another crisis. The patient cannot move during an attack, she is torpid. For the past year she has incessant ptosis-like attacks. Some atrophy of the tongue. During the examination the patient would sigh and be somnolent. Marked increase in weight.

*Case 4.* Mme. A. M. F. (Lubrano Observat. XXX), twenty-seven years of age. In 1921 some lower abdominal difficulty. Later a febrile period but no encephalitic signs. Within the next two years slowly developing parkinsonian state. Within recent months upward crises occurred two to three times a day and lasted fifteen to thirty minutes. No capacity to bring the eyes down. Patient quite irritable.

*Case 5.* Mme. V. H. (Lubrano Observat. XXIX), twenty-six years of age. "Grip" in 1918 with marked lethargy following. In 1919, in a delivery, showed some motor excitement and delirium. Since 1921 slowly progressive parkinsonism. For six months oculogyric crises in which the eyes go upward slowly. She can with effort bring them to a horizontal but they return immediately. The head is inclined a bit forward—the mouth open and salivating. The patient cries during an attack, apparently in response to family protests. Embonpoint and polydipsia.

*Case 6.* Mme. O. W. (Lubrano Case XXXI), thirty-one years old, had an encephalitis in 1919, followed by progressive obesity—sixty to ninety-eight kilos in three years. For two years marked parkinsonism,

with automatic mouth opening movements and disturbance of speech and sensation of a "stiff tongue" and accompanied by sticking it out of the mouth. For the past six months oculogyric crises upward with slight voluntary control. These persist from a few seconds to a half hour, at first biweekly, now one almost daily. The head is thrown back with opening of the mouth and a pain in the eyebrows and a sense of suffiocation. Two years previously patient had a slight loss of consciousness and noted weakness of the left upper extremity. Mild glycosuria.

*Case 7.* Mlle. St. Antonia, sixteen years of age, with encephalitis in 1920 with choreic movements persisting seven to eight months. Three months later rapidly advancing rigidity, spasmodic laughing, depression and a suicidal attempt. For the past two years upward oculogyric crises with backward displacement of the head. The crises persist ten to twenty minutes. On examination the patient is so rigid she is confined to bed—lower extremities contracted. Masked face, marked salivation. During the attacks great depression and anxiety and suicidal thoughts.

**Roger et Reboul-Lachaux** (1927) in their *Annales de Méd.* paper these authors add *Case 8*—M. Don Marcel, twenty-two years old. In January, 1923, an encephalitis. During convalescence complete paralysis of the third nerve for five to six months. Gradual evolution of parkinsonism with right sided predominance. Thirteen kilo increase in weight with grave character change, especially pronounced eroticism. Automatic chewing, tongue and lip movements. Extreme apathy. Since July, 1926, almost daily oculogyric crises chiefly towards 7 to 8 in the evening. The head is slightly retracted, the eyes elevated. These attacks last fifteen to thirty minutes. Once or twice a week the eyes turn downward for two to three minutes then slowly come up and stay in this fixed vertical position. Fixed stare. Two to three times a week the patient has "crises d'hebitude." He feels badly, cannot go on with what he is doing, becomes pale and must lie down for fifteen to thirty minutes.

These authors then give a very general descriptive classification, dividing the crises into tonic and clonic or convulsive movements. The tonic spasms (1) may be *simple,* one direction only either the anoblepsie (up) or catablepsie (down)—*variable* or alternating; or a *bascule,* two directions in the same attack, one following another. Conjugate deviation of the head usually accompanied these—or two spasms of convergence are described—the authors have never seen any. Staring fixation is placed here.

Clonic spasms are those in which there is considerable rhythmic oscillation of the eyeballs, mostly upward. These subdivisions are of little significance as one reviews the entire literature and certainly the cases of Lévy, Borremann, Vivaldo were not of clonic spasms.

In 1927 a ninth case is reported by Roger et Reboul-Lachaux.

*Case 9.* Etienne X, twenty-four years of age, with mild encephalitis

in April, 1920. A month later hemiclonus, by March, 1926, mild parkinsonian hemisyndromy which is progressive. During the past year at intervals—one to two a week—she has ocular and head crises of looking and bending downward. Once the eyes were fixed down to left, never up. The crises persist several minutes to an hour or more, one five to six hours. The eye movements can be overcome by strong effort. Scopolamin, datura or gardenal were of no effect. Only catablepsic (Verger et Aubertin) attacks were noted.

**Roger** (1927) also reports a complicated case of spasmodic torticollis with conjugate deviation, strabismus, and dysarthria. Jaub. Francine, nine years of age. Three years previously acute febrile attack with diplopia and speech disturbances on recovery. Tonsillectomy and then another febrile attack. In 1925 spasmodic torticollis. Violent tempers, breaking objects. Spasmodic eye movements to right, frequent but inconstant, independent of the persisting paralysis of the right internal rectus. This eye spasm is considered a different type from the oculogyric spasms considered in this study.

**Lubrano** (1926) in his thesis, under the stimulus of Professor Roger, the most complete to devote itself to the manifestations with which this monograph would limit itself, gives a résumé of forty-six cases, of which five have occurred in the service of Professor Roger and one in the service of Dr. Blanchard. Observa. XXIX, Case 5—here reported Roger-Reboul-Lachaux. Observ. XXIII of Lubrano is that of Case 1—Mme. X. of Roger et Reboul-Lachaux. Observ. XXX appears here as Case 4 of Roger-Reboul-Lachaux. Observ. XXXI is Case 6 of Roger-Reboul-Lachaux of this monograph. Observ. XXXVII is Case 2 of Roger-Reboul-Lachaux. Observ. XXXVIII is Case 3 of Roger-Reboul-Lachaux here reported.

The one new case of Dr. Blanchard (Observat. XXXII), M. X., thirty years of age, had a definite encephalitis in 1919 with delirium, diplopia, somnolence and fever. In 1920 parkinsonism with obesity; in 1923 a slight advance only, marries and has healthy child. In 1924 the upward oculogyric crises lasting fifteen minutes at comparatively long intervals. In 1926 the crises were more frequent, one to two a day, occurring more often in the afternoon, of variable length. During a crises no loss of consciousness, no vertigo, can still talk, walk. Apparently no character changes. Lying down will cut short a crisis. No note on the psychical state.

In his clinical discussion Lubrano speaks of these crises as of late origin, and then divides the discussion into (1) character of the ocular spasms themselves and (2) associated symptoms at the moment of the crises. *Causes* of the spasm are related to effort, fatigue, hard work, emotion, artificial light, cold baths, mental contagion. Lubrano says he

finds crises arising from "no" prodromes. *Clinical types,* tonic, tonic-clonic; *aspect* of patient, strange, head back, open mouth, salivation; *frequency, duration, modifying* agents, periodicity, all are briefly discussed.

(2) As to associated movements, wide open pupils, pain in the supra-orbital region, vision disturbed by ocular position, and others are briefly noted.

As to pathogeny one finds the usual multiplicity of hypotheses meaning paucity of rational understanding. Labyrinthine, epileptic, excitomotor supranuclear irritation to the oculomotor centers.

There is not a word in this thesis about the "human being" as such. One would hardly expect it from a student. Somewhere Balzac has remarked that it is only about when one is old and ready to die that one realizes much about the "human being as a whole." What he then realizes he dares not express, except under the device, as Balzac himself utilized *as if* coming from a "crazy man."

**Sainton, Veil and Casteran** (1926) report four cases of oculogyric crises, two of which they first observed as far back as 1922.

*Case 1.* D., twenty-five years of age, had encephalitis in 1919 with parkinsonism by 1921. He recounted a peculiar occurrence which came at the end of the day when tired. He noted that the eyes would fix themselves on a given point in the upper part of the room and he was unable to detach their regard from it for several minutes. No observation of a crisis is given.

*Case 2.* P., twenty-five years old, had an encephalitis. This patient also complained of a forced upward fixation of the eyes, chiefly in the afternoon.

*Case 3.* V., twenty-six years old, also had a similar difficulty. Encephalitis, parkinsonism, and upward compulsion movements persisting.

*Case 4.* Presented in 1926 of a thirty-five-year-old woman with encephalitis and parkinsonism and upward oculogyric crises. The attacks are more prone to occur in the afternoon after fatigue. Her tremor is increasing.

**Laignel-Lavastine and Ranvier** (1927) present a complicated Benedict syndrome in an encephalitic with oculocephalogyric crises.

*Case 1.* Charlotte O., twenty-two years of age, entered hospital in 1926 with character changes and hemitremors. January, 1920, she had an acute headache, insomnia, night agitation followed by diurnal lethargy and mild right facial paresis and diplopia following. In July, 1921, changes in character, "gamin," a new period of sleepiness, marked salivation lasting six months and then increase in weight. In 1923 with no other signs of acute involvement tremors and speech difficulties appeared with

loss of flesh and puerility. Parkinsonism and Benedict's syndrome of the pontine or inferior type of this syndromy with hemiatrophy of the tongue.

The oculogyric crises were up and to the left, the head following the same direction. Vertical fixity of vision was also noted, *i.e.*, on the choreo-athetotic side. The authors call attention to the fact that in company with another encephalitic patient with crises, fixation (see L. L. and Bourgeon case), the patient immediately began to show her symptoms.

They discuss this case fully in view of the richness of organic residues and negative symptoms and also take up the character alterations in detail.

**Laurès, G.** (1927) presents two observations.

*Case 1.* F. (Marius), nineteen years of age, who in 1919 had an attack of grip lasting three days and followed three months later by insomnia and passing diplopia. In 1920, 1921 and 1922 in the spring lasting each time three months, phases of half sleep in the day. Suddenly in 1923 a mild left hemiparesis, without fever, with quickly developing spasm. Then slowly developing parkinsonism. In 1924 upward oculogyric crises persisting thirty-five minutes with small clonic movements of the eyelids. Pain is soon felt in the contracted muscle. These cramps occur two or three times a day with varying persistence. Seen in 1927 the crises still were present monthly. Stramonium would cut them short.

*Case 2.* A. (Gabriel), forty years of age, had the grip in 1918 lasting three days and with transitory diplopia. Six months later, 1919, a tendency to sleep in the day time, then slowly, over a period of eight days a total left hemiplegia. By 1924 typical parkinsonism. The patient had complained of a nonpainful monocular (left) displacement. By 1926 these upward and to left spasms had become very painful as well as frequent, occurring every day and persisting ten minutes. Stramonium helped where scopolamin failed.

**Sarbo, A.** (1927), in a general discussion given before the Hungar. Ophth. Soc., March 9, 1927, deals with motor eye disturbances in chronic encephalitis of probable striatal origin. Parkinsonian cases showing not paralyses but motor disturbances—*i.e.*, functional changes without *thymogenic or psychogenic causation* findable. In 250 cases of parkinsonism 133 showed eye symptoms. He takes up eyelid flutters, convergence reaction disturbance, the puppensymptom, or staring reaction, oculogyric crises also. Two short case histories are introduced.

*Case 1.* A twenty-six year old girl who since 1920 had a typical parkinsonism. There is a strong spasm inward and the entire body goes into a general flexion hypertonia. When the eyes roll in she cries, "God, God, now I cannot see."

*Case 2.* Another young patient will stay with the eyes upward rolled for hours.

Sarbo would speak of a rubral symptom complex in which a cerebral

static equilibrium system is disturbed whose chief control lies in the nuclei rubræ. The retropulsion of p.a. are thus interpretable.

The pathways—Clarke's columns for proprioceptive tonus, spinocerebellar tract, pons, cerebellar cortex, crossed to dentate nucleus, and then crossed brachium conjunctivum to red nucleus, magnocellular part of red nucleus, rubrospinal tract motor cells of spinal cord to muscles.

**Bailliart and Blum** (1927) report the case of a fourteen year old boy who had an undoubted encephalitis with diplopia and sleepiness in 1919. After six months latent phase and then slow development of character changes most marked in past two years. For the past ten to twelve months, tonic lateral ocular crises. They have occurred about twice a week lasting one to several hours during which the patient can attend to nothing else—the spasm is usually laterally to the right, at times to the left. "Clignement" of the lids, head inclined laterally and a little in advance. Closing of eyes or reposing gives some relief. No other painful symptom arises but there seems to be an accentuation of tremor and muscular rigidity. Isolated paralysis of convergence on testing—the r.>l. Slight horizontal nystagmus. Vestibular tests are in accord with those of Reys, Van Bogaert, Helsmoortel, consisting of a hyporeflectivity of the vertical canals even to complete areflexia.

**Benvenuti** (1927), dealing with the larger problem of compulsive movements in postencephalitic activities, also discusses the oculogyric crises in this frame of reference, incorrectly cites Staehelin (1920) and then goes to the observations of Marinesco and his coworkers of 1924 with brief mention of Bertolani, Paulian, Beriel et Bourrat, Roger et Reboul-Lachaux, Giraud, Springlova, Helsmoortel and G. Lévy.

Six personal cases are reported in which, as stated, the accent is not laid upon the ocular symptoms alone. These oculogyric crises are here taken out of the general compulsive frame for the purposes of this special study.

*Case 1.* C. F., twenty-five years of age, unmarried. In 1921 had an encephalitis attack, the acute stages lasting ten months. After a year of feeling better there followed a gradual parkinsonian development, entering the Pisa clinic in September, 1925, in a good state of nutrition with typical parkinsonism without his earlier diplopia. After about four years the oculogyric crises developed. These lasted from a few minutes to almost all day and were extremely painful and accompanied by a general distress. Scopolamin bromide with B. as with others cut them short, but was of but symptomatic value. The crises were quite stereotyped. The eyes chiefly were drawn down five to ten minutes and to the right, and also at times to the left. The eyelids followed the general ocular movement. The attacks at times were daily and the most severe ones lasted several hours. Contrary willed movements were unavailing. During the attacks the patient

was more or less in a state of trance. Vestibular tests gave no important information.

*Case 2.* B. O., eighteen years of age, in 1921 had an attack of typical encephalitis which in about a year was followed by parkinsonian features. Five months later upward oculogyric crises occurred. They would begin with vertical oscillations during which wilful lateral movements were possible but he could not bring his eyeballs down. The attacks persisted about fifteen minutes and were accompanied by much emotional depression. They occurred two to three times a day and were abbreviated but not stopped by scopolamin.

*Case 3.* C. M., nineteen years of age, who in 1919 had a Spanish grip—*i.e.,* encephalitis, lasting two months. This was followed slowly by a parkinsonian rigidity with right-sided weakness. About a year later the vertical oculogyric crises began first at intervals of from ten to twelve days, lasting from thirty to sixty minutes. Vestibular tests negative. During the crises the head was thrown back, the eyes immobile, palpebral tremors, with a certain grade of mental confusion.

*Case 4.* Q. M., forty-one years of age, married, who in 1922 had an encephalitis with exacerbations and remissions lasting several months following which there was a gradual parkinsonian evolution. In March, 1923, the oculogyric crises began. They were variable, chiefly upward vertical and at times lateral right and left—at first at intervals of fifteen to twenty days and lasting five to ten minutes—at times twelve hours, being then very painful—not modified during menstruation or other emotional factors and accompanied by confusion and mental depression.

*Case 5.* V. C., twenty-nine years of age, married, had a suspicious disorder, fever, sleepiness and diplopia in 1920 with apparent recovery. Then parkinsonian development, quite definite at time of examination. Various muscular spasms, the first of which were those of forced upward turning of the eyes. The patient claims they preceded his parkinsonism. These crises at first lasted about ten minutes and there was double vision. They occurred a few times every day. After a year the oculogyric crises became more frequent even almost uninterruptedly and were accompanied by painful headache and profound mental depression. Fixation of the eyes in a median position with trance-like (stony stupor) states with great anxiety, fixed facies, head, contracted pupils also occurred. These would last thirty to sixty minutes, rarely repeated in the same day. Masticatory spasms also are reported.

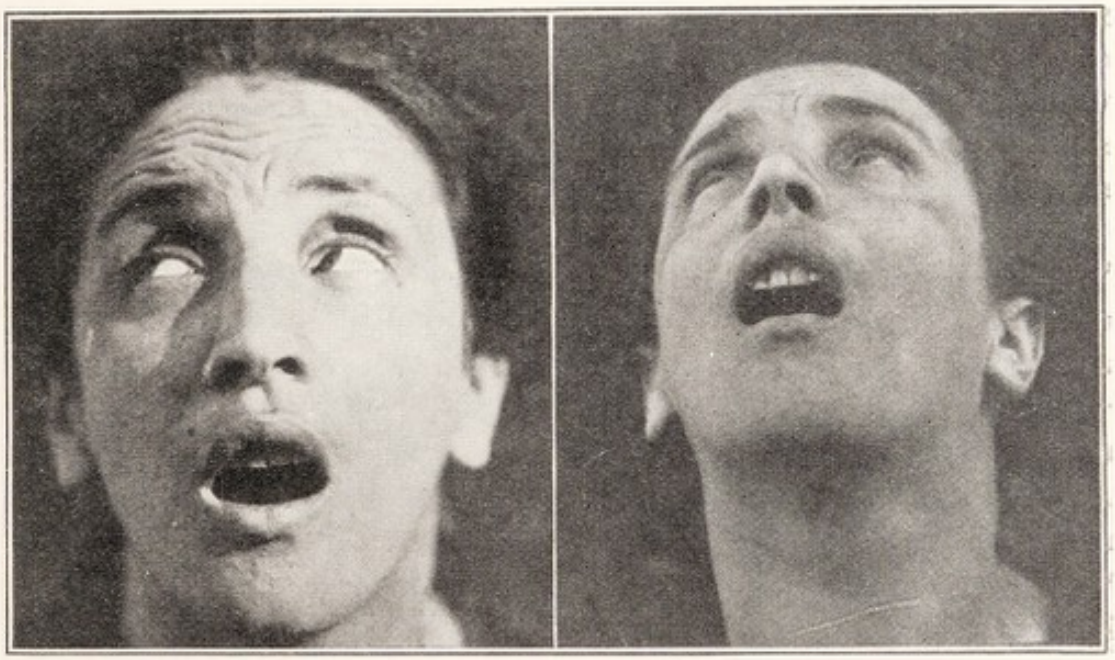
*Case* 6 (addendum). S. J., thirty years old, married, had an attack of Spanish grip in 1918—lasting seven to eight days, with recovery. Two to three years later gradual development of parkinsonism. Oculogyric crises at the time of observation in extreme upward position not accompanied by pain or psychical distress, the patient being able to converse slowly during the twenty minutes of the attack. This attack was the first

she had had and she attributed it to the intense fatigue attendant upon coming to the clinic.

**Catalona** (1927) (p. 94). C. T., eighteen years old boy who in 1919 at the age of eleven, had an attack of encephalitis. Mother psychotic depression. The boy had a definite psychosis following his encephalitis and was admitted to the Como asylum. In 1925 he had definite parkinsonian signs. Mingazzini's and Revillot's ocular syndromes. Oculogyric crises with right facial palsy of supranuclear origin up and to the right which persist two to three minutes, at times a quarter of an hour. Nystagmiform movements (photo). There was marked retropulsion in this patient, also palilalia. During the oculogyric crises there were no special psychical variations from the general depressive state which characterized his whole mental attitude which had crises of depression in which he wished to die.

Catalona offers two hypotheses concerning anatomical substrata for the oculogyric crises closely following Bertolani's very thorough discussion.

**Mari, A.** (1927) would deal with the general problem of compulsive movements in postencephalitic parkinsonism approaching it through the special manifestations of the oculogyric crises. He cites very briefly the



Oculogyric crisis in Mari's case. Note agonized expression.

observations of Staehelin, Frigerio, Reys, Lévy, Rossi, Leone, La Torre, Pappenheim, Marinesco, Lemos, Fischer, Ewald, Bing and Schwarz, Falkiewicz and Rothfeld, Krisch, Bertolani, Borremans, Paulian, Roger et Reboul-Lachaux, Giraud, van Gehuchten, Vivaldo, Wimmer, Helsmoortel and Carezzana, and Stern.

He then reports four cases of his own (one photo).

*Case 1.* M. G., single, twenty years of age, with encephalitis in February, 1919. Rightsided parkinsonian hemisyndrome began in 1924. In November, 1925, the patient began to have stereotyped vertical oculogyric crises lasting about fifteen to twenty minutes, occurring in the average every ten to twelve days, two to three times a day. The vision is fixed, the lids pulled up, the pupils mydriatic and almost rigid to light. No special psychical accompaniments noted. Scopolamin helped for a while only.

*Case 2.* F. L., single, twenty-five years of age. Encephalitis in January, 1921. Typical parkinsonism began in 1924. In 1925 vertical oculogyric crises lasting about twenty minutes, appearing about every ten to twelve days, four to five times a day. They begin uniformly with nystagmoid vertical movements and then reach a superior immobile position. The eyelids are strongly retracted, the frontalis contracted, the head in hyperextension with rigid neck muscles. No pain and no psychical anomalies. Scopolamin helped for a time only.

*Case 3.* G., married, twenty-seven years of age. Encephalitis in 1919. Hemiparkinsonian syndrome—chiefly on right side. In January, 1927, vertical oculogyric crises began lasting fifteen to twenty minutes, every five to six days, at times six to seven times in one day. They were preceded by frequent and rapid blepharospasms, then the eyeballs would slowly assume a fixed upward position in the middle line. Eyelids, frontalis rigid, head retracted, neck muscles so rigid as not to be bent except with great force. Masticatory spasms also developed. Some depressions with intense headache. Scopolamin of no service.

*Case 4.* F. E., married, thirty-two years of age. Encephalitis in 1920. Typical parkinsonism following gradually with full amyostatic syndrome. In August, 1926, oculogyric crises (photo) uniform. Slowly the head is thrown back, the eyes roll up and to the right after some horizontal nystagmus, some lateral fixation to the left for a short time and then a maximum movement to the right. The patient's face shows extreme suffering, the frontalis contracted and the eyelids strongly retracted, the mouth wide open, face congested, profuse perspiration. The attacks last about twenty minutes or may persist three to four hours. Tonic sternocleidal muscular movements, right, also developed six months later. Respiratory anomalies then developed, the breathing become slowed and then masticatory crises began. In some of these attacks she becomes cyanotic and suffers severely. After a final act of swallowing the attack lets up. No psychical disturbances save in some of the attacks she has visual hallucinations. She sees a great black dog run by the stanza, *a volte invece nomini con vesti di vari colori aggirrarsi attorno al suo letto.* She recognizes the hallucinatory nature of these appearances.

The author stresses minute variations in the different attacks, calling

special attention to what he calls hypervagal excitability participation—in Cases 3 and 4—to which Laignel-Lavastine (1921) devoted particular attention and diminished by atropin.

He then (p. 323) discusses the various hypotheses as to the causation, Falkiewicz and Rothfeld's autopsied case among them, and refrains from any hypothesis of his own. As this case of Falkiewicz and Rothfeld is not one of oculocephalogyric crisis it is not quite pertinent.

**Helsmoortel and van Bogaert** (1927) in a communication made before the 1927 Paris Neurological reunion report ten cases of postencephalitic oculogyric crises, paying particular attention to the labyrinthine functioning. They cite Lequint, Hautant, Reys, Marinesco and Radovici as having made related studies.

Their notes upon the oculogyric crises themselves are very cursory. The chief accent is put upon the labyrinthine tests.

*Case 1.* Mme. W., twenty-seven. Encephalitis in 1920, first oculogyric crisis in 1925.

*Case 2.* H. H., forty-three. Encephalitis in 1921. Last crisis in 1924. Eyes to left or upward and to left. Torsion of head and body.

*Case 3.* Mlle. S., twenty-two. Encephalitis in 1920. First crisis in 1924. Up or down.

*Case 4.* Mme. Von O., forty-five. Encephalitis in 1920. First crisis in 1921. Eyes at first vertically up and terminate downward. During crisis inebriated gait.

*Case 5.* M. B., thirty-five. Encephalitis in 1922. First crisis vertical. Eighteen months later.

*Case 6.* Mlle. C. K., thirty-one. Encephalitis in 1922. First crisis vertically up in 1926.

*Case 7.* M. V., thirty-seven. Encephalitis in 1924. First crisis in 1925.

*Case 8.* Mlle. H., twenty-nine. Encephalitis in 1924. In 1926 first vertical crisis. Can ride a bicycle during the crises.

*Case 9.* M. Van D., fourteen. Encephalitis in 1920. Dementia. First crisis in 1924.

*Case 10.* Mlle. W., twenty-two. Encephalitis in 1921. First crisis in 1923.

In further discussion of the possible mechanisms they cite the autopsied suicide case of Falkiewicz and Rothfeld (not one of oculogyric crises), the studies of Marinesco, Radovici and Draganesco, Reys, Sterling and Wimmer and conclude their study as follows:

(1) The labyrinthine modifications found are due to a lesion of the vestibular nuclei or of the globus pallidus. (2) The lesions are sufficient to explain a modification in the sense of hyper- or hypo-

excitability. (3) If one observes a labyrinthine reaction modification in the course of an oculogyric crisis, it is necessary to seek the cause in a passing hyperemia or in the exaggeration of an existing hyperemia involving the globus pallidus or neighboring regions. (4) That the corpus striatum functionally participates in the oculogyric crises mechanism. That this gives to the phenomena their tonic character. The rapport of the tonic crises to those of epilepsy is of very great importance. Various arguments have already been produced to relate the oculogyric crises to extrapyramidal tonicity. Is the vestibular perturbation during the crises also a vestibular epileptic equivalent? This has not yet been proven. The vestibular component may be but an accompanying accessory perturbation facilitating or orienting the nature of the oculogyric access; but this is not demonstrated to be constant. VanBogaert returns to the problem (see later).

**Nyssen and Helsmoortel** (1927) report very briefly before the Belgian Society of Neurology, March 26, 1927, a fourteen year old boy who six years previously had a definite encephalitis. No distinct postencephalitic features are present but character alterations are outstanding in that the patient shows agitation, mischievousness, perversities and persecutory trends. These were preceded by typical oculomotor crises, vertically upward and they were studied in great detail as to the vestibular implications. A bilateral hyperexcitability of the labyrinth analogous to those previously reported was obtained.

**Moser** (1927) demonstrated briefly before the North German Psychiatric Society, March 1, 1927, a twenty-one year old patient who in 1922 and 1923 had a grip without any usual encephalitic signs. Six months later she began to show typical parkinsonian signs which increased gradually in intensity. In December, 1925, oculogyric crises accompanied by severe painful tetanic cramps in the upper extremities. These attacks, at first considered hysterical, occurred many times a day. They were ushered in with paresthesiæ in the upper extremities and then the spasms occurred. The eyes were directed to the extreme left in a horizontal direction where they stayed tonically fixed for about twenty minutes. Slight articulatory disturbance took place at the same time. At some intervals in the attack a confused mental state may supervene, at times involuntary urination. No hyperventilation tetany. Blood calcium increased. The author takes up briefly the tetany—epilepsy problem in the light of this case.

**Carezzana** (1927) showed before the Alessandria Medico Surgical Society in June, 1927, a patient who had upward vertical oculocephalic crises following an encephalitis. They occurred as often as three times a day and would continue until the patient could lie down and go to sleep. The author follows Bertolani in his general exposition of the mechanisms.

**Sainton** (1927) speaks of *Case 1*, a twenty-seven-year-old man, who between 7 and 7:30 eyes begin to burn, then little by little fixed in front of him or up and unable to look at the ground, to read. Efforts to lower are painful. They stay half an hour and he must lie down. Parkinsonism with no history of same.

*Case 2.* Also a young woman, of thirty-five, with similar difficulties. Her eyes go to the "plafond." Sleeps and is O.K. Six years previously a peculiar disorder with fever and double vision. Three years later parkinsonism well developed.

**Stern** (1927) in his paper upon "*Psychical Compulsive Processes and their Occurrence in Encephalitic Looking Spasms with Observations upon the Genesis of Encephalitic Looking Spasms*" approaches the very center of the problem which it is our purpose here to discuss. Inasmuch as he has done me the courtesy to deal rather fully with my point of view in the matter of the interpretation of related phenomena, postencephalitic respiratory syndromes, I feel certain that a certain rapprochement of his views and my own may be reached. This seems desirable for after all there are very few observations thus far recorded upon the psychical components in so-called somatic disorders. The far reaching significance of the studies of Hollós and Ferenczi upon general paresis, Ferenczi's studies upon tics, Missriegler's studies of narcolepsy, Graves and Clark's upon epilepsy, Groddeck's extremely valuable contributions, especially as summarized in "Das Buch vom Es," F. Deutsch's comments on organic disease, and my own upon psoriasis, tuberculosis, multiple sclerosis, exophthalmic goiter, and epidemic encephalitis, not to mention others (White) who seek to apply genetic and dynamic principles to the understanding of complicated disease processes, I believe may assist in building up not parallelistic notions of somatic and psychical disease, but monistic interpretations of level disturbances which Hughlings Jackson so penetratingly glimpsed and demonstrated nearly half a century ago and which von Monakow, Goldstein, and many others have enlarged upon.

If I should rather snappishly remark that I do not comprehend what "all the shouting is about" "hysteria," "pithiatism," etc., in relation to postencephalitic hyperkinetic phenomena—first rather seriously discussed in the earlier studies of Ziehen and Oppenheim on "torsion spasm"—may I make myself clear by stating that little of the discussion is relevant. This is so because the essential purposeful dynamics of "hysteria" remains unknown to the somatically minded student. It seemed hardly necessary that Freud should have

stated, as he has done emphatically, that a structure is necessary for hysterical manifestations any more than it would be to say that "matter" was necessary to register "weight." "Hysteria" must be seen in terms of *unconscious "purpose";* lacking this, any discussion of "hysteria" is as irrelevant as "ectoplasm" or "soul photography." Personally I do not comprehend that the situation is advanced a bit by Vogt's initial statement in his Heidelberg (1918–1919) paper that a "hysteria" center may be found in the "striatum."

Stern starts his paper by outlining the Westphal definition of compulsory ideas (Zwangsvorstellung). He himself is not entirely satisfied with this early formulation and well might he so state it. He includes in this group the choreic parakinesiæ, the catatonic impulsive actions, further also the rotatory, menagery, and propulsive movements of cerebellar or basal ganglia woundings, and the psychical analogies of many recent authors (Stertz, etc.). Thus many apraxic activities may be also included. Thus Stern brings into the foreground the *confusion* that exists at the present time concerning the various conceptions utilized to explain this heterogeneous series of observations.

Compulsory ideas, compulsory thoughts, compulsory impulses up to recent times Stern (incorrectly) assumes have been considered as the expressions of "purely" functional, *i.e.*, psychical processes. (From Westphal to Freud.) In the past Oppenheim alone had seemed to have grasped (in paralysis agitans), according to Stern, the real significance of these processes. The lessons to be learned from epidemic encephalitis have revolutionized all these conceptions(?).

Thus Stern would offer a detailed study of the postencephalitic oculogyric crises as allowing a special portal of entry into this complicated region. Twenty cases out of one hundred are the basis of his study which "ausser psychische Analyse" would offer him a true insight into the "hirnpathologischen Mechanismus," of the oculogyric crises.

Thus to a short exposition of the oculogyric crises! These occur, in irregular intervals, after a period of strain or exhaustive stress (not quite true, since many such attacks take place as a seeming result of other quite different stimuli) in that the eyes in conjugate movements upwards or to the side go into a tonic spasm with mostly cephalogyric associated movements backwards or to the side. Although the upward movements are most frequent other deviations (*down, left, right*) take place; Stern deems [and rightly—J.] the directly

*forward* looking as equivalents. These may persist for hours. Minor variations of willing control are secondary. Other muscular cramps—mouth, etc., are known and Stern quite correctly knows of these occurrences as having taken place in situations other than in encephalitis (Vorkästner, Margulies, Kunn and Nothnagel, Pearson, Bakker —already spoken of in this résumé).

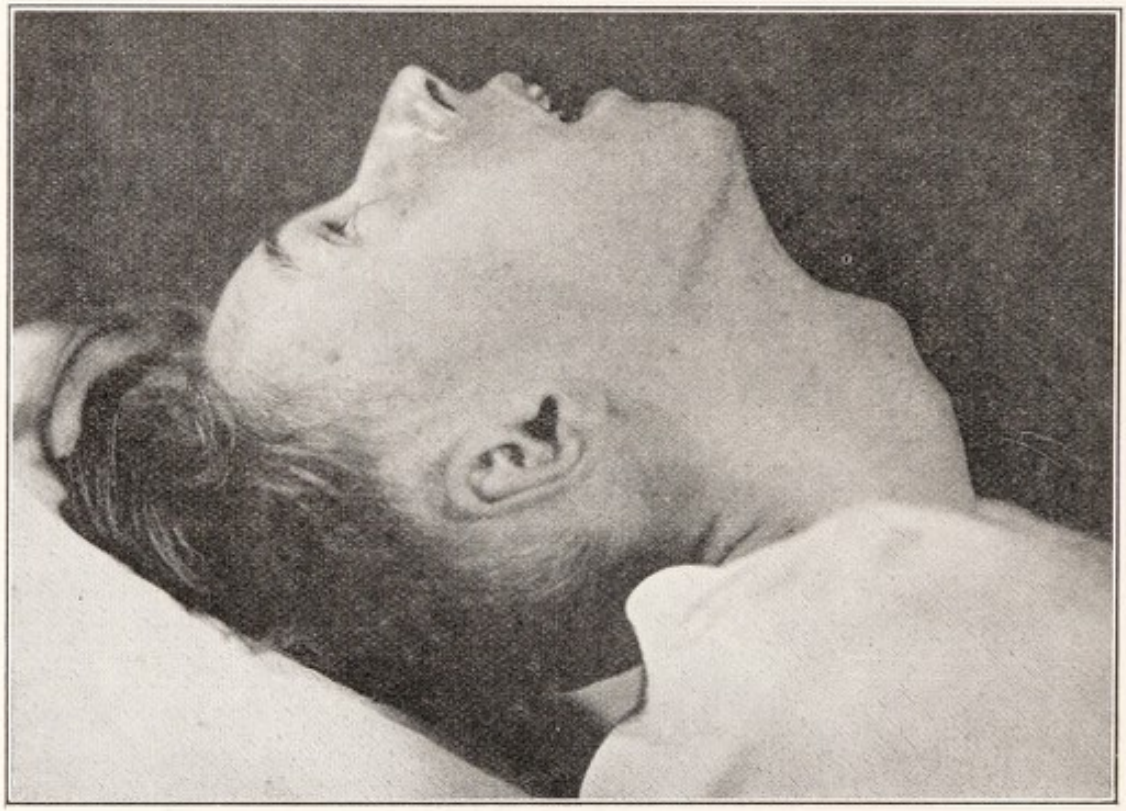
Stern has a much better knowledge of the historical situation than any previous student of the problem.

Whereas most of the observers speak of the rarity of the oculogyric crises Stern deals with their frequency. Twenty per cent of his cases have shown the phenomena. This large number of cases Stern would employ to obtain an insight into the relationship between "brain processes" and relatively primitive psychical processes. "Apart from psychical analysis" further insight might be gained into the brain pathological processes.

He then offers a description of the various types of oculogyric crises, emphasizing what our review has already done, the trend towards upward, or upwards and to the side [mostly right—J.] turning of the eyes with the accompanying head movements. Other types, sideways, down, or directly in front (staring) are to be evaluated in similar fashion. Conscious control is very variable, but chiefly unavailing. This is evidenced pari passu with the severity of the case. Associated movements are also discussed. Stern is fully aware that oculogyric crises have been described as occurring before encephalitis was known and as accompanying a number of situations—so-called organic and functional (Vorkästner, Margulies, Kunn, Nothnagel, etc.). The comparatively late appearance of the oculogyric crises is also spoken of. The early notes of Staehelin (?) Oeckinghaus, Rossi, La Torre, Lévy, A. Meyer are referred to. B. Fischer's study and Ewald's, Stertz, Marinesco and his associates, Bing and Schwartz, Wimmer, Falkiewicz and Rothfeld, von Bogaert and Delbeke. Bertolani, and Scharfetter are alluded to. The participation of the "seelenleben" in these cases is also called upon, especially the "compulsive thinking" as well as the anxiety states to which Wimmer has called attention. These psychical situations Stern would enter into especially. The case histories are not given in detail but he speaks of several.

One that has to fix her eyes and her ideas upon a certain point. As in the compulsion neurotic she knows it is nonsense but "Why is the O round?" "How is glass made?" "How was writing discovered?" She

cannot get away from it. Then the eye cramp sets in and the whole physical habitus starts. The patient is like one dying. The fatty and tear secretions increase. The speech becomes smeared, high, rough, and incomprehensible. The patient feels herself getting bigger, and a very painful disturbance of her well being obtains. Her body no longer exists. She wants to experience pain in order to verify her being. She denies any definite sexual sensation although there are evident sexual factors even to those who do not uncritically follow Freud's conceptions (here falsely called "doctrines"). The affect finds no release. The feeling is asserted



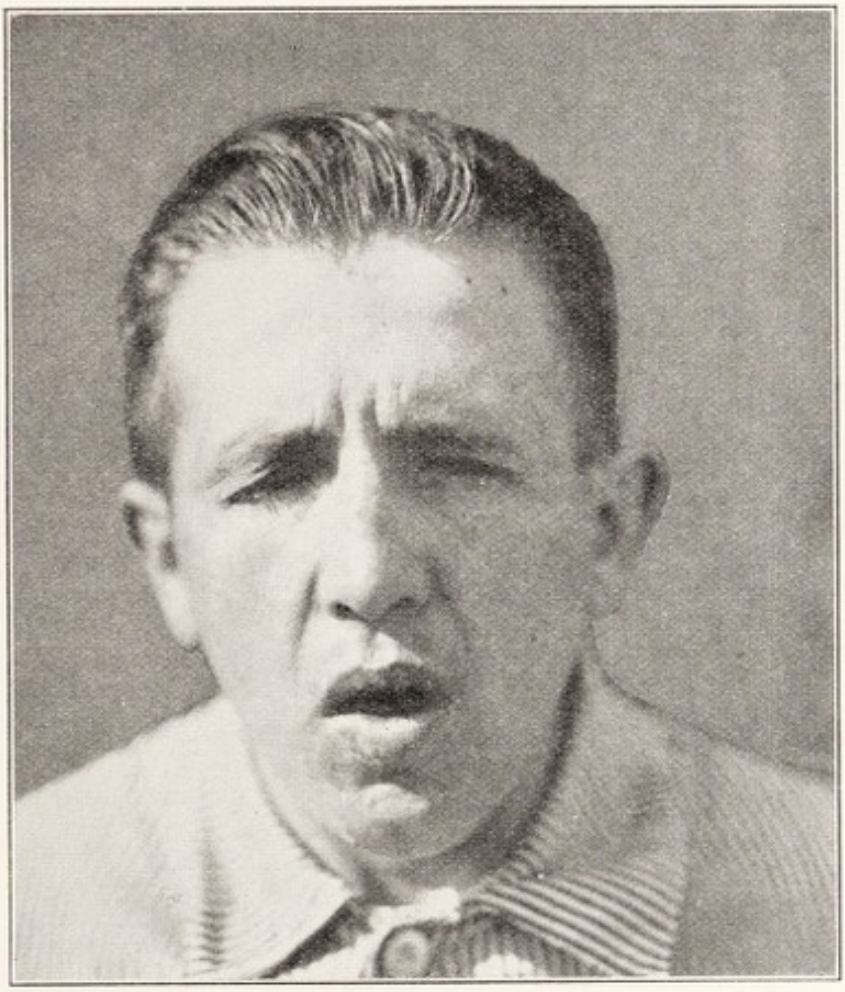
Eye spasm with spasm of mouth and neck. Stern: Die epidemische Encephalitis, 2d Ed., Fig. 26, p. 165.

to be so terrible that no person can explain it. [Quite analogous to the affect depressive states in manic-depressives—or late symptomatic obsessive depressions.—J.]

