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STAMMERING

AND

STUTTERING,

THEIR

NATURE AND TREATMENT.

BY

JAMES HUNT, PH.D., F.S.A., F.R.S.L., F.A.S.L.,

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EDITED BY

THE REV. H. F. RIVERS, M.A., F.R.S.L.

SEVENTH EDITION.

Greatly Enlarged, and Entirely Revised.

LONDON:

LONGMANS, GREEN, & Co., PATERNOSTER ROW.

MDCCCLXX.

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"LANGUAGE IS TO THE MIND WHAT BEAUTY IS TO THE BODY."

Aristides the Rhetorician.

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PREFACE TO THE PRESENT EDITION.

A SAD and unexpected calamity has laid upon me the duty of editing the last literary and professional work of my brother-in-law, the late Dr. James Hunt.

It was the author's desire that this revised, I ought, perhaps, to say re-written, edition of his book on "Stammering and Stuttering" should be as perfect and comprehensive as possible. To this end he spared no labour in gathering together reliable information relative to the treatment of speech impediments in Great Britain and on the continent. The digest of the various systems employed with this view shews the extent of his researches ; and the commentaries upon them testify to his thorough knowledge of the subject, and are exceedingly valuable as being the fruit of many years' experience, founded on the observation of more than 1700 cases. If any reader should think that the author judged too harshly of

some other systems employed, let such an one remember that his great success in his own and his father's system gave him the right of speaking with authority. I owe a great debt of gratitude to the late Dr. Hunt for brightening the course of my life by the successful application of his method to my own case when others had failed. This has led me to value his judgment, and to believe in the truth of his system ; whilst the general improvement of the physical and mental health of his pupils proves the soundness of its physiological principles.

I have not felt warranted in making any alterations ; for the author completed all the manuscripts for the work. Had he been spared to have seen it through the press, it would have borne the evidence of the finishing touches of the master's hand.

In accordance with the express wish and desire of the late Dr. Hunt, and a definite promise on my part, I have undertaken the direction of the institution at Ore House, and intend to carry out his system in its integrity. I may here be allowed to state that I enjoyed ample opportunities of mastering the principles upon which the system is founded, for I resided with the late Dr. Hunt continuously for

nearly eighteen months in the years 1859-60, and have made very frequent visits since that time, taking charge of his pupils in seasons of sickness, or of his absence from home. The many kind letters that I have received from old pupils, to whom I am personally known, have given me great encouragement to persevere in my intention. I will give extracts from two letters: C. K. writes, "I am glad to hear that you have resolved, on the sad death of my friend Dr. Hunt, to carry on his business, and to teach his system of curing stammering. As an old pupil of his, I can testify to its worth; and I am aware that you have had full opportunities of acquainting yourself with it in practice as well as in theory." Again, C. W. T. writes to Mrs. Hunt: "I am glad to think that your husband's great work has fallen into such competent hands as those of Mr. Rivers. . . . I owe much to Mr. Rivers for comfort at a time when I was rather downhearted."

Among the various papers left by the late Dr. Hunt on Voice and Speech, there are some on "*dysphonia clericorum*," or clergyman's sore throat. These and, perhaps, some other papers I hope to edit at a future time; for I feel persuaded, from what I learnt

from him and from personal experience, that such an affection, so far as it arises from the wrong use of the vocal organs (and this is the most common cause of it in clergymen and barristers), might be easily avoided.

H. F. RIVERS.

*Ore House, near Hastings,
December 30th, 1869.*

PREFACE TO THE FIFTH EDITION.

THE fact of another edition being called for, within a comparatively short time, is a sure sign that I have not been unsuccessful in supplying what I deemed to be a desideratum.

It appeared to me a point of primary importance that the field of impeded utterance should be comprehensively surveyed, so that the reader might have a panoramic view of all the theories and speculations on this subject, from the earliest period to the present time, as well as the results of their application. In reviewing these various doctrines, I have not hesitated to express my opinion candidly, but I trust not arrogantly.

The omission of some subjects, such as the chapter on minor defects, etc., which I intend to treat in a separate work, has enabled me to introduce numerous and important additions. This edition, has, moreover, undergone further revision, and I hope also to have amended the general arrangement.

For reasons stated in the text, it is not pretended that a mere perusal of these pages will enable afflicted persons to cure themselves; but they certainly will derive from it every information as to the nature of their infirmity, as well as the conviction that impediments of speech, so long held to be incurable, are as amenable to treatment as other disorders of the human frame.

One of the main objects of this work is, moreover, to impress on parents and guardians the great importance of meeting the evil in embryo, so as to prevent its future development.

In expressing my acknowledgments for the favourable reception my former contributions to this subject have met with from the Press, the Medical Profession, and Public generally, I may be allowed to add that it has been my anxious desire to render this little volume as complete as possible, in order to make it more worthy of the favour bestowed on its predecessors.

JAMES HUNT.

January, 1863.

DEDICATION OF THE SIXTH EDITION.

TO MY PUPILS.

IN dedicating this work to you, I am afforded a fitting opportunity of addressing a few words to those among you who, though scattered in the world, continue to take an interest in my labours.

My thanks are specially due to you for assisting me to remove the scepticism still existing in the public mind, in relation to the successful treatment of impediments of speech.

I now ask for a continuance of your assistance, by informing the public, that the plan I adopt for the cure of impediments of speech simply consists in the rational application of the known laws of physiology and psychology; and not in any charm, which, I regret to say, seems to be the impression of many who apply to me for relief.

It cannot be too frequently repeated, nor too widely known, that the difficulty of cure is great in

proportion as the defects of articulation are numerous or deeply rooted; that the acquisition of perfect utterance is the result of labour; and that the efforts of the teacher are of little efficacy unless heartily seconded by the perseverance of the pupil.

I feel sure, also, that I may rely on your influence and advice in order to induce parents to send their children to me in early boyhood, as you know the misery that you would have escaped had this plan been adopted. I need scarcely add, that to hear of your success in your respective avocations, will ever afford the deepest gratification to

Your sincere friend,

JAMES HUNT.

*Ore House, near Hastings,
March 3rd, 1865.*

PREFACE TO THE SIXTH EDITION.

IN publishing a new edition of this work, I especially wish to call the attention of the reader to the necessity for an early treatment of all cases of defective speech. Every day's experience convinces me more firmly of the necessity of this course. The public press would be doing a great service to sufferers, by warning parents and guardians not to neglect defective speech in early youth. Indeed, I am sometimes sanguine enough to believe that stuttering, in a generation or two, would no longer be one of the "ills that flesh is heir to," if all children thus afflicted were at an early age freed from their defect. I am, at all events, sure that the neglect of defective speech in childhood is a fruitful cause of its production in others, especially in the younger members of the same family.

J. H.

*Ore House, near Hastings,
March 3rd, 1865.*

INTRODUCTION TO THE SIXTH EDITION.

In publishing a new edition of this work I especially wish to express my appreciation of the interest and assistance of the many friends who have helped me in the preparation of this edition. The necessity of this edition was felt by many who had used the first edition, and I am sure that the new edition will be found to be a valuable addition to the literature of the subject. I am sure that the new edition will be found to be a valuable addition to the literature of the subject. I am sure that the new edition will be found to be a valuable addition to the literature of the subject.

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STAMMERING AND STUTTERING.

CHAPTER I.

INTRODUCTION.

Impediments in Speech a Real Affliction.—An Obstacle to Professional Success.—Pernicious Influence on the General Health.—The Production of Speech.—Magendie.—On what Perfect Speech depends.—Nomenclature of Impediments of Speech in Various Languages.—Stammering and Stuttering defined.

“Great as is the number of muscles employed in the production of definite vocal sounds, the number is much greater for those of articulate language; and the varieties of combination which we are continually forming unconsciously to ourselves, would not be suspected without a minute analysis of the separate actions.”—*Principles of Human Physiology*, by W. B. CARPENTER, M.D., F.R.S., 2nd Edition, 1844, pp. 351-52.

AMONG the many infirmities incidental to the human organism there are few so distressing to the sufferer, and at the same time so annoying to all who come in contact with him, as severe speech-impediments. The cases of defective utterance met with in general society are comparatively few in number, and are generally of a milder character, for the simple reason that persons suffering from the severer forms of im-

pediments usually shun society. It is in the domestic circle that the effects of stuttering must be witnessed in order to obtain anything like a correct idea of this affliction, for such it may be justly termed.

The life of a stutterer is unquestionably one of great suffering and constant mortification from the moment he becomes conscious of his defect, and this is often at a very early age. It is, however, chiefly at the period when the stutterer enters the battle-field of life that he becomes truly sensible of the disadvantages under which he labours, and fully conscious that he can entertain but scanty hopes to successfully struggle against the formidable obstacles which beset his path. The bar and the senate, the pulpit and the chair, seem all but closed to his ambition ; nor has he any better prospect of achieving honours in the army or navy. Finding himself thus excluded from the most desirable careers, the stutterer is forced to strike out for himself some new path for which, perhaps, neither his talents nor inclination fit him. Apart from professional success, the victim of defective utterance must renounce most of the pleasures of social intercourse ; and although he may possess every other requisite essential to the ensurance of happiness in life, this infirmity more than counterbalances all those advantages, and renders him an object of ridicule to some, and of sincere compassion to others who realize his unfortunate position. It is indeed distressing to behold a youth born to a good position, of refined intellect, and possessing, perhaps,

extensive information, in short with every requisite to adorn society, and yet, though so highly gifted, unable to give oral expression to his thoughts without inflicting pain on the listener, or subjecting himself to ridicule.

Taking, finally, into consideration that continuous abnormal action of the respiratory, vocal, and articulating organs cannot fail in the long run to produce other derangements affecting the general health, passing, perhaps, into chronic disease, enough has been said to show that stuttering is a more serious disorder than is generally believed, and that it deserves the greatest attention of parents and of all who have the charge of children.

The Production of Speech. — The production of speech is effected by the conjoint agency of the nervous system, the respiratory, vocal, and articulating organs. The muscles of the abdomen, the diaphragm, the thorax, the larynx, the pharynx, the tongue, and the face, have respectively different functions to perform in the production of speech; but unless they act in harmony there can be no right production of articulate language. The function of respiration may be carried on independently of articulation; but voice and *loud* speech cannot be produced without the action of the respiratory organs.

The respiratory apparatus includes the lungs, the trachea, the ribs, and all the muscles connected with them, the diaphragm, and the abdominal muscles.

The production of the voice takes place in the larynx — a cartilaginous case situated at the anterior part of

the neck on the top of the windpipe, with which it is connected by membranes and ligaments. On looking downwards into the interior of the larynx, there may be observed on each side two folds of the mucous membrane. These folds, which are composed of highly elastic tissue, have received the name of vocal cords or vocal ligaments.

The inferior membranes are the chief organs concerned in the production of voice; hence they are called the true vocal cords, while the superior membranes are termed the false vocal cords. The narrow opening between the true vocal cords is called the *rima glottidis*, or simply the glottis.

The vocal cords are acted on by a variety of muscles which have the power of shortening, elongating, or stretching them, by which the varieties of pitch are produced. But though all the fundamental sounds are produced in the larynx, they may, by the action of the organs between the glottis and the external apertures, such as the pharynx, the soft palate, the tongue, the teeth, etc., be so modified as to become articulate sounds—a combination of which constitutes speech.

The muscles by which articulation is effected are, at first, only partially subject to the will. Thus, we have a control over the movements of the lips, the cheeks, and the greater portion of the muscles of the tongue; but over the muscles of the pharynx, the soft palate, and those muscles of the tongue which carry its root upwards or downwards, our power is not so complete.

“We may tell the patients,” observes Magendie, “to depress the tongue because it hides the tonsils ; they make many efforts, and it is more by chance than by volition that the action is obtained. If they are desired to raise the velum, the will has scarcely any power. It is the same with regard to the production of sounds in the larynx and in speaking. The voice is produced, we articulate without exactly knowing what movements are passing in the larynx or in the mouth. This is one of the marvellous results of animal organisation. This perfect mechanism, by which the most complicated acts are executed, is not subject to the will ; an admirable instinct presides, the perfection of which will always remain beyond human ken. It is this instinct which presides over the innumerable movements requisite for the production of voice and speech.”

These opinions of Magendie have been much canvassed ; but they are in the main correct. Magendie does not say, as he is represented, that the muscles of the root of the tongue, the soft palate, and the pharynx are *not* under our control, but only that they are not completely so. They may thus be considered as involuntary muscles in the act of deglutition ; but they are completely under the influence of the will of a perfect speaker or singer, although, like an acrobat, he may not be cognisant of the state of the particular muscles called into motion, nor of the mode by which he effects their harmonious action. Dr. Eich justly observes on this point : “to every organ of speech a different function is assigned in the articulation of

individual sounds. This division of function is unknown to the layman, nor is it necessary that he should know it, since the organism of speech as a whole is governed by the will, but not its individual parts."

The principal nerves upon which the healthy action of the vocal and articulating apparatus depends are :—

1. The inferior laryngeal branch of the tenth pair (*Pneumogastric*), called, from its peculiar reflected course to the larynx, the recurrent nerve, supplying most of the muscles of the larynx.

2. The glosso-pharyngeal, supplying the tongue and the pharynx.

3. The facial nerve (*portio dura*), by which the movements of the face and the lips are regulated.

4. The hypoglossal or lingual nerve, the principal branches of which are distributed to the tongue, of which it is the principal motor; to which must be added the phrenic nerve, supplying the diaphragm, the spinal accessory, and in fact, most of the nerves connected with respiration.

The muscles and nerves of the respective organs must act in harmony for the production of speech; and a want of control over the emission of voluntary power to one of these muscles or nerves may affect a great number of other muscles and nerves, with which they are in the habit of acting conjointly.

The process of utterance is determined by a variety of nervous tracts, upon which the action of the muscles of the abdomen, the thorax, the larynx, the pharynx, the tongue, and the face depends. Though each

of these organs has its special functions, they must all act synchronously, or in certain successions. If, then, their association be interrupted by an altered condition of any of the respective nerves or muscles, the emission of certain sounds and their articulation become impeded.

Speech, then, is articulated voice; but the time which intervenes between the formation of the sound in the larynx and its articulation in the buccal cavity is so short that it can scarcely be appreciated; hence voice and articulation appear as synchronous phenomena.

The perfection of speech depends:

1. On the healthy action of the brain, particularly of that portion concerned in intellectual acts, and more especially of that portion concerned in the evolution of thoughts and the remembrance of words.
2. On the healthy condition of the central organ concerned in the co-ordination of thoughts and words into sentences.
3. On the healthy action of the organs of transmission which connect the vocalising and articulating organs with the central organs.
4. On the normal state and action of the organs of vocalisation and articulation.

Definition of terms. — The confusion which has hitherto prevailed respecting the meaning attached to the words Stammering and Stuttering* has been the

* The following are the synonyms expressive of defective articulation and general impediments of speech in various languages:—

cause of much error, both in theory and practice; for in no case can our treatment prove efficacious unless our diagnosis be correct. It is, therefore, requisite that the distinctive characters of each affection should be clearly defined at the very outset.

ANGLO-SAXON. — Stommettan; stamer; stomer; stomm-wlisp; wlips or wlisp (to lisp).

ARABIC. — Âyiî (a stammerer); rattat; rataj; rett; rata (a female stammerer); ta-ta-a (one who stammers, falters, or pronounces with difficulty the letter *ta*).

BASQUE. — Motel hitzeguin (to stutter).

CHINESE. — Kow keih; keih shê (to stammer, to speak with hesitation).

COCHIN-CHINESE. — Su cà lăm.

DANISH. — Stammen; stammer; stammeren.

DUTCH. — Stameren; stameln.

ENGLISH. — The following are the chief expressions used in the English language (inclusive of provincialisms) to denote imperfections or impediments in speech: stutter, stut, stute, stuter, stoot, stotter, stoter, stammer, lisp, burring, rattling, tardiloquence, lurry, clutter, patter, mumble, falter, hesitate, drawl, jabber, gibber, splutter, sputter, hammer, muffle, throttle, mutter, mouth, mince, mump, taffel.

In the north to *stoter* means to stumble; to *stammer* means to stagger; *stammering*, doubtful (Wright's Provincial Dict.). In Scotch, to *stotter*, to stumble (Jamieson's Dict.); *taffel*, to stammer (Webster's Dict.). To *stut*, *stute*, *stoot*, mean to stutter; *stuter*, a stutterer.

The early English form of the word stuttering seems to have been *stut*. Subjoined are a few illustrations from old authors:—

“ Her tongue was verye quicke,
But she spake somewhat thycke.
Her fellow did stammer and *stut*,
But she was a foul slut.”

JOHN SKELTON, *Elynour Rummyng*, 1598.

Stammering, which may be constitutional, organic, or habitual, is characterised : 1. By the inability or difficulty to properly and distinctly enunciate some or many speech sounds, either when they occur at the beginning or in the middle of a word, for

Jac.—"Is he not wondrous like your deceased kinsman, Albano ?

Andrea.—"Exceedingly, the strangest, nearly like, In voice, in gesture, face, in—

Rand.—"Nay, he has Albano's imperfection too, And stuttes when he is vehemently mou'd."

JOHN MARSTON, *What you will*, Act i, 1607.

Stuttering is thus here connected with mental emotion.

LORD BACON also says (*Sylva Sylvarum*, Cent. iv. 1627), "Divers we see do *stut*."

ESTHONIAN.—Tõlp keel (stammering or stuttering).

FRENCH.—Bègue, bégayer, bégaiement (from the Latin bigare, to repeat), bulbutiement, baryphonie, mogilalisme, bredouillement, blesité, jotacisme, lambdacisme, lallation, sesseyement, grasseyement, barbouillement, parler gras, parler blés.

GAELIC.—Gagach (lispings, stammering), gaige (lispings, stammering), mandach (lispings).

GERMAN.—Stammeln, stammern, stottern, stoetern, anstossen, stackeln (staggeln), gaxen, lallen, dahlen or dallen, schnarren, ratschen, lorbsen, lurbesen, lorken, lispeln, poltern, sprech-poltern, mummeln, mumpeln.

In the Mæso-Gothic, the earliest German dialect preserved, *stamms* means a stammerer. Ulphilas has also *stammuna* for *stumm* (dumb). We find, therefore, similar terms for speech affections in all the Germanic and Scandinavian dialects (see Swedish, Danish, Dutch, Anglo-Saxon, English.)

In the Gothic we find *stautan*, to but, to push, to strike against. From this comes the German *stossen* and (low-German) *stoeten*. Hence *anstossen* (allidere) to strike with the tongue against the teeth or other parts of the buccal cavity, means in German both stammering and stuttering. Also *stottern*

which sounds the sufferer usually substitutes others less difficult for him to pronounce: 2. By a drawling or hesitating delivery in some cases, and in others by a rapid, careless, half articulate enunciation.

Stuttering, on the other hand, is a vicious utterance, manifested in many cases by frequent repetitions, or by

and (low-German) *stoetern*. In machinery the wheels are said "to stotter" when they do not move rhythmically.

GREEK and LATIN. — Ψελλισμὸς, ψελλότης, τραυλισμὸς, τραυλότης, ἰσχυνοφωνία, ἰσχοφωνία, βατταρισμὸς, ἀσάφεια γλώττης, μογιλάλος, βαμβαίνειν, ἄτυπος, ἀγκυλόγλωσσοι. These are the chief words used by Greek writers. The following are the Latin:—*balbuties, balbus, blæsus, blæsitas, blæsa vox, hesitantia linguæ, hæsitantia vocis, lingua hæsitare, titubare, titubanter loqui, hæsitantibus verbis dicere, bambalio*.

It is not surprising that translators and commentators have been much perplexed as to the proper meaning of the above terms. According to the etymology of the word, ἰσχυνοφωνία (*ἰσχυρος*, weak; *φωνή*, voice), is merely a defect of the voice, and not of articulation, in contradistinction to λαμπροφωνία, full clear voice. Yet Aristotle expressly says that ἰσχυνοφωνία consists in the inability of properly conjoining syllables and letters, *i.e.* *stuttering*. The more correct term for stuttering would be ἰσχοφωνία (*ἰσχω*, I arrest; *φωνή*, voice), which has in fact been used by Herodotus, Menjot, Sauvages, and Schulthess, though the other term was far more common. But stuttering neither has nor can have a well defined corresponding Greek or Latin term as it has been till very recently confounded with stammering. *Mogilalia ischnophonia* was proposed by Frank; Merkel proposed *paralalia syllabaris*, in contradistinction to *paralalia literalis* or *verbalis*, meaning stammering.

Alcibiades is by Plutarch called τραυλότης, translated *a lisper*, but there is no evidence that Alcibiades actually lisped: he had a defect in the enunciation of the letter *r*. Τραυλισμὸς seems, therefore, to mean what is now understood by rhotacism, and ψελλισμὸς, lisping. "Ψελλος," says Hesychius (*factum a sono*,

a continuance of the initial or other sound or syllable ; in others by a convulsive stoppage before the same ; and is frequently attended by useless, and more or less violent, contractions of the various muscles of the respiratory, vocal, or articulating apparatus, or even

an onomatopoeia) “is a person who cannot properly pronounce *s*—a *lisper*.” The Romans frequently called a lisper *blæsus* ; *blæsititas* would therefore properly mean lispings. The word *balbus* seems among them to have been chiefly used to designate one who could not pronounce the letter *r*. Then again there are the *ἄτυποι*, derived either from *τύπω*, I form, or model, and the priv. *α*, or form *τύπτω*, I strike ; such persons cannot use the tongue with sufficient expedition ; and *ἀγκυγλωσσοι* or *ἀγκυλόγλωσσοι*—tongue-tied, are those whose tongue is abnormally restricted by the frænum, or accidentally from indurated cicatrices, the result of ulcers.

HEBREW.—Kobad peh (slow of speech), loag (to stammer), eleg (a stutterer), balbel (to speak confusedly).

HINDUSTANI.—To lisp,—tutlana, luknat-k, zaban-giriftagi, &c. ; to stammer,—haklānā, larbarana, zaban-lagna ; to stutter,—larkharānā, atakna ; a stutterer,—larbaraha.

HUNGARIAN.—Selyp (stammering, stuttering.)

IRISH.—Gaige (stammering and stuttering).

ITALIAN.—Baltettare, tartagliare, balbutire (to stammer and stutter), scilinguare (to lisp).

MALAY.—Gagap (to stutter).

OCEANIC.—Ha-a-ta-u-ta-u, pa-a-pa-a-pa-u, ho-e, pa-la-le-no-ke-no-ke.

PERSIAN.—Alkanī (stammering and stuttering).

PORTUGUESE.—Gaguejar, tartamudear, cecear, fallar como os ciciosos (to lisp).

SPANISH.—Tartamudear ; cecear, in Spanish, is the substitution of the *s* sound for the *th*, in the letter *c*. The Andalucian has the *ceceo*, the Castilian the correct sound.

SWEDISH.—Stamma.

WELSH.—Attal-iaith (attal, checking, an impediment in

of muscles not directly concerned in the production or formation of speech, such as those of the face, neck, arms, legs; and, in extreme cases, the whole body may be violently distorted.

speech); bloesg-blaw-esg (lispings, thick-speaking); attaldy-wedyd (to speak with hesitation).

I may here observe that the author who, to my knowledge, first distinguished the above terms was Adelung, in 1786. He says, "Stammering and stuttering are frequently used as synonymous terms; but strictly speaking, the latter term means the repetition of one and the same syllable." This, though not strictly correct, is a near approach to the truth, and is the same distinction as has been used by subsequent authors till a very recent date.

CHAPTER II.

HISTORICAL AND CRITICAL REVIEW OF THE THEORIES AND MODES OF TREATMENT OF STAMMERING AND STUTTERING, FROM THE EARLIEST HISTORICAL PERIOD.

FIRST PERIOD;—FROM THE EARLIEST HISTORICAL PERIOD TO
THE EARLY PART OF THE NINETEENTH CENTURY.

“The examination of the steps by which our ancestors acquired our intellectual estate, may make us acquainted with our expectations as well as our possessions;—may not only remind us of what we have, but may teach us how to improve and increase our store.”—DR. WHEWELL, *History of the Inductive Sciences*, vol. i, p. 4.

Scripture Records.—Hippocrates.—Aristotle.—Demosthenes.—Cicero.—Celsus.—Galen.—Aëtius.—Avicenna.—Guy de Chauliac.—Mercurialis.—Bacon.—Menjot.—Amman.—Küstner.—Hahn.—Hartley.—Haen.—Santorini.—Morgagni.—Sauvages.—Cullen.—Mendelssohn.—Crichton.—Darwin.—Watson.—Frank.—Thelwall.—Savary.

THE history of the literature of defective speech may be conveniently divided into four periods: first, from the earliest historical period to the early part of the nineteenth century; second, from the early part of the nineteenth century to the period of surgical operations; third, the period of surgical operations,

chiefly confined to the year 1841 ; and, fourth, from the surgical period to the present day.

The earliest record of defective speech is to be found in the Scriptures. It is not a little curious that the first case to be met with is in the person of one chosen to perform so high and important a part as that which Moses was called upon to enact. When commanded to go before Pharaoh, he says,* "O my Lord, I am not eloquent, neither heretofore, nor since Thou hast spoken to Thy servant, but I am slow of speech, and of a slow tongue."† The defect here alluded to has been supposed to have been merely a want of eloquence, but the next verse contradicts this supposition, and a more serious defect is indirectly mentioned. Moses was answered: "Who hath made man's mouth? or who maketh the dumb, or deaf, or the seeing, or the blind? have not I the Lord? Now therefore go, and I will be with thy mouth, and teach thee what thou shalt say. . . . Is not Aaron the Levite thy brother? I know that he can speak well, and thou shalt speak unto him, and put words in his mouth; and I will be with thy mouth, and with his mouth, and will teach you what ye shall do, and he shall be thy spokesman unto the people: and he shall be, even he shall be to thee in-

* Exodus iv, 10-16. Moses, according to some, became a stutterer by fright, viz., at the sight of the burning bush.

† Exodus iv, 10-16. *Kebad peh kebad loshun anochi.* Greek, *ἰσχυροφωνος καὶ βραδυγλωσσος ἐγώ εἰμι.* Latin, *Impeditioris et tardioris linguæ sum.*

stead of a mouth, and thou shalt be to him instead of God."

A national peculiarity of enunciation we find ascribed to the Ephraimites*:—"And the Gileadites took the passages of the Jordan before the Ephraimites: and it was so, that when those Ephraimites which were escaped said, Let me go over; that the men of Gilead said unto him, Art thou an Ephraimite? If he said, Nay; then said they unto him, Say now, Shibboleth: and he said Sibboleth: for he could not frame to pronounce it right. Then they took him, and slew him at the passages of the Jordan."

Defective speech is also alluded to by Isaiah: "For with stammering lips and another tongue will he speak to this people."† "And the tongue of stammerers shall be ready to speak plainly."‡ Again, "Thou shalt not see a fierce people, a people of deeper speech than thou canst perceive; of a stammering tongue that thou canst not understand."§

We find also in St. Mark: "And they bring unto him one that was deaf, and had an impediment in his speech, and they beseech him to put his hand upon him. And he took him aside from the multitude, and put his fingers into his ears, and he spit, and touched his tongue; and looking up to heaven, he sighed and said unto him, Ephphata, that is, Be opened. And straightway his ears were opened, and

* Judges xii, 5-6.

† Chap. xxxii, 4.

‡ Chap. xxviii, 11.

§ Chap. xxxiii, 19.

the string of his tongue was loosed, and he spake plain.”*

The following extracts from the works of the ancients contain some of the principal passages referring to disorders of the function of articulate speech. I have considered it advisable, for the sake of comparison, to give in notes the original terms used by the respective authors, which may enable the reader to form some opinion as to the meaning they apparently attached to their definitions of the varieties of defective utterance.

HIPPOCRATES † says, “Indistinctness of speech ‡ arises either from some disease or from the ears; also when something is spoken before pronouncing what precedes it; or when we meditate upon something before pronouncing what had already been meditated upon. We meet with this mostly without any visible disease in such as cultivate arts. Age, if the afflicted is still young, has sometimes a very great (healing) power.”

“Stammerers § are much subject to long-continued diarrhœa.”

“Persons who stutter || are freed from their impedi-

* Chap. vii, 32-35.

† Præcept., 6; Aphor. 6, 32; Epidem. 2, 5; Epid. 2, 6; De Judicat. 6.

Hippocrates, the most eminent of the Greek physicians, and deservedly styled the father of medicine, was born B.C. 460. He died at Larissa, in Thessaly, at the advanced age of 99.

‡ Ἀσαφίη γλώττης.

§ Τραυλοί.

|| Ἰσχυροφωνίην.

ment by varices; the impediment remains if no varices appear."

"Tall, baldheaded stammerers and stutterers* are good."

"A stammerer, bald, and a stutterer, thick-haired, suffer much from atrabilious diseases. All who hesitate in their speech, and are not masters of their lips, are diseased. When they recover they must necessarily acquire some (internal) suppurating ulcers."

"Stammerers† who have a large head and small eyes are passionate."

"Stammerers‡ who have a voluble tongue§ are full of black bile."

"He who has a little head will neither stammer|| nor become bald, unless he have blue eyes."

"In gouty persons there are observed tumours under the tongue containing calculi, which interfere with articulation."

ARISTOTLE¶ says: "The tongue is either broad or narrow, or of a medium shape, which latter is the best for distinctness; or it is free, or tied, as in those that lisp and stammer.**

* Τραυλοί, ισχνόφωνοι.

† Τραυλοί.

‡ Τραυλοί.

§ Ταχύγλωσσοι.

|| Τραυλος.

¶ *Hist. An.*, lib. i, cap. xi. *De Part. An.*, lib. ii, cap. xvii. *Problem.* Sect. xi, 30, 35, 36, 38.

Aristotle, the great founder of the peripatetic sect of philosophers, was born at Stagyra, in Thrace, B.C. 384. He became a pupil of Plato, and subsequently tutor of Alexander the Great. Being accused of atheism by the Athenians, he retired to Chalcis, where he died in the 63rd year of his age, B.C. 321.

** Τοις ψελλοις και τοις τραυλοις.

“An equable and broad tongue is also convenient for the formation of letters, and the purpose of speech, for being such and free, it is eminently capable of being dilated and contracted in a variety of forms. This is evident in all persons in whom the tongue is not sufficiently free, for they lisp and stammer.”*

“Stammering,† therefore, is the inability of articulating a certain letter ; but lisping‡ is the omission of some letter or syllable ; and stuttering§ is the inability of joining one syllable with another. All these arise from debility, for the tongue is not obedient to the will.

“Intoxicated persons and old men are similarly affected, but in a less degree.

“Why are those who stutter|| melancholy ? Is it because that to follow the imagination rapidly is to be melancholy ? Such, however, is the case with those that stutter, for in them the impulse to speak precedes the power, in consequence of the mind rapidly following that which is presented to it. This is also the case with those that stammer, for in these the tongue is too slow to keep pace with the imagination.”

The reader will see that in translating the above passages I have supposed *ισχυνοφωνία* to mean stuttering ; *τραυλότης*, stammering ; and *ψελλότης*, lisping. This appears to me to be the most suitable to the

* Ψελλιζονται γαρ και τραυλιζουσι.

† Ψελλότης.

§ Ισχυνοφωνία.

† Τραυλότης.

|| Ισχυνοφωνοι.

meaning of the respective authors ; but at the same time I do not assert that they were absolutely used in this sense.

Plutarch* refers to the defect of speech which affected the prince of orators in the following terms:—

“Demosthenes, in his first address to the people, was laughed at and interrupted by their clamour ; for the violence of his manner threw him into a confusion of periods and a distortion of his arguments. He had, besides, a weak voice, indistinct speech, and short breath ;† which caused such a distraction in his discourse, that it was difficult for the audience to understand him. At last, on his quitting the assembly, Eunomos the Triasian, a man now extremely old, found him wandering in a dejected condition in the Piræus, and took on him to set him right, ‘You,’ said he, ‘have a manner of speaking much like Pericles, and yet you lose yourself out of mere timidity and cowardice. You neither bear up against the tumult of a popular audience, nor prepare your body by exercise for the labour of the rostrum.’”

Another time, we are told, when his speeches had been ill-received, he went home with his head covered, and in the greatest distress. Satyrus, the actor, who was an acquaintance, followed him. Demosthenes lamented that though he was the most painstaking of

* *Vit. Parall. Demosth.* (A.D. 66).

† *Και φωνῆς ἀσθενεία, καὶ γλωττῆς ἀσαφεία πνεύματος κολοβώτης.*
 Latin—*Laboravit vero etiam vocis exilitate, lingua inexplanata, spiritus angustia.*

all the orators, yet could he find no favour with the people. "You speak truly," replied Satyrus, "but I will soon provide a remedy, if you will recite to me some speech in Euripides or Sophocles." When Demosthenes had finished, Satyrus repeated the same speech, with such propriety of action, and so much in character, that it seemed quite a different passage. Demosthenes now understood, how much grace and dignity of action add to the best oration, and he thought it of small matter to compose and premeditate, if the pronunciation and propriety of gesture were not attended to. On this he built himself a subterranean study. Thither he repaired every day to form his action and exercise his voice; and he would stay there for two or three months together, shaving one side of his head, that the shame of appearing in that condition might keep him in. Demetrius, the Phalerian, gives an account of the remedies he applied to his personal defects, and he says he had it from Demosthenes in his old age. The indistinctness and stammering* he corrected by practising to speak with pebbles in his mouth, and he strengthened his voice by running or walking up hill, and by pronouncing some passage of an oration or poem during the difficulty of breathing which that caused. He had, moreover, a looking-glass in his room before which he declaimed, to adjust his motions.

CICERO† speaks of defective speech in the following terms:—

* Τσαυλόγητα.

† *Cic. de Orat.*, lib. i, 61 (106-43 B.C.).

“Let him imitate him to whom unquestionably the highest excellence in oratory is conceded, Demosthenes the Athenian, who is said to have been so studious and laborious, that he first of all overcame the impediments of nature by diligence and labour; and although he was such a stammerer that he was unable to articulate the very first letter of the art which he studied* [rhetoric], yet he accomplished so much by meditation, that no one is believed to have spoken more distinctly; and although his breath was short, he effected so much by holding it in in speaking, that one sequence of words (as shown in his writings) contained two risings and two fallings of the voice; and he also (as is recorded), after putting stones in his mouth, enunciated in the loudest voice many verses in one breath; not standing in one place, but walking and mounting a steep ascent.”

In another place Cicero says: “Is there any doubt that many, though born with natural defects, are nevertheless cured, either by the self-corrective power of nature, or by the skill of the physician? Or who have been born so tongue-tied, that they could not speak until their tongues were liberated by the application of the scalpel?”

“Many have also, by meditation or exercise, removed natural defects. Phalereus thus records that Demosthenes could not pronounce *r*, but by practice learned to articulate it correctly.”†

* Quum ita balbus esset ut ejus ipsius artis cui studens primam literam non posset dicere, perfecit meditandi, ut nemo planius eo loquutus putaretur.

† *De Divinatione*, lib. ii, xlvi.

After all, it can scarcely be said that Demosthenes was a stutterer in the strict sense of the term. His chief defect, as described by most authors, consisted, apart from weakness of voice, in his faulty enunciation of the letter *r*.

CELSUS* says: "When the tongue is paralysed, either from a vice of the organ, or in consequence of another disease, and when the patient cannot articulate, gargles should be administered, of a decoction of thyme, hyssop, or pennyroyal; he should drink water, and the head, the neck, the mouth, and the part below the chin should be well rubbed. The tongue should be rubbed with lazerwort, and he should chew pungent substances, such as mustard, garlick, onions, and make every effort to articulate. He must exercise himself to retain his breath, wash the head with cold water, eat horse-radish, and then vomit." Celsus also describes the operation of dividing the frænum in tongue-tied subjects.

GALEN† refers stammering to an *intemperies humida*. Intoxicated persons stammer because their brain is too much moistened, and the moisture ex-

* *De Resolutione Linguae*. Aurelius Cornelius Celsus, a Roman physician of the time of Tiberius (B.C. 42—A.D. 37); author of treatises on agriculture, rhetoric, and military affairs, and of eight books on medicine. All except the last work are lost; but that has long been considered as the best and most systematic text-book of medicine left us by the ancients.

† *De locis affectis*, 6. Claudius Galenus, born at Pergamus in A.D. 131. Having practised about four years in his native city, he went to Rome, from whence he was driven by the jealousy of his rivals, who attributed his success to magic. He returned

tends to the instruments that move their tongue, and to the tongue itself. Again, he says that stuttering, or *ischnophonia*, is owing to the debility of the muscles from the diminution of heat.

AËTIUS* says: "Some are born tongue-tied, others become so from some affection. Those are born so when the membranes under the tongue are too hard and naturally defective. It may also proceed from an ulcer, which leaves a hard cicatrice under the tongue. Those who are naturally tongue-tied (*ancyglossi ex natura*) commence speaking late; but when they do commence, they speak without obstacle, and pretty fluently. They are, nevertheless, impeded in the production of words the pronunciation of which is difficult: such, for instance, in which the letters *r*, *l*, or *k* frequently occur. Such may be cured for a certainty by surgery."

He then gives directions how the operation is to be performed, but cautions the operator against dividing with the membrane the subjacent veins.

ÆGINETA† says: "*Ancyglossis* is sometimes a congenital disease when dense and shortened mem-

to Pergamus, but was recalled by the Emperor Marcus Aurelius, and entrusted with the care of his son Commodus, while the emperor went to war with the Germans. He is supposed to have died at Rome in his 70th year.

* *Aëtii Græci contractæ ex veteribus medicinæ Tetrabiblos*, etc., Basileæ, 1542, cap. xxxvi. Aëtius, a physician of Mesopotamia (about 600 A.D.), is said to have been the first Christian physician whose works have come down to us.

† 'Επιτομὴς ἱατρικῆς βιβλία ἑπτὰ. *De Re Medica libri septem. Περὶ Ἀγκυλογλωσσοῦ παθούς*. Basil. 1556. Paulus Ægineta, a

branes restrain the tongue. Sometimes it is acquired from thick cicatrices, after some ulceration, under the tongue. Those who are born with this affection are known by beginning to speak late, and their frænum appears thicker than it ought to be. In those who have acquired it, the cicatrice is seen.

“The patient being seated, and the tongue raised against the palate, the frænum is transversely divided. Care should be taken to avoid the section of the deeper parts, so as to obviate hemorrhage, frequently difficult to arrest.”

In the next two chapters, he treats of the excision of the tonsils and the uvula.

AVICENNA.—Husain Abu-Ali Ben Abdallah, Ebn-Sina, Sheikh-el-Reys, the prince of philosophers and physicians,* of whom it was not unjustly said that neither did philosophy teach him good morals, nor medicine to preserve his health, has left us in his *El-Kanun fil tebb* (*Canon Medicinæ*) some chapters in which he treats of affections of the voice and speech. The *Canon* was printed in the original at Rome, in 1593, by Arab compositors. There exists no good Latin translation. The subjoined extracts are taken from one of the latest editions of Avicenna's works.†

medical author, a native of the island of Ægina. He is said to have been the first to notice the cathartic qualities of the rhubarb.

* Avicenna was born in 980, and died 1037.

† Avicennæ Principis, et Philosophi sapientissimi Libri in re medicæ omnes qui hactenus ad nos pervenere, etc., a Joanne Paulo Mongio et Joanne Costæo recognita. Venetiis, 1564.

De voce. Ten short chapters are devoted to defects of the voice and their cure. I shall only notice what he says on the cure of "short voice" (*de voce brevi et cura ejus*), or rather shortness of breath. "Shortness of the voice (he says) is caused by shortness of breath, and it can be gradually cured by retaining the breath, and by exercises such as running up and down hill."*

Semeiology of voice, speech, and silence.† "A strong voice and well-ordered speech are good signs; the contrary is a bad sign.

"Great and prolonged taciturnity signifies either a softening of the muscles of the tongue and of the epiglottis, or a spasm of the same, or may be the destruction of the imagination, which is the principle of speech. When a taciturn person begins to talk very much, it signifies the approach of mental aberration and the perversion of reason."‡

Avicenna also devotes no less than sixteen chapters to the anatomy and diseases of the tongue and their cure.§ The action of the tongue, he says, is threefold. It possesses motion (for speech), tact, and taste. Sometimes motion is destroyed or weakened by some disease. At other times taste and tact are destroyed, and again, only one of these senses may suffer, leaving the

* *Lib. Tertius, Fen. 10. Tractatus secundus, p. 628.*

† *Signa sumpta ex voce et loquela et silentio.*

‡ *Tom. 2, lib. iv, Fen. 2, Tract. 1, cap. 52, p. 90.*

§ *De Ægreditudinibus Linguae, x, cap. 2; Lib. tertius, Fen. 6, Tract. 2, p. 580.*

other in its integrity. Thus speech may be affected without loss of taste or tact, and *vice versâ*. The mollification of the tongue, as he calls it, has for its cause sometimes humidity, or the seat of the affection may be in the brain. It renders speech difficult, or alters it so that it causes stuttering (*tata*, an impediment in which these sounds, or similar ones, are frequently heard). It therefore sometimes happens that a hot disease will cure the affection by removing the humidity from the tongue and its nerves. It is also for this reason that a stuttering boy, when he grows up, speaks more freely, because the humidity is diminished.

In another place he says:*

“Speech impediments may arise from some lesion of the brain, or of the nerves which proceed to, and move the tongue. Sometimes the lesion is in the muscles of the tongue, or there may be spasm, or tetanus, or hardening or softening of the tongue, or a shortening of the ligament, or nodosities, or a hard imposthume.

“Sometimes speech is impeded by some defect in the muscles of the epiglottis, which are softened or relaxed. *Sometimes the voice fails at the outset; but when the individual takes an inspiration at the beginning of his speech, his speech becomes more free. Such a man must, therefore, prepare himself before speaking by taking a deep inspiration and dilating*

* *De Alchalel in Locutione*, cap. 16, p. 358; *Lib. tertius*, Tract. 11, Fen. 6.

his chest. When a man thus accustoms himself his speech will be free."*

I have italicised this advice, as it shows that the remedy propounded as a modern discovery, and generally thought to be so, is very old indeed.

Commentary.—Although the enthusiasm for the Arabian physician has long passed away, the preceding extracts show that there is in his works a mine of knowledge, hidden, no doubt, under an accumulation of errors. Thus we find that Avicenna, just as is done by some writers at present, places the cause of stuttering either in the brain, or in the motor nerves of the tongue. He also observes that stuttering may arise from spasms in the organs of speech. Speechlessness may, he says, be owing to psychical

* The pharmacopœia of the Arabs was much richer than that of the Greeks. It may, perhaps, interest the medical reader to read some prescriptions for speech impediments as given by Avicenna, and which were adopted by subsequent practitioners.

With reference to mollification of the tongue, he says:—

“Et quando mollificatio sit vehemens et prohibet locutionem, tunc sumatur aliquid euphorbii, et condisi, et assiduetur frictio linguæ et radicis ejus cum ipsis. Et oportet, ut ponatur istæ medicinæ et earum similes super collum etiam.

“Descriptio pilularum, quæ tenentur in ore sub lingua conferentes mollificationi: terebinthinæ drach. ii, assafoetidæ, drach. i, fiant ex eis pitulæ sicut cicer, et teneantur sub lingua.

“Et ex eis, quæ experta sunt in hoc capitulo, est gargarismus ex sale ammoniaco et pipere, et synapi, et pyrethro, et nitro, et zingibere, et staphisagria, et origano, et sale naphtico, terantur et cribellentur, et fiat cum eis gargarismus in aqua calida diebus continuis.”

causes, or to the destruction of the imagination, which he terms the principle of speech.

GUY DE CHAULIAC* says: "Stuttering may be caused by convulsions, ulcers, and other affections of the tongue. It mostly arises from some paralysis, or from too large a quantity of humours soaking the nerves, muscles, and even the substance of the tongue."

He also observes that fever may cure stuttering when it is caused by an abundance of humours. This is also the case with convulsions. Stuttering which has persisted for a long time is never readily cured.

* Guido de Cauliaco, *Chirurgia*, Venetiis, 1498. Guy de Chauliac wrote his work at Avignon, in 1336, under Pope Urban V. He was, it appears, a disciple of the celebrated school of Montpellier, chaplain and physician to the pope, and one of the last adherents to the Arabian school.

Guy de Chauliac was born in Chauliac, a village of Gevaudan, on the frontiers of Auvergne. After pursuing his medical studies at Montpellier, and subsequently at Bologna, he practised at Lyons, and then at Avignon, where he successively became the physician of Popes Clement VI, Innocent VI, and Urban V. In 1363 he composed his *Inventarium, sive collectorium partis chirurgicæ medicinæ*. The first edition of his work was published in 1498 at Venice. Haller mentions another edition of 1498, published at Bergamo. This celebrated surgeon was held in such esteem, that the surgeons, playing upon his name, called him their guide. Fallopius compares him to Hippocrates; Calvo calls him the first legislator of surgery. Haller says that Chauliac has thrown much light upon surgery. He has read all that had been written down to his period; he carefully expounds the opinions of his predecessors, so that his work constitutes an excellent historical sketch of ancient surgery. Neither the date of his birth nor of his death is known.

Still, it is greatly improved in children when they arrive at adult age.

With regard to the treatment, he says, "although, generally speaking, the treatment of stuttering is the same as that for paralysis, we must, apart from diet and purgatives, have three purposes. The first consists in a diversion of the humours; the second in desiccating the brain; the third in consuming the humidities collected in the brain."

The first is effected by pungent blisters, frictions, and cupping behind the neck.

The second by desiccating embrocations on the head, made with mustard, pepper, ginger, laurel grains, aniseed, and other drugs, which, by fortifying the brain, possess the virtue of sucking up the humour. Cauteries are very proper, even if applied to the vertex or to the cervical vertebræ.

The third intention is effected by gargarisms, and by washing and rubbing the tongue with a variety of medicaments which he proposes, of which we are to commence with the weakest, and ascend gradually to the strongest.

MERCURIALIS* was the first author who may be said to have written scientifically on defective utterance. According to the notions prevalent in his time, he considers a moist and cold *intemperies* as the chief cause of *balbuties*, comprehending both stam-

* *De puerorum morbis*. Ed. J. Groscsii, Francofurti, 1584. Hieronymus Mercurialis, born at Forli, 1530, and subsequently professor at Padua, Bologna, and Pisa, was the greatest physician of his time, and equally distinguished as a philosopher

mering and stuttering. He, therefore, forbids washing the heads of stammering and stuttering children, as that increases the moisture. In order to desiccate the head, he advises cauteries and blisters on the neck and behind the ears, which should be kept open for a considerable time. To dry the tongue, he recommends that it should be frequently rubbed with salt, honey, and especially with sage, which had proved singularly effective in curing the infirmity. The diet should be salt, spicy, and heating; no fish, no pastry, is to be allowed. Our author is, however, somewhat puzzled by finding that Hippocrates attributes stammering and stuttering also to the dryness of the tongue. To reconcile this opinion with his own, Mercurialis is obliged to assume two species of *balbuties*—a natural and an accidental. The natural is produced by humidity; the unnatural or accidental by dryness; and it is of this species that Hippocrates has spoken. Now, when *balbuties* proceeds from dryness, as after fevers or inflammation of the brain, we should direct our attention to the moistening of the tongue and the top of the spinal cord. Gargles with woman's milk are advisable: the tongue must be frequently moistened with a decoction of marsh-mallow, to which sweet oil of almonds may be added, or some nymphæa leaves, by which the effect will be increased. The spinal cord, especially the cervical region, should

and antiquary. The Emperor Maximilian II, whom he cured of a fever, created him a count, and the Paduans erected a monument to his memory.

be acted on by convenient linaments, apt to soften these parts. Impediments in speech, he says, are also produced by emotions, deep cogitations, prolonged watchfulness, sexual excesses, habitual intoxication, which, by injuring the brain and the nerves, produce *balbuties*.

But, although a physician, Mercurialis does not seem to have entirely relied on drugs and diet, for he expressly says that the body and the voice must be exercised as much as possible, and if there be anything which may benefit stammerers and stutterers, it is continuous loud and distinct speaking. He supports this opinion by the example of Demosthenes.*

LORD BACON thus writes:† “Divers we see do stut. The cause may be, in most, the refrigeration of the tongue, whereby it is less apt to move. And, therefore, we see that naturals [idiots] do generally stut. and we see that in those that stut, if they drink wine moderately, they stut less, because it heateth; and so we see, that they stut more in the first offer to speak than in continuance; because the tongue is by motion

* *Exercendum est corpus quantum fieri potest, præsertim vero exercenda est vox; et si quid est, quod possit prodesse balbis et hæsitantibus est continua locutio alta et clara. Demosthenes superavit balbutiem sola vocis exercitatione et contentione, nam dedit decem millia drachmorum Neoptolemo histrioni, qui illum docuit versus plures uno spiritu proferre, scilicet ut injectis in os calculis ascendens et currens versus continuo proferret.*

† *Sylva Sylvarum, or Natural History.* First published 1627. Cent. iv, sec. 386.

somewhat heated. In some, also, it may be, though rarely, the dryness of the tongue, which likewise maketh it less apt to move as well as cold ; for it is an effect that cometh to some wise and great men ; as it did unto Moses, who was *linguæ præpeditæ*, and many stutterers we find are very choleric men ; choler inducing dryness in the tongue."

MENJOT,* after enumerating certain national peculiarities of enunciation, says : " Some also stammer (*fringultiunt*†), that is, they utter obstructed and obscure words, and some have a boorish and rude pronunciation." Following Aristotle, he reduces stammering (*balbuties*) to three kinds, viz., *trauloteta*, *pselloteta*, and *ischnophonia*.

Traulotism is that vice, when the tongue cannot articulate certain consonants and changes them into others ; for instance, *t* is softened into *d*, *g* into *s*.

Psellism is mutilated speech (*loquutio detruncata*), when a letter or a syllable is omitted.

Ischnophonia (to which, however, he prefers *ischo-phonia*) is when a man in the middle of his speech, by some impediment, cannot properly connect the syllables, but repeats the syllables ; so that, for Cæsar he says, *Cæ-Cæsar*.

* *Dissertatio Pathologica de Mutitate et Balbutie*, Antonio Menjoto Scriptore. *Febrrium Malignarum Historia*, etc., Parisiis, 1674. Antoine Menjot was born of Protestant parents at Paris, 1636. He took his degree at Montpellier, and became physician of the king. Menjot had a very large practice to the time of his death, which took place in 1696.

† *Frigutio*, to twitter, chirp, like birds.

He continues : " The causes of balbuties are numerous. First, the muscles of the tongue are not so much affected as in mutism ; but suffer rather from tremor, so that speech has lost its integrity. Secondly, the tongue may be too short, so as not sufficiently to reach the anterior teeth, or it may be too thick, or too inflexible ; for the tongue must also be broad ; hence, birds which imitate the human voice, have broad tongues. It may also have lost its pliancy from fever. It may be too dry or too moist, or too cold or too hot. Whilst there are also some who stick fast, so to speak, so are there others whose speech is like a torrent. There is a third species which arises from tumours, rarely phlegmonous, but frequently œdematous, under the tongue, which is called *ranula*. Then come, fourth, the affections of the frænum, which may be too short or too constricted. Fifth, the lips may be too thick or mutilated, too hard or too soft. Then the teeth may be badly disposed. Finally, balbuties may be accidentally produced from impetuous cogitation, as in delirium, just as a servant cannot obey at once the various commands of his master, neither can the tongue, however agile and free, obey the swift behests of the mind."

Commentary.—All that is necessary to state is that this dissertation on *Balbuties*, although it contains nothing striking, is the most complete treatise on this subject of the seventeenth century.

JOHANN CONRAD AMMAN,* of Amsterdam, to whose

* Amman was born at Schaffhausen in 1669 ; he settled in Amsterdam, where he died in 1724.

works* most subsequent writers are much indebted with regard to a correct theory of the formation of voice and articulate sounds, did not confine his practice solely to the education of deaf-mutes, but extended it to the remedying all kinds of defective utterance. Vicious articulation, he conceived, was in some cases owing to organic defects in some portion of the vocal and articulating apparatus, or to debility. The tongue, for instance, is sometimes so large that it fills nearly the whole buccal cavity, and materially interferes with the enunciation of many sounds. "I had," he says, "a Danish gentleman under my care, who, on account of the size of his tongue, articulated badly, and could by no effort of his own pronounce *ka*, but always said *ta*. Whilst placing my two fingers firmly on this organ, I desired him to enunciate *ka*. I well perceived that he tried to say *ta*, but as he could not approach the tongue to the teeth he was forced to enunciate *ka* to the admiration of the bystanders." The tongue may also be deficient in mobility, owing to its being fixed by the frænum, or the latter may be absent, in which case, the tongue lies at the bottom of the cavity. The uvula may be too voluminous, too small, or altogether wanting. The palate, the lips, the teeth, may also be in fault.

Amman distinguishes two species of defective speech. The first he calls *Hottentotism*, which consists in modifying the sounds in such a manner that

* *Surdus loquens*, etc. Amst. 1692. *Dissertatio de loquela*, etc. Amst. 1700.

they become unintelligible. He quotes the case of a young lady of Haarlem, who could scarcely pronounce any letter but *t*, and whose utterance was of course a ridiculous farrago of an interminable repetition of that sound. Amman cured this young lady within a space of three months, so that not a vestige of her defect remained, and her elocution became perfect.

The second kind Amman terms *Hæsitantia*, consisting in a laborious repetition of the explosive sounds. During the efforts to produce them, the patient is frequently much agitated, the countenance becomes livid, and the features distorted. This kind of defective utterance, he further observes, is not the result of organic defects, but originates in the contraction of a vicious habit, which in time becomes inveterate.

Commentary.—Haller very justly calls the *Dissertatio de Loquela* a golden book ; for the author develops in it both the mechanism of language in general and the process he employed in teaching deaf-mutes to speak, and to relieve impediments of speech.

KÜSTNER* says, "Speech is depraved from tumours of the tongue, ranula, inflammation, or any other wounds. This happens also in stammering, hesitation, or titubation of the tongue, which vices are owing to its being too long or too short. The frænum may be too constricted, too lax, or too rigid. The cause may also be in the nerves of the tongue. The motion of

* *Dissertatio Inauguralis de Lingua Sana et Ægra.* Altdorfii, 1716.

the tongue is also depraved in convulsions from terror or any other such cause."

He further mentions amongst the symptoms of a diseased tongue, paralysis of that organ arising from the interrupted flow of animal spirits into the muscles of the tongue. "This takes place," he continues, "in various diseases, as in apoplexy, syncope, concussion, violent emotions, or it may occur *per se*. To cure this evil, we must inquire into the cause of the interruption of the flow of animal spirits, and try to restore their free influx, which must be effected in various modes, according to the difference of causes. The paralysis of the tongue must be treated by internal remedies found useful in general paralysis, such as aromatics, nervina, fixed and volatile salts, sudorifics, and purgatives, and sometimes emetics. Externally, stimulants should be frequently applied to the tongue, especially distilled oil of amber, sage, cinnamon, and other aromatics.

"If the action of the tongue is impeded on account of the contraction of the frænulum, it should be divided by the surgeon. This is, however, far from necessary in all infants, as so many formerly believed. It is only requisite in such cases when the tongue is so fettered that the infant cannot protrude it, and can neither properly suckle, nor swallow, nor distinctly enunciate when the time for speaking arrives. This, however, scarcely occurs in one of a thousand cases. . .

"When speech is depraved, and there is hesitation, stammering, or titubation from some vicious conformation of the nerves, there is scarcely a remedy for it.

But if it is owing to laxity and humidity exsiccants and roborants are of much use. If from dryness or rigidity, humectants and frequent emollient rinsing of the mouth are indicated."

