



governor, who took the name De Stafford from that of the town, and was the originator of the great family of the Staffords. At this time it contained a royal mint; some of the coins are still extant, bearing on the obverse the head and name of the king, and on the reverse "Godwinne on Staef." Godwinne was the "king's moneyer." The castle of Robert de Torri was rebuilt by Ralph de Stafford in the reign of Edward III.; during the Civil War it was held for the Royalists by the earl of Northampton, but was taken for the Parliament by Sir William Brereton in May 1643. The castle was soon afterwards demolished by order of the Parliament. When fortified, Stafford had four gates. That on the south, near the river bridge, called the Green-gate, was taken down in 1780. The arch of the East-gate was standing a few years ago. The Gaol-gate was in ruins in 1680. The site of the fourth gate is unknown. King John confirmed and enlarged the privileges granted by the old charter. This was again confirmed by Edward VI., and on August 6, 1575, Elizabeth visited the town. Stafford adopted the Local Government Act, 1858, on April 23, 1872; and in 1876 an Act was obtained for extending the borough boundaries. The corporation now consists of a mayor, eight aldermen, and twenty-four councillors.

STAG. See DEER.

STAHL, GEORG ERNST (1660-1734), chemist, was born on 21st October 1660 at Ansbach, studied at Jena, and became court-physician to the duke of Weimar in 1687. In 1694 he was appointed professor of medicine in Halle and in 1716 physician to the king of Prussia. He died at Berlin on May 14, 1734. His *Theoria Medica Vera* appeared at Halle in 1707 (see MEDICINE, vol. xv. p. 812), and his *Experimenta et Observationes Chemicæ* at Berlin in 1731 (see CHEMISTRY, vol. v. pp. 460-61).

STAIR, JAMES DALRYMPLE, FIRST VISCOUNT (1619-1695), was born in May 1619 at Drummurichie in Ayrshire. He was descended from a family for several generations inclined to the principles of the Reformation, and had ancestors both on the father's and the mother's side amongst the Lollards of Kyle. His father James Dalrymple, laird of the small estate of Stair in Kyle, died when he was an infant; his mother, Janet Kennedy of Knockdaw, is described as "a woman of excellent spirit," who took care to have him well educated. From the grammar school at Mauchline he went in 1633 to the university of Glasgow, where he graduated in arts on July 26, 1637. Next year he went to Edinburgh, probably with the intention of studying law, but the troubles of the times then approaching a crisis led him to change his course, and we next find him serving in the earl of Glencairn's regiment in the war of the Covenant. What part he took in it is not certainly known, but he was in command of a troop when recalled in 1641 to compete for a regency (as a tutorship or professorship was then called) in the university of Glasgow. He was elected in March. Mathematics, logic, ethics, and politics were the chief subjects of his lectures, and a notebook on logic by one of his students has been preserved. His activity and skill in matters of college business were praised by his colleagues, who numbered amongst them some of the leading Covenanting divines, and his zeal in teaching was gratefully acknowledged by his students. After nearly seven years' service he resigned his regency, and removed to Edinburgh, where he was admitted to the bar on February 17, 1648. This step had probably been rendered easier by his marriage four years before to Margaret Ross, co-heiress of Balneil in Wigtown. Stair's practice at the bar does not appear to have been large; his talents lay rather in the direction of learning and business than of oratory or advocacy. His reputation and the confidence reposed in him were shown by his appointment in 1649 as secretary to the commission sent to The Hague to treat with Charles II. by the parliament of Scotland. The negotiation having been broken off through the unwillingness of the young king to accept the terms of the Covenanters, Stair was again sent in the following year to Breda, where the failure of Montrose's expedition forced Charles to change his attitude, and to return to

Scotland as the covenanted king. Stair had preceded him, and met him on his landing in Aberdeenshire, probably carrying with him the news of the execution of Montrose, which he had witnessed.

