THE DIFFERENTIAL DIAGNOSIS OF A CONSCIOUS TEMPORARY GENERALIZED MOTOR PARALYSIS.

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THE conscious involuntary immobility of which recognition has been described elsewhere (Rudolf, 1946*a*) appears to be a cataleptic or trance-like state. The psychological aspects have also been described (Rudolf, 1946*b*).

Usually, except when undergoing an attack for the first time, no alarm or anxiety is felt as the subject realizes that the attack will persist for a brief period and that he will not remain paralysed. Occasionally fear is felt in every attack, as in the case of a female nurse who had suffered from three attacks, in each of which marked anxiety was felt. This anxiety could, however, have been due to hallucinatory experiences as she thought on each occasion that the Sister was coming and the patients were calling to her. Although the nurse was unable to move, sleep may have occurred and the condition have been sleep hallucinosis.

Although sleep hallucinosis is commonly found occurring in narcoleptics, hypnagogic hallucinations, that is, hallucinations appreciated as the individual is falling asleep, occur in the normal person. A nurse relaxed in a chair and closed her eyes. She thought she heard her name called and that someone leant over her, but she was unable to see anything. Suddenly she was able to see and to move normally.

States of sustained immobility involving the whole voluntary musculature may be due to causes such as—

(*a*) Voluntary concentration.
(*b*) Fear.
(*c*) Day-dreaming.
(*d*) Vaso-vagal attacks.
(*e*) Schizophrenia.
(*f*) Post-encephalitic Parkinsonism.
(*g*) Hysteria.
(*h*) Epilepsy.
(*i*) Sleep.
(*j*) Sleep paralysis.
(*k*) Cataplexy.
(*l*) Narcolepsy.
(*m*) Coma.
(*n*) Concussion.
(*o*) Shock.

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(*a*) *Voluntary concentration.*—The immobility can be terminated whenever the subject desires. Immobility of this nature occurs whilst bird-watching, listening to a sermon, lecture or play, or in a soldier standing at attention.

(*b*) *Fear.*—Extreme fear may cause immobility: the subject is "rooted to the spot." The immobility is short-lived and awareness of the surroundings exists. An example is the case of the captain of a frigate who stood motionless on the bridge unable to give the order to reverse or stop the engines although his ship was travelling, bow-first, straight at the quay.

The essential difference between the immobility of fear and that of catalepsy is that, in the latter, fear does not exist unless the subject is frightened of the immobility itself. The attack begins without the presence of fear.

(*c*) *Day-dreaming.*—Whilst day-dreaming, an individual often appears to be in a cataleptic condition but his thoughts are far removed from his surroundings, of which he is oblivious. Usually he has control and can bring his mind back to his environment, and, in consequence, is able to move at any time he wishes.

An example of intense day-dreaming was described by Kinnier Wilson, who reported that the eyes became fixed on some object, the object became indistinct, and only by a strenuous effort could the subject cut short the attack. At times he felt unable to move any muscles, yet thought, "Oh! yes, I can move if I like." No strong emotion was present.

Although day-dreaming is usually accompanied by immobility, as well exemplified by Rodin's "The Thinker," movement may continue during it. For instance, men at printing machines were noticed to maintain the movement of their arms and hands automatically, although the movement was not required. These men later asked what had been said to them during the period in which they had been, apparently, completely unaware of having been addressed, although another man, who continued movement and failed to answer, was quite without knowledge that anyone had spoken to him. Men may continue to feed the machines normally, but may miss errors in pictures or type on as many as 100 consecutive sheets. One printer who suffered from a mild type of day-dreaming in which he felt dazed, omitted, on one occasion, to notice a mistake until it had appeared on about 500 sheets. Another man, who felt dazed in a similar way, stated that he was able to move and to see normally during the attacks. Such conditions border on the diagnosis of hysteria.

These conditions in printers appear similar to some occurring in radar operators who have been observed to continue to turn the goniometer, looking at the screen but not keeping on the target. One man was noticed to continue to turn, with the target on the tube, although consciously he had not seen the target. When spoken to, he immediately realized the presence of the target and continued normally.

Another type of case is exemplified by a radar operator who turned the wheel more and more slowly and finally stopped, although he was not asleep and the target was moving on the screen.

These examples of day-dreaming accompanied by automatic movement are dissimilar to the type of case in which the subject feels he is moving automatically, as if the movements of the limbs were unrelated to the mind. In

one such case hypno-analysis revealed that the sensation was due to fear, with amnesia, for seeing 25 years previously the automatons or robots in the film "Metropolis."

(*d*) *Vaso-vagal attacks.*—In addition to the immobility, numerous other symptoms are felt. Full consciousness is usually retained, a feeling of impending death is often present, and the heart's action may be abnormal in rate or rhythm. The colour changes, dyspnoea may appear, and sensations, sometimes indescribable, may begin the attack. The attack may last up to half-an-hour in length, but the sufferer may be tremulous and weak for several hours.

(*e*) *Schizophrenia.*—The schizophrenic may remain motionless and is usually aware of occurrences around him. For instance, Lazell reported that certain sentences of lectures which he gave to mute and stuporose cases were remembered by the patients months after they had recovered. Although the possibility exists that brief attacks of immobility occurring in schizophrenics could be due to catalepsy, a striking point of the temporary tonic motor paralysis discussed in this article is its occurrence in persons leading a normal, apparently healthy life.

