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LUCRETIUS AND THE EVOLUTION IDEA.

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Felix, qui potuit rerum cognoscere causas,
atque metus omnes et inexorabile fatum
subiecit strepitumque Acherontis avari.

—Virgil, Georg. II. 490-492.

It seem'd
A void was made in Nature; all her bonds
Crack'd; and I saw the flaring atom streams
And torrents of her myriad universe,
Ruining along the illimitable inane.
Fly on to clash together again, and make
Another and another frame of things
Forever: that was mine, my dream, I knew it.

—Tennyson, *Lucretius*.

Lucretius, nobler than his mood.
Who dropped his plummet down the broad,
Deep universe, and said, 'No God,'

Finding no bottom: he denied
Divinely the divine, and died
Chief poet on the Tiber-side

By grace of God: His face is stern
As one compelled, in spite of scorn,
To teach a truth he would not learn.

—Mrs. Browning, *A Vision of Poets*.

IN the essay on Dante, Macaulay reproached the English poets with the tendency then showing itself among them to consider the objects and phases of external nature fit material for the exercise of their art. The reproach arose in part out of the fancied antagonism between poetry and science, and it has been often echoed since that day by poets as well as critics.

The judgment is a shallow one. Poetry is, indeed, imaginative. Whatever else it may have or want, it ceases to

be poetry when the glow of imagination fades out of it. Science, on the other hand, occupies itself with fact only, with things as they are observed to be, not as they are imagined to be. But imagination and observation are not at war with each other. Distinction is not opposition. And, besides, the poet's constructive imagination is helpless without the materials supplied by observation; and the scientist's observation is aimless and unfruitful without the stimulus and guidance of imagination.

But a simpler and perhaps more decisive proof of the near and hospitable relations of poetry and science is presented in the cases of their actual union in the same person. When imagination ceases to be mistress and becomes servant to observation, your poet turns scientist. When observation yields the scepter to imagination, your scientist turns poet. The names of Maxwell, Tyndall, Romanes and Huxley suggest themselves as examples of scientists of the first rank whose poetic gift is manifest in their published poems. Of the poets of the first rank who have shown the scientific turn and interest, one thinks first of Tennyson. He studied medicine until he imagined that he had all the diseases set out in the books. His interest in astronomy he maintained to the time of the 'twilight and evening star.' From his student days at Cambridge when 'the fairy tales of science' first won him, even down to the 'Locksley Hall Sixty Years After,' he meditated deeply on evolution. The scientists of his period looked upon him as their most intelligent mouthpiece in the world of letters. Goethe, it is well known, felt more

satisfaction in his scientific achievements than in the poems which made him the chief figure in German literature. It was a comparatively small thing to have written 'Faust,' but to be the only person of his century who understood the science of colors—that was a thing to be proud of.

Classic, as well as modern, literature offers illustrations of the union of the poetic and the scientific interest. There are some extant lines of Virgil headed, 'Virgil abandons other studies and embraces the Epicurean Philosophy.' That this love of science—for ancient philosophy included science—was no transient passion is attested by poems on natural objects and by passages in the Georgics, the Eclogues and the *Æneid*. His last fatal journey to Greece and Asia was undertaken in order that he might complete the *Æneid*, and then devote the remainder of his life to science. But in all the history of literature, the best example of the fellowship of science and poetry is Lucretius, the poet in whom we are here particularly interested; for he was not at one time poet and at another time scientist, but rather both at once. It is Mrs. Browning's judgment that Lucretius 'died chief poet on the Tiber-side,' and a *Quarterly Reviewer* has recently declared him to be Rome's truest man of science. But such eminence in the two spheres is paralleled in the case of Goethe. What makes the work of Lucretius quite unique is the fact that his first-rate poetic capacity cooperates with his capacity for science in the same task. The poet's imagination kindles into beauty the scientist's perceptions,

and the issue is a poetical treatise on physics and biology, or, if you prefer, a science poem.