During the Commonwealth Stair continued to practise at the bar; but like most of his brethren he refused in 1654 to take the oath of allegiance to the Commonwealth and abjuration of royalty. Three years later, on the death of Lord Balcomie, Stair was appointed one of the commissioners for the administration of justice in Scotland on the recommendation of Monk. His appointment to the bench on 1st July 1657 by Monk was confirmed by Cromwell on the 26th. Stair's association with the English judges at this time must have enlarged his acquaintance with English law, as his travels had extended his knowledge of the civil law and the modern European systems which followed it. He thus acquired a singular advantage when he came to write on law, regarding it from a cosmopolitan or international rather than a merely local or national point of view. His actual discharge of judicial duty at this time was short, for after the death of Cromwell the courts in Scotland were shut,—a new commission issued in 1660 not having taken effect, it being uncertain in whose name the commission ought to run. It was during this period that Stair became intimate with Monk, who is said to have been advised by him when he left Scotland to call a full and free parliament. Soon after the Restoration Stair went to London, where he was received with favour by Charles, knighted, and included in the new nomination of judges in the Court of Session on 13th February 1661. He was also put on various important commissions, busied himself with local and agricultural affairs, and, like most of the Scottish judges of this and the following century, acted with zest and credit the part of a good country gentleman.

In 1662 he was one of the judges who refused to take the declaration that the National Covenant and the Solemn League and Covenant were unlawful oaths, and, forestalling the deposition which had been threatened as the penalty of continued non-compliance, he placed his resignation in the king's hands. The king, however, summoned him to London, and allowed him to take the declaration under an implied reservation. The next five years of Stair's life were comparatively uneventful, but in 1669 a family calamity, the exact facts of which will probably never be ascertained, overtook him. His daughter Janet, who had been betrothed to Lord Rutherford, was married to Dunbar of Baldoon, and some tragic incident occurred on the wedding night, from the effects of which she never recovered. As the traditions vary on the central fact, whether it was the bride who stabbed her husband, or the husband who stabbed the bride, no credence can be given to the mass of superstitions and spiteful slander which surrounded it, principally levelled at Lady Stair. In 1670 Stair served as one of the Scottish commissioners who went to London to treat of the Union; but the project, not seriously pressed by Charles and his ministers, broke down through a claim on the part of the Scots to what was deemed an excessive representation in the British parliament. In January 1671 Stair was appointed president of the Court of Session. In the following year, and again in 1673, he was returned to parliament for Wigtownshire, and took part in the important legislation of those years in the department of private law. During the bad time of Lauderdale's government Stair used his influence in the privy council and with Lauderdale to mitigate the severity of the orders passed against ecclesiastical offenders, but for the most part he abstained from attending a board whose policy he could not approve. In 1679 he went to London to defend the court against charges of partiality and injustice which had been made against it, and was

thanked by his brethren for his success. When in the following year the duke of York came to Scotland, Stair distinguished himself by a bold speech, in which he congratulated the duke on his coming amongst a nation which was entirely Protestant. This speech can have been little relished, and the duke was henceforth his implacable enemy. His influence prevented Stair from being made chancellor in 1681, on the death of the duke of Rothes.

The parliament of this year, in which Stair again sat, was memorable for two statutes, one in private and the other in public law. The former, relating to the testing of deeds, was drawn by Stair, and is sometimes called by his name. Although it is susceptible of some improvement, the two centuries during which it has regulated this important branch of practical conveyancing is a testimony to the skill of the draftsman. The other was the infamous Test Act, probably the worst of the many measures devised at this period with the object of fettering the conscience by oaths. Stair also had a minor share in the form which this law finally took, but it was confined to the insertion of a definition of "the Protestant religion"; by this he hoped to make the test harmless, but his expectation was disappointed, and the form in which it emerged from parliament was such that no honest man could take it. Yet, self-contradictory and absurd as it was, the Test Act was at once rigidly enforced. Argyll, who declared he took it only in so far as it was consistent with itself and the Protestant religion, was tried and condemned for treason, and narrowly saved his life by escaping from Edinburgh Castle the day before that fixed for his execution. Stair, dreading a similar fate, went to London to seek a personal interview with the king, who had more than once befriended him, perhaps remembering his services in Holland; but the duke of York intercepted his access to the royal ear, and when he returned to Scotland he found a new commission of judges issued, from which his name was omitted. He retired to his wife's estate in Galloway, and occupied himself with preparing for the press his great work, *The Institutions of the Law of Scotland*, which he published in the autumn of 1681, with a dedication to the king.

