

ORIGINAL COMMUNICATIONS.

NOSOLOGICAL ARRANGEMENT OF FEVERS,
INTENDED AS A GUIDE TO DIAGNOSIS
AND TREATMENT.

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Four years ago a very able essay on the diagnosis of fevers appeared in the then current number of the *British and Foreign Medico-Chirurgical Review*. The symptoms of certain fevers, heretofore confounded, were carefully and systematically reviewed, with the object of establishing the diagnosis between them; and if symptomatology could have been made available for the solution of the problems yet unsolved in pyretological diagnosis, the able pen to which I have alluded would have succeeded in the undertaking. But symptomatology alone is in practice a broken reed; it not only never does render valuable help in those obscure cases in which help is most desired, but it is demonstrable, I think, that it never can. For some years past, fevers have occupied my mind; firstly, in connexion with the early sanitary inquiries (now become historical, so rapid has been the advance in public hygiene); and, subsequently, as teacher of the theory and practice of medicine. The duties of a teacher necessarily demand that he should systematise and condense his knowledge; and, finding no systematic nosology of fevers published equal to the advanced knowledge of the day, I was obliged to construct a system for myself. Believing this system may interest the profession, especially at a time when general nosology is about to have an official revision, with a view to the more accurate registration of the causes of death, I have ventured to publish it. I must first premise some general remarks.

The basis of my arrangement is etiology. I consider every fever to be induced primarily by the circulation with the blood of a noxious agent; or, in other words, that the cause of all fevers is a poison, or a combination of poisons. Pyretology is, therefore, a branch of toxicology.

The science of toxicology has been hitherto restricted to the consideration of poisons as causes of death; or, in other words, in relation to accidental injuries and criminal jurisprudence. No writer, so far as I am aware, has grasped the entire subject in its full extent. Special departments have, however, been well illustrated. Dr. B. Williams' work on *Morbid Poisons* is a valuable book of reference, and was written with the avowed object of separating the class of diseases caused by certain poisons, "singular in its laws, and peculiar in its treatment", from the great body of medicine, with which it has been long confounded. Dr. Copland's nosology and pathology, as given in his stupendous *Dictionary of Practical Medicine*, also merits special reference.

Writers on toxicology have, it is true, arrayed their subject on the scientific basis I propose, that is to say, etiologicaly; Foderè, Orfila, Virey, Buchner, Taylor, Schneider, and others are of this class. Schneider, *e.g.*, is a type of many, in dividing poisons into the corrosive, the narcotic, the atrophying, and the pathological, or morbid. What is wanted, however, is, not a rigid technical system, but a system founded on general principles, capable of ever-varying application as well to individual cases as to groups of poisons. This is the object I had in view in constructing my nosological arrangement.

Fever-poisons are all of organic origin. The fever which accompanies inflammation is an apparent exception to this rule, but that is not a fever; that is to say, a fever from a specific poison, or combination of poisons. It is, in fact, a general condition; fever simply accompanying all inflammations, however produced, and, therefore, constantly complicating specific fevers whenever the poison excites inflammation locally. I place, then, this form of fevers in a

distinct group, as follows, taking inflammation and its sequelæ as the guide.

Fevers accompanying inflammation, acute and chronic, and the sequelæ, effusion, congestion, suppuration, gangrene:—

GENERAL FEVERS. I. (1) Hyperinotic fever with excess of fibrin in the blood, or inflammatory fever. *Cause*: Acute inflammation. (2) Irritative fever (miscalled hectic). *Cause*: Chronic inflammation.

II. Pyhæmic fever from pus in the blood (not to be confounded with phlebitis). (1) Acute (miscalled inflammatory), with acute suppuration. (2) Chronic (hectic fever), with chronic suppuration.

III. Asthenic fever, with deficiency of fibrin, and devitalised organic products. *Syn.*: Hypinotic or typhoid fever—gangrene.

These three forms of fever are complicated by or complicate all those arising from specific poisons, whenever in their course inflammation, suppuration, or mortification occurs. Probably there are few cases of fever met in actual practice in which one or other of these complications is not present.

