TEXTS ON NECESSITY AND DIFFICULTY OF BEGINNING WELL

COMMON FOREWORD

The following is a first collection of key texts on the necessity (or importance) and difficulty of beginning well. These texts, to which others may be added, are a *common* good for all who want to philosophize well. They are offered to all philosophers as a permanent resource for thinking and writing about the beginnings and will serve as a common foundation for discussing the necessity and difficulty of beginning well.

Among the Greek philosophers of the golden age of Greek philosophy (from Thales to Aristotle), we find a full statement of the need to begin well in the books of Plato and Aristotle. But there is also some recognition of this to be seen in some of the fragments of the first philosophers before them. Parmenides, the first philosopher to speak explicitly of the statement about contradiction (it is impossible for the same thing to be and not be) as a beginning of his thinking, says about this common beginning that he will come back again to it.

Parmenides, DK 5

It is common to me where I begin for there I shall come back again.

Parmenides also speaks of this axiom about contradiction as the beginning of a road that reason should follow and the denial of this axiom as the beginning of a road reason should not follow.

Parmenides, Dk 2

> Come, I will tell, and you pay attention to my word when you have heard it, the only road that can be thought of: the one that it is and that it is impossible for it not to be is the road of belief for it follows truth; the other that it is not and that it must not be - this I

> tell you is a wholly unbelievable road. For you could neither know what is not, for this is impossible, nor say it.

Parmenides, DK 7

> For this, what-is-not to be, will never conquer. But you hold back thought from this road of investigation and do not let custom force you along the much-experienced road where sightless sight and ringing ears and tongue rule, but judge by reason the much-fought refutation spoken by me.

Later thinkers, as we shall see, use this likeness in discussing the danger of even a small mistake in the beginning. It is like taking the wrong road where two roads meet. Although one does not seem to be far apart in the beginning, the further one goes, the further one is from where one should be.

Heraclitus also spoke of the beginning as common and in the following fragment he see such a beginning as *feeding* its consequences. He compares it to the divine or natural law which nourishes many human laws. (How many laws of the city, for example, come from the divine law not to take innocent life?)

Heraclitus, DK 114

> Those who speak with understanding must be strong in what is common to all, as much as a city is strong in its law, and even more so. For all human laws are fed by one divine law which governs as far as it wishes and is more than sufficient for all.

And when Empedocles is teaching the beginnings, he touches upon the usefulness of considering well these beginnings. Many other things will be gotten from the beginning being considered well or being firmly implanted in the learner.

Empedocles, DK 110

> If you press these things deep into your firm mind with a friendly disposition and a watchful attention that is pure, certainly all these things will remain with you throughout your life; and you will gain many other things from them; for the former things cause these things to grow into their own character according to the nature of each....

Hence, one could apply to the beginning the words of Empedocles in the following fragment:

Empedocles, DK 25

It is good to say twice what ought to be said.

Hence, also, the beginning is compared to a seed which must be planted deeply in the soul. And when this is done, much else will grow from it. Thus in a fragment from Antiphon:

Antiphon, DK 60

> The first thing, I believe, for mankind is education. For whenever someone has made a beginning correctly in anything, it is likely that the end will also come about correctly. And as is the seed one has sown in the ground, so also are the things one ought to expect will come forth. And when one sows a noble education in a young body, this lives and grows through the whole of life, and neither rain nor drought destroys it.

Even Protagoras touches upon this:

Protagoras, DK 11

> Education does not take root in the soul unless one goes deep.

But let us turn now to Plato and Aristotle.

Plato, *Laws*, Book VI, 753E

> For the beginning is called half of the whole work in the proverbs, and all praise beginning well on each occasion.
>
> But it seems to me that it is more than the half and no one has ever praised it enough when it has come to be well.

Foreword to the Study of the above Text

Plato first notes the *common* thinking reflected in the Greek proverb (proverbs are a sign of some *common* understanding) that *the beginning is half of all* and in the praise *commonly* bestowed upon beginning well. As a student of Heraclitus (through Cratylus), Plato knows the importance of the *common:* "Those who speak with understanding must be strong in what is common to all."