He was not, however, allowed to pursue his legal studies in peaceful retirement. His wife was charged with attending conventicles, his factor and tenants severely fined, and he was himself not safe from prosecution at any moment. A fierce dispute arose between Claverhouse and his son, the master of Stair, relative to the regality of Glenluce; and, both having appealed to the privy council, Claverhouse, as might have been expected, was absolved from all the charges brought against him, and the master was deprived of the regality. Stair had still powerful friends, but his opponents were more powerful, and he received advice to quit the country. He repaired to Holland in October 1684, took up his residence, along with his wife, some of his younger children, and his grandchild, afterwards the field-marshal Steir, at Leyden. While there he published the *Decisions of the Court of Session between 1666 and 1671*, of which he had kept a daily record, and a small treatise on natural philosophy, entitled *Physiologia Nova Experimentalis*.

In his absence a prosecution for treason was raised against him and others of the exiles by Sir G. Mackenzie, the lord advocate. He was charged with accession to the rebellion of 1679, the Ryehouse plot, and the expedition of Argyll. With the first two he had no connexion; with Argyll's unfortunate attempt he had no doubt sympathized, but the only proof of his complicity was slight, and was obtained by torture. The proceedings against him were never brought to an issue, having been continued by successive adjournments until 1687, when they were

dropped. The cause of their abandonment was the appointment of his son, the master of Stair, who had made his peace with James II., as lord advocate in room of Mackenzie, who was dismissed from office for refusing to relax the penal laws against the Catholics. The master only held office as lord advocate for a year, when he was "degraded to be justice clerk"—the king and his advisers finding him not a fit tool for their purpose. Stair remained in Holland till the following year, when he returned under happier auspices in the suite of William of Orange. William, who had made his acquaintance through the pensionary Fagel, was ever afterwards the firm friend of Stair and his family. The master was made lord advocate; and, on the murder of President Lockhart in the following year, Stair was again placed at the head of the Court of Session. An unscrupulous opposition, headed by Montgomery of Skelmorlie, who coveted the office of secretary for Scotland, and Lord Ross, who aimed at the presidency of the court, sprang up in the Scottish parliament; and an anonymous pamphleteer, perhaps Montgomery himself or Ferguson the Plotter, attacked Stair in a pamphlet entitled *The Late Proceedings of the Parliament of Scotland Stated and Vindicated*. He defended himself by publishing an *Apology*, which, in the opinion of impartial judges, was a complete vindication. Shortly after its issue he was created Viscount Stair. He had now reached the summit of his prosperity, and the few years which remained of his old age were saddened by private and public cares. In 1692 he lost his wife, the faithful partner of his good and evil fortune for nearly fifty years. The massacre of Glencoe, which has marked the master of Stair with a stain which his great services to the state cannot efface,—for he was undoubtedly the principal adviser of William in that treacherous and cruel deed,—was used as an opportunity by his adversaries of renewing their attack on the old president. His own share in the crime was remote; it was alleged that he had as a privy councillor declined to receive Glencoe's oath of allegiance, though tendered, on the technical ground that it was emitted after the day fixed, but even this was not clearly proved. But some share of the odium which attached to his son was naturally reflected on him. Other grounds of complaint were not difficult to make up, which found willing supporters in the opposition members of parliament. A disappointed suitor brought in a bill in 1693 complaining of his partiality. He was also accused of domineering over the other judges and of favouring the clients of his sons. Two bills were introduced without naming him but really aimed at him,—one to disqualify peers from being judges and the other to confer on the crown a power to appoint temporary presidents of the court. The complaint against him was remitted to a committee, which after full inquiry completely exculpated him; and the two bills, whose incompetency he demonstrated in an able paper addressed to the commission and parliament, were allowed to drop. He was also one of a parliamentary commission which prepared a report on the regulation of the judicatures, afterwards made the basis of a statute in 1695 supplementary to that of 1672, and forming the foundation of the judicial procedure in the Scottish courts down to the present century. On November 29, 1695, Stair, who had been for some time in failing health, died in Edinburgh, and was buried in the church of St Giles.