*Another case* of a twenty-one year old man who had encephalitis in 1922; in 1924 the eye cramps began. Here pathological "grübeln" was also manifest. Here the thoughts get locked up and preventive sentence word splittings take place. He is in the middle between saying and thinking. He becomes "stupid," "dumb," and cannot avoid it in the attacks. He calls it a confusion but it is not really a confusion. "Est ist alles Quatsch was ich denke." Impulses to say nonsense, obscenities, but he denies sexual ideas [evidently meaning "genital" rather than sexual.—J.]. He can hold the speech back but not the thought. Then the eye cramp

occurs and consciousness narrows. He forgets everything and only knows his surroundings. Can read the papers but does not register. Rhythmical backward head movements also occur and childish activities.

*Another patient,* nineteen years old, who in 1921 had an acute encephalitis, parkinsonism by 1924 and in July, 1925, he had irregularly occurring eye spasms, downwards. Then upward eye spasm. The early spasms

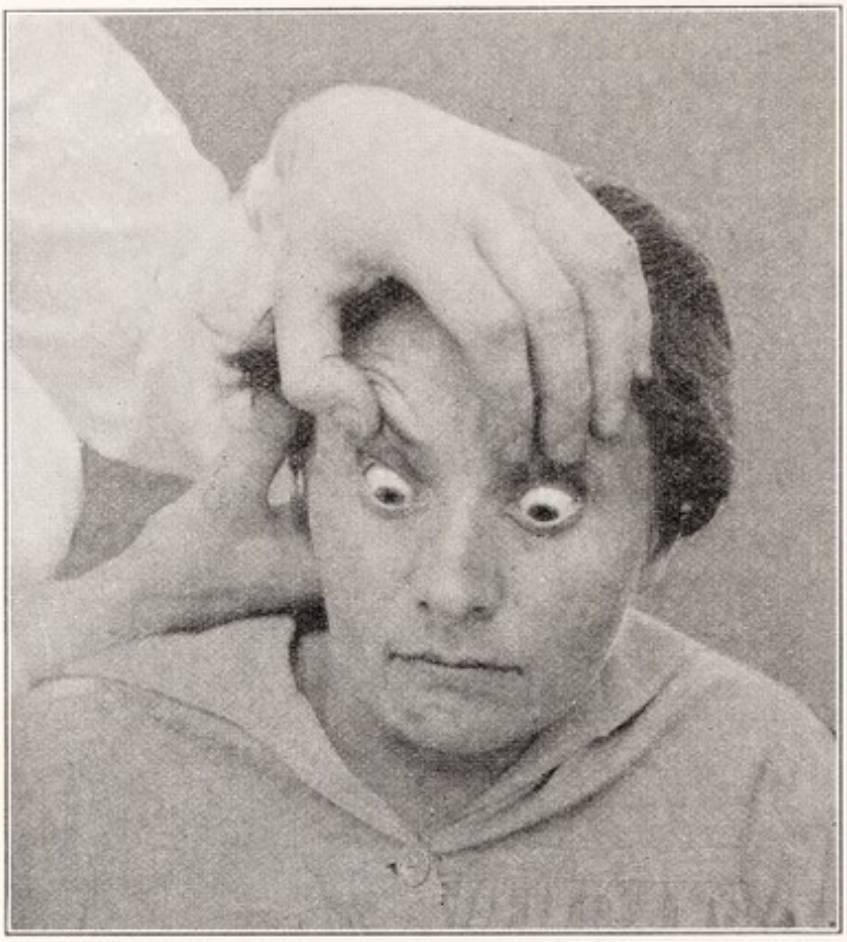


Tic-like condition with cramp of orbicularis. Stern: Die epidemische Encephalitis, 2d Ed., Fig. 23, p. 153.

had no psychical complications but later anxiety states were felt during his one-half to twenty-four hour eye spasms. He must think of definite words with distinct meanings. "Woher," "warum," "wozu," "was"—these questions are as phantasied not as written. They repeat themselves on the inside. They press upon his head, as it were; he is conscious of their being outside of him. He would drive them away by a formula—"Get away, Satan, Jesus is mine." Then he loses his ritual and is lost for hours in the compulsion. This patient Stern notes is the only one in his series who apart from the eye cramps also has compulsive ideas with the subjective feeling of compulsion who thinks anxiously of his

illness and has great anxiety over (ü) because (ü) is found in Sünde (Sin). Stern makes the important observation ("important" especially from the viewpoint—sense of guilt—emphasized in this paper) that this patient as well as many others in their free intervals seek for metaphysical—religious explanations for their compulsory fears.

*Another patient,* a physician, had an acute encephalitis in 1918. In 1923 was akinetic and had eye spasms in 1924. Here also the eye attacks



Downward spasm. Stern: Die epidemische Encephalitis, 2d Ed., Fig. 25, p. 165.

were preceded by compulsive disturbances. Suddenly, in company, anxiety arose, the eye attack was coming. Then irregular global movements and finally maximal upward fixation. He could control them somewhat by rinsing the eyes in cold water. Then also the attacks occurred only under special circumstances. *i.e.,* when he had had them before while playing chess or at the cinema, both of which were much liked. He never had an eye attack while driving an auto. This patient had a "vestibular" association. He felt a vertigo, the ground moved under him and the houses seemed to stand on the bias. (The author promises to enter into this symptom later—certainly an interesting symptom found in many psychoneurotic individuals.) He also had the idea he would never be

free from his eye attacks, which in spite of his medical training, was very painful, in spite of his rational efforts to rid himself of the idea. The idea vanishes and the eye cramp is over. Dreamy states are not present but this patient finds (as in most of these cases) that with the eye cramp his general stiffness increases subjectively as well as objectively (by neurological testing). He has dysarthria.

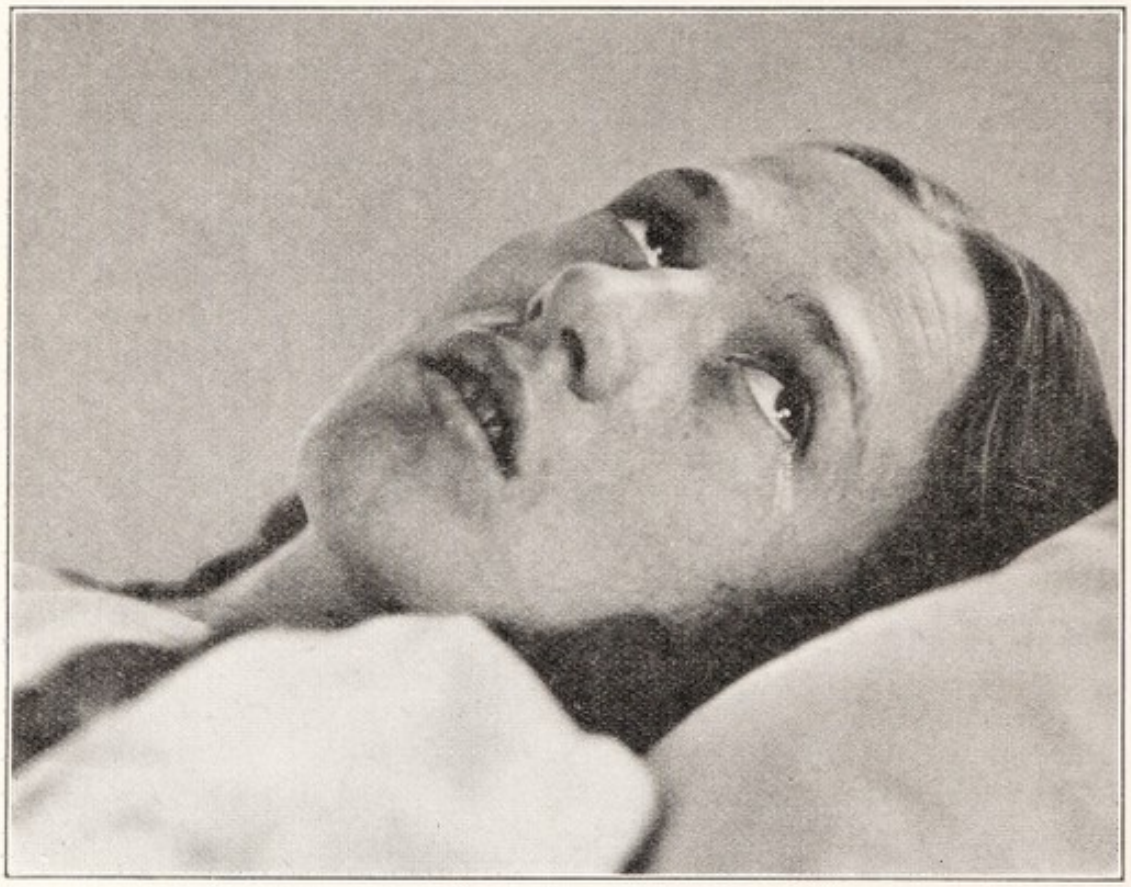
*A fifth* patient during his eye cramps has a counting compulsion. He must count from 1 to 100 very slowly and then backwards to zero. Internally he counts softly and cannot suppress the series unless he can interpose a song when the number compulsion gives way. Only during his eye spasms do such compulsions occur.

*Another* interesting example is offered since the patient himself gave an illuminating description of his psychical state during the eye spasms. He was a thirty year old merchant, intelligent but not schooled. "The encephalitic has anxiety to repeat." This anxiety develops from the impossibility to repeat. He gets "stuck" in his thoughts especially when the eye cramps take place. One notes its coming and then the eyes go "up and are stiff." A "dark feeling" takes place in the head. One has only *a* feeling—all is "dümpf" in the head. When it is over (the eye cramp) "then one can think."

Enough examples writes Stern (p. 533). Only a portion of the encephalitics show compulsory thinking, but a great many develop anxiety (see Freud: Inhibition, Anxiety and Symptom) and this chiefly in the form of preparoxysmal anxiety. This Stern would claim is an original contribution of his as occurring only in eye spasms, and not in mouth opening or other tonic muscular situations. (Certainly these anxiety states have been recorded in a vast number of postencephalitic situations, the respiratory ones especially and which we have specially studied and Stern's comments here are, we believe, quite irrelevant [p. 534].)

Now Stern (p. 534) would enter into an analysis of the *anxiety situation*. He calls it a *primary symptom,* and it usually antedates the crisis. (We believe that it always does so, although often so masked that the nonanalytically oriented observer does not recognize it.) Stern himself comments upon the inability of the patient to describe these situations. He quite correctly, we believe, shows how these anxieties may be referred to different organ sensations, and thought of as such. He dodges, we think, the real implications of the James-Lange hypothesis and gives it an application not quite in accord with its meaning—but this is quite secondary—and here one is in the thick of this very intricate problem. Much depends here

whether one holds to the view that the organic substratum is decisive in determining the functional activity, or whether the "wish," *i.e.*, the functional purpose of the organism as a whole, particularly as viewed in its instinctive pattern activity will use those structures still utilizable and not destroyed by disease processes, to arrive at its goal even though distorted through thwarting of ideal adaptations. In this connection we believe that Hughlings Jackson's principle of



Generalized stiffness with eye spasm. Stern: Epidemische Encephalitis, 2d Ed., Fig. 39, p. 230.

dissolution of function and the utilization of more primitive activities to discharge such function has been greatly enlarged and amplified by Freud in his studies of the economics of the libido, *i.e.*, creative, reproductive, instinctive expression. Freud's conception of "regression" and displacement discharge for psychical processes closely parallels Jackson's ideas of physiological level discharge. Hence we believe that the functionalist, while intensely interested in the structural blue print, has a wider view of the phenomena, which the anatomist can never reach since he cannot envisage what is happening in the pathways. Anxiety will never be explained in terms of struc-

ture, even though it may have very important structural correlates. Babe Ruth's home runs undoubtedly have "gravity" as a physical undertow but we would seriously doubt the sanity of a newspaper's reporter who would describe a baseball game in terms of air friction, of gravity, of barometric and hygrometric pressure, and of related physical phenomena.

Stern seems content to stay in the old parallelistic camp of the relationship between "body" *and* "mind." For him monistic conceptions are "metaphysical speculation." For ourselves we prefer the monistic conceptions, even if so-called metaphysical speculations are much more explanatory than parallelistic notions. Hughlings Jackson's ideas of reduction of function to earlier levels offers monistic interpretations and certainly "anxiety" is not a primary unanalyzable symptom as Stern would have us believe. It is immaterial whether Stern rejects the psychoanalytic conceptions regarding anxiety in these oculogyric crises cases in favor of anxiety being an elementary symptom. He thus stops all inquiry. One almost as well might say that "sickness" is an unanalyzable primary symptom laid on by the Deity and why attempt to go further?

Anxiety having been disposed of in this naïve manner now cannot be neglected in these compulsive processes. "Anxiety" now does this and that (not what lies behind the anxiety, for Stern, there is no behind to the anxiety—it just is) and added thereto—"a sudden stoppage of thought processes" is made to do explanatory service (descriptive no doubt, but like Janet's "abaissement" of the psychological level, these are but words). Here our old scholastic friend the "will" is again called into being. Stern speaks of "sinnlosen" syllables; of unmeaning movements; that the "direction of the eyes have no apparent significance." He arbitrarily comes to conclusions which are evidently untrue from a strictly scientific viewpoint. No syllables are nonsense except to those who do not know what they signify. Eye movements *are* determined, even if the determiners are not known to the observer. That there does exist a causal relationship between the ocular crises and psychical accompanying phenomena Stern affirms. What it may be fundamentally he does not really inquire into. The willed eye movements of experiment and the ocular crises use different pathways he assumes. (Naturally they must for no one has *command* either of the structure or functions of his unconscious—save perhaps the deluded "Yogi.") Still even the "unconscious" cannot use pathways that are not there. Of Stern's

further reflections upon the labyrinthine apparatus and anatomical localization problems mention will be made further.

**Pardee** (1927) presented to the American Neurological Association four cases of postencephalitic parkinsonian oculogyric crises. (4 illust.)

N. L. Shows upward turning movement of eye to left. Head to left, slightly upward. (Pardee.)

*Case 1.* N. L., twenty-four year old electrician with no definite history of acute encephalitis. When seen he had a definite parkinsonian habitus. The upward (and to left) oculocephalogyric crises had come on two years before observation. They occurred every other day. Slight nystagmus was also recorded. No other details, save negative W. R. (photo).

*Case 2.* I. B., twenty-seven year old woman, had severe encephalitis in 1919. In 1925 definite progressive parkinsonian rigidity. Six months later oculocephalogyric spasms upwards and to the left. They occurred two to three times a week and persisted from twenty minutes to eight

I. B. Marked deviation of eyes to left and upward. Eyelids flutter. Head to left and upward. (Pardee.)

hours. At times she gasped as if for air. No other than chemical or neurological details.

*Case 3.* A. M., fourteen year old girl, had encephalitis in 1923. Gradual parkinsonian evolution. Persisting diplopia. Operation. In 1926 oculocephalogyric crises appeared, upward and to the right, lasting thirty to forty-five minutes and occurring once a week, occasionally on alternate days. At times the attack comes and goes.

*Case 4.* Thirteen year old girl had an encephalitis in 1923. Later gradually developing parkinsonism, chiefly involving the left arm and presenting a semi-dystonic gait. She snaps the fingers of her right hand. In November, 1926, upward oculogyric crises occurred, preceded by a headache. Stormy hypomanic moods are also observable. She also had

A. M. Forced turning of head to right and backward with upward deviation of eyes. Marked Parkinsonism. (Pardee.)

begun a type of rhythmical hopping up and down on her left leg. She also showed a constant tongue movement, with occasional sticking it out.

**Pearson** (1927) has given a brief summary of the problem incorrectly stating that B. Fischer was the first observer and citing the cases of A. Meyer, Ewald, Lemos, Hohman, Marinesco et al., Popowa, Bériel and Bourrat, Pappenheim, Bing and Schwartz, Kulkow, Barkas, Bakker,

Benton, Giraud. He cites Musken's studies in 1914 and 1922, also those of Spiller and Freeman and picks up the older observations of Nothnagel (1884), Kunn (1897), and Schröder, and the Crouzon case already referred to. He then reports a case of oculogyric crises in a parkinsonian with concomitant positive Wassermann reaction and recurs to the question of the presence of oculogyric crises in other than in encephalitis cases which have been known for years.

*G. B.*, twenty years of age. In 1918 she had an "influenza." In 1921 beginning tremor and weakness of right arm and hemiplegic gait. Increasing stiffness and mild unilateral hemiplegic parkinsonism. Several upward oculogyric crises were observed but no information as to duration, frequency or accompanying psychical state.

**Wilder and Silbermann** (1927) contribute a very valuable monograph to the tic problem and deal with the oculogyric crises as a special form. They give an incomplete review of the literature and report six cases.

*Case 1.* Josefine R., twenty-one years old, had a grip in 1925 without encephalitic indications. In that same winter she began to develop tremors and finally a right hemiparkinsonian syndrome. In January, 1926, fracture of bone, and after the operation upward oculogyric crises lasting an hour or so, later eight hours. The eyes can be brought down voluntarily for a few seconds only. The attack is accompanied by anxiety, depression, and a sullen mood. When she kisses and is caressed by her fiance the attacks cease. Hyperventilation caused no attacks.

*Case 2.* Nikolaus Z., twenty-eight, encephalitis with diplopia in 1920 followed by mild parkinsonism. In September, 1924, the eye muscle cramps upward and downwards occurring when he draws, sees exciting things or after coitus. They occur twice a week and persist ten minutes to two hours. During the attack he feels dazed and has increased tremors. The patient thinks the attacks may be related to his having seen a feebleminded individual in the films whose eyes also turned up.

*Case 3.* Marie A., twenty-nine, with fever, hallucination and restlessness in 1920—eight days' sleep. Then apparently well to 1925 when tremors began and parkinsonism. Early in 1925 upward eye cramps accompanied by anxiety and restless excitement. They took place every three days and persisted twenty minutes to three, four and ten hours. Scopolamin would cut them short in twenty minutes; also stopped in hypnosis. She battles with the idea of the cramp and then it overcomes her.

*Case 4.* Helen H., thirty-one. Four years previously grip with two months headache. Two years later lethargic period lasting a year and then definite parkinsonism. Then eye attacks upward or upwards and to the right accompanied by pains in the eyes, lid fluttering, vomiting, salivation, vertigo, anxiety and slowed psychical reactions and opistho-

tonos. They last one-half hour. Attacks cut short by bending the head forward and running water in the right ear, in which in 1920 she had had an otitis media.

*Case 5.* Johanna D., twenty-nine, with typical encephalitis, seven years before, followed by distinct parkinsonism. Eye cramps lasting five to fifteen minutes and many attacks of blepharospasm. The attacks occur as she climbs upward and looks upward. No compulsive thoughts accompanying.

*Case 6.* Leopoldine T., twenty-two, cousin of Maria A. (Case 3). History very uncertain. Three years before appendectomy, then migraine attacks. Then for two and one-half years paresthesiæ and cramps in right hand and arm after frustrated coitus. Ejaculatio precox and frequent approaches. Then eye spasms lasting ten minutes. (States she never has seen her cousin in spasm but has heard of it.) Vertigo with rotation of objects from left to right, tinnitus, and diminished hearing. Mild parkinsonian signs.

**Van Bogaert** (1927) presented this case before the Belgian O. N. O. Society, February, 1926 (see abstract of Helsmoortel). He returns to it in this paper since the patient has been under close observation for eighteen months and offers some light on the oculogyric problem. The details of the case have already appeared in the article by Helsmoortel (1926). Van Bogaert speaks first of an affective shock to the patient at the time of her pregnancy. The eye crises were then vertical. Then after fifteen months in a stormy emotional situation the movements began to be systematized in another form. It was noted how a prolonged fixation upon a bright object (ophthalmoscope mirror) was capable of releasing an attack, especially if there was an accompanying fatigue. A blue marine glass paper weight also served well; dark, sombre objects were of little service. At times these hypnotizing maneuvers brought no results but the patient complained of a suborbital distress, the eyes became fixed, the lids slightly dilated, the patient immobile, scarcely perceptible respiration, and no response to external stimulation. On coming out of this trance-like state the patient could tell all that had happened but said that she was in as if a cloud of white dust which did not cease to pass before the eyes.

In other words, if there was no oculogyric crisis a trance-like state (psychical inhibition) could take its place with photopsia and modification of optic gnosis. The crises presented the following:

(1) An aura. Sensation of empty headedness with suborbital weight, a sense of general intense fatigue and dizziness; (2) An acute invasion. Dizziness, then sudden deviation of the eyes towards the left and tonic fixation of the sight in this position; (3) A mental state in which was noted: (a) an hallucinatory syndrome—" a mist bluebacks all objects. I can distinguish nothing but millions of bluish serpents, of a celestial blue, that cross, interlace, and vibrate in space before me. I see especially

these serpents undulate with great rapidity, they hinder me from seeing what this may be and at the moment when the pain relaxes, the blue vibrations cease, the objects come up to the surface of the fog, then all again becomes black. With a certain effort, it is however possible to distinguish vaguely the form of objects: but: (b) A stage of optic agnosia: "but I do not recognize anything. One day they were leading me to my home, the crisis having surprised me in the street. I was being guided by a woman that I was not able to recognize, although she was a neighbor I had known for a long time. I only recognized my mother by her voice." We were able to observe experimentally this loss of recognition of objects and of persons. Because of the primary perception difficulty we were unable to determine if there was a true optic agnosia. In certain milder crises however it seemed that an amelioration of the sensorial phase did not suspend the perturbation of the visual recognition. (c) An inhibition of speech. "I find myself absolutely incapable of speaking. I can find no phrases and I understand everything. I hear everything." She responds to certain of our questions by "yes" or "no" and at times with a stereotyped word that has *no sense* (?) (mouza for example) but which remains during the crisis fixed (sort of intoxication by the word). This aphasic period is of variable duration. It is in this stage chiefly that the eyes go laterally at times to the ceiling. At the same time there is an axial torsion of the body. The left shoulder advances, the head turns backward and to the right and if the patient is made to walk she tends to execute menagery movements (see our case who makes exquisite menagery movements on her tip toes). Hypertonia, tremor, salivation, sweating are all augmented during the oculogyric crisis. (d) A period of lessening of the crisis during which the eye deviation is only intermittent, one observes palpebral fluttering, clonic jerks of the globes the vision clears and the patient comes completely to herself.

Headache is felt after the great crises.

Van Bogaert calls attention to a very special type of dissociation which he was unable to find in the nine other cases of oculogyric crises he had studied with his colleagues. The ocular deviation can be made to oppose, artificially, the direction of the axial torsion. The author promises further study of the problems brought up by this case—thus the rapport of the ocular and axial position, the hallucinosis, the dissociation, the optic agnosia and the aphasie (all of these phenomena have been observed in our case, J. F., with the exception of the hallucinatory images) in which the uncinate gyrus functions are not without physiopathological interest. Van Bogaert put it that it is evident that the encephalitic pathology leads in the field of organic syndromes to a series of phenomena on the border of hysteria and of hypnosis.

**Van Bogaert** (1927) has tested out hyperpnea in seven of his encephalitic oculogyric crises cases. In one case, a young girl, twenty-one years of

age with major parkinsonism, pseudobulbar and respiratory symptoms after 2 minutes and 45 seconds of hypernea she had typical upward oculogyric crises, the head is hyperflexed, clonic jerking of the eyes took place, salivation was abundant and the patient could hardly respond to questions. She understood but could speak only with diffculty.

In another, M. B., thirty-one years of age, who had "crises of immobility" towards the evening. Suddenly she is taken with an intense discomfort—"all is arrested, everything is paralyzed—she is a little drunk and a shivering sensation is felt in the inside of the head."

The sight is fixed to the right in front of her, intense, pupils dilated, increased tremor and she can neither speak nor move. She is put to bed the crisis lasting 4 to 6 hours. In the most intense crises she is unable even to move herself.

Six minutes of hypernea produced one of her "evening attacks" as she calls them. This lasts about 20 minutes.

In another patient oculogyric crisis alternated with epileptic crises; in another fixed staring crises alternated with superior conjugate crises. All three phenomena are capable of being released by the hyperpnea. The concomitant symptoms of the oculogyric crisis recall on certain sides the epileptic attack—paleness, mydriasis spasm of respiratory muscles, psychical inhibition, but without amnesia nor loss of consciousness, sleep and at time post-paroxysmal headache. Calcium chloride, 10 per cent intravenously, has cut short some of the oculogyric crises, and in another its use has rendered the hyperpneic test negative.

He concludes that it seems more and more evident that the release of the oculogyric crisis is due to a perturbation of the metabolism of the blood analogous or approaching that seen in the development of the epileptic attack. The possibility of provoking oculogyric attacks by hyperpnea constitutes a new argument in support of this conception.

**Skalweit** (1928) contributes an excellent study with the report of three cases, dwelling chiefly upon the central theme of compulsive states in general in postencephalitic cases of which the oculogyric crises are but a part of the general picture.

*Case 1.* E. P., twenty-eight years old, who in November, 1925, began to have a tremor in the right arm. Early in 1926 sleepiness and salivation and has become nervous and anxious over every little thing. In January, 1926, her husband was badly injured and her tremor increased and the right arm was weaker and tremors began in the right leg. At times diplopia but no history of an infectious process.

She came to the clinic in March, 1926, because of uncomfortable attacks in which her eyeballs would be pulled down and to the right. They occurred several times a day and lasted from ten to fifteen minutes. She seems to seek out things which reflect light—water surfaces, metallic objects. For a time she can overcome the compulsion to seek such objects

and turn in an opposite direction but the eyes will, in spite of her, turn in this direction. These attacks come on when she goes out and she must look at the ends of the grass blades. No menagery movements. When with people the oculogyric crises are very painful. They never occur at night. She compares the feeling to that of the desire to scratch an itching spot which can be denied but it is very uncomfortable. She would like to see a "white wall" but the shiny objects compel her attention. If she closes the eyes she obtains peace. At the time of examination she had a typical mild parkinsonian syndrome concerning which the author comments relative to her being left handed (see Georgi and Marinesco and Radovici observations). A complex body torsion reflex position accompanies the "schauanfälle," whether she sits upon a chair or lies in bed this bending forward twisting postural reflex attitude is striking. An alternate slow compulsive movement involving a complete 180 degree change is highly significant [from the psychiatric ambivalent point of view.—J.]. Certain experiments were made with special glasses with reference to the "blickkrämpfe." These are of much interest psychologically but cannot be discussed here. They indicate briefly that the impulse proceeds from within rather than from without. In November, 1927, the patient was seen again. The parkinsonism had increased in the one and one-half years and the compulsive eye movements were present as before or more often but had taken on an "elementary form." Now the eye movements and bodily torsion movements were more organized into a system and followed more rapidly and more vehemently. The individual phases (as in the slow moving camera) are no longer analyzable. The eye movements have gradually changed from right and below to above and to the right. Similar displacements from below above are briefly noted for another patient (p. 21).

The author enters into a long description of this *effort* to look to the right which carries with it the bodily displacement also to the right (but which stops short of a menagery movement). (As may be pointed out later this compulsive movement is quite comprehensible psychoanalytically if not physiologically. Thus should the author have thought of what the patient may have been trying to get away from [left—evil] as well as going toward the [right—good], he might have given us some real understanding of the "purpose" behind these movements, instead of having his thoughts directed solely towards the physiological level [torsion] of the bodily activities.) (In this connection the very illuminating discussion of Gamper and Untersteiner from the same Innsbrück Clinic, which revealed in a very complicated torsion spasm the patient's infantile impulse to get to the breast [Kussmaul, Moro, Hagstrom, Popper] might have

been utilized at the psychological level.) All that our author gets out of it is the linking up of automatic postural head and bodily reflex activities as an evidence of postencephalitic hyperkinesis—*i.e.*, a purely descriptive static type of statement. Other related associated movements are well discussed and he even takes up the study of Gamper and Untersteiner but does not carry it to the psychological level any further than by saying that the eye movements (perimacular zone) follow in some analogous manner the sucking reflex movements as demonstrated by Gamper and Untersteiner. In short behind a name (adversiautomatismus) he dodges the dynamic "ambitendenz" of Bleuler and is more interested in the machine—as structure the Vogt's pallidum, or Gamper and Unterstelner's "subpallidal gray"—than in the most important functional purposive level, even though the author speaks of the "ausserordentlich starken Abhängigkeit von psychische Einflüssen." These are really not touched beyond superficial notions of "suggestibility" and that the patient has "anxiety" if she cannot look to the right and yet at the same time "she fears to look to the right and yet looking to the left is still more dreadful." What this may mean—in the sense of the Freudian unconscious the author has "keine Ahnung" and he falsely states that the literature affords no clue. He was unable to "suggest" a "blickzwang" to the left. To this author as to most of the others "hysteria" is a name and not a definite purposeful mechanism, else they would avoid the term.

Two other cases are reported which in terms of parallelistic thinking involved the psychical mechanisms rather than the motor ones.

*Case 2.* K., thirty-five years old, who was wounded in the war yet showed no traumatic "renten" neurosis. In November, 1924, he had a fever, "grippal" in nature followed by nervous symptoms, weakness, strong heart beats and vertigo. Suddenly "elend" and shaking of the entire body, especially tremors of the muscles of mastication. Then great weakness and yawning attacks and a postencephalitic neurasthenia. No eye attacks.

*Case 3.* Also postencephalitic compulsive states but no eye attacks. These two cases offer him material to discuss the more modern views of Goldstein, Schilder and others which would bring him to the portal of the psychoanalytic findings, but into which he does not enter.

**Sjögren** (1928) contributes an extremely interesting résumé. He has probably read Crookshank's book for he says that lethargy with the occurrence of eye symptoms was noted by Albrecht of Hildesheim about the time of the planting of Hildesheim's celebrated rose bush in 1695.

**Sjögren** (1928) in a further contribution amplifies this article and here gives a brief résumé (p. 107) of a case history with a photographic reproduction.

A twenty-two-year-old man who had encephalitis two years previously. He soon began, after the acute stage, to develop parkinsonism. A few months later he had eye cramps with dizziness and double-vision—the eyes are directed upwards and they cannot be brought down. Some of the attacks persisted an hour. There was a facial palsy as well. Tickling the patient at times would produce laughter and a cessation of the eye cramp. At times the eyes were directed to the side or downward. Sjögren discusses his interesting case in the light of the Bell's palsy phenomena.

**Williamson-Noble** (1928) in a joint discussion of the section of Ophthalmology and Neurology of the Royal Society of Medicine after speaking of the general phenomena reports two cases briefly from S. A. Kinnier Wilson's service.

*Case 1.* Boy, sixteen years old, who three and one-half years previously had an acute encephalitis. Later—just when is not stated—he had upward oculogyric crises lasting half an hour with some voluntary control. No record of parkinsonism.

*Case 2.* Woman, twenty-three years of age, who had acute encephalitis three years previously. She was a mild parkinsonian when seen. In May, 1927, the oculogyric crises began and occurred daily. They were upward movements. By October they occurred only every five days or so. In general the attack lasted about ten minutes. She had "dreadful thoughts" during these. She could not relate these(?).

**Feiling, A.** (1928), at the same meeting refers to oculogyric crises, four cases of which he had seen. They were all in patients under thirty. In three the movements were upwards and the head was bent downwards. Clonic movements are reported as mingled with tonic movements. Most of the attacks lasted ten to thirty minutes. One patient had an attack lasting eight hours. All of the patients showed mild parkinsonism.

**Gordon Holmes** (1928) at this same discussion said that oculogyric crises were probably the most interesting feature of the disease. He suggested trying posture experiments which demonstrated the Magnus principles. In one of his cases he had found that if she lay flat on the couch and dropped her head over the end the crises became much less severe. This suggested that there was a disturbance of the reflex mechanism concerning posture.

**Taylor and McDonald** (1928) report a series of cases. In their historical résumé, based too hurriedly on Hohman's too easy acquiescence in B. Fischer's incomplete survey of the literature, they neglect the early as well as many other cases. This is of interest solely from the bibliographical viewpoint. They then cite the cases of Külkow, Bériel, Lamos, Popowa, Marinesco, Radovici and Draganesco and Bing and Schwartz.

They then report quite briefly thirteen cases, the largest number to be reported thus far by any observers, although Stern in his important study speaks of twenty he has seen in his group of one hundred of postencephalitic parkinsonism.

*Case 1.* J. V., thirty-five years of age, had an acute encephalitis in 1921. Incomplete. Indications of parkinsonism are given. In March, 1914, compulsive upward conjugate deviation of the eyes, occurring several times a week and persisting for from a few minutes to three hours. Movements of the head to the left. Dyspneic respiratory attacks.

*Case 2.* C. S., thirty-five years of age, who in 1922 apparently had an encephalitis. In October, 1924, still had diplopia, and had upward and to the right ocular crises. No definite record of parkinsonism beyond lethargy, diplopia and sluggish mental reactions. W. R. neg. as in Case 1.

*Case 3.* M. C. B., twenty-one years of age, who five years previously was thought to have had an attack of food poisoning. Some hysterical paresis of the right arm. In 1924, "nervous breakdown" and 'rolling" of the eyes. The eyes turned up with upward and to the right; head movements backwards and eyelid twitchings. At the time of examination a definite parkinsonian syndrome.

*Case 4.* Thirty years of age, who in 1921 had an acute encephalitis. In 1924 involuntary head movements to the left with upward oculogyric crises persisting from several minutes to several hours. Dyspneic respiratory attacks. Scopolamin seemed beneficial.

*Case 5.* Male, thirty-five, in 1922 had acute encephalitis. In 1924 upward and to right conjugate deviation crises lasting several minutes, relieved by lying down.

*Case 6.* Woman, twenty-three years old, who in 1920 had an acute encephalitis. In July, 1925, parkinsonism and in 1926 upward oculogyric crises several times a week persisting about thirty minutes with vertigo during the attacks. Helped by scopolamin.

*Case 7.* Male, thirty-four, in February, 1922, had an acute encephalitis. Seen in 1926 with parkinsonism. Bilateral spasm of the eyelids and upward oculogyric crises persisting for several minutes. If he opened his mouth his eyes closed. Scopolamin was helpful.

*Case 8.* Male, thirty-five years old, with acute encephalitis with later developing parkinsonism. In July, 1925, eye difficulties consisting of upward movements, occurring every four days and persisting for a long time. Going to bed relieved him. Previously the compulsive movements had been downwards. Alternating up and down pulls were observed. Fixation on definite objects (see Skalwitz case) was noted when he drove his car. Salt and scopolamin seemed to help him.

*Case 9.* G. A., thirty-two, who in 1921 gave a probable history of encephalitis. Then gradual rigidity and probable parkinsonism. Eighteen

months before observation upward and at times to side oculocephalogyric crises. The eyes would "stick" in this position several hours. These occurred two to three times a week. On lying down relief. Involuntary laughing and crying.

*Case 10.* A. M., twenty-one years of age, who five years previously (1921) had a drowsy attack with diarrhea. In January, 1926, upward crises lasting fifteen minutes to four hours. She could not control the movements. Parkinsonism. Scopolamin helped her.

*Case 11.* T. F. M., twenty-six years of age, examined by Dr. Viets. In 1923 an acute encephalitis with slight parkinsonian signs. In 1926 upward rolling of the eyes persisting one to two minutes sometimes twice a day, again two to three times a week. Personality changes.

*Case 12.* K. M., twenty-four years old, who four years previously had an encephalitis. Then upward oculocephalogyric crises lasting a few minutes and occurring every other day. Parkinsonism distinct. Generally helped by scopolamin.

*Case 13.* F. L., male, twenty-one years of age, who four years previously had an acute encephalitis. After two years parkinsonian developments. April, 1925. Upward cephaloöculogyric crises occasionally to the side, lasting three hours, relieved after a while by lying down. Attacks occurred every four days, varying from a few minutes to four hours in duration. He could walk about but with discomfort. Slight resemblance to an epileptiform attack.

All of these cases showed negative W. R.

**Bramwell, E.** (1928) writes that involuntary turning up of the eyes occurs in some cases of epidemic encephalitis. This symptom has attracted considerable attention during the past two or three years. There would appear to be no reference to it in the literature prior to 1913.[?J.] According to Wimmer movements of the kind were observed by Bing in only three in a total of about three hundred encephalitic patients, while Wimmer met with five instances in a somewhat similar material. Bramwell speaks of eleven cases in which such movements of the eye were remarked on. These figures, no doubt, underestimate the relative prevalence of the phenomenon since the movements in their slighter degrees cause little or no inconvenience. There were associated manifestations of parkinsonism in all his cases and this would appear to be the universal experience. The symptom is pathognomonic and is sometimes of diagnostic importance, since the accompanying indications of parkinsonism may be so slight that the true nature of the malady might otherwise pass unrecognized unless by an experienced observer. Two of his patients complained of "turning up of the eyes" as the only symptom causing disability or inconvenience. Among his eleven cases the eyes moved more or less directly upward in eight; in one case the eyes were directed

upward at one period and downward at another; in one they were sometimes directed upward and sometimes downward, while in another the movements were to the right and slightly upward. No paralysis of upward movement was observed at the time of examination in the three cases in which downward and lateral movements occurred. The deviation of the eyes may be momentary. On the other hand the eyes may be directed upward for hours at a time although it may be possible for the patient to bring them down and keep them down for short periods by exercising "an awful effort," to use the expression employed by one of my patients. One patient stated that the eyes tended to turn upward when he was in the house, whereas when he was out doors they turned downward, although they were apt to roll upward if he sat for some time watching a game of tennis. Another patient remarked that she had noticed a special tendency for the eyes to turn up if she looked at a bright light. This patient said that she found that the eyes soon resumed their normal position if she lay down.

Associated blepharospasm was observed in two cases, and two other patients stated that they were unable to open their eyes during an attack, possibly for the same reason. On the other hand one patient said that he was unable to close the eyes during an attack. In more than one case there were vertical nystagmoid movements. A backward movement of the head, in association with the upward movements of the eyes, was noted in one case, but Bramwell had not personally met with any instances, such as have been reported by Wimmer and others, in which there were widespread spasmodic movements of the face, limbs and trunk. Fatigue and emotion are factors which appear to play a rôle in exciting the attacks. Thus in most of his cases the patient stated that the movements were especially apt to occur towards the latter part of the day or when he or she felt physically tired. Several patients remarked that the movements became exaggerated when attention was directed to them, or when they felt self-conscious or agitated. Thus one girl found that her worst periods were when she sat down to a meal, while a man complained that the upward movements were most troublesome when he was in a crowd. Again, he was struck by the fact when examining one of his patients, the case in which the deviation was lateral, although this is no doubt mere coincidence, that while she was unable to maintain central fixation when asked to do so the movements of the eyes disappeared when he engaged her in conversation. Further, this patient remarked that the movements did not occur when she was reading or sewing. Hyoscin has sometimes an undoubted effect in ameliorating, and indeed may actually control, the movements.

The nature and manner of production of these movements is a question of much interest. Since they have only been observed, so far as he was

aware, in association with the Parkinsonian manifestations of epidemic encephalitis, their dependence upon the same pathological process is unquestionable. It is tempting to suppose that the upward movements of the eyes may be of the nature of a release phenomenon, and that as the lateral movements are preponderatingly represented in the cortex, so in the brain-stem the representation of the vertical movements predominates. On the other hand the direction of the movements is not always upward or downward, while diplopia is sometimes complained of during the attacks. Again, a variety of tic-like movements of the face, tongue and jaws, are met with in these cases of encephalitic parkinsonism. It is difficult to avoid the conclusion that an irritative process plays a prominent part in their production. (See Velhagen later.)

**Dawson** (1927) reports from the Psychiatric Department of the Royal Prince Alfred Hospital, Sydney, Australia, five cases.

*Case 1.* Male, twenty-two, with pronounced parkinsonism. Two years previously while at work his eyes turned up for several minutes. This recurred at rare intervals. Three weeks before coming to observation his eyes remained fixed in an upward direction for several hours. He had apparently been well. After the extraction of several carious teeth his movements had become slow; his limbs became stiff and his parkinsonism and ocular spasms are dated from this event. Hyoscin relieves the patient. No details as to encephalitis.

*Case 2.* Female, nineteen. She had had stiff arms and tremor for about two years. Six months later upward oculogyric crises.