HAHN* attributes stuttering, stammering, and mutism to a singular conformation of the hyoid bone.

HARTLEY† says: "Stuttering appears generally to arise from fear, impatience, and some violent passion, which prevent the child from articulating correctly by the confusion which they cause in the vibrations which descend to the muscular system; so being in default, the child makes continuous efforts, until he succeeds in articulating properly.

"When stuttering is once established in some words, it extends more and more, and especially to all the first words of phrases, because then the organs pass from inactivity into action.....Stuttering is also caused by a passion, a natural weakness, etc., which prevents us from finding the proper word at the instant. Like other modes of pronunciation, stuttering is sometimes produced by imitation.....

"A palsy of the organs of speech may be occasioned in the same manner as any other palsy; and yet the muscles of the lips, cheeks, tongue, and fauces may still continue to perform the action of mastication and deglutition sufficiently well, because these actions are simpler than that of speech, and are

* *Commerc. Litt.* ann. 1736. J. Gottfried Hahn, born 1694; died 1753.

† *Observation on Man.* London, 1749.

also excited by sensations which have no original influence over them."

HAEN* assigns the cause of stuttering to pulmonary vomicae.

MORGAGNI and SANTORINI.†—Morgagni has a few remarks on impediments of speech, at the end of his fourteenth letter on diseases of the ears and nose;‡ and as he refers to Santorini's opinion touching the cause of stuttering, they may well be ranged side by side.

In the 21st observation, says Morgagni, of Bonet's *Sepulchretum*, sec. 21, Santorini is made to teach as follows:§ "That in the middle region of the palate, *i. e.*, at the fourth bone of the superior jaw, there was in all subjects he had seen till then who could not pronounce the letter *r*, two holes not open, and which are not easily perceived in such as are not afflicted with

* *Ratio medendi, etc.*, Vienna, 1760. Anthony de Haen, or Van Haen, a celebrated physician, born at the Hague, 1704, where he studied under Boerhaave. He died in 1776.

† J. B. Morgagni (b. 1682; d. 1771). *De Sedibus et causis morborum, etc.* Lugduni Batav. 1761. Lib. 1, Epist. Anat. Medica XIV. *De aurium, et narium affectibus, aliquid additur de Balbutie.* J. D. Santorini (b. 1686; d. 1736). *Opuscula medica, etc.* Venetiis, 1705.

‡ "Namque observatione xxi inducitur Sanctorius noster, hæc docens: esse in media palati regione, id est in quarto osse superioris maxillæ, in illis omnibus quos ad id tempus vidisset qui litteram *r* exprimere non possent, duo foramina quæ nullo modo aperta et obvia inveniuntur in iis qui illo affecto tenentur: Ergo causam immediatam quæ posita ponit, fore illos duos meatus apertos."

§ *Observationes Anatomicae*, Venetiis, 1724.

this defect; and consequently he places the proximate cause of the defect as depending on the width of these apertures.”*

Santorini has been incorrectly cited as having placed the cause of defective speech in the absence of the incisive canal; for it is in this same passage that he says:

“There are seen in the middle of the region of the palate two canals, which cause stammering, as therein are seen two holes near the teeth, by which the pituitary trickles into the mouth, moistening the tongue in its anterior part, and rendering elocution thick, whence arise only half-articulated words.”

Morgagni continues: “It is, therefore, evident that he deduces from the too large opening of this canal placed behind the incision, not that vice called by the Greeks *τραυλότης* (stammering?), but that which they called *ψελλότης* (lispings?).” The defect here indicated by Morgagni as *ψελλότης* would no doubt correspond to the defect caused by the above aperture, viz., lispings in the strict sense of the expression, or an indistinct, hissing sound accompanying every syllable, and not (as the term is now used) simply a defect in the pronunciation of the sibilants.

Morgagni further says: “As for myself, I cannot say that I have seen these holes in the palate in all the heads I have examined, although I cannot bring myself to believe that in all that number, there should not have been a single stammerer. But al-

* *Bonnet's Sepulchretum*, sect. 22, obs. xxi, p. 473.

though I have reason to suspect that Santorini has ascribed to all stammerers what he may have seen in some, and although he himself admits that those who have naturally a superabundance of pituity in the mouth are not necessarily affected with either kind of stammering, I nevertheless think that from the great merit of this author we ought not to pass judgment till numbers of such cases have been carefully examined by skilful anatomists." He continues: "I conjecture, however, by a not unfounded reasoning, that stammering cannot be attributed to a double velum (as mentioned by Delius*). In fact, I have seen several instances of this kind unconnected with any vice of speech. But it can easily be believed that great injuries of the hyoid bone may sometimes produce stammering; and I can well conceive that the learned Hahn† believed that a bad conformation of this bone gave rise to stammering, stuttering, or mutism. The direction of the muscles moving the tongue cannot be changed without the movement of the latter part.....As for myself, I believe that from whatever cause stammering may arise in children, the stuttering in adults is derived from the same source. We ought to observe the defect in children, because, in point of fact, they all stammer, in order to better discover it in adults, so that we may diminish or cure it altogether."

* Act. N. C., tom. 8, obs. 106.

† *Commerc. Litt.* ann. 1736. J. Gottfried Hahn (b. 1694; d. 1753).

SAUVAGES* places stuttering among *dycenesiæ*, diseases the chief symptom of which consists in debility, diminution or suppression of the movements of the organs submitted to the will. Sauvages divides Psellism into eleven species, of which the first, *Psellismus ischnophonia*, treats of stuttering. He assigns the cause to the difficulty of moving the velum, the uvula, and the root of the tongue. Hence he asserts that the chief difficulties to the stutterer are the guttural sounds, *g* and *k*. For the treatment, he advises attention to the instructions of an experienced master. The rest of the defects mentioned are: *Psellismus rhotacismus*, rhotacism; *Psellismus traulotes*, indistinctness; *Psellismus balbuties*, difficulty of enunciating the labials; *Psellismus mogilalia*, another species of labial mispronunciation; *Psellismus metallicus*, peculiar to gilders and painters; *Psellismus iotacismus*, iotacism; *Psellismus nasitas*, rhinism; *Psellismus lagostomatium*, defect caused by hare-lip; and, finally, *Psellismus à ranula*, or defective speech caused by tumours.

CULLEN,† and many subsequent authors, have adopted the opinion of Sauvages as to the cause of stuttering being debility.

MENDELSSOHN, grandfather of the celebrated composer, in a commentary on the well-known case of aphasia of Spalding, discusses at some length the

* *Nosologie Méthodique*, by F. Boissier de Sauvages, Lyon, 1772.

† *Synop. Nos. Med.* William Cullen, born at Lanark in 1712; died 1790.

phenomena of speech impediments. Under the head of stuttering, he says :*

“ It might be supposed that the defect is in the organs, and that there must be something wrong in the structure of the organs of speech which may explain the infirmity. But many observations show that the defect is more psychological than mechanical or organic. I shall indicate a few of the observations which I had ample opportunity of making :

“ 1. When labouring under strong emotions, we are all more or less subject to this infirmity.

“ 2. We are more exposed to it when speaking in a foreign tongue with which we are not familiar.

“ 3. We are more liable to it in the presence of a stranger who may notice the infirmity.

“ 4. We are least exposed to it when we are alone, speak slowly and loudly, and least of all in singing.

“ 5. When the stutterer wishes to continue speaking, he repeats certain syllables, in order to begin again. He then very rapidly passes over the difficult syllable, and frequently without any hesitation ; but sometimes he fails, and the operation must be repeated.

“ All this would be inexplicable if a defect in the structure of the organs were the cause of stuttering.”

According to his hypothesis, stuttering is nothing but a kind of collision between two heterogeneous

* *Psychological Observations on the Case of Spalding*, by Moses Mendelssohn (b. 1729 ; d. 1786). *Magazin zur Erfahrungsseelenlehre*, v. 1, part 3, p. 46. Berlin, 1783.

ideas, which act on the speech organs with nearly equal force at the same time. He continues:

“Something like stuttering may occur in other organs of the body subject to voluntary motion. Hence we can explain the staggering of intoxicated and feverish persons, as well as the trembling of the old and debilitated. In the former, the ideas succeed each other too rapidly, and the limbs cannot follow them with equal celerity. Their ideas cross each other, come into collision, and obstruct each other.....

“In old and weakly persons the ideas proceed more naturally, but the organs are too rigid or too weak to keep pace with the ideas.

“Loud reading or singing present, besides, the advantages that the mind is sensually occupied by the ear, so that it can less wander to foreign ideas.

“The intrusion of foreign ideas may also be obviated by opposite means, namely, by great rapidity on part of the stutterer in the enunciation, by which the speech organs are enabled to overcome the difficult syllable: in the same way as when in physical movements we wish to surmount an obstacle, we take a run at it before leaping over it.

“One of the best remedies against the evil consists, according to my experience, in loud and slow reading. It will be better to cover the following lines, so that the eye may only rest on the syllable which is to be pronounced. By doing so, the intervention of foreign ideas connected with enunciation of the following letters is obviated, and a collision of ideas, which in

most cases is the cause of stuttering, is thus avoided. By repeating such exercises in the presence of other persons, the power of the mind in controlling the articulation, and the succession of ideas connected therewith, is generally strengthened."

Commentary.—Mendelssohn's article on speech impediments is one of the most suggestive treatises of the period in which it was written. When he says that he had ample opportunities of observing this defect, he probably means in his own person, for one of his biographers says that he spoke "with a lisping tongue." But what is remarkable is, that, to my knowledge, no author on stuttering alludes to Mendelssohn's article on this subject.

CRICHTON* observes: "A very singular phenomenon concerning this impediment of speech is that the hesitation is generally confined to the pronunciation of a few letters, and this is the cause why its effects are always heard and seen; for if it concerned whole words, a total stop would be put to speech. The person begins a concentrated chain of actions, or, to speak more plainly, he begins to pronounce the words..... He arrives at one of the letters alluded to, and immediately a doubt arises in his mind how it is to be pronounced.....He then begins to pronounce it in a different way, and the doubt again arises.....He cannot stop, for he is in the middle of a word, the pronunciation of which he has been accustomed to conclude, and he therefore continues to struggle with

* *An Inquiry into the Nature and Origin of Mental Derangement*, by Alexander Crichton. London, 1798.

it, till at last, owing to some accidental causes, which it is not easy to discover, he accomplishes its proper utterance."

DARWIN* makes the following remarks on the theory of impediments in speech :

"If a train of action is dissevered, much effort of volition or sensation will prevent it being restored. This is common in impediments of speech, when the association of the motions of the muscles of enunciation with the idea of the word to be spoken is disordered: the great voluntary efforts which distort the countenance prevent the rejoining of the broken associations. So, in endeavouring to recal to our memory some particular word of a sentence, if we exert ourselves too strongly about it, we are less likely to regain it."

Again: "Impediment of speech is owing to the association of the motions of the organs of speech being interrupted or dissevered by ill-employed sensations or sensitive motions, as by awe, bashfulness, ambition of shining, or fear of not succeeding, and the persons use voluntary efforts in vain to regain the broken associations.

"The broken association is generally between the first consonant and the succeeding vowel, as in endeavouring to pronounce the word *parable*, the *p* is voluntarily repeated again and again; but the remainder of the word does not follow, because the

* *Zoonomia: or the Laws of Organic Life*, by Erasmus Darwin, M.D., London, 1800.

association between it and the next vowel is dissevered."

He recommends, in order to cure this defect, that the stutterer should repeat the word which he finds difficult to him eight or ten times without the initial letter, in a strong voice, or with the aspirate before it; as in the word *parable*, he should repeat several times *arable* or *harable*, and at length, to speak it very softly, with the initial letter *p*, *parable*. This should be repeated for weeks or months in every word which he hesitates in pronouncing. He further says: "To this should be added much commerce with mankind, in order to acquire a carelessness about the opinions of others."

WATSON published two volumes on the deaf and dumb,* in which he treats of stuttering, and makes the following very sensible observations on the cause and cure of this affection.

"These hesitations proceed from a sudden interruption or break in the connection of those sympathetic or linked (to use a plain word) muscular motions, that perform articulation in our ordinary discourse. This disseveration is not occasioned by any defect in the organs concerned in the formation of the sound, for then it would operate uniformly; but by the influence which external objects or circumstances have on the mind. Fear, shame, or any other strong internal feeling, will, for the moment, produce falter-

* *Instruction of the Deaf and Dumb*, etc. By Joseph Watson, LL.D. London, 1809.

ing and hesitation in speech, even in those who do not habitually stammer. Agreeably to this, we find that persons of great nervous irritability and lively consciousness are most liable to stammering. This sort of impediment is, in fact, a bad habit, founded upon this constitutional susceptibility.

"It may be observed that musical instruments afford an apt illustration of the mechanism of speech. Instrumental music is harmony of sounds produced by forces purely mechanical; and speech is modulating of sounds produced by similar forces, but more perfect, by as much as nature exceeds art.

"The organs of speech are moved by muscles, which from the laws of the animal economy are the instruments of the will. But the frequent repetition of these motions so links or associates them, that they seem to proceed by sympathy or habit; and we are conscious of an act of the will only at their commencement. Hence, anything that suddenly dis-severs them throws the whole into disorder, involuntary or convulsive muscular motions take place, and instead of the habit of regular and voluntary motions, succeeding each other in a train, if these interruptions are frequent, a habit of hesitation and stammering is introduced. This may account for the origin and progress of the first sort of impediments in speech."

After dilating on the importance of bringing persons thus afflicted to reason on the subject, he says:

"Impress strongly on their understandings, and induce them continually to keep in view, that though we cannot explain *how* mind acts on animal fibre, yet

experience proves that there exists in our frame, somewhere, a power, which we call will, whereby our muscular strength is put in motion or made quiescent; that by this power we first learnt to do these things, which repetition has converted into habit; though we are now no longer conscious of an act of will in performing them after we have willed to set about them. This may be exemplified by the acts of walking, running, speaking, writing, fingering a musical instrument, etc., and a little consideration will serve to make it understood."

He recommends the exercise of the vocal and articulating organs, and conversation; and continues: "These directions, it will be perceived, are founded upon the principles of association of ideas, than which a more powerful principle in the formation of human habits cannot be conceived. It is a trite observation that we are the 'creatures of habit.' Nothing can be more true, and we become so by the influence of this principle. To overcome a bad habit is, therefore, no easy task; but the first step towards it is to break the chain of associations by which it was brought about, by introducing a contrary tendency. What can effect this but a rational system of action, carried on with watchfulness and perseverance?"

In conclusion, he says it may be laid down as an incontrovertible position that, by these means, persons possessing an ordinary mental capacity, with an adequate share of industry and strength, may *certainly* overcome the vicious habit.

FRANK* divides defective speech into two main species—*dysphoniæ*, or defects of the voice ; and *dyslaliæ*, defects of articulation. The former is subdivided into *paraphonia*, disagreeable tones of the voice ; and *aphonia*, loss of the same. The latter (*dyslaliæ*) is subdivided into *alalia*, loss of speech or mutism ; and *mogilalia*, difficulty or impossibility to pronounce correctly certain letters or syllables. This last, again, is divided into *mogilalia ischnophonia*, or stuttering ; *mogilalia traulismus*, or rhotacism ; and *mogilalia psellismus*, which consists in softening hard consonants, etc. These two last constitute stammering. To these he adds several other defects of speech, such, for instance, as when *f* and *j* are badly pronounced, or when strange words are intermixed. Thus, one of his pupils intermixed the words *hedera*, *federa*, in the middle or at the end of every sentence.

Among the causes of *mogilalia ischnophonia*, or stuttering, Frank enumerates (following Mercurialis) bad education, depraved habit, cerebral affections, sexual excesses, etc. Stuttering, he says, is characterised by the repetition of the first syllable or word of a sentence ; and he agrees with Sauvages in saying that it chiefly takes place at the gutturals. In respect to the prognosis, he observes that stuttering seems to diminish, and frequently ceases with advancing age ; but when inveterate, it is an incurable evil. For the treatment, he says : “ It is above all necessary that a

* *Præceps Medicæ Universæ Præcepta*, chap. 11. *De vitiis vocis et loquelæ* Joseph Frank. Lipsiæ, 1811-18.

teacher practised in the art of teaching deaf mutes should take pains by repeated attempts, either by kindness or by blows, to teach the stutterer to overcome the difficulty of pronouncing certain guttural letters or syllables."

THELWALL * observes: "The treatment of impediments embraces many important considerations, besides those that have immediate reference to what is usually comprehended under the term 'elocution.' It requires a profound knowledge of human nature, only to be acquired by long and acute observance of mankind, assisted by habits of philosophical analysis and researches into the source and varieties of mental action and development. Many of the leading principles are universal in their efficacy; but almost every individual case requires a different mode of application."

Under the head of serious impediments, he mentions stuttering as "a spasmodic interruption of one or more of the organs of speech during the effort of enunciation, accompanied always with some degree of hurry or embarrassment of mind; and frequently with considerable agitation of the whole nervous system." This is more an intellectual than an organic disorder, and the original causes are terror and imitation. This he divides into (what he calls) — "*Stammering*—Inaptitude or indocility of the lips. *Stuttering*—Ineptitude or occasional indocility of the

* *Illustrations of English Rhythmus*, by John Thelwall. London, 1812.

tongue ; generally with forcible protrusion against the teeth. *Throttling*—Obstruction in the guttural organs. *Constipation*, or suppression of the voice—A spasmodic agitation, apparently affecting the bronchial tubes, or the muscles in the neighbourhood of those organs, and impeding the passage of the air from the lungs to the larynx, during some ill-directed effort for enunciation. Similar phenomena are produced by injudicious inhalation or by tenacity of breath, making a vacuum in the mouth." The general causes are, he says, "Hurried violation of the proportions of musical cadence and of the physical principle of pulsation and remission." This is proved by the fact that there is seldom any impediment in song and comparative facility of verse, and that persons frequently continue to have impediments in their conversation when they have entirely surmounted them in reading and reciting.

In another place he observes that he considers all cases of impediments, with few exceptions, complicated with moral and intellectual causes, and that they do not obviously arise out of palpable imperfections or deficiencies of the organs.

Alluding to the case of a gentleman who had a constriction of the tongue, he says, that might have prevented him from forming the sounds *th*, *t*, *d*, etc. ; but this conformation could never have sealed his lips, as it were, hermetically, when he should have pronounced an open vowel or guttural, nor to have constricted the glottis, till he was in danger of suffocation. And all these phenomena are

observed when there is no malformation whatever in any part of the organs of speech.

Commentary.—As regards the great remedy with which Mr. Thelwall cured stuttering, it was simply “rhythm”; and, as he himself says, “the rhythm of Milton is the favourite object of my system.” Long, therefore, before Colombat, was rhythm employed as the chief remedy for defective utterance.

SAVARY* speaks of this defect as follows: “Stuttering, or *linguæ hæsitantia*, is a difficulty of speech, or rather a vice of pronunciation, which consists in several times repeating the same syllable. This vice may depend on a particular conformation of the tongue, or on any other cause which impedes its movements; but it probably also depends on the character of the individual who speaks in a hurried manner, or is intimidated. What is certain is, that one sees stutterers read several phrases in succession, or even several pages, without hesitation, and who generally do not stutter in singing.”

* *Dict. des Sciences Méd.*, tome iii, p. 69, Paris, 1812. Art. *Bégaiement*.

CHAPTER III.

HISTORICAL AND CRITICAL REVIEW OF THE THEORIES
AND MODES OF TREATMENT OF STAMMERING AND
STUTTERING, FROM THE EARLIEST HISTORICAL PERIOD.

SECOND PERIOD.—FROM THE EARLY PART OF THE NINETEENTH
CENTURY TO THE PERIOD OF SURGICAL OPERATIONS.

Itard.—Rullier.—Voisin.—Astrié.—Combe.—Broster—Leigh—
Bertrand.—M'Cormac.—Arnott.—Müller.—Deleau.—Palmer.
—Hervez de Chégoin.—Wutzer.—Serres d'Alais.—Magendie.
—Schulthess.—Bansmann.—Harnisch.—Otto.—Bell.—Poett.
—Cull.—Berthold.—Warren.—Good.—Hoffmann.—Male-
bouche.—Hunt.

“A JUST story of learning, containing the antiquities and
originals of KNOWLEDGES and their sects; their inventions, their
diverse administrations and managings; their flourishings,
their oppositions, decays, depressions, oblivions, removes; with
the causes and occasions of them, and all other events con-
cerning them, I may truly affirm to be wanting.

“The use and end of which work I do not so much design
for curiosity, or satisfaction of those that are the lovers of
learning; but chiefly for a more serious and grave purpose,
which is this, in few words, that it will make learned men more
wise.”—BACON, *Advancement of Learning*, book ii.

ITARD* says: “In order to determine the cause of
stuttering, it is sufficient to dwell for a moment on
the principal phenomena which accompany it. We
may remark that what distinguishes this lesion of the

* *Journ. Univers. des Sciences Méd.* Paris, 1817.

vocal functions from others is, that it is subject to vary in intensity, which forms the principal character of nervous debility."

Further, he observes: "In those cases of stuttering which supervene accidentally in consequence of apoplexy or a dynamic fever, in the precursor of some cerebral affection, all the movements of the tongue are visibly weakened. The completely asthenic character which accidental stuttering presents, and which evidently belongs to the domain of paralysis, render the nature of congenital stuttering evident, and we cannot doubt that its proximate causes must be the same, with some modifications, *weakness of the muscles*, for congenital stuttering; *symptomatic weakness* for stuttering allied with any material lesion.

"It is impossible to mistake in the phenomena of stuttering a spasmodic affection, and in this spasmodic affection, the result of the debility of the muscular powers of the tongue and of the larynx.

"But this debility cannot be detected in the movements and tension of these muscles. Experience has proved this to me. It is only in the delicate, imperceptible movements that these organs are deficient in force."

With regard to the treatment he says: "I have no doubt the affection is curable. The remedies must necessarily be adapted to the degree and duration of the disorder. It is not sufficient to make the pupil acquainted with the mechanism of articulation, and to repeat frequently the individual sounds, but they must be studied in all possible combinations. Some

syllables are more easily pronounced, when preceded by one which places the tongue in a position favourable for their production; whilst the enunciation of them will be more difficult if they follow a syllable not affording this advantage. A good deal also depends on the vowel with which the consonant is combined; thus stutterers find less difficulty in articulating *co* than *ca*.

“When stuttering increases and extends to a great number of individual sounds and syllables, it will be necessary by mechanical means to strengthen the organs of articulation, and to lessen their spasmodic tendency. We must treat the muscles of the vocal and articulating organs like those of locomotion; and as dancing and fencing will render the latter more firm and flexible, so must the tongue and the lips be subjected to analogous exercises. I avail myself for this purpose of a small apparatus, which I place under the tongue.* The instrument is scarcely introduced, when we hear a confused, indistinct voice, but no stuttering. The most difficult syllables are articulated with some trouble, but they are not repeated. We must, however, not deprive the tongue of this mechanical support at too early a period, otherwise the defect will reappear. The apparatus should be used for a very considerable time, and when, at meals and during the night, it is removed, the patient must strictly abstain from speaking. I.

* The instrument consists of a gold or ivory fork placed in the concave centre of a short stalk, and applied by its convex surface to the cavity of the alveolar arch of the lower jaw.

cannot exactly say how long it should be worn, having only effected two cures by its agency. The first case was that of a young man, æt. twenty, who used the instrument for about eighteen months. The perseverance of the patient to subject himself to such an inconvenience for so long a period was powerfully supported by the hope of meeting, after the removal of his infirmity, with a more favourable reception from a young lady to whom he was greatly attached. The cure was complete ; but I have not been informed whether he met, in another quarter, with the success he so amply merited. The second case was that of a boy, aged eleven, who wore the apparatus very reluctantly, and removed it whenever he could do so unobserved. I saw him much improved after he had used it for eight months, and I have reason to believe, though I lost sight of him, that he ultimately recovered."

Commentary.—In comparing the phenomena of stuttering with those impediments of speech caused by cerebral affections, apoplexy, etc., it seems to me that Itard has misunderstood the nature of these very dissimilar affections, as the phenomena manifested by them respectively are so different that we can scarcely imagine how so eminent a practitioner as Itard could have confounded them. Admitting them to be of a similar nature, we might suppose their treatment to be somewhat analogous ; and then we cannot understand Itard treating a person afflicted with defective speech caused by cerebral lesion or apoplexy, simply by the aid of a mechanical obstacle placed under the

tongue. The supposition that stuttering is owing to debility cannot be wondered at, having, as we have seen, been advanced by the ancients, and adopted by Sauvages and others; but what surprises us chiefly is, that Itard should opine that those defects which come under "the domain of paralysis" render "the nature of congenital stuttering evident." Starting from such premises, it is not surprising that, even by his own account, he only succeeded by means of his instrument in effecting two cures, after a lapse of eighteen months in the first, and eight months in the second case, and did not even know whether the cures were permanent.

In the days when the real nature of stuttering was very little understood, it was not surprising that resort should be had to such unnatural appliances as a fork of silver in the mouth. Dr. Itard was one of the most distinguished French physicians of his time; and the sanction which his name gave to the use of such mechanical agents has exerted its influence down to the present day.

RULLIER* ranged himself among those authors who place the immediate cause of stuttering in the brain. He remarks that the cerebral irradiation which follows thought, and puts the vocal and articulating organs in action, gushes forth so impetuously and rapidly, that it outruns the degree of mobility possessed by the muscles concerned, which are thus, as it

* *Dict. en Vingt et un volumes*, 1821.—*Dict. de Scien. Méd. Brux.*, 1828.—*Dict. de Méd.* 1833.

were, left behind. Hence the latter are thrown into that convulsive and spasmodic state which characterises stuttering.

To substantiate this defective relation between the exuberance of thought, the celerity of cerebral irradiation, and the corresponding organic motions, he observes, that the great majority of stutterers are distinguished by the vivacity of their understanding and the petulance of their character; when advancing age clips the wings of the imagination, and ripens the judgment, stuttering diminishes, as the action of the organs is now in equilibrium with cerebral irradiation.

On the treatment of stuttering, Rullier is content to sum up those that have occasionally succeeded. The principle that has been applied, he tells us, in the mechanical means proposed, is that they oppose a sort of moderator or obstacle to the tumultuous movements of the organs of speech. These remedies are either physical or material, or intellectual. The former—the pebbles of Demosthenes and the fork of Itard—act directly on the disordered movements of the speech organs. The latter act indirectly, by means of the attention, the will, the memory, and imitation, such as the study of a foreign language, speaking in an assumed tone, and declamation in familiar intercourse.

Commentary.—Rullier's theory connecting stuttering with an exuberant imagination is certainly not new, having, as the reader may find, already been advanced by Aristotle. The connection between

thought and speech is no doubt an interesting subject of inquiry. In plain, distinct speech, good speakers do not utter more than three syllables in a second, but in rapid delivery, as many as eight or nine syllables may be uttered within that time. Yet it seems certain that a long train of thought may run through the mind during the time it takes to articulate a single word. The anxious endeavours to express these thoughts may certainly interfere with articulation in two ways. If there be no command of words, it will produce hesitation, just as its opposite a want of matter ; but I doubt much whether it can ever be the cause of stuttering, though it may give rise to rapid enunciation or cluttering. The assigned reason that stuttering diminishes with advancing age, solely in consequence of the wings of the imagination being clipped, appears to me very imaginary.

I am far from depreciating the intellectual development of stutterers ; but that the great majority of them are distinguished by the vivacity of their intellect is too sweeping an assertion. Neither can I assent to his implied deduction, that stuttering is generally the result of "mental vivacity." That stutterers are frequently distinguished by the "petulance of their character" may readily be admitted ; but this petulance is evidently the effect, certainly not the cause, of the infirmity.

VOISIN* also attributes stuttering to the irregular

* *Du bégaiement, ses causes, ses différents degrés, etc.*, by Dr. Felix Voisin. Paris, 1821.

and imperfect action of the brain on the muscular system of the organs of pronunciation. "On observing," he adds, "not merely stutterers, but individuals, distinguished by their brilliant elocution and the facility of their delivery, we shall see that the latter sometimes present all the symptoms of stuttering when they labour under some emotions which disturb their intellect, and their stuttering will be more marked in proportion to the strength and suddenness of these emotions. This evidently proves that the action of the organs of speech is entirely subordinate to the condition of the brain, and that the stuttering is the direct consequence of its incomplete reaction."

Dr. Voisin being himself afflicted with stuttering, left no method untried, from the pebbles of Demosthenes to the methods of Mrs. Leigh and Malebouche, for the purpose of removing it. Chance first led him to the discovery of the method he recommends.* He was reading a paper before a society, and wishing to do so with energy, he happened to look into a mirror which was opposite him, and perceived that he rested the border of his right hand upon his chin, in a manner so as to depress the inferior maxilla and to hold the mouth half open. The idea immediately suggested itself that this instinctive and mechanical movement might contribute to his reading more promptly and easily. In fact, upon ceasing the pressure, the difficulty of expression was quickly reproduced; but upon re-

* *Bulletin de l'Acad. Roy. de Méd.*, 1837.

placing his hand the freedom of the articulation immediately returned. Endeavouring to give an account of this, he observes: first, that the mouth was kept half open, the distance between the teeth being a line and a half. Second, that the tongue, abandoned to itself, in the state of repose, placed itself against the inferior dental border, whilst during pronunciation it is projected forwards and upwards, but is withdrawn almost immediately behind the alveolar arch. Third, that a medium pressure is necessary upon the chin: this should be sufficiently strong to resist the muscles which move the inferior maxilla, without impeding its movement of elevation, so strong as to prevent perfect approximation. To produce this pressure, and at the same time make it excusable, it is necessary to use some artifice, so that the manœuvre may not appear forced, but on the contrary, almost natural. This pressure should be made with the external border of the right or left hand indiscriminately, the thumb applied to the chin, and the fingers free. He has, he says, observed the same in other individuals afflicted with impediments.

Commentary.—There are few cases in which any benefit will be derived from the artifice recommended; it is at best merely a palliative, not reaching the cause of the evil: nor was Dr. Voisin cured by it. The pressure upon the chin during enunciation may, in some instances, give temporary relief, like many other tricks, but it can do no real good to any stut-terer, much less cure him.

ASTRIÉ* follows his predecessors by placing the cause of stuttering in the brain. He says: "The brain, by its complex texture and by the supremacy of its functions, is in some respects the dictator of the republic of organs. None of these organs is so much under its command as the organs of voice and speech. In fact, the vocal phenomena are in constant relation with the different degrees of cerebral excitement, and always correspond in their precision to the energy of the feelings and the clearness of ideas.

"There is an intimate connection between intelligence and speech.

"In congenital idiotcy speech is not developed. A well-organised man, who has long enjoyed the faculty of thought, loses his speech the moment he becomes an idiot. We daily find that when the ideas are numerous and well co-ordinated, elocution is free, easy, and agreeable. On the contrary, when the intelligence is slow, and the ideas are confused and have not a *lucidus ordo*, we become accidentally stutterers, fatiguing our audience by the multiplicity of repetitions and difficulties of articulation.....

"What I have said of the marked influence of mental affections on the phenomena of stuttering leads us to believe that the latter arise from the same source, and must be attributed to some modification in the action of the brain."

In answer to the question, "But in what consists this modification?" he adopts the theory of Rullier,

* *Essai sur le bégaiement.* Montpellier, 1824.

but he says the correctness of that conjecture must be received with reserve.

With reference to treatment, he recommends recitation, the study of the theory of articulate sounds in all possible combinations, and reading before large assemblies in order to overcome that timidity so natural to stutterers.

He adds, "By reading much the stutterer becomes familiarised with all the intricacies of our language; he learns the synonymy of terms which may enable him to avoid such as are difficult to him. Like the pedestrian who avoids the big stones in the road, the stutterer, with a well cultivated mind, will form correct ideas and acquire facility of expression."

Astrié, finally, approves the method of Demosthenes, and, above all, the fork of Itard. "Honour and gratitude," he says, "are due to M. Itard for the signal services which he has rendered to stutterers."

Commentary.—There is little to comment on in Dr. Astrié's essay, as he gives nothing original either in theory or treatment, unless the reading before large assemblies and the study of articulation may be so called. With regard to the former, there are very few stutterers who would attempt it, and fewer still who would not increase their infirmity by so doing. The latter advice is, perhaps, more rational; but is little better than useless to stutterers, who, as frequently happens, have no peculiarly difficult words, but hesitate indiscriminately at any initial sound. This advice would be more applicable to the slighter degrees of stammering.

COMBE,* or a reviewer of Dr. Voisin's theory, makes the following remarks: "If physical malformation were really the general cause of stuttering, the effect would necessarily be permanent, and would affect the same sounds every time they occurred; but the reverse of this is the truth, for it is well known that on occasions of excitement the stutterer often displays a fluency and facility of utterance the very opposite of his habitual state. But passion or excitement can never remove a physical cause, make a large tongue small, set crooked teeth straight, or tighten the ligaments of the tongue, and then let these imperfections return as soon as the storm is over." He agrees with Dr. Voisin, "that the real cause is irregularity in the nervous action of the parts which combine to produce speech."

Again: "From this view, it will appear that the cure of stuttering is to be looked for in removing the exciting causes, and in bringing the vocal muscles into harmonious action by *determined* and patient exercise. The opposite emotions, so generally perceived in stuttering, may, especially in early life, be got rid of by a judicious moral treatment; by directing the attention of the child to the existence of these emotions as causes; by inspiring him with friendly confidence; by exciting him resolutely to shun any attempt at pronunciation when he feels himself unable to master it."

* *Phrenological Journal*, vol. iv, p. 464. 1827. This article proceeded probably from the pen of Dr. Andrew Combe.

In conclusion, he says: "It is scarcely necessary to add that debility, in which this, in common with many other forms of nervous disease, often originates in the young, must be obviated by a due supply of nourishing food, country air, regular exercise, and last, though not least, by cheerful society, kindness, and encouragement."

Commentary.—The preceding observations, written more than forty years ago, deserve quoting, from their shewing that the writer entertained sound views, both on the etiology and the treatment of stuttering.

BROSTER.*—About this period a Mr. Broster, of Chester, was said to have discovered a very successful method for the cure of impediments of speech. According to his own account, he had discovered it above twenty years previous to that time, but had only from the year 1823 professed it publicly. "If his methods (he tells us) were publicly reported to the world, they would serve but little purpose to any one, without a regular course of experimental practice. A physician might communicate his *Materia Medica*, but his skill and experience could not be conveyed therewith, but must be vested in himself alone." The cures reported to have been effected are sometimes (not without reason) incredible. Such are those cases when the pupil writes to the effect that he "had an interview with Mr. Broster, and in the course of half an hour was cured of a very bad impediment in speech."

* *The Rise and Progress of the Brosterian System*, by John Broster, 1827.

Among the cures effected is mentioned that of the celebrated Dugald Stewart, who had nearly lost his speech through a paralytic affection, and who was enabled by Mr. Broster to read aloud to himself and in company. I have taken some pains to obtain particulars concerning the theory and practice of Mr. Broster. It is certain that after leaving Edinburgh in 1825, he established himself in London, where, in 1827, he published a pamphlet consisting entirely of testimonials (unsigned) from pupils, and a reprint of four articles from *Blackwood* and other magazines. In the preface of this pamphlet, Mr. Broster peremptorily declines to say anything about his system. We are, therefore, reduced to form an opinion from the scanty materials furnished by one of his pupils, who signs himself "E. D., of Cambridge," and who gives vent to his gratitude in the following lines :

"Due to him who loosed my voice, and brought
The light of words to my darkened thought ;
Not more grateful could Cain have been I trow,
Had the light of heaven been erased from his brow !"

As regards the system, he says : " It is no miracle. It is generally effective, but it is not always perfective. It is powerful, but not almighty ; a partial remedy certainly ; a total one possibly ; a nearly perfect one probably. In a word, it is only a potent remedy, not an infallible one. This is my opinion, founded on my experience. It may either exceed that of the public, or fall short of that of the inventor, both of which are about equally distant from

my wish to flatter or follow.....It is not always perfective, nor omnipotent, nor infallible, for I, I repeat, am yet uncured, who have tried it.....Explicitness is the life of information:—Of twelve cases which fell under my own observation whilst at Mr. Broster's house (including myself), it may be said that three are nearly as eloquent now as their friends, and three are nearly as tongue-tied as their enemies could wish them. The remaining six (of which I am one) are all partially or considerably relieved, both species of relief being in different degrees.....In some cases it is difficult, and in others disagreeable, to put this system in force, which makes the fallibility of the system.....Supposing it were the secret of the system that the pupil should stand with his arm extended at right angles to his body whilst speaking, and that this, whilst acted, was infallible—would the system be infallible? Certainly not.....Now, there is something, I do not say of what kind, in Mr. Broster's system, which in certain cases is required for its success, and which in these cases is not always practicable to the pupil, though when he can practice it, it is remedial. Thus much it is incumbent on me to assert: great as is my admiration of the system, I cannot allow it to be infallible, and I think, *know*, it to be my duty so to declare to the public." Such are the words of an old pupil.

Commentary.—In the year 1843 a small work was published anonymously by "A Physician," who professed to decipher Mr. Broster's method as consisting purely and solely of rhythm. This writer says: "If

any reader has ever perused the glowing annual accounts of the wonders effected by the Brosterian system, it will be understood in a moment, when the word "rhythm" is mentioned, that this is the enchanter's wand, the true solution of the Brosterian enigma.....The only means possessed by Mr. Broster was the application of rhythm."

This was, however, a hit in the dark. Broster's method did not consist in the application of rhythm, but was, in reality, the same trick as is usually attributed to Mrs. Leigh, and described as the "American method." A German writer, Dr. Julius, has had the merit of pointing this out many years ago, although it is not generally known by writers on this subject.

In the *Magazine of Foreign Medical Literature*, vol. xv, edited by Drs. Gerson and Julius, occurs the following passage: "It may be known to our readers that Mr. Broster, formerly of Edinburgh and Liverpool, has now a school for stuttering in London. His method of treatment, which his pupils must promise not to communicate (which method Broster is said to have learned from a poor man in Edinburgh), consists probably in some trick in the mode of speaking. It is either successful in a few days, or not at all. This method was transplanted from Liverpool to New York."

As regards the cure of the "venerable philosopher" mentioned in *Blackwood's Magazine*, who it seems from Mr. Broster's pamphlet was no other than Dugald

Stewart, I find in the biographical memoir of Dugald Stewart by John Veitch,* that in January, 1822, the professor was struck with paralysis. The attack considerably affected his power of utterance, and deprived him of the use of his right hand. In fact, it was what now is called a case of aphasia concomitant with right hemiplegia. But it seems that in 1824, Mr. Stewart's health was already considerably improved, for in a letter written by Mrs. Stewart to her husband's friend, M. Prevost of Geneva, she says: "He suffers no pain; his spirits are uniformly cheerful, and his mind as acute as ever. He walks between two and three hours every day; and, in fact, except a difficulty of speech and a tremor in his hand when he attempts writing, no symptoms of paralytic affection remain."

Mr. Stewart died in Edinburgh in June, 1828, after a fresh stroke of paralysis. It is, therefore, quite clear that when Mr. Broster treated the venerable philosopher in 1825, nearly all the symptoms of paralysis had already disappeared, and Dugald Stewart had comparatively recovered.

LEIGH.—*The "American Method."*—As the so-called American method constitutes an epoch in the history of Psellism, and so many contradictory reports are current touching its inventor, it is, perhaps, time (to use a popular expression) "to put the saddle on the right horse." I transcribe, therefore, the version

* *The Collected Works of Dugald Stewart*, vol. x, 1858.

of Dr. Edward Warren, of Boston,* which has every appearance of a truthful account of the rise and progress of Mrs. Leigh's system:—

“The inventor of Mrs. Leigh's system, Dr. Christopher C. Yates, of New York, a medical gentleman of high talents and very strong natural powers, had a daughter afflicted with stammering. After attentive observation and a long study of her case, he succeeded in hitting upon a method which effected a cure. This method he imparted to the young lady's instructress, Mrs. Leigh, an Englishwoman, in order that it might be pursued during school-hours.

“The inventor soon determined to extend its benefits to others. Finding Mrs. Leigh enter into the scheme with zeal and ability, he placed her at the head of the institution; and, fearful of the reproach of empiricism, he chose that it should pass under her name.....

“Two great mistakes were undoubtedly committed. The first was in attempting to make permanent cures in so short a time. The second was in attempting to qualify so many teachers. Most of them, probably, believed that the possession of the secret was all that was requisite. They were not aware that years of observation and experience, a knowledge of elocution, a knowledge of the human mind and of human nature, were requisite to make them successful teachers.....

* *Remarks on Stammering*, by Dr. Edward Warren, *American Journal of Medical Science*. Boston: 1837.

"The gentleman who invented Mrs. Leigh's system was qualified for the purpose as few men can be. Not destitute of sufficient learning, he has yet little reliance on books, and depends upon observation principally for his sources of knowledge.....

"The effect of imparting their method to so many teachers was soon apparent.....Multitudes of other persons soon set up to cure impediments of speech. It is not surprising, therefore, that the system soon fell into disrepute.

"The inventor, at first, gave directions merely for the position of the tongue, but afterwards he made great improvements in his treatment. The suppression of the voice he believed to be caused by a spasmodic closure of the glottis, the same cause to which Dr. Arnott ascribes stammering."

Such is the version of D. Warren. There are, however, other versions of this "discovery" current on this side of the Atlantic, of which the following is the most generally received:

Mrs. Leigh had been kindly received in the family of Dr. Yates (Otto writes *Jades*), whose daughter was a stutterer. Mrs. Leigh thought this a good opportunity to show her gratitude. She accordingly endeavoured to cure her pupil, and procured as many works as possible on this subject; but not deriving from them the desired information, she determined to use her own judgment, and after some trials succeeded in her object. Observing that in stuttering the tongue was fixed to the floor of the mouth, she cured her pupil by making her raise the

tip of the tongue, and keep the latter in a horizontal position.

M. Malebouche, a Frenchman, bought the secret for a round sum of Mrs. Leigh, and introduced it, in 1827, into the Netherlands and Germany. Both the Netherland and Prussian Governments considered the subject of sufficient importance to grant to those who were in possession of the secret considerable privileges, and to appoint them professors at public establishments.

Herr Bansmann contrived to obtain possession of the secret, and was appointed by the Prussian Minister for Ecclesiastical Affairs to give a course of instruction on the system in the training colleges. Bansmann, again, gives another version of the discovery. He says that Mrs. Leigh's husband was a stutterer, and that she set to work "with that practical acumen peculiar to her sex" to examine the cause of the affliction, and which after nine (others say nineteen) years' observation she accomplished. The same is asserted by Dr. Zitterland, in a pamphlet published at Aix-la-Chapelle in 1828. Both writers were personally acquainted with M. Malebouche. In the Netherlands, the King appointed a commission to inquire into the affair. The consequence was, a number of stutterers were confided to the care of M. Malebouche, who are said to have been cured. For this, his Majesty bestowed a pecuniary reward on the holder of the secret, and appointed a special instructor to cure poor stutterers gratis, on the sole condition that they would swear never to divulge the secret.

The next person who obtained possession of the

secret was a M. Charlier, a merchant, who agreed to give half his profits to M. Malebouche. M. Charlier, who was of a generous disposition, applied his share of the profits to charitable purposes, to pay the expenses of the poor travellers who came to Aix-la-Chapelle to drink the waters. Dr. Zitterland was appointed to examine all stutterers who presented themselves before and after the treatment. In his report, he says: "This method may justly be numbered among the most important and useful discoveries of this century. M. Malebouche assured me that the principles upon which it is founded threw a new light on physiology, and even on metaphysics, the correctness of which is confirmed by the success of this method! We may certainly expect that when further developed, it will cause great revolutions in medicine and psychology."

Commentary.—At the present period, it seems difficult to understand how this method attained such a wide reputation, and even enlisted the support of physiologists of great repute. The only explanation that can be given is that little or no attention had down to that period been paid to impediments of speech by scientific men, and consequently any remedy for the relief of an apparently intractable infirmity was gladly welcomed. A simple investigation of the phenomena of stuttering shows that the chief point insisted upon by Mrs. Leigh—namely, that in stuttering the tongue is fixed against the inferior incisors—is not true.

It affords abundant evidence, if any were needed,

of the large amount of ignorance prevalent half a century ago, not only respecting the true nature of defective speech, but also respecting the physiology of the organs of speech. Angermann accuses the French authors on stuttering of being the cause of the attention which has been directed to the advocates of this method. We cannot, however, allow that the French authors are wholly to blame in this matter. Both French and German authors may be fairly charged with giving a prominence to this method it never deserved. Had it not been for the discussion it called forth, it might have been passed over in entire silence.

BERTRAND.*—When, in the year 1828, Magendie read to the academy the report on Mrs. Leigh's method, as introduced by Malebouche, Professor Bertrand made the following observations:—"Our investigations as regards the treatment of nervous affections have long since convinced me of the possibility of curing stuttering. Stuttering is a spasmodic nervous affection, which, like all diseases of the same kind, is eminently susceptible of being advantageously combated by a suitable moral treatment. We are not acquainted with the kind of vocal gymnastics which Mrs. Leigh employs; but we are convinced that these gymnastics have, by themselves, no specific efficacy, and that any method which tends to occupy the attention of the stutterer whilst speaking may for the time being cure him of his infirmity. It is well

* *Archiv. Gén. de Méd.*, 1828.

known, that those whose pronunciation is most defective can sing without any difficulty. Why? Because the attention required to follow the measure, and the emotion which attends singing, produce the distraction which we have mentioned. We thus have a choice of a number of processes more or less ingenious. Oblige the stutterer to modify, whilst speaking, his respiration in such or such a manner; to confine himself exclusively to this or that peculiarity of enunciation; to precede each phrase with this or that syllable; force him, if you like, to speak with pebbles in his mouth, as Demosthenes did, or confine him to certain regular motions of the fingers or toes, and you will cure all those gifted with sufficient force of will to execute these motions in speaking. These ideas are probably very different from those which enter into the method of Mrs. Leigh, and those who sell her secret. With regard to the latter, it must be admitted, that it is even good that they spread the idea of possessing a special efficacious method. We are too much convinced of this truth, which we do not hesitate to express, that from the moment the method shall cease to be a secret, the number of cures will gradually diminish; and we shall, as regards stuttering, have again to observe that, like all other secret remedies the success of which has been proclaimed by so many skilful observers, it will cease to be efficacious after having been made public, simply because it has lost the prestige of mystery which at first surrounded it, and which made its due impression on the patients."

Commentary.—These observations of Professor Bertrand are a somewhat *ex parte* statement respecting the great influence which is exerted on stutterers by a withdrawal of the attention. No doubt, most stutterers can sing, and many can also act any other character, and imitate the voice of any other person. For a time, at least, they can nearly do all this: but this voluntary imitation of some one else cannot go on for any length of time, and even if it could, experience has shown that after a little time persons begin to show their defect even in the assumed tone. As to the tricks of motions of the fingers, it is well known that they afford only very temporary relief, and tend eventually more to aggravate than remove any nervous defect of speech. Professor Bertrand's observations respecting the advantages of secrecy would be most sound, if we only had to act on the imagination. But stuttering is more or less a functional disorder. It is true that it is often excited in the brain: but after a time it simply becomes a habit. We must bear in view also that Professor Bertrand's observations were made more than forty years ago, and we will hope that the day for giving credence to these exploded nostrums is gone for ever. Physiology is now a popular study, and it is only by disseminating the truths we are taught by it that we can successfully eradicate any misuse of the organs of speech. No cure, indeed, can be permanent or satisfactory which has not been effected by natural laws based on sober reason: all influence on the imagination is temporary.

M'CORMAC,* being in New York in 1826, was given to understand that a Mrs. Leigh, of that city, was very successful in the removal of impediments of speech. He is reported to have said that what a woman had done, he might possibly do likewise.

Dr. M'Cormac now employed much of his time in pondering on this subject, until he arrived at the acme of his desires: for it suddenly occurred to him that the proximate and sole cause of stuttering was an attempt to speak when the lungs are in a state of collapse, or nearly so.

"In this," says M'Cormac, "consists the discovery hitherto made by none. The patient endeavours to speak when the lungs are empty, and cannot. We can utter a voice without speech or words, but not the latter without the former."

In the preface of his treatise, he uses the following somewhat pompous terms: "That the following work will communicate, without the possibility of a failure, to the reader, whether medical or otherwise, the means of curing habitual stoppage of speech, may appear at first sight a little paradoxical, when we consider that thousands of years have elapsed without any individual having ever been able to discover and communicate to the world any means by which the distressing affliction could be alleviated. But any scepticism that may exist on the subject will quickly vanish when the stutterer, once

* *A Treatise on the Cause and Cure of Hesitation of Speech, or Stammering.* By Henry M'Cormac, M.D. London: 1828.

in possession of the means, shall essay them on himself, and find that, without trouble or difficulty, he may learn to speak with the same facility as other men. The peasant and the artisan will equally receive the benefit of this communication; and that which for many centuries wealth could not purchase will now be placed within the compass of even the most abject poverty." He further says, that "we may rationally expect that in the course of a year or two, both in Europe and America, confirmed stuttering will only be a disease to be spoken of as a thing of the past, or only to be witnessed in persons afflicted with insanity," After giving an account of the various methods that had been used, from the pebbles of Demosthenes to his time, he proceeds to expound, with "unerring certainty," the discovery "hitherto made by none."

"I have," he says, "the satisfaction of assuring the reader, that habitual stuttering, however severe its form may be, will invariably yield to his efforts in a greater or less space of time, if he employs with constancy the means which I shall dictate. It would, no doubt, be very desirable that some mode of cure could be devised, while the patient remained passive the while;" but "the quickness of the cure must depend solely upon the earnestness of his own exertions....."

"The main thing to be attended to, and which, in fact, is the groundwork of the whole system of cure, is to expire the breath strongly each time when attempting to speak, the lungs being previously filled to the utmost; or, in other words, to reverse the habit

of stuttering, which is that of trying to speak without expiring any air."

Commentary.—Dissenting from Dr. M'Cormac's assumption that stutterers always try to speak with empty lungs, I hold that the remedy which he proposes, viz., to fill the lungs to their utmost extent, and to expel the words with force, is entirely inapplicable. In most instances, the practice recommended is more likely to aggravate the impediment than to remedy it. The regulation of the breath is no doubt of the utmost importance in all cases; but it certainly must not be effected in the way indicated by Dr. M'Cormac; and as the late Mr. Hunt remarked in 1846, "his system has long since been proved to be fallacious."

The error into which this author has fallen must be partly attributed to the false premise from which he started, namely, that voice is indispensable to articulation. "We can," he observes, "utter a voice without words, but not the latter without the former." The stutterer should, therefore, cause his vocal cords to vibrate, and that he can only effect by forcible expiration. Now, it is well known that in whispering we articulate perfectly, without producing any voice. A person whose vocal cords are obliterated from disease may still be able to whisper out his thoughts; the voice is gone, but the articulation remains.

Finally, we have seen that the essential point, "a deep initial respiration" before attempting to speak, had already been insisted upon by Avicenna, and, no doubt, long before him. I am only surprised that

this has not been found out by some of the many authors on stuttering.

ARNOTT* says : "The most common cause of stuttering, however, is not, as has been universally believed, where the individual has a difficulty in respect to some particular letter or articulation, by the disobedience to the will or power of association of the parts of the mouth which should form it ; but where the spasmodic interruption occurs altogether behind or beyond the mouth, viz., in the glottis, so as to affect all the articulations."

Starting from the principle that the closure of the glottis is the chief cause of stuttering, it follows that a stutterer is instantly cured, if, by having his attention directed to it, he can keep it open. In order to effect this, Dr. Arnott advises to begin pronouncing or droning any simple sound, as the *e* of the English word *berry* ; whereby the glottis is opened, and the pronunciation of the following sounds is rendered easy. The words should be joined together, as if each phrase formed but one long word, nearly as they are joined in singing : if this be done, the voice never stops, the glottis never closes, and there is, of course, no stutter. With regard to the strangeness of such a mode of enunciation, Dr. Arnott observes : "There are many persons not accounted peculiar in their speech, who, in seeking words to express themselves, often rest long between them, on the simple sound of *e* mentioned above, saying, for instance,

* *Elements of Physics, etc.* By G. Neil Arnott, M.D. 1828-9,

hesitatingly, 'e I e.....think e.....you may,'—the sound never ceasing until the end of the phrase, however long the person may require to pronounce it." Dr. Arnott continues: "Were it possible to divide the nerves of the muscles which close the glottis, without at the same time destroying the faculty of producing voice, such an operation would be the most immediate and certain cure of stuttering; and the loss of the faculty of closing the glottis would be of no moment."

MÜLLER* agreed with Dr. Arnott in considering the immediate cause of stuttering to be a spasmodic affection of the glottis, and that the cure must, therefore, be effected by conquering this morbid tendency to closure by voluntarily keeping it open. For this purpose, Dr. Arnott advises that the patient should connect all his words by an intonation of the voice, continued between the different words, as is done by persons who speak with hesitation. "This plan," observes Müller, "may afford some benefit, but cannot do everything, since the main impediment occurs in the middle of words." He, therefore, advised, in addition to Dr. Arnott's plan, the following procedure: "The patient should practise himself in reading sentences in which all letters, which cannot be pronounced with a vocal sound, namely, the explosives, should be omitted, and only those consonants included which are susceptible of an accompanying

* *Elements of Physiology.* Johannes Müller. Translated by W. Baly, M.D. 1857.

intonation, and that the sound should be much prolonged. By this method, a mode of enunciation would be attained, in which the glottis is never closed, owing to the articulation being combined with vocalisation. When the stammerer has long practised himself in this manner, he may proceed to the explosive sounds. In such a plan of treatment, the patient himself would perceive the principle, while the ordinary method—that of Madame Leigh—is mere groping in the dark, neither teacher nor pupil knowing the principles of the method pursued.”

Commentary.—The so-called spasmodic closure of the glottis, considered by Drs. Arnott and Müller and their followers as the chief cause of stuttering, is, I am convinced, not a cause, but an *effect*, produced by the misemployment of the respiratory and vocal organs—in short, by the application of inadequate means to surmount the difficulty. If the contraction of the glottis were *spasmodic*, in the proper sense of the term, the patient would scarcely have the power, which he undoubtedly possesses, even in the severest form, to arrest it instantly by silence.

Again, stuttering does not, as frequently asserted, occur only at the explosive sounds, hence, the omission of these letters in the exercises, as recommended by Müller, will not always stop the paroxysm.

Those who make use of the trick of an intervening *e* sound for the purpose of keeping the glottis open, must be reminded that, in order to derive any benefit from this artifice, the next sound must closely follow, otherwise the glottis will again contract. That such

a mode of drawling enunciation attracts, comparatively, little notice, is a proposition to which I cannot subscribe. In some cases it is, perhaps, more disagreeable to the listener than the original defect. In justice to Dr. Arnott, it may be observed, that he expressly states, that though the simple sound *e* of the word *berry*, is a means of keeping the glottis open, there are many cases in which other means are more suitable, as the intelligent preceptor soon discovers.

A medical writer* makes the following sensible observation on this method:—"My experience induces me to believe, that if it is looked upon as a panacea, and consequently insisted upon in all cases, and amongst them in many nervous cases, where success does not immediately result from the system, it may only cause the substitution of one sort of stammering for another, and that perhaps of a worse kind than the original stammer."

DELEAU† divides defective speech into three species, the two first being stammering, the third stuttering. 1. The first is owing to vicious habits contracted in infancy, and is called *grassement*, *lambdacisme*, *sessement*, *hottentotisme*. This is only a vice of pronunciation consisting in the bad articulation, or in the substitution of one sound for another. 2. The second is caused by an organic lesion, and constitutes that continuous stammering observed in apoplectics, paralytics, idiots, and in persons having a notable lesion

* *On Stammering*. By Bacc. Med. Oxon. London: 1850.

