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ON THE *ETHOS* IN *HARMONIAI*

As it is well known, upon discussing the subject matters of the youths' education in the Res. III (399c-d) Plato mentions many kinds of *harmoniai*, among which he shows intensive affection towards the *ethos* (passionate effect) of the Dorian and the Phrygian. Plato's affection is succeeded by Aristotle (Pol. VIII 1341b 34-5). From these evidences we can suppose that this kind of affection was a prevailing opinion of leading figures in the classical age. It would be a chracteristic point of the Ancient Greek Civilization that *harmonia* has a proper *ethos*. The aim of this paper is first to find out the real nature of the Dorian and the other *harmoniai* and next to make clear Plato's position in the musical situation of his age.

This attempt seems to be a challenge to the impossible, thinking that these *ethe* are attributes of the lost music. But, fortunately there are some passages of evidence researved on these structures in the later writers. For instance Aristides Quintilianus (Arq.) describes these detailed structures as old fashioned *harmoniai* in the additional paragraph of his De Musica I ch. 9 (paragraph A)[1].

There are, however another traces of *harmoniai* as the species of the octave, which begin with each of the seven notes of an octave. They are supposed to be rationalized styles of the old-fashioned *harmoniai*. These structures are now callerd Greek modes, corresponding to the modes of the Western Medieval and Renaissance music. These are also described in Aristides (I ch. 8, paragraph B)[2]. So I want to begin with the examination of these passages.

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1. Aristide Quintilianus, "*De Musica*" I 9, 18.5-191.10.

2. Ibid., I 8,15.5-9 Seven forms described here are crucially important, but now they are generally known as Greek modes even in the popular dictionary of music (though we can hardlly find out the other source than this). So I here write

On the other hand there is a problematic concept *tonos*, which is interpreted as pitch of each *harmonia*. *Tonos* is derived from the verb *teino* (draw the strings), so pitch is a reasonable and natural meaning of *tonos*, the meaning of which is interpreted as a key or a tonality among the modern scholars of the harmonics. But, to our trouble each *tonos* is called with the same names as the species of the octave (for example the Dorian or the Phrygian, etc.) and its contents are in a way interpreted as the same[3]. *Tonos* of this meaning might mean the above mentioned modes. Contemporary researchers have discussed through more than these 100 years an exhausting and fruitless problem whether *tonos* means a key or a mode.

Under this problematic situation I will fix my eyes on the concept of *harmonia* trying to research a historical meaning. Its clue is at first examination of the passages of Aristides and around them. This trial leads directly to the probe into the process of construction of the Dorian. It should develop into the solution of Plato's spiritual situation.

Adding one word on the texts which involve these passages they are all about 500 years later ones than Plato, so we are afraid we cannot depict the facts of the classical period. But, they are confidently supposed to depend on the common text, Aristoxenus' "Elementa Harmonica", so we are safe enough to discuss them. In the following I shall treat the Greek theory of harmonics in general, which derives mainly from Aristoxenus (Arx.). Greek harmonic theory generally means an Aristoxenean theory here.

1. The Old-fashioned Style.

The structures showed in Arq.'s paragraph A are following. For the sake of convenience I will put them up with the names of notes constructing these structures (Q:quarter-tone, S:semitone, T:tone. D: double tone. Mark + shows the note which is higher quarter-tone)·

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down conclusion of this passage (for convenience adding the contemporary names of notes).

Mixolydia: hypate *hypaton-paramese* (a-a) Lydia: *parypate-trite* (b-b) Phrygia: *diatonos (lichanos)-paranete* (c-c). Doria: *hypate meson-nete* (d-d) Hypolydia: *parypate-trite* (e-e) Hypophrygia: *diatonos (lichanos)-paranete* (f-f) Hypodoria: *mese-nete* (g-g).

1. Arq. shows three meanings of *tonos*, which are (1) *tasis* (pitch) (2) *megetos poion* (difference of the fifth to the fourth) (3) *tropon systematikon* (mode) (ibid. 20.4).