In the same year there was published in London a small volume with the title *A Vindication of the Divine Perfections, Illustrating the Glory of God in them by Reason and Revelation, methodically digested*.—By a Person of Honour. It was edited by the two Nonconformist divines, William Bates and John Howe, who had been in exile in Holland along with Stair, and is undoubtedly his work. Perhaps it had been a sketch of the "Inquiry Concerning Natural Theology" which he had contemplated writing in 1681.

It is of no value as a theological work, for Stair was no more a theologian than he was a man of science, but it is of interest as showing the serious bent of his thoughts and the genuine piety of his character.

It is as a legal writer and a judge that he holds a pre-eminent place amongst many distinguished countrymen belonging to his profession. The full title of his great work, which runs as follows—*The Institutions of the Law of Scotland, deduced from its Originals, and collated with the Civil, Canon, and Feudal Laws and with the Customs of Neighbouring Nations*—is fully borne out by the contents, and affords evidence of the advantage Stair had enjoyed from his philosophical training, his foreign travels, and his intercourse with Continental jurists as well as English lawyers. It is no narrow technical treatise, but a comprehensive view of jurisprudence as based on philosophical principles and derived from a Divine Author. But neither does it lose itself in generalities; for it is the work of a lawyer and judge intimately acquainted with every detail in the practical application of law in his native country. Unfortunately for its permanent fame and use, much of the law elucidated in it has now become antiquated through the decay of the feudal part of Scottish law and the large introduction of English law, especially in the departments of commercial law and equity. But its spirit still animates Scottish law and educates Scottish lawyers, and it may be hoped will continue to do so, saving them from being the slaves of precedent or the victims of the utilitarian philosophy which regards all positive law as conventional and destitute of necessary principles derived from the nature of the world and man.

The *Physiologia* was favourably noticed by Boyle, and is interesting as showing the activity of mind of the exiled judge, who returned to the studies of his youth with fresh zest when physical science was approaching its new birth. But he was not able to emancipate himself from formulae which had cramped the education of his generation, and had not caught the light which Newton spread at this very time by the communication of his *Principia* to the Royal Society of London.

Stair was fortunate in his descendants. "The family of Dalrymple," observes Sir Walter Scott, "produced within two centuries as many men of talent, civil and military, of literary, political, and professional eminence, as any house in Scotland." His five sons were all remarkable in their professions. The master of Stair, who became the first earl, was an able lawyer, but still abler politician. Sir James Dalrymple of Borthwick, one of the principal clerks of session, was a very thorough and accurate historical antiquary. Sir Hew Dalrymple of North Berwick succeeded his father as president, and was reckoned one of the best lawyers and speakers of his time. Thomas Dalrymple became physician to Queen Anne. Sir David Dalrymple of Hailes was lord advocate under Anne and George I. Stair's grandson the field-marshal and second earl gained equal credit in war and diplomacy. His great-grandson Sir David Dalrymple, Lord Hailes, also rose to the bench, where he had an honourable character for learning as a civil and humanity as a criminal judge. But his literary exceeded his legal fame. As an honest and impartial historian he laid the foundations of the true narrative of Scottish history, from which all his successors have largely borrowed.