*Case 3.* Male, twenty-one years of age, who gave history of attacks of "looking up" about once a week and later of "looking down." Parkinsonism developed a few months later.

*Case 4.* Female, thirty-three. Five years after an acute encephalitis she developed the eyes to be fixed in a stare and she was very emotional. These spasms occurred two to three times a week. She had definite parkinsonism.

*Case 5.* Female, twenty-two years of age, who five years after an acute encephalitis was definitely parkinsonian and had upward and downward oculogyric crises with much emotion.

**Holterdorf** (1928) reports eight cases seen by him.

*Case 1.* Karl P., twenty-three years old. No recognized acute infection. Progressive parkinsonism for two years, after which gradual developing upward oculogyric crises. These occur every three to four days, lasting two to three hours. No disturbance of consciousness. Uncertain anxiety feeling.

*Case 2.* K. S., thirty-two years of age; 1916 gunshot wound of head; recovery and hard worker to 1920, when there began a gradual parkinsonism; no definite encephalitis history. For the past eighteen months

upward oculogyric crises lasting one-half to two hours, two to three times a week, at times longer intervals. Attacks often precipitated by excitement; conscious, but dizzy. Hyoscin helps.

*Case 3.* Frau Bl., thirty-four years of age. Sick five years, first with grippe. Gradual parkinsonian development. After four years oculogyric crises, looking directly forward with inability to change. These last several minutes with distinct anxiety feelings. Hyoscin and septoiodin intravenous injections, improved.

*Case 4.* F. E., twenty-six years of age; 1919 had grippe, fever, delirium and lethargy. Better until 1923, when the oculogyric crises began. Slight parkinsonism. Attacks three times a week, lasting an hour. Direction not reported. Hypnosis and "suggestion" of no value.

*Case 5.* H. L., twenty-nine years of age. No history given of the encephalitis. Since 1924 frequent upward crises lasting one-quarter to three hours. No results from "suggestion."

*Case 6.* A. K., thirty-four years of age; 1919 "grip"; recovery. In 1922 gradual parkinsonian evolution; 1926, eye crises, many in the week; upward, lasting one-half hour.

*Case 7.* Frau Sch., twenty-seven years of age. Marked parkinsonism since 1922. Eye cramps since 1926, upward.

*Case 8.* J. R., forty-six years of age. Since 1926 increasing parkinsonism. Upward and occasional downward eye cramp since summer of 1927.

**Marinesco et Draganesco** (1928) in further study of the vestibular reflexes early written about by Goldflam and specially studied by Van Bogaert, Helsmoortel, Muskens, and others. They have tested five of their cases, two of which had been previously reported upon (Rev. Neur., I, 148, 1925) as to their oculogyric crises. The examinations were carried on during the period of the crises as well as in the intervals. They give only their conclusions in this short report to the Oto-neuro-oculist Society of Bucarest (Dec. 18, 1927).

In the free interval in three cases no symptom of labyrinthine disturbance could be obtained. In two there was provoked a mild nystagmus and in one case a spontaneous deviation of the arm and trunk resulted. Spontaneous vertigo was present only in one case.

During the attack in all of the cases there appeared an active nystagmus more or less intense directed in the same sense as the ocular deviation—*i.e.*, above, and right and left laterally. In one case the nystagmus was horizontal—this became upward vertical. The tonic spontaneous deviations seemed diminished during the crisis and the subjective phenomena. In the intervals the various tests showed results which the authors state were as those of Barré et Reys (see Rey's monograph cited, 1922, of Helsmoortel and Helsmoortel and van Bogaert).

These authors call attention to what they say has not been observed before: that in rotatory tests during the crisis, no matter what the direction, the (spontaneous) nystagmus disappears, the globes return to the horizontal plane where they are animated by an ample nystagmus directed in the same direction as the rotation. At the end, the oculogyric spasm is, in general, reinforced, and the postrotatory nystagmus, above all that directed to the side opposed to the ocular deviation, lasts for a very short time and with little intensity. The disappearance of the ocular spasm during the rotation is a fact not yet mentioned, but Reys has seen an analogous effect during translabyrinthic electrization.

Therefore they are in accord with the Belgian authors in that which concerns the labyrinthine perturbations (especially the vertical canals) that exist in parkinsonians having oculogyric crises. This perturbation is not, however, alone sufficient to explain the pathogenic mechanism of this phenomena in so far as finds them frequently in postencephalitic patients who have no oculogyric crises. The intensity of an ocular spasm which cannot be stopped, save exceptionally by labyrinthine excitation, should be evidence of a tonic influence coming from some other region.

**Paulian** (1928) offers two more cases of this interesting syndrome—one postencephalitic.

*Case 1.* Ch. Gr., thirty-one years of age, first seen in 1928 in a parkinsonian state of generalized rigidity and somnolence. In 1920 he had a severe cranial concussion, being unconscious six days. He recovered. In 1926 he was in Miami at the time of an earthquake and came to New York after five days' travelling in his auto very fatigued. He became somnolent, which persisted and was accompanied by tremor and trouble of speech. From this time on he grew progressively worse. Then he had spasms of fixation of his eye with cloudy consciousness during the attack. He cannot answer questions; does not pay any attention to surroundings; sees nothing and hears nothing. During the day he is lethargic. The attack lasts several minutes. Micrographia among the parkinsonian symptoms.

*Case 2.* S. E., fifty-four years of age, had ocular crises after a pneumonia with other cerebral vascular spasm signs—ultimately treminating in a cerebral hemorrhage. This case throws some light upon certain types of oculocephalogyric crises of vascular origin—as is well known in the clinic of the epileptic attack.

**Critchley** (1928), after presenting a brief résumé of the general picture as seen in seventy-two personally observed cases, reports on four cases, incorrectly stating that Hohman's case was the first one on record.

*Case 1.* Female, twenty-one, encephalitis in 1920, with later parkinsonism, respiratory disturbances, etc. For the past twelve months (1927?) subject to frequent oculogyric crises, once every third day in

hospital. When tired or excited she gets premonitory feelings that she must look up; finally impelled to gaze in an upward direction and is then unable to lower the eyes. Attacks persist for half minute to half hour. Coarse lateral nystagmus. Mouth open, sighing, rigid and tremulous, r>l. Agitated—pain in back of eyes and frontal—sometimes in ear—moving. Sleeps and recovers.

*Case 2.* Male, twenty-five, soldier, no history of encephalitis. Suddenly while on parade, eyes turn up. Parkinsonian at time of examination. Attacks occur daily, usually about 2 P.M., just after returned from exercise. He can close eyelids, when globes come down to go up on opening eyelids. The crises last about eight hours and pass with sleep.

*Case 3.* Male, twenty-one, encephalitis in 1924. In 1927 typical parkinsonism with respiratory disturbance. Oculogyric crises chiefly at meal time lasting about ten minutes and occur several times a day.

*Case 4.* Male, seventeen, encephalitis five and a half years previous. Parkinsonism. Vertical upward oculogyric crises, controlled with difficulty, lasting about thirty minutes and occurring two to three times a week.

**Hesnard's** (1928) case is an extremely interesting one, since both negative and positive signs are present at the same time. This patient had a persisting double external strabismus (negative sign of nuclear origin) and crises of fixed regard of the classical type seen in other oculogyric crises. This patient a sailor, twenty-six years of age, came for the treatment of tremor. He was parkinsonian, having had his acute encephalitis a few years previously. At the time of observation he had a marked alternating divergent strabismus without oculomotor paralysis. This strabismus would let up or diminish when the patient's interest would be keenly aroused. At other times he would have crises of ocular immobility. These would occur at irregular intervals, again were continuous on certain days, lasting a few seconds to several minutes. During these crises the eyes were even more deviated, more upward, not entirely up—but rest immobile during the crisis, and slight cloudiness of consciousness.

**van Bogaert** (1928) here refers to earlier communications and reports three new cases more in detail than those already referred to.

*Case 1* is one of spasms of ocular convergence in an eleven-year-old myasthenic of Erb-Goldflam type of postencephalitic origin coming on after three years. (Illust.)

*Case 2.* Patient had acute encephalitis in 1923 with lethargy persisting eighteen months with an intervening dyspneic, confusional and amential period of eight days. Since March, 1925, marked insomnia, pains in legs, and progressive stiffness of the extremities, obsessive ideas with great anxiety states. Exaggerated and childish emotivity. Intermittent salivation. Tonic crises of tongue, lips, and limbs. Since April, 1925, tonic

crises of looking directly forward, with lingual propulsion, retropulsion and elevation, pronation of the left arm. These crises occur during the day, lasting three to four minutes.

"*These oculogyric* — masticatory — lingual crises are frequently *enriched* by mental *representations,* verbomotor or obsessive *motor* representations which can at times even be substituted for them as we shall see under what conditions.

In the course of certain crises the patient is obsessed with the recitation of obscene or fecal expressions. When he believes himself to be alone, or when the motor phonation permits he pronounces these words (palilalia—Pick and others—see Hermann) a great number of times, accompanying them with rhythmical beating of the left foot. It happens at times that this recitation cuts the crisis short; the repeated writing these words with chalk on the walk gives an analogous result. During these states consciousness is slightly clouded. When he finds himself in company he cannot deliver himself by the repetition of these obsessions, since these are extremely painful and thus there has arisen a tentative exhibitionism. At times the patient relieves himself by repeating one of the syllables or the consonants of the obsessing words (compare Wm. A. White, Language of Schizophrenics; Jung, Dementia Precox, neologisms, etc.). The repressed verbomotor or graphic obsession tends to deliver itself in the form of an impulsion or of a state of anxiety with vasomotor troubles of the extremities with very intense general perspiration.

Certain obsessing sexual representations are accompanied by a state of continuous agitation, with intense salivation, and marked protrusion of the tongue without ocular phenomena. In bed the patient is incapable of remaining quiet. The linguo-masticatory crises may be accompanied by tachypnea.

A minute analysis permits us to find in this patient the inveterate habit of isolated or intersexual onanism. We have called his attention to the direct relationship that we think we could establish between the existence of these abnormal complexes and the obsessing phenomena and the oculo-masticatory phenomena. These simple conversations were followed by a manifest sedation of the different phenomena for five weeks, then the psychomotor phenomena reappeared but were less painful and less prolonged. (Illust.)

*Case 3.* Woman twenty-two years of age, who in 1916 had an encephalitis with diplopia and progressive hemiplegia, parkinsonism. Spontaneous nystagmus. Ten years later (1927) the first oculogyric crisis. The eyes turned downward, stayed there several hours and there was rapid rotatory nystagmus and no palpebral participation. This crisis was accompanied by violent headache and vomiting. Later ones were without such phenomena. The attacks came on three to four a day, lasting ten minutes

or so. Fatigue, menstruation and nightfall are apparent causative factors. These attacks were observed for seven months and showed no variation.

**Podesta** (1928), although pursuing his studies along the testing of the labyrinthine functions, has some observations of oculogyric crises.

*Case 1.* M. Aurelio, thirty-four years of age, had acute encephalitic attack in April, 1920. Prevailing right sided symptoms. The first oculogyric crisis took place in 1923. They occurred every seven to eight days and lasted about fifteen minutes. The body and head are inclined forward, and the eyes are pulled down. Patient sees double. Spontaneous nystagmus.

*Case 2.* V. Enzo, seventeen years old, acute encephalitis in 1920. Prevailing right sided symptoms. First oculogyric crisis in 1924. They occur every seven to eight days and last about thirty minutes. The body is bent forward, the head flexed about 45 degrees and the eyes fixed upward. Spontaneous nystagmus.

*Case 3.* S. Guerino, thirteen years old. Acute encephalitis in 1920. Prevailing right sided symptoms. First oculogyric crisis in 1923. They occur almost daily and last about thirty minutes. The body and head are flexed and the patient looks downward.

*Case 4.* T. Livio, thirty-one years of age, acute encephalitis in November, 1919. Persisting symptoms chiefly left sided. First crisis in 1923—they occur irregularly, every three to four days, then twelve days, and last a variable length of time—about two hours. Spontaneous nystagmus. The patient first looks upward for about ten minutes and then down and has amblyopia and palpebral spasms.

The labyrinthine tests all showed normal Quix test—no nuclear involvements in the intervals between the attacks. Spontaneous nystagmus was present in all of his cases. The results were more or less confirmatory of those obtained by Marinesco et al., van Bogaert and Helsmoortel.

**Roger, Payan et Reboul-Lachaux** (1928) report two new cases:

*Case 1.* Bon Rose, twenty-eight, encephalitis in 1919—with insomnia and delirium. Apparent cure three months—gradually developing parkinsonism in 1922. July, 1922, first oculogyric crises—up and to left—tonic—one-quarter to two hours—two times a week. Seen June, 1927—the crises are tonic, clonic, last twenty-four hours—inferogyric crises also.

*Case 2.* Mart Felix, twenty-two years of age, who had a very definite encephalitis at thirteen years of age, fever, delirium and diplopia lasting a month, with mild parkinsonism. Upward spasms occurring for five years—three years after the acute onset—lasting fifteen minutes to several hours—two to three times a week and nearly always about 6 in the evening. Mild tachyphemia, palilalia, cramps of hands and other hyperkinetic signs.

**Blum** (1928) in an extensive doctorate thesis has given a very

detailed and valuable analysis of a group of combined disturbances involving the oculomotor nerves and their functions, as seen in both the acute and later stages of epidemic encephalitis. In this a special section upon the oculogyric crises is to be found (77–93). These crises have been found in twenty-two of their cases (seventy here reported). This is even a higher percentage than that given by Stern and tends to support the observations of this same author as well as that of Sainton et Veil, who, in a general article reviewing the subject, speak of the *great frequency* of these oculogyric crises.

Blum would ally these movements as "hysteroid" or "epileptiform." As has here been insisted upon, this tendency to "name" things irrespective of a study of the inner causes gets one nowhere. Here again the principle of dissolution of function in H. Jackson's sense is forgotten, especially in the manner as Winkler in his justly celebrated manual shows—that "identical" (for all clinical purposes) movements in different individuals may proceed from quite different phylogenetic levels of the nervous system. Even in the same person identical movements at different times may result from different level functioning—either through diaschitic shunting, through somatic blocking, or from economic distributions of libido dynamics in the metapsychological sense of Freud.

This is particularly true of the positive symptoms, in those dissociated situations, especially as seen in the paroxysmal, hyperkinetic phenomena of the oculogyric crises.

Blum's observations coincide with others here recorded so far as the time element is concerned. One (51) showed the crises more or less coincidently with the initial symptoms, but the majority came in the later periods: six years (Cases 13, 18, 41), seven years in Cases 6, 16, 61. Youth seems specially prone to these crises. Blum adopts Roger et Reboul-Lechaux's classification. He shows photos of three of Beriel's cases and cinema films. Fifteen of Blum's cases showed upward movements to predominate. The event is clearly described by Blum's patients. They feel suddenly a sensation as if to pull the eyes up. Prodromal states may occur and Blum quotes some of the observations already noted in this study. Pupillary modifications are specially noted by Blum, since this observer approaches the problem as an ophthalmologist.

Anisocoria (noted by Vivaldo—Stargardt) has been exceptional in Blum's cases. Bilateral mydriasis often of extreme grade was observed in but two cases (17 and 55). Abolition of the light reflex (seen in two of J.'s cases) is reported also in Cases 17 and 55. The lid phenomena are as frequently reported. Head and neck extension are also commented on.

As claimed by us, no rules can be laid down about the duration, etc.

Blum comments upon the afternoon predominance (3 o'clock). The dark, lying down, closing eyes, sleep, Blum notes are the factors aiding the cessation of an attack.

Fatigue seems the most constant inducing factor in Blum's experience. Tinel, van Bogaert have found hyperpnea an inducing factor. Our cases J. F. and A. B. during all their severe periods of hyperpnea never had any oculogyric crises. Only when his hypernea had disappeared in our case of J. F. did the oculogyric crises occur.

Speaking of the mental states Blum only quotes other writers. In this respect his study gives us no assistance. Labyrinthine studies are given in detail.

As Blum discusses the pathogeny he follows in the main the older static models of thinking in terms of "names," rather than of "processes." His notes upon pharmacodynamic activities are of interest. They will be discussed elsewhere.

Blum's own cases showing oculogyric crises are as follows:

*Case 4.* Service of Dupuy-Dutemps. T. H., thirty years of age, with encephalitis in 1920 with sleepiness but no diplopia. Parkinsonism in 1924, mild tremors, stiffness r>l and upward crises at first every two to three days, then daily, usually in the afternoon. They persisted for from thirty minutes to seven to eight hours and ceased only when the patient went to sleep. At the end of a crisis the globes would be pulled down for a short time.

*Case 6.* Service of Dr. Bailliart. H. G., fourteen years of age (1927), who at age of eight or nine (1919) had an acute encephalitis with lethargy, diplopia, of at least six months duration. Later character modifications, stiffness, and in February, 1926, began to have lateral tonic eye crises. These came on about two a week, at apparently on fixed days and then increased in number and severity and happened every day. Following fatigue or reading in the middle of the afternoon he would feel a sense of tension, the lids would commence to shut down and he would look mostly to the right—at times to left—and the head would be turned and thrust forward. The crises prevented all other work and lasted for an hour or several hours. No conscious control of movements. No pain but an increase in tremor and stiffness. Hyperexcitability of horizontal canals, hypoexcitability of vertical canals to caloric tests.

*Case 7.* Service Professor Guillain. Therese Den, thirty-two years old, acute encephalitis in 1923. Right hypertonia and tremors in 1925 and about the same time upward crises, in the beginning at infrequent intervals, until they occurred every two or three days; at first they lasted eight to ten hours, later rarely over three hours. They show at the beginning an inferior crisis which, lasting ten to fifteen minutes, brusquely changes to the upward position. The tremor of arm and legs increases with the crisis.

*Case 8.* Service Professor Claude. Mlle. Ber, twenty-three years of age, with encephalitis in 1920. In 1924 after a long well period she had some delirium with hallucinations and then a parkinsonism and an adiposo-genital syndrome. In the last six months she has had upward ocular crises lasting rarely over twenty to thirty minutes, infrequent at first and of late two to three a day. The patient can bring her eyes down but only temporarily. She has a fatigue and headache after the crisis. Inexcitability of vertical canals and lack of vertigo by labyrinthine testing.

*Case 13.* Service of Professor Laignel-Lavastine. Renee Lef, nineteen years old—see abstract "Laignel-Lavastine et Bourgeois."

*Case 15.* Lan, eighteen years of age (service of Professor Guillain). Encephalitis in 1920 with later parkinsonism with dysarthria. Crises of fixity, the eyes resting rigid ten to fifteen seconds.

*Case 16.* Service of Dr. Crouzon. Louis Mo, twenty-two years of age, with encephalitis in 1928. In 1925 definite parkinsonism and upward ocular crises. These come on in the afternoon and persist the rest of the day—two to three times a week. He feels it coming on, is tired, gets a headache and troubled vision.

*Case 17.* Service of Dr. Crouzon. Marcel Ba, twenty-four years of age, encephalitis in 1920, closely followed in a few months with definite parkinsonism. For the past six months to a year, oculogyric crises. At first about every fifteen days and for the past six months daily; vertically upward. They occur mostly about 3 P.M. and are helped by scopolamin but not by stramonium. The head also is pulled back and the patient stands in this fixed position. The pupils dilate and all the parkinsonian signs are extremely exaggerated. This crisis of eye turning, hand beating, rapid foot movement, sweating and rapid pulse 110, lasts about twenty minutes.

*Case 18.* Service Dr. Alajouanine. Rob Don, twenty-one years of age, encephalitis in 1920, followed in two to three months by typical parkinsonism. Upward oculogyric crises occurred later. These occurred at first every three days in the afternoon, persisting about one-half hour. They are accompanied by an increase in the salivation, sweating and tremor.

*Case 19.* Louise Je. See case of Laignel-Lavastine et Bourgeois. Soc. de Neur., Dec., 1926.

*Case 23.* Service of Dr. Crouzon. Marcelle Vin, twenty-six years of age. Encephalitis in 1920. Rigid and absolute parkinsonism. After six years—upward ocular crises every two to three days from thirty to sixty minutes.

*Case 35.* Service of Dr. Morax. Andre Bel, twenty-five years of age with encephalitis in 1920. Several months later with parkinsonism, diplopia and tonic ocular crises, the first of which occurred in 1922. For four years they intermitted, for several months two a week. Less frequent

under scopolamin. The patient feels an ocular fatigue. The eye then seems to anchylose, then they suddenly are drawn downward and remain immobilized in this position half an hour. After this the eyes go upward and to the right, the head bent backwards. No voluntary control. The attack lasts half a day, is ameliorated when lying down and disappears during sleep. Salivation, perspiration and exaggeration of the oculocardiac reflex occurs during an attack. The vertical canals do not react to vestibular stimulation.

*Case 39.* Service of Dr. Morax. Ir, seventeen and one-half years of age. Encephalitis in March, 1919. By 1924 parkinsonism and in 1925 ocular crises. These are preceded by a sensation of twitching of the eye, then they are pulled rapidly up and to the left, the head thrown back to correspond. Behind forcibly closed eyelids the tension pull was felt. The crisis is momentarily suspended on lying down but goes on on arising and it may last ten to twelve hours. The attack takes place every two weeks, becoming more frequent of late.

*Case 41.* Service of Dr. Laignel-Lavastine. Charlotte Ol, twenty-two years of age. Acute encephalitis in 1920 with parkinsonism by 1922 and for past year (1927–1928) ocular crises, intermittent, at times daily, again at longer intervals. The patient is forced to look upward, the crisis persisting from several minutes to several hours.

*Case 51.* Page 168(?) (in acute stage).

*Case 52.* Service of Dr. Harvier. Maurice Rol, twenty-three years old. Encephalitis in 1920 soon followed by an intense parkinsonism. Four to five years later directly upward oculogyric crises which in the last six months appear regularly every evening about 5 o'clock, lasting half an hour.

*Case 54.* Service of Dr. Harvier. Victor Th, nineteen years of age, who had encephalitis in 1922 and one year later parkinsonism and upward and to right oculocephalogyric crises. At first they were intermittent with longer time intervals, then they occurred every two to three days regularly in the afternoon. A sense of suffusion precedes the abrupt upward-right, at times left movement, traction being felt at the bottom of the eye. They last one to six hours, stopping all work, the head being pulled back to right or left following the eye movement. Lying down does not stop it but sleep does. No vegetative accompaniments.

*Case 55.* Service of Dr. Harvier. Georges Co, twenty-four years of age. Encephalitis in 1919 followed in two years by beginning parkinsonism. In 1922 upward oculocephalogyric crises. At first they occurred one to two times a week and then nearly constant. The patient seems at first lost in meditation, then twitching of the eyelids and (papillotement) of the eyes. Then the eyes are pulled up and to left, persisting there two or more hours. The head is pulled back and to left. Loss of light reflex.

Intense perspiration, salivation and rapid breathing, twenty-five to thirty to minute—pulse 110–120. Oculocardiac depression to 60.

*Case 59.* Courtesy of Dr. Juster. Albert Fou, eighteen years of age. Infectious episode unknown. The first symptoms date from 1924. The patient showed a hemiparkinsonism and upward oculogyric crises. These have persisted three years, they persist rarely more than half an hour and occur monthly, at times twice a month.

*Case 60.* Service of Dr. Terrien. Paul Mer, twenty years of age. Encephalitis in 1919. Four years dormant then parkinsonism and upward oculogyric crises. The patient first feels a pulling at the base of the eyes, they go back and forward, up, then down, where they hold for one or two minutes, then clonic vertical or oblique movements, with gradual cessation to the median position.

*Case 61.* Service of Dr. Morax. Pauline Ru, thirty-eight years of age. Encephalitis in 1918. Since several months somnolence, parkinsonism and ocular crises of a set pattern. During work she sees objects (s'estomper) then her eyes begin to jerk sideways for several seconds before they become fixed upward and to the right. Closing the eyelids attenuates the phenomena. If she lies on her right side the attack subsides in about ten minutes, otherwise it persists three to four hours. The crises occur only on Mondays and Fridays. No vegetative signs.

*Case 62.* Service of Professor Guillain. Jeanne Br, twenty-one and one-half years. In 1923 encephalitis, in 1924 parkinsonian hypertonicity and "torsion spasm." Since 1924 oculogyric crises, chiefly laterally, to the right, maybe downward. They are less frequent (every two weeks) and endure less continuously (two to three hours) than formerly. Datura for a year. Closing the eyes may attenuate the severity of an attack or may even bring it to an end. Hypertonia, sweating and salivation (comcutense) are increased during an attack.

*Case 63.* Service of Dr. Harvier. Rene Jou, twenty-one years of age. Encephalitis in June, 1924. She seemed cured when in 1925 after showing increasing tremor and stiffness for a year oculogyric crises occurred. Marked hemiparkinsonism. The crisis occurs every two to three days, persisting for from three to ten hours. They begin with the sensation of vertigo and of "papillotement" of the eyes. In earlier attacks the eyes were pulled downward, then rapidly they are projected upward and to the right where they are held with periorbital pain and intolerable sense of pulling which leaves the patient exhausted. If she can sleep the attack ceases. Profuse "transpiration."

**McCowan and Cook** (1928), whose choice of material has been chiefly drawn from the mental hospital, present a study on oculogyric crises in twenty-three cases which have been seen by them in various types of mental cases. All have presented parkinsonism. There seems

no essential relationship between oculogyric crises and nuclear involvements of the eye muscles. These authors think they may occur as isolated phenomena or may be a part of a more widespread tonic seizure. In the majority of cases the patients are relatively helpless, they feel unable to speak. Mental discomfort, definite distress is common, physical pain present but unusual. Anxiety of impending dissolution (as in angina pectoris, or vasovagal attacks) are frequent. Abnormal bits of behavior are at times released. These the authors regard as of importance. Lack of cortical inhibition is their phrase to explain this and the general impulsive, explosive types of behavior in general. As to eye position it may be in any direction. Mostly up or upward and to right or left. Fixed stare attacks are also noted and are probably commoner than usually reported. They may last a few seconds to several hours. Most of their cases seemed to have some control of the eye muscles to follow the finger. Most attacks occur in afternoon, thus they emphasize the fatigue factor but psychical factors are equally important—at times a direct relationship is capable of being seen. Specific time periods are noted. The authors discuss in considerable detail supranuclear centrals for conjugate deviation. They favor the "hysteriform" hypothesis.

In their summary they state incorrectly that these crises are unknown apart from epidemic encephalitis, as this résumé abundantly demonstrates.

Five cases are given in detail as representative. As these patients are all certified cases here is an excellent opportunity to study more intensively the compulsion phenomena in general and the unconscious factors involved.

*Case 1.* J. W. B., fifteen, who had encephalitis in 1923, admitted 1926 for impulsive violence and suicidal threats. Parkinsonism with left sided hemiplegic signs. The oculogyric crises at times which began in 1927 were accompanied by diplopia at times. They frequently lasted for hours; up and to left or down and to left were the usual directions. Vestibular reactions normal in interval, hypoexcitability during an attack. Hyoscin was about the only relief giving remedy. No detailed notes on mental state.

*Case 2.* E. B., fourteen-year-old girl with acute attack in 1924 with parkinsonism developing one year later. Psychotic and suicidal, certified in 1927. Patient reported that oculogyric attacks began three months after the onset of her acute illness. She and some girls were "making faces" and she found she could not get her eyes down (four hours). One attack at the hospital lasted several days with brief intermissions. Hyoscin had no influence. Later they ceased. Extreme distress and screaming accompanies the attacks. She would wish to put her head under the bed clothes, if prevented she would scream and bang her head on the floor or furniture. The eyes went up or up and to one side.

Attacks of extreme convergence accompanied by exceptional distress are reported. Vestibular tests as in Case 1.

*Case 3.* H. R. D., twenty-two, with acute illness, 1924; gradual progressive parkinsonism with so-called "behavioristic anomalies." Typical compulsive, impulsive behavior especially during crises, hence the authors' note re common factors. The crises began two years after the acute attack and recur two to three times a week. They are accompanied by fits of violent uncontrollable temper. These anticipate a crisis and frequently outlast one. The movements are usually upward and may be to right or left.

*Case 4.* D. D., seventeen, with encephalitis in 1919 with gradual change in conduct, moral deterioration and epileptiform seizures. The parkinsonism is confined to upper part of body. He is a typical psychopath—genital exposure and abnormal acts (not stated). The crises began four years after the acute illness about the same time as his "apache" tendencies. At first once a week, then daily. They are up and to left usually late in afternoon or evening.

*Case 5.* A. W. A., twenty-two, with mild acute attack six or seven years ago. After three years parkinsonism and crises developed to be followed soon by his fits of excitement and temper. Childish sympathy craving reactions. The attacks occur about twice a week. The first occurred while he was on the stairs. They are distressing. He feels as if he were going blind. Hyoscin is beneficial.

**Stengel** (1928) has written a very detailed study upon the oculogyric crises particularly emphasizing the supranuclear connections of the vestibular and oculomotor mechanism and the "ineinandergreifen" of psychical and organic mechanisms. He is a parallelist in his "separation" of psychical and organic mechanisms.

He reports three cases laying much emphasis upon the labyrinthine examinations.

*Case 1.* Aloisia S., twenty-six years of age, who had "Köpfgrippe" in 1921. Fever, lethargy and diplopia. Gradually developing mild parkinsonism. In 1925 the eye spasms began. At first the eyes jerk up and down and then remain up and slightly to the right mostly. They occur weekly and the crisis persists two to three hours. There is a frequent gross oblique vertical nystagmus. The head is held retracted and to the right. The eyes can be brought to a central position with much effort but immediately turn up again. The eyelids flutter actively. The patient complains of pulling pains in the eyes. She is apathetic during an attack. An inconstant tremor of the right hand, present in the free period, is markedly increased.

The vestibular examination is very minute and extended and must be consulted in the original. Also interesting observations are recorded upon

the effects of "cortically acting," (?) narcotics, of the alcohol series, and the "diencephalic acting" (?) narcotics, medinal, on the other upon sleep and the crises. Paraldehyde, 4 to 5 gm. would stop an attack in 8 to 15 minutes without sleepiness. She also had small sleepy spells. Typhoin vaccine injection treatments induced the crises during the fever. This with other similar experiences leads the author to generalize that they are "focal" symptoms. Postpointing experiences are given in detail.

*Case 2.* Marie A., thirty-two years of age, who had "Köpfgrippe" in 1910. Temperature three days, some insomnia. Recovery save grave insomnia for a year. Well for three years, when a mild tremor of the extremities began, left>right. In 1925 ocular crises began at first, one to two a month, then ten times a month. They last two to twelve hours. At time of examination distinct parkinsonism. No nystagmus. Compulsive thinking since 1925 in the crisis free interval—"It would be terrible if I should have an attack." During an attack she has marked anxiety. Directly before an attack the idea comes spontaneously: "God, now comes an attack." During the past year the compulsive thought has been modified to "It is high time that I look up." This thought is accompanied by anxiety. At the same time all thoughts of fear of an attack have apparently gone. After a few hours after the crisis the patient is free from compulsive thinking and anxiety. During the attack she is anxious. "I am not afraid of anything definite only I think every possible bad things, thus, often that the mother should die, that the father who contracts debts and does not work would be locked up." The patient hangs with great show of affection upon the mother. The patient also states that the day following sexual intercourse she is always freer from attack, and is above all free from compulsive thoughts. She has observed that with long abstinence of sexual relationships the attacks come oftener.

During a malaria infection with the rise in the fever, she had crises. The movement is vertically upward with fine vertical nystagmus. It can be interrupted temporarily by distraction. The crises persist three to six hours. Paraldehyde, 4 to 5 gm., as with Case 1 after 8 to 15 minutes, cuts short the attack, but would not cause sleep. Medinal also cuts short the attack. Vestibular findings as in Case 1. During an attack the right hand would become hyperkinetic and a grasping position was assumed. Marked polyuria during an attack; 1,500 to 2,000 c.c. Sp. Gr. 1.005. No polydipsia.

*Case 3.* Stefanie K., twenty-four years of age, who in 1918 had an encephalitis with mild residual paresis but very slight parkinsonism. In 1923 vertically upward and to right ocular crises lasting an hour or more in cut-up attacks with disturbance of consciousness. "In my head it is as if I would be dizzy. But there is no dizziness. I do not know what happens. I do not know at all why I am so dumb I cannot think of

anything. It is such a strange feeling, I cannot describe it. I am so lost. I think I am not normal. Often I do not know if I am or am not. It is such a pulling feeling in the head. Something pulls in my head and pulls my eyes up. I have anxiety and for what? It is often so empty in my head. Of late years it has seemed to me that people watch me during an attack. The people in the street talk about me, observe me, and say I am a bad girl. In an attack I am always very excited; I give no answer because I will not." No hallucinations. Convergence paresis and mild reduction of movement initiative.

Vestibular reactions at rest as in Case 1 but because of the intermittency in attacks not obtainable. Typhoid vaccine fever caused attacks. In many attacks Cheynes-Stokes type of breathing. Anxiety, sometimes crying which stopped the respiratory phase. Medinal and luminal were of no service. Paraldehyde did but had unpleasant accessory effects. She became drunken, very excited, screamed, became aggressive and cried loudly. She sought to grab hold of anyone who came near her. "When I look at a burning lamp for a minute I have an attack."

Stengel notes the preponderance of up and to right direction of these oculogyric crises. He speaks of left brainedness in this connection. He calls attention to the mental state—and to Hoff and Schilder's contributions concerning the mental disturbances noted in vestibular irritation. The respiratory situation is referred to as "hysterical." Depersonalization is spoken of in Hoff and Schilder's sense.

**Ingelrans** (1928) speaks of publishing a case with Spindler in 1924. (Article by Gernez in 1926). Anablepsie (Blum). Speaks of a case with only the ocular spasms and no suspicion of encephalitis.

**Braun and Delafontaine** (1928) report 4 cases similar they state to those reported by Sainton and Veil (1927) and occurring in the services of Drs. Crouzon and Harvier (See Blum's monograph also).

*Case 1.* M. R., thirty-two years of age, with no history of encephalitis, had a mild parkinsonism and upward oculogyric crises since 1923. He first consulted Crouzon in 1926. These crises occurred every 2 or 3 days about 5 to 6 P.M. and persisted 15 to 60 minutes. Lying down would tend to terminate the attack. There was pupillary irregularity. No notes on mental state. Sodium salicylate ameliorated the crises.

*Case 2.* Mme. R., thirty-eight years of age, in Crouzon's service in 1926, had upward and right lateral crises since November, 1925, coming on more particularly after looking at a movie. Every Monday and Friday in the afternoon they tended to recur in a severe form. At other times they were of irregular occurrence and slighter in intensity. Fairly marked parkinsonism with probable encephalitis in 1918. The crises came on seven years later. Belladonna held the crises in check.

*Case 3.* Mme. Madelaine G., twenty-seven years of age, in Crouzon's

service since 1924 with encephalitis (1920), parkinsonism and upward and to right oculogyric crises two years later. These occur frequently, especially during menstruation and persist at times 48 hours with great intensity. The head is turned, sudation and salivation and congestion appear. Hyoscyamus and stramonium ameliorated the crises somewhat.

*Case 4.* M. C., twenty-four years of age (Geo. C. of Blum?), service of Harvier with encephalitis in 1920, two years later parkinsonism and five years later upward oculogyric crises. Later upward and to right fixation was noted. These crises occurred several times a day, every three days and persisted from fifteen minutes to several hours. At times the crises were accompanied by exaggeration of the chief parkinsonian symptoms, especially exaggeration of the rigidity, in the lower limbs, psychical disturbances, crying, palilalia, vasomotor and secretory troubles, redness of the face, salivation and intense sweating. No medicinal treatment was of service.

**Delbeke and van Bogaert** (1928) return to the problem and going over 25 cases would discuss (1) the neurological symptomatology, (2) the vestibular symptoms, (3) the vegetative symptoms, and (4) the psychical symptoms. These cases have mostly been under observation at least three years. The histories of but a few are here given, some of them have already been abstracted from previous pages. Thus No. 1, the myasthenic child of eleven, ++ tonus: even to opisthotonos (echopraxia), tremor, bradykinesia decerebrate rigidity attitudes taken . Tachycardia 4 cases, hypotension—respiratory (see Jelliffe). Diuresis, no thermogenesis—secretory ++. Sensory changes. Pain: creepy and crawling (Hesnard). Petit, Bauer et Chatagnon—von Bogaert, one-sided burning. Stern, certain patients don't feel body at all—empty body—body scheme (Schilder changed)—anxiety re this nonexistence (Stern). Delbeke and van Bogaert report on interesting new case, p. 866, here.

*C. K.*, thirty-one years of age. Encephalitis in 1922. Parkinsonian 1924. After childbirth, in 1926, oculogyric crises, vertically up and down. The whole left side of the body "enraidissement" hypertonia with intense burning pains, tearing and ceasing only when eyes cease. Total hemianesthesia of left side of body including face. Head turned to left. All left side out of cognition. During crisis obnubilée. Mute, but can relate later all that happened. The hemianesthesia disappears slowly with the stiffness and cognition of movements. At times right leg involved. Stocking glove type a bit. Marked vasodilation of face and conjunctiva. Anosognosia of Babinski. Such modification of the body scheme analogous to certain cases of Stern. No deep inquiry as to the meaning of this anosognosia is made.

*Case 3.* Mlle. H. S. has already been abstracted here (p. 46) and in the history given by Helsmoortel.

Psychical disorders are more or less systematically arranged in three groups: (a) Anguish syndrome; (b) obsessional ideas; (c) psychical inhibition.

As it is but a part of this thesis to show these are but varying grades of effort to avoid the appearance into the conscious "Ego" of tabooed, repressed and painful ideas such classificatory notions, while of interest descriptively, have little value from the standpoint of meaning. The general notion here followed is that the greater the cathexis of the repellent craving the nearer the patient will get to unconsciousness unless by a more complicated device the repressed material comes through in distorted symbolic form as hallucinations, of optic, auditory, vestibular or other sensory zone; as obsessive idea or as compulsive action. There is nearly always a period of anticipatory anxiety which is met with by the defense of the Ego quite in the method so well outlined by Freud in his Angst, Inhibition and Symptom monograph of which dynamic possibilities none of the authors cited are apparently aware.

One case, IV (p. 872), the authors cite as illustrative of their section (a) anxiety states. This patient, girl, had encephalitis in 1911, parkinsonism in 1925. In 1928 she saw a shocking accident wherein a man was crushed by a tramway. Two hours later she had her first oculogyric crisis. These followed 5 or 6 a day, later every 4 or 5 days, lasting 2 to 8 hours. Anger, fear or sudden illumination would precipitate them. By wearing a bandage over the eyes she could avoid them. (Compare Taylor's case in discussion of Jelliffe's paper, Am. Neur. Assoc.; and Jelliffe's comments that the brim of the cap acted as a policeman and aided repression, Tr. Am. Neur. Assoc., 1929)? The patient would begin to feel anxious, call a "sister" in the ward. "I feel it coming," become pale, hold herself immobile for several seconds; then suddenly up go the eyes; the lids tremble violently, she is conscious but her responses are slow, and scarcely comprehensible. She then falls asleep. She says that she has great anticipatory terror, then all within her is paralyzed. Achypnea or bradypnea often accompany the situation. She is unable (by the methods followed by the author), to give any account of what would be in her mind. Her head is empty. She is as if going crazy. An interesting and important point in the author's citation is that she has attacks of anxiety without oculogyric crises. The authors quite incorrectly, we believe, state (873) that the train of events, sketched by them, contradict psychological conceptions that such inhibitions are symptoms of defense. What basis there is for such a statement does not appear since the train of events cited is so frequently seen in pure psychogenic conversion situations entirely apart from any somatic participation. This train of events is precisely that for which Marinesco and many others would give the term hysteriform.

*Case 5.* Mme. F. (p. 874), twenty-nine years of age, with unknown date of infection. In 1925 after confinement parkinsonism. In 1926 first oculogyric crises. These crises are more frequent at the menstrual epoch. They are often preceded by paroxysmal tachyphemia, polypnea with flight of ideas in which family and professional ideas run away with her. At times the flow is blocked and she makes only stereotyped replies. There are erotic preoccupations at other times than the oculogyric crises.

