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The Calendar in the *Trachiniae* of Sophocles

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his audience caused him to prefer the indirect form, and he recast some of his more popular works in this new mould. Thus in form they belong to a late period, while in content they may fit into various earlier stages of his literary career. Probably at about the same time with this change to the narrative form came also the desire for grouping the dialogues. A group naturally should have but one form for all its members. Consequently, in the group of the *Theaetetus*, *Sophist*, *Statesman*, and *Philosopher*, the *Philosopher* would evidently have been a direct dialogue. But if, as supposed above, it was afterward fused into our present *Republic* it was then made indirect in form.

In brief, the result of this argument is, that a Platonic dialogue, irrespective of the date of the original composition, finally had one of three forms:—

- (a) direct dialogue—used at all periods ;
- (β) indirect dialogue—made by recasting the direct dialogue ; and
- (γ) continuous discourse—represented by the *Timaeus* and parts of the *Laws*.

In his desire to unite his dialogues into larger groups, Plato promised a tetralogy, (a) *Theaetetus*, *Sophist*, *Statesman*, *Philosopher*. Later he took away the *Philosopher*, and with the intention of calling it *Hermocrates*, projected a tetralogy (b), *Republic* (i.-v.), *Timaeus*, *Critias*, *Hermocrates*. After dropping the names of the last two and fusing them with the first the result was (c), the *Republic* (i.-x.) and the *Timaeus*, as we have them at the present day.

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THE CALENDAR IN THE *TRACHINIAE* OF SOPHOCLES.

IN submitting some observations upon the chronological framework of the story adopted by Sophocles in the *Trachiniae*, I desire to guard at once against a misunderstanding which is obvious and possibly prejudicial. In the present state of mythological controversy it may be difficult to advance the proposition that a certain Heracleian legend is closely connected with a certain development of the Calendar, without being suspected of a desire to fortify the theory which makes the hero himself a symbol and representative of the sun. Be it said therefore emphatically, that with this theory, or with any *Heracles* other than the human combatant familiar to Greek legend as we actually know it, we have for the present not the smallest concern. Our proposition is simply that, in respect of the chronological framework, the story presented in the *Trachiniae* exhibits and is founded upon a certain calendar, and certain institutions relating to the calendar, which existed when the story was first thrown into this shape ; and that this fact, interesting in itself as a piece of historical evidence, is not without significance even for the reader of Sophocles, as accounting for some peculiarities of structure and expression, which were naturally accepted by the poet from his traditional authority, but would not be justifiable if we supposed them invented by him for the purpose of his play.

Manifestly all this may be true, whether the hero was or was not by remote origin symbolic of the sun, or symbolic at all. That has nothing to do with the matter.

The story of the *Trachiniae*, as compared with other legends of the Attic stage, presents a chronology uncommonly copious and precise. The event of the play is the death of the hero, agreeing in date with the terms of an oracle, received by himself at Dodona, which, with oracular ambiguity, fixed 'the end of his labours' at the completion of the twelfth year from the date of the prophecy. His wanderings occupied, with the exception of visits to his home 'rare as those of the husbandman at seed-time and harvest to a distant farm', the whole of his time, and from the last of these absences he returns only to die. At his last departure he solemnly delivered to his wife the tablet containing the oracle, explaining to her that there wanted then 'a year and three months' to the date fixed, so that if by that time he were not heard of, she must presume his death, for which case he made disposition. At the opening of the play the prescribed period has elapsed, that is to say, 'fifteen months' according to the wife, though another speaker marks the duration as 'twelve months' (*Trach.* 44 foll., 155 foll., 647 foll., 821 foll., 1164 foll.).

