

the elevator mechanism are set in operation by being mounted on a spindle which passes through and outside the cylinder, and is turned either by a weight attached to a length of steel wire or, where convenient, by hydraulic power. The turrets contain (1) a gas-holder which supplies gas while the machine is being wound up, should any light be then burning, and (2) a governor to regulate the pressure of the issuing gas. The apparatus works only when gas is being burned, and moves in proportion to the demand on it up to its limit of production. There is therefore no necessity for storing, as indeed would be impracticable with this form of carburetted gas. The function of the blower is not only, by its revolution, to press forward the gas into the supply pipes, but also to carburet the air by exposing continually renewed thin films of the liquids to its influence on the moist metallic surfaces. The revolution of the blower, moreover, maintains an unceasing agitation in the gasolin, vaporizes the liquid in an equal and uniform manner, and keeps the entire volume at the same temperature throughout. The quantity of gasolin operated on being comparatively large, the temperature of the liquid decreases only slowly, and is in ordinary conditions sufficiently recouped from the external air to keep it in good working order throughout any length of time.

M. Tessie du Motay, who for many years advocated a modified system of lime-light, latterly abandoned that system in favour of a form of carburetted gas. His system necessitates two sets of pipes and a special form of burner,—one pipe supplying ordinary coal-gas or highly carburetted hydrogen, and the other leading in a supply of oxygen, whereby a powerful, steady, white light is maintained at the burner. Philipps of Cologne has also utilized oxygen in a comparatively pure state for burning in a lamp with a wick a mixture of heavy hydrocarbons, which in common air would burn with a very smoky flame.

Other sources of gas, such as tar, and even faecal matters, have been proposed; and many modified forms of gaseous illumination have been brought forward which, even to name here, would occupy space out of proportion to their importance.

THE FUTURE OF COAL-GAS.

The processes involved in the preparation, distribution, and consumption of coal-gas still remain essentially the same as when the system was first elaborated; but in all details of the industry numerous improvements have been introduced, resulting in marked economy and efficiency of the system. In the meantime new applications of importance have been found for coal-gas in connexion with heating and cooking, and as a motive power in gas-engines. Further, collateral industries have been superadded to the gas manufacture, which in themselves are of such value and importance that, were the distillation of coal as a source of artificial light to cease, it would certainly continue to be practised as a source of the raw materials of the coal-tar colours, and of carbolic acid, &c. Were coal-gas to cease to be made primarily and principally for artificial illumination, and to become more a heating and cooking agent, or were it to fall into the position of being a mere collateral product of the manufacture of tar, it is certain that the manufacturing processes would be very materially modified. Costly canal-gas, with its high illuminating power, is no better suited for a gas engine than common gas; and for heating purposes a much greater yield of gas might be obtained, which, in burning, would evolve more heat than is sought in making illuminating gas. But as matters now stand, the fact that illumination, heat, motive power, and dye-stuffs are all obtained by means of the manufacture as

at present conducted is a consideration of much weight in dealing with rival systems of artificial lighting.

Throughout the whole experience of gas manufacture the efforts of inventors have been directed, not only to improve the manufacture of coal-gas, but also to supersede its ordinary processes, and to supplant it by gas yielded by other raw materials or by new systems of illumination. The persistent efforts which have been made to improve coal-gas, and the success which many of the plans exhibit in their experimental stage, warrant the conclusion that the processes and results of the manufacture are still susceptible of much improvement. When it is considered how exceedingly small is the total proportion of illuminants in coal-gas to the bulk of the materials dealt with, it is not difficult to imagine that modifications of processes may be devised whereby a great increase of lighting effect might be practically available, and at the same time a greater percentage of the total heat-giving power of the coal secured for domestic and manufacturing purposes. Notwithstanding the confessed imperfections of the system of coal-gas-making,—the evil odours which attach to the works, the yet more offensive exhalations given off from streets through which the main-pipes are led, the destructive accidents which occasionally occur from gas explosions, and the heat and sulphurous fumes evolved during its combustion,—not one of the numerous substitutes which have been proposed has been able to stand in competition against it in any large town or city where coal is a marketable commodity. As against the system of electric lighting, which is now being brought into competition with it, the ultimate fate of gas may be different. It may be regarded as already demonstrated that for busy thoroughfares—almost, it may be said, for open-air lighting generally—and for large halls and enclosed spaces, electric lighting will, in the near future, supersede gas. The advantages of the electric light for such positions in brilliancy, penetration, and purity are so manifest that its use must ultimately prevail, irrespective of the question of comparative cost, and of the fact that municipalities and wealthy corporations have an enormous pecuniary stake in gas-property. That the electric light will be equally available for domestic illumination is, however, not yet so certain; and until it is demonstrated that a current may be subdivided practically without limit, that the supply can adapt itself to the demand with the same ease that the pressure of gas is regulated, and that the lights can be raised and lowered equally with gas-lights—till these and other conditions are satisfied, the disuse of gas-lighting is still out of sight. Should these conditions, however, be satisfied, there can be little doubt that gas-lighting will enter on a period of severe competition and struggle for existence; and in the end the material which at one time was regarded as a most troublesome and annoying waste—the gas-tar—will, in all probability, exercise a decisive influence on the continuance of the gas manufacture.

Bibliography.—Clegg, *A Practical Treatise on the Manufacture and Distribution of Coal-Gas*, new edition, London, 1869; Hughes, *A Treatise on Gas-Works and Manufacturing Coal-Gas*, 5th edition, by Richards, London, 1875; Richards, *A Practical Treatise on the Manufacture and Distribution of Coal-Gas*, London, 1877; Accum, *Practical Treatise on Gas-Light*, 4th ed., 1818; *Journal for Gas-Lighting*, London; Bowditch, *The Analysis, Technical Valuation, and Purification of Coal-Gas*, London, 1867; Banister, *Gas Manipulation*, new ed. by Sugg, London, 1867; Servier, *Traité pratique de la fabrication et de la distribution du gaz d'éclairage*, Paris, 1868; Payen, *Précis de Chimie industrielle*, 6th edition, Paris, 1877; Schilling, *Handbuch der Steinkohlen-Gas-Beleuchtung*, Munich, 1860; Diehl and Illgen, *Gasbeleuchtung und Gasverbrauch*, Iserlohn, 1872; Ilgen, *Die Gasindustrie der Gegenwart*, Leipsic, 1874; Bolley, *Technologie*, vol. i., Brunswick, 1862; Wagner's *Jahresbericht der chemischen Technologie*, Leipsic; *Journal für Gasbeleuchtung und verwandte Beleuchtungsart*, Munich; Reissig, *Handbuch der Holz und Torf Gas-Fabrikation*, Munich, 1865. (J. PA.)