Lydian	<QDTQQDQ	(e+-f—A——B-B+-C——E-E+)
Dorian	<TQQDTQQD	d—ə-e+-f——A—B-B+-C——E)
Phrygian	<TQQDTQQT	(d—ə-ə+-f——A—B-B+-C—D)
Ionian	<QQD3ST	(b-b+-c——e——g—A)
Mixolydian	<QQTTQQ3T	(b-b+-c—d—e-e+f——B)
Syntonolydian	<QQD3S	(b-b+-c——e).

These structures are obviously different from the species of the octave, although they are all together recognized as *harmoniai* and called with the same names. These might be the original patterns which should have been rationalized into the species of the octave. Judging from these names they are easily supposed to be the scales of the melody proper to the areas or nations. Although Arq. told them as the patterns which Plato had declared, they might not be the patterns of Plato's age, but of the age which Plato had regarded as an ideal one. They might be one phase of Aristophanes' '*harmoniai* descended from ancestors' (Nub. 968). This is suggested from the phrase 'the oldest people' contrasted to 'the old people' in the paragraph B. So we will be able to call them 'old-fashioned style' corresponding to the 'old-fashioned education' which Aristophanes would refer to. They should have been dated from the end of the 8th century BC or earlier when the enharmonic scale came into existence. Winnington-Ingram regards them as one of the earliest patters of a scale compared to the Spondeion scale[1] which is supposed to become a clue of Olympus' discovering the enharmonic scale[2] (Plut. 1134f-1135a).

Observing them we can soon notice that the similarity of the Dorian and the Phrygian, which could explain Plato's treating them as a

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1. W.-I., "*Mode in Ancient Greek Music*", pp. 21-2 *Spondeion* division is the division of the tetrachord compsed of three notes in the form <SD>.

2. Enarmonic is a proper scale to the Ancient Greek music, depending on the tetrachord of enarmonic division <QQD>. There are three genera, *enarmonion*, *chromatikon* and *diatonikon*, in the Ancient Greek music. Tetrachord, an original pattern of the *lyra*, is the apparatus of the four chords whose two chords (notes) of both sides are set with the perfect fourth. Two notes between them are movable and depending on them the form of division is divided into three genera. The four notes constructing the standard tetrachord are called *hypate*, *parypate*, *lichanos* and *mese* (from the bottom). According to Plutarchus, the enharmonic was invented by dropping out the *lichanos* of the diatonic division. I would like to add the fact that the form of the enharmonic of the Dorian is very similar to the 'IN (Japanese)' mode of Japanese traditional scale. This is one reason why I as a foreigner began to research the lost Greek music.

pair. As for the Dorian we cannot explain the first note d, which is added to the disjunctive[1] octave composed of two enharmonic tetrachords. We can only imagine this is an original pattern proper to the Dorian people of the earlier age when the octave had been recognized to be disjoined of two tetrachords. The standerd style of the Dorian is supposed to have come into existence cutting away this additional d.

Compared to it the d note of the Phrygian is meaningful. This structure suggests that the melody filled with the passion of the d-mode of the diatonic scale varied into the parts of the Dorian enharmonic tetrachords as the enharmonic division was introduced. In short the old-fashioned Phrygian is imagined to have a diatonic d-mode scale. In this case the missing of g note might deletion be permitted as omission of a moving note, so if we could only supplement it and regard the parts of quarter notes as vibratos, we shall obtain the diatonic d-mode scale deletion. As far as we make the best use of the tone of both extremes, this structure cannot be reduced to the enharmonic scale[2].

On the other hand the Lydian is supposed to be a variation of the Dorian. It is because the first e^+ note should be cut away as vibrato together with the last e^+ note. If we cut away both e^+ notes of the extremes, it is reduced to the normal form of the Dorian semitone schorter. So the part of the tetrachord <QQD> shows a characteristic meaning of the Lydian system including the Iastian.