Now, as compared with the habits of ancient

Greek legend, this chronology is, as we have said, uncommonly full and exact, especially with regard to the duration of the last absence. We do not usually find, in the tales adopted by the tragedians, dates precise to the month, or dates unnecessary for the comprehension of the facts, or indeed any dates at all. If we had been simply informed that at the opening of the play the time had arrived which was fixed by the oracle for the end of Heracles' labours, we should have had all that we needed and as much as we usually get. It is already something extra, when we are told that this time is twelve years from the giving of the oracle; and still more remarkable is the superfluous specification of fifteen months (or twelve months) as the distance of this same time from that of the last departure. Terms of months are very rarely mentioned in Attic drama, never, I think, except in connexion with natural processes regularly so limited, such as the 'six months' of the herdsman's summer in the hills (*Oed. Tyr.*), or the 'ten months' of the woman's gestation (*Ion*). As being an artificial term, limited only by the events of the story, this 'fifteen months' is perhaps unique. Odd therefore also, in the circumstances, is the variation already noticed in the number, from fifteen months (v. 44) to twelve (v. 648). A period of fifteen months might no doubt be described loosely as 'a year,' but why it should be called 'twelve months' is not obvious. If the exact length of the period was not important (and in the existing play there is nothing to show that it was), why number the months? And if it was important, why number them wrong?

Passing by for the moment other questions which will emerge when we come to explanation, we may remark that chronology is not the only matter in which we find here a numerical precision beyond the apparent need. Concerning the sacrifice with which Heracles celebrated his final victory, and which became the occasion of his death, we are told (v. 760) that 'he began his offering with twelve bulls, free from blemish, the first of the spoil; but altogether he brought a hundred victims, great or small, to the altar.' To Sophocles, so far as appears, these figures signified nothing, except generally the magnificence of the ceremony; but that they were once significant remains clear even in his version, which presents not only the specific combination of 12 and 100, but also a sharp and unexplained opposition between the two figures, the one

apparently correcting something which might have been wrong or defective in the other,

ταυροκτονεῖ μὲν δώδεκ' ἐκτελείς ἔχων
λείας ἀπαρχὴν βούς: ἀτὰρ τὰ πάνθ' ὁμοῦ
ἐκατὸν προσῆγε συμμιγῇ βοσκήματα.

It is now to be shown that all these facts, with others, hang together, and have one common origin in a certain calendric practice, to which the story was originally adjusted. It will be simplest first to state this practice continuously, and then to justify the statement by reference to the Sophoclean expressions which it serves to account for and elucidate.

The calendar in question, like all ancient calendars, presupposes a time, of very remote antiquity, when infant agriculture was content with empirical notes of the seasons, and the course of the sun had not yet been measured or divided. Time was then reckoned, on a decimal system, by days, and by 'moons' counted, as the nearest decimal approximation, at 30 days. The next denomination (the year, so far as there was then any year) was the ten moons, and the next the hundred moons, probably the largest unit by which in those times it was ever found necessary to reckon. Each period, moon, ten-moon, and hundred-moon, was marked by an appropriate ritual, and the largest, the hundred-moon, by a great calendric feast with a corresponding sacrifice of one hundred victims. This institution offered, besides its symmetry, the incidental advantage of a simple and symmetrical rectification of the inevitable error in days. With thirty days to a moon, the end of the hundredth moon would so fall, in relation to the end of a true moon, that by allowing ten days for the feast itself it might be celebrated with a quite respectable appearance of accuracy. Next, with the increasing importance of agriculture came the observation of the solar year, and the connected practice of counting moons not by tens but by twelves. The minor period or common year was now a *twelve-month*, 360 days, and the major period, or 'great year,' by analogy twelve *twelve-months*. Accordingly at the calendric feast which marked the period, the supremacy of the number 12, and also the fact that each twelve-month made up (as was at first supposed) a perfect solar course, was recognized by a principal sacrifice of 'twelve perfect' animals; while, to propitiate antique usage, the number 100 was nevertheless retained as the total of

