

On the Nature and Treatment of
Epilepsy -

By
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Know Yourself, Experience to
Research not sufficiently
noticed.
Literature defective

List of Authors Consulted.

S. Lolly, 'The Human Brain, its structure,
Physiology and Diseases,
Romberg on Diseases of Nervous System
Barrows, 'Observations on Disorders of
Cerebral Circulation of the Blood'
Marshall Hall 'Synopsis of Apoplexy
and Epilepsy, with observations on
Trachelismus, Laryngismus & Tracheotomy'
R B Todd, 'On the Pathology and Treat-
ment of Convulsive diseases
Abu Crombie 'On diseases of Brain'
Dr Copland 'Medical Dictionary'
Dr Cheyne 'Cyclopaedia of Practical Medicine'
Sir A Cooper 'Observations and Experiments
on Tying the Carotid and Vertebral Arteries'
Brown Sequard, 'Experiments in Mimico-
Chemical Respiration -
Shroeder van der Kolk, 'On the propi-
mate Cause and Rational Treatment of Epilepsy'
Kussmaul and Tenner 'On Epilepti-
form Convulsions from Haemorrhage'

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Of the many Maladies which present themselves as a part of the inheritance of our afflicted race, Epilepsy is one of the most mysterious in its nature and melancholy and withering in its results.

Although a nervous disease, many of its most obvious and prominent phenomena, have relation to the Muscular system. It attacks by fits, the patient falls suddenly, loses consciousness & sensibility, and general tonic-clonic spasms supervene, which after a time subside, leaving him languid, weak and soporose.

The disease becomes habitual or periodical and returns with a violence greater or less, and after an interval longer or shorter in proportion to the intensity of the causes which have originated the attack and to the mobility and irritability of the system of the patient.

The symptoms of Epilepsy may be divided into those — 1. Before the coming on of

the paroxysm; 2. during the paroxysm; 3 immediately after this occurrence; 4 in the interval between the paroxysms

Sometimes there are no premonitory symptoms and then the attack comes on suddenly with fearful violence. Among the phenomena are headache, vertigo, mental excitation and depression; pitulance; unsteadiness of gait; roaring in the ears and flashings of light before the eyes; morbid perception of odours tastes and colours; an anomalous sensation, the aura Epileptica, which usually beginning in one of the extremities, passes up to the brain and is followed by convulsions.

The attack is usually announced by a loud unmeaning scream, attributed by Dr Todd to some disturbance of sensation, some severe pain, which causes the patient to cry out, but which the sudden invasion of unconsciousness dissipates from his memory. The patient falls to the ground generally backward and his head is drawn to one side; the limbs and body

are rigid; the eyes opened and fixed
 the complexion pale or livid for the
 most part, though sometimes flushed
 Convulsions now come on, with fright-
 ful distortions of the "human face divine"
 the eyes rolling the head is
 rotated, the hands clenched. the
 limbs are drawn up and thrown out
 and the tongue is often protruded
 and caught between the teeth

The patient often moans or utters screams
 the breathing is quick and loud; and
 a bloody foam often gathers upon the lips
 urine, faeces and flatus are often
 discharged and in males there very
 often occur erections with ejaculation of
 semen Gregory says even in infants
 "erigitur quoque penis"

The convulsions are sometimes tetan-
 ous in character. The teeth and jaw
 are often broken and I once saw
 a case in which there was frequent
 dislocation of the shoulder joint

The duration of this horrible state

varies from one minute to several hours —
 ten minutes being probably the average
 The third stage comes on with an abate-
 ment of the convulsions and the patient
 usually resumes his consciousness but
 sinks into an uneasy slumber
 On awaking he complains of headache
 and vertigo; his eyes are suffused
 and his tongue often lacerated; the
 muscles of the trunk and limbs
 are fatigued and stiff.