But then Plato states that the proverb about the beginning and the praise commonly bestowed on beginning well do not do justice to the importance of the beginning and the excellence of beginning well. For it seems to him that the beginning is *even more* than half and that one cannot praise *enough* the man who begins well. The latter statement also hints at the difficulty of beginning well for such praise is appropriate when something is most difficult.

It is also very significant that Plato should return to a consideration of the importance of the beginning and of beginning well in the *Laws*, which is commonly considered to be his last work. We should learn from Plato's example here that we should never presume to have understood enough, or acquired sufficiently, the beginning. If Plato returns to this topic even in his last work, how much more must we who are not his equal.

Aristotle says in the *Nicomachean Ethics* that Plato was right to ask whether we are on the road from the beginnings or on the road to the beginnings. This has more than one meaning. But sometimes we assume that

we are just on the road from the beginnings, going forward, when we may need to go toward the beginnings and acquire them better. The later on we can go forward better.

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Plato, *Republic*, Book II, 377A-B

> Do you not know then that the beginning is the greatest part of every work, and especially for the young and soft? For especially then it is molded and takes on the form which one wishes to press upon it.

Foreword to the Study of the above Text

When Plato states that the beginning is what is *greatest* in any work, he is not only indicating what has been said in the previous text (that the beginning is more than half of the whole). But he also regards the beginning as the *greatest* in that it is the most difficult part of the whole. Finding or recognizing and laying down the beginning is the greatest accomplishment.

Plato then points out that this has special importance for the young upon whom a good beginning has the most influence.

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Plato, *Cratylus*, 436C-D

> If the one laying down the first erred and forced the other things towards this and compelled them to harmonize with the same, it is nothing strange, just as sometimes in geometrical figures when there has come to be a first small and hidden falsehood, all the rest following are made to agree with each other.

> It is necessary then for every man to have much thought and much consideration about the beginning of every thing, whether it has been laid down rightly or not. For that having been considered well, the rest following it will be seen.

Foreword to the Study of the above Text

Here Plato emphasizes that even a small mistake in the beginning becomes ever greater as one proceeds from it. And he gives the reason for this: everything else is conformed to and judged by this beginning.

From this he concludes that one must think very carefully about the beginning and whether it has been laid down well or not. And he gives a reason why it is so important to have begun well which is that everything else can be seen as following from it. He has already given a reason why it is so harmful to have made even a small mistake in the beginning.

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Plato, *Timaeus*, 29B

The greatest of all is to begin at the natural beginning.

Foreword to the Study of the above Text

In this text, Plato teaches us that the greatest or best thing is to begin at the *natural* beginning. Plato's greatest student, Aristotle, sometimes notes explicitly that he is doing this. In the beginning of his book *About the Poetic Art* (1447a 8-16), for example, he states in the proemium:

> About the poetic art and its forms, what power each has, and how the plots should be put together if the fiction is to be good, further from how many and what kind of parts, likewise about whatever

> else belongs to this knowledge over a road, let us speak beginning first by nature from those that are first.
>
> Epic and the fiction of tragedy, further comedy and dithyrambic poems and most of flute and harp playing, all seem to be imitations {or likenesses) as a whole. But they differ in three ways...

Aristotle is going to begin from the natural beginning for a consideration of these things. Likewise, in the proemium to his book *About Sophistical Refutations* (164a 20-26):

> About sophistical refutations and apparent refutations, being paralogisms but not refutations, let us speak beginning by nature from what is first
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> It is clear that some are syllogisms and some appear to be when they are not. This comes about, just as in other things through some likeness, so likewise in arguments.