Speaking of obsessive idea states the authors apparently approve of Stern's, to us strange, notion that involuntary movements and obsessive ideas have no correlation and quotes one of Stern's cases (875), the one in which the patient must keep the eyes upon "sharp points" (see p. 69), and another in which the patient has the compulsion to "close a door."

Two cases are reported by the authors under this general heading.

*Case 6.* (p. 876) Mlle. W., nineteen (?) years of age. Encephalitis in 1928 (typographical error for 1918—?) parkinsonism in 1920, with obesity and polyuria. First oculogyric crises in 1924, with difficulties in chewing and with mutism. In 1925–1926 attacks frequent, lasting several hours and appearing at fixed periods: 11 to 12 morning and 5 to 6 evening. Preceding the crisis deep distress, mixed with depression and restlessness. At first there are clonic upward or other direction spasms, then fixation of the globes. Head retracted, inebriated gait. Almost catatonic rigidity at times. She hears and remembers but cannot answer, save in a thin almost unintelligible whispering voice. At times following a crisis she opens the mouth wide and sticks out the tongue. Sometimes the attack terminates by tachycardia and trembling which may last an hour and a half.

The authors here remark that certain specific situations are capable of inducing an attack in certain of their cases. The sight of a lover, of a soldier in lively-colored uniform, in a third the compulsion to step up on the sidewalk is sufficient to induce an attack.

*Case 7.* Mlle. B., twenty-two years of age. In 1916 encephalitis. Since 1925 paroxysmal anxiety attacks. In 1926 a month after a financial debacle in the family oculogyric crises and fears. At times she is unable to walk on the sidewalk. As she approaches the stone steps she hesitates, trembles, gets out of breath, and sweats. Her eyes become spasmodically fixed on the ground. If one calls her name emphatically she can close her eyes and the sidewalk is gained brusquely. At other times it is enough that her mother takes hold of her arm to overcome the oculogyric crisis. She has an antagonistic gesture (ambivalent). In order to overcome the fear of the sidewalk and to stop the ocular crisis she brusquely would essay to pierce the palm of the right hand with

the extended index finger of the left hand. (The psychoanalytic point of view would strongly suspect here a very definite prostitution complex. Trottoir [street walker] and the ambivalent finger piercing [coitus] equivalent is highly suggestive.) And yet the authors take the pains to note, "pas de complex sexuel décelable." (Qu'elle non franchira jamais cette marche), a set phrase is quoted. One wonders if the authors were curious as to just what step she could not take? It is very evident that the authors maintain a very narrow conception of the word sexual. To them it apparently means something consciously genital. The dynamic conception of the instinct is not in view in their discussion.

The authors then would pass on to a lengthy discussion of psychogenic factors in oculogyric crises chiefly along the older Charcot lines. "Para hysterical" is the descriptive phrase used. Hughlings Jackson's ideas which have guided our own conceptions from the beginning are not here envisaged, nor in any other discussion of these phenomena. We shall return later in this study to the author's discussion of the relation of psychogenesis. Here it will only be said that the older parallelistic ideas of body and mind still prevail, but more particularly the authors with most others are still thinking of hysteria and other syndromes more nominalistically and descriptively than in terms of purpose and dynamics. None seem to grasp the notion that in all of these types of manifestations the individual as a whole is trying to carry out essential instinctive processes but is being hindered by the organic obstruction. A part of the completed organism is out of commission. What is left over is still working, as Hughlings Jackson so well said. Hence the distortions, displacements, and bizarre efforts at adaptation.

**Picot** (1929) reports the case of a thirty-six-year-old engraver who from no ascertainable encephalitic history in 1926 was parkinsonian and had upward oculogyric crises upon closing his trembling lids (Bell's phenomenon). At times he can bring them down but suffers agony when doing so. There is retraction of the head, trembling of the chin and lips in the attack. These persist 15 to 30 minutes to 2 to 6 hours, to be terminated by yawning. He has them several times a day. They interfered with his work. The pupils showed a peculiar oblique oval distortion.

Testing of the vestibular functions showed no vertigo, no nystagmus and no persisting anomalous findings.

The author mentions that such attacks occur in patients with multiple sclerosis, brain tumor, tuberculous meningitis, cerebral hemorrhage (one brief citation of one [p. 89] comparable to case of Staehelin).

**Androgué and Balado** (1929) give brief notes on three cases in a short general article. Few details for our purposes.

*Case 1.* Teresa V., twenty, single.

*Case 2.* W. N., eight years old.

*Case 3.* Teresa G., six years old.

**Thurzo** (1929) reports that they have had 6 cases in their clinic, two of which are briefly reported. No valuable comments on the mental state. Two illustrations.

*Case 1.* Twenty-two-year-old woman had grip in 1918. In 1923 a chill and sticking and crampy sensations in her limbs with sleepiness which latter lasted three months and then beginning parkinsonism. During past year oculogyric crises 3 to 4 times a week persisting from an hour to half a day.

*Case 2.* P. S., thirty-one-year-old woman, five years previously headaches. Typical parkinsonian with no history of onset ascertained. In past 6 months has up to left or down to right oculogyric crises with head movements which occur nearly every day and persist from morning to evening. She cries a great deal and has much anxiety. The crises are preceded by headache and tension in the eyeballs. The attack ceases when she goes asleep, to be renewed on waking.

**v. Stockert** (1929) reports a series of very intriguing cases in which the voluntary turning of the eyes upwards or upwards and sideways produced peculiar sleepy states allied to narcolepsy, catalepsy, etc.; also similar attacks induced by hyperventilation. There is one typical post-encephalitic oculogyric crisis with related phenomena. The relationship of the Bell phenomena to sleep is entered into but not from the psychological side of sleep as a regressive phenomenon.

*Case 6* (p. 283). F. N., twenty-five years old, had "grip" in 1925. One year later tremor began and then gradually advancing parkinsonism. Six months previously upward eye crises with mild headaches but no tendency to fall backwards. With voluntary eye movements and by hyperventilation retropulsion is marked. No notes on mental status.

**Velhagen** (1929) describes very briefly 8 cases of ocular disturbance associated with sleepy attacks. Three of these probably following encephalitis.

The complete histories are to be found in v. Stockert's article, the situation accented by Velhagen is the pathological sleepiness. Hyperventilation with him also caused "schauanfälle." Bell mechanism + + +. Hypnotic—hysteria. Sleep center, talk.

**Senise** (1929) reports two cases:

*Case 1.* Adele Rossi, aged twelve, at eight had encephalitis with later developing capriciousness, irritability and ugliness, and later mild parkinsonian signs. After several months commenced to have brief periods

of upward oculogyric crises and extension of the head, followed by sleep. At times the child would stand still as if petrified for a moment with fixed forward stare, pale and unconscious. She also showed short narcoleptic attacks.

*Case 2.* Carbone Vittoria, twenty-one years old, single, a bed wetter until eleven. At twelve epidemic encephalitis followed by definite parkinsonism. He also suffered from oculogyric crises every day or so lasting half to one hour with head turning to right, palpebral clonus and later sleep. He is sad and (cupo), and also has masturbatory compulsions with the crises.

Senise regards the attacks as of cortical, pyramidal pathogeny and terms them partial Jacksonian epileptic attacks.

**Benvenuti, E.** (not M. Benvenuti) (1929) reports:

*Case 1.* Male, twenty-two years of age, had a mild lethargic encephalitis in 1920. He gradually developed parkinsonism within a year and then upward oculogyric crises which usually come on about 4 to 5 P.M. and persist usually several hours, *i.e.*, to 9 to 11 P.M., when he sleeps and they cease. He feels a certain sense of heaviness in the supraorbital region.

**Bennett and Patton** (1930) report seven cases seen in the past two years:

*Case 1.* J. K., male, twenty-four years of age. In 1922 patient had "mumps" accompanied by delirium. The attack called "chorea" by his physician persisted a month. In 1924 he experienced swimming sensations in the head. September, 1925, raising his eyes to catch a ball they stayed up for one and one-half hours. Such occurrences repeated themselves. He became restless, would walk about and then up the eyes would go, or down. There was pain in the eyes and frontal headache and much anxiety with self-accusation of masturbatory activities. There was no parkinsonism. In the beginning of the attack only was there some voluntary control. An attack would last about 30 minutes. No treatment proved effectual. Protein shock, narcotics, belladonna allies, etc.

*Case 2.* O. S., twenty-two, female, had an accidental abortion in 1927. Following this was her first upward deviation of the eyes. No history of encephalitis but at time of examination definite parkinsonian facies. No further details as to mental state.

*Case 3.* A. N., forty-one-year-old clerical. In 1925 he had had a febrile delirium with semicoma lasting two weeks. Drowsiness and double vision were frequent aftermaths. Eye spasms began in 1928. After looking down voluntarily he would note an inability to raise his eyes which would last 15 minutes or so. Parkinsonian facies, gait and attitude.

*Case 4.* W. P. S., male, thirty-one, had spells of the eyes turning to the right and forced closure of the lids. No history of encephalitis but some motor sluggishnes was noted in 1926 with drowsiness. In 1927 the eyelid spasms began and then the eyeball deviations 6 months later. He gets relief after falling asleep, but has been unable to work, as the attacks occur daily. Neurological examination reveals slight parkinsonism. The flutter in his eyelids was specially troublesome while driving a car. "If I can have my mind a blank or forget myself, the eyes come back" is the only comment on the psychical status.

*Case 5.* W. M., thirty-three, female, had upward deviate conjugation spasms which persisted several hours. There was pain in eyeballs and fluttering of the eyelids. In 1919 she had had a spell of lethargy and delirium, being ill three months. The first spasms occurred about 1924–1925. They have increased in frequency now to three times a week and persisting for 24 hours. Extreme nervous apprehension accompanies them. Moderate parkinsonism was present. Hyoscine will control the spasms fairly successfully.

*Case 6.* H. C. T., twenty-eight, male, had insomnia and vertigo for 24 hours in 1922 followed by diplopia and delirious lethargy for several days. He was not well for a year. In 1928 the first oculogyric spasms occurred while reading. The eyeballs would go up and stay there all day. Slight control was possible. Definite parkinsonism was present. Stramonium gives some relief.

*Case 7.* E. B., twenty-three, had an ill-defined illness in 1920 lasting a month, with insomnia, headache, eye distress. In 1923 he had his first crisis of upward conjugate movements. The attacks were weekly and only ceased when patient went to bed. Blepharospasm accompanied the attacks. Fatigue would seem to bring on an attack. There was definite parkinsonism.

**Cheney and Martins** (1930) report three cases:

*Case 1.* M. J., thirty-two-year-old unmarried male, had "influenzal pneumonia" in 1918. In 1921 his right arm grew stiff and a typical parkinson syndrome developed. In 1923 he had his first, up, down and straight ahead oculogyric crises with moderate retraction of the head. They lasted a short time only. Then they occurred every 6 days punctually and lasted several hours. Just before the attacks he becomes highly excited ("hysterical") with furious outbursts of crying and shouting, complaining there is something wrong with his ear, his nose and his genitals. He makes motions towards his penis but does not talk. The authors were unable to elicit his obsessive thoughts "but they are very unpleasant and make him feel very bad."

*Case 2.* J. P., unmarried, twenty-eight years, in 1920 had an attack

of influenza. Shortly following there was a gradually developing parkinsonism. Two and a half years after the initial difficulty he first had attacks in which the eyes became fixed downward, or more often up and to left. These were preceded by crying. At first they persisted a short time, then lasted 4 to 16 hours and tended to recur every 5 days—later every 3 to 4 days. He is nervous and worried, feels rotten and soft all over and fears he will die.

*Case 3.* H. E. S., single, thirty-five. In 1921 had influenza with malaise and diplopia. After a year previously of neuritis in left leg and depression. In 1925 it was noted he had slow speech, tremor and other parkinsonian signs. During most of the time since 1921 he has had upward oculogyric crises and with retracted head, lasting about an hour several times a day. In 1929 while depressed he suicided by hanging.

Hyoscin helped one of these cases.

**Notkin** (1930) reports the case of a woman, twenty years of age, who had an acute febrile attack and convulsion at thirteen. After which she was stuporous for five weeks. At fifteen she had laughing or crying attacks almost daily, later 20 in a day, with right-sided rigidity, unconsciousness and cyanosis, persisting 10 minutes or more. Parkinsonism then developed. On observation these attacks of hypertonicity, with loss of consciousness, opisthotonos, and upward-cephalogyric crises were observed, sometimes as often as 20 in an hour. They lasted one-half to one minute. No comment on intimate history save the tendency to develop these states on "emotional" basis.

**Bianchi** (1930) reports three cases:

*Case 1.* Canto F., thirty-nine years of age, married, had encephalitis in 1921 with typical parkinsonism by 1924. In 1927 vertical crises occurring every 8 days, at about the same time and with 4 to 5 attacks persisting 20 to 30 minutes. He perspires, breathes more rapidly, but he seems calm. Headache at end of attack. The attacks are worse with excessive masturbation.

*Case 2.* Guiseppe G., twenty-three years, single. Encephalitis in 1921, parkinsonism in 1923. For some time vertical crises every 10 to 15 days, 6 or 7 times a day, persisting 15 to 20 minutes. The patient perspires, is anxious, and has rapid breathing. He has the sense as if he would die. With this patient also masturbation seems associated with the intensity of the attacks.

*Case 3.* Giovanni B., twenty years, single, had encephalitis in 1921 and parkinsonism by 1923. In March, 1928, vertical oculogyric crises began—every eight to ten days, six or seven times a day, lasting fifteen to twenty minutes. There is rapid fluttering of the eyelids and then the eyes roll up to a maximum in the median line. The patient breathes more

rapidly, is anxious, restless, and preoccupied. At its termination patient is depressed, taciturn, solitary. Masturbation here also is related by the patient as a factor.

**Störring** (1930) devotes special attention to the "anxiety" problem which, he states, may precede, or follow, or be simultaneous with the crisis. He would partly follow Stern as to the primary "organisch bedingt" anxiety, but adds that other situations may be involved. He cites certain thought associations which have preceded an attack. One patient, on reading of severe accidents or of murder, gets an attack of anxiety and then the crises. Another had an attack because her appointment was changed for a later date. She feared she was going to be punctured (lumbar?). Another, while being examined, had the idea that such examination was for the purpose of extracting "military rents," and had an attack. He would accent what he calls a "Spannungszustand" as a preliminary condition for an attack. "Close attention" in one: These he would relate to the "primary Drangunruhe" of the encephalitic. (He does not relate it to the "hypervigilance" of hostility as we do.)

*Case 1.* Nineteen years old, who at thirteen had an encephalitis and after five years developed oculogyric crises, during which she has "comical ideas" about which she is anxious. Thought is disturbed. "She fears something will happen to a friend," "to her parents." At times the anxiety states stay for some time. The author does not inquire into the inner meaning of these "komische ideen." He is satisfied by saying there is "Hemmung." About what and why? No curiosity?

*Case 2.* This patient always has the compulsive thought, "Why am I so sick?" This is the patient that feared a puncture. During the attack thoughts of the puncture were displaced to thoughts of "her being so sick." After the attack the puncture thought returned. The actual relations between these ideas is not sought. Of course the "evil minded" psychoanalyst alone would think of a "sickness" which might result from a "puncture." (Are there no more "Marguerites" in the world?)

A *third* (*3*) patient shows autochthonously arising anxiety. Then the crisis.

*Another* (*4*) patient has the attitude of anxious expectation, "as if something would take place."

*Another* (*5*) finds his thoughts stand still "like a bolt from heaven!" "Thoughts and the eye movement go into nothingness and then when I try to think of something and this is possible, then the eye movement stops." Such cases lead him to believe that Stern is not quite correct in speaking of a "primary" anxiety. Störring is not at all oriented to any psychoanalytic studies of anxiety and he makes no inquiry as to what has produced the primary affective situation. The phrase *Transcendental Function* is enough.

**Stengel** (1930), in a further contribution, with report of one case in detail with very early beginning of the ocular crises, comes nearer our own conceptions of a dynamic comprehension of what is going on in this by no means simple situation. His case is as follows, much abbreviated, as it is given in great detail.

*Case 1.* Marie R., eighteen years of age, who at the age of nine had "influenza" lasting four weeks, with continuous fever, 41° C., sleep and double vision. Slight tremor began, sleep formula reversal and gradual typical parkinsonism. After her fever she had upward and to right oculogyric crises with pain, only relieved by sleep and bromural. As to her mental state, for a time she thought of nothing, but of late months the compulsive idea, "Weil ich nur, weil ich nur." In full this was: "Weil ich nur gute Eltern habe, die mir immer etwas geben, dass der Krampf bald aufhört, brauch ich mich nicht furchten, dass ich mich so anstosse, u.s.w." She is anxious that during the attack she may do something, hit somebody, pull their hair, or that the grandmother (much thought of) may die. She feels a stranger to herself during the attack. For the past two years the attacks have changed their character, become stronger, and she has the compulsion to run to the right. She goes around until she is tired. (See case of L. of Jelliffe's "don't touch me" with menagery movements.) There is great anxiety lest she fall. She has the idea as if a white ghost follows her who will injure her. If the eyes are up the ghost is behind her; if to the right, by her side. It is male. She elaborates some infantile experiences of her third year and her thirteenth year of falling in a cesspool and of being violated by a stranger respectively. The ghost is this stranger. If she runs around this way she will have no eye cramp. In her sleep, after the attack she dreams of erotic scenes with friends of her youth but not of anxiety situations. She feels the attack coming on for an hour or so with restless anxiety and her eyes cross to the right. This is a signal of an attack. Vertical cramps are not attended by this looking sideways. During the attack she is not perfectly clear. She dreams of the attacks two to three times a week, repeating the actual experience, and is awakened with anxiety.

The attacks take place twice a week, usually in the forenoon. She is restless, irritable, curses those about her, and is apt to hit people. During the menses the attacks are more frequent.

**Soli, D.** (1930), reports two cases:

*Case 1.* A. E., twenty-five years of age, who entered the hospital in 1924. Seven years before (1917) she had had a period of delirium and obstinate insomnia for three days. She then slept continuously for eight days. Following this parkinsonism, which in 1927 was well marked. For eight years (*i.e.*, two years after encephalitis) she has had attacks

of headache, increase in tremor, upward outward oculogyric crises, and tonic clonic convulsions in the left upper extremity with partial loss of consciousness. These occurred very irregularly, often in the morning after the patient had had a good night's sleep. The attacks were not modified by amyl nitrate. (Protest of reality of daytime. J.)

*Case 2.* G. C., twenty-one years of age, entered hospital in 1925. At sixteen (1918) influenzal encephalitis. At eighteen a healthy baby and in good health. Following the childbirth, however, she began to have slowing and stiffness in her movements and a tremor and other indications of developing parkinsonism. Several months later she developed crises of generalized clonic convulsions greater on the right side with upward and to right conjugate deviation of the eyeballs and neck. These occur every ten or twelve days for a period and persist about twenty to twenty-five minutes. Preceding the attack the patient has a headache, must lie down and weeps, and then consciousness is clouded throughout the period of the crises and the tremor becomes greatly exaggerated. Amyl nitrite ameliorated the severity of the attack.

More detailed consideration of the hypertonicity in the vegetative nervous system are given in a previous paper (see Bibliography). Soli's discussion follows the orthodox neurological lines in seeking for a cortical irritation, causation in which vegetative control of the vasomotor system disturbed by diencephalic lesions plays some rôle.

**Zutt** (1930) reports a twenty-four-year-old man who had encephalitis in 1922. For four years apparently well. Then gradually advancing parkinsonism. Since 1927 oculogyric crises three times a week, during which peculiar (ausnahme-zustände) states, as if "thousands of memories" crowded in the mind. These persist some hours and disappear after sleep. The "total recall" is accompanied by great anguish and all directed thinking is interfered with—such as simple arithmetic tests. For the past three months compulsive thinking about unthought of problems have occurred which do not seem to be paroxysmal, nor are they accompanied by the anxiety of the eye crises, nor by interference with thinking. They seem to be compulsory working over unimportant trifles, but certain of such compulsory thoughts which involve personal attachments are accompanied by anxiety. Large doses of paraldehyde would cut short the eye cramps without inducing actual sleep.

**Jossmann** (1930), at the same meeting, showed a patient who had post-encephalitic oculogyric crises with similar "ausnahmezustände." The content of the compulsive thinking was, "what happened," an hour, a day, a week ago, etc., etc., but to no particular specific events did this doubting apply. "Restless anxiety" describes the mood during such attacks. He calls attention to the physiognomy but does not get beyond purely descriptive considerations in this short society report. In the

discussion of Jossmann's and Zutt's observation **Sternberg** calls attention to a post CO poisoning parkinsonism with outstanding compulsion phenomena.

**Sauer, L.** (1930), reports the case of a twenty-one-year-old girl who following an encephalitis attack, developed upward and often to right oculogyric crises.

**Menninger** (1930) reports the case of a twenty-five-year-old man who ten years previously had an influenza (encephalitis) with closely following parkinsonism. Four years later he noted "whirling around" of the eyes. This rolling motion may be up or down, but more frequently upward. Close observation reveals upward and to left oculogyric crises, the head turning to the left as well. Depression and anticipated anxiety as to the movements are the chief psychical situations accompanying a trance-like state. The attacks occur irregularly and persist from a few moments to several days. Scopolamine aided the patient.

**Chlopicki** (1931) discusses the problem of compulsive activities in oculogyric crises and reports six cases. No detailed intimate inquiry is made into the ideas.

*Case 1.* Twenty-five-year male with very unruly ambitious boyhood attitudes but no compulsions known. At sixteen grip, followed soon by parkinsonism signs. At twenty-three upward oculogyric crises, once to twice a week ,lasting one to two hours. Very restless before the attack and great excitement and fatigue afterwards. During the attack cannot think logically. Cannot concentrate, divertable, with persistence of image of object. Hard to grasp speech and he must ponder over it. Is anxious and fearful.

The author would discuss the compulsion situation in this Case 1 according to Stern's general formula of "thought cramps," involving not only the autochthonous ideas but also everything heard. He suffers from a vague anxiety, is clear as to what is going on. Likes to lie down, as it eases the cramp. This anxiety he would designate, with Stern, as primary—"organic." What this may mean is not further entered into.

*Case 2.* Twenty-nine years old. Sensitive boy. At twenty-six fever, headache, delirium, sleeplessness. Parkinsonism developed. Of late, not exactly determined upward ocular spasms, twice daily, lasting a few moments only. He is restless. "Foolish ideas" which stick. Headaches. Thinks of his work—whether he should plough or harrow.

The author's comment here is that there are "dumme Gedanken."

*Case 3.* Twenty-eight-year-old man. Active, "wie eine Hase," easily provoked in youth. During army service drank to make him companionable. Father dead, quarrels with brother, a pastor. No history given of acute episode. For one and one-half years easily fatigued and stiff. Mildly parkinsonian. For the past year upward ocular spasms once a

week, lasting one to two hours. Half an hour before the attack restless and excitable. Gets hot and then during the attack is slow in movement and thought. Compulsive thinking that the pastor (his brother is a pastor) does not think of his church but only of politics. Compulsion to swear so strong with guilt he would shoot himself had he a "Browning." With the oncoming of the cramp he has headaches but is free from the distressing thoughts.

With the desire to curse the pastor for his neglect of the church for politics, the feeling of guilt is so strong the patient would shoot himself. [Interesting Oedipus situation. (Pfarrer—Father, brother.) (Church—Mother, female.) (Politics—Father, male.) S. E. J.]

*Case 4.* Thirty-year-old male. Father a musician. Violent and rough. Is violent when annoyed and very restless. The boy like his father with long periods of moody anger. Sensitive. Enuresis to fifteen. Pavor to twenty-three. At nineteen "influenza." In bed a week, double vision. Gradual parkinsonism.

His oculogyric attacks last two to eight hours or even longer if he has had a bad night. Ten to twenty minutes before the attack he is restless and irritable, his lips are dry, and peculiar ideas arise concerning redress from the director or his wife for injury, or whether the closed window is really closed. He makes certain that the door is closed. In the free interval also he has some of this compulsion. He washes his hands, looks under the bed to see if anyone is hiding there; cannot sit on a chair without blowing off the dust from fear of dirtying himself. If he suppresses the action of closing the door or window or cleaning the chair, is very restless, and finally must yield to the compulsion. During the ocular spasms the ideas continue to follow him and he is so distressed he would like to be run over by the street car. He stutters during an attack.

In Case 4 the author *unwittingly* introduces the "wife" of the Director as a copartner in the "Beleidigung" and then goes on to the thought of the "open door" or "open window." The anxiety here also involves the hand washing, the "dirty" stool (stuhl) which he must not sit on without dusting. This patient, the author remarks, is relatively capable of handling himself during the attack.

*Case 5.* Thirty-year-old woman. Sensitive girl. Eight years previously had headache and sleeplessness. Gradual parkinsonism. For five years upward ocular spasms every three to four days, lasting thirty-six hours and ending in sleep. A half hour before the spasm she is restless and excited and fearful lest she is going crazy. Her recurring idea is that God will punish me by making her crazy. This is persistent. She has also the compulsion to repeat to herself or whisper words she hears. At times she repeats short phrases.

Here the anxiety about becoming crazy is of special interest. (*Fear* of becoming crazy = *desire* to be uncontrolled.) The sense of guilt—punishment—idea is well worthy of further elucidation. The "auto-echolalia" as a repression symptom is not further entered into.

*Case 6.* Twenty-one-year-old woman. Was nervous, moody, sensitive, and anxious as child. At sixteen she had a "bowel" attack and slept for a week. Then gradual parkinsonism. For past three years upward and to right ocular spasms. At first once a month, then weekly. More often during menstrual period. The attack persists three to four or even ten hours. An hour before the attacks, usually, not always, is restless, mute, and irritable. During the attack she is confused in the head as if someone hit her with a stick. She would cry out to her mother, "Get out of here you old crazy one." An indescribable anxiety overcomes her. Thinks she is going crazy, her eyes will stay that way. She cries, "I'm afraid, I'm afraid," or "Oh Jesus, Oh Jesus." The head is empty. Sometimes a verse or a melody must be repeatedly gone over.

The anxiety here is very disturbing. Here the repetition of prayer is noticeable. (Guilt.)

**Teulières and Beauvieux** (1931), writing under the caption of late ocular manifestations and leaning greatly on Blum's presentation, describe one case and discuss the problem from the literature.

*Case 1.* Mlle. O., thirteen years of age, had had encephalitis eight years previously. She presented in 1931 well marked parkinsonism without tremor, with definite negative sign strabismus. Violent attacks of anger. Nearly every night she has upward and to right oculogyric crises which last a few minutes, during which after a few spasms she becomes pale and seems to lose consciousness. The mother speaks of her as being "en bois," and one cannot bind the arms nor the legs. There are other signs of the organic disorders.

The paper goes on to present the larger tableau of paralyses, alterations in tonus, and excito-motor syndromes. Bell's phenomenon (p. 355) is well discussed. Special section is devoted to the oculogyric crises.

In a valuable study **Krabbe** (1931) has reported some interesting cases of parkinsonism and oculogyric crises in syphilitic patients who may or may not have had encephalitis.

*Case 3.* J. A. R., thirty years of age; 1918 grip without complications; 1926 syphilis. Some months following this, torpor and sleepy in daytime, which increased so that she fell asleep whenever she sat down. 1928 beginning parkinsonism and then upward and to left oculogyric crises accompanied by increase in tremor and rigidity. February, 1929, another attack of grip and increase in parkinsonism.

*Case 5.* P. E. J., chauffeur, thirty years of age. Several attacks of grip. After one in 1924 diplopia and headache. During 1929 severe

upward ocular crises. They were more frequent when he lay down and were not apparently associated with emotional factors. They persisted for a few minutes to half an hour. They occurred every three days. Parkinsonism was evident.

**Jean-Sédan** (1931) reports a most interesting case of considerable theoretical importance from the point of view of psychological and possibly of vestibular explanatory factors.

Madam M., thirty-three years of age, was a patient of Professor Rogers in Marseilles, who saw her in the acute stages of an epidemic encephalitis. Five years later she came under observation with oculogyric crises. During four months' observation their upward movements had been seen on seven different occasions. They recurred every seven to fifteen days, were very painful, and were accompanied by great anxiety, persisting for an hour to an hour and a half. Her parkinsonism was marked. When, however, an oculogyric crisis comes on she loses the parkinsonian rigidity in the lower extremities as she hastens with directness and exactness to a couch. When she reaches it and lies down her oculogyric crisis ceases immediately.

In this same note Jean-Sédan reports a patient of **J. Targhetta** of Nice:

Male, thirty-one years of age, encephalitis in 1919. Parkinsonism begins in 1921; by 1931 he has rigidity of the entire right side. During the past two months the left side is beginning to be involved. For the past three months upward and to right oculogyric crises. The attacks persist half a day. If he can force his head strongly to the left and compel his eyes to look to the left, the eyeballs come down to their natural position.

**Paulian, D.** (1931), contributes a short note with three brief case histories and comments on five others.

**Whittington** (1931) in a general article speaks of oculogyric crises, all of which were upward and to one or other side movements. They are distressing. One case has respiratory crises as well as oculogyric spasms. Many start with staring in the early phases. In 136 cases of certifiable postencephalitics 17 per cent had oculogyric crises.

**Tophoff** (1931) reports a thirty-five-year-old laborer with no ascertainable earlier encephalitis symptoms who, for six months, suffers from upward left oculogyric crises occurring three times a week, usually afternoons, and persist about five hours. Materially improved by scopolamine. There were no absolutely certain signs of a parkinsonism. The author would interpret this as a unisymptomatic case of encephalitis.

# CHAPTER III

## Personal Observations and Notes

In the year 1928 I had the opportunity of seeing in private work four examples of oculogyric crises in cases following encephalitis.

I have now seen three of these patients on and off for three years. Two of them had classical respiratory syndromes which have been reported in a special monograph. Later both patients developed oculogyric crises. A third had a very hectic career with behavior difficulties, respiratory attacks, grunting attacks, menagery movements and ocular crises.

### Short Report of Cases

*Case 1.* A. B., twenty-eight years of age, in 1928, single, in whose family history there had occurred a psychoneurosis in the father and a psychosis in a brother, had shown pronounced oral erotic fixations; finger sucking was maintained until at least twenty-six years of age. There was a history of much "necking" with a hoped-to-be fiancée, with some premature coitus activities.

Late in 1924 or early in 1925 a febrile delirium occurred with hallucinatory images of vermin crawling on the walls and over everything, followed by diplopia and sleep reversal formula, indicated the acute encephalitic attack from which a partial recovery was evident. Six months later there was a gradual onset of muscular rigidity and a continuous tachypnea which continued up to the time of observation.

In 1927 there occurred attacks of trance-like states with central fixation of the eyes, or with lateral, usually to the right, oculogyric crises. There was no pain, but there was much anxiety, apparently due as much to the respiratory difficulty as to the eye spasms.

In the short time at my disposal during an attack, it appeared that the oculogyric crises increased a sense of guilt, which was a constant accompaniment of the respiratory spasms. No adequate outline of this sense of guilt is here permissible, but at the manifest content level it was concentrated on the erotic activities carried on with the love object. A brief questioning as to dream material, however, as a part of a routine examination at the time of the consultation clearly indicated that erotic activities between brother (who developed a schizophrenia) and sister had occurred when they were very small children. Thus the sense of guilt

had a much more rational foundation in the family incest situation than in the later overdetermined erotic relationships of courtship. Reasons of discretion prevent further elucidation of this case history. An interesting obsessional idea, however, has gradually replaced both the respiratory crises and the oculogyric crises. These more spectacular symptoms have passed but the parkinsonism has advanced, and the tormenting thought now is to have to look at the fly of men's trousers wondering whether it is open or not; a not uncommon compulsive idea, it may be interpolated, and much related to the penis envy idea of women.

*Case 2.* Mrs. J. B. T., twenty-nine years of age at the time of examination, of Russian Jewish origin, one of eight children, reared in the south, had always been well, and no particular hereditary disadvantages were shown by the history. In 1920, she had the "flu." She saw double, had a temperature and was delirious. She made an apparent recovery. In 1923, a "nigger" broke into their chicken coop. This seemed to date the onset of the parkinsonism which consisted chiefly of a mild generalized rigidity, face masked and a bit glairy (seborrheic) and a definite tremor almost exclusively limited to the entire right arm. This tremor, gradual in its inception, advanced until it became unbearable. (When the patient was seen again in November, 1928, the tremor had become more general.)

At times, irregularly and not clearly recalled by the patient, she would have spells of great despondency. Her entire right side would become fixed, the right arm would shake more and more, and the eyes would simply "bore through things" so intense was her gaze, directly forward—and occasionally toward the right; of late the eyes would "force themselves" in spite of her, as if she did not want to look at something. She was distinctly suicidal, especially during these "trance-like" states, but the despondency hung like a general pall over all her activities.

My time of observation was short, consisting only of two visits. She presented one dream only. "She had lost her diamond out of her ring." Analysis was not possible. Detailed presentation of the neurologic findings is unnecessary at this time.

*Case 3.* V. L., fifteen years of age at the time of examination, the older of two girls, was referred to me by a colleague. In November, 1924, when twelve years of age, she had had a febrile attack, with headache and some eye trouble (double vision) and lethargy, lasting in all about eight weeks. Shortly following this, the patient became unmanageable. She had tantrums, was bold, was obscene in her language, would kick her mother's shins, and all of the well known behavior anomalies following encephalitis were manifest. She was taken to many clinics, hospitals, and physicians, but the situation went through a classic evolution in which the tantrums were paramount. She drove her father to drink. She had

a period of respiratory tachypneic attacks, each attack being of short duration. These began in April, 1926, and were intermingled with her "rule of the household." She demanded to go to bed with her mother, would talk all night, alternated between affection and anger, and "raised hell" in general. Up to the time of the encephalitis her mother reported she had been a perfect "angel."

When first seen in the office she seemed a nice girl, just emerging into adolescence (she had menstruated at the age of eleven). She was in the gawky period. She announced that she did not like "doctors." She had already seen at least a half dozen. One of them had rather brusquely asked her about masturbation, which was then a preconscious conflict, and she dreaded any further intrusion on her personality. She was proper in her deportment except that at times she would suddenly and violently dispute a statement of the mother in such language as, "You're a liar"—"You know G. d. well that is not so," and, strangely enough—from my viewpoint she was right. It was the mother whose saccharine rationalizations were unsound. She then went to three different sanatoriums and grew progressively worse.

The description of the condition when I saw the patient at her home in March, 1928, was briefly as follows: For the most of the day and night she was up and around. Her life was chiefly a series of episodes in which she went through a fairly regular cycle. She got up from bed, tiptoed stiffly in a large circle, her eyes and head in a fixed oculocephalogyric position to the left, trance-like; she made a menagery series of movements around the room, saying, "Don't touch me, don't touch me, don't touch me." She made a semigrunting "brüllen" (Schuster, and Benedek) noise as she went through this maneuver, and after five, ten, or fifteen minutes she sought her couch exhausted. She lay there ten, fifteen, twenty, or more minutes, sometimes slept an hour or so, and then got up and went through the same series of circus movements. These paroxysmal crises were repeated from ten to twenty times a day.

All kinds of therapeutic attempts have been as yet unavailing, and naturally the family were driven to distraction.*

*Case 4.* J. F. is a patient whose case has been reported in full in my monograph on postencephalitic respiratory disorders, where the early history is given in great detail. The account of the analysis of the partial meaning of the respiratory symptomatology is there discussed at length,

* At the time when a report of this patient was first printed, *i.e.*, February, 1929, while under Dr. L. P. Clark's care at Stamford, she had made a complete recovery from her behavior anomalies. *She never was parkinsonian.* A report of this case is given in the New York Neurological Society Proceedings, February, 1929, Journal of Nervous and Mental Disease. See later discussion.

with what have been assumed to be beneficial results. The patient has had no further respiratory attacks up to 1932. Evidently, however, the entire story was yet to be told.

As Wimmer has insisted on the chronic nature of this disturbance, so here a new invasion seemed to have taken place. In the ordinary medical parlance, he had a mild attack of influenza. (At least this is what, as Groddeck puts it in his "Das Buch vom Es," the wiseacres tell us.) Following this, a new phase appeared. He had been well since my last report of his illness. Although he rarely got up before from 10 to 11 A.M., nevertheless he would get to the store (his father's business) and work until 3 or 4 P.M., then go home, take a nap, and be ready either to work in the store in the evenings or to enter into any social situation that arose. A progressive "growing up" had been observable. He seemed to enjoy his work as a junior salesman and had taken on more and more responsibility until this new "febrile attack" seemed to "knock him down" as he expressed it.

This occurred on June 18, 1927. It followed immediately upon an amatory adventure involving fellatio with emission and then inability to reach an orgasm after fifteen minutes of coitus in which the lady complimented him on his staying powers, but from which he had emerged shaking like a leaf the next day. He telephoned, or rather his brother did for him, in great alarm, the very next day. The patient had had "an oculogyric crisis" which had come on suddenly, was "Jesusly painful," and lasted from 4 or 5 P.M. until 2 or 3 A.M., when he finally fell asleep. This was on June 19, 1927. Then, two or three months later, he had a couple of minor attacks. I had not seen him for about three months when he came to the office and told me of these attacks with considerable anxiety and much increase in rigidity. He said he felt nervous, as he had not seen me for so long a time. I also obtained the intimate details of his so-called attack of "influenza" (*vide supra*). I received a letter from his brother at this time, October 25, 1927, which reads as follows:

"These periods concerning which I talked with you over the phone today are marked by a severe flexing or turning of the eyeball, always toward the right. They turn upward and sideways.

"I first noticed this when I talked with you about it early in the summer. It first seemed to develop when he was extremely tired and exhausted, and I always connected it with exhaustion. It seems lately to happen about at weekly intervals and he develops it generally on two successive days. Sometimes it comes at night and when it does it has lasted as long as two or three hours. During the period this lasts, he cannot of course sleep. When he does fall asleep it is the sleep of exhaustion.

"This eye trouble seems to exhaust him very much. When this seizure

is going on, he seems to be in the same state he used to be during his trance periods. It seems almost impossible for him to answer questions, which he sometimes does, however, only after the greatest struggle or difficulty. He slows up in all action and motion during this attack.

"He is extremely worried by this symptom, minding it much more than his old time attacks of rigidity, due I imagine to the fact that he was so sick then that he didn't know what it was all about.

"Now this new thing upsets him terribly. Remember that he has had no attacks of any kind to bother him for a long time. He says very little while these attacks last and what little he says is an interjected remark, thrown out during a momentary cessation of the flexing of his eyes, such as today. 'It's all up in the head with me'; 'I keep repeating things when I'm like this'; 'I guess I just deserve this. Everybody gets what they deserve.' Today he said to me, 'I wonder if all my trouble comes from masturbation?' I assured him it did not. As a matter of fact I do not think he masturbates nearly as much as formerly. During this period, then, he seems terribly worried. However, when it stops and he gets a night's sleep, he does not seem worried next day.

"In other words, he seems to recover from this depression rapidly. Sometimes, he gets this flexing tendency on the way to the theater, but it stops when his interest is taken up by the play. He never has had it during a performance, indicating that when his mind is busy functioning this trouble does not come. Last night, this came on him after an active evening in the store. 'What started your eyes tonight?' I asked him. 'I keep thinking about it and worrying and they go south,' he replied.

"In the main, his condition seems fairly well. Aside from nights upset by this trouble, he sleeps well; his appetite is normal and good and I believe he has gained a little weight. When we came back from our three week trip to Cuba, he seemed in excellent shape.

"He is not any more active than he used to be and still requires an afternoon nap. But he seems so much more mature than he used to be, so much less a child and a baby, so much more a man. He has unquestionably developed a lot from the old days. He has very little of those periods of 'trance' we used to note. Now they happen only as a rule during this eye upset.