indiscriminate victims. And if sacrifice could have persuaded the heavenly bodies to be reasonable, all would now have been well. But of course it could not escape notice that in fact, though the single year seemed correct to the sun, the 'great year' was much too short, the end of the twelve twelve-months preceding the expected solar epoch by a very considerable space. In this discrepancy itself however, the depositaries of religious learning supposed themselves to have detected, upon further observation, an element of rationality; for the defect was estimated to amount exactly, as in fact it did amount very nearly, to sixty days or two months. The discordance thus revealed, adjusted since by innumerable and highly complicated devices, was adjusted then by a method which had at least the advantage of an irreducible simplicity. The whole complement of sixty days, or two months, was added to the last year of the twelve; but as it seemed irrational and improper that there should not be in every 'twelve-month' twelve months and no more, the increase was made, in a fashion of which the history of the calendar presents frequent examples, by means of an artificial or pretended 'month'. In the last 'twelve-month' the first eleven months were ordinary months of thirty days, but the last 'month' consisted of an ordinary month *plus* the complement, that is to say, it had ninety days, and was, vulgarly speaking, not a month but three months. The residual error (for of course there was still a residue) would accumulate so slowly that a primitive society would be content to rectify it by arbitrary and occasional expedients, and the feast could be celebrated without suspicion of impiety.

It is to this condition of the calendar that the story of Heracles was adapted by the narrator, whose version descended to Sophocles. Probably (though this supposition is not necessary) it was held that the system had originated with Heracles or with his adventures, and that he actually founded the calendric feast in the form which corresponded to the improved system, as he was believed to have founded the feast at Olympia, itself calendric, and others of the same character. At all events the chronological scheme of the story is calculated by this system, and designed to exhibit it. Heracles, like other heroes in legend and like the offending gods in Hesiod, is condemned to a period of expiatory labour, measuring the length of a μέγας ἐνιαυτός, *magnus annus*, or 'great

year'. The length and divisions of this period are set forth to him in a tablet which he receives at Dodona, containing a symbolic representation of the calendric cycle. With the beginning of each year he is to go forth from his home to a fresh adventure or course of adventures, and with the end of each year he is to return. Accordingly, upon his departure for the twelfth course, he delivers the tablet to his wife, explaining to her that according to its significance this 'year' is the last, and that it differs in length from the other eleven, that is to say, that for the last 'month' is to be reckoned not an ordinary month, but a term of three ordinary months. Finally, having worked out the sentence, he returns and celebrates the great feast with the symbolic offerings since customary. Of course this chronological scheme did not make the story, of which the main interest lay from the first, where it lies now, in the adventures and destiny of the hero; though for the primitive audience, by whom the adjustment of the cycle, rude as it seems to us, must have been regarded as a work of mysterious and superhuman wisdom, profoundly important to life and religion, the chronological scheme itself had probably more interest than we can easily appreciate.

We are now to see how much there is in the play of Sophocles which from his altered point of view is not meaningless indeed nor offensive, but nevertheless not accounted for and not perfectly intelligible, until we refer his expressions to that historical authority, the lines and language of which he inevitably followed, even where they were no longer of much significance. We can justify for instance the strangely mysterious terms in which Deianira describes the tablet delivered to her by Heracles at his last departure, 'an ancient tablet, inscribed with tokens, which he had never brought himself to explain to me before, many as were the ordeals to which he had gone forth. . . . And he fixed the time; saying that when a year and three months should have passed since he had left the country, then he was fated to die; or, if he should have survived that term, to live thenceforth an untroubled life.'¹ Now what the tablet contained, according to the account which we receive long afterwards from Heracles, was simply the words or substance of the oracle, taken down in writing by the hero himself, to the effect

¹ 157 foll. Prof. Jebb's version, from which I cite generally, unless the context shows otherwise.

that his labours should end at the expiration of twelve years from that time.¹ If this were so, there really seems to be little reason for calling it 'ancient', and still less reason why Heracles should have spoken to his wife of his own note as if it were something abstruse and required explanation. Indeed we might even ask why the tablet should be so prominent in the story, or should figure there at all, since it adds nothing either in substance or weight to the all-sufficient evidence of Heracles. But when, as was the original conception, this tablet contained the 'tokens' or symbols of a calendric cycle, when it was actually in existence as a venerable relic, and was supposed to have existed from a dateless antiquity in the divine archives, until the day came when through Heracles it was revealed to mankind, the language applied to it by Deianira was perfectly natural, and the thing itself an essential feature in the story. We are reminded of the bronze tablet, recording a far more scientific improvement of the same kind, which was dedicated at Olympia in the fifth century by the mathematician Oenopides of Chios.