† *Acad. des Sciences*, 1828.—*Mémoire sur le bégaiement*, *Revue Méd.*, t. i, p. 148. Paris: 1829.

in some of the organs of speech. 3. Of the third,—stuttering, he distinguishes three kinds : first, *bégalement lingual ou loquace*. The persons thus afflicted repeat the sounds with extreme volubility. The tongue only is at fault in this kind. Second, *bégalement labial ou difforme*. The stutterers in this case seem unable to open the mouth. They utter smothered, bellowing sounds ; they contract the facial muscles with violence ; open and shut their eyes, and contort all the features. Lastly, *bégalement douloureux ou muet*, characterised by the difficulty or impossibility of producing any sound, despite great efforts manifested in the chest and diaphragm. The aperture of the glottis is so constricted that respiration is for a time suspended.

The cause of these three kinds of stuttering Deleau considered as “an infirm will, an incomplete cerebral action ; or, it may be, an insufficient innervation for the proper government of the organs of speech.”

He begins the exposition of his method by deploring the fact, that we no more perceive the movements going on in the mouth while talking, than we do the movements of the stomach during the process of digestion. He, therefore, teaches the stutterer the positions of the organs in emitting and modifying the sounds, and endeavours to make him, as far as possible, forget that the ear has been hitherto his sole guide in speech. The letters of the alphabet must no longer represent the sounds, but must be made to denote the position of the organs. This answered, he tells us, very well in reading, but in conversation, being

obliged to think, the mind ceased its action upon the organs of speech. To remedy this, Deleau proceeds as follows:—The letters of the alphabet have become so familiar, that no sooner are they seen than the attention is directed to hearing. “Could we not,” says he, “in the same way represent the movements of the organs by other arbitrary signs? Nothing more easy. By studying them the attention would be drawn to this system, as the signs of the alphabet fix that faculty to the organ of hearing.”

Commentary.—Oré observes on this method that it is “an ingenious idea, but difficult of application. It necessitates a power of the will which few stutterers possess, and before which their efforts will fail.” To which I may add that the method in no respects corresponds to what Deleau considers as the cause of stuttering. How the method proposed is calculated to strengthen the nervous influx to the organs is difficult to imagine. Moreover, he says, that the plan succeeds whilst the pupil is reading, but fails mostly in conversation. What “arbitrary signs” can be devised for the pupil to read or observe during conversation? On this point Deleau is not very explicit.

Deleau’s classification deserves considerable commendation considering the period at which it was put forward. The cause which he assigns for his three species of stuttering evinces a deep study of the nature of this affection. The theory is faulty in so far as it is too dogmatic and too general. If Deleau had merely said that the cause of stuttering in the greater number of cases was an “insufficient innerva-

tion for the proper government of the organs of speech," he would have had the merit of being one of the first who had ascertained and described the true nature of most species of stuttering. As it is, our author's place in our historical survey is one of considerable eminence, although his labours in this department have been scarcely recognised by many authors who have written on this subject.

PALMER* says: "There are some morbid affections, which, although for the most part of physical origin, are yet signally kept up and aggravated by the operation of moral causes. Among these, *impeded elocution* holds a conspicuous rank. This affection, from the popular ignorance of its real source, the singular and varying character of its attendant phenomena, the restraint and misery which it inflicts, and, more than all, from the notorious failure of every remedy hitherto employed for its *permanent* removal, possesses a strong claim on the attention of the enlightened philanthropist, and is eminently calculated to excite the curiosity and call forth the talent of the moral and medical philosopher."

"Difficult or imperfect utterance admits of division into two distinct kinds, according to the peculiar source of the disease. These are the organic and the functional.....

"The infirmity, when arising from defective construction of the cerebral mass, or consequent on its fixed disease, is incurable.

* *Popular Illustrations of Medicine*, by Shirley Palmer, M.D. London: 1829.

“*Functional defect* of elocution is, as its distinctive title imports, wholly independent of malformation, or any morbid change in the structure of the organs of speech. It results simply from derangement of their functions. It constitutes by far the most common form of defective utterance.....

“The *exciting causes* of impeded utterance are various. Most commonly, it may be traced to some powerful shock inflicted on the nervous system by severe disease, or a violent moral impression ; sometimes to the well-known influence of the imitative propensity. Some original peculiarity in the constitution of the mind is, however, probably requisite to *pre-dispose* an individual to the operation of these causes.

“The irregular action of the muscular apparatus of the chest, larynx, and mouth, which constitutes the *proximate cause* of impeded utterance, once established, will acquire confirmation from habit, and, like many other diseases, become independent on the cause from which it originally sprung. Several varieties of impediment may be distinguished in practice ; but a particular discrimination of them would be superfluous, since they are referable to no diversity of origin ; and the same principle of moral discipline is, with slight modifications in the empirical method of treatment correctly applicable to the whole.

“Impeded utterance in its nature and phenomena exhibits a closer affinity with chorea than with any other morbid affection.

“It is very curious, and, according to the writer’s experience, an invariable fact, that in defective articu-

lation from a merely functional cause, the most inveterate stammerer, when alone, or believing himself alone, can articulate without the slightest embarrassment or unnatural effort, and without particular attention to the process of verbal delivery. He can even speak or read aloud with the most perfect facility before a congregation of persons, however numerous, provided they are speaking at the same time ; and he consequently feels that the attention of the assembly is not directed upon himself. But the moment the solitude of the stammerer is, in the one instance, broken in upon ; or, in the other, the company among whom he is declaiming becomes silent, the brain loses its salutary control over the organs of voice and speech, and his progress is arrested."

Commentary.—Dr. Palmer, it appears, laboured, like most other authors on stuttering, under a severe impediment of speech, which he vainly tried to conquer. His observations on this infirmity are, however, on the whole, so judicious, that it is greatly to be regretted that he did not fulfil his promise of writing "a philosophical inquiry into the cause of the phenomena and treatment of impeded speech." Very likely he found the task more difficult than he expected. I may have to recur to some observations of this author when considering the treatment of stuttering.

HERVEZ DE CHÉGOIN* says: "Stutterers, hitherto convinced of their incurability, have resigned them-

* *Recherches sur les Causes et le Traitement du Bégaiement.* Paris : 1830.

selves to their fate, some with indifference, resulting from their character or profession: others, on the contrary, felt much grieved, owing to the obstacles they met with, the consequences of which they had nor foreseen. They might have consoled themselves, had it been confined to jokes, which were too old and too frequently repeated to be offensive; they might have laughed with those who laughed at them; for this singular infirmity does not even excite in those who witness it that feeling of compassion which other disorders usually arouse. How could it be otherwise! How could a rational treatment be devised for an affection of which the cause was not known! Some placed the cause in the chest; others in the tongue; some in the larynx; others in the brain. Uncertain as to the cause, traditional remedies were resorted to. We were told of Demosthenes and his pebbles, but by some fatality pebbles don't cure stuttering now-a-days. We were then recommended to articulate slowly; but the reason why was not known." M. Chégoin then resolved to investigate the matter. For this purpose he placed himself before a mirror, and came to the conclusion that in pronouncing each syllable separately he did not stutter, but that it was in the transition from one mechanism into another that the impediment takes place. The cause of stuttering, he contends, is in the tongue;—"In the disproportionate distance between the length of the tongue and the points of contact in the buccal parietes. The latter may have the most varied conformation without producing stuttering,

provided the tongue can easily reach them at the points of contact necessary for the formation of syllables. The tongue, on the contrary, contains the cause of stuttering if it wants but a line in dimensions in order to reach, without effort, the points of contact; or if it contains some inherent impediment to the change of its form and position." The reason, he contends, why no difference is perceptible between the tongue of stutterers and non-stutterers is that it is not *absolute*, but only *relative*. As an illustration of this view, he continues: "Let us suppose two wheels, the action of which depends on the reciprocal contact of their teeth, but that one of the wheels contains one tooth less than the other wheel, be it one-tenth or one-twentieth of a line, or less, in short, just sufficient to prevent the contact. Here it is not the eye which perceives the want of contact, but it becomes known by the defect of their action. The comparison will be more striking by applying it to a musical instrument, the sounds of which depend on the contact of the small points fixed upon a cylinder, and determining the opening of the sonorous tubes,—a bird-organ, for instance. If there be only one-hundredth of a line wanting, the sound required will not be produced, and it is the absence of the note, and not the eye which informs us of it. In the same way we perceive by the badly pronounced syllables the cause of the bad pronunciation, more easily than by inspection." M. Chégoin also contends that it is not sufficient that the tongue should be long enough, but that it must not be *too* long in order to

avoid stuttering. "It seems here," he says, "as in other functions, nature has not confined our organs within strict limits. On the contrary, in order that their action should be more complete, and less obstructed by slight causes, nature has enlarged their capacity. For this reason we find that the epiglottis is larger than is necessary for covering the entrance of the larynx; the stomach can be dilated more than is necessary for the support of life. All the respiratory forces are not put in action at every respiration; every muscle does not in its ordinary action display all the contraction it is capable of. In the same way, I believe, that the tongue, in order to possess all proper conditions, must possess dimensions larger than are strictly necessary. Hence, when it descends beneath that point the difficulty commences, and stuttering is the result. . . ."

If, then, he found that the cause has its seat in the frænum, he divides it; and if he thought the tongue to be too short, he doubles the dental arches by inserting a silver arch, by which they are brought nearer the tongue.

Commentary.—That cases of congenital malformation of the tongue or of its frænum do now and then occur is undeniable. But it cannot be sufficiently repeated that such abnormal conditions give rise to stammering only in the first instance, and may eventually degenerate into stuttering. What chiefly concerns us here is that M. Chégoin looks upon the abnormal condition of the frænum as the main cause of stuttering, and consequently holds that the division

of the ligaments is the chief remedy. But when we inquire how far he succeeded in curing stuttering by this method, the reply is far from being satisfactory. M. Chégoïn gives us only three cases. The first he acknowledges to have been a complete failure; for the stutterer spoke worse after the operation. The next case was a child, aged two, who had only stuttered once, and the operation was followed by speech exercises, and the pupil was cured. The third was a child who had not yet learned to speak, but commenced speaking a fortnight after the operation. These results speak for themselves, and need no comment to point out their value. One merit is certainly due to our author: he strongly recommends the old maxim, "Prevention is better than cure." In adults, he has not much faith in the treatment by operation. In all cases he strongly insists that the "ulterior exercises" must be perseveringly attended to, and it is to the neglect of these that he attributes the failure of previous sections of the frænum.

WUTZER* attributes stuttering to the abnormal position of the tip of the tongue, which is applied to the fossa beneath the inferior incisions. This he tried to remedy by a mechanical appliance, called a *glossomochlion*,† having for its object to prevent the tongue from entering this cavity. This instrument, consisting of a thin plate of gold or platinum, is made to correspond with the cavity of the lower jaw on a

* *Deutsche Klinik*. An article on Stuttering, by Professor P. Wutzer. 1850.

† Tongue-lever.

level with the incisors, and is fixed to the side of a tooth like artificial setting.

SERRES D'ALAIS* considers stuttering a nervous affection, presenting two well-marked aspects. The first resembles chorea of the muscles which modify the sounds; in the second, there obtains a tetanic rigidity of the muscles of phonation and respiration. In the first, the will loses the power of influencing the rapid motions of the lips and tongue; in the second, the respiration is obstructed. To cure a slight stutter, it is sufficient to pronounce briskly every syllable: for courage, you must pronounce rapidly *cou-ra-ge*. When this stuttering is severe, this simple kind of gymnastics is insufficient; the arms must join in the movements. The stutterer must be shaken by the arms at every syllable, or he may do it himself, and he will be surprised at the facility which these motions will give him.

Commentary.—Unfortunately, from the author's experience, the remedy proposed has frequently the opposite effect. It succeeds in some cases at first, but when the novelty is gone, the stuttering is generally worse. In his first treatise on the subject, M. Serres asserts that he had by the means advised effected a cure on himself; but in a subsequent treatise, read before the Academy in 1838, he greatly detracts from the importance of the method—or, more correctly, trick—by candidly admitting that the cure is not by such means complete, and that even in his own case,

* *Mémorial des Hôpitaux du Midi, année 1829.*

his stuttering returned when the attention was withdrawn from the method.

In short, he had his doubts about the radical cure of stuttering. This seems to have aroused the ire of Colombat, who offered to cure M. Serres of his remaining difficulty of speech. M. Serres is said to have replied, "And I offer to prove by an extemporaneous discourse on any given subject that I speak better than you"—a challenge which M. Colombat declined, as he had no desire to enter the lists with an adversary who pretends to be a modern Demosthenes.*

MAGENDIE† attributes stuttering to a want of instinct—a sort of organic intelligence, as will be seen from the following passages: "Most of the muscles subservient to both speech and deglutition act without our being perfectly acquainted with the part played by each of them. We produce voice, we articulate, without exactly knowing what movements pass in the larynx or in the mouth; we attain our object—that is all."

The admirable mechanism by which the most complex acts are effected is, according to Magendie, dependent on an organic intelligence as marvellous as intelligence itself. It is this organic intelligence which presides over the innumerable movements necessary for the production of voice and speech: it is, therefore, this instinct which stutterers are in want of.

"That stuttering may be cured," he says, "there is

* Letter by M. Colombat to the Editor of the *Lancette Française*, April 13, 1837.

† *Journ. Gén. de Méd.* 1828.—*Dict. de Méd. et de Chirurg. Pratique.* 1830.

no doubt, and it is not necessary to go so far back as Demosthenes and his pebbles. We know that there are stutterers who, by means of a strong will and driven by necessity, have freed themselves from their infirmity.....Such only as are by nature endowed with the requisite moral force have succeeded in conquering their infirmity. In all cases, the method of acting on the movements of the organs of speech were more successful than a real therapeutic mode of cure."

Commentary.—I cannot agree with a recent French writer, Dr. Oré, in his strong condemnation of the expression, "organic intelligence" (*intelligence organique*). Magendie expressly says that he means *instinct*, and there is no doubt that this term is, though in common use, equally undefinable. By this "organic intelligence," Magendie understood many complex acts which seem mechanical, and are, as we now generally express it, automatically performed. "We should never forget," he observes, "that most movements of the tongue are instinctive, and do not directly depend on the will."

SCHULTHESS* considered the spasmodic closure of the glottis as the proximate cause of stuttering. He adds: "The direct communication of the nerves of the larynx with those of the organs of speech, especially with the tongue and those of the respiratory organs, explains (as the association of their functions

* *Das Stammeln und Stottern.* By Dr. Rudolf Schulthess. Zurich: 1830.

during speaking) how the spasm of the muscles of the vocal ligaments in stuttering may extend to the other organs. Hence we can also explain why stuttering, the *hæsitatio vocis*, or even perfect aphonia, may not only originate from an irregular or imperfect reaction of the brain upon the muscles of the vocal organs, but may take place when the reaction of the brain is perfectly normal; when, namely, there is reaction from the sympathetic nerve or from the abdominal nervous plexuses. Hence, also, the emotions which, according to the ancients, have their seat in the heart, stomach, liver, etc., may exert so great an influence on stuttering.

“The glottis stands to the other organs of speech, especially to the tongue and the lips, in a similar relation as the iris to the eyelids and the muscles of the eye. There is also a certain analogy between stuttering and the photophobia, or winking of the eyelids, as seen in hysterical persons; whilst the various kinds of stammering may be parallelised with squinting, and other defects of motion of the eye and eyelids.”

“A rational treatment of any disease must be founded upon the knowledge of its nature and its causes. Until these are known, every treatment, however successful, is mere empiricism. But when the rational physician has ascertained the nature of the disease and its causes, he is enabled, according to the rules of science and art, to form a plan of treatment with every probability of success. When experience in a sufficient number of cases has justified the expectations, the physician may be said to be in

possession of a method of cure of the disease. The experienced practitioner knows how to adapt the treatment to individual cases, and to modify it accordingly."

Schulthess distinguishes idiopathic, symptomatic, and sympathetic stuttering. The first depends upon want of harmony between innervation and the action of the vocal and articulating organs. Stuttering, the result of imitation, is idiopathic.

Stuttering is sympathetic, if the disorder of the larynx is consensual, owing to an affection of the brain, or of the abdominal viscera.

Symptomatic stuttering generally disappears with the affection of which it is the symptom.

In symptomatic stuttering, we must combat the affection of which it is a symptom. When stuttering is sympathetic, the treatment must be directed to the primary evil which produced it, and which has chiefly its seat in the abdomen and the brain. But though stuttering may originally be a secondary symptom, it may, by long continuance, become idiopathic; we must then, after having removed the original cause, direct our attention to the spasmodic affection of the larynx, which may still remain.

Though agreeing with Dr. Arnott as to the spasmodic state of the glottis, he doubts whether the enunciation of a simple vowel sound will much relieve the stutterer. Dr. Schulthess concludes his work by expressing a wish that some person would take the trouble of embodying, in a single volume, all the methods which have occasionally succeeded, so

that the practitioner may have his choice of remedies in case of failure.

Commentary.—Dr. Schulthess's work is, in many respects, a very meritorious performance. He does not, however, appear to have enjoyed much opportunity for practice. Hence his views are theoretical, and his fault consists in having treated the subject chiefly from a medical point of view. Though fully admitting the paramount importance of a psychical treatment, which, as he observes, has been successfully employed when medical treatment only aggravated the disorder, he still considered stuttering, in most cases, a disease, or symptomatic of a corporeal affection—an opinion which is daily losing ground, and which I cannot at all agree in. This opinion, no doubt, partly resulted from the confusion of this evil with stammering resulting from various spinal, abdominal, and cerebral affections; but though these affections may co-exist with stuttering, they by no means can be said to constitute the affection. Again, these diseases may be the exciting causes of stuttering, but they are not necessarily so, for it is well known that every one thus afflicted does not consequently stutter; and Schulthess himself admits that there must be a certain predisposition on the part of the individual in order for these diseases to result in stuttering.

BANSMANN,* whilst giving a course of instruction

* Preface to *Das Geheimniss Stotternde und Stammelnde zu Heilen*. G. F. Otto. Halle: 1832.

by order of the Prussian Government, on the American method, published a short pamphlet on this subject. He says: "I soon became convinced by experience that this method contained only a *part* of a perfect mode of treatment, inasmuch as all patients do not stutter, because they in speaking press the tip of the tongue against the lower teeth." He accordingly tried to perfect it. "To obtain our object," he continues, "it is solely necessary to show the stut-terer the way to form the first letter." He divides the letters into breath, tongue, and lip letters. Of the first (the vowels, etc.), he says: "Those who stutter at the breath letters usually compress the trachea and the lungs in such a manner that the breath which afterwards, by means of the glottis, forms the sound, does not reach the latter, but remains in the chest. Here the method of Mrs. Leigh, to raise the tongue, affords no aid whatever." The second kind, the lingu-als, are to be remedied by the raising of the tongue; but in the last, the labial stuttering, the method is likewise useless. Herr Bansmann, in order to remedy the defects of the method, teaches the stut-terer the way to expire and the way to form the labials. This is the extent of his plan; but, he says, "The whole method of cure will rarely lead to a happy result unless the teacher combines experience with *inde-fatigable perseverance*."

Commentary.—The supposition that the only thing necessary for the cure is to teach the stut-terer the way to form the first letter, is without foundation. The initial sound is certainly in most cases a great

obstacle to the stutterer, though it is an error to suppose that it is invariably so. Another error is to suppose that the trachea and lungs are so compressed that the air cannot reach the glottis. In such cases, the interruption takes place in the glottis itself through the violent action of the speech-organs, and it is this that gave rise to the theory that the spasmodic closure of the glottis was the cause of stuttering.

HARNISCH,* in a prefatory article to Otto's work on this subject, says: "Stuttering is a stoppage of the sound, which is caused by pressing forcibly the larynx upwards, closing the glottis, and placing the posterior part of the tongue against the velum. This stoppage of the sound may have arisen from a certain tremor of the body, through fright or other causes: it then may become habitual, and is communicated to all the organs of speech. As stuttering is solely a stoppage of the sound, it may, if not too severe, be removed if the patient wills it earnestly.....The stutterer can properly only stutter at the initial consonant, because the sounding of the vowel removes the difficulty. Hence stuttering is chiefly observed at the beginning of the word, but it may also occur at the beginning of middle syllables. The latter is, however, rarer, because when the first syllable is formed, the following one is easily conjoined with it. It is also found that some stutter at words commencing with a vowel. This arises from the stutterer thinking

* Preface to *Das Geheimniss Stotternde und Stammelnde zu heilen*. G. F. Otto. Halle: 1832.

of the following sound before he has performed the first." He distinguishes three external species of stutterers. 1. The stutterer is at *g* and *k* advised to raise the tongue in front.

2. At *d* and *t*, to touch very slightly with the tongue the crown of the superior incisors.

3. At *b* and *p* (*v*, *f*) the stutterer is to be cautioned against strongly pressing the lips against each other or against the teeth.

Commentary.—The theory that stuttering is merely a stoppage of the sound is contradicted by every-day experience. At the explosives, *b* and *p*, etc., the sound is naturally not produced till the letter is ready to be articulated; but the difficulty of forming these letters does not lie solely in the stoppage of the sound. This is proved by the fact that in forming the continuous consonants (*v*, *m*, *n*, etc.), the sound is not only produced, but continued; still the stutterer does not proceed with the word or syllable. The method recommended for the treatment is merely a modification of the American trick. The precepts as to the formation of the letters are no doubt advisable, but they apply more to stammering—that is, defective articulation—than to stuttering, for which they are intended.

OTTO,* after considering the phenomena of stuttering, comes to the conclusion—1. That no sound is defectively articulated; 2. That the defect in speaking does not affect the sounds themselves, but only

* *Loc. cit.*, 1832.

their connection with each other ; 3. That the retarded or interrupted union of the sounds is not founded on the difficulty of articulating them, but on their mutual position ; 4. That the inability of producing a sound is only momentary ; 5. That there exist no organic defects in the organs of speech, as all sounds of the words can be separately articulated. " We must, therefore," he continues, " not seek for the cause of stuttering in these organs. On assuming that stuttering arises when the vowel of a syllable or a word is impeded—that is to say, when it is not sounded, when it does not conjoin with the succeeding consonant—then our attention is necessarily directed to the voice, and consequently to the vocal organ..... It is, however, possible that the nerves supplying the muscles of the larynx may be morbidly affected, by which the normal function of the muscles is disturbed, and the voice is thereby impeded." He then observes that as the nerves which govern the vocal organs are in immediate connection with the brain, it is clear that the mental influence must be normal for the proper functions of the muscles. But when this is disturbed, the function of the muscles will be disordered.

" Every action," he continues, " represents force ; therefore where there is action there must be force. But the acting force may be weakened by special circumstances, and be neutralised or overcome by an antagonising force." Thus, as the vocal organs and the acting force represent antagonisms and differences, the normal function of the vocal apparatus

depends partly on the condition of its parts, and partly on the condition of the organs governing them. The remote causes of stuttering, he therefore assumes, are partly psychical, partly dynamical, and partly material. The psychical depend on the action of the soul; the dynamical are such as cause debility of the acting force, as mental labour, sexual excesses, etc.; and the material are such as affect the condition of the vocal organ itself.

Commentary.—I do not purpose now to follow Herr Otto into the psychological aspects of the question which he has here presented, further than to say that, with some modifications, I agree with him. Otto's work well illustrates the advantage derived by a study of mental phenomena in relation to speech defects. His work, although containing very many physiological blunders, is one of the best systematic works of this period. Our author ridicules the idea of any one ever expecting him to lay down instructions for the cure of all cases of stuttering, and in this he has shown himself to be somewhat in advance of his contemporaries.

BELL* attributes to the pharynx a much greater share in articulation than is generally allowed. He considers that this smaller cavity is substituted for the larger cavity of the chest, to the great relief of the speaker, and the incalculable saving of muscular exertion.

* *On the Organs of the Human Voice*, by Sir Charles Bell. *Philosophical Transactions*. 1832.

Both the musical notes in singing and the vowels in speech are affected by the form and dimensions of the pharynx, and it is during the distension of the bag of the pharynx that the breath ascends and produces the sound which proceeds and gives the character to the explosive letters; and the pharynx, after being distended, contracts, and forces open the lips.

He further observes that, with each motion of the tongue or lips, there is a correspondence in the action of the velum and pharynx, so that the compression of the thorax, the adjustment of the larynx and glottis, the motions of the tongue and lips, and the actions of the pharynx and palate, must all coincide before a word is uttered.

Applying this to impediments of speech, Sir Charles remarks that, "in a person who stutters, the imperfection is obviously in the power of intonation, and not in the defect of a single part. The stutterer can sing without hesitation or spasm, because in singing, the adjustment of the glottis and the propulsion of the breath by the elevated chest, are accomplished and continue uninterruptedly, neither does he experience any distress in pronouncing the vowels and liquid consonants. For the same reason, and if he study to commence his speech with a vowel sound, he can generally add to the vibration already begun, the proper action of the pharynx. Another necessary combination distresses the stutterer, namely, the action of the expiratory muscles, and those of the throat. He expels the breath so much in his attempts at utter-

ance, that, to produce the sound at all, the ribs must be forcibly compressed."

Commentary.—It will be perceived that our distinguished physiologist considers stuttering not as a disease, but chiefly as the result of disordered respiration. He, therefore, lays down no specific plan, but recommends the common means which, by regulating the respiratory acts, may tend to overcome the difficulty of the stutterer in combining the action of the organs of speech.

POETT* says: "Those affections of incorrect utterance most frequently met with, which are commonly called stammering or stuttering, originate in an overaction or spasmodic action of certain muscles belonging to the organs of speech, without the organs of sound or voice displaying the slightest irregularity." Mr. Poett also admits a laryngeal impediment caused in the same manner, by a spasmodic action of the muscles of the larynx. Again: "A spasmodic action of any muscle is the result of a certain degree of excitement pertaining to the nerve of volition supplying that particular muscle." Further on he says: "It must be allowed that a derangement in the functions of that order of the nervous system which relates to voice and speech is the actual cause of those diseases, and that the stammer, stutter, or impediment is the mere effect of such deranged action. Unless the debilitated or excited muscles be restored to their

* *A Practical Treatise on Stammering*, by Joseph Poett. London: 1833.

correct and natural actions, a satisfactory and permanent cure cannot possibly be expected."

Commentary.—I quote these views not so much from their theoretical or practical value, as from a desire of giving as complete an account as possible of the literature on the subject of speech impediments.

CULL* says: "I have no opinion of any means for the self-removal of the impediment. I think them all nugatory to effect a cure without *vivâ voce* instructions from one who has studied the voice, and has had experience in various obstacles which impede its formation; the dividing it into elements of speech, and the articulation of those elements into combinations—into discourse.....The grand object in the cure of an impediment of speech is the knowledge of the means of vocal enunciative training; when this is possessed, the end is in our grasp—it only requires industry.....It is not sufficient for a cure that power exists to introduce at will the new term of exact knowledge, and thus to speak without hesitation by a mental effort—to produce a new sequence by an especial mandate of the will. The effort must have been repeated sufficiently, so often, that the new term rise in its place in preference to the old one, by the first solicitation of the terms of the sequence, without requiring a special volition, or even an effort. If a cessation or relaxation of industry take place ere this is accomplished, the previous efforts will be found to

* *Stammering and its Cure*, in a Letter addressed to Geo. Birkbeck, by Richard Cull. London: 1835.

be nugatory. There must be a constant watchfulness until the new sequence is apter than the old. One achievement is of no ultimate use unless it be followed up by another, but each in succession becomes of greater importance. At the same time, each in succession requires less effort than the last, according to the laws of suggestion."

Again he says: "I do not attempt to transcribe any of the exercises employed, as they would require a volume of explanation to make them intelligible. I have in some cases explained and illustrated *vivâ voce* for patients, in order for their practice, when they have resided at a distance in the country, but have invariably found they have gone astray, although in some cases they were persons of understanding."

Commentary.—Mr. Cull belongs to the class of writers on this defect who have derived their knowledge from practical experience. The extracts I have given from the book are no doubt sound and judicious. Our author is a pupil and a follower of Thelwall, who was the great English master of rhythm. I have not one word to say against rhythm, but I do assert that a purely rhythmical treatment of stuttering does not really touch its real nature or seat. That many stutterers may be enabled to read distinctly by continued application of rhythm, under an experienced master, I do not doubt; but it does not effect a cure of stuttering even in reading. The true cause of stuttering lies deeper, and is far more various than those who practise rhythm as a remedy can possibly believe.

BERTHOLD * says : " One of the most frequent and disagreeable defects of speech is stuttering, the causes of which were believed to be either an organic defect, a want of pliability in the larynx, the tongue, etc., defective respiration, or an abnormal psychical condition. But as speech depends on motion, and stuttering is impeded or unregulated motion, it must have for its cause an abnormal condition of the muscular or nervous action of the organs of speech.

" In speaking, there is alternately a separation and approximation of the lower jaw, a rising and depression of the larynx, an opening and closing, advancing and retracting, of the lips, a rising, advancing, and retracting of the tongue. Now, stuttering arises from this—that the motion of the speech muscles are not regulated."

Commentary.—All this is most undoubtedly true, and it is not a little singular that while this distinguished physiologist was teaching in Germany, his principles were being practically worked out in this country, as will be seen at the end of the present chapter.

WARREN † commences his essay as follows : " A physician who has had an opportunity of observing a chronic disease in his own person, may naturally be supposed better qualified to write upon that disease than any one whose attention has only been called to the matter he treats upon in the common routine of

* *Berthold's Physiologie.* Goettingen : 1837.

† *Remarks on Stammering*, by Dr. Edward Warren. *American Journal of Med. Science.* Vol. xxi, p. 75. Boston : 1837.

practice. This consideration has led me to suppose that I might perform a useful service in committing to paper some remarks, the result of my experience, upon the subject of Psellismus."

Stammering, he says, is a complicated affection. It originates in weakness of the nervous system—in irregular action of the nerves. Afterwards, a fear of stammering causes a person to stammer; the organs of speech soon acquire a depraved habit; the nerves also are habituated to irregular action, as in chorea, and the habit may become difficult to eradicate, even if the mental cause is removed. We have, therefore, mental and physical causes united, in every degree of complication.

"I may allude," he continues, "to another thing also, which gives a singular appearance to the conversation of the stammerer, even when he appears to speak with ease. This is, that without being perfectly aware of it himself, he is constantly considering before he speaks whether the words he means to employ are easy to articulate; and he is constantly in search of easy words. Hence he makes use of odd and *outré* expressions, which are chosen in haste, and for no other reason than that they are easy of utterance. In this way he may very readily obtain the character of an idiot or an imbecile."

With regard to temperament, Dr. Warren observes, that having had ample opportunity of observing numbers of persons thus affected, he believes an athletic, sanguine, or a phlegmatic stammerer to be very rare. The affection occurs in persons of extreme suscepti-

bility, whose constitutions would readily make them subjects of hysteria or chorea. This nervous susceptibility may be caused by sickness in childhood. This is the remote cause.

In regard to imitation as a cause, he believes it to be comparatively rare. From the known tendency of chorea and hysteria to be extended by imitation, we might imagine this to be a more frequent cause than it actually is.

He contends that there are two different species of stammering. The first is that in which the organs of articulation, the lips, and tongue, are concerned. In the second, the organs are not in fault, but the voice is wanting. The effort to speak is made, the lips and tongue move, but the voice will not come. The two kinds are frequently united. Indeed, when the voice is not at the command of the patient, the violent efforts he makes to speak will produce convulsive motions of the features and distortion of the countenance.

Even in less violent cases, the whole nervous system is in intense agitation; every nerve in his body, to the ends of his fingers and toes, seem to him to vibrate like the strings of a harp, producing a sensation like that caused by the filing of a saw, and he feels a sense of suffocation at his chest.

"Stammerers," he continues, "are said in general to have narrow chests, and that their lungs have not free play. My experience, as far as it goes, confirms this. A narrow chest, also, is said to be one of the characteristics of the nervous temperament. I have seen some athletic stammerers—at least, one or two—but the most I have seen belong to the nervous class."

Commentary.—From Dr. Warren's introduction, we must infer that he laboured himself under some impediment of speech. He thinks that imitation as a cause of stuttering is very rare; whilst there can be no doubt that numerous cases of stuttering have been distinctly traced to this propensity. The most glaring defect which pervades the whole essay, and which gives rise to errors both as regards theory and practice, is the constant use of the term "stammering" for all kinds of speech impediments. Taken, however, as a whole, this treatise is unquestionably the best on the subject of the period in which it was written.

GOOD* has devoted a small space to this subject, and has, with slight modification, followed Sauvages in his division of *Psellismus blæsitæ*, or stammering, into seven varieties:—1. *Psellismus blæsitæ ringens*, or vicious pronunciation of *r*; 2. *Lallans*, vicious pronunciation of *l*, or lambdacism; 3. *Emolliens*, softening hard letters; 4. *Balbutiens*, repetition of the labials; 5. *Mogilalia*, omission of labials, or exchanging them for other letters; 6. *Dentiloquens*, vicious employment of dentals; and 7. *Gutturalis*, vicious pronunciation of gutturals.

Where these defects are the result of organic malformation, he says, they will mostly be found without a remedy, though they may be palliated by a laborious discipline. Where they are the result of debility or

* *Study of Medicine*, by John Mason Good, M.D.; edited by S. Cooper. London: 1840. Vol. I.

vicious habit, he recommends the exercise of the difficult letters. .

Psellismus bambalia, or stuttering, he says, may be regarded as a sort of clonic spasm or St. Vitus's dance, confined to the vocal organs, and offers us the two following varieties—*hæsitans*, hesitation; and *titubans*, stuttering. In the hesitating variety, there is an involuntary and tremulous retardation in articulating certain syllables. The organs are generally too mobile and unsteady, and the will has lost its power over them, if it ever possessed any. In the second variety, we have a higher degree of stuttering than the first, accompanied with more impetuosity of effort. It consists in an involuntary and tremulous reduplication of some syllables, alternating with a tremulous hurry of those that follow. He continues: "The convulsive action of the muscles of the glottis, and which are communicated to the other organs of speech, whether productive of the present or preceding variety, may often be overcome by a firm and judicious discipline, insomuch that some of the most distinguished orators of both ancient and modern times are well known to have been subject to this affection in their youth." In ordinary conversation, and when a stutterer has time to choose out words, the infirmity manifests itself most; while in singing, the whole mind is led away by the tune, and a strong desire to keep time and harmony. "One of the worst stutterers I ever knew," he adds, "was one of the best readers of Milton's *Paradise Lost*. He was a scholar of considerable attainments, and had taken

great pains with himself for his natural defect, but without success.....This affords us one means, therefore, of remedying the evil before us: the stammerer [stutterer] should learn by heart, and repeat slowly, whatever most arrests his attention. But, at the same time, the will must learn to obtain a control over the muscles of articulation; and for this purpose, single words should be uttered for hours at a time, deliberately, and when alone; and perhaps, too, as was the custom of Demosthenes, a practice of haranguing by the sea-shore, or on the brink of some awful waterfall, where the fearful noise and the magnificence of the scenery have a tendency to break in upon the habit, and render the conquest easier, may be found advantageous."

Commentary.—It is hardly necessary to comment on Dr. Good's remarks on stuttering, as they show, with regard to treatment, scarcely any advance from the period of Demosthenes.

HOFFMANN* says: "The chief cause of stuttering is a spasmodic affection of the glottis, caused by the wrong use of the organs of speech. The seat of the evil is in the vocal ligaments of the larynx. Whilst the organs of the mouth labour to produce an articulate sound, the muscles of the vocal ligaments suddenly deny the necessary co-operation, the vocal ligaments cannot give the *tone*, and although the whole mechanism of the articulation is put into

* *Theoretisch-Praktische Anweisung zur Radical-Heilung Stotternder*, by A. Hoffmann. Berlin, 1840.

motion, the *air* is wanting which is to be articulated. In curing the evil, the main object should be the prevention of the closure of the glottis, and the attention should be directed to the production of the tone." He adds: "The pupil must acquire the necessary calmness of mind."

Commentary.—It is unnecessary to offer many remarks on Hoffmann's theory, which holds true in some cases. His advice, to prevent the closure of the glottis, by paying attention to the tone, and exhorting the pupil to acquire the necessary calmness of mind, are, no doubt, very excellent precepts, but I fancy that Hoffmann, if he were a nervous stutterer, would find that he would be obliged to say with the philosopher, "I could easier teach twenty what were right to be done, than be one of the twenty to follow my own teaching." Hoffmann, however, only wrote on the subject when it was causing some controversy, without having anything new to communicate.

MALEBOUCHE,* who introduced Mrs. Leigh's method into France, distinguishes four species of stuttering. The first is caused by the faulty action of the tongue from behind forwards (*d'avant*), as required in the letters *s, c, x, z*. The second, the most serious and most frequent, is that resulting from the imperfection in the movements of the tongue from in front backwards (*d'arrière*), as required in the letters *b, c, d, f, g, h, i, k, p, q, r, t, v*. The third species of stuttering

* *Dict. de la Conversation*, 1833.—*Précis sur les Causes du Bégaiement*, etc. Paris, 1841.

is caused by the faulty movements of the tongue from below upwards (*de haut*), as in *l, m, n, r*. The fourth is caused by the combination of the above difficulties. M. Malebouche contends that there are no such things as labial letters, nor, indeed, any other kind but linguals. The tongue forms the principal part in their production; the movements of the lips are only secondary, and entirely subordinate to the movement of the tongue. This study of the phenomena of articulation is sufficient to remedy not only stuttering, but other vices of enunciation, such as cluttering, lisping, rhotacism, which are easily remedied. The only difference between the treatment of the latter and that of stuttering, is that the minor defects simply require the tongue to be trained to move differently, while in stuttering the tongue must undergo a complete re-education.

On the treatment, he says that the method of Mrs. Leigh was not applicable to all species of stuttering, and that the cures effected by it were not lasting. He had, therefore, attempted to remedy its shortcomings, and to discover a more perfect method of cure. His starting-point is directly to oppose the curative remedies to the vicious action of the organs of speech: as he does not think that respiration has much to do with the production of stuttering, he deems it unnecessary to occupy himself with this fundamental element of speech, which, he assumes, becomes regulated in its actions in proportion as stuttering diminishes. The lips form a special object of M. Malebouche's treatment. With regard to the tongue,

M. Malebouche recommends that not merely the tip, but the whole organ, should be raised and applied to the palate, retracting it as much as possible. In this manner, the stutterer begins to perceive the motions necessary for pronunciation; he must be made, while the tongue is thus glued to the palate, to pronounce all kinds of syllables and words, which he succeeds in effecting after a longer or a shorter time, according to the intelligence of the pupil, or the degree of flexibility of his organs. The pronunciation, no doubt, is much altered—it is thick, clammy; but experience has proved that this defect disappears in proportion as the pupil becomes master of his movements. The teacher should not yield to the desire of the stutterer to be soon relieved from this mode of enunciation; it must be continued for a considerable time, until the pupil can, with the tongue placed in the indicated position, enunciate distinctly. It is important, nay, indispensable, that during the time of treatment, the subject should, excepting during the hours devoted to the exercises, keep perfect silence. The invariable, infallible rule is this—to articulate as distinctly as possible, with the least possible detachment of the tongue from the palate. The more the pupil succeeds in articulating clearly, while the tongue is retracted, the more perfect is the cure.

Commentary.—M. Malebouche deserves considerable commendation for the great zeal with which he studied the phenomena exhibited in cases of stuttering. His conclusions, however, owing to false premises, were erroneous. Not only is his theory

untenable as to the nature and causes of stuttering, but he seems to have entirely mistaken the action of the organs of articulation during speech. For instance, his assertion that the tongue plays the principal part in the articulation of the labials will not stand the test of observation. The tongue has nothing whatever to do with the labial letters, apart from their connection with the succeeding vowel. To be convinced of this, it is sufficient to pronounce successively the syllables *ba* and *bu* (*bew*). In the first case, the tongue retains its natural position, the mouth being widely opened ; but in the second, the tongue is advanced towards the teeth and then suddenly retracted. This movement of the tongue is thus not connected with the labial articulation, but simply with that of the following vowel. His classification of stuttering sufficiently indicates the errors into which his theory led him. His labours have an interest, as showing how large a number of wrong roads are taken by authors as to the causes of any disorder before any satisfactory and lasting theory can be arrived at. It is right to add that the method of Mrs. Leigh led M. Malebouche into most of his errors ; and although he detected many of its faults, he did not succeed in entirely freeing himself from the errors he had fallen into during the early part of his career. So defective a theory could not, of course, stand the test of time and observation, and I am not surprised at hearing Dr. Becquerel ask, " Has M. Malebouche effected any real cures ? I know not. All that I know is, that several stutterers who consulted me had been unsuc-

cessfully treated by M. Malebouche. Be this as it may, this method ought, in my opinion, to be rejected for the following reasons: 1. It is difficult of application. 2. It requires great force of will always to employ it. 3. It is difficult to contract the habit. 4. The mode of speaking is as disagreeable as stuttering itself."

HUNT.—The late Thomas Hunt was born in 1802. During his residence at the University of Cambridge, the painful impediment of speech of a fellow student forcibly attracted his attention to this infirmity. After carefully watching all the phases of this evil, he felt satisfied that he had discovered the main cause of the disorder, and effective means for its removal. He not only entirely relieved his college friend from his impediment, but successfully treated many similar cases. Mr. Hunt then left college with the determination of devoting his entire attention to the alleviation of defective speech.

An extended provincial tour, undertaken to enlarge his experience, more and more confirmed his conviction as to the real nature of this evil and the most appropriate means for its removal.

One of the earliest proofs of his provincial success is vouched for by the late Sir John Forbes, in a communication dated April 1828, which runs as follows:

"Mr. Hunt was kind enough to give a lesson in my presence to Thomas Miles (a patient in the Chichester Infirmary), a poor man who has been affected with stammering, in a very high degree, from his infancy. And from the unreserved exposition of his

principles on that occasion, as well as from the remarkable improvement (amounting almost to a complete cure) produced by this single lesson, I am of opinion that Mr. Hunt's method will be successful in nearly every case of stammering not depending on any organic defect, provided the requisite degree of attention is paid by the pupil."

At first he experienced, to the full, all the difficulties which usually attend the establishment of a new theory. The greatest surgeon of the day, the late Mr. Robert Liston, stepped before the public, and not only raised his voice against any further mutilations, but evinced his admiration of the simplicity and efficacy of Mr. Hunt's system in the following terms :

"I have, with much pleasure, witnessed Mr. Hunt's process for the removal of stammering. It is founded on correct physiological principles, is simple, efficacious, and unattended by pain or inconvenience. Several young persons have, in my presence, been brought to him for the first time ; some of them could not utter a sentence, however short, without hesitation and frightful contortion of the features. In less than half an hour, by following Mr. Hunt's instructions, they have been able to speak and to read continuously, long passages without difficulty. Some of these individuals had previously been subjected to painful and unwarrantable incisions, and had been left with their palates horribly mutilated, hesitating in their speech and stuttering as before."

This opinion was given in 1842. Those only who know how scrupulously chary that eminent surgeon

was of giving the sanction of his name to aught, either professional or general, of which he could not conscientiously approve, can estimate the paramount importance of such aid.

Ardently pursuing his task, Mr. Hunt, at the close of his London sojourn, in 1851, left for Dorsetshire, when, in the midst of health, he was suddenly removed from his sphere of usefulness.

The Illustrated London News of August 23, 1851, after noticing the loss sustained by the death of one "so long and so justly held in high esteem for his skill in the cure of stammering," observes: "During some twenty-five years of Mr. Hunt's practice, a great number have been benefited by his care, and very many have to be grateful to him for rescuing them, not only from the mortification and distress of a painful disorder (for such it is), but for rendering them eligible to undertake higher stations in trade, the army and navy, all the liberal professions, and even in the legislature. His system was simply to teach the sufferers, by the plainest common-sense direction, the means of restoring nature to its functions, which were perverted and counteracted by evil habits, or the curious infection of involuntary imitation. Mr. Hunt held, and truly held, that not one case in fifty was the consequence of deficient or mal-organisation; and he sternly and perseveringly eschewed the knife. In many cases, the effect of a single lesson was so remarkable as to appear like magic, converting the convulsive stutterer from distressing unintelligibility into freedom of voice, dis-

tinctness of utterance, and correctness of pronunciation. The pupil and the witnesses of such an hour's change were alike astonished by the obvious process, which only required a degree of moderate attention to confirm for ever."

I must here correct a singular mistake made by several continental writers on impediments of speech. In one of the early volumes of the *Medico-Chirurgical Review*, its editor, the late Dr. James Johnson, stated as a fact, that a youth who had undergone an operation for stuttering without having derived the least benefit from it, had subsequently been cured of his infirmity in the course of a few days by Mr. Hunt.

In 1830, Dr. Schulthess, in commenting upon the American method, writes: "It seems that Mrs. Leigh's method was known in England; for the journals of that country state that several cases of stuttering have been cured by 'Dr. Hari' (Hunt)."

In 1833, Dr. Rullier alludes to the above case, and writes: "A son of Dr. Johnson, of London, has been cured of his infirmity by 'Dr. Hert' (Hunt)." "Hari and Hert" underwent further transformations by subsequent writers. All, however, agree in one point, namely, that the above cures were effected by the aid of Mrs. Leigh's method. Now, it is chiefly to repudiate emphatically this last and perfectly gratuitous assumption that I notice the sad havoc made with the name of my late father.

Apart from contributions to the periodicals of the day, and some miscellaneous papers on impediments of

speech, Mr. Hunt did not publish a systematic work on this subject. Had his life been spared, he would, no doubt, have done so. This much, however, I have reason to know, that, like all who have had much experience in the treatment of speech impediments, he had a very poor opinion of the efficacy of written rules for the cure of this infirmity. His system was entirely practical, and adapted to each individual case.

Commentary.—It would scarcely become me to appreciate in appropriate terms the labours of one so nearly related to me. I shall be happily released from this task by being allowed to quote the words of an eminent author (Professor Charles Kingsley), who expresses himself to the following effect:* “The elder Hunt’s ‘System,’ as he called it, is a very pretty instance of sound inductive method hit on by simple patience and common sense. He first tried to find out how people stammered ; and for this purpose had to find out how people spoke plain—to compare the normal with the abnormal use of the organs. But this involved finding out what the organs used were, a matter little understood thirty years ago by scientific men, still less by Hunt, who had only a Cambridge education and mother wit to help him. However, he found out ; and therewith found out, by patient comparing of health with unhealth, a fact which seems to have escaped all before him—that the abuse neither of the tongue nor any other single

* “Irrationale of Speech.” (*Frazer’s Magazine*). Longmans and Co., 1859.

organ is the cause of stammering—that the whole malady is so complicated that it is very difficult to perceive what organs are abused at any given moment—quite impossible to discover what organ first went wrong, and set the rest wrong. For nature, in the perpetual struggle to return to a goal to which she knows not the path, is ever trying to correct one morbid action by another; and to expel vice by vice; ever trying fresh experiments of mis-speaking, and failing, alas! in all; so that the stammer may take very different forms from year to year; and the boy who began to stammer with the lip may go on to stammer with the tongue, then with the jaw, and last, and worst of all, with the breath; and in after life, try to rid himself of one abuse by trying in alternation all the other three. To these four abuses—of the lips, of the tongue, of the jaw, and of the breath—old Mr. Hunt reduced his puzzling mass of morbid phenomena; and I for one believe his division to be sound and exhaustive. He saw, too, soon, that stuttering was no organic disease, but simply the loss of a habit (always unconscious) of articulation; and his notion of his work was naturally, and without dodge or trick, to teach the patient to speak consciously, as other men spoke unconsciously.”

Again, he says: “There is no secret in Mr. Hunt’s ‘System,’ except in as far as all natural processes are a secret to those who do not care to find them out. Any one who will examine for himself how he speaks plainly, and how his stammering neighbour does not, may cure him, as Mr. Hunt did, and ‘conquer Nature

by obeying her,' but he will not do it. He must give a lifetime to the work, as he must to any work which he wishes to do well. And he had better far leave the work to the few who have made it their ergon and differential energy throughout life."

CHAPTER IV.

HISTORICAL AND CRITICAL REVIEW OF THE THEORIES AND MODES OF TREATMENT OF STAMMERING AND STUTTERING, FROM THE EARLIEST HISTORICAL PERIOD.

THIRD PERIOD.—SURGICAL TREATMENT;—CHIEFLY CONFINED TO
THE YEAR 1841.

Galen.—Aëtius.—Paulus Ægineta.—Fabricius Hildanus.—
Dionis.—Hervez de Chégoin.—Dieffenbach.—Velpeau.—
Amussat.—Baudens.—Froriep.—Bonnet.—Phillips.—Franz.
—Roux.—Lucas.—Guersant.—Dufresse-Chassaigne.—Langenbeck.—Wolff.—Sante-Sillani.—Yearsley.—Braid.—Lee
—Post.—Mott.—Parker.—Commentary.—Accidents.

“To enumerate the successes, published in many cases the morning after the operation, when the enthusiasm of the operator and the victim has not had time to cool down, would be deceptive. The fact is, that by ceasing to operate, the authors of these successes have tacitly acknowledged their first illusion, if they have not proclaimed it aloud like Phillips and Guersant.”—DR. A. GUILLAUME—*Dictionnaire Encyclopédique des Sciences Médicales*, p. 724. Paris, 1868.

WE have seen that operations for defective utterance are not so new as is generally believed. Galen speaks of the thickening, induration, and shortening of the tongue, as influencing articulation, and recommends cauterisation. Aëtius and Paulus Ægineta not only wrote on ancyglossis, but performed the operation of

dividing the ligament of the tongue. The latter even excised the tonsils and the uvula; but not, as we find, for defective articulation, but only in cases where deglutition was impeded.

In 1608, Fabricius Hildanus operated upon his little brother, who, at the age of four years, could not pronounce a word, on account, as was said, of the shortness and thickness of the frænum, so that the tongue could not reach the teeth and the palate. Dionis, in 1672, proposed to make two or three small incisions in the tongue of children who seem not to articulate easily. These operations appear, however, to have been confined chiefly to the division of the frænum, an operation as old as surgery, which has even been performed by mothers and nurses.

A more recent operation of this kind has been recommended in cases of stuttering by Hervez de Chégoin, which has been already noticed.

It was reserved for modern surgery to extend the operations to the muscular apparatus of the tongue, and Dieffenbach is generally considered as the chief authority for the practice.

DIEFFENBACH* says, "The idea of curing stuttering by means of an operation, first presented itself to my mind on being requested, by a patient cured of strabismus, to operate upon him for defective utterance. My attention being directed to the subject, I remarked, indeed, that many persons affected by strabismus, had at the same time an impediment in

* In his Letter to the French Academy, March, 1841.

their speech. As I was of opinion that the derangement in the mechanism of articulation was caused by a spasmodic condition of the air passages, which extended to the lingual and facial muscles, I conceived that, by interrupting the innervation in the muscular organs which participate in this abnormal condition, I might succeed in modifying or completely curing it.”*

Starting from these premises, he tried three methods, each having for its object the total division of the lingual muscles : 1. Horizontal section of the root of the tongue ; 2. Subcutaneous transverse section of the root of the tongue, with preservation of the mucous membrane ; and, 3. Horizontal section of the root of the tongue, with excision of a triangular piece in all its width and thickness.

The first operation he tried in four cases. One was a perfect failure. The other three are reported to have been successful, but it is not stated how they progressed after the wound was healed up.

The second he used in one person only. Dieffenbach had not so much faith in this operation as on the other two ; but it seems that eight days after the operation the mouth was healed, and the patient no longer stuttered.

The third was Dieffenbach's favourite operation,

* Though there may be cases in which squinting is concomitant with psellism, they are exceptional, and have little or no relation to each other, whilst by interrupting the innervation, the respective parts are not merely modified, but paralysed in their function.

and required a special surgical apparatus. He declares that he then operated upon nineteen cases with satisfactory results. Of these nineteen cases he cites four, of which we find one was a complete failure. This case, the failure of which was attributed to its not being true stuttering, was the only one in which Dieffenbach found strabismus concomitant with stuttering.

Dieffenbach himself admits that the operation is a very serious one. Apart from the danger of hemorrhage, the tongue may be lost by gangrene or excessive suppuration, or it may be torn by an unskilful assistant.

ORÉ remarks on these operations as follows: "Now either the hypoglossal and lingual nerves were divided or they were not. If divided, how can we explain the fact, that the patients could speak immediately after the operation, so as to show that stuttering had disappeared? Vivisections and clinical facts have proved that the section or lesion of the hypoglossi induce paralysis of the tongue. If the nerves were not divided, then the starting point of the operator is false."

VELPEAU claims priority for his method. He asserts that as early as 1837 he conceived the idea that in stutterers there was an unusual depth of the palate, and to remedy this, he proposed to enable the tongue to be more easily raised by one of the four following operations, according to the nature of the case:—

1. The section of the hypo-glossi when the direct elevation of the tongue is impeded.

2. The section of the stylo-glossi, when the fault was in the pharynx.

3. Excision of a triangular piece from the tip of the tongue, when the dental letters are affected.

4. Division of the genio-glossi at their insertion in the apophyses, when there is difficulty in raising the tongue to the palate.

AMUSSAT also claims the honour of having first applied surgical operations to the cure of defective utterance.* He writes that he conceived his idea of dividing the genio-glossi as an extension of the operation for squinting, and that he communicated the idea to M. Philipps, when no one at Paris knew that it was thus treated in Germany. Malebouche, on the other hand, says that Mrs. Leigh had advised it, and that it was acted upon years before, in America.

BAUDENS† announced that he operated “in ten seconds by a new process.” He added to the section of the genio-glossi that of the genio-hyoid muscles. In fact this process was analogous to that of Velpeau.

FRORIEP,‡ again, conceived that the local cause of stuttering was the retraction of the lingual muscles on one side only, which may be detected by the form of the tongue and the neck. He therefore confined himself to dividing the genio-glossus on one side, and attributed to this mode his own success, whilst

* In his Letter to the French Academy, Feb., 1841.

† *Lancette Française*, March 6, 1841.

‡ Froriep's *Notizen*, 1841.

the division of both these muscles by Bonnet and others led to no certain results.

BONNET (de Lyon) advises the section of the genio-glossi beneath the chin, thus avoiding the danger of hæmorrhage. This operation, however, is confined to cases in which the tongue has a tendency downward and forward, and even then only in young persons under thirty years of age ; because, he tells us, he failed in ten such cases. It must be abstained from in respiratory stuttering. He estimates his number of cures at about two-thirds of the cases. But he only cites ten cases of cure out of seventy operations ; and despite such a formidable number, he candidly admits that he cannot solve the question of the right of surgical intervention, because from this mixture of successes, half-successes, and failures, it is impossible to draw correct conclusions.