"I have tried to assure him that this is only a temporary thing that will pass away, just as lots of worse things did. He needs to be reassured of this, I imagine, and encouraged, by you. I thought at once, just as you said over the phone today, that the same thing was taking place in his eyes as used to happen in his hands. He certainly is a game little kid and it almost breaks my heart to see him have this new trouble. I hope you will find a way to handle it.

"I am hastily typing this to you so that you will have this information

when we come up, on Friday, at 2 P.M. It would worry him if he knew that I thought this thing was serious enough to make it the subject of such a long memo. So please don't tell him I wrote you. I think the whole thing needs to be minimized in his mind, because otherwise he will worry dreadfully.

"I have tried to be as complete as possible in this. However, this eye

Patient in trance state.

trouble is only part of the picture. Aside from it, he is O.K. and a thoroughly acceptable human being. I say this so that you won't get an overdrawn picture of things from this note.

"I gave him luminal, two or three times. I told him it was a bromide, because you will recall Burr used to prescribe luminal and if he knew I was giving him that, he'd imagine he was in bad shape.

"This is certainly a disjointed letter. But I thought it best to get it off at once. Regards."

His brother and I finally discussed in his presence the possible desirability of cutting into the hypothetical chronic infectious nature of the process; his alarm was manifest and he went into one of these characteristic emotional trance-like states, with at first central ocular fixation and then upward movements of the eyes. During the attack the parkinsonism increased, he perspired and began to murmur, "A million ideas are going through my head; rape my sister, rape my mother; kill my brother, kill my father." "Am I going crazy? Doctor, oh, doctor (almost pleadingly), tell me, am I going crazy?" "Am I going crazy," as in the frequently heard compulsive psychoneurotic complaint, is the burden of his story. This was the general burden of his distress which reached the extremes of anguish. He went home with his brother, and this attack, chiefly of anxiety, with upward and outward eye movements, persisted about thirty-six hours.

Mindful of Magnus' conceptions of the positions, head and eye reflexes, I tried the various maneuvers in my patient during his crisis, and found that the eye position was modified strictly in accord with the ideas of the physiologic requirements. The patient was functionally, *i.e.*, primitively, decerebrate. Anatomically, he was far from decerebrate. This is a fascinating problem which involves most intricate psychologic correlates.

As may be seen by anyone reading the abstracts of the histories here recorded, this is a typical example of what occurs in other patients, with many variations. In some there is little or no conscious anxiety; in others the anxiety approaches the "melancholia" type and may even lead to a compulsive suicidal effort or ideas of suicide.

On the occasion of an attack, this patient made a futile dash to throw himself out of the window in order to get away from his "thoughts."

To me, at least, it is important to record that for the past several months (1928) I had seen this patient only irregularly. Either economic or other considerations have seemed to interfere. Anyone with "imagination" sufficiently sensitized feels how sensitive these professional relations may become without detailed consideration. As a minor, he was dependent on his father; "business" was "rotten," hence economy was in the air. This he felt acutely, and when he saw me after an interval of two or three months his anxiety had in it a bit of this situation. This is but one factor of what is often envisaged behind the broad and not altogether comprehended term "emotional." He had had a workable "positive transference" with me, but there were interfering factors; hence, the eruption of the whole emotional conflict when the ticklish and important subject of materialistic, mechanistic, and intravenous therapy was broached. In 1931 the parkinsonism is present, the crises are less, but the obsessive idea, sometimes with violent compulsive acts, to kill his brother, is manifest.

At all events, the intrapsychic situation in this patient, now studied at

times for two or three years, offers certain suggestions of what seems to be of great significance. Full discussion of the respiratory situation has been presented, although from reviews received of the monograph devoted to this subject it is apparent that the presentation of the situation has not been so clearly perceived as might be wished. In fact, few have apprehended what full acquiescence to the Hughlings Jackson program really implies.

In this particular study it is hoped that its statement—*i.e.*, Hughlings Jackson's conception—will be more explicit, since the "anxiety"-"sense of guilt" situation offers some advantages which the "respiratory level outlet" could not make intelligible, except to certain few individual minds, lacking fixed prejudices and being free to operate with new concepts.

The factors dealing with the psychoanalytic observations in this and the other cases will be taken up in the chapter on psychopathology of the positive level symptoms.

# CHAPTER IV

## Symptomatology: 1. The Eye Movements and Other Synergisms

Coming to a summary of the actual situations as deducible from the rich literature and from personal observation, attention may be called to the thesis that the oculogyric crises *per se* are not phenomena present only in postencephalitic patients.

This is evident as soon as the whole series of instances in which such movements occur is surveyed.

In the first place, it has been known for centuries that the eye position most prominently seen in the oculogyric crises is the more or less universal eye position taken during sleep, and graphically called the "French Doll" phenomenon, more technically known as the Bell phenomenon. The reader is referred for more recent discussion to Bramwell's most interesting paper, to Reichardt's intriguing outlining of the Hirnstamm und Psychiatrie, and also to Velhagen's short paper on these oculogyric attacks and sleep states. With this interesting physiological background it has seemed to me that much thrashing of the air has been indulged in by many writers who seek for a pathological locus for a physiological expression, even if it is tonically exaggerated.

From time immemorial these eye movements have been known to occur in the epileptic attack. This has been portrayed in Raphael's Transfiguration as alluded to. They have been seen in many persons in psychotic states, notably in catatonic, schizophrenic and manic-schizoid states; also in the manic phase of the manic-depressive psychosis. Pearson has written an excellent summary of their occurrence in neurosyphilis. Krabbe has likewise discussed them in this setting. They have been seen in cases of brain tumor in multiple sclerosis and, as already indicated, in patients with arteriosclerotic paralysis agitans (Vorkastner). As a pure expression in hysterical attacks, the early literature is full of them, even if it may be granted that some of the early records are not all true cases of conversion hysteria. Furthermore, as true compulsive neuroses—"tics"—there is equally bona fide evidence of their occurrence in

pure culture. It is here assumed that Meige and Feindel, and Cruchet were partly correct in their attitude toward what they differentiated as "organic" and as "functional" tics, broadly interpreted. Wilder and Silbermann have discussed some of the aspects of this phase of the problem, as has also Kinnier Wilson (1927) in his valuable and lucid contribution on "Tics and Allied Conditions."

It is not the place in this section on symptomatology to discuss the numerous conceptions and interpretations of all of these various types of oculogyric movements. Willbrand and Saenger have done much of this already. After pointing out the numerous types observable, I shall focus attention on the postencephalitic group as clinical phenomena. Just where they belong in the complete picture puzzle, and particularly "why," will be taken up later.

Before proceeding to any discussion of these eye phenomena, it seems imperative that attention be called to one important consideration. The studies of Sherrington, Magnus, de Kleijn, Goldstein, Foerster, Zingerle, and others have shown clearly that there are practically no isolated reflex body position movements. Thus the oculogyric crises which have been chosen for special study cannot be dismembered from other synergistic movements, such as those of position, righting, head and speech and those that are psychic, except for theoretical purposes. The intimate integration of the nervous system is such that with these eye movements a variable series of synergisms is associated.

In the descriptive summaries of Chapter II these have been searched for, but in the various outlines of the crises different observers have given but few details of the bodily positions, and even fewer have paid attention to the mental content of the compulsive acts or of compulsive thinking. Thus, if it has seemed that one has been inclined to think of these oculogyric crises as isolated phenomena it is to be remembered that this is not the case, and that the organism, as a whole, should be viewed at all levels of its adaptive capacity, vegetative, sensorimotor, and symbolic. Economy of time necessitates omission of consideration of the entire situation. Under present medical ideals of observation a thorough portrayal of a single attack could, if needs be, fill a volume. Medicine, as in other disciplines, is in the dangerous position in that too much can be learned about any one thing for it to be completely synthesized. Hence, the many incomplete generalizations which, like piles of rubbish crowding its broad highway, hamper medical thinking at every step of its

progress. One can readily conjure up the vision of innumerable rag pickers busy with thousands of rubbish heaps of old generalizations. Such little hoards of questionable observations clutter the pages of medical literature. The present communication cannot hope to escape entirely from some of this uncomfortable situation.

When I started this study of the interactionism between oculocephalogyric crises and mental phenomena I shared the illusion with at least three score and ten other observers that I might make something out of it of value to others. But, as in other inquiries into the mysteries of Nature, the more I delved the more obscure became the relationships I had hoped to elucidate.

Surely here again was to be found that situation of the specialist who "learns more and more about less and less," and its accompanying and inevitable layman's opposite of "knowing less and less about more and more." Therefore, I have come to the simple expedient of exposing the skeleton of my activities and leaving it for cogitation.

Still another important consideration, and this concerns itself more particularly with what is here of necessity neglected. This study would, for the moment, emphasize the futility of attempting to guide the reader through the maze of studies, now some 150 years in the making, into the complicated problems of forced conjugate deviation of the eyes, head, and other associated movements. Magendie's early studies initiated these. There are numerous guides far better qualified to point out the chief inroads on ignorance of the anatomy, physiology, and pathology of the organic substratum directly or indirectly involved in these phenomena. Spiller (1905 to 1919) started such orientations, and Muskens, of Amsterdam, has done conscientious service in this direction. The historically interested are referred to his studies, particularly with reference to those types of conjugate deviation of the head and eyes arising from lesions of the ascending vestibular pathways in the posterior longitudinal fasciculus. Bing and Schwarz, Marinesco, and others speak of irritative lesions of the posterior longitudinal fasciculus acting by irritation through striatal nervous units as causing these positive symptoms.

As no single brain of a patient showing these phenomena in any outstanding manner has been subjected to any, much less a complete, study, one must fall back on hypothetical postulates for the negative symptom side (Hughlings Jackson) of the problem of localizations.

The cortical centers of deviate conjugation movements are held by some to be responsible. This may satisfy those in favor of the epileptoidist theory.

Two years ago, in a study of respiratory phenomena, the thalamic overresponse hypothesis (Head and Holmes) was utilized. The plastic emotional causative situations play into this hypothesis. Most of the discussions there reviewed dealt with the striatal substrata—thus, the hypertonic spasms (extrapyramidal epilepsies of Sterling, Paulian, and Zingerle). The "neostriatum" is especially attacked, since it has been the mode to refer those conditions of encephalitic hyperkinesia to neostriatal lesions. The authors who follow this lead are cited following C. and O. Vogt's conceptions of a segmental topographic representation of the body muscles in the striatal ganglia. I also added Wilson's stringent criticism about this, to him, premature generalization. Wimmer reported in extenso a case which seems to help this hypothesis.

Then, since the Magnus-de Kleijn studies have shown the great significance of the vestibular synergic apparatus, the records show many cases (van Bogaert, and others) of hypersensitivity to the vestibular tests. Again, direct cerebellar involvement, as cited in a case by Wimmer, offers some help in this chase of hypotheses. In a vertical oculocephalogyric case, Paulian pointed out its resemblance to "vermis cerebelli"—"Jackson's cerebellar fits"—involvement.

These are but a few of the many hypotheses that might be reviewed as to the negative side of the problem as regards direct injury to the organismic machinery. Where there are so many localizations it is evident that there is poor comprehension of the cerebral mechanics.

However, as direct injury leads to "loss of function" and hence must be seen in a negative sense, this study would leave this aside and focus attention on the positive side, and inquiry is directed toward the *purposeful pattern*, if any, of the symptomatology. Here the difficulties are even greater than any heretofore encountered. Phyletic synthesis of structure, for the most part, has an optically observable basis. Comparative anatomy helps somewhat, and Tilney and Casamajor's effort at unravelling behavior by the myelogenic method under experimental conditions offers some insight into the complicated behavior reactions, even in the cat—so far removed from man.

What can be done in the realm of abstractions of a higher order than optically demonstrable patterns?

Sir James Fraser wrote a work of twelve volumes entitled the "Golden Bough." In the introduction to this work he spoke of it as a small contribution to the study of "ethics." Fraser's work offers an insight into multitudinous behavioristic formulas pursued by mankind in his primitive, early cultural, and later socialized activities. Running throughout this entire account, and in all others dealing with related ethnologic and anthropologic activities, ritual, as a fixed compulsive situation, stands out as a magnetic pole. The essence of ritual is compulsion, and our present thesis thus demands that any compulsion, seen from Jackson's positive aspect, must gather into its comprehension the ethical significance of a bit of behavior, whether it shows in the religious ritual of the "mass, or communion," in a "prayer wheel," "beads," or in a "tic." Thus an oculogyric crisis, *i.e.*, a compulsive activity, contains a bit of ritual; how much the present study does not pretend to answer completely.

A compulsion is a substitution phenomenon. Freud's conception here is far advanced over any other for comprehension. Practically all compulsions are accompanied by "anxiety," *i.e.*, especially if the outlet utilized is interfered with. This leads the inquiry into the "maze" of anxiety.

The tight rope walker in the circus who gets a cold in the head with slight vestibular hyperemia passes up his act, as does also the trick bicycle rider. They will not risk the "anxiety" conditioned by their diminished vestibular capacity. Perhaps this enters as one of a number of components into the anxiety of some of the oculogyric crises at the jacksonian elementary physical level (Hermann, Feder, French). Many a person with a compulsion neurosis fears he will fall. Cardiac disorder causes anxiety at another level. So on up at various levels from the fear attending physical maladaption to that of chemical disintegration, to biologic fault or finally to social exclusion, anxiety arises.

In the records of the cases gathered in this paper, there are a number of definite indications of the emergence of primitive impulses; primitive in the sense of the gradual building up of ethical attitudes toward earlier unlicensed antisocial activities in which the "sense of guilt" serves as the policeman, *i.e.*, the super ego or ideal ego of Freud.

In short, the song of the psalmist—"Lift up thine eyes to the hills whence cometh thy help"—in the sense of an ethical compulsory substitute for the emergence into consciousness of repressed,

tabooed wishes— is the primitive, positive level in ethical structure which has built up civilization and culture, and which is believed to have some bearing in this study on the subject of compulsive activities.

## Symptoms

The oculogyric crisis, as such, rarely, if ever, occurs alone. Even though Wimmer has reported such, it is not improbable that accompaniments in the psychological sphere were not, for the time being, included in the picture by him.

Hence, in the consideration of the symptomatology, or clinical picture, attention will be here directed toward certain combined features bound up in the attack, viewing it as an attack.

In a more or less fully developed oculogyric attack, in the encephalitis frame, one may consider the eye movements, the thought disturbance, the emotional state, and the nature of consciousness or vigilance.

1. In a classically developed attack the eyes move to an extreme position toward or away from some actual or introjected (*i.e.*, imagined or "symbolic") object. At times direct forced staring is manifest. In the period in which the patient is well the eyes do not show any evidence of paralyses, and even during the attack itself the eye movements may be able in some instances to move if focused on some moving examining object. In the few cases reported on (Zingerle, Stern, Holmes, and myself), passive movements of the head cause the classic alteration of the eyeball position seen in the Magnus reflex testing maneuvers. (See Van Bogaert.)

2. The thought movement is slowed. Bradyphrenia was an earlier designation (Cruchet, Hesnard). Stickiness or slowness of thought are other appellations. Stern speaks of "Gedanken Zwang"; there are a whole host of terms. For us the concept inhibition from "repression" will be utilized.

3. The emotional state is one of mostly conscious anxious compulsion. There is hypervigilance (hypertonia) of the entire bodily musculature, striped as well as unstriped.

4. Involvement of consciousness (vigilance) varies from slight to marked degrees of involvement.

The phenomena will be discussed under these general headings in the succeeding chapters, of which this would confine itself to the eye movements and related phenomena.

## Eye Movements

Thus one comes to grips with the oculogyric crises as showing late in encephalitis. Most observers record the fact that these crises have been observed only in those postencephalitic patients who have developed, more or less completely, the so-called parkinsonian syndrome. For myself, I am prepared, in the face of this evidence, to concur provisionally with this generalization, although I am not entirely convinced that it is a necessary concomitant. If this hypothesis be admitted in its entirety, then one must assume that the parkinsonian syndrome, as such, is a necessary bit of the entire mechanism. Our case, V. L., has not become parkinsonian in 8 years.

Wimmer phrases it as follows: "Thus, my cases, like those reported in the literature, seem to indicate a very close connection between the oculogyric crises and encephalitic parkinsonism. This intimate rapport might not be expected beforehand, seeing that in parkinsonism we have, generally, a continuous (alterations—S. E. J.) condition of hypertonicity and rigidity with a more or less marked akinesia, the syndrome for the greater part developing slowly and with but few oscillations during its further course. The paroxysmal fits of oculogyric crises should seem, then, to agree better with another encephalitic syndrome, viz., that which is by preference characterized by hyperkinesia, the athetotic and torsion spasms syndromes, for instance.

"These tonic fits (Wimmer quotes the cases of Lemos, Sterling, Marinesco, Zingerle, Gurewitsch, and many others), especially marked cases, bear a rather strong resemblance to the tonic phase of the genuine epileptic convulsion attacks. Hence Sterling's 'extrapyramidal epilepsy,' Zingerle's 'Cramp type of the brain stem.'"

If all this be true—and I reserve judgment whether it be so—any interpretation of the oculogyric crisis as a movement can include the larger picture of the hyperkinetic-dyskinetic syndrome now envisaged as the parkinsonian syndrome. When one faces this generalization, even though of the various authors Wimmer most particularly states it, I reserve judgment in view of the larger survey of the vast number of other studies of the possibilities of the dissection of these syndromes.

One single reflection bolsters up this critical attitude. It relates itself to the colossal complexities of the phyletic synthesis of movement in the human aggregate. Complex as this aggregate may be,

and numerous as have been and are being the efforts to reduce it to simpler radicals, my own feeble efforts to comprehend the situation may be viewed, and rightly, as purely tentative and suggestive rather than in any degree final. Certain critics have deemed it proper to overlook this conservatism, as evidenced in other papers, notably in my "Respiratory Syndrome" and the "Schizophrenia-Encephalitis" papers, and have spoken of a "dogmatism." This is far from justified; hence, the emphasis here. My suggestions concerning psychological concomitant factors may have seemed radical, but they were put forth as scientific hypotheses to be checked up by others who were willing to work in the same frame of reference. Thus, should it here be attempted to be shown that even behind the parkinsonian attitude, the other hyperkinetic situations apart, one may detect psychological regressive situations with ethical implications, I am satisfied that the interpretation set forth offers some food for reflection. It cannot be dismissed as "metaphysical," or "mystic," or other such phrasing.

These oculogyric crises, then, are not necessarily found only in parkinsonian cases, as some writers have too hastily assumed. But since the evidence is preponderantly in favor of this association, as may be read in the digest of the cases, the specific generalizations here discussed concerning the one situation (the crises) may possibly be interpreted as a correlated factor in the other (the attitude). This phase of the discussion belongs later.

The records collected and personal observations also seem to show that the vast majority of the oculogyric crises appear comparatively late in the development of the entire parkinsonian situation. Only one or two reported cases, one of which was not as completely studied as might be wished, present the oculomotor phenomena as developing pari passu with the parkinsonism. The case of Vivaldo, because of its psychotic admixture, prevents any deductions of value in this present discussion. Stengel's (1930) case apparently appeared four weeks after the onset of the disorder. At the other extreme, Wimmer's ease that developed seven years after the initial encephalitis is to be considered. In the 200 or more cases here abstracted, the onset of the ocular movements took place somewhere between these general limits. To some industrious statistician is left the preparation of a table or graph to show this incidence of onset. For myself, I believe it to be irrelevant without more detailed anamneses. Hence, this is a question for the future to decide, if it should turn out to be of possible value.

## CLASSIFICATION, PERIODICITY, AND SEVERITY OF THE EYE SPASMS

*Classification.*—Roger and Reboul-Lachaux, in their Geneva report (1926), and later (1927), emphasize a differentiation between tonic and clonic types of spasm and speak of spasms of convergence.

Thus, they offer a classification which is of interest, even though it is here held to be of little value, since, for instance, a single patient in one or in different attacks will present one or all of the forms outlined. I have observed this, and in some of the more carefully prepared reports the same situation is evident. While it may be of much significance as to the prevailing kind of movement in the crisis, certainly but few relevant suggestions as to reasons for the specific direction of the movements are to be found in any of the papers here reviewed.

Roger and Reboul-Lachaux's classification is as follows:

1. *Tonic Spasms:* (a) Simple. One direction, usually vertically most frequent, or down, right or left. (b) Variable or alternating. (c) Bipolar—successively opposite directions, vertical or horizontal.

2. *Spasms of Convergence:* Rare and not observed by the authors. In the abstracts here reported such spasms are frequently recorded. They were usually present in my own cases. They are easily overlooked since they are often transitory. The outstanding fact that some loss of convergence power is almost universal in parkinsonism brings up the question of the phylogenesis of the function of convergence in binocular vision (see Brouwer's able and complete exposé of the ocular muscle nuclei developments). As this late arriving synthesis is less highly organized and hence more capable of dissociation, and since hypolabyrinthine sensitivity is also a frequent postencephalitic concomitant, a double loss from the somatic side cannot fail to have an important repercussion in the sense of stability or equilibrium, which as a physical stabilizer in time and space plays an enormous rôle in the affective sphere. Bing and Schwartz have been alert enough to grasp this at the physiological level but overlook it on the psychological level.

3. *Clonic Spasms:* Convulsive in type.

My reading of the G. Lévy cases does not coincide with those of Roger and Reboul-Lachaux. Further, these clonic states are frequent in the beginning of most of the crises observed by me and can be read in the records abstracted in a previous chapter of this study.

As Roger and Reboul-Lachaux observe, these movements are

irregular. My own observation and readings show them to be extremely so, and yet at the same time my interpretation of these movements often shows just why the particular direction chosen as more predominant is so chosen—*i.e.*, "chosen" here being interpreted not as wittingly so, but as the result of unconscious sets of factors.

As most authors have recorded and most of the photographs published show, the prevailing direction is upward—to the right. This is possibly not without some significance from some interpretative

Illustration of eye movements to extreme right (Farnell).

factors to be dwelt on in later phases of this inquiry. It would require another monograph to check up all of the facts about the direction of these movements.

*The Crisis.*—In its complete or fully developed form as already outlined, this is a complex compulsive phenomenon involving at least the four factors already mentioned and nearly always associated with other highly intricate reflexogenic, protopraxic movements (Dodge), the extreme expressions of which have been made the subject of many studies, to quote only those of Foerster, Zingerle, Gamper, and Untersteiner as samples.

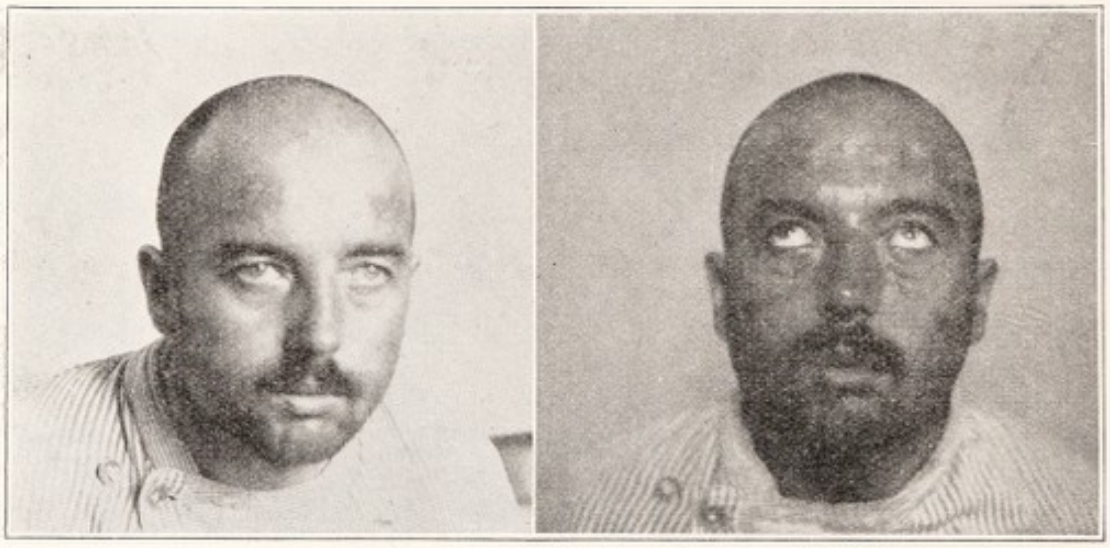
The onset of the crisis is most frequently correlated with some affective disturbance (emotional stimulus from the outside chiefly), frequently referred to as "suggestion" (Marinesco and Radovici), mental contagion (van Bogaert, and others). Störring speaks of inner psychologic factors but does not pursue them beyond dissociation. Internal factors, such as fatigue and hyperthermia, are recorded. Also provocative stimuli—lights, sounds, smells, commands, hyperpnea, and other situations hitting a highly sensitized organism (unconscious sensibility as in any organism engaged in conflict with a devastating attack on synthetic controls)—these are of much significance in understanding why an attack is set off. It is necessary in

Upward and to left crisis. (Ewald.)

order to be a good observer at all to be oriented to the affectivity in the narcissistic neuroses, schizophrenia, the manic-depressive psychoses, or the milder psychoneurotic, hysterical, or compulsive states, to evaluate properly this affective sensitivity. To be satisfied with such terms as "suggestion," "mental contagion," "pithiatism," "psychopathic," and similar words is hardly more advanced in insight than to accept what the average internist avoids looking into when he speaks of "nervousness."

The usual beginning of an oculogyric crisis shows this affective situation either by an advancing malaise, a sense of insecurity, or even vertigo, as recorded by many; Bing and Schwartz, and others, as will be discussed later, view this vertigo or sense of insecurity solely from a somatogenic standpoint. This is but one part of the entire situation, as will be developed further.

It is believed to be unnecessary to summarize those reports which show only upward movements, upward and to the left (Reys) vertical oscillations (Bertolani), etc. The fact is that these movements change a great deal and need not be catalogued here. Neither is it of much significance for our purpose, though of value in other directions, to enter into a discussion of the cephalogyric accompaniments further than saying that here is a promising field of study by the Magnus-de Kleijn maneuvers to learn somewhat of the associated postural reflex activities of the eye and head. (Stern, Van Bogaert, Holmes, Jelliffe, Zingerle, Schilder, and others, remark upon their paradoxical



Staring crisis to left; upward and to right crisis on right. (Ewald.)

character and above all on the difficulty in carrying out the maneuvers. Our experience has been similar.) Roger and Reboul-Lachaux have gathered a number of these, which as a preliminary and rough survey should be consulted. These include the eyelid movements as well, and are extremely complicated.

During the ocular movements pain in the eyes themselves or displaced to the other regions of the head, headaches and violent vascular pulsations constitutes a special problem, as do the vascular congestions which are more or less commensurate with the duration of the crisis.

The main outstanding feature is a paroxysmal spasmodic conjugate deviation of the eyeballs, most frequently upward and to the right, but also directly vertical, to the left, or even rarely downward to the right or left. Westphal early described looking down cases. Roger and Roboul-Lachaux others, van Bogaert also. They are not

infrequent in the beginning phase of the upward more enduring ambivalents. In the greater number of the cases there is a period in the attack when direct forward staring is observed. This is usually at the beginning, and not infrequently is the most commonly observed feature.

In many the compulsion is positively directed and forces the patient to look at the forbidden object. Thus, in the **A. B.** personal case here reported, in an earlier stage compulsive staring at the opening in men's trousers was manifest. The compulsive act was not accompanied by any conscious idea. The idea as to the trouser opening did not come to conscious expression until about the time when the oculogyric crises had ceased. In other words, there is no need for the crisis when the idea is allowed to develop to a conscious verbal expression. Apart from an advancing parkinsonian stiffness in **A. B.** the obsessive thought of the penis behind the trousers is the chief remnant of what was under repression in the respiratory attack (seen primary coitus of the parents) and later modified to the oculogyric attack (seen penis of father in childhood).

The lowering of the eyes in Delbeke and van Bogaert's case is quite typical of the attitude of maidenly modesty—attitude of the (virgin-prostitute) ambivalence—which Delbeke and van Bogaert say "had nothing sexual about it." Also it may be recalled that in the case of **L.** with the menagery movements, oculogyric crises and respiratory activities—that whereas the eyes and the movements were directed towards the object, the nonaccepted idea (masturbation) came out in the negative form—"Don't touch me," "Don't touch me." This all arose when at the sanatorium the feebleminded boy made the actual masturbatory attack. This whole idea later was accepted by the Ego and then, under the more adult stimulus of an actual coitus attack, this phase of the compulsion passed away partly as a result of psychoanalytic understanding and partly because of the double transference situation alluded to here later. Here actual coitus craving was accepted—possibly semiaccomplished—and the whole psychotic situation cleared up. A later actual impregnation took place and a more adult phase of the sexuality was entered into and a disappearance of all of the psychoneurotic activities.

The crises may appear frequently. There may be several a day, or rarely once a month, or at even longer intervals; also at regular or irregular intervals. Most often the records indicate a heaping up

of attacks late in the day. By most authors this is referred to fatigue, since in many instances prolonged muscular efforts seemed to precipitate an attack. Even more important than a series of concomitant precipitating factors, such as lights, sounds, smells, and other factors, emotional factors stand out most prominently as leading in some manner to an attack.

The attacks may last a few minutes or they may persist two or three days. The same patient will show these variations in the time interval in different attacks; other patients show a more or less

Illustration of up and to right movement (Farnell).

stereotyped length of attack. The only valid generalization seems to be that no generalization is valid. Thus Roger and Reboul-Lachaux's efforts at classification are here regarded as but a temporary expedient, of descriptive value chiefly.

In many cases the attack comes on suddenly; in some, the patients work up through a cycle until a most complicated series of synergic hypertonic torsion states of progressive reciprocal innervation patterns are developed (see Zingerle, Gamper and Untersteiner for related hypertonic states). For the most part, however, the pattern is a comparatively restricted one. Thus, Wimmer reported

strictly isolated oculogyric states. However, as already indicated in the opening paragraphs of this study, it is emphasized that the ocular spasm is but a part of a complicated generalized defensive effort of some sort. Most of the cases show combinations. The abstracts show a great variety of facial, masticatory, swallowing, speech, respiratory, arm, leg, bodily torsion, and menagery movement accompaniments.

Linked up with the spasms there may be negative symptoms of paresis from somatic involvement of eye nuclear, supranuclear, or cortical synapses in the form of strabismus, Magendie-Hertwig phe-

Upward and to left and downward crisis. (Falkiewicz and Rothfeld.)

nomena, pupillary inequalities, and other conditions. These are not necessary parts of the "spasm crisis" as such, and represent left-overs of the original focal invasions of the encephalitic process.

The occasional accompanying palilalias, grimaces, and champing, as well as salivatory, grunting, crying and masticatory, and other tic-like movements, need not concern us here, although, as previously noted, they belong in the entire picture and will be referred to later.

The pupillary symptoms are worthy of special consideration at this place. They are purposely left outside the picture, although they, like so many other signs, are pertinent to the discussion. Bertolani, van Bogaert, Marinesco have reported mydriasis. Westphal called attention to them early in encephalitis as pupillary immo-

bilities. Delbeke and van Bogaert, Stern and others have recorded them. They have been related to catatonic pupillary crises, hysterical stupor pupillary states. This rigidity may persist throughout some crises. Bumke's designation, "terror" pupils, is especially germane to the point of view here to be further elucidated, especially as it will be emphasized that "terror," as well as "raptus," must be thought of from the Hughlings Jackson conception of "disintegration of function" to lower levels, Kretschmer's "primitive reaction" notions, and, more particularly in the psychical frame of reference, to Freud's ideas relative to "regression," "inhibition," "checking" (Schilder).

Blinking movements also should demand attention in the consideration of these oculogyric spasms; also the position of the eyes during sleep, as well as the collateral evidence of the eye movements during anesthesia.

Many authors have spoken of the blinking movements in the records that I have abstracted. The relation between blinking (as a defense) and upward rolling of the eyeballs is very intimate. In an intriguing paper, E. Bramwell has discussed this synchronism, as well as the significance of the sleep position (French doll phenomenon) and the eye position under anesthesia. Velhagen has also discussed the relationship of this to sleep.

*Periodicity.*—Up to the present time valid conclusions may not be adduced concerning the periodicity of these attacks. The careful reading of the abstracted material shows several attacks a day, daily attacks, every other day, every third day, every fourth day, weekly, etc. They may occur at 3 o'clock (Reys), 4 o'clock, at 7, 8 (Roger and Reboul-Lachaux), or at any other set hour. One patient on waking has attacks which persist until sleeping. Again all is confusion. In fact, the variability in time argues that careful psychologic analysis is necessary in order to obtain any light on this aspect of the situation (Hesnard, Bériel and Bourrat, and Jelliffe).

It is not without significance, however, that in most of the cases the attacks have increased in frequency and in severity. Somatically interpreted, this argues for the advance in organic deterioration. Psychiatrically envisaged, the factor of "regression" is equally in need of investigation.

*Severity.*—No generalization is valid as to the severity of the attacks. A few patients show a more or less stereotyped form of

attack; but, for the majority, the attacks are shorter and longer, simpler or complex, transient or prolonged. A few last minutes only and are followed or interspersed with those lasting one, two, three, or more hours. One of the attacks in my fourth case lasted thirty-six hours. In case 2 the attacks continued at intervals of fifteen minutes or so, all day and night, and continued for several months without appreciable interruption.

Reading of the abstracts shows great variability. The lack of ability to control the situation in some cases and in some attacks stands in definite contrast to an opposite aspect of capacity to stop an attack. The latter aspect of a conscious control has led certain observers to suggest even "malingering," "naughtiness," "hysteriform," and other conditions. In these aspects one can read the static nomenclature tendencies of the observers. The dynamic situation is not emphasized by them. As with many other related compulsive phenomena, efforts at control are often accompanied by intense anguish. Few observers, however, have seemed to grasp this. Van Bogaert and Delbeke have appreciated this and commented on it, likewise Ewald and Stern.

In a great many of the reported cases, the patients can follow a finger with the eyes during a crisis while under command (super-ego) from the outside. The eyes go back to their original position, however, and even during the maneuver there is often much increase in anxiety. All this is a commonplace in the literature of the "compulsion neurosis" or in an effort to overcome "habit forms" in general, as shown by the vast literature surrounding any breaking of "ritual"; orthodox Jewry and pork; Catholicism and Friday fasting; the behavior with reference to number thirteen and other kinds of deeplying "superstitious" observances. As this study will enter later more deeply into this "ritual" situation, this brief comment is sufficient at this time.

Likewise one finds that some observers have cut short an attack by "hypodermics of water" after injections of scopolamine had helped (Marinesco and Radovici) or other claptrap, thus arguing for such as to the exclusively pithiatic nature of the phenomena. This aspect of the problem is likewise referred for later consideration. One can state here only the belief that this is a superficial way of looking at a highly complex situation. It tends to belong to the "dormez-dormez" Bernheim hysteria era of thinking or the "ce

passe, ce passe" of later vintage of the pharmacist "Coué." At the same time these facts tend to show that there are a great many quantitative variations in cathexis in the dynamic situation in different patients who come under observation. Some are undoubtedly in a more serious condition than others, both as to somatic involvement of important subcortical and cortical mechanisms and as to their constitutional conditioning of the childhood psychoneurotic susceptibility —"Krankheitsbereitschaft Begriff." As all this is bound up in the "Biologie der Person" (Kraus-Lewy), it cannot be dismissed with a shrug of the shoulders. "Constitutional" factors (Martius, Pende, Bauer, and Draper), including the more subtle and less clear situations hiding behind "heredity," must also be brought into the picture, but carefully evaluated. Nothing is gained by stating these words as factors without the facts behind the words.

*Labyrinthine modifications,* sometimes alone (Barré) but more often with the crises, are of much significance and attracted attention early. Barré and Barré and Reys described pure forms. Later the labyrinthine perturbations with oculogyric crises were described by B. Fischer (1923), Marinesco and colleagues (1925), Paulian (1925), Borremann (1925), Nicolesco and Bazan (1925), Van Gehuchten (1925), van Bogaert and Helsmoortel (1926), Georgi (1926), Roger et Reboul-Lachaux (1926), Muskens (1927), and others.

In spite of the large number of studies, and also apart from Muskens' overschematization and Fischer's and Marinesco's optimistic regular findings, it would appear that the discordances are greater than the agreements. Inconsistencies and contradictions are more frequent than the reverse. As Delbeke and van Bogaert (1928) express it, the results are not encouraging, and Stern has arrived at a similar conclusion. Certainly the vestibular situations are not the cause of the crises. Van Bogaert would speak of them as "possibly secondary resonants."

There are some larger psychological problems here involved which it is premature to enter into at this time. In view of the long phyletic and early embryonal ontogenetic gravitational controls (following Flechsig, into the fifth and sixth month of foetal life), the problems are difficult. The psychoanalytic relations of labyrinthine gravity securities are being opened up by Schilder, French, Jelliffe, and others. It is premature to correlate "falling" in ethics with labyrinthine functions in the oculogyric crises, but it is not impossible that such a relationship exists.

# CHAPTER V

## Symptomatology: II. Thought Development Variations

From the psychological aspect it is unfortunate that in the numerous reports of the oculogyric cases here recorded the information is so scanty relative to the "thought processes," *i.e.*, the bradyphrenia—or stickiness of thought in encephalitic parkinsonians.

In a preceding paragraph the broad generalization is offered that "thinking" may be said to be but an inner mechanism of motion. This is a notion dear to the "behaviorist's" naïve presentations. As even a partial discussion of the origin of thinking from motor patterns, via the erect posture, freedom of hand motility, and later facial, trigeminal, and hypoglossal activities, chiefly taking over by speech by symbolic sound meanings, would lead into an involved evolutionary labyrinth, I do not wish to attempt any complete essay in this direction.

No studies are available sufficiently detailed to offer much on the "development of thought," which psychologically is so important in this connection. We have from Schilder, Goldstein and Gelb, and others more recently, some contributions on related material, but with oculogyric cases almost nothing. There is much material along this line from the general encephalitis situation which is probably pertinent to the oculogyric crises, but we have limited the discussion more or less to the specific situation.

It seems valid to assume, however, that the "thought blocking" is an essential part of the process and that it is a correlated part of the akinetic-dyskinetic situation (bradykinesia, bradyphemia, bradyphrenia of numerous authors, as Verger and Cruchet, Herman, Bostroem, Stern, and others).

May it not be said that without a somatic substratum (negative symptom side of Hughlings Jackson) this could not take place? In short, one may deduce that those patients who show it more evidently have had greater impairment of the somatic structures, and, hence, in a general way may be said to have fewer open pathways of release for their primitive impulses at higher socialized levels of reintegration. Return will be made to this in a further section of this study.

As one turns the plates of the atlas of von Economo and Koskinas, augmented by the studies of Rose, Pfeiffer, the Vogts, and others, which dimly envisage the integration possibilities of the cortex with its sixty million "centrals," one stands aghast at one's ignorance of what telencephalization really means as to possibilities of socialization of the body's cravings (sublimation). The greatest number of these are capable of being discharged through symbolic (thought) processes, if the machine is not injured. Who, may it be interjected, has really analyzed the machine of any of these encephalitic patients anatomically according to the criteria of von Economo and Koskinas? Most of the patients show failures in the development of thought. Various earlier stages of undifferentiated thought appear in an oculogyric crisis, but what happens somatically will require a few centuries for interpretation. One thing is evident, that the thought repressions are not due to somatic impairment solely any more than are the ocular spasms, for during the intervals in which the patients are well no such phenomena are present. Hence our inference that repression is operating here at psychological levels just as inhibition operates at lower physiological levels. Hence, one may conclude that one is also dealing with affective (dynamic) situations, as in many allied compulsion states.

# CHAPTER VI

## Symptomatology: III. Affective States: Anxiety

The affective status is of much significance in these crises, especially in the severer types. In most of the recorded cases, mention of any accompanying affective situation is omitted. Others seem to indicate an absence of any accompanying emotional condition, at least it has not seemed pronounced enough to warrant special mention. I believe this is merely superficial observation or recording. The more minutely observed cases, notably those of Ewald (as a type) or of Stern, however, clearly indicate that a real insight into the oculogyric situation is not complete without the consideration of this particular type of phenomenon. As this affective status lies at the nucleus of the compulsive state, and receives special consideration in the psychopathologic interpretation, some detailed description seems desirable. Furthermore, it is a matter of almost universal recognition that the postencephalitic situation, in practically all of its forms, contains emotional (affective) reactions of almost every conceivable grade, from mild anxieties to grave psychotic behavior. It is no wonder, then, that compulsive-impulsive behavior reactions with decidedly modified thought content should be encountered in the specially delimited oculogyric crises.