The patient seldom has any recollection
 of what was going on during the fit
 During the interval, the patient sometimes
 appears to enjoy good health but this is
 not generally the case. Loss of memory
 and irritability of temper are among the
 most familiar effects of a paroxysm
 The expression of countenance changes,
 becoming coarse, or fatuous

The paroxysms are seldom fatal but occa-
 sionally terminal in apoplexy or palsy
 The habitual repetition of the disease,
 in general produces the most

serious and melancholy results; imbecility and insanity being recorded as among the most common. Many, however, escape and retain, as did Napoleon, Caesar, Mahomet, Petrarch, Rousseau and Alfred the Great, their mental powers unimpaired. The recurrence of the paroxysm is very uncertain. Sometimes the periodicity is well marked - a very common time for the attack is during the transition from the waking to the sleeping state.

Varieties - Cullen divides the disease into three species; - 1 Epilepsia Cerebralis 2 Epilepsia Sympathetica 3 Epilepsia Occasionalis. Other writers make as many varieties as there are organs in the body; they specify the Cerebral, the Gastric, the Renal, the Genital &c. but the ^{division} made by M. Esquirol, of Paris, who has made the subject one of special study and investigation, particularly in its connection with insanity, into Centre and Eccentric is the simplest and best

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Pathology of Epilepsy difficult and ob-
scure has afforded an ample field for
ingenious hypotheses and theory -

The old view was, that all the morbid
phenomena were produced by arte-
rial determination to the brain and
that the force of the momentum, morbidly
increased by whatever occasioned this
determination, was the true cause of
the whole train of consequences -

Many of the familiar symptoms of
the disease accord with this opinion -

The flushing of the face, redness of
the eyes and throbbing of the Ceri-
cal arteries, often noticed, are of this
kind - The effect of Compression of the

Carotids and the occasional cure by
ligature of the vessels seem also to

favour this Doctrine. Mr Solly goes

a step further in explanation and
ascribes the determination to the head

to "a sufficient contraction of the Mus-
cular ^{coat} of the vessels of the brain"

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Instead of arterial determination, venous congestion which is uniformly found in cases of Epilepsy, is supposed by another body of Pathologists to be the source of the convulsions. This notion, forms the basis of Marshall Hall's ingenious theory of the disease and the practice he so zealously advocated as applicable to its cure. Hoville states that ^{the} brain of patients dying in a fit of this disease is always found congested and he considers congestion and suffocation to be the mode of death -

Dr Marshall Hall beginning at the commencement offers a lucid rationale of the events in the order of their occurrence which may be stated as follows:—

The earliest symptoms of a fit of Epilepsy are muscular spasms about the neck, drawing the head to one side, by which spasms a compression is exerted upon the subjacent veins

the internal jugular is compressed by the sterno-mastoid and the vertebral by the scoleni. The blood is thus obstructed in its return from the brain Laryngismus follows, the glottis becomes constricted - hence suffocation and convulsions of the trunk and limbs - To prevent this suffocation and its train of terrible consequences the proposed Tracheotomy and this view is supported by cases in which tracheotomy has cured or prevented Epilepsy

The alleged facts are denied and the reasonings of Hall impugned by Prof Romberg of Berlin and the late Dr Todd of London. The former says that no proof is given that such compression is really effected by spasm of the cervical muscles. Besides in hysterical paroxysms and the convulsive throes of Tetanus there is no unconsciousness while in the abortive forms of Epilepsy, the psychical disturbances.

prevail, scarcely any convulsive action is manifested.

Dr Todd objects that convulsions may be excited, for example by strychnia in dogs perfectly tracheotomised, with free ingress and egress of air - and in dogs whose muscles of the glottis have been paralysed by section of the recurrent pneumogastric nerve -

He proposes in stead of Volley's arterial determination and excitement, and Marshall Hall's Morbid influence of suffocation and venous congestion a humoral theory of Epilepsy - in which it is assumed that it consists essentially in the generation of a morbid matter which infects the blood; which morbid matter has a special affinity for the brain or certain of its parts

The peculiar features of an epileptic seizure are due to the gradual accumulation of this matter in the blood until it reaches such an amount that it acts upon the brain in an explosive manner

exciting a highly polarized state of the Brain or its parts, which then discharge their Nervous power upon certain other parts of the Cerebro-Spinal axis in such a way as to give rise to the phenomena of the fit - The source of this morbid matter is probably in the nervous system perhaps in the Brain and may owe its origin to imperfect Nutrition