For a fuller account of the life of Stair, see *Annals of the Viscount and First and Second Earls of Stair*, by J. Murray Graham, and *Memoir of Sir James Dalrymple, First Viscount Stair*, 1875, by E. J. G. Mackay. (E. M.)

STALYBRIDGE, a municipal and parliamentary borough of England, partly in Lancashire but principally in Cheshire, is situated on the Tame, 1 mile east of Ashton-under-Lyne, and  $7\frac{1}{2}$  east of Manchester. The Tame is crossed by bridges connecting the counties of Chester and Lancaster. The principal public buildings are the town-hall (1831), the Foresters' hall (1836), the district infirmary, the mechanics' institute (1861), the people's institute (1864), the market-hall (1866), and the Oddfellows' hall (1878). Stamford park, extending to about 60 acres, and lying between Stalybridge and Ashton, was opened 12th July 1873. The town is one of the oldest seats of the cotton manufacture, the first cotton mill having been erected in 1776 and the first steam engine in 1795. In addition to extensive cotton mills, it possesses woollen factories, iron and brass foundries, machine works, nail works, and paper mills. Stalybridge was created a market-town in 1828, was incorporated as a municipal borough in 1857, and obtained the privilege of returning a member to parliament in 1867. The municipal borough (area 806 acres) had a population of 21,092 in 1871, and 22,785 in 1881; its limits were extended in 1881 to 3120 acres, with a population of 25,977. The population

of the parliamentary borough (area 2214 acres) in 1871 was 35,114 and in 1881 it was 39,671. The area added to the municipal borough in 1881 was in 1885 included in the parliamentary borough also,—the population of this extended area being 42,863 at the census of 1881.

STAMFORD, a municipal borough and market-town, chiefly in Lincolnshire but partly in Northamptonshire, is situated on the river Welland, and on branches of the Midland, the London and North Western, and the Great Northern railway lines, 89 miles north of London and 55 south of Lincoln. The ancient bridge over the Welland was in 1849 superseded by a new structure of stone, erected at a cost of £8500. The town formerly possessed fourteen parish churches, but now has only six, viz., St Mary's, erected at the end of the 13th century, possessing an Early English tower, with Decorated spire, the principal other parts of the building being Perpendicular; All Saints, also of the 13th century, the steeple being built at the expense of John Brown, merchant of the staple at Calais, in the beginning of the 15th century; St Michael's, rebuilt in 1836 on the site of one erected in 1269; St George's, Early English, Decorated, and Perpendicular, for the most part rebuilt in 1450 at the expense of William Bruges, first garter king-at-arms; St John Baptist's, Perpendicular, erected about 1452; and St Martin's, Perpendicular, in which Lord Treasurer Burghley is buried. Formerly there were several religious houses:—the Benedictine monastery of St Leonard's, founded in the 7th century, of which there are still some remains; the Carmelite monastery (1291), of which the west gate still stands; and houses for grey friars (time of Henry III.), Dominicans (1240), Gilbertines (1291), and Augustinians (1316). The principal secular buildings are the town-hall (rebuilt 1776), the corn exchange (1859), and the literary and scientific institute (1842), with a library of 6000 volumes. There are a large number of charitable institutions, including the Stamford and Rutland infirmary (1828), Browne's hospital, founded in the time of Richard III., Snowden's almshouses (1604), Truesdale's almshouses (1700), and Burghley hospital, founded by Lord Treasurer Burghley (1597). Ratcliffe's and Brown's high school for boys was lately erected at a cost of £7000 on the site of Ratcliffe's free school; and Brown's school for girls in St Martin's was erected in 1876 at a cost of £5000. The prosperity of the town depends chiefly on its connexion with agriculture. It possesses iron foundries, agricultural implement works, wagon factories, and breweries. There is also some trade in coal, timber, stones, and slates. The population of the municipal borough (area 1766 acres) in 1871 was 7846 and in 1881 it was 8773; that of the parliamentary borough (area 1894 acres) in the same years was 8086 and 8993. The latter was merged in the counties in 1885, giving its name to a parliamentary division of Lincolnshire.