GASCOIGNE, GEORGE (c. 1535–1577), one of the great pioneers of Elizabethan poetry, was born about 1535—as is believed, in Westmoreland. He was the son and heir of Sir John Gascoigne. He studied at Cambridge, and was admitted to Gray's Inn in 1555. His youth was unsteady, and his father disinherited him. In 1565 he had written his tragic-comedy of *The Glass of Government*, not printed until 1576. In 1566 his first published verses were prefixed to a book called *The French Littleton*, and he brought out on the stage of Gray's Inn two very remarkable dramas, *Supposes*, the earliest existing English play in prose, and *Jocasta*, the first attempt to naturalize the Greek tragedy. Of the latter only the second, third, and fourth acts were from his hand. Soon after this he married. In 1572 there was published *A Hundred sundry Flowers bound up in one small Posy*, a pirated collection of Gascoigne's lyrics, he having started in March of that year to serve as a volunteer under the Prince of Orange. He was wrecked on the coast of Holland and nearly lost his life, but obtained a captain's commission, and acquired considerable military reputation. An intrigue, however, with a lady in the Hague, nearly cost him his life. He regained his position, and fought well at the siege of Middleburg, but was captured under the walls of Leyden, and sent back to England after an imprisonment of four months. In 1575 he issued an authoritative edition of his poems under the name of *Posies*. In the summer of the same year he devised a poetical entertainment for Queen Elizabeth, then visiting Kenilworth; this series of masques was printed in 1576 as *The Princely Pleasures*. Later on in 1575 he greeted the queen at Woodstock with his *Tale of Hemes*, and presented her on next New Year's day with the MS. of the same poem, which is now in the British Museum. He completed in 1576 his two most important works, *The Complaint of Philomene*, and *The Steel Glass*, the first of which had occupied him since 1562; they were printed in a single volume. Later on in the same year he published *A delicate Diet for dainty-mouthed Drunkards*. He fell into a decline and died at Stamford on the 7th of October 1577. We are indebted for many particulars of his life to a rare poem published in the same year by George Whetstone, and entitled *A Remembrance of the Well-employed Life and Godly End of George Gascoigne, Esquire*. In his poem of *The Steel Glass*, in blank verse, Gascoigne introduced the Italian style of satire into our literature. He was a great innovator in point of metrical art, and he prefixed to the work in question a prose essay on poetry, which contains some very valuable suggestions. His great claim to remembrance was well summed up in the next generation by Thomas Nash, who remarked in his preface to Greene's *Menaphon*, that "Master Gascoigne is not to be abridged of his deserved esteem, who first beat the path to that perfection which our best poets aspired to since his departure, whereto he did ascend by comparing the Italian with the English." The works of Gascoigne were collected in 1587, and partly republished in 1810 and 1821. The best modern edition of the principal poems is that edited, with full bibliographical notes, by E. Arber in 1868.

GASCOIGNE, SIR WILLIAM, was chief-justice of England in the reign of Henry IV. Both history and tradition testify to the fact that he was one of the great lawyers who in times of doubt and danger have asserted the principle that the head of the state is subject to law, and that the traditional practice of public officers, or the expressed voice of the nation in parliament, and not the will of the monarch or any part of the legislature, must guide the tribunals of the country. The judge was a descendant of an ancient Yorkshire family. The date of his birth is uncertain, but it appears from the Year Books that he practised as an advocate in the reigns of Edward III. and Richard II. On the banishment of Henry of

Lancaster, Gascoigne was appointed one of his attorneys, and soon after Henry's accession to the throne was made chief-justice of the Court of King's Bench. After the suppression of the rising in the north in 1405, Henry eagerly pressed the judge to pronounce sentence upon Scrope, the archbishop of York, and the earl marshal Thomas Mowbray, who had been implicated in the revolt. The judge absolutely refused to do so, asserting the right of the prisoners to be tried by their peers. Although both were afterwards executed, the chief-justice had no part in the transaction. The often told tale of his committing the Prince of Wales to prison has of course been doubted by modern critics, but it is both picturesque and characteristic. The judge had directed the punishment of one of the prince's riotous companions, and the prince who was present and enraged at the sentence struck or grossly insulted the judge. Gascoigne immediately committed him to prison, using firm and forcible language, which brought him to a more reasonable mood, and secured his voluntary obedience to the sentence. The king is said to have approved of the act, but there appears to be good ground for the supposition that Gascoigne was removed from his post or resigned soon after the accession of Henry V. He died in 1419, and was buried in the parish church of Harewood in Yorkshire. Some biographies of the judge have stated that he died in 1412, but this is clearly disproved by Foss in his *Lives of the Judges*; and although it is clear that Gascoigne did not hold office long under Henry V., it is not absolutely impossible that the scene in the fifth act of the second part of Shakespeare's *Henry IV.* has some historical basis, and that the judge's resignation was voluntary.

GASCONY, an old province in the S.W. of France, nearly identical with the *Novempopulania* or *Aquitania Tertia* of the Romans. Its original boundaries cannot be stated with perfect accuracy, but it included what are now the departments of Landes, Gers, and Hautes-Pyrénées, and parts of those of Haute-Garonne and Ariège. Its capital was Auch. About the middle of the 6th century there was an incursion into this region of *Vascons* or *Vasques* from Spain, but whether of a hostile kind or not is uncertain; but as the original inhabitants, in common with those of the rest of Aquitaine were also *Vasques*, it is probable that the province owes its name Gascony less to this new incursion than to the fact that its inhabitants continued so long to maintain their independence. In 602 they suffered defeat from the Franks and were compelled to pay tribute, but they continued to be governed by their own hereditary dukes, and gradually extended the limits of their dominions to the Garonne. The province was overrun by Charlemagne but never completely subdued, and in 872 it formally renounced the authority of the French kings; but through the extinction of the male line of hereditary dukes of Gascony in 1054 it came into the possession of the dukes of Guienne (or Aquitaine), with which province its history was from that time identified (see AQUITANIA and GUIENNE).