But above all, it is in the calendric import of the legend that we are to find the reason for its chronological details, and not only for the existence of these details (which, as was said above, is itself remarkable), but still more for the striking peculiarities of the language in which they are given by Sophocles. We see, for example, that there is, or at least there once was, something more than a graceful verbiage in 'the divine word of the old prophecy which said that when the twelfth year should have run through its full tale of months, it should end the series of toils for the true-born son of Zeus'.

ὅποτε τελεόμηνος ἐκφέρου
δωδέκατος ἄροτος ἀναδοχὰν τελεῖν πόνων
τῷ Διὸς αὐτόπαιδι.²

Those who first used this language, or language closely resembling it, meant by each word exactly what it implies. It was 'the *twelfth* year', or rather 'the *twelfth tillage*', which 'came to its end by completion of months', because this twelve-month, the last of the cycle, and not any other, received the supplementary months required to bring the period of twelve 'twelve-months' into agreement with the *tillages*, that is to say with the facts of nature and the necessities of agriculture. The twelfth

year, by means of the supplement, coincided in its termination with the 'tillages', whereas throughout the cycle up to this year there was a progressive discordance.

But if here the language of Sophocles receives, by relation to its origin, a more full significance, there are elsewhere places, where, apart from this relation, it is hardly to be understood or justified at all. 'He fixed the time; saying that, when a year and three months should have passed since he had left the country, then he was fated' &c. Undoubtedly this is what Sophocles meant his Deianira to say. And this is the fashion in which he words it:—

χρόνον προτάξας, ὥς τρίμηνον ἦνίκα
χώρας ἀπείη κἀνιαύσιος βεβώς,
τότ' ἢ θανεῖν χρεῖη σφε κ.τ.λ.³

That the poet wrote *ἐνιαύσιος* (and not *ἐνιαύσιον*, as expositors naturally wish that he had) must be taken as certain, the substitution and preservation of the nominative being on the contrary hypothesis incredible. And Professor Jebb, who duly retains the nominative, seems also to indicate justly, what may be said for the construction, as an equivalent for the meaning of Sophocles. It is just 'conceivable', that *τρίμηνον* (*χρόνον*) *κἀνιαύσιος βεβώς* should mean 'gone for a year and three months', the nominative being mentally explained as adapted to *βεβώς*, upon the analogy of *χρόνιος ἦλθε, χιλιῶς ἔβη* and the like. But it is a question to be asked, what possible advantage there could be in such a contortion, and what put the obnoxious nominative into the poet's mind. And the answer is that he is repeating, as all men do, when they write or speak upon consecrated themes, the language of tradition, although, as he would interpret it, it has altogether ceased to be natural. If the 'three months' and the 'year' are to be added together, to express them in different cases is to verge on absurdity. But the equal correctness of either case offered a natural device to those who meant, and were known to mean, that the two terms were *not* to be added together, but counted *separately* to the same termination. The tablet, as explained by Heracles to Deianira, showed that this twelfth of twelve 'years', the 'year' of his last absence, was to be more than an ordinary year, that it was to conclude with a period of three months, a *χρόνος τρίμηνος*, substituted for the last of its twelve months, and

¹ 1164 foll. ² 824

³ 164 foll.

counting as the last month of it. And he fixed therefore the time, when he was to be expected home or assumed to be dead, as the time 'when his absence should have covered the three-month, and (*thereby*) have covered the (extended) year.' When Sophocles elsewhere designates the same period as 'ten months and then five more',¹ he is translating the archaic formula, as he understood it, into language of his own, and translates it, as we see from his citation, not exactly. 'Fourteen months', not 'fifteen months', would have been the correct equivalent in common parlance, and *neither expression would have been truly archaic*; for according to the primitive reformers of the calendar, the last 'year' of their cycle was a *twelve-month* just as truly as the rest. This also Sophocles, faithful as a poet loves to be to sacred tradition, whether comprehended or not comprehended, allows us to see, when, notwithstanding his 'ten months and five months more', he permits his Chorus to designate this self-same period of expectation as *δωκαϊδεκάμηνον χρόνον* or 'long months twelve'.² That the last of these months must be a *χρόνος τρίμηνος* was no reason for disallowing the designation 'twelvemonth' to the final year. On the contrary it was a principal merit of the scheme that it achieved a reconciliation with the heavenly bodies without distressing piety and sense by a departure from the accustomed names of things. Such is, and in all times has been, the regular way of progress in this department of life; change the thing, if you must; but for that very reason do not change the words.