Whether, or not, Dieffenbach first introduced the practice, certain it is that the example of so high an authority gave rise to a host of operators, each of whom, by cutting different ways, aspired to the honour of being the inventor of some new method. Each of the methods cited had its proselytes. Phillips and Franz followed Dieffenbach's, or the German method. Phillips subsequently abandoned the method of Dieffenbach, and adopted that of Velpeau, which was also followed by Roux ; Lucas and Guersant followed the process of Amussat ; Dufresse-Chassaigne that of Baudens ; Petrequin, Richet and Robert that of Bonnet. Jobert (de Lamballe) also joined the surgical crusade against stuttering. Langenbeck in

Goettingen divided the stylo-glossi and hyo-glossi, and Wolff the nervus hypo-glossus. Sante-Sillani, an Italian surgeon, published the case of one Pasquale Creapoli, aged 57, who suffered from strabism, with a concomitant deviation of the mouth, and great difficulty of articulation. This individual Sante-Sillani cured, not only of the vice of pronunciation and the abnormal position of the mouth, but also of the strabism, by simply dividing the genio-glossi. The English surgeons chiefly confined themselves to the excision of the tonsils and the uvula. Yearsley and Braid seem to have discovered this procedure nearly at the same time. Braid is said to have cured a great number, but nevertheless admits some failures: he also added the division of the frænum. Yearsley is said to have been still more successful. He had noticed in many that enlarged and tumefied tonsils gave rise at once to both stuttering and deafness, so that the excision of the tonsils cured both by the same stroke. He asserts that he has successfully operated on twenty-six subjects. Edwin Lee also made use of the knife in the cure of stuttering. But the greatest zeal was exhibited in France, where not less than two hundred persons were operated upon within one year. The rage* for operations spread to America,

* "He must be a young surgeon who has not witnessed an operating mania; he must be a young physician who has not felt the pressure from without of a new and fashionable drug. Some thousand operations have been performed on man and woman, the greater number, seemingly, without a reason or excuse; the profession is entitled surely to be made acquainted

where Dr. A. Post performed the first operation, May, 1841, by dividing the genio-hyo-glossi near their origin. Drs. Mott and Parker, of the New York University, divided the genio-hyo-glossi either with the knife or scissors, cutting closely to the symphysis of the lower jaw. In many instances the patients seemed immediately to be much benefited, and spoke with fluency. A few hours, however, dispelled the delusion, and they found themselves as bad as ever. Dr. Detmold passed needles through the tongue, and the same improvement followed, but as in the rest the impediment returned.

The utility of these operations has been deduced from their successful application to squinting, wry-neck, and clubfoot.* The premises were wrong, and the conclusion false. In these affections the evil is permanent and always associated with a contraction or shortening of the respective muscles. Stuttering is, on the contrary, frequently temporary; were it the result of an organic defect it would be equally permanent. Dieffenbach found no organic defect in sixteen cases upon which he operated, nor were there any found in forty cases treated by Blume. Since, also, the seat of stuttering is but rarely situated in the tongue, it follows that in such cases all operations

with the results,—results which, I fear, when known, will be found to be, though remote, not less melancholy.”—Harvey, *On Excision of the Tonsils*.

* “This conceit,” says Merkel, “is not better than to make a bad piano-player a good artist by dividing some sinews of his fingers.”

on that innocent organ are useless. No doubt, the patient frequently ceases stuttering, either from the shock upon the system, or from his strong faith in the efficacy of the operation; but after the wound is healed up, he relapses into his old habit.*

Nor is it true, as asserted by some surgeons, that stuttering frequently results from an abnormal condition of the tonsils and the uvula, and that the excision of these organs would relieve the impediment. Tumefaction of the tonsils exists in most cases, without producing stuttering, while few stutters have enlarged tonsils; nor, if they have, is it the cause of the infirmity. We may, however, admit that hypertrophied tonsils, or an abnormal condition of the tongue, the palate, and the uvula, may, and frequently does, give rise to defective articulation of certain sounds, that is to say, to *stammering*; but rarely is it the cause of *stuttering*. There is then something in a name, *i.e.*, in an exact definition of these affections; for from the confusion of the terms arose the confusion in their treatment.

* Klenke quotes several cases in which stuttering ceased in wounds of the speech organs, but returned when they healed up. Speaking of operations, he says, "But when the wound heals up, the articulation of the consonants again predominates, and he stutters as before. The operators, however, say that they produce an alteration in the muscular and nervous fibres. I have had stutters who have shown me the scars, but no alteration had taken place, nor have I seen a single case cured by division of the tongue muscles. If such an alteration really occurs, it would only be an auxiliary means, paving the way for a cure."

Besides organic defects, the cause of stuttering has also been attributed to the defective action of the muscles of the organs of speech, that is, either to debility or to spasmodic action. Debility cannot be always the cause, otherwise wounds, issues, and above all, age, which, according to most authors tend to diminish stuttering, and which undoubtedly weaken the muscles, would increase the infirmity, rather than diminish it. Debility may cause a bad enunciation of individual sounds, but certainly not stuttering. Nor can the local spasm of the glottis, though a frequent concomitant of stuttering, be considered as the cause of the affection. All reasoning on this subject has been in a circle, and it might as well have been said a man stutters because he stutters.

The tongue operations indicated above were obviously intended to act on the movements of the tongue only. Those stutterers who in any way misemployed the breath, the voice, the jaw, the lips, were invariably left in the same state after as before the operation. But do not lingual stutterers furnish the majority of cases? By no means. It must, on the contrary, be looked upon as exceptional to see a purely lingual stutterer. Even if such an one have recourse to an operation, he is far from being warranted in expecting any permanent amelioration. It will certainly stop any spasmodic action for a time, but on cicatrisation, the faulty action returns. On the other hand, it may be fairly asked, Could no advantageous use be made of this interval—this temporary respite? Could not the stutterer, while recovering from the

effects of the operation, be prevented from recommencing his bad habit, and be made to use his tongue in the same manner after, as before cicatrisation? Most certainly he could—that is, on the supposition of his being purely a lingual stutterer. Under careful guidance and direction, this interval would be very valuable, but the same result may be arrived at by infinitely more simple and less dangerous means.

Accidents.—The rage for operations still continued, but soon there came a report that a student of Berlin operated upon by Dieffenbach died from the effects of the operation. By the side of this warning may be placed another—the protest of Guersant.* Guersant affirms that operations had only produced improvements in the most fortunate cases, never complete cures. He states that he operated on ten stutterers, following the method of Amussat. In eight of these, the amelioration was so slight as to render it doubtful whether it were not a mere illusion. One spoke well immediately after the operation, but completely relapsed shortly after the wound was healed. In the tenth case—a child aged twelve—hæmorrhages of the most alarming kind, despite the application of cautery, endangered the life of the child. After a long convalescence, the child recovered from the operation, but spoke as badly as before.

Amussat,† though he had frequently to combat violent hæmorrhages, says he arrived, without accident,

* *Gazette Française* (Avril 17, 1841).

† *Gaz. des Hôp.* (1 Juin, 1841).

at his eighty-fourth operation, when there supervened a submental abscess. In the eighty-fifth case, operated upon before the Commission of the Academy (April 29th), there appeared an enormous abscess under the chin. There escaped from it pus and clots of blood, and the patient died May 17th.

DR. CLAESSEN,* a distinguished German surgeon, after having performed a variety of operations for impediments of speech, says: "Although the results of my experience would lose nothing by comparing them with those published, assuming them to be strictly true, still I am so little satisfied, that I have undertaken no operation of this kind since June 11th, though a number of afflicted persons vehemently desired it. I consider it my duty to dissuade all from performing such operations, as it is exceedingly rare that the fault is in the action of the muscles, or that the evil is remedied by dividing them."

Baudens is said to have operated on twenty-one persons, all of whom were considerably improved or cured. But M. Oré, in 1865, met with a certain De Nonné, who stuttered frightfully. On being questioned as to his infirmity, he said that he, together with two comrades, when in military service, had been operated on by M. Baudens, and that their stuttering became so much worse that they were all three dismissed the service.

Dufresse-Chassaigne asserts that in seventeen

* Casper's *Wochenschrift*, 1841.

operations he obtained seven complete cures, five ameliorations, and five failures; while, as we have seen, Bonnet, out of seventy operations, only cites, as examples, ten as perfect cures. Of these ten, six only were seen by him after the operation. Of these six, one relapsed after a fortnight. The five remaining were free from stuttering after two months. One of them was free after five months. In fact, these cases were only seen once or twice after the operation.

Phillips, in a work dedicated to his master, Dieffenbach, protests loudly against these operations. He asserts that from his own practice and that of other operators, he felt convinced that not five per cent. yielded satisfactory results. Those who stuttered at the labials were complete failures; while those who stuttered at the linguals were generally successful. But he affirms that the life of the patient is endangered by hæmorrhages. He also accuses the surgeons who have so loudly proclaimed their successes, without mentioning the accidents, of knowingly misleading the practitioners.

The efforts made by the late Mr. Thomas Hunt to put a stop to such operations in England, supported by the unsatisfactory results obtained, proved after a time successful, so that at last the practice was discountenanced by all the most eminent members of the profession. In support of which, I may quote the following passages from a leading medical journal:—*

* *Brit. and Foreign Medical Review*, vol. xii.

“The sanguinary operations which have recently been devised and executed, with the view of curing stammering [stuttering], are one of the greatest outrages upon modern surgery. Although some of them had their origin in legitimate motives, most, we fear, serve but to show what ruthless expedients will be occasionally resorted to for the purpose of acquiring professional fame, however short-lived, and to what extent the ignorant and the credulous will become a prey to craft and subtlety. If our indignation was awakened at the barbarous cruelties practised upon dumb animals for the sake of elucidating the truth of physiology, how much more ought it to be when we consider the multitudes of our fellow-beings who have suffered themselves to be maimed and mutilated at the instigation of individuals more remarkable for their reckless use of the knife than for the soundness of their medical science.

“It is ascertained that persons who have stammered in the highest degree, have been remarkable for the perfect integrity of conformation and structure of all the organs of voice and speech; while others who have laboured under a faulty or diseased condition of these organs have preserved their articulation unimpaired.”

Mr. Bishop also says, “It appears to be wholly unjustifiable for surgeons thus to inflict wounds and mutilate organs upon mere hypothesis, more especially when the practice is at variance with the physiology of the part concerned in the defects of speech intended to be relieved.” He also well observes, “It is not,

then, surprising that the extirpation of portions of the tongue, tonsils, uvula, and velum, should produce such a degree of mental excitement as to control for a time the vocal mechanism; but after the excitement of the operation has passed away, the unhappy sufferers relapse into their former state of imperfect articulation."

Busch,* speaking of Dieffenbach's and other methods, says, "Most of them spoke fluently, or, at least, more fluently than before; but this lasted only for a short time. A few days after, stuttering returned, and reached its former stage. The subcutaneous division of the genio-glossi equally failed. Blood was vainly spilt in these operations. The operation effected a better innervation for the moment, but it was not lasting.

I conclude this chapter with the words of Dr. Guillaume, who, after dispassionately weighing the arguments and facts for and against the surgical question, comes to the following definite conclusion:

"In the presence of these facts I reject operations for stuttering under any form as useless. I reject them also as dangerous. The cases of Dieffenbach, Amussat, and Guersant, show the danger. But assuming that future operations may be less injurious, I reject them as irrational."†

* *Lehrbuch der Chirurgie.* Dr. W. Busch. Berlin, 1860.

† *Dictionnaire Encyclopédique des Sciences Médicales.* Paris, 1868.

CHAPTER V.

HISTORICAL AND CRITICAL REVIEW OF THE THEORIES AND MODES OF TREATMENT OF STAMMERING AND STUT- TERING, FROM THE EARLIEST HISTORICAL PERIOD.

FOURTH PERIOD.—FROM THE PERIOD OF SURGICAL OPERATIONS TO THE PRESENT DAY.

Bonnet. — Marshall Hall. — Wright. — Colombat. — Beesel. —
Merkel. — Bühring. — Lichtinger. — Blume. — Hagemann. —
Becquerel. — Graves. — Bacc. Med. Oxon. — Bishop. — Anger-
mann. — Romberg. — Eich. — Leubuscher. — Rosenthal. — Wolff.
— Violette. — Beclard. — Klenke. — Schulz. — Chervin. — Mar-
shall. — Lehwiss. — Wyneken. — Holmes Coote. — Oré. — Guil-
laume.

“The processes of the medical art are even now mostly em-
pirical: their efficacy is concluded in each instance from a
special and most precarious experimental generalisation: but
as science advances in discovering the simple laws of chemistry
and physiology, progress is made in ascertaining the inter-
mediate links in the series of phenomena and the more general
laws on which they depend; and thus, while the old processes
are either exploded or their efficacy in so far as real, explained,
better processes, founded on the knowledge of proximate causes,
are continually suggested and brought into use.”—J. S. MILL,
System of Logic, vol. i, p. 537.

BONNET* says the elementary phenomena of stut-
tering are:

1. The nervous affection which was the primary
cause.

* *Traité des Sections Tendineuses et Musculaires. 6^e Partie. Du
Bégaiement*, p. 325. Paris, 1841.

2. The functional disorders of the organs of speech.

He does not hesitate to say, that although the disease of the nervous system may have preceded that of the organs of speech, and have been the real cause of it, when once cured it no longer takes part in the stuttering to which it has given rise. The latter is, then, only a local affection fixed in the respiratory or articulating organs. It is in certain respects like deformed feet, which, though they may have resulted from convulsions and nervous diseases, are, after these have been cured, local affections.

By following up these analogies, we perceive that stuttering is only a local functional disorder of the organs of speech, and that this functional derangement has an existence independent of the nervous system, which nevertheless was the primary cause.

This point being established, Bonnet reviews the local phenomena of stuttering, which consist of disordered movements of, 1. Respiration; 2. Lips and cheeks; and, 3. The tongue.

From his investigations Bonnet arrives at the conclusion that in most cases disordered respiration, and the apparently spasmodic movements of the lips and cheeks, are the consequences of the difficulties which exist in certain movements of the tongue.

It is therefore in a functional disorder of the muscles of the tongue, that the real cause of stuttering resides.

Commentary.—I fully agree with Dr. Bonnet when he says that stuttering may become localised in the organs, but it is too sweeping an assertion to say that

disordered respiration and the "apparently spasmodic" movements of the lips and cheeks result from disordered movements of the tongue. The spasmodic movements of the lips and cheeks are as really spasmodic as those of the tongue, and *vice versâ*. They are in fact both functional disorders. Their action is perfectly normal when engaged in acts foreign to speech. The same may be said with regard to respiration; but according to my experience disordered respiration is more frequently the cause of the disordered movements of the tongue than the latter of the former, as Dr. Bonnet asserts. Our author is one of those who attempted to remove stuttering by the aid of the knife; and, as we have seen, he invented a new operation by dividing the *genio-glossi* beneath the chin. Though his operations were confined to those cases in which the tongue alone was affected, and even then only when it was inclined to assume a position downward and forward, and moreover, though he resolutely declined to operate on other than young persons, he frankly confessed that he was unable to solve the problem of the propriety of surgical interference.

MARSHALL HALL* says: "In stuttering† the act of volition is rendered imperfect by an action independent and subversive of the will, and is of true spinal origin. In some instances, an act of inspiration is excited at the same time, which is equally involun-

* *Diseases of the Nervous System*. 1841.

† The word used in the original is *stammering*. I have changed it to prevent confusion.

tary ; but in general, there is a violent effort of expiration, and, in the worst cases, the disease is of an almost convulsive character. Stuttering as a disease, is sometimes induced by a morbid condition of the intestines, acting through the incident nerves."

"Stuttering is very like a partial chorea ; it is not, I think, as Dr. Arnott supposes, an affection of the glottis or larynx, that is, of the organ of voice, but of some of the different parts which constitute the machinery of articulation."

Further, he observes*: "All results prove that the larynx is not closed in stutterers, and, indeed, that its closure and stuttering are totally incompatible with each other. Where articulation is interrupted, it is by the co-operation of a part anterior to the larynx ; it is, in a word, *not* an interruption of the organ of voice, but of speech."

He asks the following questions: "Are incident nerves, regulators of articulation, excited in articulation ? And are they unduly so in stuttering ? And is stuttering not only an undue spinal action, but an undue reflex spinal action ? These interesting questions," he adds, "time and long investigation alone can determine."†

For the removal of the impediment he advises a stutterer "always to speak in a continuous, *flowing*, manner, avoiding carefully all positive interruption in his speech ; and if he cannot effect his purpose in this way, let him even half sing what he says, until

* *Journal of the Royal Institution.* 1841.

† *Diseases of the Nervous System.* 1841.

he shall by long habit and effort have overcome his impediment."

Commentary.—Dr. Marshall Hall, in denying that the spasmodic closure of the glottis is the cause of stuttering, is no doubt, in a great measure, correct. But he falls into the opposite extreme, when he says, "the closure of the larynx and stuttering are totally incompatible with each other," and when he places the seat of the evil in a "part anterior to the larynx." This is to deny the co-operation of the respiratory organs in the causation of stuttering, and to place the seat of the evil exclusively in the articulating organs; both of which theories are quite opposed to my experience.

The recommendation "to speak in a continuous, flowing manner, avoiding carefully all positive interruption in his speech," is the result to be arrived at, but not the means of doing it, neither is, indeed, the substitution of singing for speech. The stutterer can generally sing without trouble; what he wishes to do is to speak in a natural tone.

WRIGHT* asserts "that, provided the respiration be unembarrassed, and perfectly free from protracted interruptions, indistinct, or substituted articulations (stammering), however deranged, confused, imperfect, and contrary, will never engender stuttering; and that the principal mechanical and physiological cause of stuttering arises from a sluggish, tardy, and contrary action of the organ which closes the nasal passage,

* *Impediments of Speech—Three Letters Addressed to Sir Charles Bell*, by James Wright. London, 1841.

and from the contrary action of those organs which are employed for the proper utterance of the mute consonants, and that such inefficient and contrary actions induce a sudden and untimely closing of the pharynx on all sides, and sometimes, perhaps, of the glottis itself, till the chords of the glottis be deranged, the breathing checked, and frequently for a second or so, stopped; when the lungs lose their orderly action."

Commentary.—Mr. Wright's assertion, that defective articulation, confused, indistinct utterance, will never produce stuttering while the lungs continue to act normally, requires some modification. That such defects do not necessarily engender stuttering I fully admit. I also hold that there must be a certain predisposition on the part of the stammerer, in order that stuttering may take root. But I am much inclined to think that difficult articulation may, in subjects predisposed to contract the evil, produce hesitation, stoppage of the respiratory acts, and, finally, confirmed misuse of the respiratory organs, which cannot fail, joined with the difficulty of articulation, to end in real stuttering.

Mr. Wright seems also to have fallen into the common error that stuttering occurs exclusively at the explosives, when he considers the "physiological cause of stuttering as the tardy action of the organ which closes the nasal passages."

COLOMBAT* divides stammering as follows: *Gras-*

* *Traité de tous les Vices de la Parole et en Particulier du Bégaiement.* Paris, 1840-3.

seyement, or rhotacism, which is subdivided into six different species, all having as their principal cause imitation or bad habit contracted in infancy, by persons whose conformation of the organs of speech rendered the articulation of *r* difficult; *blésité*, consisting in the alteration of sounds, or in substituting others for them, is divided into *iotacism*, *lambdacism*, *sesseyement*, *blésité*, and the *blésité* of foreigners; *balbutiement*, which consists in pronouncing words with hesitation, interruption, indistinctness, and sometimes with repetition, but always calmly, in a low voice, and without precipitance: this is caused by a want of intelligence, paralysis, and general debility; finally, *bredouillement*, or cluttering.

Of stuttering, Colombat assumes two species, each having several subdivisions.

The first consists of spasmodic motions of the lips and tongue, and other moveable organs, and conduces to the frequent repetition of the labial sounds.*

The second, consisting mainly in a rigidity of the respiratory muscles and those of the larynx and pharynx, manifests itself by a sudden stoppage of the breath, owing to the contraction of the glottis, and, consequently, affecting the emission of sound. The guttural sounds, *g*, *k*, *h*, are chiefly influenced in this species.†

Those labouring under the first-named defect are usually persons of a lively disposition, while those

* *Bégaiement labio-choréique*, so termed on account of its analogy with chorea, or St. Vitus's dance.

† This he calls *Bégaiement gutturo-tetanique*.

subject to the second species articulate slowly, and make considerable efforts to produce the disobedient sounds. Colombat followed the opinion of his predecessors, in assuming as the proximate cause of stuttering the want of harmony between the nervous influx and the muscles of the organs of speech. He, therefore, devised a series of orthophonic exercises, in order to restore the harmony between nervous action and the organs of articulation; the most effective agent in these exercises being the application of rhythm in speaking.

The orthophonic gymnastics have the advantage of acting physically and morally; they act physically upon all the respiratory muscles; upon the lungs, the larynx, and specially upon the glottis, the tongue, and the lips. The respiration, effected in the mode indicated, has for its object to relieve the spasmodic constriction of the vocal cords by opening the glottis, while, at the same time, the chest is expanded by a large quantity of air, which escapes slowly by an expiration which should be gradual, and only sufficient to produce the sound.

By placing the finger upon the *pomum Adami*, every one can convince himself, that when the tongue is raised and its tip turned towards the pharynx, the larynx descends and the glottis enlarges, whilst in stuttering the larynx is usually raised, by which the glottis is constricted. The position of the tongue, as above, renders it almost impossible to stutter at the guttural, dental, and palatal letters, whilst the infirmity is soon exhibited when it is depressed. The

transversal tension of the lips, as indicated, tends to relieve that species of convulsive tremor which obtains in articulating the labials when the lips form a sort of curvilinear sphincter. As different causes never produce the same effects, it is easy to conceive that the disagreeable repetitions cannot take place if the mechanism which produces them be altered in an opposite direction. In addition to the above exercises, Colombat uses certain mechanical contrivances, plates of ivory between the teeth, *refoule-langue*, *bride-langue*, and a whole host of other such appliances for the mouth. There is another condition upon which he insists, namely, that the patient should, for at least a fortnight, not speak with anybody else, or only with such individuals as are under treatment for the same infirmity, otherwise the precepts are soon forgotten, and the influence of the method is only ephemeral.

“After what has been stated,” says Colombat, “it is evident that rhythm is one of the chief phases of my method.”

Commentary.—Although M. Colombat obtained the Monthyon prize from the French Academy, it is difficult to discover that he has thrown any new light on the infirmity. Colombat's great merit consists in having systematised the subject, although his many sub-divisions are useless, and some of his principles erroneous. Nor is there anything original in M. Colombat's classification, which seems to have been adopted from that of Serre d'Alais. Dr. Becquerel, who, according to his account, followed Colombat's

method *for twelve years*, asks, "Are there any radical cures effected by Colombat's method? I doubt it. The pupils soon leave off these fatiguing exercises." Further on, speaking of the originality of the means employed by M. Colombat, he says, "The first question is this—have these remedies been discovered by M. Colombat? No; they were all known." M. Creps also speaks in no complimentary terms of Colombat's method and pretensions. "If Colombat" says he, "has not perceived that his method is absolutely chalked upon those of his predecessors, it is because he had no wish to perceive it, in order to make the world believe that he had invented a system..... This physician is the most presumptuous on the earth: in his own estimation, he has invented, discovered, and foreseen everything." Perhaps more justly Dr. Klenke observes: "Stammering and stuttering, primary and secondary phenomena, causes and symptoms, were all confounded, and if Colombat really succeeded in curing a stutterer, it was by blind chance; and he attained his object by making, in a round-about way of twenty miles, what he might rationally have attained in one straight mile." Colombat's explanation of the causes, "disharmony between the will and the organs of motion, between innervation and muscular irritability," is identically the same as the theory of Rullier, or rather of Aristotle.

There can be no doubt that a slow and measured delivery somewhat tends to diminish stuttering, and may prove beneficial in some cases of defective utter-

ance; but nothing can be more erroneous than to assume that rhythm, however skilfully employed, is sufficiently potent to remove permanently a severe impediment. From the circumstance that rhythm is in some uncomplicated cases a very useful adjunct, it has been by many writers cried up as a panacea for stuttering. The real fact is, that it is not the rhythm which produces a beneficial effect, but its influence in altering, for the time being, the management of the breath; for the moment the patient begins his ordinary discourse, the defect immediately reappears. Unless, therefore, the vicious respiration be first attended to, so as to establish a synchronous action between the respiratory, vocal, and articulating organs under *all circumstances*, rhythm alone, or in the combination of Colombat, will produce little or no effect.

BEESEL* assumes four kinds of stuttering—1. With the larynx too much raised, and closed glottis; 2. With depressed larynx and open glottis; 3. Stuttering with tongue and lips; and 4. A mixed stuttering.

Beesel gives the following instructions: The teacher must first make the patient pronounce all individual sounds of the language, so as to convince the pupil of his ability to do so. If in the enunciation of some of them, the teacher observes too much pressure of the lips or tongue, it must be remedied, and the pupil must be made to pronounce them with the least pressure and effort. The pupil must be particularly

* *Belehrung über die Entstehung, Verhütung und Heilung des Stotterns.* Dantzig, 1843.

exercised in the sounds difficult to him. We must, however, be cautious not to reprimand him too much. The teacher proceeds then to syllables and words, then to sentences, especially such as are difficult.

Commentary.—Beesel's assumption of four species of stuttering, according to the position of the larynx, etc., rests upon no physiological foundation. His instructions would be unobjectionable were he not, like many other writers, to recommend that the pupil should be exercised in the sounds specially difficult to him. This is a practice from which I to a great extent dissent.

MERKEL* attributes stuttering to an adynamia, or debility of the presiding muscles of vocalisation. "But," he adds, "this adynamic state or inability, which manifests itself in the vocalisation function during speaking, is not an organic defect, not an anatomical, but purely and simply lying in the psychical sphere, specially in the volition, and is only so far dependent on external and physical agents that these may influence the mind. It arises from weakness of the will, defective courage, which probably originated in early infancy during the first attempts to speak, when, by neglect, the gradually arising speech-defects became a deep-rooted habit.....Stuttering is, therefore, the result of a certain unfreedom of the mind in relation to the speech-organs, which may, however, gradually extend to the whole nature of the stutterer,

* In Schmidt's *Encyclopædie der Gesammten Medicin*. Band vi. 1844.

as speech forms such an essential part of human nature."

Speaking of the treatment, he says: "Whatever means are employed, there is necessary, for permanent success, that, above all—1. The energy of the contractile power of the respiratory organs should be strengthened as much as possible; 2. The force of the articulating or speech organs should be lessened; 3. The whole body should be raised to a high degree of self-dependence, force of life, and activity: only when these conditions have been fulfilled will there be permanent results from 4. The symptomatic means which are to effect the regulation of the speech organs."

Commentary.—I fully agree with Dr. Merkel that stuttering arises from no organic defect, and that volition has a great influence on the causation of the evil; but I am far from asserting that it lies "purely and simply in the psychical sphere." Stuttering is not so much a psychical defect that a strong will alone would effect its removal. When the speech organs have, by long habit and misuse, become thoroughly accustomed to disordered action, they require something more than a psychical treatment to be restored to their proper functions.

BÜHRING* says: "The process of speaking is effected by the most complicated apparatus, which is influenced by distinct nervous tracts. These nerves

* Extract from *A Contribution to the Therapeutics of Stuttering*, by Dr. Bühring, in *Casper's Wochenschrift*. 1844.

form, so to say, an association, for one object. Their action must be isochronous, or, at least, in regular succession, if sound is to become articulate.....If this isochronism is interrupted either by a too much contracted or relaxed muscle, or by some organic change in the muscle or nerve, the association of all these organs is disturbed, and the production of sound or its articulation impeded. Hence the infinite variety of the causes of stuttering."

Commentary.—Dr. Bühring, unlike most authors on stuttering, instead of laying down any definite cause, such as spasm of the glottis, which is to be applied to all cases, has wisely and truly acknowledged the infinite variety of the causes which may produce stuttering.

LICHTINGER* assumes as the cause of stuttering a predominance of the *excito-motory* over the central system, showing itself not merely in the movements of the tongue, but as frequently in the muscles of the lips, lower jaw, velum, glottis, and probably in the respiratory muscles.

The predominance of spinal action may be effected in two modes—1. The spinal action is normal, but the cerebral influence is weakened or abolished; 2. The cerebral influence is normal, but the spinal action is abnormally increased.

In the first case, the seat of the affection is in the brain; in the second, the spinal system is in fault.

* *Med. Zeitung.* No. 34. Berlin, 1844.

BLUME* says: "The causes are proximate and remote, or rather primary and secondary. The primary physical causes lie either in defective organisation or defective employment of the organs of speech. The secondary or direct causes are: second dentition, a retarded development of the body up to puberty, bad education, imitation, and injuries to the nervous system.

"In point of fact, all causes leading to stuttering may be comprehended within the two categories: Causes within the vocal and articulating organism; causes outside the vocal and articulating organism."

With reference to physical causes, he observes that after many years' experience, he had arrived at the conviction, that the proximate cause of stuttering lies in a disharmony between thought and speech acting in two ways. In the first case, the mental operations are too rapid in proportion to the action of the speech organs, so that they do not proceed at the same pace. In the second case, the mental operations are sluggish compared with the action of the speech organs, so that the latter outrun the former.

Blume advises that before a pupil be admitted to treatment, he should be made to sing; if he stutters in singing, the cure is hopeless.

He also advises that he should be made to speak whilst ascending a hill or the stairs. If the patient stutters as violently during the ascent as he does

* *Neueste Heilmethode des Stotterübels*, by F. Blume. Leipzig, 1841-4.

when standing still or walking slowly, there is again no hope for the cure of the evil ; so that if both these trials fail, the sufferer should be dismissed at once.

Commentary.—I shall pass over the author's theory as regards the etiology of stuttering, as he adopts, in almost identical terms, the theory of Voisin, although he says that he arrived at this conclusion from his own experience. I shall, therefore, confine my remarks to his mode of treatment. In the first place, I entirely dissent from his opinion that persons who stutter in singing, or whose infirmity is worse whilst ascending a hill than when at rest, are incurable. I have had such pupils, and their cure upsets this gratuitous assertion. There are many valuable remarks scattered through this work, for Blume spoke from considerable experience, as he conducted an establishment for the cure of stuttering. The great defect of his method is, that it is overloaded with more or less trifling rules and contrivances, which confound both teacher and pupil. I hold that, apart from some few exceptional cases, mechanical aids should be avoided. Whatever benefits may be derived they will, in most cases, be found to be only transitory. Moreover, in many cases, mechanical obstacles alter only the form, but not the nature, of the affection.

HENRIETTE HAGEMANN* advises, in addition to the upward position of the tongue, that the difficult syllables should be preceded by the letter *n*. In addition

* *Untrügliche Heilung des Stotter-und Stammel-Uebels*. Breslau, 1845.

to this, she uses the trick recommended by Dr. Arnott. In such words as *bread*, *blue*, she makes the stutterer insert an *e* sound thus, *b-e-read*, *b-e-lue*.

Mrs. Hagemann remarks: "The tongue is the essential instrument for articulation. It forms all the speech sounds according to the position it occupies, and may in this respect be compared to the use of the lungs as a musical instrument." The cause of stuttering, she observes, "lies in the defective employment of the organs of speech, the tongue, and the lungs." The latter, namely defective respiration, she considers rather as the result of the faulty use of the tongue than as an original cause of the evil. "It is a symptom of this defect," she continues, "that the glance of stutterers is always unsteady, as if they had a bad conscience. This is explicable, inasmuch as they generally find in the countenance of the listener surprise or ridicule. They must be accustomed to look into the eyes of those they converse with, so that they may be no longer affected by the looks of strangers."

Commentary.—Mrs. Hagemann's procedure being entirely based on that of Mrs. Leigh, without any material addition but Dr. Arnott's intercalated *e*, an analysis of her method is unnecessary.

BECQUEREL* believes that the cause of stuttering is a dynamic affection of the respiratory muscles, having, probably, its primary seat in the nervous system. The convulsive movements of the vocal and

* *Traité du Bégaiement.* Paris, 1847.

articulating organs ; the difficulty of pronouncing certain syllables and their frequent repetition, are merely the consequences of the premature escape of the air which is not employed in the formation of sound. It is, therefore, necessary to prevent this escape of air, by retaining it as much as possible during speech. In stuttering it will be seen that the walls of the thorax sink too often, to expel the excess of air introduced. The result of this is, that a larger quantity of air escapes than is necessary for articulation, and a sensible current of air arriving in the buccal cavity at the moment when the tongue, the lips, and the buccal parietes contract for articulation, it impedes their free action, and produces stuttering. Such being the case, the loss of air must be prevented by retaining it as much as possible, and employing it in the formation of articulate sound. He says : "The primary cause of stuttering lies in the defective action of the thoracic muscles ; the secondary, in the articulating muscles, which are consecutively affected."

Commentary.—Dr. Becquerel's theory, though defective, contains much that is true, which, under careful guidance, may be carried out in practice. But it is a mistake to suppose that such a theory is universally applicable. Though, in many stutterers, the breath requires economising, it is unfrequent that such a quantity of unemployed air escapes as to mechanically interfere with the action of the articulating organs. It appears that Dr. Becquerel himself laboured under an impediment in speech, and he

accordingly placed himself under Colombat. After undergoing a short course of treatment, he was cited by Colombat as cured, and, in fact, was pronounced cured by the commission which sat for the purpose of awarding the Monthyon prize, which Colombat obtained. The latter, according to his first account, cured Dr. Becquerel in eight days; subsequently, however, a slight relapse occurred, and he was cited as cured in fifteen days. But Dr. Becquerel, in this memoir, asserts that he had been treated unsuccessfully for "twelve years" by the method of Colombat, but had been subsequently cured in "twelve days" by M. Jourdan. It is this method of Jourdan that our author has amplified and developed in this work. In a later work published by Dr. Violette, we learn that Dr. Becquerel had lost all hope of being cured, and admits that the method of Jourdan merely gives the stutterer the power of speaking well when he wills it; but the habit can never be permanently acquired, and consequently the cure is never complete.

GRAVES* says: "Stammering has been explained as depending on spasms of the muscles, which are employed in modifying the column of air as it rushes through the narrow aperture of the glottis. At certain times, and under a variety of circumstances, those fine muscular organs become spasmodically affected, the vocal cords no longer undergo the same steady and exact tension and relaxation, and speech becomes interrupted in consequence of frequently recurring closure of the glottis."

* *Clinical Lectures*, edited by Dr. Neligan. London, 1848.

With respect to the cure of stuttering, he says: "I have recently discovered a method by which the most inveterate stutterer may be enabled to obtain utterance for his words with tolerable fluency. It is simply by compelling him to direct his attention to some object, so as to remove it from the effort he makes to speak. Thus, I direct him to hold a rule or a bit of stick in his right hand, and with it to strike the forefinger of the left, in *regular time* with the words he is uttering; the eye must be fixed, and all the attention directed to the finger he is striking, and the time must be strictly kept. This method I have tried in several instances with complete success, and Dr. Neligan informs me that, since I first mentioned it to him, he has found it completely effectual in numerous cases. Although, of course, when thus employed, this plan can only be regarded as a means of affording temporary relief, I have no doubt, that if it were perseveringly followed out with young persons who stammer, both in reading and speaking, it would cure them permanently of the unpleasant affection. Its efficacy would seem to prove that stammering is altogether a nervous affection."

Commentary.—With regard to the above discovery of "a method," it is simply the old story of the substitution of one trick for another, Dr. Graves, however, fairly admits that it is only to be considered as affording temporary relief. If it produced temporary relief, without seeming to more firmly engraft the defect into the system, there would be no harm in this plan; but all these tricks only tend to com-

plicate what is often a very simple misuse of one or more of the organs of articulation ; and no "method" can be of any real benefit that does not remove this faulty action.

BACC. MED. OXON.* says : "My belief is that stammering originally arises from an infirmity in the *motor nervous power* ; that there exists in some individuals an idiosyncrasy, amounting probably to a too great irritability or sensibility of fibre in that part of the brain or ganglia, as well as their efferent nerves, which control the motions requisite for speech, and that this peculiarity exposes it to be most easily deranged, and *driven into spasmodic action by the ordinary mental desire to speak.*†.....I think it probable that in some cases of adults, the motor weakness may have *really* vanished, and yet stammering *continue from the force of habit and association, added to the excess of mental anxiety on the subject of speech.*"

The author divides his treatment into physical and moral. Physical remedies are to be applied when the stuttering is continuous, while moral treatment is best adapted to the intermittent kind.

With regard to the physical means, he says : "I think it right for any stammerer to take advantage of any artificial means by which spasmodic utterance may be warded off for the moment." These may be :

* *On Stammering and its Treatment*, by Bacc. Med. Oxon. London, 1850. This work is usually attributed to Dr. Monroe, but it is not known as a certainty who was the real author.

† The Italics are in the original. J. H.

Dr. Arnott's remedy, or the stream of sound, omitting obnoxious letters, keeping the mouth open, uttering a slight grunt before speaking, holding a handkerchief before the mouth, imitating the voice of another person, squeezing the back of a chair, adopting some position of the body, etc., etc. About all these contrivances, he says: "Use them while they continue to be efficacious, but do not depend on them too much."

His moral remedies are as follows:

"1. To reduce mental emotion by a daily, hourly, habit of abstracting the mind from the subject of stammering, both while speaking and at other times.

"2. Not to excite mental emotion by attempting unnecessarily to read or speak, when the moral sense assures any one of not being able to accomplish these things without great distress.

"3. To elude mental emotion by taking advantage of any little artifice to escape from stammering, *so long as the artifice continues to be a successful one*, and not to listen to the observations of ignorant people on this head.

"4. To strengthen physical power by any means which conduce to the general health."*

Commentary. — It would thus appear that our

* An apology is due to this able writer. In the previous editions of this treatise the above suggestions were attributed to Dr. W. B. Carpenter. I now find that Dr. Carpenter in the fifth edition of his *Principles of Human Physiology*, 1855, simply transcribed and adopted them, without, however, the usual indications shewing that they are merely quotations from another author.

author looks upon stammering (which word he uses synonymously with stuttering), rather as a psychical affection, which must be combated by psychical means. That there are some stutterers who are more free in their utterance when not thinking of their difficulty, or when their attention is, during speech, directed to another object, is very true; and in such cases the act of abstracting the mind from the subject of stuttering might prove beneficial if the pupil had the power to do so; but the difficulty consists in reducing such a theory to practice. Nothing is easier than to advise the patient to withdraw his attention from his affliction—nothing more difficult to the stut-terer than to effect it.

To exercise a voluntary power over the direction of our thoughts when we are, by actual sensation, constantly reminded of our affliction, requires a mental effort which but few are capable of. And if the case be really merely psychical, and the patient have sufficient mastery over his mind, would it not be more rational to advise the patient to do just the reverse; that is to say, to direct his attention to his affliction, and to overcome it by concentrated firmness of purpose?

BISHOP* believes that the most common form of stuttering is produced when persons attempt to articulate the desired sounds without putting the glottis into vibratory action. He says, "that it is

* *On Articulate Sounds, and the Causes and Cure for Impediments in Speech.* By John Bishop, F.R.S. London, 1851.

necessary to direct the patient to vocalise the breath so as to utter a continuous sound, as by singing a note in music." Mr. Bishop seems to have arrived at this conclusion from the fact that stutterers do not generally hesitate in singing. One great object, he continues, is "to enable him to exercise a voluntary control over the mental and vocal function simultaneously." As to the exciting cause of defective speech, Mr. Bishop says: "The most frequent cause of stammering is the imperfect education or training of the organs of articulation, and a deficiency in that sympathetic association which ought to subsist between the articulating and vocal organs."

Commentary.—Mr. Bishop seems to lay much stress on the alleged fact, that there is no stuttering in singing. It will elsewhere be seen that I do not admit this as a constant fact, as I have met with persons who did stutter in singing. Most stutterers know that they generally speak better in an assumed or chanting tone; what they desire is to speak freely in a natural tone.

ANGERMANN* says: "The primary cause lies in the defective volition of the mind upon the organs of speech. The mind, the central organs, the nerves, and the muscles which set the speech organs into action, are disturbed in their mutual functions. This perturbation may originally proceed either from the

* *Das Stottern sein Wesen und seine Heilung.* By Dr. F. Angermann. Berlin, 1853.

mind, from the central organs, from the nerves, or, finally, from the muscles."

He distinguishes three causes :

1. The mind is too excited to be the regulator of the speech organs, as in rage.
2. The mind is too much turned inwards to be the regulator of the speech organs, as in melancholy.
3. The mind is not quite clear in its volition, as in fright and confusion of sensations.

With regard to the treatment, he says: "This is first directed to make the stutterer acquainted with the whole process of the formation of speech, with the functions of the different organs in the production of single sounds and in connected speech, so as to enable him by practical artifices to overcome his faults."

Commentary.—Dr. Angermann, as will be observed, looks upon stuttering rather as a psychical affection, and consequently requiring, so to speak, psychical remedies. He is one of those few authors who properly discriminate between stammering and stuttering, and adapt the treatment accordingly. It is in this that the chief value of this author's short treatise consists.

ROMBERG * places *ischnophonia*, or arrest of the voice, in his Class II, Neuroses of Motility, under the head of Vocal spasms. He says: "An interruption of the voice in pronouncing single sounds or syllables is

* *Nervous Diseases of Man.* Vol. I. London, 1853. Translated by Ed. H. Sieveking, M.D.

termed *stuttering*. It generally occurs when a consonant is combined with a vowel at the commencement or in the middle of a word, sometimes also when an attempt is made to pronounce a single letter. The preceding sound or syllable is repeated in explosive sounds, until the impediment has yielded. This is not done where the sound is continuous.....The convulsive obstacle only occurs in sonorous speech; there is no difficulty in articulating if the individual confines himself to a whisper. It is this that essentially distinguishes stuttering from *stammering*, which consists in an inaptitude, an impediment to the articulating movements, and with which it is frequently confounded."

Commentary.—It will be seen elsewhere that I do not assent to the doctrine that there is no stuttering in whispering. I grant that several—perhaps most—stutterers find a sensible amelioration of their infirmity, some even find no obstruction, when thus speaking. This shows that the evil is caused principally by the faulty association of vocalisation and articulation. But there are cases, by no means exceptional, in which respiration is at fault; and these frequently stutter even when whispering. They may at first speak without interruption, from the novelty of this mode of speaking; but if continued for any length of time, they invariably experience the same difficulty as when speaking in the ordinary manner.

EICH * says: "It is generally assumed that the

* *Die Heilung des Stotter-Uebels und sonstiger Sprachfehler.*
By Dr. Eich. Pesth, 1858.

chief cause of this evil is the more or less abnormal physical quality and abnormal functions of the direct organs of speech. My experience has, nevertheless, shown me that in many, nay, in most stutterers, the organs of speech open to examination are in a healthy state, though the infirmity was present in a high degree. The abnormal function of these organs must, therefore, arise from other circumstances. In most of these cases, the infirmity dates from early childhood. The tender infant, not yet exercised in speaking, finds it difficult to produce certain sounds; it enunciates them in a faulty manner, and consequently all words in which they occur. With the advance of intelligence, or in consequence of admonitions, the child now makes efforts to articulate more correctly; but both the relaxed state of, and the excessive strain upon, the organs of speech weaken them, and stuttering results. The defect must then be remedied according to the cause that has occasioned it.

“ If some persons cannot properly enunciate a word, it is not this particular word, but mostly a single sound which occurs in it. When, for instance, individual letters, such as *k*, *r*, *t*, *z*, cannot be pronounced correctly or fluently, the patient cannot enunciate easily the words in which these consonants commence the words or occur repeatedly. We do not assert that the evil which has arisen in this manner can be immediately removed by directing our attention to the correct enunciation of the defective sounds, unless the treatment has commenced in early childhood, when the evil is confined to but a

few faults, and has not yet extended to all the organs of speech.

“ If the stutterer has reached the second quinquennium, the abnormal functions have already become so much subject to habit, that the treatment must then embrace all the sounds, as well as those which are peculiarly difficult.

“ With regard to the question as to the origin of the abnormal functions of the organs of speech, a variety of causes may be enumerated. In some cases, the evil arises from malformations of all kinds in the organs of speech ; in other cases, from an abnormal process of thought in the stutterer ; and in earliest childhood, from fright, anxiety, or mental weakness ; but still more from the circumstance that parents force their children to pronounce words and phrases of which they have no notion, without giving them time to meditate on them. In all these cases, stuttering depends on abnormal functions, whatever may have been its cause. It is evident that for a rational and radical cure, the nature of the evil and its cause must be known. The causes of the abnormal function of the respiratory organs can be explained by the disordered function of the organs of speech.

“ The stutterer frequently complains of a pressure upon the lungs, of a tightness about the chest ; and many assert that the stutterer attempts to speak during inspiration, in which he fails, so that he cannot pronounce a word. But, on strict examination, it is evident that no man can speak during inspiration. Every man effects the enunciation of words whilst the

air escapes from the lungs, which is equally the case with the stutterer. That the respiratory process is in many stutterers abnormal cannot be denied, but we must not confound the form of the evil with the evil itself, or with its cause. Instead, therefore, of saying that stuttering arises from a wrong mode of respiration, it should be said abnormal respiration arises from stuttering, and this, again, from abnormal functions of the direct organs of speech. The truth of this assertion is easily ascertained, in observing a stutterer at the moment he attempts to speak, and fails. He sets in motion all organs of speech, yet the intended word is not produced. During this effort his breath is stopped, and he feels pressure, either from the lungs being empty, or from their being filled with air. He then either gasps for air, or endeavours to expel it: in the latter case, he usually succeeds in enunciating some word. The disturbed respiration causes in these cases contortion of the facial muscles and other morbid affections."

He continues: "After what has been said, it is evident that stuttering arises from a variety of causes, rather psychical than physical, and that a correct diagnosis in regard to their mental and bodily relations requires a sound knowledge of anatomy and psychology, without which all treatment would be groping in the dark. Hence it may be also explained why the evil cannot be cured by one pharmaceutic remedy, one surgical operation, or one method of instruction; but that the number of existing means

of cure must be adapted and correspond to individual cases and their causes.

"This can only be effected in the best and surest manner in institutions devoted to this special object, where the pupil passes most of his time under the personal superintendence of his teacher, and where the corresponding means, which must be daily changed according to the diminution of the evil, are daily applied."

Commentary.—The above remarks show that Dr. Eich has had some personal acquaintance with stutters. His opinions, on the whole, are sound and judicious. Dr. Eich seems, however, to have fallen into a rather common error in his supposition that it is impossible to speak during inspiration. The inspiratory voice is but rarely used; but still it is employed, and may frequently be detected by its being about an octave higher than the ordinary voice. The first part of the cry of the donkey is inspiratory, and ventriloquists occasionally speak during inspiration. With this exception, Dr. Eich's remarks are valuable. His pamphlet, though containing nothing new, is written with common sense,—rather an uncommon thing with very many writers on this defect.

LEUBUSCHER* says: "The spasmodic affections of the organs of speech occur in the tracts of the hypoglossus, the facial and accessory nerves, whereby the

* *Handbuch der Medicinischen Klinik.* By Dr. Leubuscher, Professor of Pathology, in the University of Jena. Leipzig, 1860.

tongue, the lips, and the palate are drawn into abnormal motions, producing stuttering. We must not confound this with stammering, in which the sound is imperfectly produced in consequence of the motion of the tongue being imperfect, either on account of some mechanical obstruction or imperfect innervation. Stutterers have, in most cases, only to overcome the first impediment—that is, to direct the stream of innervation into the right channel. There are seen tremulous motions of the lips and the tongue; the pharynx and the glottis are spasmodically constricted; there are convulsions of the facial muscles; then issue some words or sentences, until some syllable or words present an obstacle, when the subject stops short, and repeats the same process. The embarrassment of the patient increases his irritability.....

“The cause of stuttering may be in the brain; is frequently psychical, and the peripheral affection which certainly may, in some cases, be the primary cause, does not generally constitute the affection. The main remedy is *methodical gymnastics, which regulate innervation—a method which is successfully applied by special practitioners.*”

Commentary.—The reader will not have failed to observe how, nearly every year, clearer and more correct views are entertained of the nature of stuttering by different writers. It is now not only special practitioners who have embraced sounder views, but we find that, throughout the whole of Europe, writers on physiology and pathology are more or less deserting the old track, and adopting the views of those who

contended that nature, and not medicine or surgery, can alone be called upon to remedy this defect.

ROSENTHAL* says: "In weakly children with flat chests, the respiratory muscles are frequently but faintly developed. The respiratory motions become unequal and interrupted, and so the requisite quantity of expiratory air is not furnished. If once this has become a habit, the disharmony in the respiration grows worse, and the influence of the will upon the respiratory process becomes fainter.

"Thus it comes to pass that in stutterers who have become habituated to short and unequal expirations, the greater portion of the air in the thorax is, under any psychical excitement, uselessly lost before it can be expended in the formation of words. Now, instead of supplying the lost air by a deep inspiration, the stutterer, in his anxiety, tries to assist the interrupted expiration by drawing in his abdomen. But during this pressure, by means of the abdominal muscles, the larynx is closed, the arytaenoid cartilages approach each other, and the vocal chords are nearly in contact.....Many other muscles are contracted, the convex cushion of the epiglottis is pressed upon the larynx, the tongue remains fixed to the hard palate, the pharynx is narrow and rigid, its communication with the buccal and nasal cavities interfered with; the expiratory current finds, therefore, no exit, and the articulation is rendered difficult, if not impossible."

* *Wiener Medicinalische Wochenschrift.* Nos. 35—38. 1861.
Stottern. By Dr. Mor. Rosenthal.

Commentary.—The above theory of Dr. Rosenthal no doubt holds true in some cases, but his observations apply almost exclusively to one case, and it was for this case, that had been recommended to his care, that he applied himself to the study of the literature of stuttering. He accordingly adopted, with some modifications, the rhythmical method of Colombat; and he appears to have cured his pupil by the constant application of rhythm. However, he does not assert that he had seen him after he was dismissed as cured. He further says that he was aided in this case by the great perseverance of the pupil, and that he did not arrive at the same result when treating a child aged nine, on account of the want of energy and perseverance.

WOLFF,* who formerly advocated the use of the knife in some cases of Psellismus, by a division of the nervus hypoglossus, has more recently published his present ideas on this subject. He now says that "*stuttering is no disease*, but a morbid disposition, or an abnormal action of the organs of voice and speech. The cause of stuttering may either be in the nerves which govern the respective organs, or in the organs themselves; thus the partisans of either doctrine are right, but it is only on close examination of each particular case that we can determine the original cause." He now believes "that in stuttering we may, in most cases, obtain a cure without operation.

* *Das Stottern und seine Heilung.* By Dr. Philippe Heinrich Wolff. Berlin, 1861.

. . . . In stuttering no deformity is generally perceptible The more material the disease, the more material the treatment. Whether the cause of psellismus be in the nerves, or in the organs themselves, may soon be discovered by an attentive experienced person, provided he be fully acquainted with the physiology of voice and speech, for that is absolutely requisite to give a just opinion on abnormal action." Dr. Wolff contends that there are three species of stuttering : first, that affecting the respiratory organs ; second, the vocal organs ; and third, the articulating organs. The last species, he says, has five sub-divisions. He further observes, "In such cases, which resist all other treatment, I should nevertheless not hesitate to try the operation indicated by me, namely, the division of the nervus hypoglossus instead of the section of the tongue. I must, however, confess I have not met with such cases." There is little further worth mentioning, except that the author seems to advise the trial of a little of everything.

Commentary.—Dr. Wolff says the success of the gymnastic orthophonic treatment is undeniable ; but nevertheless he seems inclined to recommend the trial, as adjuvants, of half the drugs in the pharmacopœia. Our author appears to know just enough of the subject to mystify himself as well as his readers. There are, no doubt, some affections of the voice for which Dr. Wolff's treatment would be beneficial, but beyond this his brochure does not indicate the slightest advance on the opinions which were in vogue in the year 1700, and publicly expressed by

Amman. He only seems to have treated two cases of stuttering, and he says that in the second case he merely succeeded in enabling the subject to read or speak before persons known to him, but that he could not speak to strangers. That is very easily done in most cases; but it would be most unfortunate for society if this were the only benefit that could be rendered. Very many of my pupils, when they first come to me, are always able to talk to their friends, and it is just the power to speak to strangers that they desire.

VIOLETTE* says, "Stuttering is a complex affection; but there is only one cause which resides in the brain acting on any of the organs concerned in the production of speech. Hence it results that in some, the respiratory organs act inordinately; in others, the muscles of the pharynx, larynx, etc., interfere with speech by their abnormal contractions; in others, finally, the functions of the buccal organs are in fault." With regard to his method, Dr. Violette says, that it consists entirely in vocal gymnastics, and specially in gesticulation. He also observes that treatment in classes generally succeeds best, as stutterers are then not afraid of making use of certain artifices apt to regulate their mode of expression. He adds, "one of the most important conditions to effect a cure consists in the frequency of the visits of the teacher to the stutterer."

Commentary.—Dr. Violette's mode of treatment is

* *Études sur la Parole et ses Défauts.* Paris, 1862.

almost entirely founded on that of Prof. Serres d'Alais, to whom, indeed, the work is dedicated. But whilst Serres and others recommend that gesticulation and enunciation should be concomitant, our author lays it down as a principle "that every stutterer should gesticulate first and pronounce afterwards." This is about the only claim for novelty of treatment made by the author, and must be taken for what it is worth.

As regards the frequency of the visits of the teacher to the stutterer, it is entirely a mistake to suppose that the stutterer can hope to be cured in this way. As the reader will see, in other parts of this work, the residence of the stutterer in the institution of his instructor is, in the generality of cases, an indispensable condition of success.

BÉCLARD,* in the last edition of his *Physiology*, devotes the following short paragraph to stuttering.

"Every one knows that this imperfection of the pronounciation consists in a particular difficulty in articulating certain consonants. Hence result stoppages, followed by explosions of sounds. This difficulty occurs sometimes at this, at other times at that consonant. The affection, moreover, is not constant, but manifests itself in special moral conditions. The real seat of stuttering is not in the muscles of the tongue, but in the nervous system, which sets them in motion. The section of the muscles of the tongue which some surgeons have applied to the cure of stuttering may indeed induce paralysis of some portions of that or-

* *Physiologie Humaine*. By J. Béclard. Paris, 1862.

gan by the section of the respective nerves, but will not restore to the stutterer the articulation of sounds."

KLENCKE† says, "in stuttering it is the expiratory current which is obstructed; for moments it is not developed at all, so that the will is not the master of the organs. The harmony between the volition and the respiratory system is wanting, and as the articulating organs are in action, but the vocal organs impeded, the harmony between the organs of vocalisation and articulation, so requisite for speech, is absent.

1. "The object of the teacher should, therefore, be directed to the following points: he must not lose sight of his pupil, but must as frequently as possible be with him, to serve as a mental and moral lever. Stutterers are either of a sanguine temperament, and in early youth careless about their infirmity, nor have they the firmness to direct their attention to the faults they commit; or, especially when they have stuttered for a long time, they are of a retiring contemplative mood. The mind has then acquired a relaxed type without any elasticity. I have, therefore, never seen a patient cured where there has not been some psychical preparation. We must acquire the confidence of the pupil, draw his attention to his faults; but we need not present to him the cure as very difficult, otherwise we should discourage him. His mind must be roused. But as the mind is inti-

* *Die Störungen des menschlichen Stimm- und Sprachorgans.* Cassel, 1844.

mately connected with the physical organism, it must be our endeavour to act on the mind by the organism.

2. "The respiratory organs must be systematically developed."