GASKELL, ELIZABETH CLEGHORN (1810–1865), one of the most distinguished of England's women-novelists, was born at Cheyne Row, Chelsea, September 29, 1810. She was the second child of William Stevenson, of whom an account is given in the *Annual Biography and Obituary* for 1830. Mr Stevenson, who began life as classical tutor in the Manchester Academy, and preached also at Doblane, near that town, afterwards relinquished his ministry and became a farmer in East Lothian; and later, on the failure of his farming enterprises, he kept a boarding-house for students in Drummond Street, Edinburgh, where he also became editor of the *Scots Magazine*, and contributed largely to the *Edinburgh Review*. At the time of his daughter's birth Mr Stevenson had been appointed Keeper

of the Records to the Treasury, and was living in Chelsea, still a diligent contributor to various periodicals of the day. Mrs Stevenson, Mrs Gaskell's mother, was a Miss Holland; of Szadlebridge in Cheshire, an aunt of the late Sir Henry Holand. She died at the birth of her daughter, who was in a manner adopted, when she was only a month old, by her mother's sister, Mrs Lumb. This lady had married a wealthy Yorkshire gentleman, but a few months after her marriage, and before the birth of her child, discovered that her husband was insane, and fled from him to her old home in the little market town of Knutsford, in Cheshire. Mrs Lumb's own daughter having died, she transferred all her affection to the little Elizabeth, between whom and her there existed through life the strongest bond of affection. During Elizabeth's childhood at Knutsford she was visited now and then by her sailor-brother; but while she was still a girl he went to India, where he somewhat mysteriously, and without any apparent motive, disappeared, and all further trace of him was lost. She was afterwards sent for about two years to a school kept by a Miss Byerley at Stratford-on-Avon, and on leaving school went for a time to live with her father, who had married again. Under his guidance she continued her studies, reading with him in history and literature, and working, chiefly by herself, at Latin, Italian, and French, in all of which she was in later life proficient. Having tenderly nursed her father in his last illness, she returned to her aunt at his death in 1829; and, with the exception of one or two visits to Newcastle, London, and Edinburgh, she continued to live at Knutsford till her marriage. She had at this time a reputation for great beauty; and even in later life her exquisitely-shaped soft eyes retained their light, and her smile its wonderful sweetness. Her marriage to the Rev. William Gaskell, M.A., of Cross Street Chapel, Manchester, took place August 30, 1832, at Knutsford church; and during the earlier years of her married life Mrs Gaskell lived very quietly in Manchester, surrounded by a few intimate and cultured friends, and devoting all her time and abilities to the cares of a necessarily frugal household. Among these friendships, that with Miss Catherine Winkworth and her sisters was perhaps the longest and most cherished. From the first, although she never visited the poor as a member of any organized society, she sought by all means in her power to relieve the misery which, in a town like Manchester, she was constantly witnessing. She gave the most devoted help and tender sympathy to such cases of individual distress as came under her notice. She assisted Mr Travers Madge in his missionary work amongst the poor, and was the friend and helper of Thomas Wright, the prison philanthropist. She also made several individual friendships among poor people, and knew personally one or two types of the Chartist working-man. She was specially interested in the young working-women of Manchester, and for some years held a weekly evening class at her own house for talking with them and teaching them. Of Mrs Gaskell's seven children, two were still-born, and another, her only son, born between the third and fourth of her four living daughters, died at the age of ten months. The death of this baby is said to have been the cause of Mrs Gaskell's beginning to write, when she was urged by her husband to do so, in order to turn her thoughts from her own grief. She began by writing a short paper called "An Account of Clopton Hall," for William Howitt's *Visits to Remarkable Places*. This was followed by one or two short stories, such as the "Sexton's Hero," for the *People's Journal*; and then she wrote *Mary Barton, a Tale of Manchester Life*. On its completion, she sent it to one publisher in London who rejected it unread, and then to Messrs Chapman and Hall, who, after keeping the manuscript for a year without acknowledgment, wrote to her accepting the novel for

publication, and offering the authoress £100 for the copy-right. The appearance of *Mary Barton* in 1848 caused great excitement in Manchester, and a strong partisanship was felt for and against its anonymous author. After its publication Mrs Gaskell paid several visits in London, where she made many friends, among whom we may mention Dickens, Forster, Mrs Jameson, Lord Houghton, Mrs Stowe, Ruskin, and Florence Nightingale. Her friendship with Charlotte Brontë also dates from about this time, when the two authoresses met at the house of Sir James and Lady Kay Shuttleworth, near Bowness, in Westmoreland, and Mrs Gaskell received her first impressions of the shy "little lady in a black silk gown," who afterwards became personally her dear friend,—although, from a literary point of view, they could hardly help being rivals,—and the story of whose life, when it was ended, Mrs Gaskell was destined to write with such consummate care and tender appreciation. But *Mary Barton* was to prove only the first of a series of scarcely less popular publications, which appeared either independently or in periodicals such as *Household Words*. It was followed in 1850 by *The Moorland Cottage*. *Cranford* and *Ruth* appeared in 1853; *North and South*, in 1855; *The Life of Charlotte Brontë*, in 1857; *Round the Sofa*, in 1859; *Right at Last*, in 1860; *Sylvia's Lovers*, in 1863; and *Cousin Phillis* and *Wives and Daughters*, in 1865.

During these years—years of increasing worldly prosperity and literary distinction—Mrs Gaskell often went abroad, chiefly to Paris and Rome, but once for a long visit to Heidelberg, and once also to Brussels, to collect information about Charlotte Brontë's school-days. In Paris her genius was warmly appreciated; and, while she was a guest among them, Guizot, Montalémbert, and Odillon Barrot vied in doing her honour. Of her visits in England some of the pleasantest were to Oxford, where she counted among her friends Mr Jowett and Mr Stanley (dean of Westminster). At other times, when she was busy writing one of her novels, she would leave home with one or two of her children, and carry her manuscript to some quiet country place, where she could write undisturbed. When she was at home, although she was enthusiastically interested in the political questions of the day, and her warm, impulsive nature made her ready at any time to give personal help and sympathy where it seemed to be needed, Mrs Gaskell refrained from taking active part in public movements or social reforms, if we except, indeed, the great sewing-school movement in Manchester at the time of the cotton famine in 1862. Her life was thoroughly literary and domestic. She read much: Goldsmith, Pope, Cowper, and Scott were the favourite authors of her girlhood; in later life she admired Ruskin and Macaulay extremely, and delighted in many old French memoirs of the time of Madame de Sévigné, whose life she often planned to write. It is remembered of her that one day, when she was reading George Eliot's first and anonymous story *Amos Barton*, she looked up and said, "I prophesy that the writer of this will be a great writer some day." The prospect of the awful cotton famine in Manchester in 1862 set Mrs Gaskell anxiously thinking what could be done to relieve the coming distress, and she decided, "without any suggestions from others, on a plan of giving relief and employment together to the women mill-hands, which was an exact prototype of the great system of relief afterwards publicly adopted, namely, the sewing-schools." When these were formed, Mrs Gaskell "merged her private scheme in the public one, and worked most laboriously in the sewing-school nearest her home." This was but three years before her death. Still busy writing her novel *Wives and Daughters*, she was staying with her children at Holybourne, Alton, in Hampshire, a house which she had just purchased as a surprise and

gift to her husband, when she died suddenly of heart disease, about 5 o'clock on Sunday evening, November 12, 1865. Her remains were carried to the churchyard of the Old Presbyterian Meeting-house at Knutsford, where her childhood and girlhood had been spent, and which she had left as a bride, three-and-thirty years before. A memorial tablet in memory of Mrs Gaskell was erected by her husband's congregation, in Cross Street Chapel, Manchester—a tribute not only to her genius, and the spirit in which it was exercised, but to the "tenderness and fidelity" of the wife and mother who had lived long amongst them.

