

READERS' AND STUDENTS' NOTES

1. Alexander von Humboldt was once a frequent subject of popular biography, but in recent years few accounts of him have been written. This is not because of any change in the world's estimate of Humboldt, but simply because the world as a rule takes more interest in contemporary great men, than in the great men of a bygone age. An excellent account of Humboldt and of his work, suitable for popular reading, is Schwarzenberg's "*Alexander von Humboldt, or What May Be Accomplished in a Lifetime.*"

2. A similar work is Professor Klencke's "*Alexander von Humboldt, a Biographical Monument.*" This has been translated from the German by Juliette Bauer.

3. The well known publishers, T. Nelson & Sons, issue a similar work, beautifully illustrated and adapted to young people, entitled "*The Story of the Life and Travels of Alexander von Humboldt.*"

Sir Humphry Davy

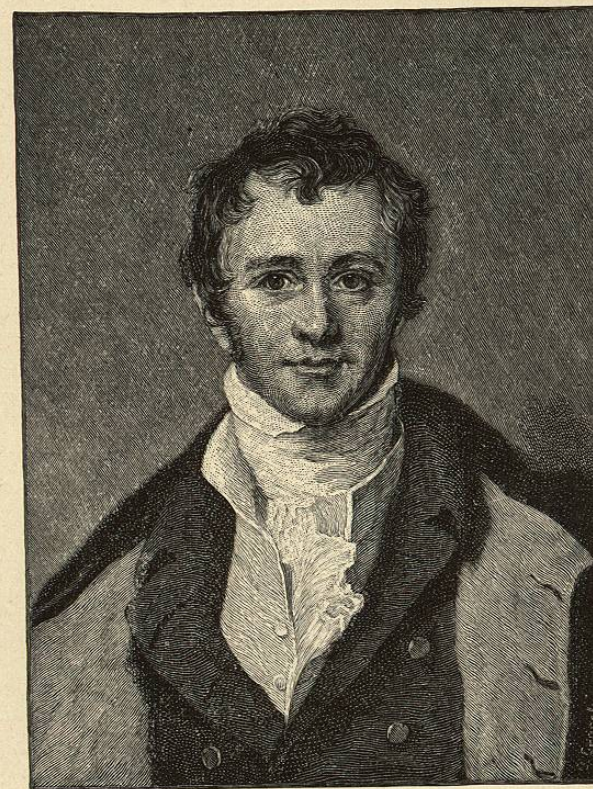
guages, logic, rhetoric, astronomy, mathematics, etc.—and drew up methods by which, although unaided by teachers, he would endeavor to master them. Especially minute and careful was his scheme for attacking the physical sciences, although at the time several of these were little more than terræ incognitæ to the human intellect. Nor did this course, so grandly planned, remain a mere figment of an imaginative ambition. He actually in several of these branches of knowledge made his way unaided for a considerable distance, and in all of them showed an independence of judgment, and an originality of thought and conception, that in one so young were little short of marvelous.

Two pursuits, however, of those years had more fascination for Davy than all others. He was a poet born—in temperament and in mental constitution—and his notebooks, in addition to being replete with observations and reflections that bespoke his poetic feeling, were graced with not a few actual poems of real merit. For physical investigation, too, he showed a bent that was but the budding forth of genius; and even in those early years he became not merely an ardent but a successful chemist. His laboratory was only a corner of a back room in the apothecary's shop, or a garret in the house of a friend who, for his mother's sake, was kind to him. His apparatus consisted merely of bottles, wine glasses, cups, saucers, and tobacco pipes, with an occasional apothecary's crucible. With a physician's syringe, it is said, he had made a rude sort of air pump. And yet with such aids as these he pursued investigations that would have taxed the skill and ingenuity of almost any other physicist living, even with the resources of a kingdom to fall back on. Of course he

soon acquired a reputation, and one that grew apace; but at first he was only a local wonder. "This boy Humphry is incorrigible; he will blow us all into the air," was the frequent ejaculation of the good man Tonkin who had given him the use of the garret. "I tell thee what, Humphry, thou art the most quibbling hand at a dispute I ever met with in my life," was the frequent ejaculation of a Quaker friend who used to try conclusions with him in ethical and religious matters. All this, however, was at the beginning. Soon a Mr. Gilbert heard of him, a gentleman of the place who had both a library and a laboratory—the library having books of science in it, and the laboratory a real air pump—and he invited him to make use of them. Then the young philosopher's reputation took on a larger scope. A Dr. Beddoes heard of him, a gentleman who was trying to interest people of liberal sentiments and an interest in science in a "pneumatic institution" he was establishing in Bristol that was intended for the cure of disease by inhalation of various sorts of gases. Dr. Beddoes sought out Davy and Davy showed him some essays he had written—one on "*Heat, Light and the Combinations of Light*;" another on "*The Causes of Color in Organic Beings*." Dr. Beddoes at once recognized in Davy the sort of ability needed to make his institution a success, and he offered to place him at the head of it as experimenter and manager of the hospital. Davy was willing to accept the offer; the only bar was the indenture of apprenticeship. The apothecary, however, canceled the indenture—"on account of your excellent behavior," so he testified. And thus a youth not much past nineteen was put in charge of an institution established by philanthropic people for the purpose of healing

the sick by means of remedies whose values were still unknown.

