THE LATTER PART OF LUCRETIUS, AND
EPICURUS *περί μετεώρων*.

E. G. SIHLER.

(Read March 28, 1898.)

THE charm of Lucretius is perennial. The source of it, however, is rather complex. That his work is the foremost didactic poem of antiquity is admitted. That his manipulation of the possibilities of the Latin tongue stamps it, as Teuffel says, as the production "Eines Sprachgewaltigen" few would gainsay. That his *exordia* and many of his digressions really are meant by the *lumina* of Cicero's judgment in his letter to his brother Quintus (2, 11) seems most probable. And still stronger than these is the tremendous earnestness of the man. We have a distinguished Epicurean in the generation after L., Horace of Venusia. To him, too, we may trace that blending of morals, of quasi-religious conviction and strictly philosophical tenets, which constituted adherence to the one or the other of the two most prominent sects of the day: the Epicurean and the Stoic. These conditions Horace evidences most frankly in his earlier writings, *e. g.*, in the *Iter Brundisium*, I, Sat. 5, 97.

dein Gnatia lymphis
Iratis extracta dedit risusque iocosque,
Dum flamma sine tura liquiscere limine sacro
Persuadere cupit. Credat Judaeus Apella
Non ego: namque deos didici securum agere ævum,
Nec, siquid miri faciat natura, deos id
Tristes ex alto caeli demittere tecto.

The vanity of concern for the utter extinction implied in the mortality of the soul is iterated in his Odes, as is the vanity of all human passions; the good-natured banter of criticism of Stoic exaggeration comes naturally from an Epicurean; but the

fearless and uncompromising attack on the Etruscan religion of his country is not sounded by the pensioner of Maecenas, and the poet who composed for the princeps the *Carmen Saeculare* and supported distinctly the social and religious reforms so dear to Augustus (recorded too as the latter's dearest aspirations in the *Monumentum Ancyranum*) could not well make a propaganda—for Epicureanism. It is different with Lucretius. His tremendous earnestness is coupled with a humility and reverence for the person and doctrine of Epicurus which I need not substantiate here in detail, I, 66–79, III, 1 sqq, and particularly III, 1042

ipse Epicurus obit decurso lumine vitæ
qui genus humanum ingenio superavit et omnis
restinctis, stellas exortus ut ætherius sol . . .

and the much quoted lines V, 8, sq.

deus ille fuit, deus, inclyte Memmi
qui princeps vitæ rationem invenit eam quæ
nunc appellatur sapientia . . .

As to the Greek sources of Lucretius: was there anything beside Epicurus himself? If so, what? If not, which writings of E.? Then too: did he base it all on the 37 bb. of E. *περί φύσεως*? The exhaustive grouping of every shred of Epicurean doctrine by H. Usener, of Bonn, in his *Epicurea*, Leipzig, 1887, with the critical edition of the text of book X, of Diogenes Laertius is a monument of erudition . . . still, inasmuch as Epicurus' doctrine is stated there with very great conciseness as a summary digest for the conning of confirmed disciples and not with explicit clearness nor argumentative breadth, the temptation has always been great for students of the subject to make Epicurus' letter to Herodotus a "source" of I.

The exact mode in which Lucretius used the main work the 37 bb. *περί φύσεως* will probably never be known, inasmuch as, although there were three complete copies of Ep. *περί φύσεως* in the villa of Piso at Herculaneum, the deciphered fragments from the carbonized rolls are entirely too scanty to permit inferences; if Philodemus, a second-rate writer, was represented

with his endless volumina in that Epicurean library, are we to believe that a Lucretius was content with a perusal of anything short of the great dogmatic work of the master? It is not likely. This, too, is made more probable by the substantial elements of controversial analysis or censure directed against other schools, and particularly against the Stoics, although the latter are never mentioned by name throughout the work of Lucretius. These controversial elements certainly were not in themselves attractive to such Roman readers as were to be made proselytes of the sect. Therefore, I do not see how the parallels between the letter to Herodotus and between Lucretius, elaborated by *Ivo Bruns*, in his *Lucrezstudien*, Freiburg, Tuebingen, 1884, prove anything in this respect. Nor am I convinced of the main thesis of Bruns, that Lucretius, in the course of the elaboration of his work, determined quietly to omit or remove the treatment of the theory of cognition, τὸ κανονικόν, of the system of Epicurus.

Why should we assume that the treatment of the *Κανών* was an essential part of the 37 bb *περὶ φύσεως*; when, as we see in Diogenes L. X., 27, there was a distinct volume *περὶ χρητηρίου ἢ Κανών*....