With this knowledge of the facts of Mrs Gaskell's life, it is not difficult to trace the sources of her inspirations. Some of her shorter tales, it is true, seem to have been suggested merely by her readings; and, carefully as she collected their materials, these are the least satisfactory of her writings. But by far the most of what she wrote was founded on observation and experience. Mrs Gaskell has reproduced, with slight variations, in her novel *North and South*, the incident in her father's youth, when he and his friend and fellow-student, the Rev. George Wicke of Monton, believing it wrong to be "hired teachers of religion," resigned their ministries and sought a livelihood otherwise. The beautiful story in "Mary Barton" of the two working-men who brought the baby from London to Manchester is a version of an anecdote about Mrs Gaskell's own infancy, of her being taken to Knutsford, after her mother's death, by a friend who chanced to be travelling that way. The little county town of "Cranford"—with its population of widows and maiden ladies, and its horror of the masculine portion of society—is Knutsford, so long Mrs Gaskell's home. In *Cranford* every character, if not every incident, is real; and the pathetic little story of *Poor Peter* can have been suggested only by the disappearance of that sailor brother who used to visit Mrs Gaskell in her girlhood, and whose mysterious loss also must have interested her always afterwards in "disappearances"—the title of one of her papers in *Household Words*. Pleasant months spent at Morecambe Bay and Silverdale initiated her in the mysteries of rural and farm life. Her visits to France were the origin of her tales of the Huguenots and the French refugees at the time of the Revolution. The Edinburgh of her girlhood appears in one or two of her stories, briefly but vividly sketched. Her schooldays at Stratford-on-Avon are remembered in *Lois the Witch*; and, if only in a little story like the visit to Heppenheim, we can trace her excursions from Heidelberg along the broad, white Bergstrasse. But it is most of all in *Mary Barton*, a story of the trials and sorrows of the poor in Manchester, whom she had had so many opportunities of observing, that Mrs Gaskell gave her personal knowledge and experience to the world. Her severest critic, Mr W. R. Greg, admits Mrs Gaskell's knowledge of her subject, but objects to the impression left by the novel on the mind of the reader as inaccurate and harmful. "Were *Mary Barton*," he says, "to be only read by Manchester men and master manufacturers, it could scarcely fail to be serviceable, because they might profit by its suggestions, and would at once detect its exaggerations and mistakes;" but on the general public he fears its effect will be "mischievous in the extreme." One doubts whether a calm solution of a great economic difficulty, such as that which Mrs Gaskell treats of, could ever be given in a novel; and certainly the warm-hearted, impulsive authoress of *Mary Barton* had no such aim in view. It is probable that she wrote without any distinct economic theories. Earnest, benevolent intentions she no doubt had, but she was far more of an artist than a reformer. Had it not been so, *Mary Barton* would not

rank so high in the literature of fiction as it does. It is no work of occasion, the chief interest of which departs when the occasion itself is over. It is a thoroughly artistic production, and for power of treatment and intense interest of plot has seldom been surpassed. It is as the authoress of *Mary Barton* that Mrs Gaskell will be remembered. Of her other works, *Ruth* is singularly inferior to its predecessor; but *North and South*, which takes the side of the master manufacturers, as *Mary Barton* did that of the men, has been scarcely less popular with the public. Perhaps the two best of Mrs Gaskell's productions, each in its own way, are the exquisitely humorous *Cranford* and *Cousin Phillis*, which has been fitly called an idyll in prose. *Wives and Daughters*, even in its uncompleted state, is artistically almost faultless, and full of a quiet restful beauty entirely its own. George Sand was a great admirer of this novel, and Mrs Gaskell's family still cherish a saying of hers about it:—"It is a book," she once said to Lord Houghton, "that might be put into the hands of an innocent girl, while at the same time it would rivet the attention of the most blasé man of the world." Her one work which is not a novel—her *Life of Charlotte Brontë*—it is difficult to praise too highly, either as a biography proper, or as a narrative written with the consummate skill of the novelist. Some people, indeed, have thought that Mrs Gaskell transgressed the bounds of the biographer in publishing so many details of Miss Brontë's domestic and private life; but the case was a peculiar one. The character of Charlotte Brontë's writings made it advisable that her reader, in order properly to understand her, should be admitted to some of the hitherto hidden facts of her short, sad life. Mrs Gaskell, knowing and esteeming Charlotte Brontë in the character of friend, daughter, and wife, hoped in some degree to justify to the world the morbid, unhealthy tone which pervaded her genius; and surely, if any hand was to draw the curtain, none could have done it more tenderly than that of her friend. (F. M.)

GASSENDI, PIERRE (1592-1655), one of the most eminent French philosophers, was born of poor but respectable parentage at Champtercier, near Digne, in Provence, on the 22d January 1592. At a very early age he gave indications of remarkable mental powers, and at the instance of his uncle, the curé of his native village, he was sent to the college at Digne. He made rapid progress in his studies, showing particular aptitude for languages and mathematics, and it is said that at the age of sixteen he was invited to lecture on rhetoric at the college. He cannot have retained this post for any length of time, for soon afterwards he entered the university of Aix, to study philosophy under Fesaye. In 1612 he was called to the college of Digne to lecture on theology. Four years later he received the degree of doctor of theology at Avignon, and in 1617 he took orders as a priest. In the same year he was called to the chair of philosophy at Aix, and seems gradually to have withdrawn from theological study and teaching.

At Aix he lectured principally on the Aristotelian philosophy, conforming as far as possible to the orthodox methods. At the same time, however, he prosecuted his favourite studies, physics and astronomy, and by the discoveries of Galileo, Kepler, and others became more and more dissatisfied with the Peripatetic system. It was, indeed, the very period of violent revolt against the authority of Aristotle, and Gassendi shared to the full the practical and empirical tendencies of the age. He, too, began to draw up in form his objections to the Aristotelian philosophy, but did not at first venture to publish them. The portion shown to his friends Peiresc and Gautier, however, was so vehemently approved by them that in 1624, after he had left Aix for a canonry at Grenoble, he printed the first part of his *Esercitations paradoxice*

aversus Aristoteles. A fragment of the second book was published later (1659), but the remaining five, requisite to complete the work, were never composed, Gassendi apparently thinking that after the *Discussiones Peripateticæ* of Patricius little field was left for his labours.