It is true that a certain type of mind in the eighteenth century was drawn to Lucretius, recognizing in him a sort of fellowship of skepticism. But his present vogue dates only from the middle of the nineteenth century, when the great questions which he treated reached again the acute stage of interest. The search into the constitution of matter and the origin and development of living beings, and the sharp antagonisms of science and theology, which have distinguished the past half century, called out of obscurity the poet-scientist who, quite alone, passed over the same path two thousand years before. On account of this kinship of task and attitude Lucretius, to the modern man of science, is better known than any other ancient poet.

Professor Jowett used to say that all that was really known of Shakespeare might be written on half a sheet of note-paper. Of Lucretius very much less is known. Indeed, with the single exception of Homer, there is no considerable writer of antiquity whose personal history is so meager and vague. Two sentences by the Christian Father Jerome and a single sentence by Donatus constitute his extant biography. The statements of Jerome are—that Lucretius was born in the year B. C. 94; that, having been made insane by a love-potion, he wrote, in the intervals of insanity, certain books which Cicero corrected; and that he died by his own hand in the forty-fourth year of his life. Donatus in his 'Life of

Virgil' informs us that, on the day when Virgil assumed the toga virilis, Lucretius died. By the help of Donatus we can correct the birth-date given by Jerome, and fix it at about the beginning of B. C. 98. The story of the philtre, insanity and suicide is probably a legend with a historic germ of some unknown tragedy in his life. Upon that legend Tennyson has made his poem of 'Lucretius,' which is a marvel at once of faithful portraiture and of exquisite beauty.

If we turn through the 'De Rerum Natura' in hope of chance self-revelations of the author, we are disappointed. He is almost as impersonal as Shakespeare. He lets fall no fact of his station or fortunes in life. We do, however, discover some of his personal characteristics. Here is an austere and serious student of the problems of nature and of human life and destiny. He is, as he says himself,^[1] not only a philosophical teacher and a poet, but also a moral reformer, and so ardent is his zeal to effect his practical aim of emancipating men from the bonds of superstition that he subordinates to it both his philosophy and his poetic passion. His praise of the tranquil, obscure life suggests that he knew and loved it. We are warranted in inferring that he was the social equal of C. Memmius to whom his poem is addressed and that accordingly he was of the governing class. But we catch hints here and there that the political history of the last years of the Republic only repelled and distressed him, and, having no leaning to social pleasure, he chose to lead the retired and contemplative life, The

Epicurean ethics, which he accepted, produced diverse practical results according to the natures which received it. In shallower natures, like those of Catullus and Horace, it produced an easy-going life of pleasure-seeking; in deeper natures, like Lucretius, Virgil, Epictetus, the same system showed itself in a sincere and strenuous moral life closely akin to that of the Stoics. We may, therefore, accept as historically true and as being well within the suggestions of the poem, the words which Tennyson puts into the mouth of Lucretius:

I thought I lived securely as yourselves—
No lewdness, narrowing envy, monkey-spite.
No madness of ambition, avarice, none:
No larger feast than under plane or pine
With neighbors laid along the grass to take
Only such cups as left us friendly-warm.
Affirming each his own philosophy—
Nothing to mar the sober majesties
Of settled, sweet. Epicurean life.

We discover, moreover, his absolute sincerity and devotion to truth, his large and reverential conception of the sum of things—the *majestas cognita rerum*—his high moral purpose and poetic fervor which sustain him throughout a prolonged and difficult achievement at an unusual elevation

of thought and passion. As Professor Sellar remarks, he combines in himself the Greek ardor of speculation and the Roman's firm hold on reality, the theorizing passion of the dawn of science with the minute observation of its meridian.

So far as we know Lucretius left but one work, the "*De Rerum natura*,' *i. e.*, 'The Constitution of Things,' but that single work will, as Ovid prophesied, preserve the memory of his genius until the world disparts in its final catastrophe. Certainly in all the record of literary effort, the poem is unmatched in at least one respect: it is a closely reasoned system of natural philosophy in verse. Tennyson's 'Two Voices' has been mentioned as like it in the wealth of poesy enlisted to beautify abstruse argument. But the subject-matter of that striking poem is different and yields itself more kindly to poetic treatment; it seems, moreover, to be but a short 'swallow-flight of song' beside the sustained elevation and wide sweep of the ancient master. Lucretius had the example of Empedocles for the poetic form of his treatise, but that alone would not have determined his choice. Two other considerations moved him—first, his own poetic impulse, and, second, the wish to make an unfamiliar doctrine attractive; he would overlay it, as he says, with the pleasant honey of the muses.