Thus wrote this author in 1844; but an experience of twenty years induced him to modify his primary views, as will be seen in the subjoined extracts from his recent work.*

"In medical subjects every theory is usually more or less artificial and complicated; it establishes much more than may be useful in practice. How complicated and circumstantial was not the formerly recommended treatment of stuttering, founded upon imperfect experience, and how have I not bothered myself with *apparently important*, but in reality *trifling*, phenomena! My experience during the last fifteen years has proved to me that with theories we effect nothing in stuttering; that we must observe *many* stutter cases, must compare the natural phenomena, and must treat defects of speech as *undeveloped* capacity, in which we have to remove the cause and to regulate the nervous system by psychical power. But as every practitioner finds out that, with all his theory, he frequently is quite helpless at the bed of the patient, and gradually perceives that he must adopt some empirical method; so it is with the physician who is about to treat stuttering according to his scientific theory. I have as yet seen no stut-terer who has been cured by a scientific treatment

* *Die Heilung des Stotterns.* Leipzig, 1862.

according to causal indications. An individual, for instance, is treated for spinal irritation, or some other central or peripheral disorder: he still stutters as before; what have all medicaments and operations effected? *Nothing* as far as I know. And of what use to the stutterer is the improvement in his nervous system, so long as he has not learned the *technics* of *speaking*? Would it ever occur to a physician to make a man a singer by drugs, without any instruction in singing? I also doubt whether a physician can immediately form a correct estimate of the causes of stuttering, and treat it therapeutically, by looking upon the sufferer merely as a *patient*, that is, by seeing him once a-day, and prescribing for him. . . The relief we have a right to expect is, *not* the cure of stuttering, but merely the removal of the predisposing causes, which conditioned stuttering either directly or indirectly. The stuttering itself will always require a *special* didactic treatment, in order to alter the condition of the respective organs, and to develop their acquired freedom by practical activity. Whenever a decided medical treatment of the general system was requisite, I always acted in concert with such physicians as previously knew the patient or such as attended at my institution. . . We must not imagine that we can treat nervous stuttering, whether it be erethic or paralytic, by drugs, which, like nitrate of silver, strychnine, etc., produce a known effect upon the nervous system. I am not aware that they have been of any use in such cases. They may in particular indications serve to alter ab-

normal functions, but can only in some few favourable cases be useful as a preparatory cure for the treatment of stuttering. I have noticed that nervous irritation which favours stuttering can only be conquered by attention to diet, and by the restoration of the normal function of the irritable organs. . . I have, averse as I am to the employment of drugs, especially with scrofulous and debilitated individuals, arrived at the conviction that a proper diet mostly suffices to improve the muscular and nervous system. Where the nutritive functions were oppressed by the predominance of an irritable nervous system, a corresponding alimentation was effective; where great sensibility disturbed the normal harmony of the functions, a regular regimen, combined with muscular activity, proved very advantageous. When a weakly organic life manifested itself by a particular indolence and mental weakness, approaching sometimes the character of cretinism, a methodical excitation of mental activity proved an adjuvant in the cure of stuttering. The mental condition plays, especially in adults, an important part in the treatment of stuttering. The endeavour and ambition to get rid of an evil which leads to ridicule, exercise a beneficial influence upon adult stutterers, provided we know how to make use of these feelings. In such cases I always present to the stutterer his evil as specially a mental one, which may be conquered by his *firm will*. He now directs his attention to himself, he is vexed at his stuttering, looking at it as a weakness of the will, and by doing so he supports me

much in his treatment. This firmness of the will is a powerful regulator of the nervous system, it forces irregular innervation into the normal channels. I, therefore, endeavour in *all* stutterers to rouse this firmness of the will and to keep it in constant action.....

“ The physical exercise is to become a mental act. In the same way as the child learns to speak, so will the stutterer, in many respects comparable to a deaf-mute, learn to place his language under the judgment and dominion of the ear.....

“ I have myself, many years ago, thought that a physical speech-practice was sufficient to cure stuttering; experience has taught me better.....

“ I then learned that this method was not a *natural* method; that a child does not learn to speak by being exercised in individual consonants, but that from the very *beginning* he learns by the *ear* and the *mind* to imitate and to develop speech as an expression of thought and feeling.....

“ How the brain or the spinal cord is primarily or secondarily concerned, I cannot clearly say, and it is, therefore, better that I pass it over than to increase the number of suppositive theories. As regards the practical treatment of stuttering, it is enough for us to know that some general disorder has altered the nervous and muscular life.”

Commentary.—It cannot be but gratifying to myself to find that the results arrived at by Dr. Klencke, after twenty years practice, are nearly identical with the leading views promulgated by my late father and

myself for many years past. At the beginning of his practice, Dr. Klencke made use of a variety of instruments then in vogue, so repeatedly denounced by me in former treatises. At present Dr. Klencke has relinquished them altogether, and adopted that *natural* method long since insisted upon and practised by my late father and myself. But whilst agreeing with this author's general opinions respecting the nature and treatment of stuttering, I differ from him as regards both his classification and specific treatment of the various kinds of stuttering. There are some inconsistencies in Dr. Klencke's work, which it would be ungracious to dwell upon, cordially agreeing, as I do, in most of the able author's conclusions.

SCHULZ,* after reviewing the various methods proposed for the cure of stuttering, arrived at the following conclusions:—

1. Stuttering properly so called, in which no organic defects are perceptible in the articulating organs, has its seat in an augmented excito-motory action, or predominating influence of the spinal cord upon the respiratory and articulating muscles.

2. The treatment of stuttering must begin with diminishing this predominating action of the spinal cord, and thus to obviate the peripheral or central stimuli. We must treat each case according to circumstances.

3. The influence of the brain or the will upon the respective muscles must be strengthened.

* *Journal für Kinderkrankheiten.* By Dr. Erwin Schulz, 1866, p. 220.

4. Finally, we must by gymnastics and great perseverance overcome the stuttering which has become habitual.

Commentary.—The views of Dr. Schulz are nearly identical with those expressed twenty years ago by Lichtinger and other writers, and present no new features.

CHERVIN* contends that the cause of stuttering has its seat in the brain, and in some of its agents. "In point of fact," he says, "speech has its source in the irradiation parting from this centre, and transmitted by the cerebral nerves to the muscles; the organic or voluntary movements concur in the production of sound called voice, or in the modifications of the sound called speech. If then the cerebral irradiation gushes out irregularly either too slowly or too rapidly; without continuity; without energy or precision, from a sluggish intelligence; if in this vehicle of intelligence there prevail certain perturbations, then the organs of speech present an anomaly which is the reflex of perturbation..... Stuttering resides either in the brain itself or in certain cerebral organs, or simultaneously in both. In the act of speaking, the brain commands; respiration, the glottis, the tongue, and the lips obey. If the order is vague, undecided, the vocal organs want harmony in execution, and speech will be hesitating, jerking, and difficult."

He says that in the treatment "we must pay more

* *Du Bégaiement considéré comme vice de Prononciation.* By M. Chervin, aîné. Paris, 1867.

attention to the moral state of the pupil than to his physical condition," and he strongly insists that a firm will is indispensable to success. Speaking of the methods of his predecessors he asserts that he has tried them each separately, and that "all of them after more or less time have yielded satisfactory results." He therefore affirms that the whole secret lies in the application of the procedures.

Commentary.—M. Chervin may be, and no doubt is, a very excellent schoolmaster, and a good teacher of elocution; but being neither a physiologist nor a psychologist, he takes the theory and practice in relation to speech impediments from his predecessors. He, in fact, admits that there is nothing original in his system, that he uses all the remedies previously employed; but he claims great skill in their application,—a claim which cannot easily be refuted.

MARSHALL* says a few words on defective speech: "Imperfections of speech, such as *lisping*, *stammering*, or *stuttering*, are due to errors in the action of the organs of speech. Stammering is almost always caused by some irregular action of the nervous centres, and is chiefly produced by temporary spasm of the glottis, associated with embarrassment in other parts concerned in articulation. It may originate in nervousness or fright, and sometimes in imitation or affectation. By patient and persevering practice, founded on an accurate perception of the erroneous movements

* *Outlines of Physiology*, p. 268. By John Marshall. London, 1867.

and their correct substitutes, or by the recovery of self-confidence, these imperfections may generally be remedied."

Commentary.—It will be seen from the above extract that Professor Marshall uses the terms stuttering and stammering synonymously, an error which has taken too deep a root in the minds of English writers to be easily eradicated. With this exception his remarks, though few, are so much to the purpose, that it is to be regretted that more space was not dedicated to this subject, for it certainly requires more than a passing remark from physiologists.

LEHWESS* says that the etiology of stuttering consists—1. In an improper function of the respiratory organs: 2. In anomalies of individual muscles of the speech organs, *e.g.*, of the larynx, pharynx, tongue, and mouth, the modifications of the attached tube of the speech apparatus, by which anomalies the action of the will on the muscles is disturbed; 3. In an abnormal psychical condition or dynamic conflict between the will and speech movements.

The whole of his treatment consists in rhythmical exercises, which, he says, remove all the efficient causes of stuttering.

Commentary.—We were unable to find in this treatise any original views. The author simply adopts the current opinions touching the etiology of stuttering, and falls into the common error of considering

* *Radicale Heilung des Stotterns.* By Professor Joseph Lehwess. Berlin, 1868.

rhythm to be a panacea for all sorts of speech impediments.

WYNEKEN* considers stuttering as a neurosis. He agrees with Schulthess, that the chief seat of stuttering is in the larynx; and as there are no anatomical alterations, he considers stuttering, not as an organic, but as a functional affection.

He says: "As it is one of the chief characters of neurosis that in the absence of any organic lesion we observe a functional vice, the greater or lesser manifestation of which and its disappearance depend in many neuroses upon the psychical condition of the patient, we cannot do otherwise than consider stuttering as belonging to the class of neuroses. If we attribute the fault to some individual nerves which are withdrawn from the influence of the will, we might name the vagus or some other respiratory nerves."

"Concerning the essential agent of stuttering, he expresses himself as follows: Stuttering consists in a temporary inability, conditioned by various influences, to impart to the vocal ligaments the proper degree of tension for the production of vocal sounds, which allows the expiratory air current to pass through the glottis without causing the vocal ligaments to vibrate."

"If I can trust to my own impressions," he continues (he was himself a stutterer), "and observations

* *Ueber das Stottern und dessen Heilung.* By Dr. C. Wyneken, Göttingen. *Zeitschrift für Rationelle Medicin*, vol. xxxi. 1868.

in forming an opinion, I should assign to defective influence of the will the proximate psychological cause of stuttering.

“Why individual muscles are withdrawn from the influence of the will cannot easily be explained, as we know so very little of the mechanical action of the will upon the nervous filaments.....

“If I attempted to give an explanation, I should say that in the stutterer the will as regards the muscles of speech is more or less interfered with by doubt.”

Wyneken then proceeds to the description of his method, which, he says, he learnt during three years residence at the institute of Herr Katenkamp, Delmenhorst. The pupil, he says, while under treatment must observe the strictest silence, which is of great importance, “inasmuch as the stutterer is thus prevented from losing his faith in the method.” This “faith” seems to be the main object of Wyneken’s method, for he further says, “we must deprive the stutterer of his doubts and replace it by conviction, that is to say, by faith in his capacity to do everything. If once we succeed in convincing the stutterer of the certainty of a method, he will speak well so long as he believes it.” He continues: “Nothing is here to be done by precepts. The cure of stuttering requires, in my opinion, the full devotion of the stutterer; his whole mind must be directed to the cure of this evil, and he must certainly be under supervision. The treatment is best effected in an institution.” He advises the exercise of respira-

tion, of voice, and of speech, subjected to rhythmical time-beating. The pupil is then sent on messages or commissions to speak with strangers; if he succeeds, and after continuing the rhythmical speech for some months, he is dismissed as cured. But, he adds, that "few are permanently cured, and most suffer from a relapse, and the stuttering sometimes becomes worse than it was before."

Commentary.—Dr. Wyneken's contribution is so far interesting as it is entirely practical, and gives an account of the system pursued in a noted establishment for the cure of speech-impediments. He is, unfortunately, another instance of an uncured stut-terer, and consequently we cannot be surprised at his opinion that permanent cures of stuttering are very rare.

HOLMES COOTE* says: "Stammering proceeds from timidity; from want of familiarity with the construction of sentences; from some temporary defect of the tongue. It may be cured by patient instruction, aided by time." But "stuttering implies a want of power to co-ordinate action; and I fear we must seek its source in the sensorium. When the word is applied to limbs or organs we must refer to the spinal cord." For the cure of stuttering he recommends the patient to utter some easy sound, and then to speak slowly and distinctly, and to desist from speaking until the spasm has passed away. "By the study of language a greater command of words will be obtained,

* *Notes of a Clinical Lecture on Stuttering and Stammering.*—*Brit. Med Journ.*, Dec. 12, 1868.

and by this a corresponding advantage of selection in the means of expression will be gained."

Commentary.—I have much pleasure in adding the name of Mr. Holmes Coote to the list of authors on defective speech, as it affords pleasing evidence that the confusion, hitherto existing in this country, respecting the words Stammering and Stuttering, bids fair to be removed by the teachings of such men as our author.

ORÉ and GUILLAUME.—I shall conclude this periscope of the literature of Psellism by noticing two recent articles on this subject, which specially deserve attention, inasmuch as they are intended for permanent references in two standard works.

The article "*Bégaiement*," in the *Nouveau Dictionnaire*,* bears the signature of Dr. Oré of Bordeaux, and that in the *Dictionnaire Encyclopédique*† is by Dr. A. Guillaume of Paris.

I may state at once that the respective authors arrive in the main point at opposite conclusions. Dr. Oré theoretically approves of surgical operations, while Dr. Guillaume rejects them on every ground. Fundamentally Dr. Oré's theory is founded upon that of Dr. Bonnet of Lyon. He agrees with the latter in considering that although the primary cause of stuttering must be sought for in the nervous system, yet this primary cause having disappeared,

* *Nouveau Dictionnaire de Médecine et de Chirurgie Pratiques*. Paris, 1866.

† *Dictionnaire Encyclopédique des Sciences Médicales*. Paris, 1868.

stuttering becomes localised, and must be treated accordingly. And as this local affection has chiefly its seat in the abnormal contraction of the genio-glossi, or in the structure of the frænulum, he advises the section of these parts according to the diagnosis. As I do not find that Dr. Oré speaks from personal experience, much importance cannot be attached to mere theoretical assumptions. Dr. Oré's article is short and meagre, and almost exclusively devoted to surgical operations for the cure of stuttering, a procedure we thought long ago exploded.

With reference to Dr. Guillaume's treatise, I feel bound to speak of it at some length, both on account of its merit, and because he himself suffers or suffered from an impediment of speech, and ranks, therefore, in this respect with Drs. Astrié, Serres, Voisin, Becquerel, Chégoin, Warren, Merkel, Wyneken, etc.; all of whom have been led to write on this subject chiefly because they themselves were thus afflicted.

Dr. Guillaume, I have already stated, is altogether opposed to operations, and he recommends, accordingly, the didactic method in a long and elaborate essay.

Guillaume defines stuttering to be a vice of pronunciation, with an irregular intermittent type, chiefly characterised by the two following symptoms: 1. Convulsive repetition of the same syllable; 2. Convulsive stoppage before this or that syllable, the stoppage chiefly taking place at the beginning of a phrase.

The infirmity is owing to defective association in the action of the muscles, the concurrence of which

is necessary for pronunciation. The cause of this disorder resides evidently in the apparatus which co-ordinates the contractility of the above muscles. But admitting that the co-ordinating principle of the movements of speech resides in the anterior lobes, our author leaves it to more erudite physiologists and pathologists to determine the spot.

Dr. Guillaume remarks: "The sole difference between loud speech and whispering (*parole à voix basse*) consists in the number and amplitude of the vibrations. In whispering the vocal cords do not, however, reach the amplitude and the number of vibrations requisite for the emission of the least intense and gravest tone of loud speech. It is, therefore, false to say that the larynx does not intervene in aphonous speech;—the laryngoscope proves the contrary."

This fact forms the basis for utilising in the treatment of stuttering exercises *à voix basse*.

I agree with Guillaume that in aphonous speech the vocal ligaments are, probably, in some state of tension, and, possibly, of vibration. I, moreover, believe, as I have long since stated elsewhere, that this may be the case even in (if we may so call it) thought-speaking, or thought-singing, but I dissent from him in his assumption that the larynx is always concerned in aphonous speech. Numbers of cases are on record, shewing that aphonous speech may take place despite an occlusion of the larynx. In short, articulate speech may be said to be independent of the larynx; and hence we can whisper both

during inspiration and expiration, whilst loud speaking during inspiration is much more difficult, and much less distinct. I shall only quote one case of this kind, which Dr. Guillaume should have known, as it is cited by M. Bourguet,* and is again referred to by M. Béclard in the last edition of his *Physiology*.

A man, intending to commit suicide, cut his throat. The surgeon introduced a canula into the trachea to keep up respiration. The patient did not lose his power of speech. When he wished to express his desires, he performed some particular movement with his cheeks to gather the external air, as none passed through the vocal tube, and his tongue, lips, and mouth entered into energetic action, and he spoke distinctly both during inspiration and expiration, and without interruption, as in fact his articulating organs had for the time no connexion with his vocal apparatus.

With reference to the improvements which Dr. Guillaume claims to have introduced in the treatment of stuttering, they consist, by his own showing, chiefly in more developed lip-gymnastics, and, specially, in the recommendation of whispering exercises. I know from experience that these latter may, for various reasons, into which I cannot here enter, be very useful; nor can the lip-gymnastics do any harm, although I am far from attaching such importance to them as our author does.

* *Gazette Médicale*, 1856.

On the whole, Dr. Guillaume's essay is a very valuable contribution to the literature of Psellism. As a periscope, it is very defective; for whilst it is exhaustive as regards French authors, it ignores with but trifling exceptions most that has been done in this field of inquiry by foreign writers.

CHAPTER VI.

STAMMERING ; ITS CAUSES AND VARIETIES.

“ Language is to the mind what beauty is to the body.”

ARISTIDES, *the Rhetorician*.

Chief Causes of Stammering.—I. *Psychical Stammering*: 1. *Sermonis tumultus*.—2. *Baryloquela*.—II. *Speech Stammering*: 1. *Lallatio*.—2. *Blæsitas emolliens*.—3. *Blæsitas indurans*.—4. *Gammacismus*.—5. *Iotacismus*.—6. *Rhinophonia*.—7. *Urani-scophonia*.—III. *Minor Defects*: 1. *Rhotacismus*.—2. *Lambdacismus*.—3. *Sigmatismus*.—*Negro*.—*Polynesian*.—*Russian*.—*Stammering of Foreigners*.

THE causes of stammering in general are either *intrinsic*, *extrinsic*, or *functional*.

The chief intrinsic causes are morbid affections of any part of the vocal or articulating apparatus. When the organs of speech are in a normal condition, but are impeded in their action by marked affections of the parts situated outside the vocal and articulating apparatus, the causes are said to be extrinsic. Finally, the causes are functional, when the impediment is merely the result of habit, imitation, or affectation.

Chief Intrinsic Causes of Stammering.—Among the intrinsic causes may be enumerated: defects of the lips, which may be too short, too thick, too rigid, too

distant from the teeth, or hare-lip; want, or defective position, of the teeth; disproportionate size of the lower jaw; stiffness, or approximation of the same; apertures or fissures in the hard or soft palate; abnormal length, thickness, or absence either of the velum or of the uvula; nasal cavities constricted or obstructed by polypi, inflammation, cold in the head; inflammation or enlargement of the tonsils; excessive or defective length, breadth, thickness, or laxity of the tongue; loss of the whole or part of the same by cancerous diseases; abnormal fixture of the tongue to the frænum; tumours on the tongue or in the buccal cavity, etc.

Extrinsic causes.—Paralysis; spasms of the organs of speech, produced by local or general affections of the nervous system, general debility, intoxication, congestion, the cold stage of fever, loss of blood, narcotics, etc.;—all these may, by deranging the action of the various muscles, more or less tend to produce stammering. It may also be caused by defective hearing, weakness and suppression of the mental functions, as in partial idiotcy or imbecility. These conditions, when present in a high degree, may even produce *alalia* or dumbness.

The *dyslalia*, or rather faltering, of the aged chiefly arises from local or general debility. Sudden emotions, by affecting the brain, frequently cause a transient stammering. Children stammer, or rather "*lall*," partly from imperfect development of the organs of speech, and partly from want of control over them, and also from deficiency of ideas, and imitation.

Functional Causes.—Lastly, stammering may result from habit, imitation, or affectation. This especially applies to slight defects, such as rhotacism, lispings, etc. Some assert that these may be inherited, in the shape of organic defects, which is quite possible, but, in my opinion, they are in most such cases owing chiefly to imitation; thus whole families are sometimes noticed as affected with a peculiar species of stammering. We find an instance of this kind noted by the ancients—the Sempronian family, the members of which received among the Romans the nicknames of Balbus, Balbutius, Balbinus, etc.

M. Rampont, in a treatise on speech (Paris, 1803), records a curious case of a whole family being unable to pronounce the palatine and guttural letters. The head of the family, M. Cuervo, apothecary to the hospital St. Jaques, his grandfather, and his children, with the exception of the youngest son, were in this condition; the latter was taken to Madrid in early infancy, and brought up there. This shows, at all events, that the defect was not necessarily hereditary, but may have been the result of imitation and neglect.

I purpose treating of the numerous defects constituting stammering under the following heads:—

I. Those arising from, or associated with, organic or functional disorders of the brain or nervous system.

II. Those arising from organic or functional defects of the buccal or nasal cavities.

III. Those which are the direct result of habit, imitation, or affectation.

I. PSYCHICAL STAMMERING.

1. *Sermonis tumultus; Cluttering* (German, *Poltern*; French, *Bredouillement*).—This is an anomalous enunciation, which consists in the pronunciation of words and sentences with such rapidity and confusion that they are only half articulated, and the speaker thus becomes unintelligible to persons not possessed of an acute ear, or who have not long been accustomed to his rapid enunciation. Clutterers are usually very lively and animated in their conversation; their thoughts flow with such rapidity, and they are in such a hurry to communicate them, that they scarcely ever finish a word, and they leave such slight intervals between them that the sounds become necessarily confused. Thus the proximate cause of this defect is at once perceptible,—namely, the extreme rapidity of thought, with which the utterance does not harmonise. Some speak plainly and distinctly when addressing the public, but clutter violently in familiar conversation. Others, again, when speaking to strangers, especially to their superiors, regulate their expression in such a manner as to render their natural cluttering imperceptible. The same occurs when speaking in a foreign tongue.

Pattering must be distinguished from cluttering. The former is an art which may be acquired by great practice, and is assumed by some of our actors and entertainers for the purpose of diverting their audience, their speech being not necessarily indistinct, though uttered with extreme rapidity; the

latter, on the contrary, is a vice of careless, indistinct, half-articulate speech, which, unless checked at the proper time, may become habitual. With regard to natural pattering, or abnormal rapidity of utterance, it will generally be found that short persons, of a sanguine temperament, are much more inclined to it than the tall and phlegmatic. The reason seems to be that, in the former, the circulation and respiration are more rapid, and their ideas, possibly, present themselves more readily, while in tall and phlegmatic persons, the pulse being slower, and the respiration proportionally less frequent, the utterance keeps pace, and is more sedate.

2. *Baryloquela*.—Baryloquism or tardiloquence is frequently the result of habit; but generally speaking it is the symptom of excessive slowness of thought, in the same manner as cluttering is the symptom of extreme rapidity of the same. Persons thus affected would say, “I think-uh-uh-uh-of-uh-uh-go-o-ing to uh-uh-Paris-uh-uh-to-morrow;” or, rather, I think, the French *e* (as in *que*) would represent the sound more correctly. Sometimes they prolong the last vowel of a word, thus rendering their speech very disagreeable to the listener. At others they continually intermix such sounds as *hem*, *ha*, or repeat several times the article *the*, or any other unimportant word; as “Take this-this-chess-board into the-the-the-drawing-room.” This is not intended to represent those convulsive repetitions which characterise stuttering; for the stammerer in this case is quite calm, and it is owing merely to a temporary failure of memory, that he re-

peats the word unnecessarily. Children are frequently affected with tardiloquence, owing to the imperfection of their ideas, and when neglected this becomes exceedingly difficult to remedy. General affections producing weakness of memory frequently cause this defect.

Besides the preceding species of psychical stammering there are impediments or loss of speech caused, as asserted, by disease of a limited portion of the cerebral convolutions, in which the so-called organ of articulate speech is supposed to be situated. Of such cases recorded under the name of *aphasia* and *dysphasia* I do not intend treating here, but refer the reader to my treatise *On the Localisation of the Functions of the Brain, with special reference to the faculty of Language*, in which a succinct account is given of the literature on this subject, with the results of my own observations.

II. SPEECH STAMMERING.*

1. *Lallatio; Lalling;† Defective Enunciation of all or many Speech-Sounds* (German, *Lallen*).—This vice

* The term *speech stammering* is of itself not very explanatory, but I have here used it to indicate those defects arising from abnormal structure or functions of the *articulating organs*.

† *Lalling*. There exists in English no equivalent term for the indistinct enunciation of infants. As it cannot be called a defect of speech it does not properly come under the denomination of stammering, although it is frequently applied to infants.

“And stammering babes are taught to lisp this name.”—

DRYDEN.

(called by Amman and Fournier *Hottentotism*), which is mostly noticed in the first attempts of children to speak, consists in the inability of enunciating many, or all speech-sounds, and in the omission of several consonantal sounds, for which children substitute in most cases *l* (whence the name); others substitute *t* or *d*; the vowels are likewise confounded, and the speech of the individual is in most cases perfectly unintelligible. In children it is caused not so much by defective hearing as by the want of the power of appreciating sounds by the ear; but in adults (who are but rarely thus affected) the evil sometimes depends on the degree of their defect of hearing,* or it may be, and often is, purely the result of partial idiocy. It may also be caused by the excessive dryness of the buccal parts in high fevers.

2. *Blæsitas emolliens*; *Indistinctness* (Greek, *ασα-*

The term *lallation* is applied to the defective enunciation of the letter *l*, and is therefore in some respect synonymous with *lambdacism*. I shall therefore use the word *lalling* for infantile misenunciation. The Latin *lallare* means to sing 'la-la' to children, and also to speak indistinctly like children; English, *lull*, *lullaby*. In Greek *λαλεω* means both to speak to excess, to babble and prattle, and also to talk inarticulately. In the latter sense I also use the term *lalling*, when inarticulate speech is the result of defective hearing or partial idiocy, also when caused by ulcerous affections, or dryness of the buccal parts.

* Otto, a teacher of deaf-mutes in the Erfurt Institute, follows the gradation of deafness described by Itard (*Traité des Maladies de l'Oreille*, Paris, 1821), namely, hearing of speech, voice, tones, noise, and perfect deafness, and thus places this defect between the first and second degree.

φεια).—This vice consists in softening the hard consonants, as *m, b, f*, or *v* for *p*; *n, d* for *t*; *z* for *s*; *zh* for *sh*. It is frequently caused by general debility of the articulating organs, want of energy, partial intoxication; but more frequently by carelessness, habit, or local dialect, as in Somersetshire, where the *z* is used freely for *s* and *c* (soft), *v* for *f*; thus, *sing a song* would be pronounced *zing a zong*; *five* would be *vive*; *three, dree*, etc. Those who have harelip are also obliged to pronounce *v* for *b*, *f* for *p*, etc.

3. *Blæsitas indurans; Hardening Soft Consonants*, such as *p* for *b*, *f* for *v*, is generally the result of vicious habit or local dialect. The Welsh are proverbially addicted to this inelegance, of which Shakespeare seems to have been well aware; for he makes Sir Hugh Evans, in the *Merry Wives of Windsor*, say, "*Ferry goot*; I will make a *prief* of it in my notebook." Some laughable examples of this are also given in *Valentine Vox*. This may also result from a weak and tremulous state of the lips, in which case the labials are often (though not convulsively) repeated; so also with blobber-lipped and intoxicated persons.

4. *Gammacismus; Gammacism; Defective Enunciation of g and k*.—This vice, which is common in children who substitute for the above letters *t* or *d*, if not checked, will render the enunciation of the gutturals very difficult in later life. Adults are likewise subject to this defect, though in a less degree than children; it generally results from defective mobility of the root of the tongue.

5. *Iotacismus; Iotacism*.—This is a vice in the pronunciation of the consonants *j*, *g* (soft), and *ch*, for which *z* or *s* is usually substituted. Thus *January* is pronounced *Zanuary*; *gesture* would be *zesture*; *China*, *Sina*, etc. Like gammacism, the immobility of the root of the tongue is usually the cause of this defect.

“There prevailed lately,” wrote Fournier in 1819, “a ridiculous affectation, or rather a sort of carelessness or laziness, which induced a number of persons to substitute *z* for *j* and *g* (soft). Thus they said *pizeon* for *pigeon*, *zalous* for *jaloux*; others again said *serser* for *chercher*, etc. We must nevertheless distinguish between such affectations and the inability of pronouncing these letters, whether it proceed from a vice of conformation or from a vicious habit contracted in early infancy.”

6. *Rhinophonia, Balbuties nasalis; Rhinism* (French, *Nasillement*).—In the normal state of articulation, the sounds escape more or less both by the mouth and nostrils. When, however, either of these passages is closed, or when any person attempts to speak or sing more than usually through only one of these channels, the sound acquires that disagreeable quality—the nasal *timbre*, which may arise from two opposite causes. When, for instance, the soft palate, either from existing apertures or from inactivity of its muscles, cannot close the posterior nares, so that the oral canal may be separated from the nasal tube, there results what is commonly termed the nasal *twang*, and the expression “speaking through the nose,” is sufficiently cor-

rect. From imitation and habit, there are whole nations who rejoice in this peculiar twang, which characterises the genuine Yankee. But an analogous effect may be produced by the opposite cause, of obstructions existing in the nasal cavities either from inflammation of the mucous membrane, tumours, holding the nose, or colds in the head; in these cases the articulation of the consonants is variously affected, but it is clear that the person does not speak through his nose, as generally asserted, but through his mouth. In the former of these conditions, *b* and *p* assume the sound of an indistinct *m*; *d* and *t* sound somewhat like *n*; *g* and *k* like *ng*; while in the latter the very reverse is the case, and a child wishing to say, "Annie, run and tell mamma I have a cold in my nose," would say, "Addie, rud add tell babba I have a cold id by dose."

7. *Uraniscophonia; Palatine Speech*.—This vice is caused by a fissure or any other aperture in the palate. Several consonants are improperly articulated, but especially *k*. Before *a*, *e*, *i*, it is pronounced like *h*, and before *r* and *l* like *t*, so that instead of *ka*, *ke*, *ki*, we hear *ha*, *he*, *hi*, and for *crown*, *clown*, we hear *trown*, *tlow*n. The letters *b*, *p*, *d*, *t*, etc., are combined with a hissing sound, because the air partly escapes through the above-mentioned aperture. This defect is frequently combined with *rhinophonia*, mentioned above.

III. MINOR DEFECTS.

1. *Rhotacismus; Defective Enunciation of the Consonant r; Rattling, Burring* (French, *grassement*, *parler gras*; German, *Schnarren*).—The mechanism

in the production of this consonant is very complicated, requiring considerable efforts of various organs.* This may be one of the reasons why in some languages, as for instance in the Chinese and Mexican, it is altogether wanting, and *l* substituted for it. The consonant may be produced in two ways, in front or behind; so that we have a lingual *r*, and a guttural *r*, for which the Arabs have a peculiar letter (*ghain* or *rain*). The former is the result when the tip of the tongue touches and vibrates against the hard palate, while the latter, the guttural *r*, is produced by the contact between the posterior part of the tongue and the soft palate, when the vibration of the uvula is effected by the passing air current. The lingual *r* is considered as the legitimate speech-sound, whilst the guttural enunciation is looked upon as a fault, especially in public speakers. From the difficulty of its enunciation, *r* is the last letter children learn to articulate; they at first pronounce *l* instead of it until at length the sound is mastered.

The defective enunciation of this consonant has not escaped the notice of the ancients. Plutarch says of Alcibiades "He had a lisping† in his speech, which became him, and gave a grace and persuasive tone to his discourse." Aristophanes, in those verses in which

* See *Philosophy of Voice and Speech*.

† To translate τραυλοτητα *lisping* is scarcely correct according to the meaning we attach to the word; Τραυλός, τραυλότης, evidently refer to the inability of articulating the letter *r*, though τραυλίζω, τραυλισμος, are frequently used for stammering in general.

he ridicules Theorus, takes notice that Alcibiades lisped, for instead of calling him *corax* (raven) he called him *colax* (flatterer), from whence the poet takes occasion to observe that the term in that lisping pronunciation was applicable to him. With this agrees the satirical description which Archippus gives of the son of Alcibiades—

“With sauntering step to imitate his father,
The vain youth moves; his loose robe wildly floats;
He bends the neck—he lisps.”*

The correct articulation of *r* seems to have been one of the difficulties encountered by Demosthenes. Cicero said his speech was so inarticulate that he was unable to pronounce the first letter of the art he studied, viz., rhetoric. By practice he effected so much that no one is thought to have spoken more distinctly. Demosthenes was, therefore, not of opinion that the defective enunciation of *r* gives, as Plutarch observes, a persuasive turn to a discourse. The fact is, that though tolerated in an Alcibiades, rattling is a grave fault in a public speaker, often very disagreeable to listen to, and in some cases insupportable.

Rhotacism is more common among the northern than among the southern nations.† The defect is rarely met with among Spaniards and Italians. It was common among the ancient inhabitants of Eretria,

* Langhorn's Plutarch.

† In some places it is universal, as in Denmark, in Marseilles, Rouen, and also in Paris, where the enunciation of the *r* seems to some extent subject to the fashion of the day. Donders says

and is endemic among the Provençaux. All northern languages seem to favour it, such as the Flemish, Dutch, German, etc. Owing chiefly to imitation, there are whole provinces which use the guttural *r*. In our own country, we may mention Northumberland (the Newcastle burr).* It is comparatively rare that a person can neither pronounce the guttural nor the lingual *r*; but such instances do occur; such persons then substitute for it *l*, the German *g*, or

that an impure pronunciation of the *r* is universal in Nymvegen, whilst it rarely is heard outside that town. How far a congenital conformation or imitation may be the cause of it, he could not tell.

* The following extract in relation to rhotacism may, perhaps, interest the reader. It is taken from Thomas Fuller's *Worthies of Leicestershire*, London, 1662, p. 126:—

“There is a village in this county named Charleton, sur-named Curley, and all that are born herein, have a harsh and wratling kind of speech, uttering their words with much difficulty, and wharling in the throat, and cannot well pronounce the letter *r*. Surely this proceedeth not from any natural imperfection in the parents (whence, probably, the tribual *lisp*ing of the *Ephraimites* did arise, Judg. xii, 6), because their children, born in other places, are not haunted with that infirmity. Rather it is to be imputed to some occult quality in the *elements* of that *place*. Thus, a learned author (J. Bandin, *Method. Hist.* cap. 5) informeth us, that some families at *Labloin*, in Guyen, in *France*, do naturally stut and stammer, which he taketh to proceed from the nature of the waters.

“As for the inability distinctly to pronounce *r*, it is a catching disease in other counties. I knew an Essex man (Mr. Jos. Mede), as great a scholar as any in our age, who could not, for his life, utter *Carolus Rex Britanniae*, without stammering. The best was, the king had from him in his hearty prayers what he wanted in his plain pronunciation.”

Greek *ch* (χ), *ng*, or *w*, or omit it altogether. The main cause of the production of the guttural, instead of the lingual *r*, is, that the tongue is kept in a convex position, and vibrates at the base instead of being concave towards the palate, and vibrating the tip of the tongue against the roof.

In our own language, either from inability to pronounce the canine letter, from habit, imitation, and in many cases, from pure affectation, *w* is frequently substituted for *r*. Roman is pronounced *Woeman*; rubbish, *wubbish*, etc.—a vicious habit which still obtains amongst our would-be exquisites. In justice to modern dandyism or, as we may now call it, *Dundrearyism*, it must be stated that *affected* rhotacism is not of recent origin. Lentilius, a famous physician of the seventeenth century, remarks on this subject that, although no sane man can subscribe the stupid opinion that there is anything graceful in stammering, yet he remembers having known in Saxony some noble young ladies who, though well able to pronounce the canine letter, made the greatest effort to acquire a stammering (dropping the *r*) enunciation which, in their opinion, was more graceful, and a sign of gentility.*

As there is nothing new under the sun, so we find that old Ovid† already complained that some study

* *Lentilius, R. Med. Pract. Miscell.* Ulmae, 1693.

†Discant lacrimare decenter
Quoque volunt plorant tempore, quoque modo
Quid ? cum legitima fraudatur littera voce,
Blæsaque fit jussu subdola lingua sono ?

to weep with propriety, and can cry at any time and in any manner they please. They moreover deprive the letters of their legitimate sounds; they contract the lisping tongue, and seek for grace in a vicious articulation of the words. They learn to speak worse than they actually can.

Besides the incorrect pronunciation of *r*, I may mention that in England, in London especially, the sound of that letter is entirely dropped at the end of words, such as *altar*, for instance, which in London would be pronounced *altah*. But in the north of England, among the poorer classes, as well as in Ireland and Scotland, the legitimate sound of the letter is retained. This is also the case in most of the continental languages, with the exception, perhaps, of the East Prussian.

2. *Lambdacismus*; *Defective Pronunciation of l*; *Lambdacism*.—After *r* the pronunciation of *l* is most frequently defective. It is often pronounced *r*, *ng*, or *w*. The Japanese have no *l* in their language, and pronounce for it *r*; thus for Holland they say *Horrand*.

Sometimes the *l* is sounded too thin, too tingling, when the tip of the tongue is bent too much against the palate; or it sounds too thick, when not merely the tip, but a portion of the surface of the tongue, is pressed against the palate, or when too powerful a vocal sound is combined with the articulation. This

In vitio decor est, quædam male reddere verba
Discunt posse minus, quam potuere loqui.

OV. AR. AM. 3, 293.

defect is common in the canton Aargau and other parts of Switzerland. Stalder* says on this subject: "This singular transformation may probably be nothing else than infantile stammering become a habit, which afterwards became a dialect." In the Russian language there are two sounds for *l*; one is thin and tingling, and the other thick, as in the Aargau dialect mentioned above. Moreover, Wallis tells us there is a dialect among the Americans adjoining New England, who can neither pronounce this letter nor *r*, and substitute for it *n*.

3. *Sigmatismus*, *Blæsitæ*; *Lisping* (Greek, ψελλίσμος, τραυλισμός; Anglo-Saxon, *wlisp*; French, *ses-seyer*; German, *lispeln*).—The word *lisping*, used in a restricted sense, means a more or less disagreeable hissing sound accompanying the pronunciation of most sounds, arising from too large or too long a tongue, which comes in constant contact with the teeth. However, the word, as generally applied, and as used here, designates a particular kind of stammering, which comprehends the various defects in the enunciation of the sibilants or hissing sounds, *s*, *sh*, *z*, *zh*, etc. Our own word, to *lisp*, is probably derived from the sound. When the upper incisors are wanting, the *s* becomes obtuse, and is sounded somewhat like *sh*. The most common form of lisping is the substitution of the sound *th* for *s*, or *vice versâ*, caused by inappropriate action of the tongue against

* *Die Landes-Sprachen der Schweiz, oder Schweizerische Dialektologie*. Aargau, 1819.

the teeth. If the articulation of *s* is quite impossible, *t* is usually substituted. In some persons the tongue is not withdrawn from the palate; thus *s* takes the sound of the Welsh *ll*, which is, so to speak, an aspirated or hissing *l*. Those who cannot pronounce the *sh*, use for it *s*, as do the Piedmontese and the North Germans, especially the Holsteiners; the inhabitants of Bündlen, on the contrary, frequently say *sh* for *s*.

In the High-German pronunciation the *s* in *sp* and *st* is, at the beginning of a syllable, pronounced *sh*, but at the end *s*. The North Germans pronounce it *s* also at the beginning, while the Swiss pronounce it as *sh* both at the beginning and the end. The Danes, East Frieslanders, and Westphalians separate the sound *sch* (*sh*) into *s* and *ch* (somewhat like the Greek χ), thus *s-chön* for *schön* (beautiful); some pronounce it harder, like *sk*; others like *sg*. According to Forster, the language of Taheite and the Society Islands has no hissing sounds, and consequently the organs of speech of the natives become incapable of producing such sounds. For the sibilants and other sounds which they think to be too difficult for them, they substitute others.*

* This difficulty of pronunciation in various races of men is very curious. It was noticed long ago by Capt. Cook, Sir Joseph Banks, and others, that the negro could pronounce every English word while the Polynesians could not pronounce any English word of more than one syllable. In strange contrast to the latter we may place the Russians, who in their language have not only *s* and *sh*, but also *tsh*, and even *schtsch*. This difficult combination of consonants partly accounts for the fact,

If lisping does not proceed from an abnormal condition of the tongue or position of the teeth, it is the result of habit or affectation. This vice of pronunciation (for it is certainly no beauty, as some may imagine) is often affected, although not to the same extent as the vicious enunciation of *r*, and is equally ridiculous. But it is not only among civilised nations that this folly is practised,—even some of the natives of the Gold Coast of Africa, we are told, consider it fashionable to stammer.

It should be borne in mind that the peculiarity of pronunciation of the English language, so frequently noticed in foreigners, can scarcely be called stammering, although it presents the features of a species of that defect. Thus our *th* seems to be the *Shibboleth* of all foreigners who do not possess this sound in their own language. In their attempts to produce this sound, they either drop the *h*, and pronounce *tinker* for thinker, or add an *s*, and say, *tsinker* or *dsinker*.

that a Russian learns a foreign language in an incredibly short time. An Englishman, Frenchman, or German requires years to acquire the Russian language, and never becomes master of it unless he has learned it in Russia in childhood. No language, at least no European language, requires such mobility of the articulating organs as the Russian, so that in the acquisition of that language the muscles of the buccal cavity and other organs are brought to a high state of perfection.

Amongst some of the American Indians it is said the labials cannot be produced in consequence of their habit of wearing rings in their perforated lips, consequently these sounds are not to be found in their languages.

I am well aware that the above enumeration of the varieties of stammering is far from being exhaustive. It would, however, have been useless to multiply the species, nor would it be possible to adopt a division which would meet every case; for instance, those arising from debility and cerebral affections present innumerable varieties both in phenomena and origin.

CHAPTER VII.

ON THE TREATMENT OF STAMMERING.

“It will always be found that a little showing is worth volumes of written instructions.”—JOSEPH WATSON, LL.D.
Instruction of the Deaf and Dumb, 1809.

Correct Diagnosis Indispensable.—Treatment of *Psychical Stammering*: Cluttering.—Baryloquela.—*Speech Stammering*: Mumbling.—Hardening Soft Consonants.—Gammacism.—Iotacism.—Rhinism.—Surgical Operations.—Cleft Palate.—Sir W. Fergusson.—M. Nélaton —Herr Krug.—Tongue Operations.—Paré.—Division of Frænum.—Excision of the Tonsils.—Mr. Harvey.—M. Bennati.—Mr. Vincent.—Sir George Duncan Gibb.—Dr. Yearsley.—*Minor Defects*: Rhotacism.—M. Talma.—Lambdacism.—Sigmatism.

WITH regard to the treatment of stammering, it will readily be perceived that the probability of a cure greatly depends on forming at the very outset a correct diagnosis of each individual case. After what has been stated of the etiology and pathology of this affection, to think of applying one method of instruction, or one special treatment, to the whole range of defects constituting stammering, would be as senseless and paradoxical as is the boast of quacks, who announce, in their advertisements, that they have discovered an infallible remedy for every disorder in-

cidental to the human frame, in the shape of some draught or pill.

Taking these defects in the order I have classified them, I commence with

PSYCHICAL STAMMERING.

Cluttering.—Clutterers must be made to articulate slowly, to read precise rhythmical exercises, and thus be prevented from gluing their words together. The great difficulty to be overcome in clutterers, is to bring them to reason on the subject; they take no notice whatever of their vice of speech, till they find that it renders them unintelligible to the listeners; and when they do really wish to rid themselves of their unpleasant mode of speech, they rarely consent to subject themselves to a strict discipline for a sufficiently long period to overcome their bad habits. The study of foreign languages has been recommended with success. Some persons, indeed, do not clutter when speaking in a foreign tongue, as the time occupied in translating their thoughts renders their expression less hasty, and, consequently, less indistinct. Colombat cites the case of a clergyman, who was an excellent speaker while in the pulpit, but who cluttered painfully in ordinary conversation. Another case he also mentions, a professor of law in Grenoble, who cluttered whilst lecturing in his native language, French, but showed no signs of his defect whilst lecturing on the Roman law in the Latin tongue. Thus it appears that, when the clutterer is forced to direct his thoughts into a definite channel,

his imagination is restrained, his volition strengthened, and his power of controlling his utterance greatly ameliorated.

This is a useful indication in treating this vice. Speaking in debating classes, public speaking, should be used, and other exercises of a similar nature, that tend to restrain the flighty imagination, and to strengthen the volition and power of control in the clutterer.

Baryloquela, a slowness or heaviness of speech, which is generally the result of habit, or a slight natural slowness of thought, may be combated in early life by appropriate intellectual training, calculated to restore to the thinking powers of the pupil their proper vigour, and to overcome that habitual drawling which is so disagreeable to the ears of the listener. The difficulty of curing this disorder, as, indeed, all others of a similar nature, increases considerably with the years of the pupil; and, in advanced age, when the intellectual process is still more impeded, the speech of the person thus afflicted becomes unbearable.

SPEECH STAMMERING.

Lalling.—Persons afflicted with lalling must be treated according to the cause which gave rise to it. If the hearing of the pupil is but slightly deficient, oral instruction and the use of speech gymnastics will suffice. But in severe cases of this kind, when the pupil has nearly lost the sense of hearing, we must proceed nearly the same as is done with deaf-mutes

—by explaining the various movements necessary for speech, and by placing the pupil before a mirror ; thus enabling him to judge more correctly the various positions of the organs. It need scarcely be added, that every means should previously be resorted to which tend to improve the power of perception, both in time and tune, in the hearing of the pupil.

Cases of lalling, caused otherwise than by defective hearing, are rarely met with. A similar defect is certainly caused by idiotcy, dryness of buccal parts, as in high fevers and similar disorders ; but this need not occupy us here, as in these cases it is merely a symptom. Neither shall I treat of infantile lalling, as it usually disappears with advancing years.

Mumbling.—Habitual indistinctness of speech can only be combated by perseverance and attention, not only to the organs of speech, which frequently are only secondarily concerned, but also to the action of the brain and spinal cord. This vice is more frequently a symptom of a more serious affection than is generally supposed, and invariably indicates a want of energy and perseverance. It may be usually overcome in children by careful education and by training them in the free and distinct expression of their ideas, and by invigorating the whole frame.

Hardening Soft Consonants.—Hardening soft consonants, such as pronouncing *putter* for *butter*, frequently indicates misdirected energy, and, in most cases, simply requires attention to the articulation. The pupil should be made to articulate the sounds *m* and *p*—as, for instance, *ma* and *pa*—when *ba* is re-

quired, and he will soon perceive, under judicious instruction, that there is a medium sound between the blunt *m* and the sharp *p*. By practice, he will be able to render the required sound instinctively, and so on with the other consonants, *n*, *d*, *t*, etc.

Gammacism.—Gammacism is easily remedied in early infancy ; but the difficulty increases as the pupil advances in years, when it consequently requires more trouble and practice to be remedied. In cases of gammacism, when *t* or *d* is pronounced for *k* or *g*, it may be corrected by keeping the tip of the tongue fixed behind the inferior incisors, and the mouth open ; the arched tongue should then be pressed against the roof of the mouth near the soft palate ; and then, in vocalising, the tongue should suddenly be lowered.

Iotacism.—Iotacism, which consists in the substitution of *s* or *z* for *ch*, *j*, and *g* (soft), may be overcome by studying the articulation of the latter consonants. The tongue should be raised, not the tip only, as in the formation of *s* or *z*, but as much as possible of the whole organ, and applied to the palate ; it having previously been retracted, so as to bring the surface applied to the palate half on the hard and half on the soft palate. Both in gammacism and iotacism, there is required a certain mobility of the root of the tongue, which, if not already possessed, may generally be acquired by practice.

Rhinism.—When rhinophonia is the result of an obstruction in the nasal fossæ, from inflammation of the mucous membrane, cold in the head, or polypi, the voice will become clear on the removal

of the cause. Rhinism, when simply a habit contracted by imitation, is frequently very difficult to cure; but it is by no means impossible, provided the will of the pupil be brought to assist the treatment. Occasionally we meet with cases of rhinism complicated with a fissure in the soft palate; this must be remedied, where possible, by appropriate surgical or artificial means, but these must not be exclusively relied on as I shall show when speaking of surgical operations.

Surgical Operations for the Cure of Stammering.—The majority of those malformations and organic defects which are considered as requiring surgical aid are amenable to a systematic course of instruction, founded on sound physiological principles, aided by time, firmness of will, and constant attention of the pupil, which is, in fact, indispensable. Under whatever malformation the pupil may labour, his case must be treated according to general principles calculated to restore the defective organs as far as possible to their proper function, or, if that be impossible in consequence of malformation, to train them, so to speak, to adopt other functions which will answer the purpose of distinct articulation. The general principles in these cases must be governed by a sound knowledge of the mechanism of articulation; but as they require to be modified to suit the requirements of each individual case, it would be useless, if not impossible, to enter into details concerning their application.

It must not, however, be supposed that all malformations or vicious habits of the organs of speech

produce stammering; on the contrary, to quote the words of a distinguished writer on this subject, "one may see every day persons who, by all rules, ought to stammer, with weak jaws, upper teeth lapping over the under, flaccid diaphragms, the habit of talking with closed teeth, of pouring out their words rapidly, of breathing irregularly, speaking with empty lungs, even (what, seemingly, would make a stammer certain) of speaking during inspiration as well as expiration, who do not even hesitate. Verily, Nature is kind."* Even where such organic defects as before mentioned exist, and cause stammering, the impediment may often be removed without interfering with the physical structure of the organs themselves. And, again, where severe malformations exist, and are remedied by surgical or artificial means, the patient still suffers from defective articulation till he is instructed in the proper use of the artificial organ.

Cleft Palate.—When, for instance, a person has a cleft palate, science can supply the defect by an artificial one, after which the patient still requires to be instructed how to make a proper use of the foreign substance; the same holds good after the patient has undergone a surgical operation; in illustration of which I quote the following case:—

"Mr. D. P., ætat. 17, has a genital fissure in the palate; articulates very imperfectly. The sound of his voice was very unpleasant, and many of his words are unintelligible. Six months after the operation,

* *Irrationale of Speech.* Longmans and Co. Price 2s.

Mr. P. had made no improvement in his speech, when he put himself under the tuition of Mr. Hunt. In the course of a few weeks, an extraordinary change was effected; and ere long the articulation was so different that little more could be desired.”*

M. Nélaton, it appears, however,† “declines all surgical interference in cases of this kind, and rests content with obturators and artificial palates. The chief object of the operation is to improve the articulation of sounds. It is a fact, however, that the opening may be closed without any very appreciable improvement in the utterance of the patient, and that this is the common result. This is the case equally whether the opening be closed by operation or by some mechanical contrivance, and this difficulty is only to be overcome, if it is to be overcome at all, by long and patient practice under a competent teacher. Is it not more judicious, therefore, if the same end can be attained with obturators and artificial palates, to spare the patient the pain and peril of an operation? M. Nélaton, for his part, is fully convinced of the advantages of the prudent line of conduct.”

Herr Krug, a German schoolmaster, in 1805, enabled a girl, aged seven, who suffered from cleft palate and entire absence of the velum, and who could not produce any articulate sound, to speak, by very simple

* *Extracts from Observations on Cleft Palate.* By Sir William Fergusson, Bart., F.R.S., Professor of Surgery, King's College. The details of the case are given in vol. xviii of the *Medico-Chirurgical Transactions*.

† From *Journal of Pract. Med. and Surg.* 1862.

means. He advised her to compress the nostrils with the thumb and index of the left hand, in articulating such sounds which do not require the air to pass through the nose; thus supplying the place of the velum and uvula. By this means she succeeded, after considerable labour, in not only speaking distinctly during the application of her finger and thumb to the nose, but also without this artificial appliance.

Tongue Operations.—Defects of the tongue requiring the aid of surgery are rarely met with. Paré gives an account* of a man who, in order to remedy defective speech arising from the loss of a portion of the tongue, invented an instrument by which he was enabled to express himself intelligibly. This instrument consisted of a concave plate of wood, which he placed in the mouth before the incisors. Paré applied it himself to a boy whose tongue was cut off, who spoke by the aid of it perfectly well.

I shall have elsewhere to touch upon the pernicious practice of tongue operations for the cure of stuttering, which were undertaken chiefly on account of the confusion of that defect with stammering, and partly on account of the ignorance of the laws of physiology. That tongue malformations requiring the aid of the knife do exist, I do not deny; but such cause indistinct articulation or stammering only, and cannot be ranked with stuttering. I have also always been opposed to the baneful practice of cutting the *frænum lingue* in the treatment of children. I shall

* *Œuvres d'Ambroise Paré.* Lyon, 1633.

now simply state that it is rarely necessary to resort to the use of the scissors or knife in cases of tongue-tied children, as articulation may be rendered free and distinct by patient, persevering practice and instruction. Several cases of severe stuttering have come under my notice which took their origin from an operation of this kind.

Excision of Tonsils.—The enlargement of the tonsils (which was formerly considered as the cause of stuttering), when excessive, may be remedied by excision of the tumefied portion. The same may be done with the elongated uvula. But here, also, surgery has overstepped all reasonable bounds. One case of this sort I may mention, which came under my own observation. Mr. W. D. was operated on, several years ago, by having his tonsils entirely extirpated, and the whole of his uvula taken off. For some days after the operation he was unable to swallow, in consequence of inflammation; it had also made him slightly deaf. Moreover, the operation increased his infirmity, and, in addition to his former stammering, he was entirely unable to pronounce the letter *r*, which before offered him no difficulties. After about three weeks' tuition and residence with me, he conquered his infirmity; but the absence of the uvula prevented him from getting rid of his unpleasant manner of speaking, caused by his being obliged to inflate his lungs through the nose when speaking. He informed me that his impediment was slight and his general health excellent prior to the mutilation, and he did not believe the tonsils were enlarged or his uvula elongated.

The whole subject of operations of this nature, especially the effect produced by the excision of the tonsils, is ably handled by Mr. Harvey, in his work on the Throat.* I would strongly advise all persons to consult his book before they allow themselves to be thus operated on, for whatever cause.

Bennati relates two cases. One of M. le Comte de Fedrigotti, who had two-thirds of his tonsils excised, on account of their enlargement, which was supposed to injure his voice; the consequence was that he gained two additional tenor notes, but lost four of the falsetto. The second case was that of M. Carcelli, whose tonsils became enlarged by chronic inflammation, which produced an increase in his voice of five falsetto notes. Thus, it would seem that these glands influence the voice considerably. Mr. Harvey asserts that the muscles of the pharynx increase in size in proportion as the tonsils enlarge. It has frequently occurred to him, he continues, to witness the atrophied appearance of these same muscles after excision, which, in a measure, accounts for the diminished power of voice, as well as for the difficulty of deglutition. The same author represents, in an engraving, a case of enlarged tonsil almost closing the pharyngeal opening; it existed for nearly twenty years without affecting audition in the least, or causing any inconvenience either in speaking or singing.

This state, so frequently found in young persons,

* *On the Excision of the Enlarged Tonsils and its Consequences.*
By Wm. Harvey, F.R.C.S. London, 1850.

is owing to no direct cause, but to a general scrofulous condition, and generally disappears with advancing age, combined with sea air and good diet; but when any inconvenience is felt, causing difficult speech, this spontaneous disappearance should by no means be relied on. The treatment must then consist in constitutional remedies, assisted by local applications, but recourse need rarely be had to surgery. Mr. Vincent says on this point: "I have seen very many exceedingly enlarged tonsils, producing the greatest annoyance, in patients at fifteen or twenty years of age, which have gradually shrunk, or assumed the natural size, by the time that the subject had arrived at the age of thirty. If we consider the great utility of these glands in secreting a mucus of a peculiarly lubricating kind, so valuable in the economy of deglutition, I cannot regard it as a good practice to remove these parts so unsparingly as I have known it to be done."

Sir George Duncan Gibb agrees, in the main, with Harvey and Vincent on the desirability of leaving the tonsils, "unless they cause serious inconvenience."* Dr. Yearsley,† however, maintained that the removal of the tonsils causes little inconvenience, and is not followed by any unfavourable constitutional disturbance. Some observers have contended that the enlarged tonsil arrests the growth in youth, and

* *Diseases of the Throat and Windpipe*, Second Edition, 1864, p. 350.

