

## A REVELATOR OF SCIENCE.

BY F. L. OSWALD.

PHILOSOPHERS have long thought it probable that the "monarchical protectorate of art and literature" has been overrated and that the free arena of republican competition is as propitious to the true interests of science, as to the promotion of industrial development.

Progress, as distinct from motion, is, indeed, incompatible with the lack of liberty, though the liberal Condorcet goes so far as to pronounce the "thought-protecting influence of Imperialism a compensation for the character steeling turmoil of democratic institutions."

The truth seems to be that the Chinese wall of paternal monarchies may shelter arts and the literature of conservatism, but that progressive science is favored by the open fields of freedom. A dogmatist, rehearsing his tenets, like a parrot turning a wire-wheel, may bless the absence of competition; but strong-winged birds rather dispense with cage-food. The eagles of thought rarely appreciate the advantages of a storm-proof bastille, and Louis Büchner, the pioneer of mental emancipation, was given no chance to rejoice in the protective peace of Imperialism. The barriers of prescriptive dogmas bruised his wings again and again, and whenever he contrived to escape their restraint, a swarm of black rooks tracked his flight and forced him to waste his time in the squabbles of self-defence.

The characteristics of the fearless investigator asserted themselves in his very school years. "Little Loo Büchner solved mathematical problems by a sort of intuition," says Professor Habermann of the Darmstadt college, "and could apply the gift of his graceful style to three different languages, but was kept in hot water by his penchant for asking indiscreet questions."

“What made the mediæval nations so much meaner and sillier than their pagan ancestors?”

“How is it that animals can take care of their health so much better than learned men?”

“Is it a duty to believe things that cannot be proven?”

No reply?—What’s the use of science if its teachers will not answer questions? thought Master Louis.

One scholastic sage “considered him too forward (*aberwitzig*) to let him take his place at the head of his class;” still, when he graduated in his eighteenth year, they granted him a certificate with a rather liberal endorsement: “The holder of this has distinguished himself by thorough literary, philosophical and poetic studies, and shows remarkable ability in all his compositions.”

The curriculum of a German “Gymnasium,” or preparatory college, is about nine-tenths language drill; but young Büchner hankered after a different sort of knowledge, and devoted a year to the study of natural science,—especially chemistry, physiology and zoölogical literature. The young truth-seeker clung to the belief that animals can teach us many forgotten facts, “being nearer to the heart of Nature, and to the source of life protecting instincts.” In 1843 he went to the University of Giessen. The new high school had attracted many foreigners by the fame of Justus Liebig, the Copernicus of Chemistry, and Büchner divided his time between philosophy and modern language studies. His moral ideal, at that time, seems to have been a system of natural philosophy with an ethical by-purpose, but Büchner Senior, a shrewd old burgher, with social theories of his own, had witnessed the success of moonshine metaphysicians and the neglect of philosophical sun-priests, and persuaded his son to turn his attention to medicine.

The young philosopher compromised the difficulty by enlarging the scope of his studies. His prodigious memory enabled him to brave a risk which Benjamin Franklin avoided by exemption from the *par-force* training of a routine college, and he could enter the field of free inquiry with a mind uncrippled by the deadweight of scholastic ballast.

Instead of staggering along the beaten road of the anxious office-seeker, he found time for exploration trips into by-trails and wayside thickets, and every now and then ascended a hilltop to verify his landmarks on the horizon of the future. Soon after the winter of 1846 his initials: “F. L. B.” begin to appear under various magazine articles, as entertainingly digressive as Richard Burton’s Letters from Ultima Thule. Incidentally, and often as

on the suggestion of a mere chance for banter, he throws out hints that kindled the fires of international controversies or sowed the seeds of fruitful scientific theories. Thus, in an essay on "Moral Freaks" he remarks that "the mental influences of heredity may awaken echoes from the experience of pre-human, as well as of pre-historic, ancestors, and that the dread of darkness, for instance, is perhaps an after-effect of the midnight panics of treetop-dwellers, treated to frequent surprise-parties of giant cats."—"which cats," he adds, "perhaps furnished the prototype of Old Scratch and the night-prowling Lamias." A geological dissertation tempts him to a "Fable for Teleologists,"—the zealots of the "Design in Everything" School.