But the purpose of the poem is not the emulation of the Sicilian poet-philosopher, nor yet the gratification of his own sense for beauty. He imposes on himself a far graver

task. After a pathetic recital of the sacrifice of Iphigenia on the altar of religion by the hand of her father, Lucretius writes the great line of the poem—

Tantum religio potuit suadere malorum—

such are the evils to which religion leads! And he soon adds, "This terror and darkness of mind must be dispelled, not by the rays of the sun and the glittering shafts of day, but by the aspect and law of nature." His lofty aim is no less than the permanent defeat of the ancient reign of superstition by setting forth the new knowledge of nature.

The poem is in six books, which aggregate nearly seven and a half thousand lines. It is not far from three-fourths the length of 'Paradise Lost.' In the first book Lucretius expounds the physics of his great master Epicurus, starting with the fundamental principle that nothing comes from nothing, and the other that all that is is either atoms or space. In the second book he derives all the properties of things from the shapes and concourse of the atoms. The remaining books apply the general principles of the first two to sensation and the doctrine of the soul's immortality, the origin and the final ruin of the mass and fabric of the world, the origin of plants and animals, the rise and development of human civilization, and lastly the explanation of certain terrifying phases of nature, as thunder, earthquake, volcanic eruptions and the plague.

If it be asked, How can this exposition of ancient physics, biology and physical geography be poetry? it must be answered that much of it is not poetry. But the same is true of 'Paradise Lost' or 'The Ring and the Book.' A poem is to be judged, not by the proportion of prosaic content which it carries, nor by successes or infelicities of detail, but by the single impression which it makes considered in its totality. Judged by this standard the poem of Lucretius is one of the world's masterpieces. It becomes all the more remarkable when we recall the limitations under which the poet worked: the language in which he wrote had hitherto been all unused to the music of verse, the exigencies of the exposition of an obscure and prosaic subject-matter dominated the treatment, and the yoke of a practical moral purpose was always on the neck of the poetic impulse.

Of course the value of Lucretius does not lie in his science, and yet our subject demands some consideration of at least one feature of his scientific system. In the first place, he has, amid many puerilities, some curious foreshadowings of modern scientific opinion. The following may be cited: the eternity of matter;"^[2] the conservation of matter^[3] and of force^[4]—Haeckel's 'law of substance'; the atomic constitution of matter,^[5] the doctrine of films,^[6] which recalls Newton's corpuscular theory and the very recent discovery of the 'Becquerel rays'; the relations of waste and repair in youth and age;^[7] the inviolability of natural law.^[8]

Of special interest to us is a passage in the fifth book^[9] which sets forth the ideas of the struggle for existence and natural selection in terms of remarkable clearness for a pre-Darwinian writer. Lucretius even announces them in connection with the domestication of animals, which was the precise point from which Darwin started in his effort to account for 'the origin of species.'

And many races of living things must have then died out and been unable to beget and continue their breed. For in the case of all things which you see breathing the breath of life, either craft or courage or else speed from the beginning of its existence protected and preserved each particular race. And there are many things which, recommended to us by their useful services, continue to exist consigned to our protection. In the first place, the fierce breed of lions and the savage races their courage has protected, foxes their craft and stags their proneness to flight. But light-sleeping dogs with faithful heart in breast and every kind which is born of the seed of beasts of burden and at the same time the woolly flocks and the horned herds are all consigned, Memmius, to the protection of man. For they have ever fled with eagerness from wild beasts and have ensued peace and plenty of food obtained without their own labor, as we give it in requital of their useful services. But those to whom nature has granted none of these qualities, so that they could neither live by their own means nor perform for us any useful service in return for which we should suffer their kind to feed and be safe under our protection, those, you are to know, would lie exposed as a prey and booty of others, hampered all in their own death-bringing shackles, until nature brought that kind to utter destruction.
^[10]