The *Exercitationes* on the whole seem to have excited more attention than they deserved. They contain little or nothing beyond what had been already advanced against Aristotle by the more vigorous of the Humanists, by Valla and Vives, by Ramus and Bruno. The first book expounds clearly, and with much vigour, the evil effects of the blind acceptance of the Aristotelian dicta on physical and philosophical study; but, as is the case with so many of the anti-Aristotelian works of this period, the objections do not touch the true Aristotelian system, and in many instances show the usual ignorance of Aristotle's own writings. The second book, which contains the review of Aristotle's dialectic or logic, is throughout Ramist in tone and method.

After a short visit to Paris in 1628, Gassendi travelled for some years in Flanders and Holland with his friend Luillier. During this time he wrote, at the instance of Mersenne, his examination of the mystical philosophy of Robert Fludd (*Epistolica dissertatio in qua præcipua principia philosophiæ Ro. Fluddi deteguntur*, 1631), an essay on parhelia (*Epistola de Parheliis*), and some valuable observations on the transit of Mercury which had been foretold by Kepler. He returned to France in 1631, and two years later received the appointment of provost of the cathedral church at Digne. Some years were then spent in travelling through Provence with the duke of Angoulême, governor of the department. The only literary work of this period is the *Life of Peiresc*, which has been frequently reprinted, and was translated into English. In 1642 he was again engaged by Mersenne in controversy, on this occasion against the celebrated Descartes. His objections to the fundamental propositions of Descartes were published in 1642; they appear as the fifth in the series contained in the works of Descartes. In these objections Gassendi's already great tendency towards the empirical school of speculation appears more pronounced than in any of his other writings. In 1645 he was invited by the archbishop of Lyons, brother of Cardinal Richelieu, to the chair of mathematics in the Collège Royal at Paris. He accepted this post, and lectured for many years with great success. In addition to some controversial writings on physical questions, there appeared during this period the first of the works by which he is best known in the history of philosophy. He evidently found himself more in harmony with Epicurus than with any other philosopher of antiquity, and had collected much information regarding the Epicurean system. In 1647 Luillier persuaded him to publish some of his works, which took the form of the treatise *De Vita, Moribus, et Doctrina Epicuri libri octo*. The work was well received, and two years later appeared his commentary on the tenth book of Diogenes Laertius (*De Vita, Moribus, et Placitis Epicuri, seu Animadversiones in X. librum Diog. Laer.*). In the same year the more important *Syntagma philosophiæ Epicuri* was published.

In 1648 Gassendi had been compelled from ill-health to give up his lectures at the Collège Royal. He travelled for some time in the south of France, spending nearly two years at Toulon, the climate of which suited him. In 1653 he returned to Paris and resumed his literary work, publishing in that year his well-known and popular lives of Copernicus and Tycho Brahe. The disease from which he suffered, lung complaint, had, however, established a firm hold on him. His strength gradually failed, and he died at Paris on the 24th October 1655, in the sixty-third year of his age.

His collected works, of which the most important is the *Syntagma Philosophicum* (*Opera*, i. and ii.), were published in 1655 by Montmort (6 vols. fol., Lyons). Another edition, also in 6 folio volumes, was published by Averanius in 1727. These volumes sufficiently attest the wide extent of his reading and the versatility of his powers. The first two are occupied entirely with his *Syntagma Philosophicum*; the third contains his critical writings on Epicurus, Aristotle, Descartes, Fludd, and Lord Herbert, with some occasional pieces on certain problems of physics; the fourth, his *Institutio Astronomica*, and his *Commentarii de Rebus Cælestibus*; the fifth, his commentary on the tenth book of Diogenes Laertius, the biographies of Epicurus, Peiresc, Tycho Brahe, Copernicus, Peurbach, and Regiomontanus, with some tracts on the value of ancient money, on the Roman calendar, and on the theory of music, to all which is appended a large and prolix piece entitled *Notitia Ecclesiæ Diniensis*; the sixth volume contains his correspondence. The *Lives*, especially those of Copernicus, Tycho, and Peiresc, have been justly admired. That of Peiresc has been repeatedly printed; it has also been translated into English. Gassendi was one of the first after the revival of letters who treated the literature of philosophy in a lively way. His writings of this kind, though too laudatory and somewhat diffuse, have great merit; they abound in those anecdotal details, natural yet not obvious reflexions, and vivacious turns of thought, which made Gibbon style him, with some extravagance certainly, though it was true enough up to Gassendi's time—"le meilleur philosophe des litterateurs, et le meilleur litterateur des philosophes."

Gassendi will always retain an honourable place in the history of physical science. He certainly added little original to the stock of human knowledge, but the clearness of his exposition and the manner in which he, like his greater contemporary, Bacon, urged the necessity and utility of experimental research, were of inestimable service to the cause of science. To what extent any place can be assigned him in the history of philosophy is more doubtful. His anti-Aristotelian writing has been already noticed. The objections to Descartes—one of which at least, through Descartes's statement of it, has become famous—have no speculative value, and in general are the outcome of the crudest empiricism. His labours on Epicurus have a certain historical value, but the inherent want of consistency in the philosophical system raised on Epicureanism is such as to deprive it of all genuine worth. Along with strong expressions of empiricism (*nihil in intellectu quod non prius fuerit in sensu*) we find him holding doctrines absolutely irreconcilable with empiricism in any form. For while he maintains constantly his favourite maxim "that there is nothing in the intellect which has not been in the senses," and while he contends that the imaginative faculty, "phantasia," is the counterpart of sense, that, as it has to do with material images, it is itself, like sense, material, and essentially the same both in men and brutes, he at the same time admits that the intellect, which he affirms to be immaterial and immortal—the most characteristic distinction of humanity—attains notions and truths of which no effort of sensation or imagination can give us the slightest apprehension (*Op.*, ii. 383). He instances the capacity of forming "general notions;" the very conception of universality itself (*ib.*, 384), to which he says brutes, who partake as truly as men in the faculty called "phantasia," never attain; the notion of God, whom he says we may imagine to be corporeal, but understand to be incorporeal; and lastly, the reflex action by which the mind makes its own phenomena and operations the objects of attention.

The *Syntagma Philosophicum*, in fact, is one of the eclectic systems which unite, or rather place in juxtaposition, irreconcilable dogmas from various schools of thought.

It is divided, according to the usual fashion of the Epicureans, into logic (which, with Gassendi as with Epicurus, is truly *canonic*), physics, and ethics. The logic, which contains at least one praiseworthy portion, a sketch of the history of the science, is divided into theory of right apprehension (*bene imaginari*), theory of right judgment (*bene proponere*), theory of right inference (*bene colligere*), theory of right method (*bene ordinare*). The first part contains the specially empirical positions which Gassendi afterwards neglects or leaves out of account. The senses, the sole source of knowledge, are supposed to yield us immediately cognition of individual things; phantasy (which Gassendi takes to be material in nature) reproduces these ideas; understanding compares these ideas, which are particular, and frames general ideas. Nevertheless, he at the same time admits that the senses yield knowledge—not of things—but of qualities only, and holds that we arrive at the idea of thing or substance by induction. He holds that the true method of research is the analytic, rising from lower to higher notions; yet he sees clearly, and admits, that inductive reasoning, as conceived by Bacon, rests on a general proposition not itself proved by induction. He ought to hold, and in disputing with Descartes he did apparently hold, that the evidence of the senses is the only convincing evidence; yet he maintains, and from his special mathematical training it was natural he should maintain, that the evidence of reason is absolutely satisfactory. The whole doctrine of judgment, syllogism, and method is a mixture of Aristotelian and Ramist notions.