Stern (1927), in the most complete discussion of these reactions thus far recorded in the literature, opens his penetrating study with Westphal's description of compulsive ideas (Zwangsvorstellungen), and carries it as far as "Zwangsvorstellungen, Zwangsgedanken, Zwangsantriebe," through from Westphal to Freud, noting Oppenheim's acute comments on this general type of reaction as seen in "paralysis agitans." Whether Stern is correct in saying that Oppenheim was the only observer to note this correlation may be questioned. Brissaud's muscular impatience in paralysis agitans, for instance, is an antecedent parallel. Here, only the actual phenomena are of interest; later their significance and the somatic-psychogenic antitheses, parallels, or evolutionary stage reactions will be discussed.

Stern's separation into three groups affords a convenient platform for description: (1) exogenous psychotic reactions of the acute phase

of encephalitis; (2) the bradyphrenias of the chronic stages; (3) the characteristic juvenile impulsive behavior reactions, which he would differentiate as "Drangshandlungen" and not "Zwangshandlungen." As later on the fact that these reactions are more intimately related to the stage of integration of the "Super Ego" in the freudian formulation will be discussed, the differentiation of Stern is more descriptive and static than inherently evolutionary and dynamic.

Then Stern would take up the paroxysmal oculogyric crises as special objects of study from the "psychische Zwangsvorgänge" point of view. The exploration of his twenty cases from the psychic point of view, with the others recorded in the abstracts of the literature and the personal cases given, will offer some light upon the phenomena concerning the affective situation and the thought content of this section.

Only a few observers have paid sufficient attention to the psychic situation to permit their utilization in this review. I shall start with the earliest of these.

Oeckinghaus' patient was euphoric. Gabrielle Lévy's patient (case 52) cried, was fearful, and feared she was becoming blind. Bruno Fischer speaks only of his cases as "horribly painful." Leroy mentioned only the attacks; the patient found it hard to concentrate (as in many psychoneurotic persons); his personality was imposed on (masochistic). In case 4 the patient would hit people.

Scharfetter's patients (cases 2 and 3) "felt bad"; the patient in case 5 said, "Must pay attention to something, what is it?" Once his attention was directed to his mother's wedding day; once to what side of the room the bed was located.

Bing and Schwartz's patient (in case 2) experienced great anguish; she sought the dark, held herself immobile, and reacted to nothing about her.

In Springlova's case the condition was very "painful." The patient in case 2 of Hohman's series was depressed and hopeless.

In one of Pascheff's cases there was loss of memory during an attack. In case 4 the patient had pseudohallucinatory visions during an attack. In Pappenheim's patient (case 1) there was a feeling of compulsion with pain. According to Bertolani, the patient in case 1 "felt very badly"; in case 2, was fearful, crying and mute; in case 3, was "desperate," alarmed, and cried like a child—it seemed as if he would die—empty in the head—vertigo; in case 5, rigid, as if set,

dazed; in case 6, he said, "cannot feel well," "cannot move the 'sense of tension.'"

Falkiewicz and Rothfeld spoke of "Zwangsdenken"; the patient in case 2 was "uncomfortable"; in case 3, compulsory thinking came to conscious expression—she prayed, "Gegrüst sei du Maria"; all the "A's" had to be as if written, but without writing them, yet the right hand seemed as if it were doing it. The letter compulsions occurred with and without the eye movements and were distressing.

Ewald's six cases are the most detailed in the earlier literature so far as compulsive ideas are concerned (see abstracts, also Dalma's discussion of these cases).

In case 1 the attacks were agonizing. The patient was preoccupied with his condition; he was depressed, and grasped only little of what was said to him. "He was going crazy." Letters had to be counted—Were they 7 or 10? The vowels a, e, i, o, u—did they follow regularly, or were they reversed? His attacks began with sadness, his words left him. "Entladung"—a discharge. Then a complex compulsion ensued regarding esperanto vowels and consonants (females and males [psychanalytic conception]); all related to his illness. [A sister situation is here relevant from the psychoanalytic point of view.]

In case 2 suicidal attempts occurred from the "agony of his eyes"; he saw colored lights, white and yellow; the "eyes seem to get big." He was anxious and obsessed and experienced "duty things." "What the men have," "one could die of such a thought." (This is of special interest psychanalytically.)

Gründler's patient became moody and quarrelsome; agony and headaches were present. Leone's patient had vague (nondescribable) hypermotivity. In case 1 of Petit, Bauer and Chatagnon there were three suicidal impulses; the patient was conscious and irritable, with tickling sensations at the base of the head. In Dupuy, Bauer and Chatagnon's cases, three patients were suicidal. Tinel and Baruk reported "anxiety states" in their patients. Vivaldo reported a psychotic case—"obsessive and compulsion"; "mental depression and blocking." Schuster spoke of attacks accompanied by "brüllen" and "squealing like a stuck pig" (compare Jelliffe's case **L.**).

Van Bogaert and Delbeke reported that crises occurred only at periods when the patient was very angry and were accompanied by

blushing, tremors, perspiration on the left side of the body, salivation, urination, and apnea. This state may be replaced by a period of intense and unjustifiable fear. (Van Bogaert reports a case supplying direct evidence of one of our contentions in that the speech mechanisms and other movements at times succeeded in getting the repressed unconscious material out into conscious expression.)

Barkas' first patient showed great distress with spasmodic laughing and crying; the second patient, suicidal thoughts with emotional distress involving the husband; the third patient, depression.

Oculogyric crisis in Mari's case. Note agonized expression.

M. Fischer reported the condition very painful in case 2. Kulkow's patient (case 1) was "sunk in his thoughts." In Marinesco and Radovici's first case attacks came on when the patient was thinking of the death of the parents; in case 2 the patient experienced severe pains in the neck which she attempted to control by forced movements.

In Laignel-Lavastine and Bourgeois' first case the condition was accompanied by anxiety. Perkins' patient (case 1) was so anxious he could not attend to anything. Georgi's first patient experienced great fatigue and vomiting and was unconscious of the direction of the eye movements. (There are interesting correlations between the attacks and a skin eruption.) In his second case the patient saw a man on the ceiling with a knife in his hand; also saw "flowers"; he had unconscious periods.

Tchlenoff and Toulaeva's patient became pale and rigid. One of Wimmer's patients (case 1) showed "great distress and had fits of screaming." In case 3 there were compulsive suicidal ideas (two attempts); the patient was forced to look out of the window at the sky; his eyes told him to commit suicide; he was "terribly distressed" and "giddy."

Roger and Reboul-Lachaux reported that one of their patients (case 5) cried during an attack; another (case 7) showed great depression, with anxiety and suicidal thoughts. Sarbo's patient (case 1) cried, "God, God, now I cannot see!"

Benvenuti reported that there was great distress and pain, also trance states, in his first case; much emotional depression in his second case; mental confusion in his third case; confusion and depression in his fourth case, and pain and profound depression with great anxiety in his fifth case. Catalona reported depression in his cases. In his third case, Mari reported some depression with headache; in his fourth case, extreme suffering, with visual hallucinations of a big black dog that was running by.

Of those who have taken up the consideration of these obsessive ideas in postencephalitic cases, Dalma is one of the few who apparently has any real knowledge of the psychoanalytic literature on the compulsion neuroses. He commented on the general compulsive situation rather than on the special one with which I am dealing. He quotes and abstracts from Meyer-Gross and Steiner, Hermann, Ewald, Falkiewicz and Rothfeld, Bertolani, De Sanctis, Scharfetter, gathering twelve cases from the literature (a small fragment, as the abstracts here given show).

Pardee's patient (case 4) had "stormy hypomanic moods." Wilder and Silbermann's first patient showed "anxiety, depression, and a sullen mood"; but when he was kissed and caressed by his fiancée the attacks ceased. The patient in their fourth case showed anxiety and a slowed mental reaction.

Skalweit's patient (case 1) sought out bright things—he resisted the compulsion by opposite movements. He said that he "must look at the ends of grass blades," and compared this to the desire to scratch an itchy spot. Williamson-Noble's patient said that she had dreadful thoughts during the attacks which she could not relate.

Bakker's patient was listless, depressed, and impotent. Delbeke and van Bogaert's (1928) case 6 of Mlle. L., and case 7, Mlle. B.,

should be consulted for further comments on these anxiety states. In Senise's case 2 the child is sad and has a sense of guilt, and also has the compulsion to masturbate with the crisis. Bennett and Patton's case 1 had great anxiety and self-accusation of masturbation. Case 4 "wants to forget himself." Case 5, much nervous apprehension. Cheney and Martin's case 1 would get very excited, with outbursts of crying; there was something wrong with his ear, his nose, and his genitals. He makes motions towards the penis. His obsessive thoughts "are very unpleasant and make him feel very bad." Case 2 is nervous and worried, feels rotten and soft all over as if he would die. Case 3 suicided by hanging by reason of his depression. Two of Bianchi's cases showed anxiety, "one as if he would die," another is depressed, taciturn, and solitary. All three relate their attacks and masturbatory activity.

Störring discusses these anxiety situations specifically. Case 1 had "comical ideas" with anxiety. Case 2 "feared puncture." Cases 3 and 4 had anxiety. Case 5, his ideas come like a bolt from heaven. Stengel's case is full of anxiety lest "she do something violent"—*i.e.*, "have violence done to her," as is proven by the traumatic violence done to her when she was thirteen and her rich erotic dream material. Chlopicki's cases are restless and agitated, "have foolish ideas." Case 3 "would shoot himself with a pistol." Here the Oedipus situation is fairly clear. Case 4 has obsessive ideas that the "door must be closed" and "that the chairs are dirty." Seeks suicide. Case 5 fears going crazy with ideas of punishment. Case 6, undescribable anxiety and hostility to the mother. Sense of guilt.

This rapid summary of the anxiety states observed during these crises is all too fragmentary. As may be noted, Stern's studies are the most vital, and hence are placed here at the end with comments on the affective state and its related thought content—as may be available. As it usually takes much time to work out this thought content, it is little wonder that few satisfactory observations are on record.

Bing, in his paper on "spasms" and "tics," utilizing encephalitic material, raises several important issues, none of which, however, are specially new. He speaks of the "herrschende Dogma" of the psychogenic nature of all tics. My experience is that the "ruling dogmas" are quite to the contrary; the medical world at large has but

the faintest conception of things psychological. The fancied dangers of this "psychologizing tendency" Bing would exemplify in the report of the suicide of a young man who had a severe facial tic and who was treated unsuccessfully by a "berühmten Psychotherapeuten." At autopsy it was found that he had a meningeal thickening pressing on the seventh nerve. (How this caused a tic is still to be explained.) On the other side of the picture there are many records of suicides among patients who were treated by surgical measures for supposed somatic situations, and at autopsy such organic lesions were not demonstrated. Ergo, is it good logic to condemn "a berühmter Chirurge" or other related therapist on the basis of this experience? It seems that Bing's argument throughout misses the entire situation. In the first place, he talks about "names" instead of "processes." "Hysteria" is anything psychogenic. No student oriented to the present day aspects of the hysteria problem has such naïve notions as Bing bravely tilts at. "Hysteria," or rather the "conversion of libido through somatic discharge," is a specific situation, relevant to a definite task of the individual. Lacking the precise situation in any case of such a purposeful economic bit of dynamics, "hysteria" is not hysteria, hysterical, or hysteriform. Bing apparently has this foggy notion of the dynamic hysteria concept. He is not alone by any means.

His discussion of the various tic or cramp movements in encephalitic patients, notwithstanding this naïve affective attitude toward psychogenesis, is particularly valuable. He takes up the facial, tongue, chewing, respiratory, eye muscles, neck and trunk, extremity and generalized movements. It is an excellent résumé. Nowhere, however, in any one case does one find a detailed study of any one of the movements to indicate why the patient made it. Bing is satisfied to call it or them "release" phenomena. "Release of what" he does not tell except in a footnote of negative criticism of what he conceives falsely the psychoanalytic situation to be. Clever and astute as he is to envisage the enormous phyletic complexities of motor coördinations, one suspects an equivalent density, or rather resistance, concerning the comprehension of the even more difficult and subtle phyletic complexities of affective states. The synthesis of the affective life from protozoa to man, because it must be read in the colossal mass of cultural achievement, lacking structural (*i.e.*, anatomic) substrata, requires an abstractive capacity akin to poetic genius. Bing

does admit what he calls "psychical impulse" release, but he does not advance beyond parallelistic conceptions. To speak of "psychical impulses" as simple entities, as, for instance, Stern also does when he regards "affectivity" as a primary unanalyzable situation, is in my opinion naïve. Throughout this entire argument, Hughlings Jackson's penetrating glimpses into what he called the "positive" symptoms seen in dissolution of function are totally ignored. I am much in sympathy with Bing's statement that "Psychisches und anatomisch-physiologisches gleichmässig beherrschende, neurologische Ausbildung" is necessary. My only comment on this is that whereas he is sound concerning what a neurologic foundation may mean, I believe that he has really little comprehension of what a "psychisches Ausbildung" entails. It is an "Ausbildung" infinitely more complex and difficult to obtain than any "neurologisches Ausbildung." Expressed in a crude proportion, I believe that "as arithmetic is to calculus, so is neurology to psychiatry." Kappers' great treatise on the "Comparative Neurology of the Nervous System" is an A, B, C to what some thousands of years from now will be understood as the comparative psychology of living organisms. Freud's work is but the beginning of this elaborate synthetic structure.

It sounds well to speak of the "striatum" as a "center for complex psychical functions," as Bing and Stern and all the others do, twenty or more of whom might be cited. It sounds profound, but what does it really mean? Why limit such affective functions to the striatum? Are not all of the diencephalic structures correlating mechanisms for "feeling" attitudes? The situation is by no means so simple even if one takes in the correlating neurons of the optical and auditory pathways of the geniculate bodies. And what about all the discussions of Tanzi, Lugaro, and others anent the deeper (vegetative) layers of the cortical complexes?

After all, what are the "affective functions," phyletically speaking? Even if the poet Schiller reduced them all to "Hunger und Liebe," are not hunger and love vast phyletic syntheses in which every organ of the body participates? Is there not an oxygen hunger, an iron hunger, a phosphorus hunger, a calcium hunger, as well as other forms—but why go on? The human body has twenty-eight elementary chemical hungers, not to mention the million or more permutations of these. Is love any less complicated as it has built up behavior during the billion years of social integration on this globe?

As already noted, Stern is one of the few who would attempt the study of the affective situation seen in these oculogyric crises. It is well understood that this evaluation belongs in a larger frame and can be extended to the whole postencephalitic situation to great advantage, as many authors have already attempted, notably Kleist, Goldstein, Bing, Steck, Hauptmann, Gerstman and Schilder, and others. My own contributions to the respiratory and psychotic pictures have been referred to.

Stern is more frank than many another writer, for he acknowledges that his study is undertaken "ausser psychische Analyse." Yet even with this gesture of excuse or irony—one is not certain which—he endeavors to enter the analysis of the "affective state."

His case histories are considered elsewhere in this study and only certain comments will be discussed. His experience is evidently the greatest of any of the students of the present day. At least twenty cases offer him an excellent background, and even if only a few of them are given in fragmentary detail, yet they are of great value, bearing on the symptomatology as well as offering something for later interpretation.

The first patient whose case he reported had to fix her eyes and her ideas on a certain "*point*" (italics mine). (This may be compared with other compulsions: "sharp points," "blades of grass," "what men have," "don't touch me.") The patient knew it was nonsense; but why was the "*O* round"? "The patient was as one dying." As in my case of J. F., and in many others, the fatty and tear secretions increased (vasomotor congestions). She said that "her body got bigger and that she wanted to experience pain in order to verify her being." Here Stern acknowledged "sexual" factors—but probably would repudiate what may be guessed at psychoanalytically—"body bigger," "wants to experience pain"—as a possible *birth fantasy*. He did not make any real study about the meaning of all this as psychoanalysis might.

The patient in case 2 had impulses to say nonsense and obscenities. Stern says that there were no sexual thoughts, but Stern evidently does not distinguish between "genital" and "sexual."

In case 3 the patient said, "Get away Satan, Jesus is mine," and had ideas about Ü because Ü is in Sünde. Stern apparently was really not curious as to what the correlation of Satan and Sünde may stand for, even though one might assume that he had some acquaintance with the "Garden of Eden" and Satan and Sünde (sin).

The patient in case 4 was a physician with a "vertiginous syndrome," who was also very anxious, but what "vertigo," "falling," and other symptoms may stand for psychologically is not inquired into.

A fifth patient felt that he must count from 1 to 100 compulsively. There were no comments on what this might possibly stand for.

Stern's comments on the "anxiety" situation will be commented on more in detail when the psychopathologic conceptions are discussed. All that is necessary to record here is that Stern seriously stated that "anxiety" is a primary symptom and is unanalyzable. As the psychoanalytic school has been studying "anxiety" intensively for a number of years, this position taken by Stern cannot be seriously accepted.

# CHAPTER VII

## Symptomatology: IV. States of Conscious Awareness: Hypervigilance, Etc.

Throughout the entire range of the recorded phenomena, *i.e.*, when the records have been at all complete, trance-like states have been frequently observed. These shade off through various grades, and with accompanying phenomena have been variously recorded as tetanoid, epileptoid, narcoleptic, cataleptic, catatonic, stuporous, etc. A complete gamut of stages of awareness from full vigilance to absolute psychical blocking or even to unconsciousness are observable in different cases and sometimes a number of stages in the same patient in different attacks. One of the most frequently expressed cravings on the part of the patient is to go to sleep, when the attack will pass. This tendency to compulsive sleep has been widely observed. The eye position (Bell's phenomenon) has been made the subject of a special study by Velhagen in its relation to sleep.

We have come to believe that no real understanding of the motor phenomena is possible without a more intense study of the mental states which show such a trend towards complete retreat from reality. Hence this chapter, which would develop a general idea about the mental states involved.

This leads one into very involved territory.

Just where to attempt to enter into the mental state it is difficult to state, especially as it is claimed that "mental" has a fundamental motor behavioristic patterning. Thought is but a symbolic form of release of action patterns. It is a development from the inner core of the personality. There is a long and subtly connected chain, or gradually accumulating combination of engraphic patterns, which, beginning with physicochemical reactions (tropisms), through reflex actions to biological motor responses, finally, first through the freedom of the hands, advances by displacement to the facial and other musculatures to the development of thought and speech as symbolic substitutes for bodily activity and adjustments to reality.

This is the larger behavioristic pattern developed first through the methods of associational psychology, and then through the original

mnemic conceptions of Semon, to take on a more configurational form (Wertheimer, Koffka, Köhler) in which the psychoanalytic method in its formulation of "overdetermination" offers the most efficient tool for concrete study of mental configurations.

Psychoanalysis is here given this importance since, in the combined conceptions of "overdetermination" and the "unconscious," the full significance of Semon's engram patternings can be envisaged and a much more searching analysis of the highly complex and phyletically agglutinated configurations or "total reactions" is made possible. Needless to say that in the phyletic laying down of engram patterns in "structure" the anatomical method has tasks of interpretation which it alone can answer; similarly, physiology as a method must be invoked to analyze other aspects of the problems of behavior. Biochemistry may be at the bottom and its methods are here relevant. At the top the "psychosociological" methods are relevant and offer the chief causal interpretative insights, even if descriptive explanations may be forthcoming at lower levels.

For instance, no one doubts that "hyperventilation" brought about experimentally or unconsciously can wash out the $CO_2$ in the alveoli of the lungs. This calls upon bivalent kations (chiefly, so far as known, Mg, Ca), and depletes the alkali reserve. This alters the resistance threshold permeability to stimuli in receptor, connector, or effector synapses, resulting in increased eidetic imagery, heightened pain susceptibility, or more reflex excitability, from spasmophilic, tetanic, even to the epileptic motor discharge. In this chain of advancing configurational responses the biochemical and physiological descriptions are pertinent and thus far sufficient. But they fail to tell the story of the body acting as a whole. As such they tell us nothing of the function of the eidetic imagery, the heightened pain, the increased reflex excitability, or the convulsion. One might say they are factors in the bringing about of these things, but wherein are these "things"—these "phenomena"—interpretatively understandable as biogenetically arrived at as total bodily reactions against the specific trauma, *i.e.*, in this instance, the hyperventilation? The "meaning" of the symptoms is not revealed a particle.

In a former study this type of situation was put into syllogistic form. For instance, from de Jong's and others' very interesting experiments with bulbocapneine, it is known that in birds, mice, cats,

monkeys, etc., that a type of motor response called by them catatonic can be brought about. Hence the syllogism reads,

Bulbocapneine will cause a catatonic attitude,
Bulbocapneine is a poison (morphine group),
Ergo, catatonic attitudes are caused by poisons.

In the anatomical discipline the syllogism would read as follows:

A thalamic lesion will cause anesthesia,
Hystericals have anesthesia,
Ergo, hysterical anesthesia is caused by a thalamic lesion.

And our present syllogism re hyperventilation could be expressed:

Hyperventilation will cause altered calcium metabolism,
Altered calcium metabolism will cause epileptic convulsion,
Ergo, epileptic convulsions are due to calcium metabolism disorders.

Stated in this crude and naïve manner, the fallacies are obvious. Part truths are contained in all of these syllogistic statements, but the body as a whole, its purposes in bringing about the phenomena observed, are revealed only fragmentarily.

In the terms used by Whitehead in his "Science and the Modern World"—"The concrete enduring entities are organisms, so that the plan of the *whole* influences the very characters of the various subordinate organisms which enter into it. In the case of an animal, the mental states enter into the plan of the total organism and thus modify the plans of the successive subordinate organisms until the ultimate smallest organisms such as electrons, are reached. Thus an electron within a living body is different from an electron outside of it, by reason of the plan of the body. The electron blindly runs either within or without the body; but it runs within the body in accordance with its character within the body; that is to say, in accordance with the general plan of the body, and this plan includes the mental state."

Hence it is only through the knowledge of the "mental state" that one can get the meaning of what is happening in the organs as well as in the electrons within the organs. Meaning or interpretation should not be confused with causation.

In order to approach certain motor manifestations, then, as seen in the oculogyric crises or in any disorder involving the "personality," which is but another term for the "mental state," the psychological

approach is not only desirable, it is imperative. Thus, as with Socrates in his celebrated dialogue in Charmides, "it is only through the mind that the body can be reached." A neo-Socratic formulation of the mental state is where meaning really can be said to be found.

Thus, for an understanding of certain motor manifestations here understood, Head's conception of "vigilance" will be chosen as particularly fitting to illustrate what mental states lie behind the bodily motions. An outlining of Head's thesis would seem justifiable.

Head opens his definition of Vigilance in a review of the *mass reflex*. As is well known from the work of Head, Riddoch, and many others, a flaccid, atonic condition follows section of the spinal cord, with loss of bladder and bowel contractions, and loss of deep and superficial reflexes. In young and healthy individuals, after the spinal shock has disappeared, the deep reflexes return, first the ankle jerk, then the knee jerk, and then a partial Babinski reflex develops. Finally segmental automatic bladder and bowel contractions appear, and soon the typical "mass reflex" action. The slightest afferent stimulus may produce widespread automatic reflex activities. Almost any afferent stimulus below the site of the lesion brings about these astonishingly sensitive mechanisms of response.

Higher up, in the decerebrate animal a similar high grade physiological efficiency is present in heightened extensor postural tone and acutely differentiated responses.

Head would designate this general situation by the term "vigilance." "If we did not know," he writes, "that the whole of the brain had been removed we should say that the actions of the decerebrate animal were directed by consciousness. It initiates no spontaneous movements, but purposive adaptation is evident in every response." "The unconscious," as Freud has phrased it, "is always right." Anyone who has watched a wild animal approach his victim, or avoid a stronger animal, or seen a trained sea lion balance a balloon, or seen cinematograph pictures of encephalitic patients catching a ball, or carefully followed a cinematograph of Bobby Jones' golf drive, or listen and watch attentively Paderewski's execution of a Chopin sonata, will be struck at once with the sensation of complete automatic adaptation.

The higher the grade of differentiation of the act the greater the demand for a high state of vigilance. Execution seems to be carried on without any need of conscious coöperation once a stimulus has

started the movement. "Every automatic act is an exercise of physiological memory," as Head puts it, or in Semon's phraseology "ecphorizes the engrams" of phyletic and ontogenetic engraphy.

This organic memory (Butler) of postural schemes (Schilder) is largely an unconscious configuration, which in physiology is chiefly thought of as "postural tonus." That these engram patterns or schemata are modified by a great diversity of energy disturbances acting at different levels from the periphery to the core of the personality is well known. The work so intriguingly begun by Marshall Hall, carried to a commanding position by Sherrington, extended by Magnus and de Kleijn, and recently so ably summarized by Fulton as here to permit reference rather than to demand résumé, is in the front line trenches of neurological endeavor. Its extension into the psychiatric field was foreshadowed by Hughlings Jackson, made the partial foundation of a psychiatry by Wernicke, and more recently in the conceptions of Kleist, of Goldstein, Schilder, and others, even if quite divergent on first view, approach a synthetic view which offers some understanding of the mechanisms involved. When combined with psychoanalytic conceptions a more comprehensive view of processes operating in the body as a whole is obtained. [Holism].[1]

Head, when he states in his paper on Vigilance (p. 136) "that any lesion which disturbs postural schemata will interfere with postural tone," should have gone further and written "influence" instead of "lesion." Witness the innumerable alibis on the golf links for gross and minor foozles, hooks, slices, etc., etc. A stimulus once past the receptor threshold brings about a response, gradually increasing in discriminative adaptation. One may well inquire if what we are as yet able to test out as passing the threshold is after all but a small modicum of what actually gets through. Inhibition, at lower levels, in a sense may be said to be discriminative choice at higher levels. Ultimate expression in action may become effective through displacement of channels dynamically repressed.

It is not of special moment here to enumerate the mass of known, nor attempt to infer anything concerning the unknown stimuli, ultraviolet light, millikan's rays, vitamins, geodetic tremors, barometric pressures, etc., etc. Concerning the totality omniscience alone knows all, hence the significance of the conceptions of subjective intentionalism on the one hand and the psychoanalytic conception of the

[1] For this conception of Holism, see Smuts' "Holism." Macmillan, N. Y., 1926.

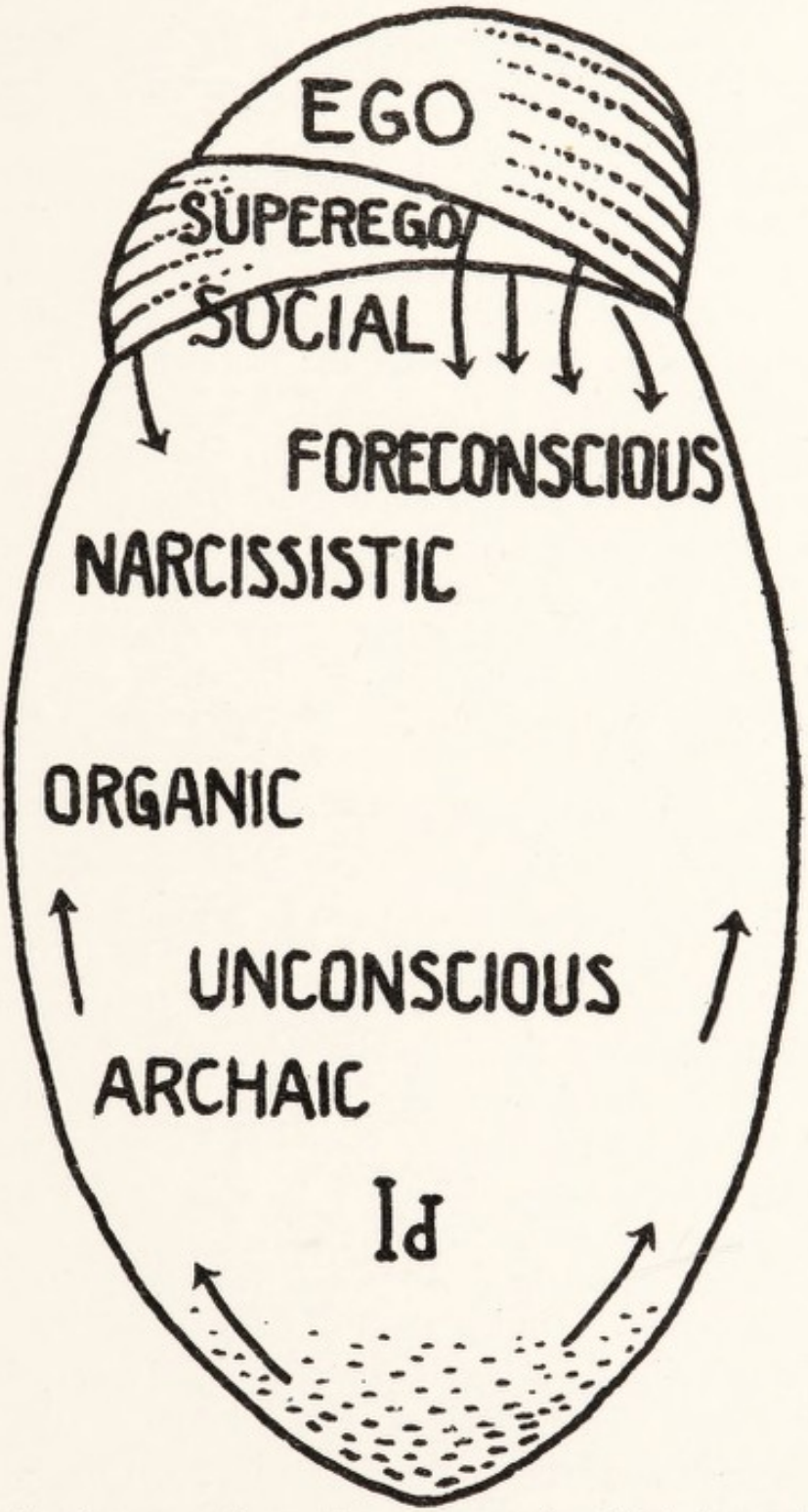
"Jehovah Complex" and the indicia of its activity in the "Id" on the other.

Continuing Head's conception, it may be assumed that all behavior, metabolic, sensorimotor, psychical, social, is correlated with this state of universal reactivity, this "vigilance," with its checks, displacements, and adaptive responses. For Head, however, "consciousness" is made the equivalent of "mental." "I leave out of account altogether those mental states," he writes, "termed subconscious, which have once formed part of the life of the mind, and, although at the moment repressed or outside the focus of attention, may under favorable conditions exert some direct psychical influence."

*Can this be done? Is it not a chimera to believe that any bit of behavior, a biochemical tropism, or a spinal reflex, can be adequately understood if the mental states, conscious and/or unconscious, are left out of the picture?* Not if the conception so neatly put by Whitehead has relevancy.

What is inadequate in Head's conception of vigilance, which is made dependent more or less upon consciousness, *i.e.*, more or less an intellectual process, is evident. In the terms of Whitehead's metaphor already quoted, then, the "mental states" in the body acting as a whole, which direct the entire organism as a whole, are quite validly conceivable in the metapsychology of Freud as the "Id," which he has divided into the Ego, the Super Ego, and the Id. In Head's outline one finds but a partial portrayal of the relationship of the function of the Ego—*i.e.*, the conscious perceptive system of consciousness—to the underlying features which are of significance in the muscle states here under consideration. In the deepest layers of the *Id* are those mnemic "psychoids" (Bleuler) of phyletic experience, the most vigilant parts of our organism, although apparently sleeping behind its automatisms. The "Super-Ego"—or "ego ideal"—is what theology has dimly described in conscience, religion, and ritual; primitive society, made into folkways, to be followed by laws, ethics, morality, with advancing evolution as the Ego develops. This Super Ego, wedged in between the Ego and the Id, as it were, at its upper level, is in contact with the conscious perceptive system: at its lower level is in contact with the primary instinctual forces of the Id here patterned to entrain and to propel the cosmic forces received through receptor and connector channels into "useful work" through the effectors of the bodily machine. A veritable "Charon" ferrying the forces of life across the Styx from

Hell to Heaven or Heaven to Hell—as the life instinct or its ambivalent death instinct is at the helm. The "Super Ego" is an added barrier homologous to inhibition at physiological levels which adds




Schematic diagram of mental apparatus (modified from Freud).

its pressure—its resistances—so that the massive forces of the Id will not sweep away the comparatively weak "Ego." Weak because man's knowledge of "reality," *i.e.*, the laws of nature, and especially

of his mutable, constantly shifting, social environment, is of but very recent formulation.

It is known that the conception of the Super Ego, historically speaking, was a logical outcome of Freud's study of dream "censorship." In the study of the unconscious the most difficult feature to understand has been the factors of "resistance," of "repression," and of "the repressed."

For the evolution of life it is here argued that at successive stages *physico-chemical stability,* as registered in the integrity of the ionic milieu, and controlled chiefly through the cortico-diencephalic vegetative chain; *reflex automatisms,* with their cortico-pyramidal-striatal sensori-motor chains, are all under the hierarchy of *"repression," i.e.,* operating through the fronto-cortical-association chains. Expressed in Freud's metapsychological terminology, "repression" operates and permits to come to action those forces of the *Id* that can be passed upon by or are acceptable to the "Ego" as already influenced by the adjuvant mechanisms of the Super Ego. As when a lawyer (Ego-reality tester) in picking a jury (the community judgment) asks the counsel of the prisoner (in touch with the Id); so the "Super Ego" (prisoner, between Ego and Id) advises the Ego what to accept or reject.

During the waking life millions of stimuli are beating upon man's receptors; experience with reality is constantly accumulating. Only a small part of this cosmic reality can be permitted to crowd into conscious (Ego) response. A series of traps all along the line hold, side track, shunt, this constant engraphy, which if attended to would produce that figure of the humorist who asks, "What will the chameleon do if placed on a Scotch plaid?" Without adequate repression this is what is here envisaged as hypervigilance. Lévy-Bruhl's finely drawn picture of "mystic participation" is a part of this hypervigilance to the cosmos in the primitive who has no need of or makes no adaptation to the new realities (to him) of a more complex cultural pattern. During the night life all of these uncountable impressions of the waking life are rearranged into their places of older patternings. They make up that wisdom of the individual which bridges the gap between the older wisdom of the body and the newer knowledge of the realities of the environment. Like a shuttle the dream work integrates the (phylogenetic) Id and the (ontogenetic) Ego, weaving in the "Super Ego," as the patterns derived from the early ontogenetic experiences of the child life. "As the

twig is bent, the tree is inclined" is one of those old adages registering this "Super Ego."

Then in dynamic terms a strong Super Ego makes the work of repression comparatively easier; a weak Super Ego permits the instinctual needs to sweep away the comparatively weak Ego; *i.e.*, into criminal thought or antisocial action. Hence arise the innumerable compromises that "smuggle themselves through the half open door" and make up the subtle kaleidoscopic variations of human behavior so ingenuously and deeply studied behind the mechanisms of conversion, substitution, projection, etc., by the methodology of psychoanalysis.

Just as those influences that Head has mentioned which can destroy the mass reflex or the decerebrate automatisms in one or more of their manifestations, etc., so can the same and many more influence the "repressions" and bring about the modified motor conduct as seen in the encephalitic and which is in the focus of attention at this time.

If from the topographical somatic side it be admitted that definite lesions are present in encephalitis, well and good. These are of enormous significance, no doubt, as correlated with the Ego and Super Ego functions, and some day may be helpful in estimating questions of localization for other purposes, but the primary requisite in the study of the meaning of the motor behavior is after all still to be primarily directed to the control of the instinctual needs through the function of repression. The psychoanalytic inquirer is still desirous of learning what part of the dynamics of the mental states is primarily involved and how. The somatic structures necessary for repression will come for consideration later.

Repression has conservative as well as reparative functions. It would deal with painful affects, which might come to the conscious perceptive system, and which might develop all the way along the line from actual somatic pain, feeling of defect, uncomfortableness of disharmony, feeling of guilt, to concrete thoughts of this or that or to compulsive acts. Not only must repression itself as a mechanism be envisaged but the pathway taken by the repressed material, *i.e.*, "energy," must be traced and its final adaptive forms be found. At the "somatic wisdom" level, increased temperature, rapid breathing, oxygen need, and leucocytosis may be correlated in the new energy system adjustment to meet an energy system of infection. So repression and that which happens to the repressed are to be conceived

as adapting, balancing, restoring, or healing factors to meet the attacks of different energy system types. In the particular case of the encephalitic the attack upon the personality comes chiefly through the libido force which is deflected from the world of reality.

Approaching closer to the picture of motor behavior in its various degrees of intensity, from the mildest and very widespread average forms of slowness of speech or action to the severest forms of mutism or of catatonic rigidity, to epileptiform convulsions or oculogyric crises, it has been thought of service to attempt to get a glimpse of the repressing mechanisms, and of the repressed material in a so-called pure culture of "motor holding," as expressed in the parkinsonian attitude or "haltung," or various stages of the parkinsonian bradykinesia, akinesia, stickiness of thought, etc., not from the lower levels of biochemical, spinal reflex, or meso-diencephalic, all of which undoubtedly play a part in the total reaction, but from the standpoint of the mental states involved. When speaking of a pure culture of the motor attitudes this is, as already intimated, but a "façon de parler," for after all only one feature of this intricate mosaic is apparent. That is the infectious assault and the residual defect, whatever that residuum may be as to extensity or to localization.

The problem of localization is, in connection with this thesis, although certain remarks are vouchsafed concerning the many localizations of neurological students, quite secondary. Neither is it thought of much importance, here, to conceive of the encephalitic process as advancing, *i.e.*, from fresh attacks of the same virus (Wimmer). In the sense of Head's vigilance conception here sketched, it is allowed that any insult will aid regression. The regression from the struggle of repression and the repressed is real enough and in need of elucidation, by itself, and not to be complicated by adding the quite conceded possibility of the continuance of the infection. This interplay of psychological regression, due to added outside insult or to the result of personality defect alone, is a large problem of great significance.

In the parkinsonian there is evidence both of real danger and of neurotic danger. The former because the machine is damaged—greatly or slightly; the latter because regression puts added weight upon the repressions and the repressed. The whole dynamic situation is altered and here special attention is to be directed to the development of the character of the individual, and that more particularly to the "Ideal or Super Ego." One sees patients who have gone

through an encephalitis but who have made a complete recovery, although at one time the "negative signs" (Jackson), *i.e.*, those due to definite localizable destructive lesions in the nervous system, were quite pronounced. But they have been individuals who had built up a valuable "Ego Ideal" in harmony with their Ego. These have been individuals who had had parent (images) of high character and of real power and who thus had been surrounded by cultural influences that from childhood had enabled them to conquer difficulties by reality testing and not shunt them by phantasy, day dreaming, or make believe. Such Super Ego formation had been coöperating with the Ego, to prevent regression, and when repression of the Id and sublimation of the repressing forces have been called upon, the added power of Super Ego repression has enabled the Ego to handle the machine, really damaged, to advantage and towards actual restoration of function in spite of the defect. This combination of a strong Ego and Super Ego (in a sense Schopenhauer's Will to Power) (better, Freud's "sublimation") has an actual circumscribing effect upon an organic lesion—as anyone who has studied attentively the "miracles" and "semi-miracles" of the past can understand.

But with a weak Ego as well as with inferior Ego Ideals, either as seen in children (see the effects of encephalitis in the behavior of children), or in those of poor family ideals, neurotic anxiety is added to real danger and the difficulties in handling the instinct forces are enhanced. The brakes don't hold when the engine is in high and going down hill.

As this chapter would attempt to outline the significance of the hypervigilant unconscious, made more aware by reason of organic insult, a preliminary case report of another type may be used to introduce the thought to be further elaborated in relation to the oculogyric crises.