SPECIFIC FEVERS. When a poison has entered the blood, three events may happen: 1. It may be eliminated forthwith, and no results follow. This, as to fever-poisons as well as others, is by far the most common event. If it were not so, the human race would long ago have been extinct. 2. It may not be eliminated, or only partially, and yet produce no immediate effect; or, more correctly, no perceptible effects until various other conditions are fulfilled. To mention some of these; it may be cumulative—this is probably the case with the greater number of fever-poisons of endemic origin; it may be in too small a dose to produce perceptible effects until functional changes arise in the organism of a depressing character—thus fear, anxiety, hunger, watching, fatigue, and the like, give energy to otherwise innocuous doses. 3. The poison may take effect without any special conditions being observable. Now the phenomena which manifest the action of a fever-poison are the symptoms of the fever.

It is obvious that the symptoms in fever-poisoning, as in others, lead up to the etiology; but all experience shows that they never, *per se*, can establish the etiology. Take the action of mercury as an illustration. Ten grains of calomel, in one dose, will cause pain, and purge; or given cumulatively in two grain doses, or less, at intervals, will equally purge, *i. e.*, induce diarrhœa. These are the eliminative phenomena of the poison. Now there is nothing in the single symptom of painful diarrhœa which would enable an observer to say that that morbid change was due to calomel; for it is a symptom common to many poisons. It is only after ascertaining that calomel has been taken that the etiological diagnosis is established. Again, five grains of calomel given at intervals in quarter grain doses, or in larger doses, if so combined with other drugs, that the eliminative action of the intestinal mucous surface, or of the kidneys, is suspended, will cause febrile action and ptyalism, *i. e.*, inflammation and gangrene of the salivary glands and ulceration and gangrene of the buccal mucous membrane. This is a morbid condition, induced by fewer toxic agents than diarrhœa, and most frequently by a mercurial; yet the cautious practitioner, knowing that there are other agents having a similar action, will convert his suspicions that mercury is the cause into certainty by inquiry into the antecedent facts, *i. e.*, whether the drug has been taken, in what doses, and how. If he were to decide by the symptoms only, as in ordinary fevers, and were ignorant that widely different symptoms are induced by mercury, he might reasonably attribute the diarrhœa and ptyalism to distinct and different causes. Now this is not an unfrequent mistake in pyretology. It is held as to fever-poisons that widely different symptoms must not be attributed to the same causes; for it is assumed that the same poisons must necessarily produce the same effects. As to several, we now know that the fact is not so; perhaps as to them all, the converse is true. One or

two illustrations of the circumstance under which this may happen will be useful. Symptoms of poisoning will vary as to their intensity, and the rapidity with which they are developed; and this variation will be so great, that it may be reasonably inferred that it is not the same poison operating in two different individuals. Of course, the amount taken, or dose, is an important element, but not the most important; for largeness of dose is relative only, inasmuch as the action of a poison is conditional. Thus, one patient with anaemia cannot take ten grains of blue pill, in grain doses, at intervals of eight hours, without manifesting symptoms of mercurial poisoning. Nay, the results of the administration of the drug in a case of this kind may be fatal. Another patient may, however, go on taking the same dose, at the same intervals, for weeks together, without any symptoms whatever of mercurial poisoning being manifested. Let us suppose, now, mercury to be an imponderable agent, like the poison of cholera, unrecognisable by chemical analysis or the senses; we might, then, in accordance with the mode of argument adopted by not a few observers and writers on fevers, insist that the symptoms of the former case could not be due to an imponderable agent termed mercury, or else why were not the same or analogous symptoms induced in the latter case? For we can only ascertain causes by their effects. The argument would not be easily confuted, yet we know it is false. The various toxic influences of marsh emanations would serve as other illustrations. I give these statements to show the insuperable difficulties which beset a nosological arrangement and diagnosis of fevers, founded on symptomatology only, and the necessity of an etiological basis—a basis founded on common sense, and not on a prolix weighing of opposing facts, partly false, partly imperfect. I now submit the following nosology.