In both of these texts, Aristotle begins with something more general than what he is going to consider, but which is close to the latter. This is the natural place to begin from for the reasons we learn in the beginning of his first book *About Natural Hearing* (whose title is customarily and misleadingly translated the *Physics).*

However, we must consider further what Plato and Aristotle mean by *natural* here. For *natural* can mean assured by nature and also what is not assured by nature, but is in accord with nature. There may be some beginnings which are assured in some way by nature and others which are not.

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Aristotle, *Nicomachean Ethics*, Book I, 1098a 33 - 1098b 8

> Nor should the cause be sought in like manner in all things, but it is enough in some to show well that it is so, as about the beginnings. For that it is so is first and a beginning.

> Some of the beginnings are considered by induction, some by sensation, some by some custom, and others in other ways.
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> One should try to go over each in the way natural to it and earnestly seek how they are determined well. For they have great influence upon what follows, For the beginning seems to be more than half of the whole, and many things sought become clear through it.

Foreword to the Study of the above Text

In the first part of this text, Aristotle explains that what is a beginning and first in any reasoned out knowledge should not be made known in the same way as what is demonstrated therein. The beginning and what is known from the beginning are not known in the same way.

In the second part of the text, Aristotle points out that the beginnings private to each reasoned out knowledge are also not made known in the same way.

In the third part, he draws the conclusions that we must try to go over the beginnings in the way they are naturally apt to be known and hence that we must carefully consider how they can be determined. And then he gives the reason for doing all this which is that the beginning seems to be more than half of the whole and that from it many things we seek to know become clear.

Thomas Aquinas unfolds this in his exposition which we give in Latin and in a carryover or translation:

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Thomas Aquinas, *In I Ethicorum*, Lectio XI, nn. 137-138

Aliam autem diversitatem tangit...quae attenditur secundum differentiam principiorum et eorum quae sunt ex principiis. Et dicit quod non est in omnibus eodem modo causa inquirenda. Alioquin procederetur in infinitum in demonstrationibus. Sed in quibusdam sufficit quod bene demonstretur, idest manifestetur quod hoc ita est; sicut in his quae accipiuntur in aliqua scientia, ut principia: quia principium oportet esse primum. Unde non potest resolvi in aliquid prius.

Ipsa autem principia non eodem modo manifestantur. Sed quaedam considerantur inductione, quae est ex particularibus imaginariis, utputa quod omnis numerus est par aut impar; quaedam vero accipiuntur sensu, sicut in naturalibus; puta quod omne quod vivit indiget nutrimento. Quaedam vero consuetudine, sicut in moralibus, utpote quod concupiscentiae diminuuntur, si eis non obediamus. Et alia principia aliter manifestantur; sicut in artibus operativis accipiuntur principia per experientiam quamdam.

Deinde...determinat modum quantum ad id quod est communiter observandum in omnibus. Et dicit quod homo debet insistere ad hoc, quod singula principia pertranseat, scilicet eorum notitiam accipiendo et eis utendo, secundum quod nata sunt cognosci et studendum qualiter determinentur in hominis cognitione, ut scilicet sciat distinguere principia ab invicem et ab aliis. Cognitio enim principiorum multum adiuvat ad sequentia cognoscenda. Principium enim videtur plus esse quam dimidium totius. Quia scilicet omnia alia quae restant continentur in principiis. Et hoc est quod subdit, quod per unum principium bene intellectum et consideratum, multa fiunt manifesta eorum, quae quaeruntur in scientia.

Translation of Thomas Aquinas, *In I Ethicorum*, Lectio XI, nn. 137-138

He touches upon another diversity which is seen in the difference of beginnings and those things which are from the beginnings.

And he says that a cause should not be sought in all things in the same way. Otherwise one would proceed in demonstrations without end. But in some it is enough that it be well shown, that is, made

clear, that it is thus; as in those things which are taken in some reasoned-out knowledge as beginnings: because a beginning must be first. Whence it cannot be resolved into something before.