This patient was a university graduate, single, thirty years of age. He narrated, among other things, generalized fears of contagion and that he would throw himself out of a high window. He worked fairly continuously, although always tired, and had supported himself well. He mixed in society. Drank, occasionally too much, and had been appreciated by more than one woman; but he lived at home with his father and mother and younger half brother. With these details no further concern is here contemplated. What is of interest in connection with this paper were his very deliberate motions, his slow speech, and his careful, prolonged, and precise diction. He read very slowly and reflected much upon what he read. This gen-

eral and mildly pronounced trend to great deliberation was further extended into his sports, which made him choose wrestling to boxing, long distance running and long distance swimming. He never could spurt.

The analytic material bearing upon the neurosis for which he came for therapy need not concern this communication, but one feature showing what shall be more fully developed later may be mentioned. The slow motion is correlated with the father adaptation and represents a revolt against the father as well as its ambivalent desire to please the father as a part of the Super Ego incorporation of the father image. This came out more particularly in the association material connected with the following dream:

*I am in the anteroom of some place waiting my turn for electrocution. Why I am to be so put to death does not appear. My thought is to escape this kind of death by jumping out of the window, but this is rejected because of two reasons: one that it might be very painful and secondly it might reflect upon my family. Then it appeared as if no one were interested and why not walk away, which I did. I then find myself in the outskirts of X (where I was born) and feel very lonely and as if hunted and will be hunted no matter where I go. I shall always be without a country. So I decided to go back, which I did, and when I returned they all complimented me upon my coming back and I was very much pleased with their praise.*

Why he was being electrocuted must have been for murder, since "that is the only crime for which electrocution is carried out," was his first comment. It is clear that his symptom of fearing to jump out of the window is a permitted thought, that the Ego could accept, in the place of the repressed hostile (murderous) craving—(other determinants are omitted). Electrocution brought out the response of the muscular fixation and rigidity with which he was partly familiar from experiments in college and with faradic current muscular contractions.

The father pattern then developed in his associations. During the patient's early childhood the father had been a very irritating person. He was a political henchman, mostly loafing, in one of the slowest departments of the city government, in one of the cities of the United States made a universal butt by the humorist of what is slow, conservative, and unprogressive. Here was the positive Ego-Ideal pattern so far as the motility was concerned. On the other hand, with his children the father was extremely irritable, impatient,

short, and complaining, and the one slogan of the father that the patient remembers from early childhood was "Hurry up," "Hurry up," "Hurry up." No matter what he did, from attending to his toilet, going upstairs, on errands, dressing, school work, etc., this "Hurry up" was always hurled at him by this almost immovable and obstinate father.

In discussing his slow movements it was quite consistent then that he should remark that he felt sure that his slowness was more due to an excessive desire to hasten than anything else. He was prepared to accept the "ambivalent" aspect of the situation and came to recognize the "hostility" with its earlier primary analerotic fixations and their later secondary narcissistic elaborations in masochism as having been much involved in determining this slowness of action, speech, and thought. Its "Super Ego" sources and protective values against overhasty, aggressive, sadistic tendencies became increasingly apparent.

It is but a short step from this slowing up in a psychoneurotic on a purely upper psychological repression level with no organic disorder to the more marked slowing up of the healthy situations in the organically hurt individual. The organic hurt has only permitted more of the repressed material to come to expression ambivalently and ambitendently. It is for this reason that a moment's excursion into the hypervigilance of the encephalitic as bearing upon what lies behind causing this has been made.

A wealth of material bearing upon some of the reasons behind their motor rigidity is obtainable from several parkinsonian encephalitics studied. A far greater supply of the studies of others upon the motor phenomena is also available. It has been attentively studied. A few of these hundreds of studies may be referred to as of special significance in connection with this paper. Winkler's discussion of the acoustic and speech apparatus in his Manual first crystallized the point of view pursued through the various studied outlined, particularly as to the motor attitudes to the environment. Studies by others have appeared after the formulations here expounded were already outlined and in part published. For instance, Schaltenbrand has called attention to the motor reaction "as a whole," which he rechristens "motorischen Haushalt." He speaks of the "motor mood" to primitive stimuli and, quoting Darwin and v. Üxküll, speaks of the enemies, prizes, and sexual objects as the surrounding objects giving rise to this motor set and the consequent

type of reaction in wild animals as follows: *"The beast of prey (lion, tiger, etc.) must immediately alter his motility as soon as he sees his prize; he must avoid above everything being seen or heard. He goes into a bent attitude and avoids every accessory motion or holds himself immobile,"* etc. Thus Schaltenbrand for another purpose introduces the same thesis that is of interest here. Here it is maintained that this "Stimmung der Motorik" is capable of further interpretative analysis by the psychoanalytic method. This is the picture of "vigilance" that needs analysis, since man is not only *"a beast of prey."* He is all of his animal ancestors, and friend and foe are more sharply scrutinized than ever in view of the injury to the personality, and he thus holds himself as has already been described (see threatening attitude and tremor), or as Schaltenbrand (p. 239) expresses it quite correctly, *"It is so with the tremors of parkinsonian patients, we see them appear in states of anxiety and of anger and 'without wishing' it man finds himself in a motor attitude of watchfulness, of anxiety or of anger."* *"Ohne es zu wollen,"* that is, unwittingly, is just the aspect here under investigation, namely, the "repressed material" which causes these attitudes of ambivalent shrinking and defiance, attack and retreat.

For the purposes of this chapter, suffice it to repeat briefly the case of **J. F.**, a boy who had a typical attack of lethargic encephalitis at the age of eighteen. After the recovery from the acute phase he passed through a severe respiratory syndrome. When seen about two years or more after the acute attack he showed: (1) Paroxysmal respiratory episodes; nasal and buccal tics, with trance states, salivation and tetanoid cramps. (2) Parkinsonian attitude with paroxysmal or intercurrent tremor, more marked right than left side. (3) Character anomalies—more marked in the previous year. (4) Mild greasy face. (5) Polydipsia and polyuria. (See photo, page 124.) He came under exporatory psychoanalytic treatment in 1924. He made a recovery with insight of his respiratory attacks and then later developed oculogyric crises (see chapter on Personal Observations).

Attention might be directed to the patient's very hostile reaction when on one occasion I straightened out his shoulders and told him to brace up a bit. The facial expression (Mienenspiel—see Schaltenbrand) as well as the increase in tension in his bent stiffening notified me at once of the "motor mood" response of "overcompensation." Here the repression due to the Super Ego aid was sufficient to block for the time being any outward outburst of anger; the craving was

there nevertheless. We went through the hour until the very end, when I asked him what had come to his mind as I straightened him up. He hesitated and then finally blurted out, *"I wanted to say, 'Cut it out—God damn you! I hate you!' You were so like father trying to make me get up in the morning. The G. D. S. O. B."* He was quite agitated when he left.

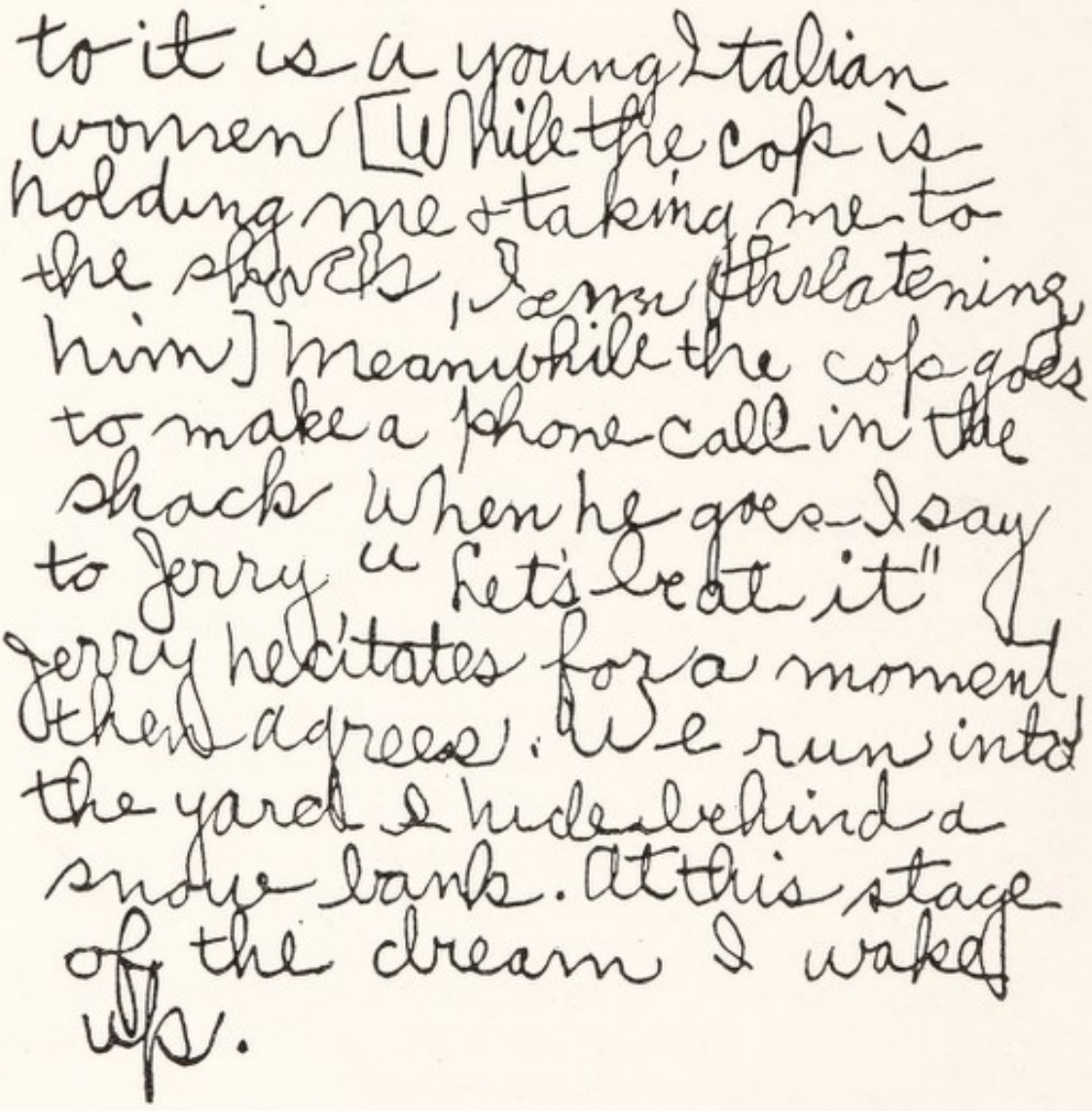
For six days he refused to get out of bed in spite of his appointments to see me daily. He had not wanted to come to see me. He had not wanted to get up in the morning. He had called his mother repeatedly to come and sit on the bed by his side and hold his hands. *He had ideas of her death. He was very apprehensive about her.* Sunday (November 30) he had stayed in bed all day. He called his mother frequently. He had several trance states with cold hands, contractures, face tight, and the muscles of the mouth were all twisted up. When he came, however, in the conscious there was a warm feeling of friendship; an oversubmission was evident from his attitude. I had slipped into the mother rôle. He expressed his submission (or aggression), in speech, at least, at the fellatio level. He said he wanted to kiss me. Even my mentula. It reminded me very forcibly of the extreme affability of certain presenile parkinsonians, as well as the great friendliness of certain so-called normal individuals with markedly repressed strong sadistic tendencies.

During the analysis of one dream an important situation came to light apropos of the genesis of the parkinsonian tremor. It is to this that particular reference will first be made. This dream was written out for me in the morning when he awakened:

*I dreamt Jerry and I were waiting for a train. A cop bumped into Jerry. Jerry hit the cop. The officer grabs Jerry. I stick up for Jerry. The cop (a great big blonde six-footer) grabs me too—by the collar. I cry like a baby. Jerry cries too. He walks us for a while and then takes us into an old shack. In the shack is an old dirty room. In the room is an old Italian couple. In the room next to it is a young Italian woman. (While the cop is holding me and taking me to the "shack, I am threatening him.") Meanwhile the cop goes to make a phone call in the shack. When he goes I say to Jerry, "Let's beat it." Jerry hesitates for a moment, then agrees. We run into the yard and hide behind a snow bank. At this stage of the dream I wake up.*

Here I would call attention to the patient's writing where it is quite obvious, where he writes *"shack, I am threatening him,"* there

is a pronounced tremor otherwise missing in the body of the dream. In a word, the feeling of the meaning of the symbol "I am threatening" him comes through into definite motor disharmony. As Claude Bernard once stated, "that feeling is anterior to thought," so here, with Bergson, we may say, a few recollections, memories from the unconscious dimly remind us of what we are dragging behind us


to it is a young Italian
women [While the cop is
holding me & taking me to
the shacks, I am threatening
him] meanwhile the cop goes
to make a phone call in the
shack When he goes I say
to Jerry "Let's beat it"
Jerry hesitates for a moment
then agrees. We run into
the yard & hide behind a
snow bank. At this stage
of the dream I wake
up.

unawares, and smuggle themselves through the half open door to conscious performance. The hostility in the meaning of the written symbol is not enough to discharge the aggressive tendencies.

Interesting and significant of the inner holding or motor attitude as this tremor situation may be in response to hostile impulses made hypervigilant, the parkinsonian bent attitude of "defense" as made familiar to all in the ancient and modern statues of "boxers," the etchings of Bellowes, etc., is even more vital. Here again from this

same patient, a year or so later, a dream fragment is held to be of significance, especially in connection with the whole story.

Feb., 1927: *Once in a boxing ring. I was in the outfit. There was a big crowd all around. An Italian fellow in the opposite corner. He then is standing up and talking to his seconds. I was standing paralyzed with fear. I sat down just before the bell rang. When the bell rang I woke up.*

Whether little or all of the material obtained in the associations of this dream were reported, one would be in a situation analogous to that which Freud has so well commented upon in his "Bruckstück einer Hysterie Analyse." The non-analytically informed reader may be reminded how Freud was first criticized for not giving enough data to support his generalizations, and when, in the study just cited, his findings were reported, the critics all said, "too much, how terrible to go into all the intimacies," etc.

Another dream is of special significance as bearing on the central contention of this aspect of the parkinsonian stiffening as an unconscious hypervigilant overcompensatory motor holding of repressed hostile impulses.

May 19, 1927: *I was witnessing an electrocution. Two men and one woman were all bound stiff in the chair. It was a big barren room. The lights got dimmer and dimmer. I seemed to be tied down and could not move.*

Associations: It was a sort of a nightmare dream. I was frightened. It seemed bad luck. Maybe I was thinking of the Snyder matter.

People: One woman was tall and thin. The men were short. As I look closer at the woman she resembles the school teacher. The school teacher was a "friend" of my brothers. The one he "had."

Two men: B. B. —: good friend of ours. Brother and mine. If I had to say who other one was, it was his brother. Funny they were both going to be electrocuted—murder.

Electric shocks: Often had them in the penny slot machines. See how much one can stand. Once grabbed one with both hands. Like taking hold of the penis. Masturbation. Hands and feet tied, like running a race with the feet tied. Died myself.

These were some of the associations upon this particular dream. These were quite clear in their general implications. Especially when taken in connection with other clear cut Oedipus dreams, which situation appeared in numerous dreams. A dream of the same

night showed clearly the desire to possess this same school teacher. *He soaped her all over nice and smooth* and awoke with an orgasm as he was about to penetrate her. This soaping was characteristic of his masturbatory activities. His mastery over the brother (father) was very clear and the connection of the dream picture with the mother was also evident in a fragment of a dream of the same night. *He was demonstrating how good the springs of a bed in the store were by having vigorous intercourse with an old lady of fifty.* The associations were clear as to the mother identification.

The whole dream dealt with the ambivalent desire and fear to possess the girl (mother) who belonged to the brother (father) even by murder of the brothers (brother and father). This resulted in the need for punishment—being tied hand and foot and himself being electrocuted.

Hostile impulses, in other words, ambivalent love and hate to the brother, were manifest. This brother had devoted himself to the sick boy with a very remarkable fidelity and persistency for years. His need for punishment for the guilty (repressed) hostility, as well as his need for biological protection against the homosexual regression, were the most outstanding features of his entire picture as seen in the analysis of the identifications.

The actual trauma—encephalitis—had produced a state of helplessness. *Being tied hand and foot* was but one of the numerous symbols of his helplessness, and hence his regression to that stage in secondary narcissism, more clearly recognized behind the homosexual material—excessive masturbatory phantasy; excessive regressive intercourse phantasies—in the waking as well as in the dream life. The regression also included the most frank primary narcissistic perverse stages: fellatio, cunnilinguis, cannibalism, sodomy, etc.

As already stated, some of the conversion phases were cleared up by psychoanalytic understanding when the function of the respiratory grunting and suffering and dyspneic-apneic attacks were cleared up. But some of the deeper cathexes related to the patient's personality defects still operated in addition to the patient's "fear" connected with his trauma.

This double situation, as Freud has shown in his Inhibition, Symptom and Anxiety, and which can be studied to great advantage in these encephatlitis cases, is one of extreme complexity.

In this communication full discussion is impossible to outline in

how far the encephalitic disease process has involved the machine so far as the Ego—as conscious perceptive system—reality tester—is involved; nor how far the same process has attacked the anatomical structures utilized in the "Super Ego" synthesis. Apart from such anatomical considerations, the psychological dynamics of repression has a double load. The ambivalent swing is rendered excessive. The motor attitude tends to return to a much more primitive stage. The individual's vigilance begins to approach that of the drug sensitivity so well known as an attendant upon earlier mystic religious activities and related pharmaco-dynamic states, such as is seen in the familiar bulbocapnine rigidities or those of mescalin and other drugs that threaten the integrity of the organism. As already intimated for the wild animal (lion—tiger), the love and hate swings to extremes of motor patterning. In the hypervigilant hyperkinetic encephalitic the combination of craving and guilt is a determinant, in part at least, for the motor patterning.

Turning our attention now from the parkinsonian attitude to the acute situations that arise as neurotic anxiety, *i.e.*, the oculogyric crisis, certain material is available.

As already indicated, there is really little new in the phenomena of oculogyric crises in encephalitis. There is, on the other hand, an enormous extension of knowledge of an innumerable series of variants. Although Albrecht, of Hildesheim, did give a striking picture, and possibly others before him, this, and other facts, while of interest, are of value to the historian rather than to the clinician. In the opening paragraphs of this thesis it is indicated that an assiduous student might carry the story back to Hippocrates.

The most definite records of these ocular positions may be found in the paintings of artists of the middle ages. Here, however, there is little intimation of what is ordinarily thought of as a disease process. Ecstasy, devotion, raptus, sometimes defense, these are so frequent as to be deemed physiological. In fact, it may be said that most persons, when in contact with "religious" phenomena, lose their usual bearings and fail to include the phenomena observed in the ordinary frames of reference. These so-called supernatural phenomena—possession, etc.—are thought to "come from without"; they are not so often thought of as really arising from within, *i.e.*, as products of the It, *i.e.*, the "Unconscious."

Since "science," *per se*, is only one of the many "fictions" in the

frame of relativity, may it not be of service to enter for the moment into the "poetic" or "mythologic" frame and see what this aperçu may offer?

Many another has fragmentarily stated what Freud has succinctly recorded and devised methods for investigation that "affective states are incorporated into the soul life as precipitates of archaic traumatic experience and are awakened in like situations in memory symbols." This is but the von Baer-Haeckel generalization that ontogeny recapitulates phylogeny, not only as to structure but as to its predecessor function. Ethics is but one of the higher or later functional precipitates of experience.

"It has seemed to me," wrote Henri Meige, "that the veil of the past might attenuate the aridity of a psychological theme; that in history, yes, even in legend itself, there is much material for more than one reflexion for the psychiatrist and the neurologist, as for all curious spirits, to compare yesterday with today." Let us turn with him to the Delphian Oracle and its instrument, the Python, that legendary serpent which inhabited the ancient village of Pytho. On this the ancient city of Delphi arose. It became the religious and moral center of the ancient world—"la terre ombilical." The legends of its origin are many. As Lempriére tells the story:

A number of goats that were feeding on Mount Parnassus came near a place which had a deep and long perforation. The steam which issued from the hole seemed to inspire the goats and they played and frisked about in such an uncommon manner that the goat herd, Coretas by name, was tempted to lean on the hole, and see what mysteries the place contained. He was immediately seized with a fit of enthusiasm and his expressions were wild and extravagant and passed for prophecies. The same circumstance was soon known about the country, and many experienced the same enthusiastic inspiration. The place was revered, a temple built, and soon the "oracles" went forth, later through the priestess Pythia. The motto over the doorway was "Know Thyself."

There is little need of further elaboration, since Freud, in his "Mass Psychology and the Ego," has shown the inner libido dynamics of all such "transference" phenomena, countless examples of which have appeared in history. Even at the present time persons electioneering for presidential candidates utilize similar methods of propaganda; books attain phenomenal sales, and other sales programs contain "legendary" attributes that influence the masses. A skilful "manager" can "put over" almost anything on the public

today. The primitive affective precipitates of biologic experience are present today just as they were in the days when the oracle of Delphi arose, and "Know Thyself" is just as good a slogan at the present time as in those legendary times. At no time and in no place have there not been nor are there not now to be found prophets as well as devotees who would tell or who would know of the future.

In earlier days there were "epidemic" manifestations of such mass psychologic reactions; a few survived permanently, or arose episodically. For the most part, the attenuated indicators of the same identical situations are to be found in the astrologic horoscope casters, the palm reading, card reading, fortune tellers, etc.; yes, even the "tipsters" of the stock exchange belong in this general category. "Prophetomania," as Meige aptly terms it, still exists, and nowhere so vibrant as in that type of behavioristic reaction broadly termed "religious."

Throughout this entire series of manifestations, similar affective precipitates are discernible. In ancient days the terms used were less disguised. Bipolar situations—ambivalence—stands out. The ancients spoke of the mysteries, the "possessions," as the work of the "nymphs." Homer called them the daughters of Zeus. Theocritus called them "demons." Thus the "possessed" of ancient Greece did not differ in any essentials from the possessed of the Middle Ages. Only the Greeks named such "nympholepsies," shrewdly aware of the sexual connotation. Demoniac possession in the Middle Ages received more rationalized appellations. The witches of New England met with even more puritanically repressed disfavor, from which, it may be noted, the twentieth century has not yet been freed.

The allegorical robes, however, cover the same affective skeletons of human experiences. Dionysius and Bacchus of the ancients, mania of the psychiatrists, mesencephalic decerebrate reflex activities of physiologists are not entirely unrelated situations, even if here rather turgidly compressed and rapidly thrown together. To any one minded to trace out the blue print more carefully, Meige's charming address is recommended. Should one wish a larger map, Fraser's "Golden Bough" is offered.

A detail of the picture is worth dwelling on, however, here. Meige's account is still in mind—as he offers the picture of the third century—as told by Lucien.

At the height of the Delphian ceremony, the possessed "Virgin" appears. "Regardez la"—look at her—"she hesitates they say." "She is afraid." She seems to advance against her will (*ἀκούσια καὶ ἀπρόδρομος*).

"In truth is she not in a state of somnambulism?" The Delphian priests are such capable magnetizers. However, like an automaton, the Pythian goes toward the tripod; seats herself there, her limbs wide apart—and waits. She shivers, it is the god that approaches her: Deus, ecce deus. His breath, it touches her; it envelops her; penetrates her through the most secret parts. He finally possesses her, for the "python" is the succubus of Apollo.

Then there unfolds the crisis, which, in the eyes of the ancients, was the certain index of the divine mania and in which, as Meige states, a little too prosaically and statically narrow in his interpretation, one can recognize the attack of grand hysteria. A long cry—the initial cry—strange, impressing, followed by sighs, tears, and murmurs. Then oppressed, breathing heavily, the priestess gives way to loud cries. Her face, formerly so red, becomes pale; it passes from the redness of fire to the lividity of fear. She rolls her eyes furiously, *convulsively toward the skies;* froth comes from her mouth.

Then follows the convulsive stage.

It is unnecessary to go on with this classic description—so well outlined by Richet and at the Charcot school. This is the "hysteria" of that day, and many are satisfied with giving a highly complicated psychobiologic process, of many millions of years in the making, a semicontemptuous appellation "hysteria" as if by this term anything had been contributed to its understanding!

Thus is exemplified anew that "first distemper of learning" which Bacon spoke of as "naming" things and thus hiding behind the name the essential significance of the process; or, as F. C. S. Schiller phrases it, "counting oneself happy with the acquired meaning of a 'word,' instead of the difficult investigation of the behavior of a 'thing.'"

Thus can one not put aside, for the time at least, all such words as suggestion, hysteria, epileptiform, cataleptic, narcoleptic, hysteriform, pithiatism, on the one hand, and, on the other hand, such hypothetical word pictures as cortical representation of conjugate eye movements (Muskens, Bechterew, and others), supranuclear

irritation of the posterior longitudinal fasciculus (Borremans and others), thalamic over-response, involvement of the rubrospinal tract, striatal control, neostriatal injury, cerebellar involvement, or vestibular involvement? Can one not try to find out just what is going on in these cases of oculogyric crises that on the one hand forces (compels) certain bits of Pythian goddess behavior into the foreground, and, on the other hand, as is readily agreed, may be bound up in some manner with various types of defect in the human machine?

Here one turns again to evolutionary concepts in searching for an understanding of behavior activities as well as structural correlates and to the formulations of Hughlings Jackson and—be it noted—to necessary extensions of these formulations (von Monakow, Schilder, Goldstein, Freud, Alexander), since Hughlings Jackson dealt little with the ethical-moral precipitates of human behavior, which von Monakow and others just cited have studied in great detail.

# CHAPTER VIII

## Psychopathology: Affective States, and Forced Movements and Their Meaning

The concrete enduring entities are organisms, so that the plan of the *whole* influences the very characters of the various subordinate organisms which enter into it. In the case of an animal, the mental states enter into the plan of the total organism and thus modify the plans of the successive subordinate organisms until the ultimate smallest organisms, such as electrons, are reached. Thus an electron within a living body is different from an electron outside it, by reason of the plan of the body. The electron blindly runs either within or without the body; but it runs within the body: that is to say, in accordance with the general plan of the body, and this plan includes the mental state.—*Whitehead.*[1]

The cerebral mechanism is arranged just so as to push back into the unconscious almost the whole of our past, and to allow, beyond the threshold, only that which will contribute to the work in hand; *i.e.*, to do useful work. At the most, a few superfluous recollections succeed in smuggling themselves through the half open door; these memories, messengers from the unconscious, dimly remind us of what we are dragging behind us unaware.—*Bergson.*[2]

The pilgrim fathers of the scientific imagination as it exists today are the great tragedians of ancient Athens, Aeschylus, Sophocles, and Euripides. Their vision of fate, remorseless and indifferent, urging a tragic incident to its inevitable issue, is the vision possessed by science. Fate in Greek Tragedy becomes the order of nature in modern thought.—*Whitehead.*[3]

By the quotations that stand at the head of this chapter attention would be called to formulations, which, as they are gathered from outside of the distinctly neuropsychiatric discipline, may indicate that the thought to be elaborated is not altogether alien to other trends of present-day understanding.

In the first quotation Whitehead emphasizes a conception which Plato, in his "Charmides," put into the mouth of Socrates, who,

[1] Whitehead: Science and the Modern World. New York, The Macmillan Company, 1928, p. 114.

[2] Bergson: Creative Evolution. New York, The Macmillan Company, Introduction, p. 3.

[3] Whitehead (footnote 1, p. 14).

returning from the wars, told somewhat of what he has learned from the Thracians about the necessity of putting the "soul" into the picture if one would learn more thoroughly of the manifestations of bodily disorder.

Bergson, in his turn, placed emphasis on repression of the forces belonging to the "inner core of the personality" (Schilder), namely, the "Id" of Freud, whose formulations are among the most fruitful in the development of a concrete dynamic understanding of human behavior.

In this chapter I would like to focus attention on the thought of the activity of the "organism as a whole." I would also call attention to the fruitfulness of the conceptions of Freud for psychopathology in other fields than the psychoneuroses, here applied specifically to the positive symptoms (Hughlings Jackson)—Gestalt (Wertheimer, Goldstein), emergents (Morgan)—of the compulsive phenomena seen in the postencephalitic oculogyric crises.

I make the preliminary statement that irreversible structural changes undoubtedly take place in the central nervous system in epidemic encephalitis. In the language of current pathology, there is an organic disease, although the emphasis on organic may mean very little after all. In other words, the machine, "as a whole," is interfered with in its adaptive capacity to reality. This is a truism so obvious as scarcely to need stating. It is equally true, but not so readily appreciated, that this is only one fragment of the larger situation in which the organism as a whole still functions, in spite of the "monkey wrench thrown into the machinery." In the terms of Hughlings Jackson's most practical summary, the *organism still functions, but functions badly with the well part of its being.* The refinements and greater insight into the further elucidation of the phyletic complexities of this situation one owes to von Monakow, Goldstein, Schilder, Hollós and Ferenczi, and others, including White and myself, not hypnotized by the *etymology* of the phrase "organic disease."

It is here chosen, however, in the terminology of Bergson, to look at those functional situations, "the few superfluous recollections which succeed in smuggling themselves through the half open door; the memories, messengers from the unconscious, dimly remind us of what we are dragging behind us unawares." Bergson has called them "superfluous," in the sense that they are not directed to the work in hand. These "recollections," *i.e.*, disordered bits of be-

havior it may be, are here regarded as essential rather than "superfluous," because psychoanalysis has shown that the "memories of the unconscious" are a million to one more important than has heretofore been appreciated. It is in this respect that the emphasis on unconscious processes of phyletic and ontogenetic condensation is believed to be justified; otherwise no real comprehension of the subtle behavior reaction in disease can be realized.

It also seems desirable at the outset to state, and with emphasis, that one can have no quarrel with those who elect to study electronic modifications, ionic milieu adjustments (Zondek, Kraus—Syzgiologie, der Biologie der Person), pathologic processes in the liver (Wilson), the colon (Cotton), the teeth and sinuses, or in other places; or with those who would study pathologic processes in the spinal cord, the medulla, or the diencephalon (Greving), striatal or cortical pathology (Josephy, Spielmeyer, Fünfgeld, Zingerle, Vogt et al.). Such study is more than welcome, but, in the language of the Whitehead quotation, all of the subsidiary organisms are operating in accordance with the "mental states," or with the socratic "soul." What is most fundamental is, What are the impulses in the "unconscious" (the 'Id' of Freud) doing to get around the difficulties, to function adaptively as a whole in spite of the structural insult, no matter what its nature or localization may be?

Maudsley's statement that an "organ is a bit of structuralized experience" may perhaps be enlarged on in consideration of some of the work, chiefly of recent years, since the freudian conceptions of the "unconscious" have enabled the student to understand the dynamic integration of all vital activities and their somatic correlates. During the course of development, every organ has become, in a sense, simpler in its differentiation of function. The liver of the oyster performs many more complex metabolic processes than the liver of man. It is more than liver, whereas in man the functions of the liver have been more differentiated and separated, hence less complex. Seen from this point of view, then, as far as comprehension is concerned, the life of an ameba is not simpler but more complex, *i.e.*, so far as its understanding is concerned, than that of higher animals, since specific activities have not been differentiated into definite and understandable structures and functions. In the same way the "unconscious," the "Id" of Freud, the central core of the personality, to utilize the phrase of Schilder, is the region of the billions of years of experience of the animal phylum with the cosmos.

The deeper one penetrates into the "Id" the less its specificity and the greater its complex capacities. Our organs, thoughts, representations, and perceptions are successive differentiations or developments from this central mass or magma of experience. The mystics and near-mystics like to speak of a cosmic psychic life outside of the individual personality, but the conception here sketched would attempt to limit this so-called cosmic psyche to the deeper layers of the individual unconscious. From this, with increasing experience in the capturing of cosmic energies, new organs and new organisms arose phyletically. Ontogenetically, in man, the organs, even the brain and nervous system, are but tools to develop—by other tools more or more specific—from the center, our deeper adaptive reactions into emotions, representations, thoughts, perceptions, and actions of muscles or glands at the periphery. Thus the differences between psychic (central, unconscious, and primary) and organic (peripheral, conscious, and elaborated) are but differences dynamically related to differentiation and specificity of functional activity. Everything psychic utilizes a structure, back to the complex undifferentiated ameba. Everything organic utilizes the psychic, up to the most differentiated social images of man.

When a problem of adaptation becomes well settled, that very solution tends to precipitate itself into structuralization. Hence muscle-nerve may be said to be an early structure to settle pressing problems of environmental tactile irritability (Verworn, Parker). Specific movements toward or away from noxious stimuli became possible, and certain psychic problems were solved. The structuralization of bone probably followed soon after; it was especially of service for fixed adaptive reactions to gravitational stimuli. Problems of adaptation which were solved in this and succeeding ways left more opportunity for newer differentiations and for greater specificity. And finally, not to detail the millions of intermediary steps, came man, with his "mind" and "matter"—body and mind—soma and psyche. Leaving all metaphysics aside and looking at it as a purely biologic evolutionary process, one can speak of the "personality" as the individual in all his capacities, in which two polar reciprocating dynamic mechanisms are discernible, the one the analog of a nebular treated gas—containing the possibilities of everything human, the psychic pole, or center if one will—and the other the solid, organic pole or periphery of the personality (Schilder et al.). The oldest problems of the personality, when solved, become organ-

ized, or organic, *i.e.,* irreversible processes. When reversible they flow back to functional, *i.e.,* physiologic, activity. Thus an acute nephritis from which the patient recovers is a reversible process, and that from which he does not recover, an irreversible process.

Turning abruptly to a patient with general paralysis with a so-called high grade dementia who is cured by the malarial treatment, from this angle how shall one deal with the *dementia* in terms of psychic and organic? What has happened between the peripheral structuralization (organic lesion) and the central psychic factors of the personality (perceptions, representations, ideas, and emotions)? Here it can be said that the organic trouble remains in the periphery of the personality and destroys, for the time or permanently, a tool of the personality. This prevents, blocks, checks, or inhibits the development of the central parts of the personality—checks the expression in specific adapted organized action of words, thoughts, representations, and emotions. "Lower levels of functioning appear" (Hughlings Jackson), or the "undeveloped comes into appearance rather than the developed" (Schilder).

Thus it becomes evident that psychologically close similarity can be seen between peripheral (organic lesions) and central personality (psychogenic disturbance) appearances which are so difficult to understand and on which this study would essay to throw some light.

From other points of view many observers have emphasized the possibilities of lower level protective reflex activities throughout the series of compulsive movements. Some even have offered penetrating differentiations of seemingly single clinical symptoms into components ranging from more or less pure reflex automatic actiities to more or less purely psychogenic components in the apparently similar symptom. Kleist, as one of many, has done this most exhaustively. In a series of papers on compulsive movements, and particularly in his 1927 contribution, he has called particular attention to the necessity for separating these components. The purely psychogenic components of negativism or more true psychogenic negativisms should be sorted out from the "Gegenhalten," "Greifreflex," and "Zwangsgreifen" series. Even the latter, of more distinctly reflex automatic character, depending on peripheral tactile stimuli—and some ocular stimuli—are capable of fine differentiation as to their clinical characteristics. This is no new conception, since neurological science has developed the idea of synthesis of reflex activities into organized movements, the different components of which are separable only by

experiment or through disease disturbance. It is unnecessary here to review Sherrington's integration studies or the later researches of Magnus and de Kleijn on reflex arc activities in response to another series of stimuli. It is important, nevertheless, when any effort to understand a particular series of movements is to be made, to realize fully the significance of possibilities of the activity of all levels. There appear at once the futility and falsity of the "organic-functional" antithesis, not only from the common sense reflection that every function requires an organ, but, vice versa, that every organ functions. What is not so apparent, however, is that structure is less clearly differentiated than function.

It would appear senseless to have to repeat that every symptom needs an organ to allow it to develop. In this sense all symptoms have an organic background. There are, however, problems of localization in the machine which may be of great practical significance. To say that a pain or a tic, for instance, is organic or psychogenic means little; but to trace the precise dynamics means a great deal. Thus pain may be related to physical pressure of the periphery due to physical pressure or chemical disequilibrium at some point in the sensory pathways, peripheral, spinal, thalamic, or cortical. It might be due to sensorimotor disturbance arising from vascular nutritive situations on a purely affective basis, or the pain might have arisen from cortico-associative dynamic disturbances of affective valuations. In all, the soma is called upon to react. The real problem is not settled or aided by vacuous generalizations such as somatic or psychogenic, organic or functional, or similar meaningless phrases. Schilder has most satisfactorily dealt with this whole situation, and it may be expressed more or less in his phraseology.

Is it possible to understand more significantly, and as practical workers in therapy to deal with more successfully, those efforts of the organism, working as a whole, which manifest themselves as bits of behavior which in the present state of understanding more closely than any other bits of behavior resemble the "compulsions" which Westphal, among others, first brought into a partial synthesis under this conception?

One fact might be added that was not emphasized, namely, "anxiety states" apparently are not always present. It may be admitted that they may be absent, and for reasons that are possibly understandable. But it is my belief that whereas for the most part such anxiety states do appear in consciousness, it is conceivable that

the amount of affect may not be sufficiently great to force them into consciousness, or the repressing mechanisms of the individual patient may be sufficiently operative to keep them unconscious and force an outlet of the libido somewhere else, in accordance with the general law of parsimony (economy of Freud; easiest channel of Goldstein et al.). Although this consideration needs greater elaboration, it is mentioned here as to be thought of in relation to variations in the clinical picture of variable grades of anxiety expression, directly or indirectly in thought, motor action, or glandular activity.

The "body as a whole" thesis is in no need of elaboration. It is so obvious, even if overzealous specialization has too hastily overlooked it and made a part bigger than the whole, which, in some respects, it may be at times for biologic reactions. In the psychological field those frail academic "organs" of the "mind"—the "will," the "emotions," the "intelligence"—are still conceived of as entities, although this conception, too, is passing, and more concrete, dynamic situations are being envisaged behind an enlightened behaviorism, "Gestalt," or other conceptual formulations.

Likewise, it is not altogether necessary to discuss "level activities," since genetic and dynamic insight is taking the place of descriptive static presentations. The development of knowledge of the phylogeny of function, as well as that of structure, is enabling psychobiologic science to trace the flow backward and forward of adaptive reaction in the flux of being. Here one may mention the services of Hughlings Jackson, Maudsley, Freud, Frazer, Rivers, Bleuler, von Monakow, Goldstein, Schilder, and others in pushing deeper into the understanding of human conduct in terms of this functional phylogeny of all things human.

This leaves the field free for the approach to the main topic of this chapter, *i.e.*, the compulsion phenomena. The early type of ecphoria (Semon), such as tropisms, taxims (Loeb), reflexes, etc., are left to these authors. Here the types seen in encephalitis are of main significance.

## Compulsion Phenomena in General

The task of the historical student who would endeavor to trace to its beginnings the Ariadne thread in the domain of the compulsion neuroses is not to be lightly considered. Conventional historians, chiefly Teutonic, have sought to place at Westphal's feet the crown of priority. This is one of those not altogether illusory bits of hero

worship that more careful research dispels, while still doing homage to Westphal.

Compulsion neuroses have been present in mankind from very ancient times. Religious ritual and the compulsion neuroses are twins of prehistoric lineage, as Freud has indicated in his "Totem and Taboo" (1912). Their similarities have been hinted at for centuries. Of recent years, the most thorough discussion of the later history of the conception has come from Bien. Earlier useful guides have been Thomsen (1895), Warda (1905), Löwenfeld (1904), and Schneider (1918).

Even a rapid glance at these sources indicates that brave would be he who would endeavor to digest the voluminous literature and attempt an historical synthesis of this array of studies. "Compulsions," *i.e.*, fixed patterns of discharge, may be seen from the highest social ritualizations of mankind in the mass to the lowest rungs of the physical and chemical ladder. Thus, through physical, chemical, biological, and psychological to sociological fixed (compulsive) reactions may be traced.