In the second part of the *Syntagma*, the physics, there is more that deserves attention; but here, too, appears in the most glaring manner the inner contradiction between Gassendi's fundamental principles. While approving of the Epicurean physics, he rejects altogether the Epicurean negation of God and particular providence. He states the various proofs for the existence of an immaterial, infinite, supreme Being, asserts that this Being is the author of the visible universe, and strongly defends the doctrine of the foreknowledge and particular providence of God. At the same time he holds, in opposition to Epicureanism, the doctrine of an immaterial, rational soul, endowed with immortality and capable of free determination. It is altogether impossible to assent to the supposition of Lange (*Gesch. des Materialismus*, 3d ed., i. 233), that all this portion of Gassendi's system contains nothing of his own opinions, but is solely introduced from motives of self-defence. The positive exposition of atomism has much that is attractive, but the hypothesis of the *calor vitalis*, a species of *anima mundi* which is introduced as physical explanation of physical phenomena, does not seem to throw much light on the special problems which it is invoked to solve. Nor is his theory of the weight essential to atoms as being due to an inner force impelling them to motion in any way reconcilable with his general doctrine of mechanical causes.

In the third part, the ethics, over and above the discussion on freedom, which on the whole is indefinite, there is little beyond a milder statement of the Epicurean moral code. The final end of life is happiness, and happiness is harmony of soul and body, *tranquillitas animi et indolentia corporis*. Probably, Gassendi thinks, perfect happiness is not attainable in this life, but it may be in the life to come.

The *Syntagma* is thus an essentially unsystematic work, and clearly exhibits the main characteristics of Gassendi's genius. He was critical rather than constructive, widely read and trained thoroughly both in languages and in science, but deficient in speculative power and original force. Even in the department of natural science, he shows the same inability steadfastly to retain principles and to work from them; he wavers between the systems of Brahe and

Copernicus. That his revival of Epicureanism had an important influence on the general thinking of the 17th century may be admitted; that it has any real importance in the history of philosophy cannot be granted.

Gassendi's life is given by Sorbière in the first collected edition of the works, by Bugerel, *Vie de Gassendi*, 1737 (2d ed., 1770), and by Damiron, *Mémoire sur Gassendi*, 1839. An abridgment of his philosophy was given by his friend, the celebrated traveller, Bernier (*Abrégé de la Philosophie de Gassendi*, 8 vols., 1678; 2d ed., 7 vols., 1684). The most complete surveys of his work seem to be those of Buhle (*Geschichte der neuern Philosophie*, iii., 1, 87–222), and Damiron (*Mémoires pour servir à l'Histoire de Philosophie au 17^{me} Siècle*). See also Ritter, *Geschichte der Philosophie*, x. 543–571; Feuerbach, *Gesch. d. neu. Phil. von Bacon bis Spinoza*, 127–150. (R. AD.)

GASTEIN, a beautiful and picturesque valley in the Austrian duchy of Salzburg, celebrated for its mineral springs. It is a side valley of the upper Salzach valley, and is about 25 miles long and 1½ miles broad. It has an elevation of between 3000 and 3500 feet. Behind it, to the south, tower the mountains Malnitz or Nassfeld-Tauern, 7820 feet high, and the Ankogel, 10,700 feet high, and from the right and left of these mountains two smaller ranges run northwards forming its two side walls. The river Ache traverses the valley, and near Wildbad-Gastein forms two magnificent waterfalls, the upper, the Kesselfall, 200 feet, and the lower, the Bärenfall, 280 feet in height; and near these falls another called the Schleierfall, 250 feet high, is formed by the stream which drains the Pockhart-See. The principal villages are Bockstein, Hof-Gastein, and Wildbad-Gastein, and the population of the whole valley is about 3800. Hof-Gastein, with a population of about 1000, possesses gold and silver mines which in the 16th century yielded 1180 lb of gold and 9500 lb of silver annually. They are now, however, much neglected and many of the old mines are covered by glaciers. The village contains a military hospital, and in the open platz there is a bust of the emperor Francis I. who, in 1828, caused a conduit of upwards of 5 miles long to be constructed for the purpose of conveying the mineral waters thither from Wildbad. Wildbad, the principal watering-place, is visited by upwards of 3000 persons annually, and among its visitors is the present emperor of Germany. The thermal springs, which were known as early as the 7th century, issue from the granite mountains, and have a temperature of 117° Fahr. They are made use of in cases of nervous affections, general debility, and skin diseases; but the reason of their efficacy is somewhat mysterious, as chemical analysis discovers only a slight difference in the ingredients from those of ordinary spring water. The village is formed chiefly of wooden houses rising above one another in terraces. A number of stone houses have, however, been built of late; and there are several fine villas, one of which was constructed by the archduke John of Austria, and has a botanical garden.

The baths of Gastein first came into fame through a successful visit paid to them by Duke Frederick of Austria in 1436. The valley from the 11th century belonged to the dukes of Peilstein, and on the extinction of their line in 1219 it came into possession of Bavaria, whence it passed in 1297 by purchase to Salzburg. A convention was held at Wildbad-Gastein in August 1865, between the emperor Francis Joseph of Austria and King William of Prussia, at which an arrangement was signed in reference to the relations of Austria and Prussia to Schleswig-Holstein and Lanenburg (see AUSTRIA).

The principal books on Gastein are Reissacher, *Der Kurort Wildbad-Gastein*, 1865; Bunzel, *Bad-Gastein*, 1872; Hönigsberg, *Gastein*, 1873; and *A Month at Gastein*, London, n.d.

GATAKER, THOMAS (1574–1654), a learned English divine, was born in London in 1574, and educated at St John's College, Cambridge. From 1601 to 1611 he held the appointment of preacher to the society of Lincoln's Inn, which he resigned on obtaining the rectory of Rotherhithe. In 1642 he was chosen a member of the

Assembly of Divines at Westminster. The parts of the Assembly's annotations upon the Bible which were executed by him are those on Isaiah, Jeremiah, and the Lamentations. At Westminster he disapproved of the introduction of the Covenant, and declared himself in favour of Episcopacy. He was also one of the forty-seven London clergymen who disapproved of the trial of Charles I. He died in 1654. His principal works, besides some volumes of sermons, are—*On the Nature and Use of Lots*, 1616, a curious treatise which gave rise to much controversy; *Dissertatio de Stylo Novi Testamenti*, 1648; *Cinnus, sive Adversaria Miscellanea, in quibus Sacra Scripturae primo, deinde aliorum Scriptorum, locis aliquam multis lux redditur*, 1651, to which was afterwards subjoined *Adversaria Posthuma*; and his edition of *Marcus Antoninus*, which, according to Hallam, is the "earliest edition of any classical writer published in England with original annotations," and for the period at which it was written possesses remarkable merit. The best edition of his works is that published at Utrecht in 1668.