† *On Excision of the Enlarged Tonsils*, by James Yearsley. Fifth Edition.

interferes in later life with the full development of the body. Sir George Duncan Gibb is opposed to this view. The subject is one of much interest and importance, and deserves much further observation and consideration. I may, however, here observe that enlarged tonsils may, and often do, co-exist with arrested growth; but they are not necessarily related to one another as cause and effect. I have seen so many cases of enlarged tonsils, without the development of the body being at all arrested, that I am disposed to surmise that enlarged tonsils have no direct influence on the development of the body, although, in some cases, they act injuriously upon the lungs. Whatever means may be employed for the decrease of the size of the tonsils, it is certain that, if speech is injuriously affected by their enlargement, the removal of these bodies will not at once produce correct utterance. I fully agree with Sir Duncan Gibb that the "thick guttural voice which enlarged tonsils often give to young children is not easily got rid of." Enlarged tonsils need not, however, be associated with a thick guttural voice. I have had many cases of children who have been made to speak without any peculiarity, despite a very considerable enlargement of the tonsils. Some species of defective speech (dependent on a misuse of the respiratory apparatus) most assuredly produce enlargement of the tonsils. The removal of such misuse will frequently effect a considerable reduction in the size of the tonsils. This is a matter of daily observation, and is founded on experience. As to what other causes may

produce or remove enlarged tonsils, I must refer the reader to the works above quoted.

MINOR DEFECTS.

Rhotacism.—Stammering, the result of habit or affectation, such as rhotacism, etc., is frequently less curable than any other species; not on account of the complexity of the cases, but from the disinclination of persons labouring under slight defects (as these usually are) to submit to any rigid discipline, by which means alone they can possibly be remedied. As a rule, it may be laid down that the greater inconvenience they cause the stammerer, the more probable it is that a cure will be effected. I may safely say that, in cases of this sort, we rarely meet with any that are really intractable. The more confirmed the vicious habit has become, the greater, of course, the difficulty—children are more easily cured than adults—but the main difficulty is to bring the will of the stammerer to bear upon the treatment. This, and the instructions of one intimately acquainted with the physiology of speech and the formation of all the speech-sounds will overcome any difficulty.

A well-known and very useful plan for conquering rhotacism is that said to have been devised by Talma, the celebrated French actor. It is as follows:—

Choose for the first exercise a word in which there is but one *r*, preceded by a *t*—*travail*, for instance. Write *tdavail*, by substituting *d* for *r*. The pupil will then pronounce *t* and *d* separately, thus *t-*, *d-*,

avail; insensibly he will add the mute *e* and pronounce *te-davail*; by inducing him to pronounce more rapidly he will nearly drop the mute *e* and say *tdavail*. The pupil must now be urged to pronounce as rapidly as possible, uniting the sound of *t* with that of *d*, giving more force to the articulation of *t*. By this proceeding, the lingual *r* is insensibly articulated, seemingly produced by the rapid union of *t* and *d*. Other exercises must follow until the vicious habit is abandoned. This method is said to have been, long before, used to teach the pronunciation of *r* in the Institution for Deaf-mutes in Erfurt. By this simple method, observes Fournier, numbers of cures have been effected, and he cites as an instance,—the pretty and accomplished actress, Mlle. St. Phal, who had, owing to her defective articulation of *r*, to retire from the stage for a time. When she re-appeared, adds the gallant professor, her enunciation was so much changed that she would not have been recognised by the spectators but for her charming face.

The same result may be arrived at by carefully studying the articulation of this letter, by placing the tip of the tongue very lightly against the hard palate, a little behind the superior incisors, and expelling the breath from the lungs with considerable force, and thus making the tip vibrate. This should be practised continually till the necessary pliancy of the tongue is acquired. When the habit of substituting other letters, such as *v* or *w*, has been contracted, the lips should be carefully kept asunder, and the tongue only used.

Lambdacism.—Lambdacism, or defective pronunciation of *l*, which is generally caused by wrong action of the tongue against the palate, being either too strongly used or not forcibly enough, requires, like other similar defects, the attention of the pupil to the articulation. The position of the tongue is very similar to that in the articulation of *r*; the tongue, however, is applied to the palate rather differently and more forcibly than in the articulation of that letter; the action of the breath must be as slight as possible, no more force being used than is necessary for the production of the sound, otherwise the sound will approach that of *r*, by the vibration of the tongue. The tongue must retain the above position for a time, and, at the same time, allow the sound to escape at the sides. It is this that constitutes *l* a liquid sound; for, were the sound to be retained and allowed to escape suddenly, the *l* would be changed into *t* or *d*, as is sometimes the case.

Sigmatism.—Lisping, which is sometimes caused by an abnormal length of the tongue, or, more frequently, by the wrong action of the same, is so easily cured that it is remarkable that so many persons thus affected are to be observed. When *th* is sounded for *s*, it is plainly owing to the protrusion of the tongue between the teeth; and as long as the tongue is allowed to act thus, the lisping will continue. In order properly to pronounce the sibilants *s* and *c* (soft), the teeth should be almost closed, and the tip of the tongue applied to the palate slightly enough to allow the breath to pass with a hissing sound between

the points of contact. It is difficult to conceive how our *th* should puzzle the tongues of foreigners to such a degree as it manifestly does. That sound may easily be pronounced without protruding the tongue between the teeth; but, if any difficulty is found in that manner of pronunciation, if the tongue is placed in the least degree between the teeth, the sound is produced by itself, without any further effort, provided, of course, that the front teeth are sound.

CHAPTER VIII.

STUTTERING ; ITS CAUSES, VARIETIES, CHARACTERISTICS, AND ASSOCIATED PHENOMENA.

"In the act of speaking we must distinguish two different phenomena, viz., the faculty of creating words as the signs of our ideas, and conserving their memory; and that of articulating the same. There exists, so to speak, an inner and an outer speech, the latter being only the expression of the former."—DR. BOUILLAUD, *Arch. Gén. de Méd.*, vol. viii, p. 43, 1825.

Characteristic Phenomena.—Causes of Stuttering.—Different Degrees. — Different Species. — Vowel Stuttering. — Consonantal Stuttering.—Influence of Imitation.—Influence of Age.—Influence of Education.—Influence of Temperature.—Influence of Time of Day.—Lunar Influence.—Influence of Various Disorders of the Body.—Psychical Influence.—Stuttering in Singing.—Stuttering in Whispering.—Is Stuttering Hereditary?—Re-action of Stuttering on the General Health.

THE main features of stuttering consist in the difficulty of properly conjoining, and fluently enunciating, certain or many elementary sounds, in the articulation of words and sentences. A frequent, but by no means constant, result of this difficulty is the repetition of the obnoxious syllable until its enunciation is effected. It is for this reason that the repetition of the initial sound has generally been

looked upon as constituting the essential character of stuttering. This repetition is, nevertheless, not a constant feature of the defect. Some stutterers do not repeat the initial sound, but pause before any difficult syllable until they feel that they are able to surmount the obstacle. Subjects who act in this way are usually of a phlegmatic temperament. It is in the stuttering of subjects of a sanguine or nervous temperament that a rapid repetition of the initial sound is heard: they seem determined to attain their object by any means, which partially accounts for their violent gesticulations and contortions.

Not unfrequently the stutterer becomes momentarily mute, which generally occurs at the explosive consonants *b, p, t, d, k, g*, especially at the beginning of a word or phrase. He exhausts his whole force, the face is terribly contorted, becomes flushed or livid, perspiration exudes from his forehead, but being still unable to produce the desired sound, he is obliged to "give it up," sometimes with a sigh, or with a convulsive sob. At the explosive labial consonants the stutterer closes his lips, but is unable to effect the requisite opening for its enunciation. The air is, so to speak, in some cases masticated in the mouth by a movement or puffing of the cheeks; the jaw is then opened with a convulsive jerk, but the labial sound is not produced.

Again, the sound is sometimes prolonged. This is usually at the continuous consonants *m, n*, etc. In the formation of the word *nine*, he commences *n - - -*, but is unable to open his jaw, or to detach his tongue

from the palate. An instance of this kind was afforded by a youth, who having occasion repeatedly to say *nine*, invariably commenced the *n* - - -, but being unable to finish the word, would say, "You know what I mean." Generally, however, stutterers become irritated, and make spasmodic efforts to surmount the difficulty.

In some cases the stutterer separates the initial sound from the rest of the word. He would thus say, *t.....all*, or he produces the whole word in a whisper.

Stuttering occurs, according to Sauvages, Frank, and several other authors, chiefly at the gutturals *g* and *k*, caused by the difficulty of moving the velum, uvula, and the root of the tongue. This is not quite correct. Some stutterers pronounce these consonants easily enough, but stutter at the dentals and labials. Nevertheless, in the early stage of stuttering it usually affects, at first, the gutturals and linguals; it afterwards extends to the labials, until at last it may affect all the articulate sounds. In some cases the impediment takes place one day at the gutturals, another day at the labials, or possibly at the dentals, depending, no doubt, on their combination with the succeeding sounds. "In fact," says Astrié, "a syllable which I pronounce easily when preceded by one which leaves my tongue in a favourable position, offers less facility when it follows another which does not present the same advantage, or when it is at the commencement of a word or phrase."

A good deal has been written concerning the occurrence of stuttering exclusively at the commencement of words and phrases. Bansmann says, "It is a constant phenomenon that stutterers hesitate only at the first letters of a word, so that when they have mastered the initial sound, the rest of the word follows easily, or, in other words, there is no stuttering in the middle of a word." This is quite incorrect. The initial sound, as shown in the preceding case, is not always the difficulty of the stutterer. It is more generally the conjunction with the following sound that constitutes his difficulty. There is no general rule to determine this, for the hesitation may take place at any syllable of a word. With regard to the position of words in a sentence, the stuttering does not necessarily take place at the first word of a phrase, though it certainly does in most cases; and again at the commencement of an expiration—the first word after an inspiration. The organs then pass from a state of repose into action, and consequently the difficulty is greater.

A very general occurrence is that the emphasised word offers the greatest difficulties to the stutterer. It is characteristic of this affection that the imagination has a great influence on the emission of sounds, and the emphasised word is the one that the stutterer can foresee more clearly than the rest; he consequently examines what sounds it is composed of, and if he finds unfavourable elements in it he is sure to stutter at it, whereas if he had not thought of it, or if the word were unemphasised, he would probably have

passed over it without difficulty. So great is the influence of imagination on the speech of stutterers, that I have known them to fix upon the first word that they intended to say in an interview with a stranger even weeks previous to the meeting, and, of course, fixed upon one that was usually easy for them. However, through constant thought, this word became difficult also, and the same with any other words. Imagination rendered them difficult!

Causes of Stuttering.—Among the exciting causes of stuttering have been enumerated: affections of the brain, the spinal cord, and of the intestinal canal; abnormal irritability of the nervous system; solitary vices, spermatorrhœa, mental emotions, mimicry, involuntary imitation, and stammering.

The question is by no means settled, whether the exciting cause of stuttering is of centripetal or centrifugal origin. This is an interesting physiological problem, and its solution is not so easy as it at first appears. We may obtain some light on this subject by carefully watching the gradual development of stuttering from early childhood. Many children begin with a simple difficulty in articulating some elementary sounds, a difficulty which may eventually end in the most complex species of stuttering. Thus, although stammering and stuttering are essentially different, they are frequently combined in the same individual; hence the confusion that has arisen. When stammering thus co-exists with stuttering, it invariably tends to aggravate the latter; and severe cases of stuttering have frequently come under my

notice which began with infantile stammering, which, aided by a certain individual predisposition, gradually degenerated into stuttering, and eventually co-existed with it. Such an individual has been likened by Schulthess to a short-sighted person who at the same time squints. My experience leads me to believe that stammering, more or less pronounced, generally precedes stuttering in young children.

Different Degrees of Stuttering.—Stuttering by no means obtains to the same degree in all persons. In the most simple cases the affection is but little perceptible ; the person speaks nearly without interruption, and merely hesitates at, prolongs, or repeats certain consonants, vowels, or syllables. This slight stuttering is, according to some, so far from injuring the expression, that it is said to impart to it a certain charm. But whatever others may think, the stutterers themselves, even when thus slightly affected, consider it a great annoyance ; for, unlike the stammerer, the stutterer can never hide from himself his fault, whatever may be its degree. Stuttering invariably indicates want of composure,—a nervous disposition. Slight stutterers greatly differ from stammerers, as they can, with some exceptions, speak well when alone ; and it is only in the presence of others, especially strangers, that they manifest their infirmity.

In the second degree the impediment is more marked and much more unpleasant both to the listener and the sufferer. The hesitations, prolongations, convulsive stoppages, or repetitions, are more

frequent; the discourse is kept up with manifest efforts, and frequently accompanied with gesticulations, the words and syllables being thrown out in jerks. Hence the speech of stutterers has been by Shakespeare* (and by Plutarch before him) aptly compared to the pouring out of water from a bottle with a long neck, which either flows in a stream or is intermittent.

Of stutterers of this class Voisin has remarked, "They sometimes hesitate at one syllable, and pronounce the following with precipitation. At other times they repeat the syllable already pronounced in order to join it to the succeeding one, and then pronounce the whole rapidly. From this stuttering there results a battering noise, which the Greeks, so rich in picturesque expressions, have well depicted by the name *βατταρίζειν*, and the Latins by *battarismus*.

Sometimes the efforts of the stutterer are truly formidable,† and the sufferer emits sounds which, in

* "I pr'ythee, tell me, who is it? quickly, and speak apace. I would thou could'st stammer that thou might'st pour this concealed man out of thy mouth, as wine comes out of a narrow-mouth'd bottle, either too much at once, or none at all. I pr'ythee take the cork out thy mouth, that I may drink thy tidings."—*As You Like it*. Act iii, Sc. 2.

The late Lord Campbell pleaded that Shakespeare was a lawyer, from his great legal knowledge; Dr. Bucknill, that he was a medical man, from his acquaintance with medicine; and a host of other professions have put in their plea. I would now also put in a claim for Shakespeare as a curer of stuttering from his acquaintance with impediments in speech!

† The following is a curious account of the stuttering of Louis XIII:—"The king assured me a reciprocal affection to

the words of Magendie, resemble more "the roaring of a wild beast than human speech;" or at other times the stutterer fails to produce any sound at all, and renounces his efforts as useless. In these cases the stutterers themselves, unfit as they are, generally speaking, to judge of the nature of their affliction, may be allowed to give a description. Voisin says, "At the moment the afflicted desires to speak, his tongue, as if chained, denies its service. During the efforts the stutterer makes, the tongue is seen to rise,

the king my master, and of my particular welcome to his court; his words were never many, as being so extreme a stutterer, that he would sometimes hold his tongue out of his mouth a good while before he could speak so much as one word; he had besides a double row of teeth, and was observed seldom or never to spit or blow his nose, or to sweat much, though he were very laborious, and almost indefatigable in his exercises of hunting and hawking, to which he was much addicted."—*Life of Lord Herbert of Cherbury*. 1826.

There is an anecdote told of this monarch which shows that stutterers are not only subject to ridicule, but that more serious mishaps may occasionally befall them:—The Marquis de Maurey being, with other lords, in the apartment of the king, stuttered in reply to a question addressed to him by the sovereign. The latter, thinking himself ridiculed, became furious, and ordered the offender to be put to death. This sentence would have been carried out but for the fortunate interference of the Marquis de Richelieu, who informed his Majesty that the unfortunate Marquis could not express himself differently.

A somewhat similar scene occurred when the king was out on a falcon chase, on asking Marshal Thoiras, "Où était l'oi-l'oi-l'oiseau?" "Si-Sire le voi-voi-voici," replied the marshal; on which the king threw his glove at the offender's head; but afterwards, however, he apologised, on being told that the marshal was a stutterer.

and to call, so to speak, to its aid the muscular forces by which it is surrounded. The muscles of the chest, and even those of the diaphragm, are strongly contracted; the heart palpitates; the respiration seems temporarily suspended; the surface of the body is covered with perspiration; the veins of the neck swell; the face is contorted, and loses the nobility of its expression. The greatest efforts frequently induce only the pronunciation of one or more syllables, and the unfortunate stutterers who are unable to express their ideas by such a paucity of words, make new efforts to finish the phrase they have so painfully commenced."

Another physician, writing to Dr. Schulthess, says of himself, "In putting into action my muscles of the organs of speech there arises a spasmodic contraction, by which a hissing sound is produced, instead of a definite tone. In vain does the will act upon the organs of speech; the breath fails, the head becomes congested, the abdominal muscles contract, and sometimes pain is felt in the abdomen caused by the pressure upon the bowels. All this takes place when the will is strong and when, so to speak, I desire to bring the word out by force. I then feel obliged to give up the attempt."

It is indeed a melancholy spectacle to behold such a stutterer; not only are the speech and respiratory muscles thrown into spasmodic action, but the movements of the hands, arms, feet, legs, and even the whole body, join in the general commotion. Even in slight cases the eyelids and eyebrows are frequently in-

voluntarily contracted. The sufferer also occasionally gives a violent hiccup or stertorous sigh. Schulthess has attempted to give a division of these different degrees according to the efforts of the stutterer :— 1. *Ischnophonia*, when the voice is arrested ; 2. *Hæsitans*, when the stutterer hesitates ; 3. *Repetens*, when he repeats the initial sound ; 4. *Nictitans*, when he winks ; 5. *Singultiens*, when there is heard a sigh or sob ; and, 6. *Convulsiva*, when he is seized with convulsions and spasmodic contortions.

Schulthess, however, does not seem to attach much importance to this classification ; for he adds that “it would be impossible distinctly to separate the various forms and degrees of stuttering.”

Different Species of Stuttering.—Several authors have attempted to divide stuttering into a host of different species, according as the stuttering manifested itself. But as no two cases can be found exactly similar, it cannot be wondered at that they have been obliged to continually add to the division as their experience and observation increased. It is not my intention to attempt to establish a classification of so chameleon-like an affection ; but I may, nevertheless, notice several different ways in which the infirmity manifests itself. When I say different, I do not assert that every case of stuttering belongs to either of them exclusively. On the contrary, the infirmity must consist of at least two of them, to constitute it a case of stuttering ; whilst frequently all of them are combined in one individual. The various phenomena of stuttering manifest themselves

in the faulty action of the lungs, larynx, tongue, jaw, and the lips.

Let us take a simple case; when the stutterer cannot produce a vowel sound,—a vowel stutterer. In this case two actions are requisite; first, the air must be expelled from the lungs; next, the vocal cords in the larynx must be in a position to vibrate. The difficulty in this case is caused by the inability to associate the action of the muscles of expiration with that of the vocal cords. The stutterer can use either of these actions separately. When not speaking he can expel air from his lungs as freely as an individual with normal speech. So also he feels no constriction in his larynx. When not speaking he may not have any direct power over the action of the vocal cords, but he has at least as much as his non-stuttering friend. To take a more complicated case:—The stutterer can produce the sound, but cannot articulate it so as to form the desired vowel. Here the lungs act normally, but the disharmony lies in the co-ordination of the action of the vocal with the articulating apparatus. For instance, take the word *how*. His lungs being supposed to act normally, he sounds the aspirate *h* and a part of the vowel. Here we must observe that the sound *ow* in the above word is a compound sound—*au* and *oo*. He produces the sound *au*, but fails in conjoining it with the succeeding sound *oo*. This requires the retraction of the tongue and the protrusion of the lips. The same difficulty of co-ordination is visible here. A stutterer of this kind, unless his respiration is at fault, in

which case no sound can be produced, finds no difficulty in producing the pure vowel sound, neither has he any difficulty in the movements of the lips and tongue when not speaking; but when these are required to be associated for the formation of speech-sounds, he hesitates and stutters. The difficulty increases in proportion as the required movements become more complicated—when the consonant is placed before the vowel. More complex still are the compound sounds, such as *str*, *spl*, to say nothing of some Russian words, unknown to English tongues and palates.

But to return. Stuttering may at the outset have been purely a nervous affection; but this nervous affection may have disappeared, and the stuttering become to a certain extent localised. Or, again, the nervous affection may co-exist with the stuttering, which would certainly aggravate the disorder, and prove a new obstacle to be overcome in the treatment. Stuttering may, in fact, be called an intermittent *mania* of the organs concerned in the production of voice and speech.

In the beginning the difficulty only occurs at a few words, and only at these under special circumstances. In its development, stuttering always obeys a definite law. In some cases, where no effort has been made to arrest the evil, it arrives at a stage of nearly complete inability to produce speech sounds without morbid contortions of all the muscles concerned. I thus describe stuttering as a *lallomania*—a mania of the organs of voice and speech.

Stuttering may be divided into three chief species:

1. When it is manifested in whispering, and is caused by the defective association of the muscles of respiration with those of the organs of articulation ; 2. When it is caused by the defective association of the muscles of the respiratory and laryngeal apparatuses with those of the articulating organs ; and, 3. When the respiratory apparatus is unconcerned, and the difficulty arises from the defective association of the muscles of the larynx with those of the articulating organs.

A.—STUTTERING CAUSED BY DEFECTIVE ASSOCIATION
OF THE MUSCLES OF THE RESPIRATORY ORGANS
WITH THOSE OF THE SPEECH ORGANS.

1. *Pneumo-gnathomania*.—This kind of stuttering is the result of the defective action of the respiratory apparatus and the jaw, as required in all the vowel sounds, but more especially *a* (*ah*).

2. *Pneumo-glossomania*.—Difficulty of combining the action of the respiratory apparatus and the tongue, as required, for instance, in the word *dig*.

3. *Pneumo-cheilomania*.—Difficulty of combining the action of the respiratory apparatus and the lips, as required in the word *baby*.

4. *Pneumo-glosso-cheilomania*.—Difficulty of combining the action of the respiratory apparatus, the tongue, and the lips, as required in the word *tabby*.

5. *Pneumo-gnatho-glossomania*.—Difficulty of combining the action of the respiratory apparatus, the jaw, and the tongue, as required in the word *carriage*.

6. *Pneumo-gnatho-cheilomania*.—Difficulty of com-

binning the action of the respiratory apparatus, the jaw, and the lips, as required in the word *baby*.

7. *Pneumo-gnatho-glosso-cheilomania*.—Difficulty of combining the action of the respiratory apparatus, the jaw, the tongue, and the lips, as required in the word *tabby*.

B.—STUTTERING CAUSED BY DEFECTIVE ASSOCIATION
OF THE MUSCLES OF THE RESPIRATORY AND
VOCAL APPARATUSES WITH THOSE OF THE
SPEECH ORGANS.

1. *Pneumo-laryngomania*.—Difficulty of producing sound caused by defective action of the respiratory apparatus and the larynx.

2. *Pneumo-laryngo-gnathomania*.—Defective action of the respiratory apparatus, the larynx, and the jaw, as required in all the vowel sounds, especially *a* (*ah*).

3. *Pneumo-laryngo-glossomania*.—Defective action of the respiratory apparatus, the larynx, and the tongue, as required in such syllables as *at*, *all*.

4. *Pneumo-laryngo-cheilomania*.—Defective action of the respiratory apparatus, the larynx, and the lips, as required in *ab*, *happy*.

5. *Pneumo-laryngo-glosso-cheilomania*.—Defective action of the respiratory apparatus, the larynx, the tongue, and the lips, as required in *lap*.

6. *Pneumo-laryngo-gnatho-glossomania*.—Defective action of the respiratory apparatus, the larynx, the jaw, and the tongue, as in *at*, *all*.

7. *Pneumo-laryngo-gnatho-cheilomania*.—Defective action of the respiratory apparatus, the larynx, the jaw, and the lips, as required in *ebb*, *happy*.

8. *Pneumo-laryngo-gnatho-glosso-cheilomania*.—Defective action of the respiratory apparatus, the larynx, the jaw, the tongue, and the lips, as required in *lap*.

C.—STUTTERING CAUSED BY DEFECTIVE ASSOCIATION
OF THE MUSCLES OF THE VOCAL APPARATUS
WITH THOSE OF THE SPEECH ORGANS.

1. *Laryngo-gnathomania*.—Defective action of the larynx and jaw, as in all the vowels, especially *a* (*ah*).

2. *Laryngo-glossomania*.—Defective action of the larynx and tongue, as in *alley*.

3. *Laryngo-cheilomania*.—Defective action of the larynx and lips, as in *abbey*.

4. *Laryngo-glosso-cheilomania*.—Defective action of the larynx, tongue, and lips, as in *atom*.

5. *Laryngo-gnatho-glossomania*.—Defective action of the larynx, jaw and tongue, as in *tall*.

6. *Laryngo-gnatho-cheilomania*.—Defective action of the larynx, jaw, and lips, as in *abbey*.

7. *Laryngo-gnatho-glosso-cheilomania*.—Defective action of the larynx, jaw, tongue, and lips, as in *accumulate*.

The utility of this classification may, perhaps, be called in question, but it has the practical merit of directing our attention at once to the organs which require regulation. This, in fact, must be the object of any method of treatment that can hope for success. On the other hand, all divisions and subdivisions previously made by authors who have written on this defect have not the slightest practical value, and are by their nature endless,—for no two cases of stuttering are exactly alike.

Vowel Stuttering.—That stuttering only occurs when the initial sound of a word is a consonant, as alleged by most ancient, and not a few of modern, authors, is as erroneous as the assumption of some recent writers, that stuttering only occurs at the vowels, for the affection may extend both to vowels and consonants. Some stutterers, indeed, have come under my notice, who hesitated chiefly at the vowels, whether they formed the initial or intermediate sounds of a word. Dr. Wolff cites the case of a boy who stuttered at no consonant except at the spirans *h* (improperly called a consonant); whilst the enunciation of any vowel caused him great difficulty, especially the vowel *a* (*ah*). On attempting to articulate the vowel sounds, spasmodic contractions of the muscles of the face, the neck, and the respiratory organs ensued, so as to threaten suffocation. In this case, I have no doubt, the infirmity was due to a defective mode of respiration, which required regulating.

It is not strictly true, as is asserted by some, that the vowels are entirely formed in the larynx, and require no intervention of the articulating organs. I am well aware that most of the vowels and diphthongs may be produced without the full participation of the tongue or lips; even the so-called labial vowels *o* and *u* may be produced, though not very distinctly, without the motion of the lips and tongue requisite for distinct pronunciation. Thus persons, who have had the tongue or lips totally or partially destroyed by disease, are still able to produce these vowel sounds; but there can be no doubt that for distinct elocution the vowels must be carefully articulated;

for although primarily produced in the larynx, they cannot be said to be entirely formed there; for they receive their specific character in the oral canal. Indeed, the larynx itself can make no modification in the different vocal sounds beyond the alteration of the tone.

Some stutterers cannot at times produce any sound. This may be owing to the abnormal action of the respiratory apparatus—the difficulty of expelling the air at the instant the vocal cords are in a position to vibrate; or to the difficulty of placing the latter in the proper position; consequently the air is expelled from the lungs without being vocalised. This frequently arises from ignorance as to where or how the sound is produced. Some stutterers have the idea that the sound comes from the lungs already vocalised; others fancy it is produced in the mouth.

According as the position of the tongue, which the articulation of the vowel would require, is high or low, it is frequently fixed in that position, or contracted by the stutterer the moment he feels any difficulty in producing the required vowel. Thus in the production of *o* or *u* (more especially the latter) the stutterer so contracts the tongue as to close the *isthmus faucium*, the larynx is depressed, and the production of sound is rendered impossible. In forming *a* (*ay*) and *e*, the tongue is pressed in a spasmodic state to the palate, the larynx is raised, and the enunciation of the vowel becomes similarly impeded. In the production of the fundamental vowel *a* (*ah*), which requires simply the opening of the mouth without altering the articulating organs from their normal

position, the spasm, when the stutterer feels a difficulty in producing the vowel, seizes the tongue, and, without moving it from its natural position, renders it and the adjacent organs, the glottis, etc., rigid and immovable, and the production of the vowel becomes impossible. In each of the above cases the spasmodic condition, when it continues for some time, produces congestion of the blood in the head and the veins of the throat ; and, unless the stutterer ceases his efforts, symptoms of suffocation manifest themselves.

Sometimes the vowel can only be produced in a whisper. For instance, when the spasm of the organs, as described above, is somewhat relaxed, the air is allowed to escape, but the spasm may still be strong enough to prevent the formation of the vowel in loud speech ; the consequence is, that the stutterer repeats the production of the *whispered* sound till the required vowel is formed. In others, again, the vowel can be formed in the larynx, but the stutterer is unable to complete its formation, or conjoin it with a consonant, by the intervention of the articulating organs. This is especially the case with the sounds *i*, *a* (*ay*), *ow*, etc.

Consonantal Stuttering.—Though stuttering, as has been shown, extends also to the vowels, yet it chiefly occurs at the utterance of the mute or explosive consonants and their medials, as at *p*, *t*, *k*, *b*, *d*, *g*, etc. The aspirated and continuous sounds, as *f*, *m*, *n*, *l*, *r*, *w*, *s*, etc., offer fewer difficulties, the oral canal being then not so completely closed as in the formation of the explosives.

A syllable or a word may commence with a vowel followed by a consonant, or it may commence with a consonant followed by a vowel. At first sight it may appear to matter very little whether the vowel or the consonant be the initial sound. A little reflection, however, will show that it is not unimportant. In commencing a syllable with a vowel, the oral canal is opened before the formation of the consonant, and in forming the syllables *ap*, *ebb*, *ott*, etc., all that is necessary is to close the buccal cavity to produce the consonant, the change in the mouth being easily adjusted, and stutterers (unless they are also vowel stutterers) rarely find any difficulty in enunciating such syllables. But when a consonant commences a syllable the mechanism is reversed; the speech organs must be placed in the position requisite for the formation of the consonant, and then suddenly released from their state of contraction to allow free passage to the vocal sound. This it may appear could be easily effected, if it were merely requisite to give free vent to the interrupted air current by opening the mouth. But it must be considered that in the articulation of the explosives there is in fact a double obstruction of the sound, not merely in the mouth, but also in the glottis, as in their enunciation the thorax is fixed, which is not the case in the other consonants. Both these obstructions must not only suddenly be removed, but (and this is the greatest difficulty) at the moment when the oral canal is opened in front and behind, a sound must be simultaneously produced in the larynx by forcing the air

from the lungs ; that is to say, during the formation of the explosive, the vowel sound must be ready to follow and to overcome it. If this cannot be effected, the muscles which close the oral canal may continue in a state of contraction, and the formation of the syllable is retarded until repeated attempts prove more successful in liberating the articulating organs. It is the disturbed relation and the antagonism between the vocal and the articulating mechanism which give rise to consonantal stuttering.

In some cases, then, the vowel which is to follow the consonant cannot be produced ; the articulating organs approach each other, and the stutterer is powerless to separate them while the stuttering lasts. This is the case both with the explosives and continuous consonants.

In other cases the vowel sound can only be produced in a whisper, and the stutterer repeats the consonantal formation in a whisper till he overcomes the difficulty ; as in the word *butter*, he whispers *bu-bu-bu-bu-*, and says aloud *butter* ; *four*, *fo-fo-fo-fo-four*. Here, however, there is a difference between the continuous consonants and the explosives. In the former the pronunciation of the word *sand* would be *s-s-s-s-s-s-s-* (in a whisper), and *sand* (aloud). The *s* would not be repeated, but the hissing sound would be continued, and so on with the other continuous consonants. At other times the difficulty lies in the formation of the vowel—the whisper is freely produced, but is repeated, as in *box*, he says, *bo-o-o-o-o-o-* (in a whisper) *ox* (aloud).

Again, the vowel sound is freely produced in the larynx, but cannot be articulated, or joined to the succeeding consonant. This is especially the case in such words as *bind*, *bound*, *gave*, where the vowel requires a distinct movement of the articulating organs in addition to that necessary for the articulation of the succeeding consonants.

Influence of Imitation.—It may be questioned whether there is in human nature a principle so intimately connected with our intellectual development as imitation. But we must at the outset distinguish between two kinds of imitation; the one congenital and instinctive, or unconscious and involuntary; the other voluntary, or a deliberate act, determined by various motives, and more or less acquired.

The inborn propensity to imitate is by no means confined to man, but is possessed by many animals. The imitative power of birds, and especially of monkeys, is so well known, that we have a special word, "to ape," indicative of the propensity so strongly manifested in the anthropoid apes, and in which they are only surpassed by man.

This congenital propensity to imitate the actions of others, being, no doubt, connected with our bodily organisation, is a phenomenon of which neither philosophy nor physiology has hitherto given, nor is just yet likely to furnish, any satisfactory explanation. It may be admitted that imitation in certain cases results from the sympathy between two living organisms. That such a sympathy exists is unquestionable. Thus nervous persons feel (as already pointed

out by Adam Smith) when looking at the sores exposed by beggars in the streets, and many other unpleasant sights, an uneasy sensation in a corresponding part of the body. The history of epidemics, religious revivals, etc., and the medical records, furnish conclusive proofs, not only of the physical sympathy between the bodily organisms of different individuals, but of the infectious nature of emotions, as well as of their physical manifestations. Assuming for the present that the propensity to imitate is an ultimate fact in our nature, it possesses in relation to many cases of defective speech a special practical interest; for the acquisition of articulate speech by infants is solely the result of instinctive imitation.

The tendency to imitate exhibits itself in its greatest intensity in childhood and early youth; and only diminishes with advancing age, when under the influence of the will the propensity is restrained. Individuals of weak will remain under its influence, perhaps during life; whilst persons of a strong will emancipate themselves, to a much greater extent, from its influence. In short, the propensity varies according to the temperament. In women, who partake more of the infantile temperament, this propensity is generally stronger than in males.

Like every other propensity, imitation may degenerate into a sort of mania. In an extract of a letter by Mr. Geo. Garden, dated Aberdeen, Feb. 17, 1677,* a curious case is recorded of one Donald

* *Philosophical Transactions*, vol. xii, p. 843.

Monro, "very remarkable for somewhat peculiar in his temper, that inclines him to imitate unawares all the gestures and motions with whom he converseth." When Mr. Garden, in company of some friend, went to see him, they found him "a little, old, and very plain man, of a thin, slender body," who, as he told them, "had been subject to this infirmity from his very infancy.".....When they held both his hands, and caused another to make any motions, he pressed to get free. "But when we would have known more particularly how he found himself affected, he could only give us this simple answer: '*That it vexed his heart and brain.*'"

"I shall leave it," continues the writer, "to your consideration, what peculiar *crasis* of spirits, or distemper of imagination, may cause these effects; and what analogy they bear to the involuntary motion of yawning after others, and laughing when men are tickled (which some will do if anybody do make that titillating motion with their finger, though it be at a distance from them); and whether, if his nurse have accustomed him to the frequent imitation of little motions and gestures in his infancy, this may not have had some influence to mould the texture of his brain and spirits, and to dispose him to this ridiculous apishness."

Pinel* cites a similar case of automatic imitation in a young female idiot, who had the most irresistible inclination to imitate everything she saw, and to

* *Aliénation mentale.* Second Edition.

repeat all she heard. She imitated the gestures and actions of the other patients with the greatest accuracy.

It is a fact which has been frequently noticed, that persons habitually associating together gradually acquire a similarity of manner,—the result of imitation, both voluntary and involuntary. This has forcibly been pointed out by Shakespeare, when he causes Falstaff to philosophise :

“ It is a wonderful thing to see the semblable coherence of his (Justice Shallow’s) men’s spirits and his : they by observing him, do bear themselves like foolish justices ; he, by conversing with them, is turned into a justice-like serving man.....It is certain that either wise bearing, or ignorant carriage is caught as men take diseases of one another ; *therefore let men take heed of their company.*”

The imitative propensity, as already stated, exhibits itself in its greatest strength in earliest childhood, so that nothing is more common than to see infants assume the gestures, habits, and modes of pronunciation of those by whom they are constantly surrounded. Such being the case, it is beyond question that both stammering and stuttering may, and in many cases do, arise from unconscious, or rather instinctive, imitation. One stammerer or stutterer in a family is quite sufficient to infect others ; and so rapid is the contagion to a susceptible child, that I know of more than one case in which the infirmity was contracted by a single interview with a stutterer.

Schulthess cites a similar case of a boy who at a

Swiss watering place contracted the habit of stuttering from a girl in whose company he was for only a day or two. Despite his immediate removal, it was a long time before the defective utterance could be remedied.

That this unconscious imitation is not entirely confined to childhood has already been indicated. Thus Wyneken quotes the case of a married couple, of Bremen, of whom at the marriage only one party stuttered, but before long both suffered from the infirmity.

Kaau-Boerhaave* gives an instance of a squinting school-master who infected all his pupils after the first month of his appointment, so that it became necessary to dismiss him.

Brachet† cites the case of a boy, aged 12, who contracted the habit of winking from sitting opposite a boy at school who was thus affected.

There is also abundant evidence that speech-impediments may arise from mimicry or voluntary imitation.

A clergyman of the church of Scotland writes: "I was entirely free of it till I was five years of age, when at that time of life there was a gentleman who was in the habit of occasionally frequenting my father's house, who indeed stuttered very badly, and I distinctly remember one afternoon trying to imitate him, when unfortunately he heard me, and was very indignant, and so ashamed were my parents at my

* Quoted by Schulthess.

† *Ibid.*

conduct, that after he had gone, I was taken to task and punished severely for it, and *ever since that night I have been afflicted with this most distressing malady.*"

I am in a position to adduce numerous instances of this kind from my own experience. The following two cases are graphically described by Professor Kingsley:* "I knew of a young man, who used, for his little brothers' and sisters' amusement, to act some stammering relation. One day he found that his acting had become grim earnest. He had set up a bad habit, and he was enslaved by it. He was utterly terrified; he looked on his sudden stammer (by a not absurd moral sequence) as a judgment from God for mocking an afflicted person; and suffered great misery of mind, till he was cured by a friend of mine, to whom I shall have occasion to refer hereafter.

"One of the most frightful stammerers I ever knew began at seven years old, and could only be traced to the child's having watched the contortions of a stammering lawyer in a Court of Justice. But the child had a brain at once excited and weakened by a brain fever, and was of a painfully nervous temperament."

I trust enough has been said to warn all young persons against stuttering in mimicry, lest they should raise a ghost which they cannot get rid of. Old Montaigne has said already in his quaint language:

* *The Irrationale of Speech.* By a Minute Philosopher. Price 2s. Longman and Co.

"Children should be well mauled when they mimic stuttering, squinting, lameness, or other personal defects; for besides that the body so stretched may receive a bad crease, it seems that nature sometimes takes us at our word."

Influence of Age upon Stuttering.—Stuttering generally commences about the third, fourth, or fifth year; it increases up to puberty, when it is supposed by some to diminish. But I agree with Dr. Klencke, that this is but rarely the case except where stuttering is merely a temporary symptom, and never when the habit has become deeply rooted in the system. That stuttering should generally (not always) disappear in advanced age must in some cases be attributed to the fact that the will becomes firmer, and the sufferer, perhaps, has acquired certain tricks which aid him for a time, but generally the defect remains, though its manifestation be less violent.

This appears also to be the conviction of Merkel, who says: "The more speech is developed and fixed by corporeal and mental development, the more must stuttering increase, because the contractions of the articulating organs become so much stronger, the more the muscular movements become firmer. Moreover the gradual development of the respiratory and vocal apparatus, in conjunction with the mental excitement, contributes at this period (puberty) to render the stuttering very severe. When at a later period the mental excitement yields to calmness, then stuttering will not manifest itself by such violent symptoms. The stutterer is more composed; he has by experience

acquired certain artifices which aid him ; still the defect remains ; it has become more inveterate, and is at this period more difficult to be cured."

Colombat, who adopts the theory of Aristotle and Rullier, attributes the disappearance of stuttering in advanced age to the fact that "In aged persons the cerebral irradiation moves more slowly, the nervous influx is less impetuous ; their ideas succeed each other with less rapidity. The result is, that the organs of speech are able to execute their movements without confusion, as their rapidity is in proportion to the exciting cause." This is, no doubt, an excellent reason why its manifestation should be less marked, but it cannot be said to account for its entire disappearance.

Another, and, perhaps, the chief reason why very aged stutterers are rarely met with, is expressed by the eminent author already quoted, in the following words : "A stammerer's life (unless he be a very clod) is a life of misery, growing with his growth, and deepening as his knowledge of life and aspirations deepen. One comfort he has truly, that the said life is not likely to be a long one. Some readers may smile at this assertion. Let them think for themselves. How many old people have they ever heard stammer ? I have known but two. One is a very slight case ; the other a very severe one. He, a man of fortune, dragged on a painful and pitiable existence—nervous, decrepit, effeminate, asthmatic—kept alive by continual nursing. Had he been a labouring man, he would have died thirty years sooner than he did.

"The cause is simple enough. Continued depression of spirits wears out body as well as mind. The lungs, never acting rightly, never oxygenate the blood sufficiently. The vital energy (whatever that may be) continually directed to the organs of speech and used up there in the miserable spasms of misarticulation, cannot feed the rest of the body: and the man too often becomes pale, thin, flaccid, with contracted chest, loose ribs, and bad digestion. I have seen a stammering boy of twelve stunted, thin as a ghost, and with every sign of approaching consumption. I have seen that boy, a few months after being cured, upright, ruddy, stout, eating heartily, and beginning to grow faster than he had ever grown in his life. I never knew a single case of cure in which the health did not begin to improve there and then."

Influence of Education on Stuttering.—Much has been written on the influence of education on stuttering. "The stutterer who has cultivated his mind," says Astrié, "and increased his sphere of knowledge, feels how important it is that he should acquire a free enunciation. His lot, his calling, especially if he intends to become a physician, renders it necessary that he should be in constant intercourse with others. Self-love and his interest sustain and stimulate him, and he arrives after much labour, if not at a perfect cure, at least at a sensible amelioration."

"Behold, on the other hand, that unfortunate stutterer, born in misery and remaining ignorant. Not being stimulated by the desire of communicating his ideas, as he has acquired none, he scarcely desires to

be cured of his infirmity. He shuns the intercourse of men, he falls, so to speak, into a state of idiocy."

There can be no doubt that a well educated person who feels the necessity of communicating his ideas to others, and who brings a strong will to bear on his infirmity, may, under proper instruction, eventually succeed in ameliorating it. But that educated stutterers can by their own unaided exertions cure themselves is refuted by the singular fact, which cannot too often be repeated, that, with few exceptions, all modern writers on stuttering were themselves subject to this infirmity, and yet all failed to cure themselves, so that most of them cut the Gordian knot at once by boldly laying it down, that a radical cure of stuttering was impossible.

Influence of Temperament upon Stuttering.—I have no intention of entering here into particulars on the doctrine or the nomenclature of those physical differences between men which influence their animal functions and their actions. I take the terms as I find them, however objectionable in many respects they may be. Having said thus much, I admit that the so-called sanguine and nervous temperaments furnish the majority of stutterers, but that they belong exclusively to these classes, as asserted by many authors, is an error. I found, and so must all practitioners, who have had an opportunity of observing a sufficient number of cases, that all temperaments yield their quota.

Indeed, some of the severest cases I had to treat were subjects of a phlegmatic temperament. As a

general rule I found that stutterers of this class required a longer treatment to be relieved of their infirmity than persons of a sanguine temperament. On the other hand, when once cured, the phlegmatic subject had that advantage over the sanguine, that he was less liable to relapse, and that for reasons which will appear in the sequel.

Influence of Temperature.—The fact that sudden variations of temperature, changes of the season, extreme heat or cold, have some influence (as in most nervous affections) either in increasing or diminishing the infirmity, simply indicates that stuttering is a functional disorder. Voisin states that his infirmity in some measure served him as a barometer; for he could frequently predict from the greater embarrassment of his speech that considerable changes were about to take place in the atmosphere, and his prediction “was always justified by the event.”

Colombat asserts that stuttering increases in winter and summer, and diminishes in autumn and spring, provided the latter seasons are temperate and moist; he further observes that dry air, in frost and great heat, acts inversely.

“This peculiarity,” he adds, “which may seem void of foundation and chimerical, offers nothing surprising to those who know the incontestable influence which atmospheric variations have on diseases generally, and especially on affections which, like stuttering, are essentially nervous.”

Otto also says: “The weather and the seasons have a perceptible influence on stuttering. Stuttering in

consequence of relaxed nerves is greatly increased by damp air, as I observed in a boy who when the air was damp could not produce a sound despite all his efforts. That the quality of the air has some influence upon the vocal nerve is proved by experience: thus singing does not succeed so well in damp weather as when the air is dry."*

According to my own experience, these statements are often more fanciful than real: no definite rules can be laid down in this respect. The dry or damp state of the atmosphere, its electrical condition, and the changes of the seasons, influence stuttering according to the idiosyncrasy of the subject, so that the same external influences produce, among a number of stutterers collected under one roof, frequently opposite effects.

Influence of Time of Day.—Another supposed influence on speech-impediments is the time of the day. Many authors assert that the infirmity is worse in the morning than during the rest of the day. Thus Dr. Becquerel states that he stuttered more in the morning, and that he believed this was generally the case. Dr. Astrié says that stuttering is more perceptible on awakening in the morning, and he endeavours to account for it by the torpor of the nervous system and by the fact that the will is not sufficiently roused at that time. Klencke also asserts

* Ætna was very furious when we passed, as she useth to be sometimes more than others, specially when the wind is southward, for then she is more subject to belching out flakes of fire as *stutterer used to stammer more* when the wind is in that hole. — *Howel's Letters*, 1665.

that stuttering increases in the morning, and he adds moreover that it also increases after meals and at full moon. Voisin attempts to account for it by saying that it "appears to arise from the rigidity in which the nervous system remained during the time of repose—a rigidity participated in by all vital muscles connected with it, and which a still, undecided will is yet unable powerfully to set in motion. In the evening, on the contrary, all the phenomena of life concatenate with greater rapidity. The excitations during the day have augmented the pulse and increased the sensibility. The functions of the intellect act with greater rapidity, the will is firmer, and therefore the pronunciation is less impeded.

"All authors have justly observed that mental labour is easier in the morning than at any other part of the day, and my view by no means contradicts this assertion; it merely proves that stuttering diminishes in proportion as the brain gets more excited. This is so true that stutterers can even express themselves with facility when they receive impressions strong enough to affect and excite the brain more powerfully than those received during the day."

Diametrically opposed to this opinion is that of Colombat, who while admitting the fact of stuttering being worse in the morning, accounts for it by asserting that the intellect is then more free, and because the nervous influx from the brain is more rapid at that time of the day, and there is thus effected a disharmony between the rapidity of thought and the

action of the organs, so that the tongue, when trying to execute the mandates of the brain, is unable to do so, and failing in its efforts, causes stuttering."

Schulthess says, "The fact that stuttering is worse early in the morning than in the evening, is easily explained, when we assume with Himly that the factors of irritability differ in the morning and the evening; that in the morning the receptivity predominates, and in the evening energy; hence fevers with irritable debility and of a nervous character, exacerbate usually in the morning, and those with heightened irritability in the evening."

According to my own observation I admit that in many, perhaps most, cases stuttering is more perceptible in the morning than later in the day. I may also state as a mere matter of fact, without entering here into the cause, that I have specially noticed this matutinal exacerbation of speech-impediments in youths, aged between sixteen and twenty. Still I am far from admitting it to be a general rule. I have found the exceptions too numerous to assent to such an axiom. A great deal I also found depends on the *how* the stutterer has passed the night.

Lunar Influence.—A popular writer* has recently observed: "I am pleased to see that the question of lunar influence has of late years been considered unsettled," and that "lunar action, despite northern scepticism, is everywhere in the tropics a matter of

* *The Highlands of the Brazil*, by Capt. F. Burton, 1869, vol. i, p. 248.

faith." This subject is now open to unbiassed investigation: but at present there does not seem to be much evidence to support the faith of the tropics. Every affection of the human body has been supposed to be under the influence of the moon, and stuttering has been no exception. Dr. Mead* records a case of a girl who for a long time "lay always speechless during the whole time of the flood and recovered on the ebb." He says that the father, who was a boatman employed on the Thames, knew when the flood had turned in the night by the cries of the daughter on coming out of the fit. We have nothing recorded so apparently wonderful as this, but there are many cases given by different authors in which the influence of the moon on the speech organs is asserted as real. Thus Klencke says of nervous stuttering that it increases at full moon. Such an authority upon this subject would certainly be expected to give, or attempt to give, some real or supposed reason for this occurrence, but he merely states it as a matter of observation and does not attempt to explain it in any way. I strongly suspect that this is one of the many delusions extant.

A physician, writing to Schulthess, says, "That the changes of the moon have any influence (on stuttering) I do not believe. It is true that it got worse during these changes; but sometimes at full moon, and sometimes at new moon, and sometimes,

* *The Influence of the Sun and Moon upon Human Bodies*, 1748, p. 44.

again, there was on such occasions no alteration at all. But always when the evil became worse at these changes there was a change of the weather, and the more sudden, the worse was the pronunciation. This also occurred at rapid changes of the temperature when they occurred between the changes of the moon, so that I can only admit the influence of the moon in so far as it may be connected with changes of the weather." Schulthess adds: "But if it be true that convulsions, *goître*, etc., are sometimes connected with changes of the moon, I should not be inclined entirely to deny its influence upon affections of the larynx in stuttering." Frank relates of a lady of Wilna who always stuttered at the approach of the catamenia. But," he adds,—and here probably is the key to the supposed influence,—“stuttering, as a rule, always increases with bad health.”

Influence of Various Disorders of the Body on Stuttering.—Schulthess cites several cases in which stuttering ceased on the occurrence of other affections, such as hæmorrhoids, suppurations, etc. One case is that of a stutterer whose stuttering ceased three distinct times during other affections—once when he suffered from hæmorrhoids, the second from constipation, and the third from apoplectic symptoms. Another case was that of a young workman who had the misfortune to get his left arm entangled in the wheel of a spinning mill, in consequence of which amputation was rendered necessary. When suppuration commenced the stuttering gradually diminished,

and finally disappeared; the wound acting, Schulthess says, as a derivative seton. In this case, as in the former, the stuttering reappeared after the affections ceased.

The following case, recorded by the late Dr. Graves of Dublin, shows that stuttering may be diminished by affections of the vocal organ:—

A young gentleman of delicate constitution, and when about six years of age went to bed one night in health, and without any unusual symptom; but on getting up in the morning it was observed that he had lost his speech and was unable to utter a single word. The boy, after taking some internal medicine and using a stimulant gargle, recovered his speech in a few days, without the occurrence of any symptom of laryngeal inflammation or cerebral disease. But what was remarkable in the case was this: the boy who up to this period had spoken well and distinctly, now was a terrible stutterer. This resisted all kinds of treatment, and for ten years he continued to stammer in the most distressing way. In the month of May (the boy was then sixteen years old) he got an attack of chronic laryngitis. But what is curious in the case (continues Dr. Graves) is this: after he got the laryngitis a very peculiar change took place; the laryngeal inflammation modified the tone of his voice so as to make it a little husky, *but the stammering had completely ceased.*

Commenting upon this case, which Dr. Graves considered as an extremely curious one, and doubting whether a similar one be on record, he suggests the

following explanation : "The inflammation taking place in the mucous membrane covering these delicate muscular fibres (the vocal cords), you can conceive that either the thickening of the mucous membrane, or the alteration in the state of its vitality, may have so modified the disposition of the parts, that they became incapable or indisposed to undergo those rapid contractions, necessary to produce stammering, by inducing closure of the glottis at the moment its aperture ought to remain open."

This case, I may state, is by no means a solitary one ; there are numerous cases on record in which stuttering ceased after the supervention of some accidental lesion of the larynx, or even of other parts. It will also be perceived that as Dr. Graves uses the terms stuttering and stammering synonymously, it is difficult to decide whether the patient stammered or stuttered ; perhaps he suffered from both these defects.

Timeus gives the history of a stuttering child who recovered the free use of his speech in his eleventh year, after a quotidian fever.

Wyneken cites a case of a boy who applied to him for otorrhœa, and informed him that previous to the discharge he had been a stutterer, but that since that occurrence he had been free from his infirmity. As the hearing of the boy was affected during the discharge, it might have been owing to the fact that the boy was more composed, and consequently stuttered less ; but the hearing of the patient continued as bad after the discharge had ceased as it was before, and still the stuttering returned.

The same physician tells us that he himself, when out travelling late at night, was once over-fatigued, and when he arrived at an inn he could not even stutter, so much was his infirmity increased. Nor was this spell broken till a servant of his father came to fetch him home.

Psychical Influences.—Every passing emotion influences, more or less, the action of the heart and the respiratory functions, either by accelerating or retarding them; and as the production of the voice is intimately connected with the act of respiration, it is not surprising that the vocal apparatus and the organs of speech should be instantly affected by our sensations and thoughts. Thus voice and speech may be suddenly lost and as suddenly recovered under the influence of powerful emotions.

Touching the influence of the emotions on stuttering, it may be stated as a general rule, that whilst comparatively slight emotions, such as timidity, increase the infirmity, profound emotions may, for a time, entirely remove it by the excitation of cerebral action, and the consequent infusion of greater vigour into the motor agents of the articulation.

The subjoined cases, presenting opposite effects of the influence of fright on the speech of stutterers, may serve as illustrations.

Herodotus (484 B.C.) says that the Therean Battos,* who had been a stutterer and a stammerer† from his

* The term βατταρισμος is, according to some, derived from Battos.

† Ισχυροφωνος και τραυλος.

youth, consulted the oracle at Delphi. The oracle said: "Battos, thou comest on account of thy speech, but King Phœbus Apollo sends thee to Libya, to dwell in the land of sheep."

After having founded the colony Cyrene, he was, according to Pausanias, cured by the unexpected sight of a lion. Herodotus also observes that *Battos* meant, in the African language, a king.

M. Chervin remarks: "A nurse entering a railway tunnel says to a child '*Voici le diable*' (Here's the devil). The child is terrified,—he is a stutterer." The same author asserts that he has seen a stuttering child thrown into the water in order to cure its infirmity. He does not, however, definitely state whether the child was cured.

One of the most severe cases of stuttering I ever saw was caused by the parent stamping and calling out "Silence!" His son, aged eight, who was running across the room, fell on hearing his father's voice. When he got up he began stuttering very violently. Another pupil stated that this infirmity was caused by the fright of being run after by an Irish tramp. These instances might be greatly multiplied.*

There are many other psychical influences worthy of notice, among which may be mentioned the fact that some stutterers manifest their infirmity less when they speak in the dark. Itard mentions a case of a young stutterer who suddenly ceased stuttering when speaking before a large assembly; this he

* See *infra*, Chapter on Statistics.

attributed to the room being sufficiently darkened to hide his contortions from his listeners. It is said that he was blindfolded in order to get rid of his infirmity, but without success.

Another fact somewhat analogous to the preceding is, that stutterers do not hesitate so much in their speech when masked. The reason of this is, that, in addition to their contortions being concealed, they generally assume also a feigned voice, and are thus enabled for a time to overcome the impediment. An additional cause of this temporary respite is, that their attention is for the time withdrawn from their difficulty. This also applies to the comparative facility with which stutterers can repeat difficult words enunciated by another person. Many stutterers experience no difficulty in imitating any peculiar mode of articulation, but no sooner is the model to be imitated withdrawn, than the stutterer relapses into his own faulty mode of articulation.

It is well known that when stutterers are roused by indignation, a sense of wrong, etc., they are frequently released from their infirmity, or at least the latter is considerably diminished.

The following is one of these instances, recorded by M. Colombat.