As for the Mixolydian we can compare it with the species of the octave referring to the description of Ps. Plutarchus (paragraph C)[3], according to which the Mixolydian was invented by Sappho, later completed by Ramplocles (a master of Damon, middle of the 5th ce-

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1. Disjunction (*diazeuxis*) and conjunction (*synaphe*) are two forms of succession of two tetrachords. *Synaphe* is the form of overlapping the highest note of the lower tetrachord on the lowest note of the higher tetrachod, while in the *diazeuxis* there is an intervening tone between the above-mentioned two notes. Four notes constructing the tetrachord anew disjoined are called *paramese*, *trite*, *paranete*, *nete* (from the bottom). By disjunction of tetrachord there is constructed an eight-note scale of an octave from *hypate* to *nete*.

2. Winnington-Ingram's comment to this form is interesting. After considering in detail as usual he points out this form's intimacy to the diatonic d-mode (pp. 26-7).

3. Plutarchus, "*Moralia*", XIV 1136 c-e. Ps. Plutarchus' way of describing is very detailed and full of classical spirit. It is exceedingly strange that there was so detailed description on the situation of music of the classical age in so far later period. We might fairly suppose that his main source is Aristoxenus, as Prof. Barker suitudly suggests.

ntury) finding out the disjunctive tone is situated at the uppermost part of the octave. He is described as forming up this structure from *paramese* to *hypaton-hypate* (This form coincides with the species of an octave in the paragraph B). If we regard Sappho's form as old-fashioned one, we can imagine the process of transition of the Mixolydian from the old-fashioned style to the rationalized species of the octave.

By the way the origin of the Phrygian and the Lydian are depicted definitely in Athenaeus' *Deipnosophistae*: "Originally they were brought in the Hellas by the Phrygian and Lydian people who had immigrated into the Peloponesos with Pelopos" (625e). We could regard this as a historical fact. In the same context Athenaeus informs about a thought of Heraclides Ponticus[1] that *harmoniai* are only restricted into the Dorian, the Aeorian and the Iastian cutting away the Phrygian and the Lydian because the nations of the Hellas are restricted into the above-mentioned three. And he also informs another *ethe*, characteristic one of which is the Iastian and "neither flourishing nor cheerful, but serious and stern" and yet "nowadays varying very much to being fragile and delicate" (625b-c). In the paragraph C Plutarchus writes, too, Damon invented the Low-lydian which is similar to the Iastian. We shall be able to find out here the traces of their being varied hellenistic as they are introduced into Hellas.

We can, however, only conclude from this observation that the Phrygian is akin to the diatonic and the Dorian is akin to the enharmonic (or if we would arrange the scale with the enharmonic, there might not be possibility left other than the Dorian), which Aristoxenus also points out[2]. So we could predict that the real situation of music corresponds to Aristoxnus' words. This might be the great fruit of our examination.

Moreover generalizing this prediction we could say the Dorian was only a special structure which could be rationalized into the theoretical form disjoined of two tetrachords. So Plato's adhering to the

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1. Heraclides Ponticus is an unique thinker who at first studied in the Academy, staying there even after Plato's death, and then went to the Lyceion. There is a possibility of being a comrade of Aristoxenus in the Lyceion. His evidence on the music of these days might be accepted credible.

2. Wehrli, Fr. 84 (Clemens Stromateis VI cap. 11, 88, 1). The difference of genus must be discriminated from the difference of the species of the octave (mode). But, there should be naturally some correspondence peculiar to each other.

Dorian proved to be his estimation for the historically justified meaning of this form.

Then how was the Dorian constructed? Here we must turn our eyes to the process of how the eight-note scale of an octave was constructed.

2. Constructing the Dorian.

Now making clear the process of the Dorian's being constructed means how we can justify the succession of two tetrachords. Evidences are scarce as before, but connecting them carefully we can depict a concrete image fairly well independently of the idea of the Dorian.