At first sight it would seem as if there were something of quackery in this new occupation of Davy's. But in reality there was none. Dr. Beddoes was a duly qualified physician, and he was sincerely desirous that his scheme should be a benefit to humanity. But, as he lamented on his deathbed, he was much given to "mental aberrations," and this "pneumatic institution" was one of them. It must be admitted, however, that in putting young Humphry Davy at the head of his institution he came as near making it a scientific success as was possible. Davy liked his place and work exceedingly. Mrs. Beddoes, who was a sister of the celebrated Irish novelist, Maria Edgeworth, was a woman of culture and great kindness of heart, and Davy found in his association with her an inspiration to do his very best. He also fell in with and became one of that remarkable literary coterie of the Bristol of that time, of which Coleridge, Wordsworth, and Southey, were the well-known leaders. And he found Beddoes willing to assist him in his work to the very utmost. But it was the interest that he took in his scientific investigations that was his principal inspiration to effort, and the principal source of his enjoyment of the place, as it was also his genius that gained for the institution while he was with it a reputation that crowded it with patrons. Medical science was, of course, much less understood then than now; and that much benefit was to be got from the inhalation of "factitious airs" was deemed highly probable. The patients were well housed and well attended to; and no doubt hygienic care effected cures that were supposed to arise from the respiration of novel gases. But



SIR HUMPHRY DAVY.
Painting by Sir Thomas Lawrence.

more effective than anything else was the buoyancy of spirit caused by the wondrous enthusiasm, and the even more wondrous skill, of the young experimenter. His discovery of the exhilarating yet innocuous effects of nitrous oxide, a gas hitherto thought to be deadly poisonous, and the dangerous tests to which he submitted himself in this and other respects, soon gained for him a fame that spread throughout the kingdom. But still he kept on steadily with his labor of self-improvement. In addition to his experiments he spent much time in scientific speculation and the writing of scientific memoirs. He spent much time, also, in metaphysical speculation and in poetic composition, for his note-books of the time are full of philosophic reflections and fragments of poems. His life was in its very acme of youthful exuberance and ambitious endeavor.

But Davy was now transferred to a larger sphere of action. Count Rumford, a celebrated scientist of the time, had just succeeded in founding in London the Royal Philosophical Institution. It had been established with the philanthropic purpose of developing the application of science to art—that is, the application of scientific principles, especially newly discovered scientific principles, to processes used in domestic industry and in manufacture. Count Rumford had heard of the wonderful young chemist of Bristol; and he invited him to come to London to be director of the chemical laboratory and assistant professor of chemistry in the new institution. The hope was also held out that he would soon be appointed full professor. Davy accepted the offer, and in March, 1801, when but little past twenty-two, he was at his new post. But despite

IX. SIR HUMPHRY DAVY

1778-1829

BIOGRAPHICAL STUDY

BY JOHN EBENEZER BRYANT, M. A.

Sir Humphry Davy has a renown in the history of science that is almost unique. Born of humble parentage, in humble circumstances, and favored only with a short life—a life, too, that was shorter than its years because of the illness that preceded its termination—he yet became one of the most illustrious men of science of his age, and accomplished discoveries and inventions such as have fallen to the fortune of few of any age. Receiving only a very fragmentary school education—and one which, fragmentary as it was, was brought to a close before he had finished his sixteenth year—and having neither access to books, nor the use of apparatus, nor the advantage of association with men of philosophic aims like himself, he had, before he had completed his twentieth year, been appointed to a position that demanded of its incumbent both scientific scholarship and scientific experience; and when he had scarcely passed his twenty-second year had been appointed to a scientific

post which he was destined in a few years to make the most honorable and exalted in England, if not in the whole world. And though thus without those educational advantages which are supposed to be the parentage of culture, and though thus from an early age apparently so preoccupied in scientific experiment and discovery, he was yet able to impress those whom he met in familiar intercourse with a greatness of intellect in other directions, especially in poetry, quite as remarkable as that which he showed in scientific pursuits. Southey, for example, testified of him that he would have excelled in any department of knowledge to which he might have directed the powers of his mind. Coleridge said of him that if he had not been the first chemist of the age he would have been its first poet. And humble and destitute of social advantages though his beginning was, he was still only a young man, between twenty-five and thirty, when he had become one of the best-known figures of London society—equally sought for and admired in the idle fêtes and routs of the great and fashionable, and in those supposedly more intellectual forms of entertainment in which literature, science, art, and philosophy are fond of unbending—the *soirée* and the *salon*. In short, the transformation of Humphry Davy, apothecary's apprentice in the little Cornish fishing-town of Penzance, to Humphry Davy, professor of chemistry in the Royal Philosophical Institution of London, the most entrancing lecturer on scientific subjects in the whole kingdom, the discoverer of the chemical powers of the voltaic battery, the discoverer of potassium and sodium, the secretary of the Royal Society, the popular lecturer on agricultural chemistry to the Board of Agri-

culture (perhaps the most aristocratic association in the whole kingdom), the favorite lion in London drawing-rooms, not merely for his scientific renown but also for his charm of manner as a conversationist, his enthusiasm, and his magnetic influence—all this in a few years, scarcely more than what now-a-days are required for a young man to give to his college and university career before he starts the serious business of life at all—is more like a chapter from a fairy tale than a passage from real history.

Humphry Davy was born in Penzance, Cornwall, December 17, 1778. He was of yeoman stock that for 200 years or more had been settled in Cornwall—as a rule fairly well-to-do, fairly well educated, and very well thought of. His father, however, had made a break in the family record, and had managed to dissipate his property, and show himself idle, or worse than idle, in his habits. Humphry Davy had at first shown a disposition to follow in his father's foolish footsteps. But when he was in his sixteenth year his father died, and a great change took place in his habits and character. He became thoughtful of himself and self-helpful; and thoughtful, too, and helpful of others. He apprenticed himself to an apothecary, and comforted his mother with the assurance that not only would he take care of himself but that he would soon take care of his brother and his sisters. In pursuance of his purpose he laid out a course of study that for thoroughness and scope may be said to be unique in the annals of biography. He carefully mapped out the several provinces of knowledge—theology, ethics, the sciences belonging to his profession, the natural and physical sciences in general, the lan-