The beginnings themselves, however, are not made known in the same way. But some are considered by induction which is from particular imaginings, as that every number is even or odd; some indeed are taken by sense, as in natural things, as that every thing which lives needs food. Some by custom, as in moral matters, as that concupiscible desires are weakened if we do not obey them. And other beginnings are made known in other ways; as the beginnings in the active arts are gotten by some experience.

Then he determines the way as regards what should be observed generally in all. And he says that a man ought to insist on this that one go over the individual beginnings, by getting knowledge of them and using them, as they are naturally known and one should seek out how they are determined in man's knowledge, so that he knows how to distinguish the beginnings from each other and from other things.

For the knowledge of the beginnings helps much in knowing what follows. A beginning truly seems to be more than half of the whole because all the rest is contained in the beginnings. And this is what he adds, that many of those things sought in reasoned-out knowledge become clear through one beginning, well understood and considered.

Foreword to the Study of the above Text

In his commentary on the words before of Aristotle's *Nicomachean Ethics,* Thomas explains in which reasoned out knowledge is used each of those ways of making known beginnings distinguished by Aristotle.

He also makes more explicit that a good determination of the beginnings involves distinguishing them from each other and from what is not a beginning. A student of the first book of *Natural Hearing* (the *Physics)* can recall how carefully Aristotle distinguishes matter, form and lack of form from each other

He also states more fully the reasons for knowing the beginnings differently than what is from the beginnings and for considering carefully the beginnings and how they are known.

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Aristotle, *About the Universe (De Caelo et Mundo),* Book One, 271b 4-18

> To be thus or otherwise is not something small, but wholly different, and everything towards the consideration of truth. For this has been and will be the source of almost all the disagreements of those saying something about nature as a whole
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> if indeed to depart a little from the truth becomes further along ten thousand times greater to those going astray.
>
> as if someone says that there is a smallest magnitude. For the one bringing in the smallest would destroy the greatest things in mathematics.
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> The cause of this is that the beginning is greater in power than in size. Wherefore what is small in the beginning becomes very great in the end.
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> But the unlimited has the greatest power, both of a beginning and of quantity, so that it nothing strange nor unreasonable for there to be a wonderful difference from holding that some body is unlimited. Hence, one ought to speak about it, taking it up from the beginning.

Foreword to the Study of the above Text

This is the classical text where Aristotle warns us (as Plato has already done) that even a small error in the beginning is a great one in the end. Thomas Aquinas refers to this text in the beginning of his little work *de Ente et Essentia.* where he is also considering beginnings and the necessity of avoiding even little errors in them.

Thomas Aquinas, *De Ente et Essentia,* Proemium, n. 1:

> Quia parvus error in principio magnum est in fine, secundum Philosophum, primo *Caeli et Mundi,* ens autem et essentia sunt quae primo intellectu concipiuntur, ut dicit Avicenna in primo libro suae *Metaphysicae;* ideo, ne ex eorum ignorantia errare contingat, ad horum difficultatem aperiendam, dicendum est, quid nomine essentiae et entis significetur, et quomodo in diversis inveniantur, et quomodo se habeant ad intentiones logicas, scilicet genus, speciem et differentiam.
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> Because a small error in the beginning is a great one in the end according to the Philosopher in the first book *de Caelo et Mundo;* and being and essence are what are first conceived by the understanding, as Avicenna says in the first book of his *Metaphysics;* therefore, lest from ignorance of them one happens to err, it should said, toward opening the difficulty of these, what is meant by the name of essence and being, and in what way they are found in diverse things, and how they are to logical intentions such as genus, species and difference.

But it is an especially clear example because it is taken from a most striking beginning in natural philosophy.

Aristotle also give clearly the reason for this which is that the beginning is great in power or ability rather than in size. The text is also remarkable for its example of a like great mistake in geometry which would be to think there is a least magnitude, such as a shortest line. Anaxagoras had already seen that "there is no smallest of the small." A similar mistake in logic would be to think of the universal as a class. Since the universal is the first thing to be considered in logic, as Albert the Great has pointed out, a mistake about the universal is multiplied through the whole of logic. The whole of logic is corrupted by such a

"little" mistake in the beginning. These things are unfolded more by Thomas in his commentary on Aristotle's work

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Thomas Aquinas, *In I De Caelo et Mundo*, Lectio IX, nn. 96-97

Deinde..assignat rationem suae intentionis, ex diversitate quae accidit propter praedictam positionem. Et primo ponit hanc diversitatem consequentem.