The first figure of the meritorious service constructing the scale of an octave is Terpander the Spartan who was active at the beginning of the 7th century BC. In those days Sparta was an advanced country where the first organization of music was established under the direction of Terpander (Plu. 1134b). According to the 47th and the 7th Problem[1], however, we can suppose that the seven-note scale conjoined of tetrachords had come into existence from far before[2]. Judging from the fact that "the earliest people omitted (did not use) the note which was now called *paramese*" (922b5), the scale supposed there is a seven-note scale conjoined of a lower-situated tetrachord ‹*hypate-parypate-lichanos-mese*› and a higher-situated tetrachord ‹*mese-trite-paranete-nete*›. This scale lacks in a tone interval compared to an octave. In the 32nd problem he says on this supposition "Afterwards Terpander took away *trite* and added *nete*" (920a 18). As we can see an octave scale premised in this passage, the interval from *hypate* to *nete* must be an octave. What is the structure of the one-octave scale?

Accepting literally the contents of the 32nd problem namely that Terpander took away *trite* of the conjoined seven-note scale adding *nete*, at first to the above· mentioned lower-situated tetrachord he conjoined the same type tetrachord beginning from *mese* (‹*mese-trite-paranete-nete*›) and then after taking away the *trite* added *nete* with one tone interval (in this case *paranete* changed its name to *trite* again

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1. Aristotelian Problems ("*Problemata*" in 38 volumes) is not Aristotle's real work, but it's 19th volume on the harmonics contains very important evidences for the situation of music.

2. For this there is one more evidence. In the "*Enchilidion*" ch. 3 seven notes of conjoined tetrachords are made to correspond to seven planets from the Saturn, *(hypate)* to the Moon *(nete)*.

and *nete* to *paranete* in order to avoid the double naming). This might be a natural way of thinking which most scholars of today tend to take[1]. This, however, would be a form of the Mixolydian. For the disjunctive tone is situated uppermost so the highest note could not work as *nete*, which contradicts to the phrase "the Dorian *nete* ascribed to Terpander" (1140f). As for the fact that the disjoined Dorian octave might had already been constructed on Terpander's days, there is also a passage which could be interpeted as a stronger sub-evidence in the same context. On omission of *trite* Plutarch says that the oldest players did not avoid the use of trite without noticing its existence (1137b). In short the oldest people (including Terpander), he says, had been acquainted with the disjoined eight-note scale of an octave (i.e. the Dorian), but they limited the number of notes into seven aiming at the effect on expression. The Dorian is supposed to have already come into existence in their musical experience as a national *ethos* even if they were unconscious of it.

From this context we tend to say that the higher-situated tetrachord of the 32nd problem must be also disjoined at any cost in order to appove this form as the Dorian. This tetrachord should ps(org.) original monu script, 2 line omission be also disjoined at any cost in order to approve this form as the Dorian. This tetrachord should be a structure of ‹*parames - paranete - nete*› because it is the tetrac hond taken out *trite* from the original seven-note. In this interpretation we must accept the phrase "adding *nete*" as meaning "adding *paramese*". This operation will be equal to adding nete at the extreme, if the paramese is set one tone apart from the mese in order to make the succession an octave. But, we must have some evidence. Is there any clear evidence to justify this interpretation? This is an urgent problem.

The passage which gives us a stroug clue to this point is Nicomachus' description on Philolaus' and Pythagoras' scale in the *Enchiridion* ch. 9 and 5[2]. The former is a summary of the Pythagorean scale including the latter. There is, however, a definite contradiction between two passages. Both correspond to a conjunct form and a disjunct form respectively, so we can decide which pattern is Tetrander's by comparing to each other.

The given material of both is the same saven-note scale of an octave, lacking only one note in both in a same way. Nicomachus' scales

1. This seems to become a blind point.

2. Jan. pp. 244-253. Nicomachus is a neo-pythagorean doxographer of harmonics in the 2nd century AD. "*Enchiridion*" is a volume of an introduction to Pythagorean harmonics.

are diatonic, so lacking part should be a three semitones interval. And the lower-situated tetrachords are both the same standard style from *hypate* to *mese*.