"In the foothills of the southern Alps," he says, "granite blocks have tumbled into gravel, which, in the course of ages has hardened all around into a solid conglomerate, and one can imagine the elders of the Piedmont frogs pointing out the closeness of the fit as an indisputable proof of an intelligent *demiurgus*. 'See how every protuberance of the rock corresponds with an indenture in the outline of its wisely-prepared receptacle, and vice versa,' they will argue, 'examine it on all sides,' the sagacious adaptation is perfect, all around. Here and there it might be a work of chance, but in its totality the arrangement should not, it cannot, be ascribed to accident

"Evidences of unitary cosmic laws" (*die Einheit der ewigen Gesetze*) he says, "abound, but the opposition to arguments of probability has no limits whatever. On the borders of the Arctic Circle the summer sun often merely dips below the horizon, to re-appear a little farther east; and I have often wondered if the natives can be persuaded to recognise the identity of the setting and rising orb. 'How can you prove that there are not two different suns, mounting guard by turns?' they will probably ask. We see crab-apples turn into pippins and steppe-ponies into race-horses; we can trace the ascent of roses from thorn-blossoms; we cannot doubt that the most civilised nations of the present world have sprung from brutal barbarians, but the connecting link between those barbarians and their still lowlier fellow-creatures is gone and till its remains have been recovered to the last fragment of bone-splinters our conservative friends will defy us to prove the continuity of the development."

Two years after Büchner's arrival in Giessen, a storm-wave of political party-strife swept over western Europe, and a number of patriotic students founded the progressive association known as the

“Allemania Bund,” with a club for the promotion of sociological studies and political reform. To the literary propaganda of those societies young Büchner contributed several pamphlets that foreshadow our best latter-day protests against the meddle-mania of paternal governments.

“Apron-string policy” (*die Gängelband-Politik*) says the keen-sighted young patriot, “is always liable to two great objections: It obstructs the natural path of progress and is apt to foster the growth of mischievous monopolies. And what is almost worse, in their eagerness to regulate the food, drink, dress, holiday amusements and metaphysical opinions of their subjects, our rulers often neglect duties pertinent to the legitimate purpose of government, viz., the prevention of trespass upon natural rights. Their own system sets a baneful example by meddling with private rights and ignoring public nuisances. The same political moralists who force hardworking wage-earners to support drunkards and loafers, permit the owner of a glue-factory to poison the atmosphere of a populous city with pestilential vapors.”

Some of these Circulars were published without Büchner's signature, but the trenchant style of the young Darmstadter had by that time become too well known to escape identification, and the regents of the university twice sent him a *dehortatorium*, or admonition to desist. Handle the theory of coal-ferns in any way you please, but don't get tangled in the beards of our aldermen.

Büchner had friends at court, too, and might have risked the consequences of a third warning; but his relatives were getting uneasy, and a family council decided to send him to Strassburg, under the pretext of giving him a chance to attend a course of French lectures.

In 1848 Louis Büchner received his medical diploma, and it required the influence of all his friends and the triumphant results of a public examination to carry his testimonials across the cliff of the theme he had ventured to select for his inaugural address, the *thesis*, namely, that “a personal soul is inconceivable without a material substratum.”

The new M. D. then retired to his native city, where his rooms on the Reis-Market speedily became the headquarters of all local reform-clubs. His pen, too, was in constant request, and even his practical father could not help feeling proud of his prestige, and amidst the premonitions of an impending storm consoled himself with the reflection that his son had outgrown the necessity of de-

pendence on government patronage, and in stress of circumstances would be abundantly able to get along in France or North America.

Still, when the storm did burst, with all the fury of a savage political reaction, the significance of the alternative was brought home to the young patriot with unexpected force, and he decided to seek counsel in solitude and communion with the spirit of Nature. From Wuerzburg, Bavaria, where he had taken refuge in the house of a friend, he went to the highlands of the Austrian Alps, and after a week's struggle with conflicting passions, came to the conclusion that duty required him to stick to his post, and in hopes of better times to come, purchase peace at the price of temporary silence.

His fame as a leader of mental emancipation, however, continued to rise, and in 1854 he published the work which Claude Bernhard described as a "Catechism of secular science, a Magna Charta of our constitutional rights as thinkers and rationalists."