Et dicit quod non modicum differt in comparationem ad speculationem veritatis in naturali philosophia, utrum hoc aut illo modo se habeat, scilicet quod sit aliquod corpus infinitum secundum magnitudinem vel non: sed magis inducit differentiam circa *totum*, idest circa totum universum, et circa omnem considerationem naturalem.

Hoc enim quod dictum est, fere fuit in praeterito, et erit in futuro principium omnium contradictionum inter eos qui aliquid enuntiaverunt de tota natura rerum. Illi enim qui posuerunt unum infinitum principium, posuerunt alia fieri quasi per separationem ab illo principio; et sic, propter infinitatem illius principii, dixerunt generationem rerum non deficere; sicut si aliquis diceret quod ex infinita massa possunt fieri panes in infinitum. Illi vero qui posuerunt principia finita, dixerunt fieri res in infinitum per reciprocam congregationem et separationem elementorum.

Deinde...assignat causam quare tanta diversitas ex hoc sequatur: quia scilicet qui modicum transgreditur a veritate circa principium, procedens in ulteriora fit magis longe a veritate decies millies.

Et hoc ideo, quia omnia subsequentia dependent ex suis principiis.

Et hoc maxime apparet in errore viarum: quia qui parum elongatur a recta via, postmodum procedens fit multum longe.

Et ponit exemplum de eo quod dictum est, in his qui posuerunt aliquam minimam magnitudinem, sicut Democritus posuit corpora indivisibilia: sic autem introducens aliquid minimum in quantitate, destruit maximas propositiones mathematicorum puta quod lineam datam contingit secari in duo media.

Et huius causa est, quia principium, etsi sit modicum in magnitudine, est tamen magnum virtute, sicut ex modico semine producitur magna arbor: et inde est quod illud quod est modicum in principio,in fine multiplicatur, quia pertingit ad totum id ad quod se extendit virtus principii, sive hoc sit verum vel falsum.

Infinitum autem habet rationem principii (omnes enim quicumque sunt locuti de infinito, posuerunt infinitum esse principium, ut dictum est in III *Physic*; et cum hoc habet maximam virtutem quantum ad quantitatem, quia excedit omnem quantitatem datam. Si igitur principium quod est minimum quantitate, facit magnam differentiam in sequentibus, multo magis infinitum, quod non solum excedit in virtute principii, sed etiam in quantitate. Et ideo neque inconveniens neque irrationabile est, si mirabilis differentia sequatur in scientia naturali ex eo quod sumitur aliquod corpus esse infinitum. Et ideo de hoc dicendum est, resumendo considerationem nostram a principio quod supra accepimus, de differentia simplicium corporum et compositorum.

Translation of Thomas Aquinas, *In I De Caelo et Mundo*, Lect. IX, nn. 96-97

Then he assigns the reason for his intention from the diversity which happens because of the foresaid position. And first he lays down the diversity that follows.

And he says that it makes no little difference towards the consideration of truth in natural philosophy, whether it is in this or that way; that is, whether there is some body infinite in size or not; but it rather leads into a difference about the whole, that is about the whole universe and about every natural consideration.

For this which has been said was perhaps in the past and will be in the future the source of all the contradictions among those who stated something about the whole nature of things. For those who laid down one unlimited beginning, laid down that other things came to be as though through separation from that beginning; and thus, on account of the unlimitedness of that beginning, they said that the coming to be of things will not cease; just as if someone said that breads can come to be without end from an unlimited mass. But those who laid down limited beginnings said that things come to be without end through the alternating congregation and separation of the elements.