This morbid matter is conjectured to be Urea, because in cases in which the Kidneys are seized convulsions follow - Frunichs, the Professor of Clinical medicine in Berlin, considers it to be Carbonate of Ammonia, the result of the decomposition of Urea in the blood - This humoral doctrine finds support in the frequent connection between Epileptic convulsions and retained excreta - in the correspondence between the Purgatorial character of Epilepsy and other Humoral Diseases - in the influence of certain toxic agents in producing artificial Epilepsy - and in the

intervals - a period of supposed accumulation and in the asserted fact that a patient is in a better condition of health after a fit than before, and after a fully developed than an abortive fit. Dr Todd makes the Cerebral hemispheres the primary seat of the diseased condition and considers that the Corpora quadrigemina and mesencephalon are implicated consecutively. This conclusion he bases on the following arguments. In the first place, he considers no fact in Physiology better established, than that the Cerebral hemispheres are the seats of intellectual operations and of Consciousness and consequently an affection of this part is capable of inducing all the phenomena of Epilepsy as far as regards Consciousness and Sensibility.

In the second place all the morbid appearances which present themselves in old Epileptic Cases, affect chiefly

the surface of the hemispheres or the investing membranes; and that these alterations must be looked upon as the accumulated effects produced by numerous paroxysms. In the third place, he attributes to the cerebral lobes a certain power of exciting motion, either directly or indirectly, through their influence upon other portions of the brain and that consequently a disturbed action of the hemispheres may give rise to many of the phenomena of the Epileptic Paroxysm as regards the development of convulsions.

He is lead, however, from experiments upon the *Cortex quadrigemina* and *Mesencephale*, by Galvanic stimulation to regard them as also implicated and to be the chief organs in the production of the convulsive movements.

Professor Schroeder van der Kolk, from his investigations into the structure of the Medulla oblongata, considers it as differing from the Brain and Spinal Cord. ^{1st} in its halves being more closely united by transverse fibres and Commis-
sures and consequently a bilateral action is specially peculiar to it.

^{2nd} in being richer in ganglionic groups and auxiliary ganglia possessing the special property of ^{excitability} the healthy condition, numerous reflex phenomena in different definite groups of muscles. As the Brain and Spinal Cord ^{are unilaterals} in action. lesions of these organs give rise to unilateral effects.

But the Medulla oblongata, from the peculiarity of its structure and action, gives rise to bilateral phenomena when it is the seat of morbid affections and irritations. Consequently he is induced to assign ~~the~~ an exalted sensibility of the Medulla

as the seat and source of Epileptic paroxysms - This excited sensibility is liable to discharge itself in convulsive movements, on the application of irritants, which may be seated in the brain itself, in the alimentary tract, in the genital organs and in the parts supplied by the Trigemini~~is~~ or fifth pair of nerves -

In the ~~beginning~~ commencement of the disease there is no textural lesion, but an excited capacity for reflex action, generated by some distant irritation.

If this cause remain long, organic dilatation takes place in the vessels of the Medulla oblongata and consequently an augmented supply of blood and a highly irritated condition of the ganglionic groups are produced - Every attack then, becomes a renewed cause of a subsequent one, as the vascular dilatation is promoted by the repeated congestions which originally commenced it

Exudation of albumen takes place from the constantly distended vessels, producing increased hardness of the Medulla, which may subsequently pass into fatty degeneration and softening and render the patient incurable. He thinks, also, that the experimental production of Epilepsy, by Dr Brown-Séquard, is confirmatory of his views. After unilateral section of the Spinal Cord, a certain morbid condition is developed and an exalted sensibility is gradually communicated to the Cord and finally to the medulla oblongata. As a consequence of this augmented irritability, the capacity for reflex action is greatly increased; and accordingly it gives ^{rise} to convulsive fits, which at first require for their production a slight irritation but afterwards manifest themselves spontaneously. In fact, the animal becomes epileptic.

Kussmaul and Tenner, while locating the cause of the attacks, principally in the Medulla Oblongata, maintain that the whole brain participates more or less in the change -

Instead of an exalted excitability, followed by active determination of blood and organic vascular dilatation, these investigators are led by their experiments to regard a state of Anaemia produced by a spasmodic contraction of the capillary vessels, as the proximate cause of Epileptic Convulsions.