Lucretius essayed to show that this physical theory truly emancipated the souls of men from fear of death and from all the terrors with which the traditional mythology had invested the Inferno, that it secured that peace of soul which in the Epicurean conception is essentially negative, freedom from all the passions whether involved in the pursuit of wealth, of sexual indulgence [hence the appendix of book IV in L.,] or of political préeminence. This is "purgare pectora" L. VI, 24. Now books I-IV substantially present in sequence what Epicurus called ἡ γνήσιος φυσιολογία: [letter to Pythocles, Diog. L. 10, 85]. But books V and VI of L. are apt to make at first the impression of a mass of unrelated or ill-related matter. As for book V the very exordium 55 sqq. states distinctly a complex theme: the creation of organic beings, persistence of created types, essentially physical nature of mind: deception of man by visions. My next theme [rationis ordo]: this organic universe is perish-

able [Diog. L. 10, 74: *φθαρτοὶ οἱ κόσμοι*]. Earth, sky, sea, stars, sun and moon established by that association of matter, creation of living beings out of the earth [primitive civilization], origin of speech, religion, absence of conscious purpose in the movement of heavenly bodies, no teleology: celestial mechanics directed by no divine providence.

These themes are actually found in the book, although in a somewhat different order. Beginning with V. 509 sqq. we begin to notice that characteristic mark of Epicurus' treatment of "*τὰ μετέωρα*," viz., the advancement of two or more theories to explain phenomena so radically different from the absolute positivism of the atomistic physical system proper, of books I.-IV. But it may be more instructive to present at first tables showing the themes and the sequence of themes in Epicurus and in Lucretius.

EPICURUS TO PYTHOCLES.

Diog. Laert. X. 85 sqq.
 Sun, moon and "other stars"
 Size of sun.
 Decline and filling of the moon.
 Face in moon.
 Eclipses.
τάξις περιόδου.
 Length of night and day.
 Clouds.
 Rain.
 Thunder.
 Lightning.
 Thunderbolt.
 Waterspouts.
 Earthquakes.
 Winds.
 Hail.
 Snow.
 Dew.
 Hoarfrost.
 Ice.

LUCRETIVS V.

509. Motion of stars.
 564. Size of Sun.
 Heat of Sun.
 619. Sun's mutation of course
 in the year.
 650. Night,
 656. Periodicity of sunrise.
 680. Correlation of day and
 night in length.
 705. moon's phases.
 751. Eclipses.
 (771-779 resumé.)

BOOK VI.

96. Thunder.
 219. Lightning: optical phe-
 nomena.
 379. Lightning: destructive
 phenomena.
 451. Clouds.
 495. Rain.

Rainbow.	527. Snow, hail, hoarfrost, ice.
Halo of moon.	(A few lines only.)
Comets.	535. Earthquakes.
Slower movements of some stars.	639. Etna.
Meteors.	713. Nile. (explanation of summer-rise.)
Seasons. (?)	738. Exhalation of Avernus.
	840. Puzzling changes of temperature.
	906-1082. Magnet.
	1090. Epidemics in general.
	1138. The plague at Athens.
	430-429.
	(Paraphrase of Thucyd. II 47-55.)

The most striking thing in the letter to Pythocles is this : The interest of Epicurus in the explanation of these phenomena is not a scientific or even a positive one : it is mainly negative ; to furnish *natural* explanations, an assortment of two or three or four or even more, sometimes without much, if any, indication which to prefer as long as the idea of any divine will or agency as a factor was utterly cancelled from the problem ; cf., also, in letter to Herodotus § 76 καὶ μὴν ἐν τοῖς μετεώροις φορὰν καὶ τροπὴν καὶ ἐκλείψιν καὶ ἀνατολὴν καὶ δύσιν καὶ τὰ σύστοιχα τούτοις μήτε λειτούργουντός τινος νομίζειν δεῖ γίνεσθαι καὶ διατάρτοντος ἢ διατάρξαντος καὶ ἅμα τὴν πᾶσαν μαχαριότητα ἔχοντος μετὰ ἀφθαρσίας . . . and so in the letter to Pythocles § 97 of the course of the sun . . . καὶ ἡ θεία φύσις πρὸς ταῦτα μηδαμὴ προσαγέσθω ἀλλὰ ἀλειτούργητος διατηρεῖσθαι καὶ ἐν τῇ πάσῃ μαχαριότητι, ὥς ἐι τοῦτο μὴ πραχθήσεται ἅπασα ἡ περὶ τῶν μετεώρων αἰτιολογία ματαία ἔσται. And further recurring to the element of supernatural cause 87-, “ἐπὶ τὸν μῦθον καταρρεῖ.” And § 115, speaking of other possible modes of explaining meteora : “καὶ ἄλλοι δὲ τρόποι εἰς τὸ τοῦτο τελέσαι ἀμύθητοί εἰσιν.”