First, as to the causes of fevers, they are, in outline, these: 1. Marsh emanations, or malaria; 2. Sewer and faecal emanations, or miasmata; 3. Corporeal emanations, *i. e.*, from the bodies of the living, or oehletis; 4. Infections, or the exanthemata; 5. Contagious, not gaseous, or fever-poisons from personal uncleanness; 6. Epizootic poisons, derived from brutes; 7. Excretory poisons, *i. e.*, retained excreta. These poisons give rise to seven corresponding orders of fevers, as follows, with their genera and species.

ORDER I. MALARIOUS FEVERS. Cause: Marsh poison. General seat: Nervous system. Local seat: Spleen, liver, stomach.

Genus 1. Intermittent neuralgia. Seat: Nervous system, (mentioned as a typical form of diseases of the nervous system, induced by malaria.)

Genus 2. Intermittent fever. Seat: Spleen; effect of poison, splenic congestion, inflammation.

Genus 3. Remittent fever. Local seat: Liver and stomach; effect of poison, gastric and hepatic congestion, and inflammation. A complication with inflammatory fever changes an intermittent into a remittent or continued fever.

Species 1. Bilious remittent fever; hepatic complication.

Species 2. Yellow remittent fever; gastro-hepatic complication.

ORDER II. MIASMATIC FEVERS. Cause: (a) Faecal poison, or emanations from decomposing alvine excreta; (b) Sewage poison—a compound poison, made up in varying relative proportions of faecal and malarious emanations. Local seat: In faecal poisoning—mucous membrane of colon, and lower portion of small intestine; in sewage poisoning—gastro-intestinal mucous membrane and its glandular structures.

Genus 1. Ephemeral fever; complication—active elimination of poison, irritation of gastro-intestinal mucous membrane.

Species 1. Summer diarrhoea. Cause: Sewage poison, having a predominant proportion of faecal miasm. Seat: Intestinal mucous surface.

Species 2. Summer cholera. Cause: Sewage poison, having a predominant proportion of malaria. Seat: Gastro-hepatic system, implicated, together with the intestinal mucous surface.

Species 3. Dysentery. Cause: Faecal poison dominant. Seat: Large intestine specially affected.

Genus 2. Common continued fever. Effect of poison—local inflammation of the gastro-intestinal mucous surface. Elimination imperfect. Complication with asthenic inflammatory fever.

ORDER III. OCHLETIC FEVERS—the Typhus Group. Cause: Effluvia from crowds of beings, or cutaneous, pulmonary, and intestinal oehletis. Seat of inflammation: Skin, lungs, and gastro-intestinal surface. Are generated, under given circumstances, *de novo*; are communicable, and for the most part non-recurrent. Complicating fever—the inflammatory.

SUBORDER I. CUTANEOUS OCHLETIC FEVERS. Papular, glandular, and effusive inflammation of the derma.

Genus 1. Exanthematic typhus. Papular or pulicular eruption.

Species 1. Milder or European typhus. Syn.: ship, camp, or jail fever; Irish typhus.

Species 2. Malignant or African typhus; slave typhus.

Species 3. Glandular typhus (the Levant plague).

Species 4. Petechial typhus; petechial fever (haemorrhagic pulicular eruption).

Species 5. Miliary typhus (English sweating sickness?)

Genus 2. Bullose typhus.

Species 1. Acute pemphigus.

Species 2. Erysipelas.

Species 3. Puerperal fever?

SUBORDER II. PULMONARY OCHLETIC FEVERS. Inflammation of bronchial mucous membrane or lungs.

Genus 1. Pulmonic typhus.

Genus 2. Epidemic catarrh (influenza).

Genus 3. Peripneumonic typhus (the black death).

SUBORDER III. GASTRO-ENTERIC OCHLETIC FEVERS. Inflammation of gastro-intestinal mucous membrane and glands.

Genus 1. Relapsing fever.

Genus 2. Gastric yellow fever, or occidental typhus (the communicable form of yellow fever).

Genus 3. Asiatic or oriental typhus (cholera).

Genus 4. Infectious dysentery (ship, camp, and choleraic dysentery).

ORDER IV. THE EXANTHEMATA. Cause: A permanent ochletic (?) poison. Effect of poison: Inflammation, congestive, effusive, and suppurative, of the derma and mucous surfaces; infectious and contagious, non-recurrent. Complication: Inflammatory fever.