Metamorphosis of tissue in the seat of the Malady is disturbed, by the suddenly withheld nutriment and the parts are brought into an excited state, giving rise to Convulsions -

That an insufficient supply of blood to the brain may be the immediate occasion of Convulsions, was long ago established by the experiments of Sir Astley Cooper and is confirmed by what is seen in the sloughing of

animals and in the flooding of lymph in women. It is not the ordinary cause of the disease, however, as Epilepsy often occurs when there is no indication of the anaemic state; and the convulsions even, when so produced, differ in their nature from those of true Epilepsy as they do not return after recovery -

From the above brief resumé, it will be seen that opinions not only different but directly opposed, find support among the best minds of our profession, concerning the pathology of Epilepsy. Nothing, however, beyond a peculiar pre-disposition on the part of the nervous system to be impressed by agents, some external to the organs some in their intimate ~~structure~~ structure, has as yet been established concerning the nature of the disease

Pathological Anatomy - Beyond mere venous Congestion - The result of the mode of death - nothing constant or peculiar has hitherto been found. Effusions of serum into the ventricles and on the surface; red softening of the medullary portion of the brain; ossification of the membranes or its processes; alterations in the Pineal and Pituitary glands; the existence of bony tumours projecting inwards; obstructions of veins and sinuses have all been recorded. Sulphate of Lead has also ~~been~~ been found in the substance of the brain.

Hasse and more recently Kussmaul and Jenner scout the idea of ever finding ~~a~~ an appreciable lesion of ^{the} brain anatomically demonstrable acting as the Cause of Epilepsy. They affirm that it cannot be one of long ^{duration only} ~~duration~~ alteration of a temporary kind; and that it would be as

reasonable, to use the words of Dr Watson
 "to find the traces of a former voluntary
 movement"

Shroeder vander Kolk on the other
 hand, is lead, from his researches
 to believe that although at the com-
 mencement, there is no organic
 lesion, speedily however from the
 repeated convulsions, a dilatation
 and thickening of vessels takes
 place and an albuminous fluid
 is exuded which at first causes
 more or less hardening and sub-
 sequently gives rise to fatty degen-
 eration and softening
 causes - Epilepsy is in all probability
 a hereditary disease; and Dr Brown-Sequard
 has made the important observation
 that the disease spontaneously occurs
 and is readily excited in ~~these animals~~
 in ~~the~~ the offspring of those animals
 upon whom it was artificially produced
 A strumous habit and malfor-
 mation of the head are also powerful
 predisposing causes

The exciting causes are exceedingly various and diverse - acting on the one hand upon the sensorial system directly and on the other hand through morbid impressions and changes wrought in other systems

The first class include all those lesions of the brain and its parts which have been named - Certain poisons seem also to act directly upon the brain as alcohol, lead &c

Under this category fall all those cases resulting from passion emotion, excitement of public assemblies, sympathy or imitation

The second class affect chiefly the digestive and genital systems

The irritation of teething and of worms in the intestinal canal in children; the retention of fever poisons; the repulsion of eruptions; the contamination of the blood from retained excreta; an irritation in the course of a nerve are among the most common

It is often associated with Amenorrhoe and Dysmenorrhoe in the female and in both sexes with venereal excesses either allowed or by the Onaniastic or unlawfully procured by promiscuous intercourse or worse than all by solitary indulgence -

Prognosis is usually unfavourable as cures are very rare, although something may generally be effected in favour of the patient by proper treatment

The frequency and violence of the fits may usually be diminished

The Eccentric form is the more curable as the Cause may often be removed Lead poisoning may be remedied; worms may be expelled; the intemperate and unusual may be reformed; and the irritation of dentition and Carious teeth will pass away or may be removed long and irregular intervals afford more opportunity for effort and are

up oppressive by expectation
 The reverse and unfavourable are
 brief intervals - Complicated with
 loss of memory, paralysis &c
 Diagnosis refers only to the Confusion
 so readily made with Hysteria in
 the female and the fact that it is
 the disease above all others most
 frequently simulated by soldiers
 sailors and vagabonds