Three gentlemen, stutterers to a painful degree, went to the French Academy of Sciences, for the purpose of being examined by a commission before undergoing treatment by M. Colombat, then a candidate for the Monthyon prize. On leaving the academy they entered a tobacconist's shop to purchase

some cigars. The least timid among them accordingly addressed the tobacconist, *Dooo do doo donnez-moi des ci- des ci- des ci- des cigarres.*" It so happened that the tobacconist was himself a terrible stutterer, and was by no means surprised at having a companion in affliction, but he was certainly far from imagining that the other two were similarly affected. When, therefore, after asking the gentlemen, "*De-dede-de-dede-quel quel qua-qua-qua-qualité vou-vou-voulez vous les-les-cigarres?*" all three began horribly to stutter, he flew into a violent rage, thinking that they merely came to have a lark. He therefore seized a stick to belabour them, whilst he swore at, and threatened them in the most energetic terms, without the least impediment in his speech. Fortunately the arrival of M. Colombat at this moment put an end to the scene, by informing the enraged tobacconist of the real facts of the case.*

A similar result follows other emotions; for instance, when the stutterer becomes greatly excited in a discussion which animates him, his speech is rendered fluent.

I have had ample opportunity in my establishment of noticing during the debates on a variety of topics in which my pupils take part, that when any subject under discussion specially interests the speaker, and when in a state of excitement he vehemently enforces his arguments, he sometimes as-

* See also *The Unspeakable; or Life and Adventures of a Stammerer.*

tonishes his fellow pupils by the temporary fluency of his delivery. As already stated, two elements combine to produce this effect, viz., the cerebral influence on the motor agents and the momentary oblivion of his infirmity.

The following cases show another peculiar mental influence on the speech of the stutterer.

W. G. (aged nineteen) writes: "The case you described as Mr. R.'s approaches nearest my own; for instance, he says that 'If he had once stammered to a person, he could never speak plainly to him again.' I have frequently, when conversing with persons for the first time, not stuttered at all, or very slightly, but when once I find that they know me to be a stutterer, I never speak plainly to them any more. If alone, I could read all the paragraph relating to Mr. R.'s case without hesitation, but place a person before me, and I could not read a single sentence without stammering very badly. And again, when I know that I must have an interview with any person, I am in a state of the most nervous excitement until it is past. Many are the kind invitations I have declined, simply because of my impediment, when, God knows how dearly I should have loved to have joined the merry circle of my companions and friends."

The following is an extract from a description of a case of stuttering, in a pupil's own words. There are many who will doubtless recognise the truth of the description, with some modifications, from their own experience. He says that he can remember the

time when he did not stutter. It gradually came on when a youth, and increased until the twentieth year, with periods of mitigation, during which time he says, "I spoke for weeks together with comparative ease, so that a casual stranger who conversed with me would be unaware of my having any impediment, though he might have noticed a certain hesitancy and discomposure in my manner." Coming to reside in London the stuttering monthly increased, "till it has become almost painful to me to speak at all." He then continues:—

"Yet at the present time, as always since I remember, in private and alone, I can read and speak without stuttering at all; and not only so, but in church can join in all the responses of the congregation without hesitation, my voice being borne along as it were by theirs; for if their voices suddenly were silenced, I should become perfectly speechless. (I have experienced this, when it has sometimes happened that they have finished their responses before me). I think, too, if I could persist in always using a most affected drawl in conversation, I should put a stop to the stuttering; though I have often found that I have succeeded in various contrivances for a time, and until a certain consciousness that I must stammer affected me while practising them also, and I have stammered immediately. I have naturally a great 'tendency of words to the mouth,' and could, I think, but for my stammering, become an easy and ready public speaker. I am naturally of a most delicate constitution, with a tendency to pulmonary

disease, at least that is my own impression. I attribute my stuttering, I say, to the possession of a very sensitive and nervous organisation, as much of the body as the mind, producing hesitation in the first place, and now, through time and habit, spasmodic contraction.

“It is clear to myself that, inasmuch as I can read and speak when alone, I ought to be able to do so publicly; but that I *cannot* do so is the very secret of the complaint. I have tried self-cure, and failed from this very fact. Irresolution, incapability of persistence is the very cause, I fancy, not only of the stammerer's being a stammerer, but of his continuing to be one. A stammerer possessing a resolute and indomitable will might cure himself; but for myself I feel the want of discipline outside, as it were, and beyond myself, and a sense of reliance on some other's means of cure and not on my own; while at the same time I feel confident that a stern discipline as to speaking would in time bring such a control over the organs that stammering would entirely cease to be.”

Another case I may mention,—that of Astrié. He says: “When I am alone, and read either in a low or in a loud voice, I scarcely ever stutter; I speak with considerable facility with my friends.

“Intimidated by a person whom I respect or fear, I am embarrassed in the communication of my ideas. In a numerous circle I am silent and reserved. It is sufficient for me to have a presentiment that I shall stutter at certain words which ordinarily are difficult

for me, and my stuttering becomes worse. I believe that I should stutter very little could I persuade myself that I don't stutter at all."

It would thus seem that, generally speaking, stuttering is worse when the stutterer is speaking in public or before strangers, but such is not invariably the case. On the contrary, several persons have come under my observation, who were far more affected with their infirmity when alone or with their own family than when speaking before company or in public. The fear of rendering themselves ridiculous acts as a stimulus, strengthening the psychical element; and the firm will to overcome the difficulty actually gives them, for the time being, more control over the disobedient organs.

The following letter,* written more than a century ago, to the editor of the *Gentleman's Magazine*, when the phenomena of Psellism were but little understood, gives a case in illustration:—

"As I have seen many odd cases inserted and accounted for in your Magazine, I beg leave to make known the following, which I am at a loss how to account for, and therefore shall be highly obliged to any of your correspondents that will determine for me.

"Not long since I was introduced into the company of a very worthy clergyman who stammered as much in his common conversation as any person I ever met with; insomuch as frequently not to be

* *Gentleman's Magazine*, vol. xxiii, 1753.

able to get out a word for near the space of a minute. I thought to myself this impediment in his speech must certainly be a great uneasiness to a gentleman of his profession, when in the pulpit, and extremely tedious to his congregation. But on the Sunday following, when I attended him to the parish church, how great was my surprise to hear him go through the whole divine service without the least hesitation! And I am informed that whenever he makes a little mistake in his discourse, he recovers himself with as much ease as any one the most eloquent of his function can do."

In this case, no doubt, stuttering was combined with rapid enunciation or cluttering. Probably, indeed, the former was caused by the latter; and it can easily be imagined that, on the disappearance of the cause, stuttering should be less perceptible. Nevertheless the case is a rather striking one, and deserves notice. There is another circumstance which may account for this seemingly mysterious phenomenon. It is well known that stutterers find less difficulty in reading than when speaking extempore; and in all probability the reverend gentleman availed himself of the aid of his manuscript.

One of my pupils, a talented clergyman, before coming to me, had occasion to deliver a sermon—a task which, under the circumstances—being afflicted with a severe impediment of speech—he would have been very glad to avoid. Perceiving at the beginning of his discourse, that the peculiarity of his enunciation caused an unseemly merriment among his con-

gregation, his feelings were roused to such a pitch, that he inwardly vowed to give them no further cause for it, and he fully succeeded; for he went on with his discourse to the end without once faltering. But the excitement proved too much for him: the concentration of mental energy was, as usual, followed by reaction, and he felt utterly prostrate for several days, and stuttered fearfully until he placed himself under my tuition.

Stuttering in Singing and Recitation. — Singing differs from speaking, insomuch that in the former the vowels are formed of a given number of vibrations, with a fixed time, and that the syllables and words follow each other in a definite rhythm.

Recitative (*recitativo*), speech-song, holds an intermediate place between singing and speaking. It differs from singing in having no fixed time or measure, but allows the reciter to regulate the length of the notes according to his own notion of the emphasis required, and thus approaches common speech.

Recitative, however, differs from common speech, insomuch that it is language delivered in musical tones, and that the accents required by the text more definitely predominate.

Again we must distinguish *declamation* from recitative, as declamation may be marked merely by accents, whilst recitative is marked by musical notes.

These differences point out at once that stuttering must obtain less in singing than in recitative, and less in declamation than in common speech.

All authors agree that stuttering obtains much less

in singing than in common speech. The reason is obvious enough. In the first place, the glottis is open; the expiratory air-current is not merely better regulated for the formation of the syllables to be articulated, but it is strong enough to overcome the obstructions offered by the organs of articulation. In addition to this, the attention of the stutterer is partially withdrawn from the mode of articulation, and directed into a new channel, that of rhythm and melody, the articulation becoming subordinate to the latter. For this reason, namely, the subordination of articulation to rhythm and musical intonation, stuttering is less perceptible in recitative and declamation than in common speech. I cannot, however, assent to its being laid down as an absolute rule that there is no stuttering in singing; for I have met with some few subjects who formed exceptions to this rule.

Schulthess compares the phenomenon that stutterers do not hesitate, or at least much less, in singing than in speaking, to *pinophobia*, which consists in this—that the swallowing of liquids is impeded by irregular spasmodic contractions of the throat, and is effected either by repeated efforts, or by the ejection of fluids through the mouth and nose, whilst solid substances can easily be swallowed. “Just as the deglutition of solid food, which by its mass expands the gullet, and gives its muscles a firm hold, is much easier, so it seems that song-tones have, so to speak, more mass or consistence than speech-sounds, and more easily overcome the spasm of the glottis.”

Something analogous takes place in intoxication ; an inebriated man is sometimes able to run, but finds it a difficult matter to stand at ease or walk steadily. The same singular phenomena occur now and then in rheumatic and nervous affections. Gaubins cites the case of a man who could run, but not walk steadily ; and Astrié had a lady under his care who walked lame, but danced elegantly.

Angermann says, that at least one-half of stutterers show their defect in recitation, though in a less degree than in conversation ; and still less in singing.

Klencke admits that the stutterer can sing and recite, but he asks *how* ? “ Either with a voice which threatens to vanish every instant, hoarse, noisy, without timbre, tremulous, or with a disagreeable, disharmonious, *brutal* voice, little distinguishable from bellowing.”

In opposition to Klencke’s assertion, Wyneken says his experience is decidedly opposed to it. “ I have always been able to sing,” he says, “ tolerably well, and I have known several stutterers, much worse than myself, who always during singing manifested an harmonious voice of considerable compass.”

Neither can I fully agree with Dr. Klencke’s assertion. At the same time it is certain that confirmed and long-continued stuttering does act most injuriously, not only on the quality and timbre of the voice, but also on the ear. In such cases there is not only a want of harmony in the voice, but also a defect of rhythm in their readings and recitations.

Stuttering in Whispering.—The reason why there

is generally less stuttering in whispering is that in this mode of utterance there is not necessarily a synchronous action of the muscles of the larynx and the oral canal—frequently the cause of stuttering—the breath being articulated without the full participation of the vocal ligaments; but if the fault lies, as in some cases it does, in combining the action of the muscles of the respiratory apparatus with those of the articulating organs, there will be, and there is, stuttering in whispering, as I frequently have occasion to convince myself. This class of stutterers furnish a less proportion of cases than those where the vocalisation is at fault, and this may account for the erroneous assertion of authors that there is no stuttering in whispering.

Articulation is altogether independent of the larynx. By merely expelling the air through the mouth, without permitting any laryngeal sound to be formed, all the letters may be articulated in a whisper.

M. Deleau* has illustrated this fact by putting an India-rubber tube through the nostril, so as to reach the posterior portion of the mouth, and causing another individual to blow gently through it; while the organs of the mouth are silently thrown into those positions necessary for the utterance of any particular sound, that articulate sound will at once appear in whispers; but if, while this is doing, the larynx is permitted to yield a sound, two voices are then heard, one in audible speech and one in whisper,

* *Human Physiology*, p. 357. By John Draper. 1861.

the one belonging to the owner of the larynx, and the other arising from the air which his companion is blowing into the tube.

We can whisper during inspiration quite plainly. Loud sounds may also be thus produced, though they are not so agreeable as those produced in a normal manner. Even short words may be produced during inspiration. We may continue whispering for a long time during inspiration, provided it is done slowly ; we can also speak in whisper without being interrupted by inspiration. Some interjections are used with good effect by actors during inspiration.

It has been asserted by some authors that even in whispering there is a necessary participation of the vocal cords ; but this requires some explanation. When, for instance, we wish to be heard at a distance, we no doubt call in the assistance of the vocal ligaments. It is said that the celebrated actress, Mrs. Siddons, when enacting the character of Lady Macbeth, could whisper so distinctly and forcibly as to be heard in the remotest parts of large theatres, "and produced a greater thrill than the loudest bawl of those who tore a passion to tatters."* Now this is a physical impossibility, supposing the sound to be solely produced by the action of the breath against the pharynx, palate, and other speech organs. But we have no reason to suppose that the vocal cords are necessarily concerned in low whispering.

* *The Tongue and its Training*, p. 28. W. R. Gray. London, 1862.

I have already, in another place, cited cases showing that persons can distinctly whisper when the larynx has been injured by disease or accident. A more recent case of the kind is mentioned by Dr. Hughlings Jackson.* "I saw," he says, "a few months ago, in the London Hospital, under the care of my colleague, Mr. Hutchinson, a patient who could whisper, so as to be understood across the ward, when at the same time his vocal cords could be seen through a wound in his throat."

Is Stuttering hereditary?—That a predisposition to special affections or diseases is transmitted from parent to offspring, as well as external resemblance, and that the sins of the parents are visited upon the children for several generations, is both a very old and very true doctrine. Hippocrates evidently believed in the transmission of a predisposition to certain diseases. "If," he asks,† "phlegmatic, bilious, consumptive, and splenetic parents procreate phlegmatic, bilious, consumptive, and splenetic children, why should not the children whose father and mother are epileptic be more specially liable to that disease?"

In recent times the transmission of disease has not been seriously questioned. But it is one thing to

* *Clinical Lectures and Reports of the London Hospital*, vol. i. 1864.

† Si enim ex pituitoso pituitosus, et ex bilioso biliosus oritur, et ex tabido tabidus, et ex splenico sive lienoso lienosus, quid vetat, ut cujus pater et mater hoc morbo correpti fuerint etiam posterorum ac nepotum aliquis corripiatur?—Hippoc. *De Morbo Sacro*, v, 7. *Opera Omnia, Græce et Latine*, Lugd. Batav. 1665.

admit the facts, and another thing to explain them. We find, therefore, that in the year 1748 the Academy of Science of Dijon offered a prize for the solution of the following question :

"Comment se fait la transmission des maladies héréditaires?"

I am not aware that the prize was awarded ; there was, however, one competitor who deserves notice, namely, the celebrated Antoine Louis, one of the luminaries of French surgeons. In his Dissertation on the question as to how the transmission of diseases is effected,* he says (p. 12) :

"Before entering upon the solution of this question we ought first to examine whether really hereditary diseases exist, and what is to be understood by them." Instead of answering the question at issue, he point-blank denied the existence of hereditary diseases, on the somewhat specious grounds that the source and the principle of all our diseases lies in our temperaments,† and as the diversity of temperaments is not hereditary, neither can the diseases be resulting from them.

I know at present of no physiologist of note who denies the transmission of diseases. The examples furnished by pathology are too numerous to gainsay the doctrine. Some affections are less, others are

* *Dissertation sur la Question "Comment se fait la Transmission,"* etc., by M. Louis, Chirurgien de l'Hôpital Général de Paris, etc. Paris, 1749.

† C'est néanmoins dans notre tempérament que se trouvent la source et le principe de toutes nos maladies (p. 3).

more transmissible. To select only one disease, gout, we find that Dr. Garrod* states, that he found in his hospital practice hereditary influence in fifty per cent. of the cases observed, and the percentage would be still higher if the private cases were added. Nor does pathology furnish less numerous examples of the transmission of cerebral and purely nervous affections. Indeed, it may be questioned whether the transmission of cerebral disease does not furnish the highest percentage.

But, as already hinted, the admission of a fact and its explanation are two different things; and consequently we find that the obscure and great problem of hereditary transmission still awaits solution.

Geoffroy-Saint-Hilaire, in his *History of Anomalies*, confesses that the explanation of the extraordinary facts of hereditary transmission was beyond the actual state of science. This he wrote in 1833. In a very able summary in the *Gazette Médicale* (April, 1844), the author says that the question, as it then stood, belonged less to science than to that mass of empirical knowledge which frequently forms the whole luggage of practical medicine. Who knows under what conditions hereditary influences are propagated? Who can determine the exact part played respectively by the male or female, or to what extent their union by marriage may increase, alternate, or destroy their respective participation?

In point of fact, all is uncertainty, obscurity, and

* *Treatise on the Nature and Cure of Gout.* London, 1859.

vagueness touching hereditary transmission. And, finally, one of our most distinguished naturalists wrote, some years ago :* “ The laws governing inheritance are quite unknown ;” and in his latest work† he observes on the same subject : “ It is safer, in the present state of our knowledge, to look at the whole case as simply unintelligible.” In another place, he remarks:‡ “ But the power of transmission is extremely variable ; in a number of individuals descended from the same parents and treated in the same manner, some display this power in a perfect manner, and in some it is quite deficient, and for this difference no reason can be assigned.”

Now, whilst we may admit with Mr. Darwin that the cause of the non-recurrence of some, and the transmission of other, affections is at present unknown, and that the whole question of hereditary transmission is as yet in its infancy, we still hope that fresh facts may throw more light on it. When nature hides her mode of action, we must try to surprise her, so to speak, *in flagrante delicto*, and here is the difficulty ; for we should have to trace the transmission through all the stages of development *in utero*. No one now adopts the doctrine of chance. Transmission is, therefore, subject to certain laws, which, though at present but little understood, are not less recognisable.

* *On the Origin of Species*, p. 13. By Charles Darwin, M.A., F.R.S., etc. 1859.

† *The Variations of Animals and Plants under Domestication*, vol. ii, p. 22.

‡ *Ibid.*, p. 27.

All that I think can be safely asserted at present is, that there are some constitutions in which nervous affections, especially, are more or less transmissible. Hereditary influence may thus be at work in causing a predisposition to contract the habit of stuttering, whenever the subject is placed in certain circumstances favourable to its development. As Dr. Wyneken recently well said, "There exists a certain innate disposition for stuttering, which cannot be obviated by the most careful education."

But while I admit this, I am far from considering that when the affection can be traced to a father, grandfather, or other stuttering relation, the infirmity must necessarily be hereditary. The enormous influence of imitation,* of which I have already treated, will, in many cases, be found to offer a probable solution as to the exciting cause.

I nevertheless do not doubt for a moment that stammering and organic defects may be directly and collaterally transmitted; and that the exciting cause of a large amount of the stuttering prevalent may be found to have its primary cause in hereditary transmission.

* "Nothing is more common," says Mr. Thelwall, "than to hear talk of nervous impediments, and constitutional impediments, and hereditary impediments. As for hereditary impediments, what are they but habits of imitation? or, if you please, of early, diseased association. If little master has a papa, or little miss a grandpapa that stammers, or that gabbles, or that throttles, is it extraordinary that the one should imitate this defect?"—A Letter to Henry Cline, Esq., *On Imperfect Development, etc.*, by John Thelwall. London, 1810.

Astrié says, "My great-grandfather was a stutterer. It is very singular that of all the members of our numerous family, none stutter but myself and my twin brother. We both possess in the same degree the difficulty of enunciation. Is it in us the result of original modification, or the consequence of vicious habits contracted in infancy? Nourished by the same milk, brought up together, has one of us become a stutterer by imitation? I know not. But what is certain is this,—that we have both made the same progress in the art of expressing ourselves."

Colombat seems to have devoted some attention to this subject. He says, "The difficulty, or rather impossibility, of giving a satisfactory explanation of physiological or pathological transmission from parents to children has induced a great number of physicians to deny its existence, as if to admit a fact it were always necessary to state the reason of it. We may, however, observe that by a curious contradiction those authors who refused to acknowledge hereditary organic affections and dispositions, have never ventured to deny the external resemblances of children to their parents, although this is as difficult to explain as pathological transmission. It is true that at the present day few deny the existence of hereditary affections; for in our century science is founded on observation, and theories on experience.

"Pujol de Castres says, 'that the same hand which traces so scrupulously the features of the son upon those of the father and mother, must extend to internal resemblances, and render with the same ex-

actness, organ for organ, viscus for viscus, constitution for constitution.' We must, however, admit that the exceptions are by no means rare."

Colombat summarises his conclusions on this subject thus: "The so-called nervous affections, such as mania, epilepsy, chorea, hysteria, hypochondria, etc., have by most authors been considered as most susceptible to be transmitted. It is no doubt for this reason that stuttering, being in its nature essentially a nervous affection, so frequently assumes an hereditary character. In fact, nearly two-fifths of the stutterers we have treated told us that their difficulty was a disagreeable inheritance. In 1831 we treated a young man named Joseph Bard, who was afflicted with severe stuttering, and whose mother, herself a stutterer, had five other sons equally afflicted, and a sixth who was deaf and dumb from birth." Another, a young Irishman, who stuttered much, had a father, three brothers, and four sisters thus afflicted. A third, Madame de Saint L——, aged twenty-four, whose father, mother, brothers, and sisters were afflicted with cluttering, iotacism, lambdacism, and lispings. Colombat adds, that if neither the father nor the mother were thus afflicted, the infirmity frequently existed in some grandfather or great-grandfather, or some other paternal or maternal relation in the direct or collateral line. "We thus see," he continues, "that when the filiation, or physiological, or pathological transmission is separated by an interval more or less wide, it is with this as with family resemblances, which may be interrupted during one or

several generations, but which ordinarily sooner or later re-appear with all their peculiarities and primary activity." Other persons, he mentions, whose parents did not stutter, had some members of their families, such as uncles, cousins, or nephews, thus afflicted. Of stuttering brothers he found in three instances that they were twins. "Although," he continues, "the laws of physiological transmission which govern all organised beings are hidden under a veil which can only partially be lifted, it seems to us that their existence cannot be denied when we admit the hereditary stamp on the structure and form of the organs. In fact, as a child frequently faithfully repeats the whole physiognomy of its father or mother, why should it not be possible that there is a like resemblance in the internal organisation? The facts of nature in favour of this truth are too numerous and conclusive to deny their evidence."

Reaction of Stuttering on the General Health.—The influence of stuttering on the general health has long been a question of discussion. Each writer on the subject has looked upon the question from his own standpoint, and has advocated views in accordance with his own pet theory. The time is now past when we need enter into a discussion as to whether stuttering be a disease or merely a vice of speech. Assuming it to be merely a vice of speech, and acquired in most cases by voluntary or involuntary imitation, we have yet to consider what is the result of a long-continued vice of speech exhibiting the phenomena

of stuttering? Can local morbid action exist in organs so intimately connected with the brain as those of speech without producing some injurious effect on the mind? Assuming, also, stuttering to be centripetal in its origin, must it not become centric by long continuance?

Several authors agree in stating that stuttering is highly injurious to the action of the heart. Mr. Bishop, speaking of the exhaustion of the chest in public speakers when they are greatly excited, says, "the prolongation of the inspiratory movement thus occasioned tends to cause an engorgement of the lungs and of the right cavities of the heart, impeding the arterialisation and free circulation of the blood." The action of the lungs in stuttering is often similar to the above, consequently a similar result may be expected. Rullier says of severely afflicted stutterers, "They are then seen to suffer from twitchings of the stomach, nausea, a feeling of strangulation which forces them to give the tongue a forward position."

In a very remarkable and suggestive article,* Dr. Paget says that stammering in speech may be taken as the type of a class of similar affections of other organs, and that we may apply to all the same generic name of "stammering."†

* *Remarks on Stammering with other Organs than those of Speech*, by James Paget, F.R.S., D.C.L. Oxon., *Brit. Med. Journ.*, Oct. 24, 1868.

† Mendelssohn (see p. 43) expressed a similar idea, that stuttering may occur in other organs of the body subject to voluntary motion.

"Stammering," he says, "in whatever organs, appears due to a want of concert between certain muscles that must contract for the expulsion of something, and others that must relax to permit the thing to be expelled.....Numerous as are the varieties and modes of speech-stammering, this discord of muscles is in them all. Its dependence on the nervous system and the mind is in fact plain enough, in theory very difficult. Perhaps it may help the study of speech-stammering, if similar disorders be watched in other parts of the body."

After comparing speech-stammering (evidently meaning *stuttering*) with "stammering urinary organs," Dr. Paget continues: "It may suffice to say that nearly all the phenomena of stammering speech find in them their parallel. In both alike are observed the strong influence of habit and association of ideas; the effect of transient changes in the vigour of the nervous system; the need of a justly and yet almost unconsciously measured exertion of the will, that it should be neither more nor less than enough; and the influence of distraction of mind. And equally, in both classes of patients, may be noticed the coincident general sensitiveness of the nervous system, and the family relations with persons who suffer from various other forms of nervous disorder." Dr. Paget concludes, that, as far as he had seen, long-continued "urinary stammering" did not produce *organic* disease of the urinary organs, and that after years of trouble nothing appears wrong but the manner of action of these parts.

The pernicious reaction of stuttering on the sufferer is well pointed out by Merkel. He says: "The great efforts made by the sufferer during speaking, the retention of the blood in the thoracic organs, the cerebral congestions, may gradually induce a pre-disposition to cardiac disease, aneurisms of the aorta and the carotids, and may, secondarily, produce bronchitis and pulmonary disease; and may also give rise to serious disorders of the nervous system, which is so irritable in the stutterer. Still greater is the injury done to the psychical life of the sufferer. As the stutterer is partly deprived of the bond which links men together; as he is deprived of social contact with other men, there arises in him a certain inclination for solitude and contemplation, which may, according to his temperament, degenerate into melancholy."

The influence of stuttering on the psychical life of the sufferer is much more marked than that on the bodily health.

The intimate relations of body and mind, and their mutual dependence upon each other, are constantly manifested in the phenomena of utterance. Thus in many cases the infirmity is increased or diminished, according to the impaired or healthy state of the digestive and other functions. Whilst it cannot be denied that nervousness may produce stuttering; it is not less true that stuttering may produce nervousness. In such cases, the cure of stuttering will tend greatly to re-establish health. I have known it arrest the progress of pulmonary

disease, while in every case, its removal has had the effect of calming and invigorating the whole system.

A friendly critic has intimated that I have painted the distress which stuttering sometimes induces in too strong colours. He says, "A terrible picture is given of the consequences of the disorder, moral and physical, but rare indeed must be the case where stammering ALONE causes either abject despondency, dyspepsia or hypochondriasis: on the other hand, how frequently are persons of a happy and merry disposition to be found among stammerers!"

No doubt it is quite true that persons who have some impediment in speech are often of a happy disposition, but they are not psychical stutterers. It is also true that stuttering is only the remote cause of physical and mental disorders. The whole attention of the psychical stutterer is directed to "self." How many mental and physical disorders are produced by constant direction of the attention to one subject! Esquirol, and all other authorities who have written on the influence of the mind in the production of disease, fully admit that abnormal physical action is frequently the result of oneness of thought.* It would be easy to prove, were it

* "Oneness of the affection and thought renders the actions of the melancholic uniformly slow. He refuses, indeed, all motion, and passes his days in solitude and idleness. *The secretions are no longer performed, or present remarkable disorders*, the skin is arid, with a dry and burning heat. Transpiration has ceased (in the body), while the extremities of the limbs are bathed in sweat."—Esquirol, *On Mental Maladies*. Translated by Miss E. K. Hunt, M.D.

necessary, that I have not overstated the injurious influence of psychical stuttering. Dr. Klencke observed, in his first work on the subject, "that over and above the nervous irritation which stuttering induces, it influences injuriously the moral character. This is less perceptible in the lower classes, such as day-labourers, artisans, etc.; but it is very distressing for those who have much intercourse with their fellow-beings, and is a perfect bar to many professions. Persons so situated become peevish, avoid society, and neglect their business." He further says: "Whatever form stuttering may exhibit, and from whatever cause it may have arisen, it always exercises upon the whole individual a pernicious influence, and gives a specific expression to the mind and character. The abnormal mode of expression reacts upon the mode of thinking, the search for easy words, the incapacity of finishing a sentence, gives to thought an illogical, flighty expression, and impresses upon it the character of uncertainty. The habit of speaking and thinking only by fragments, gives to the character of the stutterer that capricious disposition, which renders it difficult for him to persevere. I, at least, have as yet had no stutterer in my institution who exhibited firmness of purpose and perseverance. This explains why stutterers dislike a rational consequent mode of treatment, why they gladly embrace the opportunities of consulting travelling stutter-doctors and charlatans, provided the cure can be easily effected; and I have even known intelligent persons so affected who have paid dearly

for some gargle water which a medical swindler sold for the cure of stuttering."

Romberg also says, "there is an undeniable reflex action on the mind, for stutterers are irritable and shy."*

If the testimony of stutterers themselves were of any value, I have more than enough to convince any one. I quote the following extract from a letter—one of very many of a similar nature—as a case in point. I would only observe that the case described is not that of a man of education, but of a poor shop-lad. He writes, "I am sorry to say that I am no longer in a position to think of applying to you for aid, for since I saw you my father has died. My impediment is even worse now than it was then. The change is caused, I believe, by my having to speak more, for I am now in a situation, and I find it very hard, very hard indeed, to get through my day's duties, so that I am always glad when night comes: but on the morrow I am just the same, and the mocking jeers of my shopmates add to my misery. 'Hope deferred makes the heart grow sick,' and I think it does. Sometimes I find a little rest and peace in solitude, other times in *drink*,† neither of which do me any good; unfit for business, shunned by society, *or rather I shun it*, the world appears to me like a desert, till at last I have come to the conclusion that nothing but *death* will end my misery."

* *Nervous Diseases of Man*, vol. i, p. 364. Sydenham Society, 1858.

† The Italics are in the original.

The reaction of stuttering on the young is in some cases very marked, often stopping the growth.* I have known youths, after they have been cured, to grow two inches in three months; which may be accounted for by the nourishment acting afterwards in a natural manner on the system, which before was unduly appropriated to the support of the misused organs.

* "We have some reason to believe that the formative power of the tissues themselves may be diminished, so as to check the process of nutrition, even when the plastic material is supplied; and a diminution of it in that irritable state of the system which results from excessive and prolonged bodily exertion, or anxiety of mind."—Carpenter's *Human Physiology*.

CHAPTER IX.

ON THE TREATMENT OF STUTTERING.

“In the treatment of no other complaint is experience more essential than in this. I need not mention also, that unwearied industry and patience are requisite on the part of the teacher as well as on that of the pupil. This fact may afford some light as to the reason why a method successful in the hands of the inventor fails in the hands of others. No methods invented for the cure of stammering have met with general success, because such methods are incommunicable—at least, in writing.”—DR. EDWARD WARREN, *Remarks on Stammering*, *Amer. Journ. of Med. Science*. Boston, 1837.

Prejudice against secret Remedies.—The secret of the Author's System consists in the Application.—*Vivâ Voce* Instruction necessary.—Experience.—Impossible to give Written Directions for the Cure of Stuttering.—Benefit to be derived from Books on Stuttering.—Experienced Instructor indispensable.—Dr. Klencke.—Quackery.—Dr. Rosenthal.—“Appliances.”—Rhazes.—Treatment.—Diagnosis.—Method of the Author.—Laryngoscope.—Sir Duncan Gibb.—Medical Treatment.—Gellius.—Ulpian.—Dr. Klencke.—Prof. Langenbeck.—Medicinal Remedies but rarely necessary.—Dr. Palmer.—Chorea cured by Gymnastics.—Electricity of no avail.—Psychical Treatment.—Dr. Paget.—Dr. Klencke.—Beneficial Effect of the Removal of Stuttering.—Firm Will indispensable.—Time necessary for Cure.—Otto.—Dr. Warren.—Dr. Klencke.—Relapses.—Bansmann.—M. Malebouche.—Mr. Bishop.—Concluding Remarks.

THERE exists, perhaps, a well-founded prejudice against secret remedies. We may, in the abstract, admit that a person in full possession of a remedy tending to relieve any of the ills incidental to the human frame is

morally bound to divulge it, and to look for a reward in his own conscience ; although a professional man's experience may be his stock in trade.

I have never made any mystery of the general principles of the system I adopt. The great secret of my practice consists in the application, and not in the system itself. My duty is to do all I can to effect cures of stuttering ; but I firmly believe that to enter into any particulars of treatment would, in most cases, have the effect of depriving sufferers of that confidence which they can alone obtain by *vivâ voce* instruction. I believe, therefore, I am consulting the best interests of those suffering from impediments in speech, when I refrain from entering into minute details of my mode of treatment. This course does not, certainly, receive the approbation of the inquisitive or indolent ; but it has gained the approbation of all competent scientific men who have paid attention to this subject.

Secrets, however, though they may be divulged, cannot always be easily communicated ; for many secrets consist simply in the employment of superior tools, in the skill of the workmen, and in the ingenious mode of combination requisite for a variety of purposes.

The mainstay of my system is *experience* ; it neither consists in an operation, in a charm, nor a potion ; its name is legion, according to the legion of shades which the infirmity exhibits ; for there is no affection which is so capricious, and so much defies correct description. I believe there is no one term which

presents such extremes of differences, both in degree and in kind, as the expression, "impediments of speech," used in a comprehensive sense. Even if there were in the treatment a uniform system of rules, it would not be applicable to all cases, as there are no two persons who are physically and mentally constituted alike.

The stutter of one never exactly resembles that of another. Each case has its peculiar symptoms and a physiognomy of its own. Just as the *timbre* of the voice differs in every person, so does the character of one case of stuttering differ from that of another. Simple of application as my system may be in one case, it is intricate and complicated in another. But were it even possible to describe all the *minutiæ* of a mode of treatment adapted to all imaginable cases, it would be useless, if not productive of mischief, unless the individual who applies it has qualified himself for the task by an extended practical experience.

When I first published my views on this question, there was, as already stated, a general clamour amongst many inquisitive persons, and also with some few well informed critics, because it was thought that I might have given a full detail of my mode of treatment. But each year, both the public and my critics have complained less on this head. Indeed, it is now generally understood, that I can no more give specific directions for all cases of defective utterance than an honest and scientific medical man can give one set of prescriptions for all forms and cases of any particular

disease. It has been my endeavour to explain to the public the nature of defective utterance, and to remove the mystery by which it has been attempted to be surrounded by pretenders and charlatans. This object has been partially attained; but there is yet much to be done before parents, guardians, and even stutterers themselves, can be made fully to appreciate the necessity of rigid attention to general laws of physiology. Although for some years I stood alone in my declaration, that it was impossible to give written instructions for the cure of stuttering, I am happy to find that this position is now admitted by some of the best authorities, not only in this country but also on the Continent and in the United States.

All that I formerly pretended to, was to be rigidly following in the footsteps of my late father, who, by unshackling himself from preconceived theories and by taking nature as his guide, established the basis of a method which has since stood the test of time; the soundness of which becomes more and more confirmed by our daily increasing knowledge of the structure and functions of the vocal and articulating organs. To the basis of the method established by him I have added the results of observations during nearly twenty years' continual practice; and while amply proving the general correctness of the fundamental principles laid down by my late father, I have adopted such improvements and modifications as have been suggested by the progress of science in relation to the physiology of the organs of voice and speech.

My teaching, it should be remembered, interferes neither with the practice of the physician nor that of the surgeon. I pretend to nothing more than the employment of instruction and reason to remedy those painful impediments which constitute not only a barrier to the common intercourse and enjoyments of life, but to individual advancement in any class of professional pursuits.

This brings me to the consideration of the benefit that has been and may be derived from the perusal of books, professing to lay down definite rules for the cure of stuttering, from whatever cause or causes it may have arisen.

In my *Manual of the Philosophy of Voice and Speech*, I have given ample rules touching the formation of speech, the cultivation of the voice and the regulation of the respiratory action. By studying these rules, an intelligent person possessing tenacity of purpose and self-control, may succeed in freeing himself from certain minor defects. But where there are severe faults of articulation, vocalisation, and, worst of all, of respiration, confirmed by long habit, the mere perusal of written rules and their application in attempts at a self-cure, will not only fail, but will actually aggravate the disorder, and render it more complicated by the contraction of other bad habits. I know as a fact that the great majority of sufferers, who have applied to me for relief, had previously read and tried the multifarious plans recommended by a great variety of authors, and I had always more trouble in curing these than such as were free from

any preconceived theory. Some of these books have done great harm, especially to nervous and sensitive sufferers. This is the experience of many of my pupils, who studied every accessible work respecting their affliction, and eagerly tried the various systems therein laid down. The effect has been to produce such a morbid and confused state of mind,—from continual disappointment,—as to render them, in most cases, sceptical as to the existence of any remedy likely to relieve them. Some writers have been induced by the best and most charitable motives to publish their opinions, being quite unconscious of any harm that could possibly result from their books; yet, I have not the least hesitation in asserting, that the mischief they have done far exceeds any benefit that, in a few exceptional cases, may have been derived. Each author gives entirely different directions on the course to be pursued for the desired end; yet each asserts the infallibility of his own theory, while some writers give such a complicated description of the subject, as greatly to perplex the general reader. All this produces mystification, and thus tends to envelope the subject in greater obscurity than actually surrounds it. In the history of the different theories and modes of treatment, will be seen the vast difference of opinion which exists on this subject; but I trust that my remarks may contribute to the explanation of many of the inconsistencies and contradictions which are apparent to those who have studied the causes and cure of stuttering.

Nothing is more certain than that in inveterate

and severe cases of stuttering, the pupils require, for a certain period, the constant aid of an experienced teacher, who, having traced the cause of the evil, adapts the treatment accordingly. "But if the patient cannot obtain such aid," says Dr. Warren, "what course is he to pursue? I am not sure but what it would be best for him to endeavour to banish the subject altogether from his mind." This is exactly my own opinion; for the sufferer invariably increases his anxiety and difficulty by continually worrying himself with unsuccessful attempts at self-cure.

Dr. Klencke, who is certainly the best continental authority on this subject, well says that the cure of stuttering should not be undertaken by "teachers, elocutionists, decayed actors, and music-masters, who possess no physiological knowledge, have no notion of the causes and complications of functional derangements, and apply only a mechanical method, without reference to individual cases. But it is equally lamentable when we see physicians, travelling from place to place, drum the stutterers together like the recruiting officers, see them perhaps only once or twice, sell them some bottles for good payment, give them some advice, and then depart for other towns. Such physicians prove that either they have no idea of what stuttering is, or that their object is merely to get money."

Dr. Mor. Rosenthal, of Vienna, has well observed that, "In the arena of large cities individuals travel about as stutter-doctors, with but scanty practical knowledge, or, perhaps, speculate on the credulity

of the public with receipts and charms. Such pretenders, who praise their doings in advertisements, have done much harm to patients, and rarely give any relief.”*

My attention has been recently called to the doings of several impostors who advertise their ability to cure defective speech, and I have met with several persons who have been duped of their money by

* The following amusing account touching certain contrivances for the cure of stuttering, exhibited in 1867, appeared in the *Medical Times*, Aug. 10, 1867:—

“Among the eccentricities of the American Exhibition are the instruments invented by the ingenious Mr. B. Following the example of Demosthenes, the inventor causes small bits of gold and silver to be inserted between the teeth, and thereby restores the organs of speech to their normal condition. Three kinds of stammering, and three only, are recognised in the classification of Mr. B. The first corresponds to the lingual letters—*tit, tit, tit*; the second to the labial consonants—*pip, pip, pip*. The third takes place in the throat, and is expressed by *gog, gog, gog*.

“For each of these Mr. B. has invented a special apparatus. *Tit*, he says, is readily cured by inserting a little plate of gold, perforated at its centre, between the two front teeth. *Pip* is overcome by inserting into the mouth a silver disc connected with a long tube which projects from the lips like a funnel, and is disguised by means of a quill; the wearer thus appears to have a tooth-pick in permanent employment. ‘An excellent habit,’ says Mr. B., ‘and one which ought to be universally adopted in polite society.’ Is there not something quite Transatlantic in this delightful suggestion? As to *gog* it is easily cured by compressing the throat with a narrow cravat, with a plate in front, which is pressed down by a screw. By submitting to this permanent process of strangulation, the wearer is sure to become a fluent speaker, and may, for aught I know, cut a figure in Congress.”

paying for some "infallible appliance." The following is an extract from a letter I received from a young man thus victimized, which would be amusing were it not melancholy:—

"I have stammered ever since I can remember; I am now seventeen years of age. I have two younger brothers, two uncles, and two cousins, who all stammer. I went to Manchester when I was fifteen years old, to ————. I dare say you will have heard of him. He told father that he was the only one that could cure stammering. He examined me, and said that he could cure me in about seven operations. I will tell you the operation as well as I can. I went in the morning at about eleven o'clock, and he had two pieces of stick, and thrust them under my tongue; then I held some liquid in my mouth, which burnt the skin off the roof of my mouth: then I had a vapour bath. I held my face over a basin of hot water, with some herbs in it, for half an hour, till my face was as red as it really could be; after that, I had a piece of India-rubber in my mouth under the tongue, and that was the whole of the operation, and I am not any better now."*

* Quackery seems to have been as rampant a thousand years ago as it is now. Rhazes§ complains of it in the following terms:—"A whole book would be insufficient to contain the impositions practised by individuals, who gave themselves out as physicians. Some say they can cure epilepsy, and cut a cross in the occiput, and do as if they took something which

§ Rhazes (about 939 A.D.), one of the greatest, if not the chief, of Arab physicians. *Continens. Venet. MDXLII. Die Medicin der Araber*, by Dr. Finkenstein. *Deutsche Klinik*, 1862.

There are other impostors who have had the effrontery to declare that they were acquainted with my system, and under this pretence have induced persons to advance sums of money which they declared they would return if the cure was not effected. The melancholy result, however, is not the waste of money: but when cases of stuttering are thus

they had long in their hands. Others take snakes and lizards from the nose. Others pretend to draw frogs and worms from the tongue and teeth. Others persuade patients that they have taken stones from the bladder. If they find none, they still show them to the patient. Others pretend to draw mucus from the penis which they have first injected. Others persuade the patient that he has swallowed glass; they then tickle him with a feather, so that he vomits, when they show him the glass which they themselves had concealed in the pen. By these tricks many have lost their lives, and no one ought to trust these fellows."

It would, perhaps, be difficult to find an advertisement in any papers of the present day, to equal in impudence the following, which appeared in the *Spectator*, at the beginning of last century:—"An admirable confect," so runs the advertisement, "which assuredly cures stuttering and stammering in children or grown persons, though never so bad, causing them to speak distinct and free, without any trouble or difficulty. It remedies all manner of impediments in the speech, or disorders of the voice of any kind, proceeding from what cause soever, rendering those persons capable of speaking easily and free, and with a clear voice, who before were not capable of uttering a sentence without hesitation. Its stupendous effects in so quickly and infallibly curing stuttering and stammering and all disorders of the voice and difficulty in the delivery of speech, are really wonderful. Price 2s. 6d. a pot, with directions. Sold only at Mr. Osborn's toy-shop, at the 'Rose and Crown,' under St. Dunstan's Church, Fleet Street."—*Spectator*, No. cxxii, July 20th, 1711.

trifled with, they become very difficult to cure, and, indeed, sometimes the total eradication of the defect is thus rendered impossible.

Treatment.—The main thing is to form a correct diagnosis; but this can only be acquired by long practice. The distinctive marks are frequently so blended that the superficial observer may consider two cases of stuttering as identical which have scarcely any analogy to each other, and require an essentially different treatment. The common saying “a man who is his own doctor has a fool for his patient” applies equally to the stutterer.

It has ever been a fundamental error to assert that there is but one cause which produces the various degrees of stuttering, and, consequently, but one remedy to be applied. The result has shown that all systems which have been propounded on such a narrow basis have been rendered useless. On the other hand, there is perhaps no affliction to which the human frame is liable, which has been attempted to be cured in so many different ways.

The famous pebbles of Demosthenes; a bullet in the mouth; a roll of linen under the tongue; the fork of Itard; the *bride-langue* and other contrivances of Colombat; the whale-bone of Malebouche; the stick behind the back; intoning; speaking through the nose; talking with the teeth closed; all these (and more) have been successively advised and applied to remedy faults which existed only in the imagination of the advisers. And if they produced any effect it consisted frequently in creating new defects. One thing is certain, that every one of these

contrivances seemed to lose its efficacy as soon as the secret was divulged.

Before determining upon the treatment to be adopted, I make it a point of inquiring whether any relatives of the pupil labour under the same infirmity, and whether he stutters in singing. After a careful examination of the buccal cavity, the air passages, etc., and inducing the patient to move his tongue in every possible direction, I ask a few questions, and desire him to read passages of poetry and prose, in order to observe whether his chief difficulty lies in the enunciation of the lingual, labial, or guttural sounds, and also to see what mannerism or tricks have been acquired. The motions of the lower jaw, the elevation and depression of the larynx, the rhythm of the respiratory organs during enunciation, and the action of the heart, require particular attention before we are enabled to form a correct diagnosis. The constitution, age, sex, the duration of the infirmity, the original cause of the defect, the mental disposition and moral habits of the patient, must all be taken into consideration before the treatment can be decided upon.

It will, in most cases, be found that the infirmity is mainly owing to the misuse of one or more organs, which are employed either with too much force, or not used at all; the necessary result of which is disharmony between vocalisation and articulation—one of the chief sources of stuttering. Articulation may be normal, and vocalisation defective, and *vice versâ*. To establish the requisite harmony between all organs concerned is the object to be aimed at.

If the question be asked : How can it be ascertained that the infirmity is not the result or concomitant of defective organisation ? the answer is : By first inspecting the respective organs as far as we may be able.* Another proof that there exists no organic disease, may be obtained by placing the pupil under certain new conditions, and observing whether his

* In a former edition of this work, when commenting on the laryngoscope, I ventured to predict that, although by the aid of this most useful instrument we might be enabled to form a more correct diagnosis in throat diseases, yet I did not expect that much light would thereby be thrown on the causes of stuttering. Since that period there has sprung up what might be termed a literature of laryngoscopy; but I am not aware of a single case in which the larynx of the stutterer was found to present an abnormal organic structure, beyond, perhaps, a congestive state of the lining membrane, the consequence, probably, of violent efforts during articulation. What I always insisted upon was, that in stuttering there was abnormal action in the vocal or articulating apparatus, and not necessarily organic disease. In confirmation of this view I extract the following observations from an interesting work by one of our most eminent physicians.

“ I have examined cases of both stuttering and stammering with the laryngeal mirror, with the sole view of observing the action of the vocal cords in the utterance of sounds. As contrasted with the double voice already considered the action of the cords is very different. Constant and irregular contraction and rapid approximation of the cords, with a tendency for the glottis to remain shut, are the phenomena noticed in cases of stuttering before undergoing treatment. These irregular spasmodic actions are decidedly less in degree in cases of stammering. When the person inspires and utters a continuous humming noise, the vocal cords resemble in their action a couple of strings being alternately and rapidly pulled towards one another, and striking their free borders with such apparently spastic rigidity as to produce a distinct flapping noise.

speech becomes more free. Does the pupil both stammer and stutter? Does he stutter whilst singing or reciting? Is his articulation less difficult when reading alone, or talking to himself? What are his most difficult letters of the alphabet? Is the disorder intermittent or permanent? Now, whenever we find defective utterance yielding to altered circumstances, we may fairly take for granted that the structure of the organs has nothing to do with the impediment; for actual organic disease is known by

All the laryngeal muscles are no doubt in a condition that might almost be compared to St. Vitus's dance, involuntarily contracting and relaxing under the influences at work. Several times this action has extended to the aryteno-epiglottic muscular fibres, and the epiglottis has been suddenly pulled downwards and backwards. But the action of the thyro-arytenoid muscles is sometimes so energetic as to cause the projection in the middle of the larynx, and actually to conceal the true vocal cords beneath. If a long or full breath is taken, to see the expansion of the glottis, the view is only momentary, for the tendency is so strong to irregular contraction of the muscles that it is almost instantly closed. In persons who have undergone some amount of treatment, there is more control over the laryngeal muscles, although the tendency to irregular contraction, I believe, long remains, which really proves the means to effect a cure must be perseveringly and energetically carried out."—*On Diseases of the Throat and Windpipe*, by Sir G. D. Gibb, Bart., M.D., etc. London, 1864.

We thus learn from actual inspection: first, that in cases of stuttering before undergoing treatment the action of the vocal cords is irregular; secondly, that in persons who have undergone some amount of treatment there is more control over the laryngeal muscles; and finally, that from the tendency to irregular contraction which long remains, the means to effect a cure must be perseveringly carried out.

the permanence of its symptoms, so that the subject ought then to speak with difficulty under all circumstances.

There may be nearly continuous stuttering without any organic defect. Some kinds of stuttering present all the symptoms of an intermittent affection, while others appear chronic. The intermittent form is produced by psychical influences, and persons who have this kind suffer far more than those who have a continuous or chronic type of stuttering. The chronic species, is, however, very disagreeable for strangers to hear; but at the same time, it does not produce that painful sympathy with the sufferers which we feel in psychical cases.

In seeking for the cause of stuttering we must bear in mind that the original cause is of little consequence, inasmuch as the exciting cause may have ceased to exist, and the defect still continue through association or habit. A writer* on this subject has well observed: "Suppose you could remove all the ultimate causes of stammering [stuttering], free speech would not, I imagine, be the immediate result; for old habits have to be replaced by new ones, and association of ideas would still affect the speech, even were it possible to remove all mental emotion."

This is true in some cases, but only a qualified and partial assent can be given to it as a general proposition. The ultimate and the proximate cause may be co-existent. No one, however, can gainsay the

* *On Stammering.* Bac. Med. Oxon., 1850.

proposition, that old habits must be replaced by new ones. Just as Dr. Chalmers speaks in the moral world of the "expulsive power of a new affection," so must we use the expulsive power of a new habit.

Medical Treatment.—It is remarkable that the question whether defective speech be a disease had already been discussed by the ancients. Thus we find in Gellius that "stuttering and stammering are rather vices than diseases, just as a biting and kicking horse is vicious, but not diseased."*

Ulpian says, "It is asked whether the stammerer, the lisper, and such as hesitate in their speech, and the halting, are sound? I am of opinion they are."†

It may be safely asserted that no *idiopathic* stutterer was ever cured by a mere therapeutic treatment. I have frequently noticed the fact that most of the authors who wrote on stuttering suffered themselves from this infirmity; yet I am not aware that one of them succeeded in curing himself. Astrié, Chégoin, Voisin, Becquerel, Guillaume, Merkel, Wyneken, Warren, Palmer, etc., were all stutterers, and gave learned reasons as to the how and why they and others stuttered, but were not delivered from their infirmity until they condescended to place themselves under the care of a layman, who had made the subject his special study.

* Balbus autem et atypus vitiosi magis quam morbosi, ut equus mordax aut calcitro, vitiosus non morbosus est.

† Quæsitum est aut balbus et blæsus, et atypus isque qui tardius loquitor et varus et vatius sanus sit? Et opinor eos sanos esse.

"All stutterers, before they came to me," says Dr. Klencke, "had been treated by physicians according to the excito-motory or irritation theory, and yet they stuttered as before. The cure of stuttering is one of those cases in which nothing is effected by means of the best theory and definition of cerebro-spinal life. I know of no cure effected by means of a direct treatment for spinal irritation. I consequently abandon that scholastic basis which is found in my former writings, and rest here upon practical empirical soil; for the cure of stuttering is the chief point for the patient, he cares little for theory."

The fact is, that unless a man has for years devoted all his energy to the subject, and brings to bear upon it an ample knowledge of the various phases of the disorder, founded upon rigorous deduction and extensive experience, combined with an intimate acquaintance, not only with the physiology of voice and speech, but also with the structure of language and effective delivery, he is not at all likely to benefit the stutterer.

Most rational physicians now admit, that discipline of the vocal and articulating organs, under an experienced instructor, is the only means of overcoming impediments of speech.

Professor M. Langenbeck, in his well-known work on the subcutaneous application of medicines,* says: "As I formerly considered nitrate of silver to be a remedy for regulating the perverse action of the

* *Die Impfung der Arzneikörper*, p. 143. Hanover, 1856.

nervous system, I applied it to the infra-auricular region as a remedy against stuttering, but without the least effect."

The following very sensible letter was written to Dr. Klencke by a physician of great repute, and is well worth recording as a specimen of the experience of very many medical men.

"I have, worthy Colleague, heard of your establishment for stutterers, and send you a subject, who has brought me to despair. I have treated him by all medicaments against cerebral and spinal irritation, spasms, tetanus, etc.; in short, according to all theories. I have operated on his frænum, and an indurated tonsil; I have sent him to an elocutionist; but he stutters, I believe, now worse than before. I perceive now that we must have a *practical* knowledge of stuttering, and devote our time to it; and that a physician who is in great practice, who has no opportunity of observing many stutterers simultaneously, and cannot devote to them all his time, cannot combat this rebellious evil. I have arrived, therefore, at the conviction that stuttering is a complex of many symptoms, requiring the treatment of the *whole man*."

But while I deny that stuttering is a disease, I admit that cases of stuttering do occur, requiring, in the first instance, the aid of the physician. When, for example, I have reason to presume that stuttering is decidedly a symptom of a primary affection in some parts of the nervous centre, I never fail to recommend the applicant to consult a respectable physician. We frequently find that stutterers manifest shortness

of breath and other disorders of the respiratory organs ; but we need not, on that account, take for granted that there is actual pulmonary disease which requires medical aid. These disorders are generally the consequences of stuttering, and will disappear with their cause, but will resist the most skilful medical treatment while their cause continues. It is therefore to the stuttering that our chief attention must be directed. We must regulate the process of respiration, and we shall then see these phenomena disappear, whilst medication alone leads to no beneficial result. The same may be said of the convulsions of the articulating apparatus. When they occur only during speaking, it is manifest that no medical treatment will remove them ; their cure must be effected solely by the didactic method. But if, as is the case now and then, the convulsions show themselves in the quiescent state, a medical treatment may be requisite, as we may have to do with chorea. Still, we must not come to a hasty conclusion, as these phenomena are often the consequences of bad habits, involving muscular contraction, against which medical aid is powerless. It is only after stuttering is entirely cured and these convulsions still remain, that medical treatment must be resorted to.

“Medicinal remedies,” says Dr. Shirley Palmer, “are not essential, as some interested writers have lately asserted, to the successful treatment of impeded utterance. Yet, skilfully selected and employed, they will accelerate the efficacy of a system of cure which rests upon comprehensive and philo-

sophical principles. Thus the embarrassment of articulation will be greatly relieved, and its removal assisted by the prescription of tonic medicine, invigorating exercise, the shower bath, and generous diet,—in fact, of every agent that is calculated to sustain or elevate the physical powers, and rouse the spirit of the stammerer from the state of morbid susceptibility and depression into which he is almost invariably plunged.

“Yet no physical treatment, however judicious and effective, will of itself permanently prevail. Deep and bitter will be the disappointment of those who shall rely on it as a protection from the recurrence of their infirmity. A rigorous system of moral discipline, long and unwearied exercise in concentration of the mind upon the process of speech, and in the practice of self-control, will be requisite to burst asunder the mystic links of morbid association, and effect a revolution in that moral state with which the evil habit is so closely interwoven. Perfect freedom and fearlessness of mind, insensibility to the ridicule and the scorn of the ignorant and the vulgar, and generous contempt for popular opinion, such an elevation of character and feeling,—such moral courage as a sense of moral purity can alone inspire,—constitute the goal to which the aspirations of the stammerer should be unceasingly directed. This gained, recovery is no longer desperate. Every remaining obstacle will vanish before the auxiliary power of physical treatment.”

There is a nervous affection called *chorea*, or St.