Genus 1. The variolæ.

Genus 2. The measles (pulmonary surfaces).

Genus 3. Scarlet fever.

Species 1. Tonsillary scarlet fever (inflammation of tonsils).

Species 2. Glandular scarlet fever (the mumps).

Species 3. Measly scarlet fever.

Species 4. Arthritic scarlet fever (the Dengue).

Genus 4. Aphtha or diphtheritis; trachea, pharynx, and mouth.

Genus 5. Pertussis (?); larynx and trachea.

ORDER V. IMPURE FEVERS. Cause: A poison from impurity of cutaneous and mucous surfaces. Effect of poison: Inflammation of mucous surfaces, derma, and submucous cellular tissue. Contagious.

Genus 1. Contagious blennorrhœa.

Species 1. Ophthalmic blennorrhœa (Egyptian ophthalmia).

Species 2. Urethral and vaginal blennorrhœa.

Genus 2. Syphilitic fevers; the leprosia, non-recurrent(?); chronic, with successional febrile paroxysms.

Species 1. Common syphilis.

Species 2. Yaws.

Species 3. Radesyge.

Species 4. Button scurvy.

Species 5. Pellagra.

Species 6. Elephantiasis.

Species 7. Aleppo or Syrian leprosy, etc.

ORDER VI. EPIZOOTIC FEVERS. *Cause:* A specific poison derived from brute animals; communicable. Effect of poison: Inflammation of the skin, and of the mucous membrane of the larynx, pharynx, mouth, and nose. The following six genera:—1. Glanders; 2. Malignant pustule; 3. Boils (?); 4. Murrain (diphtheritis); 5. Hydrophobia; 6. Tarantismus(?).

ORDER VII. EXCRETORY FEVERS. *Cause:* Retained urinary and cutaneous excreta, acting as poisons. Effect of the poison: Effusive and congestive inflammation of the derma, *burse* mucosæ, serous membranes, and sero-fibrous tissues.

Genus 1. The erythematic excretory fevers.

Species 1. Rheumatic fever; inflammation of the serous and sero-fibrous tissues.

Species 2. Arthritic fever; inflammation of the skin, *burse* mucosæ, and sero-fibrous tissues.

Species 3. Erythema (nodosum etc.).

Genus 2. Rose rash fevers (the roseolæ).

Genus 3. The nettle rash fevers.

Genus 4. The bleb fevers.

Species 1. The herpes; herpes zoster (shingles), etc.

Species 2. Pemphigus.

These several orders of fever may be thus grouped:—

ORDERS I and II. Endemic; **ORDERS III and IV.** Epidemic; **ORDERS IV, V, VI.** Domestic; **ORDER VII.** Diathetic. The endemic depend on locality; the epidemic are often communicable through the atmosphere; the domestic are communicable by contact; the diathetic are hereditary.

Several of these fever poisons induce chronic, congestive, and inflammatory diseases, instead of fevers. The poisons of the endemic, domestic, and diathetic orders, are of this kind. Thus, malaria induces splenic congestion and inflammation, chlorotic gastritis, local nervous diseases, etc.; ochlesis causes chronic bronchitis, pulmonary tuberculosis, etc. Several of these poisons combine with each other, and stand in the mutual relations of predisposing or exciting causes. This is especially to be observed in the malarious, miasmatic, and ochletic fevers. It is so frequent an occurrence, indeed, that it is rarely a fever occurs from one kind of poison only. Thus agues are frequently complicated with abdominal or faecal affections; thus, also, malaria gives greater intensity to ochlesis, as in cholera, ship or camp typhus, etc. The predominant symptoms of a combining poison give what is termed the *type* to an epidemic or endemic fever; as when malaria combines with a large predominance of a faecal poison, the result is an intermittent, characterised by intestinal symptoms, as diarrhoea, dysentery, cholera: hence *choleraic* and *dysenteric* tertians, etc.