(*f*) *Post-encephalitic states.*—Cases of this condition may remain motionless and are fully aware of events around, but, as in schizophrenia, the sufferers are not apparently normal, healthy individuals able to perform normal work.

(*g*) *Hysteria.*—Fugues, whether short or long, are usually purposive. They may occur in order to protect the conscious from unpleasant events, expected, occurring, or imaginary, but amnesia, whole or partial, is present for the period of the fugue. In the temporary tonic motor paralysis described here, full memory is retained for the events heard or seen during the attack.

(*h*) *Epilepsy.*—The *petit mal* attack may resemble, to the onlooker, a brief cataleptic episode. The sufferer remains motionless with a blank expressionless stare and may change colour. This last does not occur in catalepsy. To the subject, the attacks of the two conditions are vastly different. The subject of *petit mal* is wholly or partially unaware of his surroundings during the attack, and may be unaware that an attack has occurred. The subject of the tonic motor paralysis discussed here is fully aware of the presence of the immobility, and of the events occurring around him during the condition. The rare inhibitory epilepsy is confined to a portion of the body such as one half or one limb.

(*i*) *Sleep.*—In sleep the musculature is usually flaccid, although in some positions, such as in sleep when riding, the muscle tone of the trunk is maintained, The tone of the neck muscles is always diminished, and that of the eyelids reduced, if not absent. In the brief cataleptic condition now being discussed, the tone of the orbicularis oculis is maintained so that the eyes are open and gazing into the distance in a fixed stare. The subject is aware of his surroundings so far as hearing and vision are concerned, although only objects in the direct line of sight are included. In sleep, the subject is usually unaware of his environment unless some strong internal or external stimulus influences the dream-content. An instance is that of a nurse who was sitting in a chair when she imagined vividly a certain patient getting out of bed. She called out to stop him doing so, and woke up to find him sitting up in bed about to get out to come to her to find out what was worrying her.

(*j*) *Sleep paralysis*.—This paralysis can be predormitial or postdormitial. In the first, localized or generalized paralysis, of which the subject is aware, occurs before sleep; in the second, after awakening from sleep.

Predormitial paralysis can, if accompanied by fear, waken the subject fully, so that attacks of this condition could resemble those of the temporary tonic motor paralysis here being dealt with, if the latter were accompanied by fear. But fear seldom accompanies the condition if the subject is unaware of its harmlessness. No anxiety is felt once the sufferer is accustomed to its occurrence.

Postdormitial paralysis is exemplified by the instance of a nurse who fell asleep in her chair, letting her book fall. She heard the door open, saw the Superintendent come in and walk away again, but was completely unable to move. All movements returned simultaneously. Attacks of the cataleptic states discussed in this article occur when the subject has been known not to have been asleep and, perhaps, has been standing. Instances are of an officer standing on watch on the bridge of a cruiser, and of a nurse, standing turning over the pages of a report book.

Both pre- and postdormitial paralysis show durations of seconds or minutes. The second may be abruptly terminated by the subject being touched.

(*k*) *Cataplexy*.—In this condition the sufferer hears all that occurs but, as all voluntary muscles are flaccid including the orbicularis oculis, does not see his environment. The attacks are usually produced by strong emotion, either pleasurable or the reverse. The subject sinks down and appears to be asleep.

(*l*) *Narcolepsy*.—The attack of narcolepsy produces all the appearances of sleep, and the subject is usually completely unaware of his surroundings during the attack. The attack may be brief, or may last a few hours.

(*m*) *Coma*.—The immobility of coma, whatever the cause, is generalized, the muscles are flaccid and other signs of organic trouble are usually present.

TABLE I.—*Attacks of Immobility.*

	Muscles flaccid.		Muscles tonic.	Appearance of sleep.	Awareness of surroundings.
Voluntary*	−		+	−	+
Fear	−		+	−	+
Catalepsy	−		+	−	+
Vaso-vagal†	−		+	−	+
Schizophrenia	−		+	−	+
Post-encephalitic	−		+	−	+
Day-dreaming	−		+	−	−
Hysteria (fugue)	+	or	+	+−	+‡
Petit mal	+	or	+	+−	−
Sleep	+		−	+	−
Sleep paralysis	?		?	−	−
Cataplexy	+		−	+	Aural only
Narcolepsy	+		−	+	−
Coma	+		−	+−	− or partial
Concussion	+		−	+	−
Shock	+		−	−	+−

+ = Present; − = Absent; +− = Variable; ? = Doubtful.

* Can be terminated voluntarily.
† Numerous accompanying symptoms.
‡ Not fully, after attack terminated.

Complete unconsciousness may be present, or some incidents taking place during the comatose state may be remembered.

(*n*) *Concussion.*—Again, the generalized immobility is of a flaccid nature, and complete unawareness of the surroundings is present. The unconsciousness may persist from one second to many hours.

(*o*) *Shock.*—The muscles are flaccid, awareness of the surroundings is present, except in severe cases, and the usual physical signs of the condition are found.

Summary.

Sixteen causes of generalized immobility of the voluntary musculature have been discussed in order to provide comparisons with the temporary tonic generalized motor paralysis previously described.

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