Again, in the verses which immediately succeed this reference to 'the three months' and 'the year', we have other language confessed to be obscure, but explicable, as I think, by the same hypothesis. It follows ancient form, that is to say, without much regard to change in the signification.

τοιαῦτ' ἔφραζε πρὸς θεῶν εἰμαρμένα
τῶν Ἡρακλείων ἐκτελευτᾶσθαι πόνων,
ὥς τὴν παλαιὸν φηγὸν αἰδῆσαι ποτε
Δωδῶνι δισσῶν ἐκ Πελειάδων ἔφη.

'Such, he said, was the doom ordained by the gods to be accomplished in the toils of Heracles; as the ancient oak at Dodona had spoken of yore, by the mouth of the two Peleïades.' How the ancient oak proposed to construe the genitive τῶν Ἡρακλείων

πόνων, or how Sophocles construed it, are questions which, as will be seen by a reference to Professor Jebb, have exercised commentators and emendators not a little. As to Sophocles, we may well agree with Professor Jebb, that for him it was a 'genitive of connexion, equivalent to the genitive with περί, and going with the whole phrase εἰμαρμένα ἐκτελευτᾶσθαι rather than with either word alone. "He said that such things were destined to be accomplished *in regard* to the toils of Heracles.'" But it remains none the less clear, that, to common apprehension, the genitive ought to depend strictly on ἐκτελευτᾶσθαι, and the translation ought to be 'Such, he said, was the *result* ordained by the gods to be accomplished *by* the toils of Heracles'; and if no one propounds this version, that is only because, from the position of Sophocles, such a statement would be scarcely explicable. Nevertheless it is likely that this, or something near it, was actually said and meant by 'the ancient oak', that is to say by the traditional authority which Sophocles follows as closely as he can. The thing, that was to 'result as an accomplishment from the toils of Heracles', was the very thing which Sophocles has just before described, that is to say, the perfection and achievement of the cycle, the inestimable boon which, through and by means of the labours of Heracles, was to be realized and presented to the world. The dramatist, resolved, like Burke, when building with antique materials at all events 'not to be guilty of tampering', repeats or paraphrases the prophetic *dictum* as he found it, and understands it in his own mind presumably as Professor Jebb.

Further again, from this point of view we may perhaps get some light on the puzzling state in which we find the conclusion of the Second Stasimon. We are justified in looking for it, because that ode contains, as we have seen, at least one borrowed phrase (*δωκαϊδεκάμηνον χρόνον*), which is natural and significant only in reference to the primitive purport of the story, and not to the story as interpreted and partly remodelled by Sophocles. The situation is this. It has been announced that Heracles is about to celebrate his sacrifice in Euboea, the anointed robe has been sent to him there, and the Chorus now pray for the speedy completion of his return to his home in Trachis.

ἀφίκουτ' ἀφίκουτο· μὴ σταίῃ
πολύκωπον ὄχημα ναὸς αὐτῶ,

¹ 44. ² 648.