As for the higher-situated part in case of Pythagoras' structure the interval between *mese* and *paramese* is three semitones, so the consecutive notes are *paranete* and *nete* at one-tone interval. This is equal to Terpander's octave which is supposed to be a conjunction, except that *trite* is called *paramese*. Nicomachus says that *paramese* changed its name to *trite* when the eighth note was inserted into the place where the *paramese* is now situated. This repont. however, is curious. To begin with it is unnatural that the note apart from *mese* with three semitones interval was called *paramese*. But it is more unnatural that *paramese* changed its name to *trite*. If so it is supposed to have been so called from the beginning. Even a little examination being given to this passage it proves to be untrue. In truth this is an admiring passage how Pythagorsa found out the harmony of the fouth and the fifth. Accepting it literally Pythagorsa changed the conjunct form to the disjunct form, which is theoretically impossible.

Contrary to Pythagoras' case in Philolaus the structure of a higher situated tetrachord is ‹*trite-paranete-nete*›. The lacking part is between *trite* and *paranete*. Consequently 'the inserted note's cutting of a tone from this interval (three semitone), there was left a semitone as the remainder between *trite* and the inserted *paramese* in the disjunction'. What is remembered especially in the description of Philolaus is, as Nicomachus also says, that *paramese* existed from the beginning with the name of *trite* 'before the additional insertion of the disjunctive tone[1] in the octachord' (253.5-6). This means that the *trite* in Philolaus' seven-note scale had already been working practically as *paramese*, which is an obvious evidence of the existence of Terpander's disjunctive scale. We can conclude from this that the desctription on Pythagoras is a fiction diguised as consistent, while the description on Philolaus is one of the most precious evidence showing the trace of possibility for restoring a lost phenomena as Burkert also says[2]. The standard Dorian style of an eight-note scale must have been arranged

1. This 'disjunctive tone' must be seen as an effectual terminology. For this sentence is interpreted 'before the additional insertion of the eighth note which makes the *trite* effectively a note making a disjunctive tone'.

2. Burkert, "*Lore*", pp. 394. Burkert's paying attention to this point is exceedingly admirable.

by Pythagoras, but the process of discovering it should have been such a complicated one as is found out in the description on Philolaus.

Then coming back to the urgent 32nd problem we can conclude in safety that the structure of Terpander's octave was disjunctive. It is because the expression suggesting it conjunct would be removed out as a fictional idea proper to a doxographer on Pythagoras.So the original pattern of the Dorian is presumed to have already come into existence at the oldest time of the historical period of Ancient Greece. Plutarch's evidence should have been said to gain the confidential support. In truth Terpander drew up the emotion which had been stored in the memory of a nation to the rationalized form of art.

Turning our eyes to the paragraph B on this observation seven species of the octave compared to modes prove to come into existence respectively independently of their cyclical structure. For once the Dorian came into existence, we can suppose other kinds of the species were artificially formed as its variation. The description on the Mixolydian in the paragraph C suggests one aspect of this situation.

In fact appearance of circularity itself is supposed to be fairly late. Asistold before, the achievement of the Mixolydian should be after the middle of 5th century BC. It should be later than that. There is more evidence which suggest it. The one is the description on Eratocles of Aristoxenus, according to which he "attempted to enumerate the arrangements of an octave, displaying them by moving the intervals around cyclically, but without demonstration. His account will generate many times the seven arrangements"[1]. Aristoxenus criticized Eratocles' way of trial and error confirming that there are only seven species of the octave because of its cyclical structure. We could, he points out, recognize the facts easily, if we receive the problem theoretically (Paragraph B is really the demonstration of this theoretical prevision). The date of Eratocles is not quite clear, but following to the description on Aristoxenus' and others' it is supposed to be after the middle of the 5th century[2]. The other is that the paragraph B is descri-

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1. "Elementa Harmonica", I 6.22-32 (tr. by Barker) Barker suggested this forms to be those of paragraph B.