When we turn away from this general negative bias of this summary *μετεωρολογία* we are met by a curious and puzzling characteristic.

These phenomena, according to Epicurus, according to their very nature, are unattainable to our positive knowledge; many explanations are possible for each of them as a rule, one is as good as the other; their knowledge is a mere inferior corollary to the system of atomism proper, ἡ γνήσιος φυσιολογία (Diog. L. 10. 85). The aim of this αἰτιολογία is not scientific precision, nor the satisfaction of the craving for accurate knowledge; no, here too it is (§85) ἀπραξία; these themes belong to an entirely different category from the (§86) τῶν ἄλλων φυσικῶν προβλημάτων καθαρίαις, *e. g.*, that the universe is material and intangible (ἀναφής) as to its fundamental substance (*i. e.*, as to the atoms), and that the atoms are the material principle, principles which are in *absolute* harmony with phenomena; not so, however, with μετέωρα; , ἀλλὰ ταῦτά γε πλεοναχὴν ἔχει καὶ τῆς γενέσεως αἰτίαν καὶ τῆς οὐσίας ταῖς αἰσθήσεσι σύμφωνον κατηγορίαν.

The main point is not to adopt and persist in any *one* explanation, but give equal authority to them all as long as none of them is in his harmony with parallel or analogous processes from the spheres of our actual empirical perception and observation (ἐναργήματα §93)...

In one passage §94 he refers to the adoption of the single or exclusive as "being smitten" with it—cf. §98 (καταγαπαῖν) as a folly of him who knows not the (§113) limits of human survey. And so—a brief illustration must suffice—*e. g.*, he gives *four* explanations of the changes of sun and moon, and speaks with scorn of the computations of professional astronomers as (§93) τὰς ἀνδραποδώδεις ἀστρολόγων τεχνιτείας. . . . of the decline and increase of the moon he offers not less than *six*; explanations, of clouds (§99), *four*; of rain, *four*; of thunder, *five* (§100); of lightning §101–102, *seven*; of earthquakes, *three*; with a fourth collective which recurs frequently. It would be mere iteration to go through the whole list.

This easy eclectic attitude towards the real solution of these phenomena, this absolutely unscientific, nay childish, position as over against exact science, naturally brought Epicurus and his school into very glaring contrast as over against the positive attainments of the Peripatetic and Stoic schools.

And so this particular matter well illustrates the attitude of Epicurus and his school to technical culture or towards the cultivation of technical knowledge. Usener has collected the passages: Epicurea, p. 170, sqq. Cf. particularly Diog. 10, 6 *παιδείαν δὲ πᾶσαν, μακάριε, φεύγε, τυχόντιον ἀράμενος* and Quintil. 12, 2, 24, "fugere omnem disciplinam." But, we are all told, there are doubts as to the genuineness of the letter to Pythocles, so that Usener, while critically editing it with the other two letters, brackets the title. This is due to a notice of Philodemus in the Herculanean papyri, 2d collation, Tom. 1, fol. 152, with Usener's supplements, p. 34.

"ὅπουψ[ί]α]ν τιν[ά] [λα]μβάν[ει]ν ὡς περὶ τινῶν
ἐπίστολ[ῶν] καὶ τῆς [πρὸς Πυθ]οκλέα π[ε]ρὶ [μ]ετέωρων
ἐπιτομῆς καὶ τοῦ περὶ ἀρετῶν κτλ . . ."

The notice of Philodemus, who was a close contemporary of Lucretius and intimate friend of Calpurnius Piso, really is, in the first place, a *prima facie* proof that this piece of Epicurean writing existed in his day and had a place among the works of Epicurus. Further, the summaries must have (like the *χυρίαι δόξαι*) enjoyed a much greater vogue than the bulky works of Epicurus; they were evidently studied and passed on from generation to generation in a school in which the *ipse dixit* of the master was zealously maintained as the standard of true doctrine. It is natural, on the other hand, and most probable that a man of real attainments and wide knowledge like Philodemus had little love for this weakling among the intellectual progeny of the son of Neocles, and would have been glad to have it neglected or cast aside as a bastard.

The genuine and profound indifference of Epicurus towards this entire sphere of themes I need not emphasize again; it is unfair to demand (as Usener does) more apt arrangement and fitness in the succession of themes—or what succession of themes would Usener postulate? The strongest argument for the genuineness of this second-rate product of Epicurus, however, is afforded by the parallel of Lucretius' themes.