The town is of very remote antiquity, and is supposed to have grown into importance after the decay of the Roman village of Bridge Castron two miles distant. Its name, an early form of which was Staenford, was derived from a passage at the town across the Welland by stone. It was the scene of the first battle of the Picts and Scots against the Britons and Saxons in 449, and subsequently became one of the five great Danish boroughs. A castle was built early in the 10th century on the south bank of the river opposite the town, but has long disappeared; and of another on the north-west of the town, fortified by Stephen, only the foundations now remain. The town was at one time enclosed by walls, and there are still traces of gateways on the east and west sides. In the reign of Henry III. the lectures of the Carmelites on divinity and the liberal arts led to the erection of colleges, and Stamford became celebrated as a place of education. When dissensions arose among the students of Oxford in the reign of Edward III. many removed thither, and ultimately the universities both of Oxford and Cambridge thought it necessary to pass statutes prohibiting their students from proceeding to other places for any part of their education, Stamford being specially mentioned in the

Oxford statute. At the time of the Conquest Stamford was governed by aldermen. It was incorporated by charter in the reign of Edward IV. In 1663 it received a charter from Charles II., constituting its chief magistrate a mayor. It returned two members to parliament from the reign of Edward I. till 1867, and one from 1867 to 1885. The deanery of Stamford is an ancient peculiarity, the appointment being vested in the bishop of Lincoln.

STAMFORD, a borough of the United States, in Fairfield county, Connecticut, is situated on Long Island Sound, 35 miles north-east of New York city, on the New York, New Haven, and Hartford Railroad. It has a small harbour accessible to steamboats by means of a canal; and among its public buildings are the town-hall and several handsome churches. Locks, carriages, stoves, fire-bricks, edge-tools, cranes, hardware, hosiery, and especially log-wood extract and liquorice are manufactured in the borough. The population was 9714 in 1870 and 11,297 in 1880.

STAMMERING, or STUTTERING, designates a spasmodic affection of the organs of speech in which the articulation of words is suddenly checked and a pause ensues, often followed by a repetition in rapid sequence of the particular sound at which the stoppage occurred. Of this painful affection there are many grades, from a slight inability to pronounce with ease certain letters or syllables, or a tendency to hesitate and to interject unmeaning sounds in a spoken sentence, to the more severe condition in which there is a paroxysm of spasms of the muscles, not only of the tongue and throat and face, but even of those of respiration and of the body generally. To understand in some degree the explanation of stammering it is necessary to consider shortly the physiological mechanism of articulate speech. Speech is the result of various muscular movements affecting the current of air as it passes in expiration from the larynx through the mouth. If the vocal cords are called into action, and the sounds thus produced are modified by the muscular movements of the tongue, cheeks, and lips, we have vocal speech; but if the glottis is widely open and the vocal cords relaxed the current of air may still be moulded by the muscular apparatus so as to produce speech without voice, or whispering (see VOICE). In both cases, however, the mechanism is very complicated, requiring a series of nervous and muscular actions, all of which must be executed with precision and in accordance. In vocal speech, for example, it is necessary that the respiratory movements, more especially those of expiration, occur regularly and with nice adjustment to the kind of articulate expression required; that the vocal cords be approximated and tightened by the muscles of the larynx acting with delicate precision, so as to produce the sound of the pitch desired; that the *rima glottidis* (or aperture of the larynx) be opened so as to produce prolonged sounds, or suddenly closed so as to cut off the current of air; that the movements of the muscles of the tongue, of the soft palate, of the jaws, of the cheeks, and of the lips occur precisely at the right time and to the requisite extent; and finally that all of these muscular adjustments take place with rapidity and smoothness, gliding into each other without effort and without loss of time. Exquisite co-ordination of muscular movement is therefore necessary, involving also complicated nervous actions. Hence is it that speech is acquired by long and laborious effort. A child possesses voice from the beginning; it is born with the capacity for speech; but articulate expression is the result of education. In infancy, not only is knowledge acquired of external objects, and signs attached in the form of words to the ideas thus awakened, but the nervous and muscular mechanisms by which these signs or words receive vocal expression are trained by long practice to work harmoniously.