By an endemic fever, I mean a fever restricted to the population of a given locality; by an epidemic fever, I mean a fever generally prevalent. Thus agues are endemic; faecal fevers, infectious fevers, etc., epidemic. By the term *infectious*, I designate those fevers the specific poison of which commingles with the atmosphere, as well as with fluids (*e. g.*, the secretions); by *contagious* fevers, I mean those the poisons of which commingle with the fluids, or are *material*, but are not miscible with the atmosphere. Contagious fevers may be endemic; infectious fevers, epidemic; either, *sporadic*. By *non-recurrent* fevers, I mean those the poison of which, having once developed its appropriate phenomena in the living body, is thenceforward eliminated from the system as fast as it is formed or received, and so rendered harmless. Persons so eliminating the poison may, however, give off poisonous excretions from their skin, lungs, intestinal mucous surface, etc.; and thus be corrupting or morbidic *media*, although themselves in health.

Much has yet to be ascertained regarding the nature and origin of febrific poisons; consequently, the above nosological arrangement is avowedly submitted as an imperfect arrangement. The *principle* is, I believe sound, and will conduce to the more accurate determination of the nature and origin of fevers, by tracing them, as the results of toxic agents, to their specific causes. It will more especially aid in the investigation of those fevers which arise from two or more poisons in combination; and will assist in the better

diagnosis and treatment of those which, dependent upon a specific poison, have nevertheless their symptoms modified and their true nature hid by the action of *complicating* fever poisons.

York, July 25th, 1855.

CASES OF TRAUMATIC TETANUS SUCCESSFULLY TREATED.

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[Read, in brief, at the Anniversary Meeting of the Dorset Branch, at Sherborne, Dorset.]

MANY recognised views of pathology and therapeutics are undergoing a severe scrutiny; and new and more powerful means of investigation are now brought to bear upon them. How much more, then, does it behove every practitioner to record his experience on any of the yet *disputed* questions which render the science and practice of medicine so inexact and uncertain.

Scarcely any disease has been more empirically treated than tetanus. In the hands of medical men, taking varying, and indeed opposite, views of its pathology, it has been treated *antiphlogistically*, by bleeding, purgatives, mercury, and local application of cold, or blistering the spine; or, *per contra*, by *tonics*, quinine, muriated tincture of iron, etc.; or, thirdly, by *narcotics*, tobacco, opium, Indian hemp (*cannabis Indica*), etc.; no two practitioners of eminence agreeing as to its nature or necessary treatment. It was at last hoped by many sanguine persons that the discovery of the anæsthetic properties of æther and chloroform would wipe out the opprobrium under which we lay in regard to this dreadful disease; but this method, like its predecessors, has disappointed our expectations.

In regard to the pathology and etiology of tetanus, there is of course as much disagreement. Congestion of the spinal cord (inflammatory in some cases) has been perhaps the most commonly adopted expression of its pathology; and the high authority of Rokitsansky would go far to induce a belief in its reality. He says: "It is almost constantly met with in those cases, combined with an equal degree of congestion of the brain." (English edition, vol. iii, p. 448.) But I should conceive that this congestion is itself secondary, being the result of irritation; just, as in the irritation of the web of a frog's foot with the point of a needle or a medicinal irritant, you get congestion immediately set up.

Of the etiology of tetanus we know positively nothing. It will occur after the most trivial injury, unattended with even the merest abrasion of surface; and, where a wound does exist, in every possible condition of such wound. It would therefore appear that there must be a morbid condition which strongly predisposes to this disease—a condition which indeed bears about the same proportion in the fully developed attack, as, in siege operations, is borne by the well charged mine in an explosion; the application of a match being alone requisite to produce the result: so an unrecognisable and undefinable irritation of the branches of peripheral nerves is, in a predisposed person, the match which explodes the accumulated combustibles, in store for this result.

We hope ere long the same pains will be bestowed on this subject as have so lately been applied by Dr. Routh in the elucidation of pneumonia and its treatment, as contained in his recent communication to the ASSOCIATION JOURNAL—an example eminently worthy of imitation.

Having given the fullest trial to the method of treatment by chloroform, with ice applied along the spine, and full support by beef-tea and sherry—a plan full of promise, and sanctioned by the hopeful recommendation of Dr. Todd; and this trial, moreover, having been made on a good subject in private practice, young, healthy, and affected by symptoms not over-acute—the chloroform vastly mitigating suffering, and most infallibly abating spasm on every inhalation, so