He is not (as Epicurus did not) desiring to write an exhaus-

tive or systematic treatise on physical phenomena both normal and abnormal ; at the first reading of the greater part of Book V and all of Book VI one cannot suppress a feeling that system is cast to the winds and to miss that rigid, comparatively speaking, that rigid sequence of treatment which is so unmistakable in the general unfolding of Epicurean doctrine in Books I-IV. Cf. Munro's commentary on Lucretius V, 533. And with Epicurus' incessant railing against the postulate of *one* explanation (τὸν μοναχῇ τρόπον, § 95 l. c. and § 113 τὸ δὲ μίαν αἰτίαν τούτων ἀποδιδόναι, πλεοναχῶς τῶν φαινομένων ἐκκαλουμένων, *μᾶλλον ἐστὶ*). Cf. Lucretius V, 620, "*non* inquam, *simplex* his rebus reddita causast."

"729 [of two different astronomical theories]
 "proinde quasi id fieri nequeat quod pugnat uterque
 "aut minus hoc illo sit cur amplectier ausis."

And 751.

Solis item quoque defectus lunaeque latebras
~~pluribus e causis fieri tibi posse putandumst.~~

And so again in book VI, 703 sqq., the theory of αἰτιολογία is advanced even more clearly :

"Sunt aliquot quoque res quarum *unam* dicere *causam* non satis est, *verum pluris, unde una tamen sit*; as f. e. when you see the dead body of a man lying at a *distance* [*i. e.*, precluding a close and direct inspection on our part]; there it behooves us to exhaust the entire range of contingencies through which a man may perish ; although we cannot, at that distance, prove any particular single one : the sword, or frost, or disease, or poison. And so we find the same plurality of explanation in Lucretius : positive and exclusive asseverations in this sphere are impossible.

V 526 nam quid in hoc mundo sit eorum *ponere certum difficile est*; sed quid possit fiatque per omne [das All].

in variis mundis varia ratione creatis
 id doceo *plurisque* sequor *disponere* causas, etc. . .

e. g., V, 509 sqq. of the motion of the stars *three* conjectural explanations, with two alternatives for the third; for the light of the moon 575 *two*; the periodical mutations in the sun's course 614 sqq. *two*; the problem of night (650), *two*; the correlation of day and night 680 sqq. *three*; moon's phases 705 sqq. *three*; eclipses 750 sqq. *two*.

Thunder VI, 96, *nine* explanations; lightning (246), *four*; waterspouts (423), *two*; clouds (451), *five*; rain (495), *four*; earthquakes (535), *four*; rise of Nile (712), *four*.

It is a matter of some interest, philologically, to survey the range of expression in which each writer presents the modality of possibility of alternative conjecture; in Diog. L. 10, 93; 'ενδέχεται. . . ὁμοίως. . . ἢ καὶ. . . ἢ καὶ—; 94 καὶ ὁμοίως, . . . ἔτι δὲ καὶ. . . ἔτι τε 'ενδέχεται. . . 'ενδέχεται δὲ. . . in 95; δύναται καὶ. . . καὶ. . . in 107; 'ενδέχεται. . . γίνοιτο ἂν. . . ἀποτελέσιν ἂν λαμβάνοι. . . in 111 ἦτοι. . . ἦτοι ἦ.—in 112; οὐ μόνον. . . 'ἀλλὰ καὶ. . . ἦ. . . —καὶ κατ' ἄλλους δὲ πλείονας τρόπους δύναται. With this compare Lucretius V, 515 sqq. Aut. . . est etiam quoque uti possit. . . ; 375 sq. sive. . . sive. . . ; 637 fit quoque ut; 651 Aut. . . aut. . . quia; also 658, 660, 682, 697; aut etiam quia 701; potest 705, est etiam quare 715; and 731 sqq. cur nequeat. . . , difficilest ratione docere. . . 753 sqq. cur luna queat. . . non posse putetur. . . 762, cur terra queat. . . 765 aliut nequeat. . . and in VI, 97 propterea quia. . . 108 etiam. . . 116 fit quoque. . . ut; 121 hoc etiam pacto. . . videntur; 132 est etiam ratio. . . ; 137 fit quoque ut. . . 142 sunt quoque 156 denique. . . 160 item.—295 est etiam cum.