In Germany, France, Austria and the Netherlands, "Matter and Force" created a sensation exceeding that produced in England by the novel theories of Darwin's "Descent." It formulates principles which former writers had hardly ventured to imply in diffident conjectures. Its publication marks a new era in the history of cosmology, and its theories not only indicate the advanced standpoints of physical science, but outline the road of progress for centuries in advance. It is the record of a philosophical revelation.

Three editions of *Kraft und Stoff* were published in 1855, four in 1856, and several excellent translations insured the cosmopolitan fame of the work; but for the social interests of the author he might as well have circulated a treatise on the scientific application of dynamite bombs. Scores of reactionary journals shrieked out their alarm; opposition pamphlets fluttered in flocks, and before the end of the year all the hirelings of conservatism were up in arms against the daring deviator from conventional lines of thought. A government cage-bird had ventured to leave his prison, and the hue and cry became so deafening that the lovers of peace advised the defendant to seek refuge in exile, till public attention had been diverted by other topics, —perhaps by the electric flashes of the war-cloud which about that time began to gather around the Crimean seaports.

Büchner tried the effect of banter to silence some of the most obstreperous alarmists, but the many-voiced owl-swarm would not down, and the German Huxley was actually forced to cancel the arrangements for a permanent engagement at the University of

Tuebingen, where he had been recording the proceedings of a meeting of German naturalists.

He had bought posthumous fame at the expense of his temporal interests. The menace of a heresy trial finally died down to the growls of bigots, but Büchner's name remained on the official blacklist. The precarious tolerance of his government was understood to imply the condition of abstinence from dogmatic controversies. In other words, his metaphysical organs of speech were now gagged as effectually as his sword-arm of political reform had been shackled in 1848, and henceforth the great thinker limited his publications to topics of physical science. His "Physiological Sketches" appeared in 1861; "Nature and Science" in 1862; "Conferences on Darwinism" in 1869; "Man in the Past, Present and Future" in 1870; "Light and Life" in 1882. These works open out new vistas of thought in a surprising number of different directions, and like the predictions of astronomical discoveries and Humboldt's forecasts of mineralogical treasure-troves, prove that the gift of augury is an attribute of all earnest thinkers.

In 1883 Crown-prince Frederick, the victor of Wörth and champion of all liberal reforms, visited Büchner in Frankfort-on-the-Main, and when his untimely death blighted the hopes of his nation, the old patriot mourned as the philosopher Libanius had mourned for the loss of the Divus Julian.

"It was the hand of Nemesis," he says, "the stroke of Fate that waits upon every excess of good fortune. Once more, since the days of Trajan and the Antonines, philosophy, philanthropy and heroism were wedded to supreme opportunities for national redemption,—the prospect was too bright to escape the doom of a total eclipse. Is it always thus? There may be only apparent exceptions, for Marcus Aurelius perhaps paid his debt to fate in the anguish of his family-sorrows, and Frederick the Great in the purgatory of the Seven Years' War."

Time soon justified his misgivings. The reflux-tide of national exaltation set in. As in France, after the collapse of the Napoleonic Olympus, the immortals had to pine in exile; the gazettes that had heralded a hundred victories were now forced to record an endless series of lese-majesty trials. Like Bismarck, Büchner had to seek solace in the recollections of the past. Flunkey orators of national jubilees found it expedient to avoid his name. It became fashionable to sneer at the theories of the German Aristotle. Graduates with an appetite for rapid promotion endeavored to circulate refutations of "Matter and Force."

The old philosopher smiled ; but became more reticent from year to year, and at last retired to the hermitage of his little Darmstadt garden cottage,—“where my green lawn,” he writes to the editor of *Dageraad*, “is all the better for the absence of crowds, and where occasional visitors are not distressed by the clanking of my shackles.”

The silence of that retreat was perhaps more propitious to the place of a wounded soul than the storm and stress of a great commonwealth, but it might be questioned if in a land of freedom its balm would have been needed. Our restless republicans might have found no time to sit at the feet of the Grand Master of Science, but they could not have failed to recognise the value of his labors, and, moreover, would have broken his fetters, as surely as they would break the skull of Grand Inquisitor Pobodonotscheff.