πρὶν τάνδε πρὸς πόλιν ἀνύσειε,
 νασιδῶνι ἐστίαν
 ἀμείψας, ἔνθα κλήζεται θυτήρ·
 ὅθεν μόλοι πανάμερος
 τὰς πειθοῦς παγχρίστῳ
 συγκραθεῖς ἐπὶ προφάσει θηρός.¹

The last three lines were plainly meant to express the hope, that by Deianira's philtre, the ointment upon the robe, the heart of Heracles may be turned to his wife; but as they are given, they do not signify this, nor indeed anything. To this extent there is a general agreement. Jebb, accepting πανάμερος (from Mudge) and φάρους (from M. Haupt and after Whitelaw's φάρει) gives the text and translation thus:

ὅθεν μόλοι πανάμερος
 τὰς πειθοῦς παγχρίστῳ
 συγκραθεῖς ἐπὶ προφάσει φάρους.²

'Thence may he come, full of desire, steeped in love by the specious device of the robe, on which Persuasion hath spread her sovereign charm.' On every point, so far as he carries the matter, he seems to me perfectly right: πανάμερος 'admits of no satisfactory explanation', while πανίμερος gives what is wanted to fill up and determine the force of συγκραθεῖς: φάρους, of the robe, or something equivalent, is indispensable to complete the sense of παγχρίστῳ ἐπὶ προφάσει, words of which the integrity is certified by every sort of evidence that affects a textual problem. But there remains, before we can be contented, the question how then the MS. version was produced. That mere carelessness should make πανάμερος out of πανίμερος is possible, though, in this place and all things considered, we shall hesitate to call it probable. But whence and how came θηρός? The resemblance to φάρους (even when we have gone back, with Prof. Jebb, to the Sophoclean spelling φάρος) is but slight; nor could it well explain, were it stronger, why one familiar word, which makes a plain sense, should have been altered to another, which makes none. Here is the point upon which our present

¹ 655 foll.

² We need not here consider the doubt left by Prof. Jebb between συγκραθεῖς and the conjecture συντακεῖς. It rests entirely upon the assumption of syllabic correspondence with v. 654, ἐξέλυσ' ἐπίπονιν ἄμεραν. The sense of συγκραθεῖς (see Jebb) is unexceptionable, and the metre, as I think, also. The metrical objection to θηρός is graver, but this also may be neglected, as θηρός is otherwise condemned.

discussion may bear. Let us remember that, when our MSS. of Sophocles give θηρός, they do not prove or even go to prove that contemporaries of the poet read that very word; we can infer only that they read *either* θηρός, or θέρος, or θέρους, the script then still representing all three by θερος. The copyist who in this place first converted θερος to θηρός did so doubtless because, while θηρός, of the Centaur, seemed at least to have some possibility of connexion with the subject, the other interpretations, θέρος and θέρους, appeared to him inconceivable. But was he right? He was not right. His predecessor, who wrote θερος, did not mean θηρός but θέρους, which he gave, as he gave πανάμερος (or perhaps πανίμερος), not carelessly but intentionally, presenting Sophocles absurdly indeed but nevertheless exactly as he was commonly read and sung. We will explain why.

According to Sophocles, as we have just seen, the final sacrifice of Heracles was offered upon Mt. Ceneaeum, the N.W. promontory of Euboea. But this was not the only form of the legend, and there is every reason to think that it was not the oldest. In the tale of Ovid, though³ the deity is Ceneaeum Jove, the place is not Ceneaeum, but the immediate neighbourhood of Mt. Oeta, in the entrance, that is to say, of Thermopylae, where as a historical fact the memory of Heracles prevailed. When we consider how closely the catastrophe of the sacrifice is connected with the removal of the dying hero to Oeta itself, we cannot but see that the scene of Ovid is natural, the scene of Sophocles unnatural to the verge of impossibility. And when we add that the top of Ceneaeum never was, so far as appears, the scene of a great festival, and never was likely to be, whereas the gate of Thermopylae was a famous place of assembly, associated (as Sophocles himself notices in this very ode⁴) with just such gatherings as at Pytho, at Olympia, and elsewhere became the occasion of similar periodic celebrations, we are confirmed in the conclusion that the transference of scene was from Thermopylae to Ceneaeum, and not the other way. Nevertheless the change must have been made for grave reason, and the later version must have taken firm hold, or we should not find Sophocles adhering to it, as he does, notwithstanding its particular inconvenience as a theme for the Attic stage. By simply putting the sacrifice, like Ovid, in the proper place, the dramatist

³ Metam. 9, 155 foll.