It cannot be my aim to enter into the detail, much less into the scientific merits, of these explanations; it is curious and noteworthy that Seneca in book VI of his *naturales quaestiones* dealing with the problem of earthquakes [a theme suggested by the great earthquake of 63 A. D., from which Pompei and all the gulf of Naples suffered], in reviewing the extant theories on earthquakes, while quoting the Epicurean Metrodorus c. 19; and Epicurus himself does not mention Lucretius, with whom he was familiar. Now Seneca puts Epicurus 6, 20 in the category of those "qui omnia ista quae retuli in causa esse dixerunt

aut *ex his plura*. And particularly VI, 20, § 5 is so strong a confirmation of the letter to Pythocles that it seems pertinent to give part of it entire: omnes istas posse esse causas Epicurus ait pluresque alias temptat, et *alios*, qui *aliquid unum* ex iis esse adfirmaverunt, *corripit*, cum sit arduum de his quae coniectura sequenda sunt, aliquid certi promittere." And so the version of Seneca contains the following words or phrases of alternative conjectural statement: potest, potest, fortasse enim, fortasse, fortasse, fortasse, fortasse, fortasse . . . et inde aut, aut.

But Lucretius has further themes which hardly come within the sphere of *μτέωρι*, Etna, Nile, exhalation of Avernus, odd changes of temperature in a certain spring, the Magnet, Epidemics, the Plague at Athens. True, but his fundamental interest is that of *ad Pythoclem* § 104: *μόνον ὁ μῦθος ἀπέστω, ἀπέσται δὲ, εἰν τις καλῶς τοῖς φαινομένοις ἀκολουθῶν περὶ τῶν ὑφανῶν σημειῶται*. The absolute elimination of divinity as factor or efficient cause, § 113 and 116, 'learn this by heart,' my dear Pythocles; for the sequence is stated as a two-fold one: *κατὰ πολὺν τε γάρ τοῦ μύθου ἐκθήσῃ καὶ τὰ ὁμογενῆ τοῦτοις συνυρᾶν δυνήσῃ*. And so we see Lucretius engaged in elaborate and ambitious efforts to apply the abstract and fundamental doctrines of atomism, *i. g.*, in dealing with Etna, 647 sqq., with Avernus and its reputed exhalations, 769, 790 sqq., w. the magnet, 906 sqq., where the preliminary elaboration of first principles is carried on with such fulness that the poet apologizes:

919. et minimum longis ambagibus est adeundum and
1081. hec tibi tam longis opus est ambagibus usquam
nec me tam multam hic operam consumere par est . . .

and while it is his ambitious attempt to apply fixed principles (cf. Diog. L. 10, 116, "τὴν τῶν ἀρχῶν καὶ ἀπειρίας καὶ τῶν συγγενῶν τοῦτοις θεωρίαν") to definite physical problems which swelled the theme of the *Magnet* to the bulky total of 184 lines (905-1089), let us glance at the theme of Thunder and Lightning in the earlier part of book VI, 96-379, a little less than 300 lines . . . and then follows the fervid attack on the formulæ of the Etruscan ritual and the folly of ascribing these manifestations to Jupiter;

which uprooting of popular fear of the gods with its interdependence with the fear of death is really the chief motive and the very essence of this unique poem . . . the practical moral interest of emancipating the soul vastly predominates over the didactic or speculative interest.

But the limits of the *liber*, the mechanical necessity even of limitation, so instructively elaborated by Th. Birt in his "Das Antike Buchwesen," 1882, put their constraint upon the poet; so that alongside of these disproportionate elaborations of particular themes as just noted we find, *e. g.*, VI, 527 sqq. snow, winds, hail, hoarfrost, ice merely summarily mentioned, and turned over to the reader's application of first principles. We must not incline, however, to the assumption that this apparent miscellany of physical and meteorological themes and problems in Lucretius V and VI was a mere appendix, or second-thought supplement of the work proper; for in the very first detailed announcement of his chief themes, in I, 127, this entire matter is even placed first in order:

Qua propter bene cum *superis de rebus* habenda
nobis est ratio, solis lunæque meatus
qua fiant ratione. . .

In conclusion we ask were the *μετέωρα* an essential part of the 37 bb. *περί φύσεως*? It seems impossible to prove that the letter to Herodotus, § 35, 83, in Diog. L., X, is a true, *i. e.*, an even and truly proportioned summary of the entire range of the great work of 37 bb., the brief reference to *μετέωρα* in § 76 is too slender for elaborate or positive inferences. In the list of E's works Diog. L., 10, 27, of some forty-nine titles with 89 *volumina* are recorded as *τὰ βέλτιστα* out of the total of 300 *κύλινδροι* with the exception of *περί νότων δόξαι* there is no title specifically bearing on the subject of *μετέωρα*.

NEW YORK UNIVERSITY, 1898.