GATCHINA, a town of Russia, in the government of St Petersburg and district of Tsarskoselo, 29 miles W. of St Petersburg, in 59° 34' N. lat. and 30° 6' E. long. It is situated in a flat, well-wooded, and partly marshy district, and on the south side of the town are two lakes, distinguished as the White and the Black. Among its more important buildings are the imperial palace, which was founded in 1770 by Prince Orloff, and executed according to the plans of the Italian architect Rinaldi, the four Greek churches, the Protestant church, a founding asylum, a military orphanage founded in 1803 by Maria Feodorina, a school for horticulture, a public hospital for 1500 patients, founded by Paul I., an asylum for the families of twenty blind men, and another for fifty poor peasants. In one of the Greek churches are preserved several relics originally brought from Rhodes to Malta by the grand-master Lill Adam; and the so-called priory is shown where the knights of Malta assembled under the mastership of the emperor Paul I. Gatchina is a junction on the railway between St Petersburg and Warsaw, but its trade is of no great development. Among the few industrial establishments is a porcelain factory. The inhabitants in 1860 numbered 9184, of whom 2255 were members of the National Church, 1431 Protestants, 182 Catholics, and 50 Jews. By 1867 the total had sunk to 8337; but according to the *St Petersburg Calendar* for 1878 it has again risen to 8890.

GATES, HORATIO (1728–1806), an American general, was born at Maldon in Essex, England, in 1728. He entered the English army at an early age, and soon obtained considerable promotion. He was severely wounded while accompanying General Braddock in his unfortunate expedition against the French settlements on the Ohio in 1755, and he took part in the expedition against Martinico in January 1762. After the peace of 1763 he purchased an estate in Virginia, where he resided till the commencement of the revolutionary war in 1775, when he was named by congress adjutant-general. In 1776 he was appointed to command the army on Lake Champlain; but, his conduct there not having been approved of, he was superseded in the following spring; yet in August he was sent to oppose General Burgoyne, whom he totally defeated on the 16th of October, and compelled to surrender his whole army,—an achievement which was, however, largely due to the previous manoeuvres of Schuyler, whom Gates superseded. After obtaining the chief command in the southern districts, Gates was totally defeated at Camden, in South Carolina, by Lord Cornwallis, on the 16th of August 1780. On this account he was superseded by General Greene; but an investigation into his conduct terminated in acquitting him

fully and honourably of all blame, on the ground that his defeat had been unavoidable in the disorganized state of the army under his command. After this he again retired to his Virginian estate, whence he removed to New York in 1800. On his arrival he was immediately admitted to the freedom of the city, and then elected a member of the State legislature. Before his departure from Virginia he granted emancipation to his slaves, accompanying their manumission with a provision for those who needed assistance. He died on the 10th of April 1806.

GATESHEAD, a municipal and parliamentary borough and market-town of England, county of Durham, is situated on the right bank of the Tyne, opposite Newcastle, of which it practically forms a part, being united with it by three bridges. The town consists of two principal and nearly parallel streets, from which others diverge in various directions. A great fire which occurred in 1854 was taken advantage of for the carrying out of improvements in the old part of the town, and it is now much less crowded than formerly. In the suburbs there are a considerable number of fine mansions. The parish church, recently restored, is an ancient cruciform edifice surmounted by a lofty tower; and several of the other churches and chapels are handsome buildings. The Wesleyan and Primitive Methodists, the Congregationalists, Baptists, Presbyterians, and Roman Catholics are all represented. The town possesses a fine cemetery, a well laid out public park, a new town-hall, a grammar school, a hospital (St Edmund's) for fifteen indigent persons, a reformatory, a mechanics' institute, and a dispensary. There are large iron works (including foundries and factories for engines, boilers, chains, and cables), shipbuilding yards, glass manufactories, chemical, soap, and candle works, brick and tile works, breweries and tanneries. The town also contains the principal dépôt of the North-Eastern Railway, with large stores and locomotive works. Extensive coal mines exist in the vicinity; and at Gateshead Fell are large quarries for grindstones, which are much esteemed and are exported to all parts of the world.

The large number of Roman relics found at Gateshead would seem to indicate that it was originally an outwork of the Roman station at Newcastle. The name is mentioned as early as 1080, and in 1164 the bishop of Durham granted to its burgesses equal privileges with those of Newcastle. On the dissolution of the see of Durham in 1552, an Act was passed for uniting the town to the borough of Newcastle, but on the restoration of the rights of the bishopric it was again placed under that jurisdiction, being governed, from 1317 to 1695, with the exception of that short intermission, by a bailiff nominated by the bishop. From 1695 to 1826, when it became a municipal borough, it was governed by two stewards, elected by the inhabitants. Gateshead returns one member to parliament. The population of the municipal borough, which in 1861 was 33,587, was 48,627 in 1871.

GATH, one of the five chief cities of the Philistines. Its site appears to have been known in the 4th century, but the name is now lost. Eusebius (in the *Onomasticon*) places it near the road from Eleutheropolis (Beit Jibrin) to Diospolis (Ludd) about 5 Roman miles from the former. The Roman road between these two towns is still traceable, and its milestones remain in places. East of the road at the required distance rises a white cliff, almost isolated, 300 feet high, and full of caves. On the top is the little mud village of Tell-es-Sâfi ("the shining mound"), and round it are the mounds which mark the site of the crusading castle of Blanchegarde (Alba Custodia), built in 1144. Tell-es-Sâfi was known by its present name as far back as the 12th century, but it appears probable that the strong site here existing represents the ancient Gath. The cliff stands on the south bank of the valley of Elah, and Gath appears to have been near this valley (1 Sam. xvii. 2, 52). The name Gath, meaning a "winepress," designates several other places in Palestine.