In close sequence comes the most interesting portion of the entire poem, the detailed account of the evolution of human society from the rude 'life after the roving fashion of wild beasts' up to the settled security and elegancies of the

highest civilization. Noteworthy in this account is the representation of childhood as the first humanizing influence, the origin and growth of language, religious beliefs and social order, the development of industries and of art, until the poet himself appears 'to consign the deeds of men to verse.' Thus, says Lucretius, "time by degrees brings each several thing forth before men's eyes, and reason raises it up into the borders of light; for things must be brought to light one after the other and in due order in the different arts, until these have reached their highest point of development."

These citations of the evolution idea in Lucretius are a sufficient refutation of the popular notion that somehow Darwin is responsible for the invention of this revolutionary conception. Indeed, the doctrine of evolution is itself one of the best illustrations of the law of evolution, for it has a continuous, progressive history of twenty-five centuries. It stretches the slow process of its rise and development from Thales' 'evolution's morning star,' more than six hundred years before Christ, down to the present hour. The hazy surmises of the early Greek speculation become precise and organic in the teaching of Aristotle, that nature proceeds by gradual transitions from the most imperfect to the most perfect, that the higher species are descended from the lower, that man is the highest point of a long and continuous ascent. The idea thus definitely enunciated by 'the master of those that know,' may be traced through Lucretius to the Christian theologians of the medieval

period, and from them to the philosophers and naturalists of the seventeenth and eighteenth centuries. At the beginning of the nineteenth century we meet Lamarck, the most important figure in this history since Aristotle. His 'Zoological Philosophy' (1809) is the first elaborate exposition of the means or factors of evolution as applied to the origin of living forms. From his day the descent of the higher organisms from the lower was a standing question among naturalists until the publication of Charles Darwin's 'Origin of Species' in 1859. That splendid product of a great mind brooding for years on an enormous mass of facts, practically closed the question and won at once the almost unanimous assent of the naturalists of the world.

Our old-world poet not only takes an honorable place in the historical development of scientific opinion, but also illustrates in his own person certain modern phases of the relation between science and religion. He has been called the high-priest of atheism and the apostle of irreligion. He does deny Providence and the future life with great elaboration of argument; he does scout with vehemence the current theology and worship. And this, too, in the name of his scientific system. But was his science atheistic and irreligious? His fierce indignation—does it burn against the gods themselves, or against the popular conception of the gods? Does he despise religion itself, or the 'foul' perversion of it?

Respecting Lucretius' opposition, in the name of science, to religion, it is to be borne in mind that, speaking generally, the Romans had no genius for religion. They were called unto politics, as the Hebrews were called unto religion. The national religion derived what vitality it had from its alliance with the civic spirit, and with the decline of that spirit, religion dropped into cant with a meager and barren ritual and a train of grotesque superstitions. It was at times polluted by shocking immoralities, and there are hints here and there of human sacrifices. The future life, even when it was allowed, was far from attractive to a noble spirit, being a sort of languid and aimless shadow of the present life. The Roman gods are vague abstractions with no appeal to the imagination or enthusiasm of their votaries, and, so far as they touch human life at all, malevolent and irresistible. This was the body of religious beliefs and practices against which Lucretius protested in the interests of humanity. In doing so, he showed his essentially religious nature. 'He denied divinely the divine.' The divine within him recognized nothing kindred in what was currently called divine, and he invoked the aid of science to dispel 'this terror and darkness of mind.'

1. ↑ I. 931-934.

2. ↑ I. 149, 150.

3. ↑ I. 215-266; II. 294-307.

4. ↑ II. 294-307.

5. ↑ I. 267-328; II. 80-141, 333-477, 660-699.

6. ↑ IV. 29 f.

7. ↑ II. 1118-1147.

8. [↑](#) V. 55-58.
9. [↑](#) V. 855-877.
10. [↑](#) Here, as elsewhere, I have used Munro's translation.

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