Whether one focuses attention on the grosser muscular movements of the extremities, those of the facial musculature, the ocular gyrations, which this study arbitrarily abstracts for observation, the complex subtle movements of developing thought, the mental state in general, or the entire individual or group behavior reactions, one striking situation stands out, efforts for the understanding of which have seemed to occupy man's thought as long as any records of these efforts have been obtainable. In present-day psychiatric science this situation has been formulated by Bleuler as "ambitendence" and "ambivalence." This conception, so fruitful for understanding and equally subjected to resistances, is clearly seen, however, in a few fragments of presocratic thought which have come down to the present time.

Anaximander and Anaximenes both spoke of the interaction of opposing bodies; Herakleitus' idea of "flux" envisaged the phenomena; the early Indian philosophies warned one of the "pathway of opposites." Interestingly enough, as bearing on a later phase of this inquiry, *i.e.*, relative to ritual, religion, and ethics, both Anaximander and Herakleitus said that the "opposites are bound to do justice to each other for all unjust encroachments," and Herakleitus is remarkably modern—if I inject my own homologies into his fragmentary statement—when he writes "that if the sun (fire, libido)

oversteps his measures, the Erinyes, the assistants of Justice (super-ego) will find him out."

Today it is a commonplace of Newton's first law that "action and reaction are equal and opposite, and always occur in pairs." Equally pertinent possibly is it to be remembered that no electrical engineer could make anything work if the positive and negative forces were not taken into consideration in every problem. Furthermore, not to build up unduly the evidence of the necessity for tracing what is happening to opposites, from physics to sociology, may it not at once be concluded that any interpretation of human behavior that fails to take into consideration these opposing tendencies, from the electron to national rivalries, is faulty mental engineering.

In this discussion, however, I shall not essay to include the universe, even though far-reaching universal factors are always involved in human behavior, but I shall endeavor to obtain and reveal some insight into certain compulsion accompaniments seen in the post-encephalitic states and more particularly in the oculogyric crises and their accompanying mental states. Yet no such discussion could be satisfactory if one did not make some effort to orient the phenomena involved to related occurrences.

Löwenfeld's large and important monograph contains the greatest amount of digested material dealing with the larger problem of the compulsion neuroses. Janet's and Raymond's four volumes on neuroses and fixed ideas, obsessions, and psychasthenia present the most detailed case histories extant, but these case histories are extremely detailed, but they were collected with little clinical psychiatric acumen. Psychasthenia, as outlined by Janet, has been shown to be a very unclinical conception; many of the patients actually described by Janet in their further evolution developed situations in which kraepelinian psychiatry would offer better insight. Cyclothymias, schizophrenias, paranoias, and other kraepelinian types developed in Janet's patients (Jung, Kraepelin, Collin et al.). A great many of the short descriptions are entirely too fragmentary to be interpreted accurately. The psychasthenia conception, already shown inadequate in the light of the kraepelinian studies, has vanished even more into the limbo of untenable formulations in view of the psychoanalytic psychiatry of Freud, Schilder, and others. The manifest content and rationalizations are given in great detail in Janet's case histories, however, and hence they still offer interesting source material. In his two latest contributions, one misses the penetrating

insight into dynamic factors which would (1926–1927) meet the present-day inquiries of a concrete psychology. There is charm of description, but it is only description.

In this study I make no attempt to deal with the larger problem of the compulsion neuroses. Since, however, the phenomena of the oculogyric crises may most conveniently be conceived of as classifiable more consistently in this general rubric, a general résumé of the compulsion group as of more recent conceptual development seems pertinent.

Without entering into the historical evolution of the compulsion neurosis concept, since Bien has sketched it amply, one may plunge directly into this field by presenting Friedmann's useful outline. Variants and emendations may be offered later, for Friedmann is of the old school that deals with " will," " intellect," and " emotion " as entities, and makes categories which rarely accord with actual situations, except as they may represent temporary cross-sections of events. An enormous number of variations, combinations, and permutations develop in almost every case. Few cases of compulsion neuroses begin as or remain monosymptomatic, and none of the earlier students has developed the reasons why as satisfactorily as Freud in his penetrating early and as yet incomplete studies of the compulsive states.

Friedmann's general framework has the advantage of something nosologic to start with, even if it is illusory as to the actual developmental situations.

*I. Compulsive Remembering*

(a) Annoying recalling and repetition of verses, melodies and fantasy thoughts, which appear unwanted and often with painful content.

(b) Persistent memories of definite experiences of frightful occurrences (of seeing those who have hanged themselves, of images of dead people, of epileptic convulsions, etc.).

(c) Compulsive seeking after some elusive memory, of forgotten names, verses, or situations; the compulsion to finish an idea, etc.

*II. Mechanical Compulsory Associations*

(a) Impulses to walk a crack; pedantic spelling; compulsory countings; symbolisms; picking up scraps [paper, orange peel, etc.]; going definite distances, etc.

(b) The necessity for certain associative thinking of perceptions and experiences in rare forms, such as certain words coming from the blowing of the wind [like Mark Twain's " Who stole my golden arm? " story]

as the trains go by; the images of some one crushed or run over; one's head open on top; how this and that person appears undressed, and seeing a corpse hanging on every tree, etc.

(c) Contrast associations, as for instance the cursing of loved persons; obscene sexual ideas and pictures with holy religious activities; ideas of the mother as a witch; echolalia; coprolalia.

*III. Unwished for Compulsive Instinctive Impulses*

(a) Momentary impulses without preliminary notions, such as to throw oneself out of a window. to shout, to make movements or grimaces, to wish to buy everything one sees [tics of various kinds].

(b) Impulses of a more serious and dangerous nature, such as kleptomanias, to mistreat some one, followed by quiet.

(c) Feelings of disgust and fear of touching things, followed by increased impulses of cleansing.

(d) Compulsory inhibition and shyness without conscious foundation; of going to certain places; to write letters; travel in railroad trains.

*IV. Overvalued Compulsory Impulses and Compulsory Ideas on a Primary Affective Foundation*

(a) Phobias, that is, inhibitory impulses connected with habitual activities—bodily performances, urinary inhibitions, fear of open spaces, closed spaces, the streets, of business activities, etc.

(b) Observation and fear of blushing; exaggerated shame feelings; ideas of bodily deformity, etc.

(c) Compulsive exaggeration of depressive ideas; affect of disappointment.

(d) Hypochondriac fears.

(e) Anxious anticipations of pregnancy, of examinations, of competitions, of punishment; fear of flying, etc.

*V. True Compulsory Ideas with Feeling of Strangeness and of Displacement.*

(a) Rare, groundless, fearful and painful ideas, such as the idea of being attacked by one's wife; fear of the plague, of being buried alive, of hydrophobia, of continuing to feel after death, etc.

(b) Foolish impulses of compulsive ideas, such as killing some one (by imitation), doing violence, overprotective impulses, etc.

(c) Tranformed compulsory ideas through modification of an unsympathetic idea to a new idea.

(d) Scrupulosity, such as causing some one else to be sick [Pauline doctrine]; fear of noncomprehension; fear of making mechanical mistakes; not closing doors, etc.

(e) Self-accusations because of going to the wrong place, and faults; mistakes of a compulsory character.

(f) Compulsory jealousy and passions in general—hate, love, etc. (group IV possibly).

*VI. Compulsory Thought Movements and Thought Inhibitions*

(a) Doubtings, especially of a metaphysical nature.

(b) Exaggerated pedantries in thinking; extraordinary exactness in directing, careful regulation, etc. (mania to regulate the future) [complicated rituals, magical, religious, etc.].

(c) Doubt concerning responsibility as to marriage, purchase, legal decisions, and scrupulosities concerning mistakes.

(d) General scrupulosities of the psychasthenic and cyclothymic [Friedmann here mixes categories with symptoms—practically all of the symptoms already noted can be found in cyclothymics and in psychasthenics, whatever these may be].

(e) General inhibitions of thinking and doing, as inability to read, write letters, carry on one's work, through dissociation of the thought movement (severe psychasthenia).

As Friedmann noted, there are twenty-six groups, whereas Janet catalogued thirty-two. As one turns over Janet's pages again to see his classifications, one is struck with the futility of all these categories, and the conviction is borne in on the observer that one could make as many classifications along these lines as there are patients—no two will ever be exactly the same, and an infinite variety of obsessive, phobic, compulsive, and impulsive situations can be catalogued. Hence one sees the great value of the freudian conceptions of more or less definite dynamisms of conversion, substitution, projection, displacement, introjection, identification, etc. With the understanding of these newer ideas, a certain order falls into the vast chaos of appearances, and, although mixed states are usual, broad outlines of reaction patterns of more fundamental clinical significance commence to appear. In anticipation, it may also be recorded that as even with the newer psychoanalytic ideas many of the phenomena broadly constellated about the substitution mechanism of Freud have remained refractory to treatment, further study will be needed to understand more adequately these obstinate and malignant cases; in other words, deeper comprehension is still lacking, and, although the psychoanalytic conceptions offer a lead in the desired direction, they are in need of more precise formulation, correction, or modification.

It is evident that in Friedmann's categories, as well as in those of Janet, one is not dealing even with syndromes in the kraepelinian sense, but with a rough grouping of symptoms that may be found in

a number of disease pictures (dementia paralytica and tumors of the brain, for instance) and in mental syndromes (manic-depressive psychoses, schizophrenia, hysteria, anxiety neuroses, etc.).

This may seem unimportant in the main, but one is here much concerned with the emergence of certain symptoms in postencephalitic cases; because they bear such a close similarity to symptoms appearing in neurotic, psychoneurotic, and psychotic situations of definitely "nonorganic" nature, the whole problem (possibly a pseudo-problem) of "psychogenic" or "organic" must be touched on. The famous antitheses of matter and motion, body and mind, somatic and psychogenic, after all mean very little. It is here held that the "or," somatic or psychogenic, is largely a pseudo-problem. The careful examination of a symptom is desirable to help locate the place in the structure where the dynamic disturbance takes place.

## The Oculogyric Crises

Coming closer to the problem, it seems most reasonable to ally the oculogyric spasms with the tics, and yet this is not entirely satisfactory, since the more pronounced protracted cramp-like states of the oculogyric crises are extreme drives in one direction, as a rule, and that which stands out in the tiqueur is the short cramp state with more or less rapid ambitendent characteristics. The tiqueur raises and lowers his shoulders, opens and closes his eyes, etc.; the yes-no, in-out, up-down mechanisms follow each other more or less rapidly in the classic tiqueur, with an infinity of variations. Freud has opined that this bipolarity, to use Stekel's more popular phrase, occurring as alternates, is an essential mechanism in the compulsion neurotic. In the same manner he has defined the conversion mechanism of the hysterical person as carrying out the opposites in a single symptom, simultaneously in space and time. Undoubtedly, many single aspects of the oculogyric crisis attack seem to entitle it to be deemed a conversion phenomenon, and that some energy (libido) discharge through conversion does take place seems probable. Since one swallow does not make a summer, however, so some conversion does not make hysteria. Conversion phenomena occur in many patients with general paralysis, but that does not make them hysteria.

If one studies the various attacks and the varying patients, it may be seen most frequently that alternations in movement are present. Attention has been called to the most frequent up-and-to-right movements, but down-and-to-left may alternate; up-and-down, and right-

to-left. The most frequent staring—caught on dead center—lack of movement is classic of the "folie de doute" situation, as was emphasized by the earlier students of this general clinical group, Legrand du Saulle, Falret, and others.

Certain close relationships to the tonic spasms of the epileptic phenomena have caused the term epileptoid to be used by many students of this problem, and not without reason. But, as already noted, it is a static play to apply "names" to these processes; even to speak of them as belonging in the "compulsive neurosis" group does not escape from this nosologic stupidity unless the fictional functional value of all "names" in the Vaihingher, Kantian sense is recognized. These problems have received much attention from various sources; Bing, Mayer-Gross, and others might be considered if nosology were to be discussed. This is not a study of the large problem of anxiety concerning which the students of Hall, Goldstein, and Jones may be referred to for orientation. It deals only with an effort to learn why anxiety is present in those cases of oculogyric crises which, apart from all nosologies, are here viewed chiefly in the light of psychopathologic reactions to traumas of the brain.

In order, then, to get at the reason for these movements, the study of the mental state seems imperative. If this is seen in the sense of either overdetermination (Freud), positive symptom (Jackson), Gestalt (Wertheimer, Goldstein), or emergents (Morgan), for all of these conceptions are closely related, one can go much further in explaining if not in clearing up the problem of understanding than with the worn-out parallelistic conceptions of organic-functional, body-mind formulations.

The outstanding phenomena in the oculogyric crises have been reviewed in a previous section of this study. Attention has been focused on at least four features: (a) the crises, (b) the thought processes, (c) anxiety, (d) the state of consciousness. In utilizing dynamic conceptions, it is understandable that varying degrees of intensities may appear in all of these factors. There may be attacks without conscious anxiety, minor oculogyric movements, and apparently clear consciousness; at the other extreme, there may be intense anxiety, prolonged, persistent, painful spasms of the eyes, and almost trance-like unconscious states. An innumerable series of variants is both observable and conceivable, in the same patient, at different times and in different patients. Certain explanations, possibly causal, may

be offered later concerning such a possible gamut of permutations and combinations.

## The Affective States

This contribution deals more specifically and fragmentarily with the affective states seen in the oculogyric crises. In a former chapter these were spoken of under the general head of anxiety. In the previous discussion the meager records of the anxiety states were given in detail. Comment was made on the paucity of actual observations made on the emotional content; there are practically no psychoanalytic studies of the anxiety available, other than these here recorded and those of Dalma. It was stated that Stern's contention that anxiety was a primary, unanalyzable state is not tenable and not in touch with the great advances made in the study of anxiety by Freud and others using the psychoanalytic method. Affective situations, of which "anxiety" is a rough and ready term to delimit a small group, are phyletic syntheses of great antiquity and complexity. One may well sympathize with Fabre, who spoke of his observations on insects as hardly more than turning over a grain of sand on the beach of the ocean of life. This individual effort to contribute to the knowledge concerning the anxiety states here reported is thus regarded.

The most satisfactory approach to a more searching analysis of these anxiety states has been made by Freud. "Affective states," he wrote, "are incorporated into the soul life as precipitates of archaic traumatic experiences and are awakened in like situations as memory symbols."

In mankind and the creatures related to him the act of parturition appears to be the first individual anxiety experienced to give the characteristic traits of the expression of an anxiety affect. It is not to be supposed that Rank's thesis on the birth trauma is here upheld in toto.

Freud has outlined the fact that most repressions with which one has to deal more particularly in the psychoneuroses are cases of after-repression (*i.e.*, ontogenetic), which presuppose the existence of archaic repressions. Concerning this background and fore-stage of repression little is known. At present it is impossible to state whether the appearance of the super-ego creates the border between primeval repression and late repression. The first intense outbursts of anxiety in childhood, at any rate, seem to follow the differentiation of the super-ego.

Freud says in his Inhibition, Symptom and Anxiety monograph:

"We imagine the Ego as good as powerless against the It, but when it strives against an instinctive process in the It, it needs only to give the signal of pain to attain its objective through the almost omnipotent factor of the pleasure principle."

An illustration of part of this principle appears in G.'s dream, an analysis of which is here given only fragmentarily:

*Case 1.*—In some place, a crazy man, another man, and still another are with the dreamer. The crazy man has attacked and killed one man with a bludgeon, hitting him on the head. It is all bloody. Apparently the crazy man is a brother of the dreamer and while offering aid to the injured or killed man the dreamer would seek to protect the murderer from discovery. The bludgeon is like one of the medieval, club-like affairs with spikes on it.

The situation of the patient was somewhat critical. She was young and unmarried; she stated that she was a virgin and had just passed through the unpleasant experience of a broken engagement with her brother's best friend. In the recovery stage she met a man of overpowering strength and personality. He was twice her age, married but separated from his wife, and for ten years had maintained a very intimate relation with a jealous mistress. The patient's early history shows a tardy narcissistic evolution, with latent and partly overt lesbian situations, beginning at boarding school with an older teacher and emerging partly from this sadistic phase with the engagement, which permitted certain erotic activities—"necking," etc., "phallic" possession at the oral level.

Analytically, the fiancé was definitely a brother substitute at the narcissistic identification level.

Whence the sadistic, painful nature of the dream? If the bloody bludgeon should represent the taking of her virginity (free association material), then one can see the powerful desire arising from the It that would threaten to throw this young woman of cultivated upbringing into free genital relations with her powerful lover. She is consciously aware of this, but thinks that she can be granted her "three weeks" at a high level of fervid friendship.

Does the dream tell her about the energy borrowed from the death impulse that permits the killing? The man killed (myself, the analyst, through whose confessional situation she must tell her every association)—the father (through the incest situation)—man old enough to be father—wife (mother) and mistress to be overcome—

and the brother (identification with self). "Crazy self" if she permits such an impossible situation to go on; crazy impulse—irresponsible, I want what I want even if I kill to obtain it.

This is but a partial sketch of this young woman's perilous position. Does the dream, "a nightmare" as it was, offer this "pain" reflex, as Freud outlined it, to sidetrack—if even in the dream discharge—the imperious "It"? Here is an inner "Kali-Ghat" sacrificial situation, which through symbolic cathexis may save the patient from a social débâcle and through analytic insight make her aware of the sadistic, aggressive, homosexual component of her supposed "love wish."

One can do no better than follow Freud's lead, who, in discussing phobias and anxiety (Angst), stated:

> The motif of all later symptom formation is evidently the fear by the ego of its super-ego. The hostility of the super-ego is the danger situation from which the ego must withdraw itself. Here there is no sign of projection. The danger is entirely interiorized. But if one asks oneself what the ego fears on the part of the super-ego, the notion is forced on one that the punishment of the latter is a continuation of the castration punishment. As the super-ego is really the impersonal father (who has been depersonalized) so the anxiety of the threatened castration by the father becomes transformed into indefinite social fears, fears of conscience. But this anxiety is hidden, the ego withdraws itself from it while at the same time it carries out the commands, precautions, and expiations laid on it. When these are prevented there develops an extremely painful discomfort, in which one can see the equivalent of anxiety, which the patient himself puts into anxiety. Hence the result runs as follows: Anxiety is a reaction to a danger situation. This is spared if the ego does something to avoid the situation or withdraw from it. One might say that the symptoms are created in order to avoid the development of the anxiety; but that is not perceiving deeply enough. It is more correct to say that the symptoms are developed in order to avoid the dangerous situations which are signalized by the anxiety situation. This danger in the cases hitherto discussed was the danger of castration or of something derived from it.

As the partial study of the phenomena in the oculogyric crises shows, *i.e.*, as far as has been recorded—and knowledge is as yet fragmentary concerning these phenomena, which therefore constitute an interesting field for further study—a certain number of persons show no anxiety in the attack. It seems even that the same person behaves differently in different attacks. Certain attacks are free from anxiety; others show it in varying degrees of intensity. What

deductions may be drawn from this if anxiety itself is the complex phenomenon it has been maintained to be following Freud's efforts at its analysis? Symptom formation (*i.e.*, looking away, up, down, sideways) may be, according to these studies, a defensive action to escape the anxiety. In several instances, and more particularly in one of Taylor's cases, a peaked cap, like a policeman's helmet, afforded relief from the attacks. When taken off the eyes would roll up. The ego would attempt to avoid a dangerous situation; at times successful, again unsuccessful. When the symptom is capable of binding the energy, anxiety will not develop, especially in those cases that go to sleep readily.

Certain preliminary positions may be stated. To many they are obvious. Everything living has an attitude toward its environment. That environment is not alone external. Even in nonliving things, attraction and repulsion, gravity, inertia, etc., may be envisaged as prototypes of such attitudes. Modern day physics is beginning to state some of its problems in similar terms. From the earliest to the latest living forms, from the lowest to the highest, the external, partly comprehensible manifestations increase in number and variety. Students of lower forms speak a great deal of the fixity of these manifestations; perhaps no one has expressed this general line of thought more clearly than Bergson in showing how a certain release from habitual, reiterated, repetition compulsion (Freud) activity has come about in man through a specialized form of activity, which is called thinking and speech.

The equally obvious formulation is stated that all of these activities, aggressive and passive, may be studied most advantageously as manifestations of the instinctive processes of self-preservation and race propagation (the "Hunger and Liebe" of the poet, Schiller). It may also be remarked that every bit of behavior, internal as metabolism (anabolic or catabolic), external as behavior, contains impulse activities derived from or correlated with these two instinctive drives in varying investment proportions. It may be seriously questioned whether any activity, no matter how trivial or how great, individual or collective, is ever exclusively conditioned through the energy derived through the one instinct channeling. Certainly "eating"—preponderantly, one may say, as nutritive and self-preservative—may easily be shown to be invested, in part, by sexual energy, and likewise, copulation, preëminently adapted for propagation purposes, may be shown to be invested with the energy of self-preservation, or, to

use Freud's illuminating conception, with narcissistic libido. A child born to a parent is frequently but an identification—a facsimile for the parent's own self love—self-preservation. Certainly it is of little satisfaction to go more widely into this general truism that the motive powers that underlie all activities, and which primarily are derived by and through the capture of the energy in the cosmos, channel or pattern themselves both as organism and as organs of the organisms to carry out the processes or actions adapted to that which has come to be called the instinct of self-preservation and the instinct of race propagation. Only these two instincts are needed; all those of recent positing are derivatives, in my opinion; sometimes, as in the nesting instinct, they contain more of one component, the racial and reproductive; in the fighting instinct, more of self-preservation (destructive death instinct), with variations under different circumstances.

All that concerns one here is to bear in mind that along such key patterns a partial solution of all bits of behavior may be made.

When Wimmer and many others wrote that the same mechanisms are utilized in hysteria as in the oculogyric crises, and hence that difficulties in differential diagnosis are raised, is that a pertinent way of getting at the situation? The same mechanisms are used by a workman digging a ditch, plastering a room or driving an automobile as may be used in robbing a bank, setting fire to a house, or shooting a suspected violator of the Jones law.

Is it not of paramount importance to study *motivation, as well as movements?* This, it seems, is the gross error of the whole neurologizing tendency, *i.e.*, to neglect in the diagnosis the motive of the movement, its meaning. As already stated, this meaning is always to be interpreted by a consideration of the interaction of the ego, the super-ego and the id. Without such penetration, diagnosis means nothing. As far as material on encephalitis is available, there is excellent ground to support this generalization.

Numerous symptoms may be interposed as "entladung" for the anxiety state. The puffing activities of J. F. (Case 2) may be utilized as an illustration. In him, anxiety and puffing and, later, anxiety and oculogyric crises occurred. The following dream may be offered as bearing on the *motivation and meaning* of the mixed puffing and anxiety states:

*I was with another fellow—he lives here in New York (my old*

*friend Jerry). First he said let's go to a $1.00 house. No, I said, let's go to a cheaper one, a 50 cent one. So we went. At the door there was a peculiar device to open the turnstile type of door, a device like a dial telephone disk, yet it was vase-shaped in general proportions. We turned it, a bell rang, and then we entered by a side entrance. The madame of the house was my aunt, and there were two girls in their undergarments, two beds. Jerry was all there, as he took the left hand girl. It took him some minutes, and he puffed and grunted and everything (just like I do). I did not do anything. We paid our 50 cents and got out.*

During some of the attacks of **J. F.** the deviation of the eyes was sufficient to inform the ego of its release from danger. This seems in some way related to the fact, if the danger object is as it were an external one. In this dream, reported in my paper on respiratory disorders, the presence of "bandy legs" in the girl in the house (uncle-father) prevented the coitus impulse from appearing as puffing for himself, who felt only disinclination for the girl and anxiety —whereas its split-off component, more energized—from the It—allowed Jerry (the disguised self, the poorer super-ego ideals of the boy who taught him all his "bad stuff") to jazz the girl, "puffing thereby." In the conscious the puffing was therefore held to be a coitus equivalent, which releases the It impulse and also saves the patient from an anxiety sufficiently intense to drive him to the feared thing, total castration, *i.e.*, the death wish—suicide. Here the protective mechanism of the symptom and its escape through the ego is fairly clear.

An attempt has been made in Chapter VII to trace from the physiological side the heightened state of vigilance (hypervigilance) which results from the actual trauma of the encephalitic process. Some diaschisis takes place; the repressive mechanism—of cortico-diencephalic or other localization (the innumerable hypotheses are not pertinent here)—is influenced, and the stimulus-response reflex mechanisms of love and hate are heightened. A weakened super-ego is unable to bolster up the ego, and anxiety of different level condensations develops. In many respects the mechanisms involved in encephalitic persons closely approach those of the traumatic neuroses, especially with reference to hypervigilance.

One case, that of **V. L.**, discussed in an earlier chapter, has been utilized by Clark as an example of successful treatment by psycho-

analysis. It is here partly presented, as taken from the report of the New York Neurological Society, with the comments made at that time.

The actual report made by me to Clark on January 18, 1929, is as follows:

Among the many phases through which the L. girl went, some of which I saw, was a distinct respiratory one of tachypnea and brüllen, quite like those reported in my monograph on respiratory disorders (Schuster, and Turner and Critchley).

She would commence to breathe harder and harder and make sounds and noises, and in some of the attacks which I saw she would get up on tip-toe, go about the room with menagerie-like motions, eyes and head to the left in a tonic cramp-like position, breathing heavily, and often saying and grunting "don't touch me." The masturbatory implications here were quite direct. This kind of "don't touch me" attack came on after a feebleminded child at "A's" had attempted to masturbate her. This was about a year ago, as I recall it. [See pp. 120, 121.]

The report of the case by Clark, quoted from the *Journal of Nervous and Mental Disease,* **69**, 683, 1929, is as follows:

*Case 2.*—A seventeen-year-old girl came under observation in 1928. Her most marked symptoms were a restless pacing up and down, accompanied by puffing and gasping for breath, and a reeling dizzily and sometimes falling unless caught by someone. She was pale and delicate, and fatigued on slight exertion. She slept poorly and ate her meals in bed. She demanded constant attention and expected nurses and attendants to anticipate her slightest wants.

When Dr. M. saw this girl, in 1924, he described the case as a mild attack of encephalitis in which third nerve involvement and lethargy were the prominent features. When she began to exhibit psychopathic reactions after this attack, he referred her to Dr. Jelliffe, and the latter describes her respiratory attacks as follows: "She would commence to breathe harder and harder and make sounds and noises; in some of the attacks she would get up on tip-toe, go in menagerie-like motions about the room, eyes and head to the left in a tonic cramp-like position with heavy breathing, and often saying and grunting, 'Don't touch me, don't touch me.'"

After a few days analysis was attempted. [For some months she would not listen to any one.] At times she had to be tied in bed. A preparation of sodium bromide combined with bouillon was used. The same restlessness, accompanied by puffing and gasping, characterized the sessions. For the first few weeks the sessions were short, as she quickly tired and would start to pace up and down and go into a respiratory attack.

The tantrum phase became so marked as to interfere with the analysis. She became violent toward her nurses, refused to allow them to sleep, screamed at the top of her lungs at any hour of the night, broke windows, slammed doors, and tore up her own possessions; in short, she stopped at nothing in venting her temper. The tempers were always worse at night, and at their height from early morning till nine or ten o'clock. She fell down a great deal in her respiratory attacks, suffering bruises from head to foot, yet protesting angrily and threatening violence if anyone tried to help her.

From September till her departure near the end of November, she made great improvement in these behavior reactions. She formed a fairly strong transference. Her physical symptoms, such as the respiratory attacks and sleeplessness, have cleared up almost entirely. She now sleeps without a sedative, eats her meals at regular hours, and during the last month of her stay mingled with the group in all their social activities.

The analysis, which was only properly psychoanalytic for two months, showed an extreme emotional infantility and its sequential narcissism. The autoeroticism was marked, yet a fairly stable transference continued.

I am bound to report here, as in the preceding case, that perhaps as strikingly dramatic recovery, from the neurotic syndrome, was obtained by a treatment that was almost wholly psychoanalytic after all other forms of treatment had failed; at the introduction of psychoanalysis the change was immediate. I have further to state that the patient had begun pubescence for several months prior to her encephalitis process and the most distressing regressions in conduct occurred; at the first induction of psychoanalysis the completion of an arrested pubescence was once more undertaken. The patient began to notice boys, assumed flapper habits and attitudes, and the autoerotic needs were once more in evidence. She became more socialized, quieter, and gained many pounds in weight. Was she about ready to undergo this spontaneous recovery? Or did analysis but make the process more easy and rapid? Or is the analysis in such cases more to be prized than some would concede? There is no evidence of there being any purely endocrinic imbalance. I feel certain that only the reaction of further cases can determine the exact rôle of psychoanalysis in such encephalitics. Finally, the so-called specific organic syndromes of respiratory attacks, which are now absent, are shown perhaps to be not a little conditioned upon psychogenic incitation and are not so hopeless of alteration as many suppose. I have several other cases of the striatal types that show similar improvement in their progressive syndrome as well as in their psychotic pictures of depression and sexual perversions. They will be reported at some future time when we shall be able to more accurately evaluate the different factors in each case.

In discussing this case at the meeting, I said:

The encephalitis case is to me extremely fascinating, because I have seen the patient now on and off for three years. I saw her with Dr. M., who referred her to me. She was then a little devil as well as a saint. I have dodged ash trays and other implements in my office that she threw around the place whenever mother simply wrinkled up her eyebrows in mild reproach. She was so exquisitely sensitized to the slightest thought of what may be called hostility on the part of the environment that she was even affected by the lifting of an eyebrow or the closing of a fist (hypervigilance). The mother, a very charming person, was incredibly stupid from the standpoint of this young instinctual individual. There was a constant fight. Dr. Clark may think psychoanalysis cured her. I give him all the credit he wishes, but if he knew the work which was put upon the mother he might give a slightly different interpretation, but I doubt that he would, because we can shake hands on the situation by saying that it was more or less the psychoanalytic knowledge on the part of the mother that helped her.

The patient [after many vicissitudes] went to a sanitarium where there were a lot of feebleminded boys. One of these boys got to monkeying around with her. She then started this menagerie "don't touch me" activity. Up to that time she had not had any respiratory difficulties. She went through these menagerie movements, and she would grunt "don't touch me," which meant "don't touch my genitals," "don't masturbate me." It was quite plain just what "don't touch me" meant.

She then went to Dr. J.'s sanitarium and led them a merry life there. She was still very sick, however, when she went to Stamford. There certain things happened which if Dr. Clark wishes to tell you, he can. These brought out other components to consciousness. Thus from the analytical understanding (there was no psychoanalysis by any "method"), with the analytical wisdom gained by the mother, she no longer struggled to keep this masturbatory situation from coming into consciousness with fear and horror. She accepted it. Then she fell in "love," and that was the beginning of her real cure. She fell in love, paradoxically enough, with at least two individuals in the sanitarium. I think Dr. Clark knows all about it. The transference was very interesting. She had a very fine, religious (ego ideal) transference on one of the men teachers, and, on the other hand, there was a low, base, vile situation with somebody else in the environment. There the two situations struggled for conscious mastery. Between the two, the whole material, plus the analytic interpretation, plus the knowledge of the environment, slowly came into the field of conscious control, and she was able to accept it all without guilt. I am not prepared to say this is the full explanation of the case. I do believe, however, because I have worked with some respiratory encephalitic cases now for four or five years with very good results, that most of these

respiratory cases show a very striking course. At least 15 to 30 per cent of them get well spontaneously, as we say. (See figures of Ziegler, Critchley, Cook, Stern, and others.) Whatever "spontaneously getting well" means, nobody knows. There is really no such thing as spontaneously getting well. There are always groups of factors in the environment as well as internal ones which are of significance in the interpretation of results.

This case history could be much amplified. There is enough to show, however, the early regression to the anal-sadistic level a year or so after the initial insult (traumatic neurosis). The patient had menstruated at eleven for a short time before the onset of encephalitis. She had eye palsies, facial flattening, lethargy, and sleep reversal for one and one-half years. Tantrums, excessive violence, and obscenities directed against the mother and a group of anal-sadistic regressive signs indicated the repression of the developing genital organization. Some masturbatory indications of this organization were violently repudiated when Dr. M. first spoke of them. These became consolidated at the sanitarium when actual heterosexual fingering took place, with the advent of the menagerie syndrome and the oculogyric crises. This sanitarium and another at which she previously was treated was run on the brutality, anal-sadistic system. Evident signs of the father incest situation were apparent and the movements of the eyes and anxiety were implicated in this. Then at Z actual seduction was almost, if not actually, accomplished, and the ideal love affair with the teacher, plus an artistic outlet and psychoanalytic understanding, suddenly released the whole struggle into consciousness. The ego was ready to accept the knowledge of the "It" cravings; her mother was no longer a hated and feared object. A distracted, feared, sadistic father, who had made periodic alcoholic flight adjustments to all these difficulties (sickness, worry, finances, etc.), became more manageable and tenderness took the place of the repressed material. She no longer had a sense of guilt with respect to the mother and father and her instinct cravings. The ego had grown up and the severity of the super-ego abated. Further material on her genital development since 1929 bears out this acceptance of the Id impulses. She later became pregnant, without any psychoneurotic regression, and suffered the usual fears of illegitimate sexuality.

Some further reflections may be offered regarding the sense of guilt and the need for punishment as related to the oculogyric crises

and the anxiety states. A full presentation of the movements of the eyes which are utilized as an expression of emotional states, from "anguish to ecstasy," to borrow Janet's excellent phrase, cannot be attempted. In an earlier statement it was suggested that the suppliant expression of the eyes had a meaning, and the biblical phrase, "lift thine eyes to the hills from whence cometh thy help," most aptly entered into that meaning.

In more technical metapsychologic phrasing this could be stated by saying that earlier libido stages of instinctual needs, through regression, had to be met by increased repression. The ego had to be spared. The ego, in the mental system, operates chiefly to repress the development of uncomfortable thoughts; as has been stated, anxiety arises to keep out the dangerous (early erotic) situations. Symptoms arise to release the repressed energy and save the individual from further regression which would push the energy back to complete primary narcissistic cathexis. As the stage of the regression contains much energy at oral-anal sadistic levels, such narcissistic investment might lead to complete psychotic regression or to complete defusion and suicide. Both of these solutions have been found in numerous cases, as a reading of the case histories shows. Continued research will be necessary to determine the relative interrelated dynamics of the somatic insult on the organs of the ego, the formation of the super-ego, and the environmental realities.

For the solution found by the oculogyric crises the movements of the eyes offer a part of the release.

It is not without slight significance possibly that in the case of **J. F.** a certain histrionic attainment registers a stage of his super-ego as well as offers some light on the possibilities of an artistic outlet. **J. F.** was quite musical and a good dancer; as a youngster he sang jazz rather well and with much expression. Furthermore, his anal-sadistic organization previous to the encephalitis had begun to show much wit-humor sublimation. Even in the phases of his "degenerate" conduct, as reported by "Dr. Burr," in the midst of his compulsive "obscene expressions," he could "wisecrack" many a broad anal situation.

It is also possibly of significance that as the analysis permitted full recognition of the masturbatory and coitus equivalents (respiratory activities), a period of comparative health followed. Then, as actual coitus efforts were carried out and fellatio perversion was indulged in (oral-sadistic phase), the spasms of the eyes arose. A

deeper level of infantile fixation material was reached, and the incest situation cathexis was of more significance. Now the sense of guilt, the anxiety, and the religious expiatory movements of the eyes began.

It is fairly well agreed, on the double foundation of anthropology and psychoanalytic investigation, that the Oedipus complex is the original source of guilt and of morality. One hardly needs to summarize the evidence from either side. Freud, in his "Totem and Taboo," Nunberg, Abraham, Reich, Reik, and numerous others have given much of the evidence.

It is impossible here to prove whether the need for punishment is primary and the sense of guilt secondary, as Freud has later suggested, but it would seem to be so, since, as may be recalled, the attacks of the eyes were extremely painful, and when so there was less anxiety. Milder attacks showed more anxiety, and the obsessive thought arose, "rape my mother"—"rape my sister." Nor is it possible to show here, with Nunberg, whether these are two distinct things, other than ambivalents.

The argument cannot even be stated that would try out Nunberg's original inquiry whether "the sense of guilt and the need for punishment are not one and the same thing." He wrote:

> Although historically they represent a repetition of the primal deed, as reconstructed by Freud in connection with the primal horde, and in the development of the individual have a common genesis, not differentiated in time, and sometimes cannot be sharply distinguished in their manifestations, yet behind the sense of guilt there is unsatisfied object-libido, while behind the need for punishment there lurks the instinct of destruction, sexualized and directed against the ego. In the sense of guilt we have the attempt to cancel the deed; in the need for punishment the deed is renewed in relation to the subject's own ego. It is true that in the different types of neurosis the relation of the two tendencies to one another differs, but it is of practical importance to differentiate them and to recognize them in every patient.

My material will need more study before I consider this point with reference to **J. F.** and his painful cramps in the eyes.

As to the anxiety situation, Freud originally showed that it may arise from abstinence or inadequate gratification, and later from trauma. Reich, in his study, further emphasized that "anxiety can arise when the moral ego is not completely successful in repressing a libidinal excitation; the repressed impulse returns in the form of anxiety. Actual anxiety is the core of all neurotic anxieties. There are also birth anxieties, aggressive tendency repression anxieties,

cardiac anxieties, vestibular anxieties, and possibly actual gonadal hormone suppression anxieties."

If it may be assumed that the marked masochistic phase of **J. F.'s** earlier symptomatology was somewhat relieved by the psychoanalytic procedure, then with Reich and others it may be assumed that sadistic-aggressive attacks on the environment would bring about increased castration anxiety. This seems to be verified by the outbreak of the oculogyric crises.

The nature of the "ego" then calls for more complete study, especially in its relation to the interrelation of the sexual and the destructive instincts (life and death instincts). Reich has emphasized that impulse-ridden character types develop anxiety when they must control their sadistic impulses.

"Anxiety resulting from suppression of aggression is only superficially true. In the first place, if the aggression be carried out it does not disappear, hence it must be true that something else is still behind it. Specific libidinal factors are found to have been freely gratified in childhood. The brutal frustration of incestuous love is severely felt, and frustration of sexual gratification drives into the foreground aggressive impulses which take on an increasingly sexual coloring through fusion with repressed sexual impulses. Here sadism arises. Every frustration of sexual gratification arouses ambivalence."

"Hell hath no fury like a woman scorned" is a classic reminder of this. As is well known, during menstrual periods nearly all women have a tendency to anal-sadistic regression. In the case of **J. F.** (1931) his crises have ceased, but he has violent outbursts of rage directed towards his brother, with homicidal gesturing.

It is probably premature, especially in this communication, to attempt to estimate how much the ego organ has been damaged by the encephalitic process. Just how this can be measured in metapsychologic terms offers a fascinating problem.

With these rather fragmentary bits, this terrain must be left for further elucidation. A closing word, patterned after Reich's study, may help to explain why even with several months of analysis the complete mastery of **J. F.'s** struggles was not obtained.

"We are inclined to presuppose that this result is but a partial therapeutic success without considering why the same therapeutic process, viz., liberation from anxiety, should produce such opposite results. It is by no means obvious why it should. Further experience, however, shows us: (1) That longing for the mother's womb

and aggression persist in spite of analytical understanding so long as castration-anxiety is not analyzed (refractory cases), or that the partly freed libido, after a feeble movement toward the genital position, retreats to earlier fixation-points (relapse). (2) Cases which remain permanently free from symptoms, in spite of the fact that they have not been completely analyzed. In such instances analysis has dealt with genital fixations from the outset and has succeeded in resolving them before the transference-situation could be complicated by deeper fixations. The fact that genital libido was freed from anxiety brought about an automatic abrogation of other wishes. For all practical purposes, relief of libido-congestion by orgasm abolishes the tendency to regress. (3) If genital primacy has never been fully attained in childhood, the 'attraction of the womb' or the tendency to pregenital gratification persists in spite of analysis of all sources of anxiety."

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It is meet for men to take account of the soul rather than of body, for perfection of soul corrects wretchedness of the body tabernacle, but bodily strength without reasoning makes the soul not a whit better.—*Democritus.*

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