2. According to West it is before 422 BC. "Ancient Greek music". pp. 227. He, however, estimates Eratocles' achievement as a step of systematization of modes. In my opinion, as is now explained, the circularity should get rid of the difference of the *ethe*.

bed with the terminology peculiar to Philolaus[1], whence we could infer the date of seven species of the octave to be about 430 BC, the days of Philolaus' *akme*. Further this coincides with the date of Damon, a contemporary of Socrates, who appears in the paragraph C.

These facts are told on the same consistent context. Theoretically there must be only seven species of the octave, each of which, however, should have been found out empirically as having different peculiar *ethos*. From the empirical point of view Eratocles is rather approved. For he should be supposed to be the first to achieve the system of species of the octave, which was filled with many kinds of *ethe*. Before it's achievement people could not consciously perceived the difference among seven species of the octave. They should have been anew called *harmoniai* in the technical meaning of the word: that is achievement of the Greek *harmoniai*.

Judging from these facts we shall not be able to deny that there was some upsurge of *ethos* arousing emotion. This might be called a spiritual movement. There should be an honorable figure to lead this movement, the name of which we have had no information. We might afford for the name Damon[2] to it (the name Eratocles would be too trivial). The 430 BC is the age when Pericles made a descision confidently to carry on the Peloponnesian War. This date is also a memorable date from the viewpoint of history of music.

Returning to the paragraph A again on undertanding B in this way, we could further infer that even the forms in A were also arranged to the forms in B premising the 'cyclicity' of B. In short the real forms of the old-fashioned style is supposed to be fairly different from the forms reported in the paragraph A. For example the Lydian begins with the quarter interval, but judging from the fact that the quarter interval can work only when they two go together in concession as a *pyknon* this is an impossible form from a theoretical point of view. In spite of being impossible this form is shown here as it is seen. I suppose it would

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1. In the paragraph B *syllable* and *di' oxian* are used for the fourth and the fifth respectively instead of *dia tettaron* and *dia pente*. And *diatonos* in also used instead of *lichanos*. This terminolog (is perculiar to Philolaus.

2. Damon is the most conspicuous theorist of music in the classical age, who was said to be a teacher on music of Socrates and even Pesicles (Michaelides, pp. 71-2). Plato often refer to him with particular esteem and respect (especially, Res. IV 424c 3-6). But, there remain too little evidences left about him exoept Plato. He must have intended to increase the situation of music with some political idea.

be a fictional effect of the original vibrato's being interpreted as a quarter by applying it to paragraph B's 'cyclicity', as was told before.

Therefore each form of six scales of the paragraph A is also supposed to have been an fictional product applied to some cyclical system even if the system of the paragraph B had not yet been established. The cyclical system of the paragraph B would be accomplishment of the second rationalization of this product reported in the paragraph A. It would be described at first with the enarmonic style. So it could be rewritten with the diatonic. The system of the paragraph B would be the effect of reformation while being rewritten.

The old-fashioned forms are supposed to exist accompanying the rationalized forms of B as if they were shadows even after they were again rationalized. The old-fashioned forms suggest, so to speak, the scales of naive folk songs, from which the artistic emotion of art started. It will be a substratum on which the national identity depends through ages.

3. Great Perfect System and *tonos*.

According to the current interpretation of the Great Perfect System (GPS)[1] it was brought into existence at the middle of the 4th century BC and then Aristoxenus succeeded it[2]. The consecution, however, of fifteen notes, which compose it, is foundation of the species of the octave, so it should have already been completed by the middle of the 5th century BC. Therefore, if the above-mentioned chronology is right, we must infer in these days that the consecution of fifteen

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1. GPS is the system of two octave compsed of four tetrachods conjoined and disjoined in turn. Theoretically speaking by jointing tetrachord upward and downward the standard Dorian octave conjunctively and disjunctively in turn again and again we have a series of notes succeeding consecutively on the infinite sphere. If we take up them in a series of two octaves, we have a sample of a scale (GPS) resembled to the coordinate axis of melody. Because of mese's leading power in a scale, species of the octave are thought to have all lost the difference of *ethos*.