⁴ 637.

would have freed his story at a stroke from embarrassments which he ignores, but must have seen. Now the passage before us indicates what was the religious necessity which enforced this cumbersome alteration. The legend had to be changed, because it was the base and sanction of the calendric cycle, *and the cycle proved to be wrong*. The error was indeed not great, a defect of three days in the cycle of twelve years. But to correct it, by removing the anticipated feast to the true season, would with lapse of time become imperative, if the plan was to be saved at all. The terminus of the cycle, according to the legend, was the end of the labours of Heracles, comprising in one event his return home, sacrifice, and death on Oeta. It was now discovered (it had to be discovered) that these terminal events had not been so nearly simultaneous, that the sacrifice had really preceded the death by a short interval—perhaps a day or two; and to give plausibility to this, the scene of the sacrifice to *Cenaeon Zeus* was relegated to the opposite coast and the promontory of *Cenaeum*. In celebrating the festival according to the date of the sacrifice, whereas it should have been determined by the true 'end', that is the death, men had constantly anticipated the intention of the heavenly powers. And so, in the usual fashion, the credit of the gods was saved, and a place made for practical correction. We need not indeed suppose, that the sacrifice on *Cenaeum* was then for the first time invented. That Heracles offered there a part of his spoil had probably always been an incident in the tale. What was new was to identify this as the final sacrifice, the occasion on which he received the fatal robe.

To this amendment of the story and the practice refer both the traditional phrases presented by the MS. version of our passage. When it was said that from 'the island altar' Heracles *ἔμολε πανήμερος*, *came home with all his days*, the point to be made was that only after this last journey from Euboea to Oeta, and not before, had he absolutely and exactly completed the period fixed by the gods for the instructive cycle of his toils. And the *πρόφασις θέρου*, the *pretence*, or more strictly *pre-appearance*, of *summer*, signified the error itself, which had been committed, first in a manner by Heracles and since by mankind, in celebrating 'the close of his labours' by a festival some days too soon. What was the exact solar epoch of the calendric feast does not appear in Sophocles; but it was certainly *θέρος*, as

appears not only from the incidental description of the meadows as *summer haunt of oxen* (*βουθερίς* v. 188), but plainly from the important part in the catastrophe which is played by the heat of the sun (vv. 685 foll., 765 foll.). The variety of range, in which the word *θέρος* was applied, forbids any nearer definition than that the epoch fell somewhere in the warm half of the year; if we should connect it, as the allusion in Sophocles might suggest (v. 637), with the *Amphictyonic* assembly of historic ages, *θέρος* would be the *harvest*, and the time autumn, which is one of its many possible meanings. However, this question is of no importance: it was at any rate *θέρος*, and so called.

Now it is a familiar literary phenomenon that traditional or consecrated phrases haunt the mind, and produce, especially when the theme in hand is itself sacred, all sorts of imitations and echoes. Under such influences Sophocles was composing, when he wrote, as it is justly inferred that he did,

ὄθεν μῶλοι πανήμερος
τᾶς πειθοῦς παγχρίστῳ
συγκραθεῖς ἐπὶ προφάσει φάρους.

His terms are not precisely those of the legend, but they are very like them, and pleased his ear the better for that likeness. But for common ears this delicacy was too much. Being led by the poet so near to the accustomed language, scribes, singers, and reciters took, as was to be expected, the last step for themselves, and repeated their nonsense

ὄθεν μῶλοι πανήμερος
τᾶς πειθοῦς παγχρίστῳ
συγκραθεῖς ἐπὶ προφάσει θέρου

with no more qualms about the meaning than are felt by those who now chant with fervour 'Or ever your pots be made hot with thorns, so let indignation vex him, even as a thing that is raw.'