GATTY, MRS ALFRED (1809–1873), daughter of the Rev. Dr Scott, chaplain to Lord Nelson, was born at Burnham, Essex, in 1809. In 1839 Margaret Scott was married to the Rev. Alfred Gatty, D.D., vicar of Ecclesfield near Sheffield, sub-dean of York Cathedral, and the author of various works both secular and religious. In 1842 she published in association with her husband a life of her father, the Rev. Dr Scott; but her first independent work was *The Fairy Godmother and other Tales*, which appeared in 1851. This was followed in 1855 by the first of five volumes of *Parables from Nature*, the last being published in 1871. It is under the nom de plume of Aunt Judy, as a pleasant and instructive writer for children, that Mrs Gatty is most widely known. Previous to commencing *Aunt Judy's Magazine* in May 1866, she had brought out *Aunt Judy's Tales* and *Aunt Judy's Letters*; and among the other children's books which she subsequently published, were *Aunt Judy's Song Book for Children* and *The Mother's Book of Poetry*. Besides other excellences her children's books are specially characterized by wholesomeness of sentiment and cheerful humour. Her miscellaneous writings include, in addition to several volumes of tales, *The Old Folks from Home*, an account of a holiday ramble in Ireland; *The Travels and Adventures of Dr Wolf the Missionary*, in which she was assisted by her husband; *British Sea Weeds*; *Ways and Strays of Natural History*; *A Book of Emblems*; and *The Book of Sun-Dials*. She died October 3, 1873.

GAUDEN, JOHN (1605–1662), the reputed author of the *Eikon Basilike*, was born in 1605 at Mayfield in Essex, of which parish his father was vicar. He was educated at Bury St Edmunds, and afterwards at St John's College, Cambridge. He obtained about 1630 the vicarage of Chippenham in Cambridgeshire, and the rectory of Brightwell in Berkshire. At the breaking out of the civil war he was domestic chaplain to Robert Rich, second earl of Warwick, one of the parliamentary leaders, and, being selected to preach before the House of Commons in 1640, was presented with a silver tankard for his discourse. In 1641 he was appointed by the parliament to the deanery of Bocking, in Essex. He became master of the Temple in 1659, in succession to Dr Ralph Brownrigg, bishop of Exeter, and after the Restoration in November 1660 was appointed to the same diocese. Between 1642, the date of his first printed work, and 1660 he published some thirteen or more books, of which number, however, only one appeared prior to the execution of the king. Soon after his appointment to the see of Exeter, he privately laid claim to the authorship of the *Eikon Basilike*, a work commonly attributed at the time to Charles I. This claim Gauden put forth in a correspondence with the Lord Chancellor Hyde, earl of Clarendon, and the earl of Bristol, from 21st December 1660 to 31st March 1662. The letters of Gauden among them have been published in Dr Maty's *Review* in 1782, and again in the Appendix to vol. iii. of the *Clarendon Papers*. In the year 1693 a Mr Arthur North of London, who had married a sister of Dr Gauden's daughter-in-law, published a series of letters which he had found among his sister-in-law's papers, and which added materially to the strength of the bishop's claim. They consisted of the other side of the correspondence referred to above, viz., a letter from Secretary Sir Edward Nicholas to Gauden in January 1660–1, two from the bishop to Chancellor Hyde in December 1661 and the duke of York in January 1661–2, and one from Hyde to the bishop in March 1661–2. These letters, however, have been regarded with considerable suspicion by late writers on the subject, and have even been pronounced to be forgeries by some, who have pointed out that the two letters written by Gauden himself to Clarendon and the duke of York were found in the bishop's

house, not among the papers of the persons to whom they were directed. The letter also from Clarendon to Gauden, though written nine months after his obtaining his earldom, is signed Edward Hyde, a blundering anachronism which points to the unskilful hand of a forger. The whole question of the claims of Charles I. and Dr Gauden was discussed at great length and with considerable ability and ingenuity from 1824 to 1829 by Dr Christopher Wordsworth, master of Trinity College, Cambridge, on behalf of the king, and the Rev. H. J. Todd on the side of Dr Gauden. Fresh evidence, however, has lately turned up in the shape of letters and papers of Charles II. and his ministers, written soon after the execution of the king, which go far to invalidate if not entirely destroy the claim of Dr Gauden, and prove that those persons to whom he most confidently appealed in support of his pretensions were the strongest upholders of the king's authorship at the time immediately subsequent to the appearance of the work. In 1662, on the death of Brian Duppa, bishop of Winchester, Dr Gauden applied to be translated from Exeter to that see, but his claims were set aside in favour of George Morley, bishop of Worcester, and the vacancy thus created was filled by the bishop of Exeter. He only lived four months after this last promotion, and dying on 20th September 1662, was buried in Worcester Cathedral. His will is preserved in the Prerogative Office of Canterbury.

He left a widow, the daughter of Sir William Russell of Chippenham, who after her husband's death wrote a letter to her son John on the subject of the king's book, and enclosed in it a narrative of the whole claim. This was published with the correspondence mentioned above by Mr North in 1693. She also erected a monument to the bishop's memory in Worcester Cathedral, representing him with the *Eikon Basilike* in his hand.

GAUDICHAUD-BEAUPRÉ, CHARLES (1789–1854), a French botanist, was born at Angoulême, September 4, 1789. He studied pharmacy first in the shop of a brother-in-law at Cognac, and then under Professor Robiquet at Paris, where from Desfontaines and L. C. Richard he acquired a knowledge of botany. In April 1810 he was appointed dispenser in the military marine, and from July 1811 to the end of 1814 he served at Antwerp. In September 1817 he joined the corvette "Uranie," as pharmaceutical botanist to the circumpolar expedition commanded by De Freycinet (see vol. ix. p. 777). The wreck of the vessel on the Falkland Isles, at the close of the year 1819, deprived him of more than half the botanical collections he had made in various parts of the world. In 1830–33 he visited Chili, Peru, and Brazil, and in 1836–37 he acted as botanist to "La Bonite" during its circumnavigation of the globe. His theory accounting for the growth of plants by the supposed coalescence of elementary "phytons" involved him, during the latter years of his life, in much controversy with his fellow-botanists, more especially M. de Mirbel. He died January 16, 1854.

Besides his *Botanique du Voyage autour du Monde, exécuté pendant les Années 1836–1837*, 4 vols. fol., with plates, which included several previous works, Gaudichaud-Beaupré wrote "Lettres sur l'Organographie et la Physiologie," *Arch. de Botanique*, ii., 1833; "Recherches générales sur l'Organographie," &c. (prize essay, 1835), *Mém. de l'Académie des Sciences*, t. viii., and kindred treatises, besides memoirs on the potato-blight, the multiplication of bulbous plants, the increase in diameter of dicotyledonous vegetables, and other subjects; and *Réfutation de toutes les Objections contre les nouveaux Principes Physiologique*, 1852. See *Biographie Universelle*, t. xvi., 1856.

GAUERMANN, FRIEDRICH (1807–1862), an Austrian painter, son of the landscape painter Jacob Gauermann (1773–1843), was born at Wiesenbach near Gutenstein, in Lower Austria, 20th September 1807. It was the intention of his father that he should devote himself to agriculture, but the example of an elder brother, who, however, died