It is not surprising, therefore, that in certain cases,

owing to some obscure congenital defect, the co-ordination is not effected with sufficient precision, and that stammering is the result. Even in severe cases no appreciable lesion can be detected either in the nervous or muscular mechanisms, and the condition is similar to what may affect all varieties of finely co-ordinated movements. The mechanism does not work smoothly, but the pathologist is unable to show any organic defect. Thus the co-ordinated movements necessary in writing are disturbed in scrivener's palsy, and the skilful performer on the piano or on any instrument requiring minute manipulation may find that he is losing the power of delicate adjustment. Stammering is occasionally hereditary. It rarely shows itself before the age of four or five years, and as a rule it is developed between this age and puberty. Men stammer in a much larger proportion than women. It may occur during the course of nervous affections, such as hysteria, epilepsy, or tabes dorsalis; sometimes it follows febrile disorders; often it develops in a child in a feeble state of health, without any special disease. In some cases a child may imitate a stammerer and thus acquire the habit. Any general enfeeblement of the health, and especially nervous excitement, aggravates the condition of a confirmed stammerer.

Stammerers, as a rule, find the explosive consonants *b*, *p*, *d*, *t*, *k*, and hard *g* the most difficult to articulate, but many also are unable easily to deal with the more continuous consonants, such as *v*, *f*, *th*, *s*, *z*, *sh*, *m*, *n*, *y*, and in severe cases even the vowels may cause a certain amount of spasm. Usually the defect is not observed in whispering or singing; but there are exceptions to this statement. In pronouncing the explosive sounds the part of the oral apparatus that ought suddenly to open or close remains spasmodically closed, and the stammerer remains for a moment voiceless or strives pitifully to overcome the obstruction, uttering a few successive puffs or sounds like the beginning of the sound he wishes to utter. The lips thus remain closed at the attempted utterance of *b* and *p*; the tip of the tongue is pressed against the hard palate or the back of the upper front teeth in *d* and *t*; and the back of the tongue presses against the posterior part of the palate in pronouncing *g* hard and *k*. In attempting the continuous consonants, in which naturally the passage is not completely obstructed, the stammerer does not close the passage spasmodically, but the parts become fixed in the half-opened condition, or there are intermittent attempts to open or close them, causing either a drawling sound or coming to a full stop. In severe cases, where even vowels cannot be freely uttered, the spasm appears to be at the *rima glottidis* (opening of the larynx). Again, in some cases, the spasm may affect the respiratory muscles, giving rise to a curious barking articulation, in consequence of spasm of the expiratory muscles, and in such cases the patient utters the first part of the sentence slowly, gradually accelerates the speed, and makes a rush towards the close. In the great majority of cases the spasm affects the muscles of articulation proper, that is, those of the pharynx, tongue, cheeks, and lips. In the most aggravated cases the condition of the patient is pitiable. It has thus been well described by Dr Bristow in an article full of interesting details:—

"The most distressing cases are those in which the spasm extends to parts unconnected with speech,—it may be to nearly the whole muscular organism. In such a case the spasm commences, let us assume, at the base of the tongue; the mouth opens widely and remains in that position; the muscles of expiration work convulsively; the glottis contracts; respiration becomes arrested; the face becomes congested and the veins dilated; violent spasmodic movements involve the trunk and limbs; and only after some time, either when the patient becomes exhausted, or when he resolutely restrains his attempts to articulate, does his paroxysm come to an end."—*Quain's Dictionary of Medicine*, p. 1513.