Lastly, the existence of this archaic cycle, of which the memory and even the practice may well have survived in backward parts for a long time, will explain a tradition which has been a stumbling-block to historians of the calendar. The *Octaeteris* or *Enneateris*, the calendric cycle chiefly used by the Greeks in historic times, had three complementary or intercalary months. Ancient authorities report¹ that originally

¹ See Smith's *Dict. Ant. Calendarium*.

all these three months were inserted in the last year of the cycle. As applied to the Octaeteris, this is justly rejected as incredible. This cycle was a scheme of considerable complication, presuming as its basis a system of *unequal months*. We cannot believe that a society, settled and instructed enough to devise and work such a plan as this, would be contented with an error accumulating within eight years up to three months. It will at once be seen that, as an imperfect reminiscence of our rude archaic cycle, the statement becomes intelligible. Our primitive intercalation was actually made in the last year of the then prevailing cycle; and though it did not really amount to three months, but to two, the fact, that it was made by means of a χρόνος τρίμηνος, offered a ready opportunity

for confusion with the three separate months intercalated under the common system. Indeed this confusion, or some such, seems to have been already made by Sophocles or before him, and probably helped to produce the interpretation 'fifteen months', which we have already cited as erroneous.

In this account no pretence is made to have exhausted the subject. Probably there is much more in the play, which with closer examination or more knowledge might be proved to betray the influence of the primitive legend and its purpose. Enough has been said perhaps to show that the legend deserves attention, both for historical curiosity and for the sake of the literary flower to which it has served for a subsoil.

A. W. VERRALL.

WHAT LED PYTHAGORAS TO THE DOCTRINE THAT THE WORLD WAS BUILT OF NUMBERS?

ARISTOTLE, when comparing Plato's doctrine of causation with that of the Pythagoreans, states in the familiar passage of the *Metaphysics* (A. 6) that Plato took the Pythagorean doctrine, merely changing the terminology: τὴν δὲ μέθεξιν τοῦνομα μόνον μετέβαλεν· οἱ μὲν γὰρ Πυθαγορεῖοι μιμήσει τὰ ὄντα φασὶν εἶναι τῶν ἀριθμῶν, Πλάτων δὲ μεθέξει, τοῦνομα μεταβαλὼν.

What did Pythagoras mean by the imitation of numbers? First let us ask what kind of numbers does he mean? Did he mean nothing more or less than the modern scientific doctrine that all natural phenomena may be expressed in mathematical formulae? This seems to be reading into Pythagoreanism, the first faltering step towards a scientific theory of the universe, the most advanced doctrines of our own age. Mankind always advances to the abstract from the concrete, and this principle must have prevailed in the first gropings of the early philosophers, as it did and still does in all else. As every one knows, Arithmos with the Greeks was far wider in use than our word Number. Arithmos included the whole field of mathematics. When Aeschylus represents Prometheus as the discoverer of Arithmos for mankind—ἀριθμὸν, ἔξοχον σοφισμάτων ἐξείρητον—meaning thereby that he was the founder of all which we call mathematics, he is using the term in its ordinary use among the Greeks of the fifth century. With

Plato geometry and number still run together. The very terminology, as seen in the expressions ἐπίπεδοι ἀριθμοί, στερεοὶ ἀριθμοί, 'superficial' and 'solid numbers,' is sufficient to prove how indissoluble was the bond between number and geometry proper. When Socrates gives his demonstration of the doctrine of Anamnesis on the slave in the *Meno*, he treats the construction of a square twice the size of a given one in a thoroughly concrete manner. The size of the square and the length of its side are expressed in feet. If Plato finds it so hard to deal with simply abstract or mere numerical numbers, how much more difficult was it for his forerunner, Pythagoras! It is therefore more probable that Pythagoras held that the world was made up of geometrical solids than that he held the modern doctrine. This too is the view held by the chief modern writers who have dealt with Pythagoreanism. Mr. Grote says (*Plato* I. p. 10), 'Numbers were not separate from things (like the Platonic ideas) but mere *fundamenta* of things, their essence or determining principles; they were moreover conceived as having magnitude and active force.'

But there is a passage in the *Timaeus* of Plato which almost puts beyond doubt that Pythagoras held the doctrine that the universe (τὰ ὄντα) exists by the imitation of *solid numbers*.¹

¹ Plato, *Tim.* 58-61 C.