Vitus's Dance, the characteristics of which are a want of control over the movements of a variety of muscles. Bouillaud very aptly characterises chorea as a "folie de mouvements." This affection resembles stuttering in many of its essential features. Like stuttering, it preferentially attacks the young, and usually before puberty. Choreia, like stuttering, increases or diminishes under a variety of extrinsic influences, such as temperature, etc. Thus it has been observed that in cold and damp weather the convulsions increase. The emotions, nervous excitement, influence chorea as they influence stuttering. The aspect of sufferers from chorea presents sometimes a great resemblance to that of stutterers, in relation to facial contortions, and, like stuttering, chorea is chronic or intermittent. Hence stuttering has not improperly been called chorea of the articulating organs. There is, however, this difference between the two affections, that females are more predisposed to chorea than males, being in the proportion of three to one; while the reverse is the case in stuttering. As regards treatment, recent researches have proved chorea, like stuttering, yields rather to external tonics, such as gymnastics, sea-bathing, etc., than to a strictly medical treatment, as will appear from the following extracts.*

"The first who employed gymnastics for the cure of St. Vitus's Dance were the priests. The patients were assembled after Mass, and made to dance to

* *Archives Générales de Médecine*, 1854.

sacred music ; plaints were sung, which obliged them to dance to measure. Recamier applied rhythm in numerous convulsive affections. He was of opinion that if the muscular motions could be rendered habitually regular by alternate contraction and relaxation, a cure might be effected. For this purpose he assembled his patients at night at the Place Vendôme, and made them follow the drummers, beating the tattoo. Any other instrument, for instance, the metronome, may be employed. We commence to make the patients execute, on command, motions with one arm or one leg, after which we proceed to combined movements. Then follow rapid movements, which are by far the easiest, there being no sufficient interval for the choreic uncertainty to supervene. Finally, we make them execute combined slow movements.....

“ M. Sée reports that of twenty-two children treated exclusively by gymnastics, eighteen were cured in twenty-nine days.

“ The results were less satisfactory when medicaments were administered. M. Blache, Physician to the Hôpital des Enfants, concludes his *mémoire*, read before the Académie de Médecine, as follows :—

1. That no treatment is so efficacious in chorea as the gymnastic, whether applied alone, or in combination with the sulphur bath.
2. That the former can be employed in every case, whilst other remedies are frequently counter-indicated.
3. That in the gymnastic treatment amelioration becomes apparent during the first few days.
4. That whilst the dis-

order disappears the constitution generally is greatly benefited."

Thus it would appear that even in those cases where stuttering either results from, or co-exists with chorea, systematic exercise of the various organs, judiciously applied, will not only cure the stutter and the primary affection, but will greatly improve the constitution. It has ever formed part of my system to combine oral instruction with the practical training of all the organs, directly or indirectly concerned in the production of sound and speech, by means of appropriate gymnastic exercises calculated to strengthen the respective organs, so as to bring them under the control of the pupil; and I have the satisfaction of knowing that few have left my establishment without great improvement in their general health.

Another thing I may mention before I conclude this part of my subject. I have in several instances made use of electricity, thinking thereby to improve the nervous tracts of the speech organs. But however useful this remedy be to remedy various nervous diseases, I find it is quite powerless to effect any permanent amelioration of this affection. The stutterer whilst under the influence of the electric current, naturally speaks without those obnoxious repetitions which sometimes characterise the evil, but as soon as the stimulus is removed I have failed to perceive any material difference in his speech. Dr. Klencke has arrived at the same conclusion as myself. He says that the idea of acting on the nervous system

by induction electricity presented itself to him, and he resolved to try it. "I have done so," he says, "on a large scale, and endeavoured to make the stutterer speak under the influence of the galvanoelectric fluid, *but I have never seen any permanent improvement from the application of induction electricity*, not even in paralytic stuttering. The only effect I have observed was that during the passage of the fluid through the nerve-tracts the stuttering became *less*, but no permanent result followed."

Psychical Treatment.—It is admitted that the exciting cause of speech is the mind, so that perfect idiots are mute from the absence of the intellectual stimulant. The mind is thus the master of speech, and through it alone can we act on the organs necessary for the process of articulation. When we lose our control over the mind, we have none over the bodily organs under its influence, and an improper action is the result.

It will have been seen that most of the methods recommended leave the psychical element nearly out of sight, being almost exclusively directed to the action of the vocal and articulating organs, and thus want one of the most important means for ultimate success. Dr. Klencke expresses my own opinion when he says, "Experience has strikingly shown to me that stuttering depends as much on the mind as on the organism, and that nervous affections, abnormal innervation, are under the influence of cerebral activity. It has not without good reason been asserted that a firm will can moderate organic vi-

talities,* and we have seen several remarkable instances of it. Individuals who had been treated with narcotics, electricity, and other remedies, and whose stuttering nevertheless remained a constant symptom of that nervous condition, lost with the stuttering all these symptoms whenever I succeeded in rendering the will dominant. The whole individual becomes calmer, and all his functions become, so to say, logical."

It is impossible to lay down any precise rules in regard to the psychical treatment of the stutterer; for it is clear that it must be adapted, not merely to the intellectual and moral capacity, but also to the temperament of the pupil. The sanguine, the phlegmatic, the choleric, and the nervous stutterer, require each the application of a different method. The great object, however, in all cases, is to impart to the patient mental tranquillity and self-control. When that is effected much has been gained, and until it is attained, physical and mechanical means prove but of small benefit.

I have already referred to the able article of Dr. Paget on the analogy between stuttering with the

* Kant (*Von der Macht des Gemüths*, etc. 1798) observes: "Morbid conditions in reference to which the mind has the power to master the feeling of them by the firm purpose of man as a rational animal, are all of a spastic nature; but we cannot conversely say that all of this species can be stopped by a mere firm resolution. For some of these are of that kind, that the attempt to subject them to the power of the will does but increase the spasmodic condition." To this class, as a rule, belongs stuttering.

urinary organs and those of speech. Mr. Paget says the difficulties in the treatment of speech and urinary stuttering are equally great. On the treatment of the latter he observes: "The patient must try to educate himself to a calm control of his muscular power; and on any occasion of failure, must get what help he can from such mental tricks as I have referred to. He should evade all risk of difficulty, and should avoid all the conditions in which he has suffered his worst failures." This advice, applied to the speech-stutterer, will scarcely effect its purpose. The speech-stutterer must first be shown *how* to calm his muscular power, or, in other words, how to use it. The rebellious or insane action of the muscles cannot be controlled, for any length of time, by either mental or physical tricks; nor can the speech-stutterer easily evade his difficulties, or the conditions in which he has suffered his worst failures. The attempts of some stutterers to evade their difficulties produce so ill an effect on their whole character, that the consequences are far more injurious than the physical difficulty of stuttering.

Stutterers are frequently looked upon as a careless, petulant, and indolent class—a set of imbeciles—than which nothing can, generally, be more erroneous. The following extract from Dr. Klencke fully corroborates the opinions I have for many years advanced: "The stutterer requires a treatment different from that of common patients; he is both *bodily* and *mentally* affected; a man whose mind, temperament, capacity, and character have taken the specific character of

his infirmity, and if treated like a common patient, would leave the institution uncured. The stutterer requires a *family life*, a *home*, where he feels himself surrounded by persons who look indulgently at his affliction ; but who at the same time encourage him, by word and deed, to exert his will to overcome his infirmity.

“ Every stutterer is embarrassed, timid, distrustful ; he feels a desire to attach himself to somebody he trusts ; but he is also capricious, thoughtless, passionate, and without firmness. His infirmity depresses him, in such moments when he would express some lively thought, he becomes spasmodically excited. In the bosom of a family, surrounded by the wife, the children, the relations, and friends of his instructor, both his mind and feelings are favourably influenced and his equanimity is restored.

“ I have made the experience, that though without such an introduction of a stutterer into a (to him) perfectly strange family, the evil may apparently be cured, yet that relapses frequently occur in such cases.

“ Stutterers, chiefly adults, have applied to me, who felt a disinclination to entering a strange family and submitting to its regulations, and who preferred to live in an hotel or private residence, and would only daily visit me to receive their lessons ; but as I had learned that this rarely led to any cure, I have generally, in the interest of the patients themselves, declined such offers, and I make residence in my family an indispensable condition.

“The nature of the stutterer *absolutely* requires this. Driven from society by his infirmity, there arises in the stutterer, according to his temperament, a cross, dreamy, distrustful disposition ; or, perhaps, a thoughtlessness, an inclination for secret indulgence, a flightiness and indecision, as if the weakness of the organs of speech were allied with weakness of character. The stutterer has always a feeling of degradation, through his becoming an object of ridicule. I shall show in the sequel that stuttering is less a *bodily* than a mental evil, and arises as much from a neglected education, as from nervous or physiological disturbances of the organism. If now the pupil is received in a family of which his teacher is the head, and in which family all the arrangements are made subservient to his cure, he loses his fear of being ridiculed, his mind acquires confidence, and he gradually attains that mental condition which, in my experience, must always precede all treatment, and without which all vocal gymnastics remain useless.

“But it must not be believed that this mode of treatment is an *easy* task ; on the contrary, it offers great difficulties, and is attended by much unpleasantness, resulting from caprice, distrust, inconstancy, and ingratitude. Stutterers possess certain characteristic features, such as secretiveness, distrust, a *passive resistance* against anything inconvenient in the method, and are always ready to adopt that by which they can arrive at a cure without any self-exertion.

“To combat these characteristic features is always the most difficult part of the commencement of the

treatment. If we do not succeed in effecting this by our personal influence, or by that of our family, within the first six weeks, we may send him home again; for his time and money will be spent to no purpose. I have dismissed several such individuals, who after they had been in the hands of travelling medical, or lay stutter-doctors, returned, and after acquiring the power of self-exertion, were cured of their infirmity.

“After having imparted confidence to the stutterer, and accustomed him to voluntary self-exertion, the physical cure proceeds rapidly; and, with the growing feeling of being liberated from his fetters, the stutterer entertains nothing but feelings of friendship and kindness towards his teacher and his family, which may last during life.”

It is quite true that the temper of many sufferers has been soured by continued annoyances, and that some exhibit signs of indolence which convey the impression of stupidity; but this is no more than would occur under the same circumstances to any other persons. Often have I found excellent qualities of head and heart thus obscured; but the cause being removed, and sufficient time allowed for the sufferer to regain his bodily health and mental vigour, he, no longer restrained by his infirmity, not only frequently equals, but sometimes rises superior to his companions. We behold him now speaking with fluency and pleasure in society where formerly he could not utter a sentence. I may illustrate this by the following case:—

A young gentleman, the son of a dignitary of the

Church of England, labouring under severe stuttering, became a pupil of my late father. Being of a persevering character, he not only in due time conquered the impediment, but actually acquired such a command over his organs that he, shortly after, carried off the prize as the best reader of his year as scholar of Trinity College, Cambridge.

There was, therefore, in this case (by no means an unusual one) not only a blemish removed, but a beauty created where previously deformity existed. One of my old pupils thus writes: "Strange to say, from once regarding stammering as a great calamity, I am now beginning to look upon it as a real blessing; it has led me to aim at being a correct speaker; without such a stimulant, I should have been all my life what most people are, careless and slovenly in articulation. To all who speak in public I am convinced your instructions would be of little less value than to the actual stammerer, and although 'mumbling clergymen' of the class so graphically described in the *Times* by 'Habitans in Sicco' are, perhaps, rare, yet few can be aware how much more powerful and sustained their voices would be, were they to put into practice the principles you teach." That stutters who have been cured of their infirmity should be correct speakers is natural enough; for a stut-terer who has gone through a systematic course of treatment must, if perfectly cured, generally be a better reader and speaker than such as are usually met with, inasmuch as the very discipline requisite to overcome impediments in speech leads simultaneously to correct reading, and fluent and ready delivery.

It thus frequently happens that the cure of stuttering brings out latent capabilities, which might have remained dormant had they not been roused by the removal of the cause which concealed them. It is no uncommon occurrence to find a fine voice, and many other qualifications for oratory, hidden under a distressing delivery. Under appropriate treatment, the enemy is not only vanquished, but his post advantageously occupied; weakness yields to strength, and strength establishes the foundation of excellence.

Dr. Eich has made the following remarks respecting his own treatment, with which my experience cordially coincides. "My pupils do not speak in broken off sentences. No! they read and narrate so fluently, and the educated among them with such an expression, that they seem to have acquired rather the oratorical art than merely the art of speaking.

"The individual means applied are too multifarious to be here enumerated, and though I were to give a list of them they could scarcely be applied by the stutterer himself. Some must submit to exercises for two or three months, others succeed more rapidly; but in most, and especially with the less intelligent, it is requisite, in order to improve their minds, to make them acquainted with themselves and other minds, and to establish a harmony between these; a mode of cure which must be adapted to the psychological condition of each individual."

The ascertained cause of the impediment should be explained to the pupil; for few, if any, stutterers

are aware of the reason why they have a difficulty of utterance. Vocalisation and articulation are intuitively acquired in infancy; but the mode and the cause of their production are unknown even to many adults. Now it is not exactly requisite minutely to explain to the stutterer the individual and collective action of all the organs concerned. This would defeat our very purpose; for finding it so complicated a mechanism it would but increase his apprehension that he could ever obtain the mastery over it. But it is necessary to point out to the pupil, in the first place, the manner in which voice is produced, and articulation effected, and the ostensible reason why he has a difficulty in speech. He must be made to concentrate his attention* on the main source of his impediment, whether the fault be in the action of the respiratory, vocal, or articulating apparatus. By these means the mind of the patient is acted upon, scepticism and mistrust are removed, confidence is established, and the subject is inspired with the hope that he may ultimately recover his fluency of speech.

That self-exertion is requisite for the cure of stutterers should be fully understood by all sufferers and their friends. More failures in practice and disappointment to the friends of pupils take place from

* Unzer well says, "In proportion as the cerebral impressions, and the forces which excite them, namely, the natural sensations, and the spontaneous external conceptions, are powerful, in the same proportion the sentient actions which they excite through the nerves are vigorous."

a want of definite opinions as to the mental effort required in order to be cured than from any other cause. I make it my first duty to impress this on all persons who consult me for all kinds of impediments in speech, especially for stuttering. Occasionally I have asked a youth of seventeen or eighteen years of age, "Are you anxious to get rid of your defect?" and the reply has sometimes been, "Oh no, I don't care about it: only the governor wants me to get cured, to enable me to go into the army!" My advice in such cases is: Wait until you do care; and I have never known that time not to arrive sooner or later.

Time for Cure.—Herr Otto makes the following very judicious remarks respecting the time requisite for the cure of stuttering. He says, "However deeply rooted the evil may be, it will generally yield to the efforts of an experienced teacher, provided there are no organic defects beyond the reach of the instructor, and where the pupil is neither deficient in will nor in intellect. The intensity of the affection must determine the duration of the treatment, and as this has different gradations, and much depends on the efforts of the pupil, and on the number of the lessons and exercises, nothing certain can be said as to the time requisite for a complete cure. This much may be generally asserted, that there are cases which may be cured in a few hours, whilst there are others which will require many weeks or months. In children and very young persons we cannot expect to effect much by mere rules; constant and continued practice alone can effect a radical cure."

"Teachers require too little time," says Dr. Warren, "and consequently many of the cures are not permanent. A habit that has been confirmed by years cannot be eradicated in a very short time. This remark as to the length of time required for the cure of children applies in some cases still more forcibly to the case of adults. The more confirmed the habit, the more complicated it is, the longer the time requisite for its eradication. In regard to the discipline of the organs, an experienced instructor is not only of the utmost importance, but of the greatest necessity."

The advice which Dr. Warren gives to parents is so judicious, and comes from so good an authority, that I cannot refrain from quoting it.

"Seek out a person who has experience in the treatment of impediments of speech. Place the stutterer under his care, and if he is benefited, do not remove him, and think to perfect the cure yourself. Three months is a very short time for him to remain under the superintendence of an instructor; six months is better, and where it is practicable, he should remain a year. If this interferes with other studies, it is of no consequence; he will derive benefit enough to compensate for the loss. The age I should fix upon for the trial should be from eight to twelve. At this period the loss of a year's study may be a gain. If he meets there others who are affected as he is, it is all the better; he will no longer look upon his case as a peculiar one; and if he sees others whose impediments are worse than his, it will give him additional courage."

This is very true; for very sensitive pupils are apt to doubt themselves, and fail through want of confidence. But when they observe the successful effects of the system in which they are to be instructed, the conviction is forced upon their minds that they need only follow the same course to reap the same benefit.

Dr. Warren continues :—" Whatever method may be employed for the relief of this affection, no permanent advantage will be gained, in the majority of cases, unless resolutely persevered in for one or two years."

That there are many stutterers who require for a long period the constant and vigilant care of an efficient instructor is undeniable. Such intractable cases form, however, the minority; whilst, provided the proper means are employed, permanent relief may, in the majority of these affections, be gained within a comparatively short time.

"Some wonder," says Dr. Klencke, "that I consider twenty weeks as the shortest period, and are of opinion that four or six weeks might suffice. Even physicians and rational people think so. This shows a perfect ignorance of the nature of stuttering. Nobody wonders or complains of the length of time the orthopædic physician requires (may be one or two years, or more) to cure crooked bones caused by muscular weakness. It is also known that many such patients are sent back uncured. When, now, a person tells me that he can permanently cure stuttering, which requires a more difficult orthopædy and more

active gymnastics than a wry shoulder, in four or six weeks, I tell him to his face that he never had a stutterer under his care, or that I do not believe him. I consider as equally untrue the assertions that stutterers have been cured by operations, medicaments, or machines. Such statements deserve as much faith as those of a singing master who pretended to make a *prima donna* of every girl by means of some machine or embrocation. All such assertions are Münchhausen stories."

The above extract is, on the whole, most judicious. I differ, however, from Dr. Klencke, when he asserts that no cases of stuttering can be cured in a month or six weeks. I grant it is rare; but I have had pupils who possessed such power of mind, self-control, and determination, that they would make more progress in a week than the majority of cases do in a month. I would not, however, assert that any case can be so successfully cured by a residence of one month, unless time and attention be given to my advice after leaving. The only exceptions to this general rule are those slight forms of stuttering, which can generally be cured in a few weeks, if the pupils possess ordinary determination and power of will. My own experience has been, that the time required for cure corresponds more with the mental calibre of the pupil than with anything else. The mere physical severity of different cases is of little importance in comparison with the difference in mental power. On explaining this to applicants, and informing them of the probable length of time re-

quired for a radical cure, I have often been reminded that I had cured some of their friends in a month or six weeks. And here I would remark on the absurdity of reasoning from one single case. Stuttering differs so much, both in kind and degree, that all inference from a few successful cases is only *ex parte* evidence, and is wholly valueless as to the success which would attend the treatment of other cases.

Relapses.—The French and German commissioners, who examined the patients presented before them, after having undergone the treatment employed by their respective tutors, pronounced most of them cured of their infirmity. Yet it is certain that many of these, after a shorter or longer period of time, relapsed into their old habit. The questions, therefore, arose whether a radical cure be at all possible, or whether the systems employed were in fault. But when it is considered that the old habit, which, perhaps, has existed for years, is still strong, and can, especially in inveterate cases, be controlled only by constant attention to the rules for harmonising the motions of the articulative organs with the vocal and respiratory functions, it is wonderful that the relapses are not more frequent.

Those of my pupils who experienced a relapse, candidly imputed it to their own carelessness, or gave other good reasons for it. In some cases, circumstances prevented the pupil from going through the requisite discipline. Others, again, were too sanguine, and considered themselves perfectly cured

on having acquired a certain fluency of utterance, while in others, the constant fear of relapsing was the cause of its actual occurrence.

Herr Bansmann has remarked that the treatment of cases of stuttering "will not always lead to a happy result, unless experience is combined with perseverance. When a stutterer is cured, there constantly remains a disposition to relapse into the vicious habit." This is, no doubt, true, especially where the treatment is not strictly founded on correct physiological principles. I will now quote what Dr. Klencke says on this point.

"When the stutterer returns home cured," he writes, "the rational adult keeps in mind that he must still be guarded in his speech, and must exert his will in order to escape the danger of a *relapse*; he must forget stuttering by the *speech-rules*, which have now become habitual to him. But, as a rule," he continues, "the adult stutterer has, like all other stutterers, *no perseverance*. He grasps the method when he begins to feel the increasing freedom of his intellectual and organic life, with zeal and enthusiasm; but when he is called upon to proceed step by step, to exercise methodically, and to remain, though greatly improved, subject to the will of his physician, he *over-estimates* his power; he thinks that he stands on firm ground, believing that he can proceed by himself, and requires no further superintendence. He then usually declares his intention of leaving the establishment against my advice. Such cases have occurred repeatedly; but, with one exception, they *all*

returned after three or six months, in a considerably worse condition than when they left. They had consequently to recommence the interrupted treatment."

M. Malebouche says that his experience was, "that those cures which are the most quickly effected are the least durable." I have certainly found a tendency to the same result; but only in such cases when the individual, deeming himself perfectly free of his infirmity, would no longer subject his organs to the discipline requisite for confirming the new habit of speaking.

To effect a radical cure, it is absolutely necessary to appeal to reason, and arouse the will to a vigilant control over all the voluntary muscles. When pupils are too indolent or too careless to exercise this control, the cure becomes very difficult and uncertain; and even, after a cure is effected, attention must be paid to the management of the vocal organs for some considerable time.

Mr. Bishop has well observed, that "In this class of cases, however, as well as in many others, it is not uncommon to find persons too indifferent about the results to trouble themselves with the exercise of rules, after they had made themselves masters of them. It must always be borne in mind, that we have not to deal with automatic functions, which, once set in healthy action, continue like the movements of a watch; but with a mechanism, the movements of which are placed under the control of the voluntary system, and subject to the irregular impulse of the intellectual processes."

Concluding Remarks.—As the subjects are frequently young persons with irritable nerves, and of delicate constitution, or extremely shy and timid, it is, in most cases, requisite that they should, for a given time, be withdrawn from home influences.

When defective articulation is the result or the concomitant of debility, whether congenital or acquired, a permanent cure can be only effected by placing the pupil under such favourable circumstances, that whilst the organs concerned undergo the requisite training, their healthy action may be restored and sustained by the invigoration of the whole frame.

The number of apparently intractable cases, which yielded to treatment during my annual temporary sojourn on the sea-coast, convinced me of the great value of a country and marine residence as an adjuvant in many cases depending upon affections of the vocal, respiratory, or nervous apparatus. In order, therefore, fully to carry out my system, I formed a permanent establishment* for the treatment of every species of defective articulation, in which I have been enabled to offer residential accommodation to a limited number of pupils, who enjoy all the comforts and privacy of a home. The cultivation of the intellect and the inculcation of moral habits are not less carefully attended to.

The age which I recommend as the most favourable for treatment is between five and thirteen: what is

* Ore House, near Hastings.

possible at this age is frequently quite impossible in later years. I have so long been convinced of the necessity of early treatment, that I have now made arrangements for receiving pupils from five to thirteen years of age, and for giving them a suitable education in conjunction with my treatment.

The advantages offered by the locality selected, considered one of the most salubrious spots in Sussex, are sufficiently obvious. The house commands extensive land and sea views; the air is pure and bracing, and the environs offer all requisites for health and recreation.

Physical training, generally so much neglected, receives due attention, and all means are resorted to for producing bodily vigour.

As it is well known that many persons, who have no impediment in speech whatever, find it a most difficult task extemporaneously to address public assemblies, it is certainly no wonder that those labouring under defective utterance should entirely fail in any attempt of this kind. It requires much care on the part of the instructor, and determination on the part of the pupil, to gain the confidence necessary for public speaking. The organs of the stutterer must be strengthened before he attempts too much. It forms, therefore, a prominent feature in the plan of instruction to afford to the pupils constant opportunities of reading, debating, and speaking on various subjects before others, the frequent practice of which being absolutely requisite to overcome their natural diffidence, and to impart to them a feeling of confidence and self-reliance.

It has been surmised by some parents, that the association of a number of stutterers under one roof, must have an injurious effect on those who only have slight defects. But the reverse of this is the case. Indeed it is absolutely necessary, in order to effect a cure in some cases, that the pupils should be placed where they can see other cases. In the first place, it is very difficult for a stutterer fully to understand the cause of his own defect. As I have elsewhere observed, the continual misuse of his organs produces an altered condition of his nerves, and the real state or position of the various organs is not conveyed to the mind. For such subjects it is absolutely essential that they should see and examine other cases, and then all doubt and difficulty will disappear. Nothing, indeed, is more beneficial for slight stutterers, than to be with others more afflicted; for they see to what degree stuttering may attain if they neglect their own case; they are also continually reminded, by hearing others hesitate, that it is necessary for them to exercise that care and self-will by which alone stuttering can be cured. Besides this, it is an utter impossibility, and contrary to all laws of physiology, that one type or species of stuttering should be converted into another. There are laws for the development of the different species of defective speech as for everything else. These laws, although obscure and complicated, are still as permanent as the most simple law which exists in nature. Based, as my practice is, on the laws of physiology and psychology, I am nevertheless bound

to confess, that nothing so much aided me in curing stutterers as the opportunity of pointing out to them, by ocular demonstration, the various causes of stuttering in other persons subject to the same infirmity.

In conclusion, I doubt whether there be any affection to which the first aphorism of Hippocrates is more applicable than to stuttering:—

“Life is short, and art is long; experience fallacious, and judgment difficult. The physician must not only do his own duty, but should also make the patient himself, his attendants, and all external agents co-operate.”

CHAPTER X.

STATISTICS OF DEFECTIVE SPEECH.

“Civilisation, as external education, is but a transition to culture, as internal education; and in this first stage it produces evils for which it furnishes the remedy in higher stages. It carries the poison and antidote in the same hand.”—*Baron Feuchtersleben, “Medical Psychology,”* Sydenham Society, p. 264.

Computation of Colombat.—Otto.—Chervin.—Map of France.—Number of Stutterers in the whole world.—Number of Stutterers in England.—Map of England.—Stuttering among Females.—Itard.—Astrié.—Rullier.—Colombat.—Klencke.—Norden.—Wyneken.—Penny Cyclopædia.—Author’s Experience.—Various reasons assigned.—Stuttering in different languages.—Stuttering among Savages.

COLOMBAT, taking as a basis the particulars he learned both at Paris and in several departments, prepared the following table of statistics of stuttering:

Male stutterers, computed on 12,000,000	
individuals, in the proportion of 1 to	
2,500	4,800
Female stutterers, computed on 11,000,000	
individuals, in the proportion of 1 to	
20,000	550

Infant stutterers, before the age of fifteen,
 calculated on 10,000,000 individuals,
 in the proportion of a seventh of the
 above number 764

French stutterers of all ages and sexes,
 calculated on 33,000,000 individuals,
 in proportion of 1 to 5,397 6,114

Otto counts one stutterer in 500. Thus in Prussia, which in 1830 contained a population of about 13,000,000, the number ascertained by the official returns of many places was computed to amount to 26,000 stutterers for the whole kingdom.

In a recent work on stuttering by M. Chervin, the author, whose calculations are based on the documents of the *Conseils de Revision*, gives 3 in 1,000; and he even goes further and says that 5 in 1,000 would be no exaggeration, because such only are exempt from military service in whom stuttering exists in a high degree. He computes that there are not less than 150,000 stutterers in France.

Between 1852 and 1862 not less than 6,773 conscripts were exempted from military service on account of this infirmity.

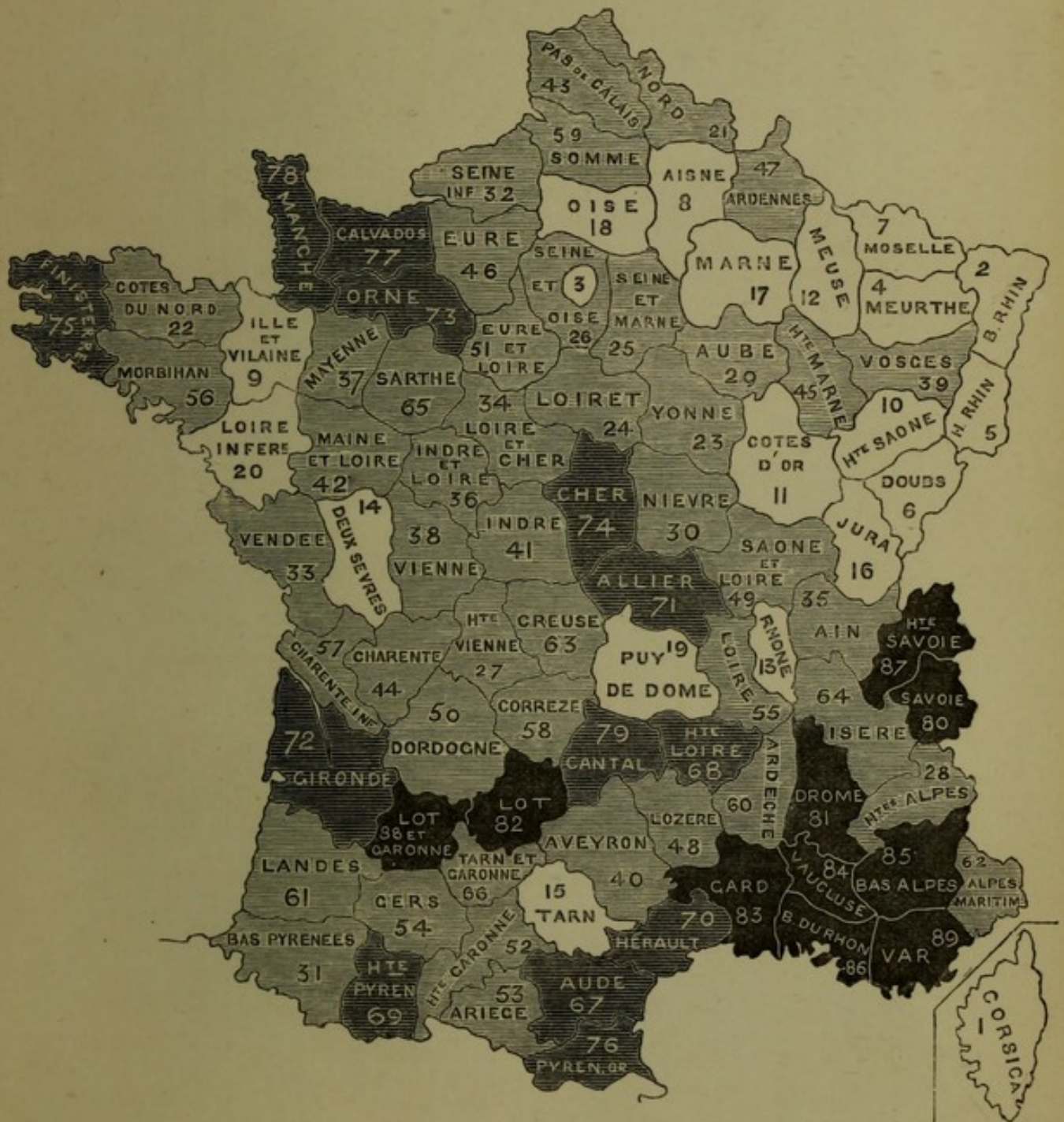
It seems also that stuttering is less frequent in the north than in the south of France. (See Map, which shows the number in each department).

Taking the population of the globe to be about 1,000,000,000, the number of stutterers in the world would be, according to Colombat, 185,289; according to Otto, 2,000,000; and according to Chervin, 5,000,000.

It would be very desirable if the registrar-general

MAP OF FRANCE.

INDICATING, ACCORDING TO CHERVIN, THE NUMBER OF STUTTERERS EXEMPTED FROM MILITARY SERVICE IN EACH *Département*. (See page 340.)



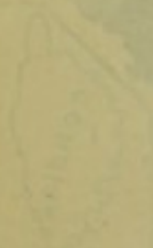
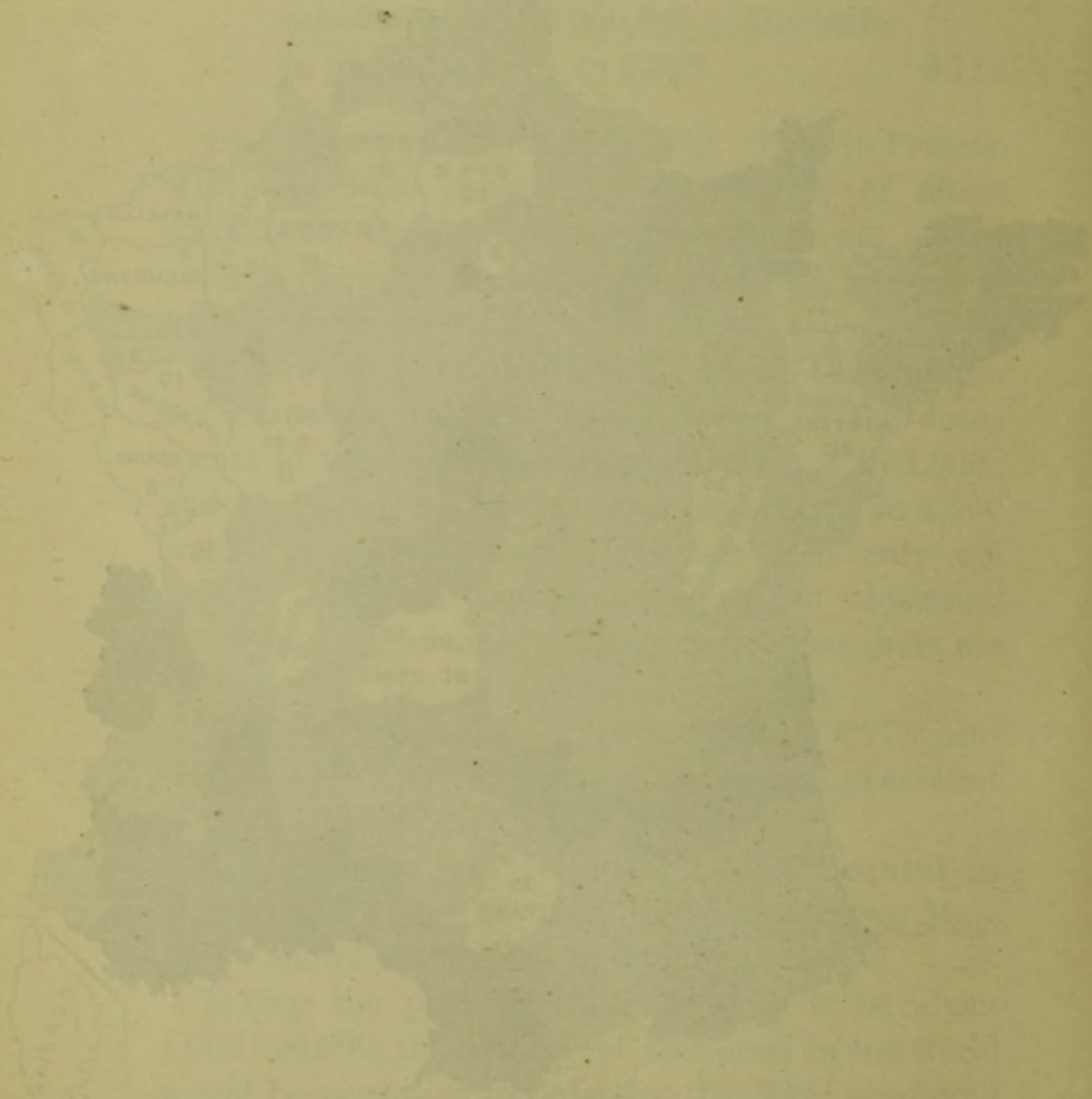
THE HISTORY OF THE

REIGN OF CHARLES THE FIRST

BY JOHN BURNET

IN TWO VOLUMES

LONDON



MAP OF ENGLAND.

INDICATING THE NUMBER OF STUTTERERS IN THE VARIOUS COUNTIES OUT OF 1750 CASES NOTICED. (See page 341.)



were, at the next census, to employ the means at his disposal to ascertain, as nearly as possible, the number of persons labouring under impediments of speech in the United Kingdom. In the absence of any statistics on this subject, I commenced with constructing a map of England, indicating the number of stutterers in the various counties, out of 1750 cases which came under my notice. These data, although necessarily very imperfect, form, nevertheless, a starting point, and may, when further extended, eventually enable us to ascertain the actual proportion of stutterers to the general population of this country, and to that of individual districts.

From computation and general observation, I am of opinion that the average number of stutterers in England is at least 3 in 1,000, exclusive of cases of stammering and other defects of speech.

Causes.—Among 200 of the best observed cases that came under my notice, I found that seven and a half per cent. originated during, or immediately after maladies, such as fever, measles, hooping-cough, etc.; five per cent. were the result of fright or ill-treatment at school; four per cent. were caused by voluntary imitation; nine per cent. by involuntary imitation; ten per cent. were supposed to have been inherited direct from the father; five per cent. from the mother; the rest, $49\frac{1}{2}$ per cent., could not be accounted for. It may, however, be stated, that among the last there were some whose relations, such as brothers, sisters, uncles, etc., stuttered, which cases may accordingly be attributed either to imitation or to hereditary predisposition; perhaps both these

latter may have had some influence on the causation of the defect.

Stuttering among Females.—It is unquestionable that impediments of speech are far less frequent in females than in men. Itard declares he never saw a female stutterer, although he does not deny that such exist. Astrié also says he had never seen one, but he was told, by a friend, of a family in which father, mother, sons, and daughters all stuttered. Rullier, in the beginning of his practice, denied the existence of female stutterers, though afterwards he says he had heard that such do exist. Colombat in the commencement of his practice had grave doubts as to females being “disgraced” by this infirmity, though later he allows that he has observed female stutterers at the rate of about $4\frac{2}{3}$ per cent. of the total number of cases under observation.

According to Klencke, the difference is not nearly so great, there being $33\frac{1}{3}$ per cent. of females. Norden has observed nearly 15 per cent. Wyneken $12\frac{1}{4}$ per cent. The author of an article in the *Penny Cyclopædia* gave his experience as 12 per cent. My own practice yielded $12\frac{1}{2}$ per cent. up to the time I published an article on this subject in 1860 in the *Encyclopædia Britannica*.

During three distinct periods I noted the following results :

From 1853 to 1860	...	...	$12\frac{1}{2}$ per cent.
„ 1861 „ 1866	...	...	$13\frac{1}{4}$ „
„ 1867 „ 1869	...	...	12 „

Of the total number of cases of stuttering I have

treated during the last sixteen years, *i.e.*, from 1853 to 1869, I find that of the males 9 per cent. were under ten years of age ; 19 per cent. from ten to fifteen ; 38 per cent. from fifteen to twenty ; 29 per cent. from twenty to thirty ; and 5 per cent. adults over thirty.

Of the total number of females, $5\frac{1}{3}$ per cent. were under ten years of age ; from ten to fifteen there were 13 per cent. ; from fifteen to twenty, 37 per cent. ; from twenty to thirty, $39\frac{2}{3}$; and above thirty, there were but 5 per cent.

In his last work Klencke states that of 148 stutters he treated during fifteen years, 97 were males, and 51 females.

Males: 55 boys under fifteen years ; 29 youths, fifteen to twenty-two ; 8, from twenty to thirty ; 5, above thirty years old. Females: 28, under fourteen years ; 19, between fourteen and twenty ; 4, above twenty ; 1, married woman age thirty-one.

Various reasons have been assigned for this peculiar phenomenon. Some advocate the hypothesis that women have a finer organisation of the parts concerned in speech, a quicker apprehension, and a readier judgment than men ; and that hence their articulation excels in ease, fluency, and volubility. The following complimentary effusion from Rousseau has often been quoted as an explanation why stuttering should be rare among females: "Girls" (he says) "have their organs of speech more supple and flexible than boys, they speak sooner and easier, and women speak more agreeably than men. They are accused of speaking more ; such ought to be the case,

and I would willingly convert this reproach into praise. The whole nervous system is also more developed in them ; the impressions they receive are more powerful and multiplied, and hence they have a greater number of sensations and internal feelings to make known : anxious to penetrate the secrets of men, and to ascertain the state of their hearts, speech is for them the most useful instrument, and the most indispensable to their happiness."

Voisin, who quotes the above lines, remarks that "these delicate appreciations would lead us to infer that stuttering is not so frequently observed in females as in males. The nervous constitution of the former well accounts for this difference, as females have less masses to move than males. 'It follows, therefore,' says Dr. Roussel, 'that they can govern them better. Another physical quality,' says this ingenious writer, 'concur to render the organs of the female more mobile. It is the degree of softness peculiar to them, and which since the time of Hippocrates has been conceded to them by all physicians.'"

Colombat advances as a reason that, "being condemned to remain at home to superintend domestic affairs, and thus to lead a sedentary life, woman is obliged to speak oftener either for the education of her children, or to divert herself by some piquant remarks addressed to persons around her, or, finally, as is frequently the case, to take part in small-talk about fashions, love affairs, and scandal."

Dr. Isidore Bourdon says,* "That the voice of

* *Physiologie Médicale*, tome v, liv. ii, p. 697.

woman is infinitely softer than that of man. It seems that in her voice is a musical instrument from which she draws melodious sounds which penetrate and move the heart.....Woman frequently speaks for the purpose of speaking. She speaks as she sings; it is the necessity of a heart too full of ingenious devices which inspire her."

Merkel gives as a reason that women, from their psychological constitution, do not so easily contract diseases of the *θυμος*, because the *επιθυμια* predominates in them. Klencke explains it by the circumstance that the respiratory system is less predominant in the female organisation, and it is generally known that those organic systems, which are predominant in their functions, are more liable to functional disturbance. Hence boys suffer more in their respiratory, girls in their generative organs.

The facts quoted may be admitted, but they do not, I think, afford a really satisfactory explanation of the phenomenon. The proportion of male to female stutterers is too great to be so easily accounted for. Graves cites the case of a family in which the males were attacked with this infirmity for three generations, and the females spared. I do not doubt that stuttering showed itself for three generations on the male side, and spared the females, but I question whether all the males for three generations were afflicted with stuttering. It is, at all events, a very exceptional case, and it is to be regretted that no particulars are given.

Reasoning *à priori*, one would imagine that stuttering should be more prevalent among females than

among males. If the cause of stuttering depends upon nervous susceptibility, and if it be nearly allied to chorea, females should suffer from it in greater numbers than men. Again, if, as some gratuitously assume,—without a shadow of reason,—that woman thinks more rapidly than man, the probable effect should be that the words would not keep pace with the thoughts. Aristotle (as already stated) considered that one of the causes of stuttering was, that the words did not proceed *pari passu* with the thoughts, on account of the flight of the imagination. Again, if timidity be one of the causes of stuttering, the fair sex should, from their natural bashfulness, be more liable to it. And, finally, if imitation (certainly a prolific cause of stuttering) be more developed in woman than in man, we have an additional element for the production of speech-defects. Yet, despite all this, the fact is unquestionable, that impediments of speech are less frequent in females than in males. I know not whether it has ever been noticed that a similar disproportion between the sexes exists in so-called cases of aphasia,* which affects more males than females. Setting aside a theory of final causes, viz., that nature, in order to compensate woman for her weakness, has bestowed upon her a powerful weapon in the gift of the tongue, we must rest satisfied with the physiological fact, that the vocal and articulating apparatus of woman, being more elastic and mobile than that of man, is less liable

* I do not speak of hysterical aphasia.

to be affected by some of the causes which produce the infirmity in the male sex. In illustration of this fact, it may be stated that the male voice rarely, if ever, reaches such a compass as that possessed by some female singers, such as Catalani, Sessi, etc.

But whilst subscribing to the general fact of woman being less liable to speech affections than males, they are, as has been shown, by no means exempt from them. Many cases of female stutterers have come under my notice, some of which, of a very severe nature, required the greatest care in treatment. The habitual timidity of women, frequently aggravated by a derangement of the nervous system, tends to produce more intricate cases than in men, which consequently require more time and patience to treat successfully.

Stuttering in different Languages.—It would be an interesting subject of inquiry to ascertain, as far as possible, the influence of different languages and dialects upon the causation of stuttering. At present our data are insufficient to found on them any correct theory. It seems highly probable that languages in which the harsh consonants predominate, such as the German, Polish, and Russian, should furnish far more stutterers than soft-flowing languages, such as the Italian, in which there is a predominance of long vowels. Hence, if this view be correct, Germany should furnish more stutterers than France. This may, perhaps, in some measure account for the difference between the computations of Otto and Colombat mentioned above. Other influences may, however, be at work, in producing such differences.

We know as a matter of fact that pronunciation varies in the different races of man, some of which have a greater or lesser tendency to discard certain articulations, and to substitute others for them, either from congenital formation of the respiratory, vocal, and articulating organs, or from climatic influences. That climate has a certain influence on the sounds of a language is all but certain, and the vowels seem specially subject to this influence. "The lips, the most external parts of the vocal apparatus," says Vaisse, "take a more active part in the south, where the lungs freely open to the warm air, while in the north the people endeavour by the occlusion of the mouth to protect the air-passages from the cold atmosphere. This climatic influence is also perceptible in languages which passed from a warm into a cold climate." Admitting all this, the statistics of speech-impediments are still too imperfect to enable us to lay down as a general rule that peoples speaking languages containing many guttural consonants are more liable to stuttering than nations speaking idioms in which the vowels predominate.

Colombat mentions that a son of M. Chaigneau, the French Consul, in Cochin-China, born of a Chinese mother, and who, from his infancy, spoke the languages of both his parents, expressed himself with the greatest facility in the Chinese dialect, but stuttered much in speaking French, which he was chiefly in the habit of using. Colombat attributes this to the rhythmical structure of the Chinese, and the peculiar intonation required to distinguish similar words.

The assertion which has been made, on very slender grounds, that there are no stutterers in China, is refuted by the fact that the Chinese language possesses a term for impediments of speech (see synonyms). If, indeed, it be true that stuttering is less prevalent in that country, this circumstance seems to me owing not so much to the peculiar intonation and the rhythmical structure of the Chinese language as to its being a monosyllabic tongue.*

Where a mixed language is spoken, the majority are unable to speak the one or the other perfectly, and the result is, that they find difficulties in both, whence arises a certain hesitation, the forerunner of stuttering. If this be true, we might, *à priori*, expect a large number of stutterers at the frontiers of countries in which the languages differ, which I believe to be the case.

Dr. Klencke says he found that most of his cases came from heathy and marshy lands, generally from plains; a smaller number came from mountainous parts, frequently with a touch of cretinism; the fewest stutterers came from high table lands and woody hills.

Stuttering among savages.—The question, whether stuttering only affects civilised people, is one of very considerable interest. Most travellers, who have long resided among uncultivated nations, maintain that

* Some of the North American tribes have been said to be free from this defect. This may be accounted for by the fact that their languages belong, as asserted by philologists, to the Chinese or mono-syllabic class.

they never met with any savages labouring under an impediment of speech. Assuming it to be so, it is not easy to say, whether this immunity be owing to the more ample development of the buccal cavity in savages, to the nature of their dialect, or to their freedom from mental anxieties and nervous debility, the usual concomitants of refinement and civilisation. My impression is, that the latter circumstance offers the best explanation of the alleged fact.

In the first edition of this work, I made a general statement that defective speech was the result of civilisation, and that savages were not thus affected. But from the following it will be seen how necessary it is that a correct and exact meaning should be attached to the words "stammering," "stuttering," "savages," and "civilisation," in making such a statement. For instance, are the natives of the West Coast of Africa savages? Are they civilised? Without attempting a definition of these terms, it may generally be stated that on the West Coast the natives have had a certain amount of intercourse with civilised Europeans. Besides this, at Sierra Leone the poor wretches who are captured in slavers are there released. The slaves are sent away from the interior with all sorts of diseases. I therefore fully expected that at Sierra Leone there would be a considerable amount of disease. But I certainly was not prepared for such a sad picture as that given by Mr. Robert Clarke, of the vast amount of disease which exists on the West Coast of Africa generally.* In the papers quoted

* See *Remarks on the Topography and Diseases of the Gold*

below, he successfully refutes the prevailing opinion that the uncivilised are less liable to disease than the civilised. Indeed, he has clearly established the fact that the negro race, with the exception of being exempt from yellow fever, suffer from quite as many disorders as the European races. Mr. Clarke writes: "The proportion of persons with distorted spines, which give rise to the hunchback, and also with talipes or club-foot, are quite as often met with as in Europe." Our author also says, that "mania, apoplexy, epilepsy, chorea, delirium tremens, are of common occurrence, and that they suffer severely from disease of the lungs, skin, and bowels." Under such circumstances we are not much surprised to read, "Stuttering is a defect very common amongst the people; but it is affected by many among them. as it is considered *fashionable* to stammer.* Persons

Coast. By R. Clarke, late of Her Majesty's Colonial Medical Service, in a paper read before the Epidemiological Society, 1860. Also "Short Notes of the prevailing Diseases in the Colony of Sierra Leone," read before the Statistical Section of the British Association at Glasgow, Sept. 1855. *Statistical Journal*, vol. xix, part i, March 1856.

* Wishing for further information on this interesting question, I wrote to Mr. Clarke, and received the following interesting account in reply.

"At Sierra Leone the black population speak fifty different dialects, almost every tribe in West-Africa having representatives there, stammerers and stutterers being quite as numerous amongst them as in Europe, and, in the majority of them, these defects had existed from childhood. On the Gold Coast I had the best opportunities of seeing and observing the different races inhabiting it, not only in my medical capacity, but as Act. Judicial Assessor, and I can safely declare that

with hare-lip, and tongue-tied infants are quite as common as in Europe."

scarcely a week passed without my noting this affection in the persons of plaintiffs, defendants, or witnesses. In several instances the hesitancy was so great and prolonged that the features were to some extent convulsed, the effort made to utter being in the highest degree distressing, and when overcome, utterance was as it were delivered in gulps.

"In a good many persons it has been induced later in life, as at Sierra Leone, from smoking 'diamba' or Indian hemp, and both there and on the Gold Coast, perhaps from the habit of drinking large quantities of ardent spirits. I do not at present recollect any instance of its occurring from fright, but no doubt such cases do happen from the overwhelming and cruel influence exercised over their minds by the Fetish priests and priestesses.

"The imitative faculty, so strongly developed in the negro race, has led some of the blacks and coloured people to acquire stammering, thinking that because Europeans holding high rank upon the Coast sometimes are so affected, it is therefore an attainment fashionable in Europe.

"The word 'savage' is not easily, as you justly state, defined, but primarily means sylvan or wild. In my opinion the slaves landed at Sierra Leone from the slavers' hold, in a state all but nude, are barbarians or uncivilised, and so, indeed, are several tribes upon the Gold Coast. Yet none of these people are without a strong sense of natural justice. They one and all are governed by rude laws perfectly suited to their condition, and which, when they are fairly administered, are not repugnant to humanity. Superstition it is that works the mischief, being used to pervert their laws, and by false accusations of witchcraft consigns its victims to slavery or to be sacrificed to their infernal gods."

In speaking of civilisation, we must bear in mind that there are two different kinds—the healthy and unhealthy. The same influence which tends to produce the mental or physical derangement, will also be likely to produce defective speech. A

philosophical physician has made the following remarks on this subject. Speaking of the increase of mental diseases in civilisation, which he contends is an undoubted fact, he continues: *—

“It is not civilisation, but the increasing want which it brings in its train; partial education, passions, emotions, etc., all which set the mind in passive motion; the forced culture to which they lead; the over-indulgence,—these contain the reasons of this fact.....The industrial impulse of the present time, for instance, by the hazards to which it exposes the opulent classes, is one of the occasioning momenta, while, by the activity which it excites, and by doing away with isolation, it is one of those which is counteracting and salutary. If savages show such a happy exemption from insanity, they are indebted for it, not merely to the want of civilisation, but probably also to the indomitable energy of their corporeal vitality. Of all passions, ambition in men and love in women (especially through jealousy), are the principal springs of insanity. Goethe says very judiciously, ‘nothing brings us nearer to insanity than distinguishing ourselves above others; and nothing preserves the even tenor of the understanding so well as a general intercourse with many people.’ In Russia the class of officers in which the greatest eagerness for rank prevails, comprehends the greatest number of insane persons.”

An interesting account of a negro girl stuttering, was given to me by a Turkish gentleman, who recently consulted me respecting an impediment in speech under which he laboured, and who greatly pressed me to go to Constantinople, as there were so many stutterers there. He said one of the slaves of his wife was a young African girl, who stuttered very badly, and who weeps continually because she cannot speak properly. Her defect came on after a fright, produced when she was captured before being brought to Constantinople.

The following interesting particulars of a peculiarity in enunciation which exists amongst some African tribes, are given by M. Eugene de Froberville, who says:—

* *Medical Psychology*. By Baron Feuchtersleben, Sydenham Society, p. 264.

"Among the Niambana Negroes,* in the north of Caffraria, whom I consulted for my vocabulary of the Eastern Negro tribes, I met with one whose stuttering enunciation was very peculiar. This Negro always interpolated in every word the syllable 'shil.' Thus the word *Niambana* became in his mouth *Nia-shil-ambana*, *Kuetléle*, to sleep, *Kuetlé-shil-ele*, *Tuhuni* (wood) *Tuhu-shil-uni*, etc. I, at first, thought that the man laboured under a defect of speech, and was about to dismiss him as unsuitable for my object, when I observed that, when he took the trouble, he could enunciate the words without interpolation. I recollected a passage in the description of the voyages of Arbousset and Dumas, who visited the countries north-east of the Cape Colony, in which it is said 'Certain Negro tribes, with incised nostrils and artificially pointed teeth (my Niambana Negro presented the same peculiarities) are by the Southern Kaffirs called stutterers.' Subsequently I observed among other Niambana Negroes the same kind of stuttering. The interpolated syllable was not the same among all tribes, but the principle was the same. The stuttering of these Negroes resembles much that of children, who make the first attempts at speaking. It appeared to me that it was owing to a certain imperfection of the organs of speech, and that they interpolated a strange syllable to gain a *point d'appui* (a fulcrum).

"M. Antoine d'Abbadie writes to me that both the gipsies as well as the Abyssinians insert some arbitrary syllables between two syllables in order to render their language unintelligible to the stranger. The Abyssinians call this method, by which the Amhara language is rendered unintelligible, *Zabaza*, and insert the syllable *ba*. Schoolboys frequently adopt a similar method. I have convinced myself that the Niambana Negroes do not use this intercalation for such a purpose, but to facilitate their enunciation. The fact, however, is very singular, especially as the Eastern Negroes have a fine ear and are very careful of correct pronunciation. I believe, therefore, as I stated, that a certain nervousness and imperfect organisation may be one of the causes."

* Bulletin de la Soc. Géog., Juin 1852.

In 1864 there was a discussion between some members of the Philological Society as to the meaning and origin of the word *Hottentot*. Some thought it an onomatopoeic, or imitation of the native click or a Dutch stammer *hot, tot*. Judge Watermeyer was appealed to as umpire, being considered the soundest scholar at the Cape of Good Hope. He answered by a quotation from Dapper, the Dutch Collector of Voyages, who about the year 1668 reports of the Hottentots: "Some words they cannot utter except with great trouble, and seem to draw them from the bottom of the throat like a Turkey-cock, or as the people of Germany do, near the Alps, who from drinking snow-water have the 'goitre.' Wherefore our countrymen, in respect of this defect and extraordinary stammering in language, have given them the name of *Hottentots*, as that word is ordinarily used in this sense, as a term of derision (*schimpswyze*), in this country (*hier te lande*) to one who stutters or stammers in the utterance of his words." This peculiarity of language, said the judge, was noticed by all the early voyagers—not the Dutch and English only. The Portuguese, who do not know the name *Hottentot*, from the first observed what is called the stuttering; and Crosius, in his description of De Gama's voyage, speaks of the "*incolæ qui cum loquuntur singultire videntur.*" In Zedler's Universal Lexicon, 1736, it is stated, however, that the name *Hottentot* has been given to this people by the Dutch, because that is the word this people frequently utter when they are very merry.

THE END.

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* This work having long been out of print, the author was, up to the time of his death, actively engaged in the preparation of another edition, for which he had collected all the materials.—H. F. R.

Colburn's New Monthly Magazine.

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