Dr Copland dwells on the in-
 vasion with a scream; the in-
 difference as to the mode and
 place of falling; the degree of
 anaesthesia; the distortion of the fea-
 tures and the lividness of the
 complexion. In protracted cases
 the consistency and relevancy of the
 replies given, will aid much
 Treatment. Ignorant as we are of
 any fixed organic Cause, productive
 of the disease, it will be necessary
 to inquire into the previous history
 and the present condition of the

patient and having done so, be guided in our treatment by the circumstances of the case. At one time the complaints of the patient have reference to the brain at another to the heart; sometimes to the digestive system and sometime to the genital. In some cases he is plethoric and in some he is thin and emaciated.

During the intervals, some manifest extreme mobility and irritability, while others exhibit great apathy and stupidity.

With these differences in the accompanying features, and functional disorders of other organs besides the nervous system, in Epilepsy, it would not accord with the principles of common sense, and the rules of the Prophets to seek for a specific remedy against all these multifarious and variable disorders - merely because the brain is affected.

It is of the highest importance to distinguish the nature of the attack and to separate eccentric from Centre Epilepsy. In the former case we may treat the patient by a rational method hopefully; in the latter, we shall be driven to a mixed course, in which empirical remedies, perhaps, predominate.

In cases dependent upon intestinal derangement, the purgative plan should be pursued. Oil of Turpentine, introduced by the Elder Satham and commended by Dr Watson, might be selected. Anthelmintics and a mild Mercurial course, may be instituted, if there be indications of hepatic

disorder or of the presence of worms. The genital system is often the primary seat of disturbance. It is associated with uterine disorder in females and in both sexes with habits of self-abuse. A knowledge of these causes suggests the necessity of their removal.

In Nutative Epilepsy we must

endeavor to bring back the original irritation to its former seat.

The "aura" will demand attention. If any local irritation exist it must be removed. Excision of the nerve at the diseased spot was resorted to, with success by Sir Astley Cooper & Dreyfuss. In the great majority of cases no perceptible connection of a sympathetic character will be found to guide the treatment.

During the paroxysm, very little can be done. The patient should be prevented, from hurting himself, by gentle restraint. Forcing open the clenched hands and cramming salt into the patients mouth, are believed by some to abbreviate the paroxysm. The management of the patient in the intervals constitutes nearly the most important portion of the treatment. Dr. Loid placed great reliance on the traitement moral; and his idea of the humoral origin of the dis-

case lead him to attach considerable importance to general treatment - medical and hygienic.

Shroder van der Kolk, basing his treatment upon his pathology, places greatest reliance upon sedatives to the nervous system and external derivants -

Kussmaul and Jenner, believing the proximate cause of the disease to lie in a state of anaemia, scout the idea of bleeding, except for the relief of venous congestion -

Romberg and Solby have, however, observed cases in which great relief has followed the abstraction of blood -

If anaemia and a soft and flabby state of the muscles, with a corresponding condition of the heart, as indicated by auscultation, exist, the course must be had to tonics; - Sulphate of quina where the paroxysms assume a periodical character

and in other cases Chalybeates com-
bined with mild purgatives—

A brief mention of some of the most
prized remedies which are employed
in Epilepsy, will conclude this essay
of these each practitioner has his
favorite and a preference among
them will be occasionally indicated
by the Circumstances of the patient
and the Contingencies of the Case

Nitrate of silver has perhaps obtained
more suffrages in its favour than any
other medicine. It probably has no
advantages over other metallic tonics &
therefore should never be prescribed be-
cause of the great danger of discolouring
the skin

Sulphate of Copper has been recom-
mended by many practitioners
oxide of Zinc has always maintain-
ed a high reputation and is proba-
bly the best metallic tonic

Disilalis, long known as a vulgar
remedy, is loudly eulorised by Sally

and is recommended by Prof Schroeder
van der Kolk

Atropine is asserted, by Dr Lauge of
Konigsberg, to have cured six out
of ten cases; in the dose of 1/100 gr
prescribed in for several weeks

Chloroform and Galvanism have
each been tried but without any
very definite or encouraging results.