2. For example, *The New Grove Dictionary of Music and Musicians*, *vol.* 7 (1980), pp. 664-6. The writer of this item isWinnington-Ingram. There is the same kind of explanation in the Oxford Classical Dictionary. Recently there appears also another interpretation of making its coming into existence later (for instance the end of the 3td century BC by Chailler). In my thought it is Aristoxenus who invented the *tonos* system as a new theoretical system. If *tonos* indicates the pitch as almost reserchers in the end admit although unwillingly, logical and historical conclusion cannot be otherwise.

notes might have suffered some definite variation which should be valued GPS. Effectively speaking it would be such a variation as caused species of the octave to make lose the capacity of modes. There is no other variation bringing about such an effect than the function of *mese*. In short *mese* is supposed to have finally begun to show the leading capacity as a central note in this situation. The leading character of *mese* which appears clearly in the Aristotelean 20th Problem is interpreted to be proper to this historical situation.

If the function of *mese* as a central note is approved, the consecution of fifteen notes shows a single structure which depends on *mese*. It is expansion of the Dorian octave into two octaves, which means completion of the GPS.

So far as *mese* works as a central note, each species of the octave also works as a part of the Dorian, whence the difference of structures (compared to modes) disappears and each species of the octave is reduced to an appearance of the same scale on differenat pitches.

Tonos is supposed to be a new system of a scale which is called with the same name as a species of the octave and is difficult to be discriminated from it (sometimes even ancient writers confuse each other[1]), whence it becomes the most problematic concept of the ancient harmonics. But, if we pick up the subject matter historically, the problem becomes simplified in its core.

Aristoxenus is supposed to have introduced the *tonos* of this meaning intentionally. It is thirteen scales of the Dorian octave which lower down the pitch semitone by semitone from the Mixolydian[2]. This is the structure which approves the character of *mese* as a central note, so it is the completing style of reducing all species of an octave to the Dorian.

Aristoxenus is supposed to have reorganized the modal structure of the species of an octave into such a structure as showing more difference of pitch depending on the function of *mese* as a central note. Effectively speaking this means reduction of other modes into the Dorian, so it is omission realization of Plato's intention[3].

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1. Winnington-Ingram's exceedingly labourous work "*Mode*" is, so to speak, a report of embarrassment caused by many kinds of ancient evidence which are hardly interpreted consistently.

2. Aristides Quintilianus, "*De Musica*", I 10, 20.5- 21.12. The description on tonos of Aristoxenus has been lost, but we can make up for it with this passage.

3. Plato's so called Dorianism is supposed to be a reaction against the overflowing of *ethos* of his age. But, Plato was not a theorist of the harmonics, so he

Aristoxenus expected to recover the enharmonic scale in contrast to Plato, so it might look contrary to his intension. The Dorian, however, corresponds to the enharmonic as says Aristoxenus, who is supposed to have expected to realize his ideal of the enharmonic with completing the *tonos*-system. It might sound paradoxical, but in the period of Aristoxenus recovering of the enharmonic was an impossible dream, so it could be reasonable that he expected to make up for it with the the concept of *tonos*, which introduced the enlarged Dorean system. in the spiritual situation of the historical transition period.[1]

Professor Barker says that Aristoxenus replaced *harmoniai* with *tonoi*.[2] If so, we could push on further this idea to Aristoxenus' expecting to establish a new theory for justifying their his idea. Plato intended the reformation of music being ethical as well as political with Damon. If we could interpret Aristoxenus in the same context, the intellectual history would become more interesting and instructive.

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was unable to make an actual reformation. So Plato actually should have depended on Damon's idea.

1. Judging from the fact that Aristoxenus distiked Plato (Wehrli, fr. 62), this remark might sound ironical, too. In the context of the intellectual history we could accept these three figures in the same grouping as a whole.

2. GMW I, pp. 167.

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