Then he assigns the cause why so great a diversity follows from this: for he who departs a little from the truth about the beginning, going further becomes ten thousand times much farther from the truth.

And this is because all the things that follow depend upon their beginnings.

And this most of all appears in mistaking the road: because the one who turns a little from the right road, going further, becomes a long way off.

And he lays down an example about what has been said, in those who posited some smallest magnitude, as Democritus laid down indivisible bodies: someone thus introducing something smallest in quantity destroys the greatest statements of mathematics, such as that a given line can be divided into two equal parts.

And the cause of this is that the beginning, although it be small in size, is nevertheless great in power, just as from a small seed is produced a great tree; and thus it is that what is small in the beginning, is multiplied in the end, because it stretches out to all that to which the power of the beginning extends, whether this is true or false.

The unlimited however has the character of a beginning (for all who spoke about the unlimited, laid down the unlimited to be a beginning, as has been said in the third book of the *Physics*); and

with this it has the greatest power as far as quantity, because it excels every given quantity. If therefore a beginning which is small in size makes a great difference in what follows, much more the unlimited, which not only excels in the power of a beginning, but also in size. And therefore it is not strange nor unreasonable if a wonderful difference follows in natural science from taking some body to be unlimited. And therefore one should speak of this, resuming our consideration from the beginning that we took above about the difference of simple and composed bodies.

Foreword to the Study of the above Text

Among the many wonderful things to be noted in Thomas' commentary on the text from Aristotle, not the least is the wonderful *manuductio* from the seed and from the fork in the road. The seed is the paradigm beginning for our reason which is nourished by the senses. The seed is small in size, but great in its power as seen from what it produces. And the *little* difference in taking the wrong direction at a fork in the road can easily be seen to lead one further and further from where one should be, the further one proceeds. Such *manuductio* is, of course, the first way that a teacher leads us from the known to the unknown, as Thomas explains in the article on the teacher in the *Summa Theologiae*.

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Aristotle, *About Sophistical Refutations*, Chapter XXXIV, 183b 16-28

What has happened about this study should not remain hidden to us. Of all that is found, some is from those coming after developing what has been taken from others worked out before in part. But those found from the beginning usually take a small first advance, but are more useful by far than the later growth after from these

> For the beginning is probably the greatest of all, as has been said. And hence the most difficult. For as much as it is greatest in power, so much being smallest in size, is it most difficult to be seen.
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> But this having been found it is easier to add and to increase the rest. And this very thing happened about rhetorical speeches and in nearly all other arts.

Foreword to the Study of the above Text

This is a very important text on the importance and difficulty of the beginning. Aristotle speaks of the beginning in any art, such as logic, as being small with respect to what comes after, but as more useful and powerful than the rest. It is also most difficult to see because it is smallest in size, but greatest in power. What comes after is, comparatively, much easier. Many can add and cause the art to grow, once the beginning has been discovered or seen. But few could make the original discovery of the beginning. He says this can be seen in almost all arts and makes special mention of the art of persuasion or rhetoric which he, following in the footsteps of Plato, had studied so often.

Like Plato in the *Republic* and with the same word, Aristotle see the beginning as the greatest part in any knowledge over a road.

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Albert the Great expands on the significance of the beginning in paraphrasing Aristotle's books *On Sophistical Refutations:*

Albert the Great, *Commentaria in Libris Elenchorum Sophisticorum Aristotelis*, Liber II, Tractatus V, Caput III, Doyon ed., pp. 254-255

> Oportet autem nos non latere quod accidit circam sophisticum et totum logicum negotium, quantum ad modum inveniendi ipsum et et ordinandi ipsum in artem perfectam et scientiam.

Nam eorum quae inveniuntur in omnibus aliis scientiis, sive inventa sunt, quae quidem sumpta sunt ab aliis, a quibus prius elaborata sunt, a posteris particulariter augentur, qui sua prioribus inventis adjungentes sic particulariter auxerunt, et sic prima inventa ab eis successoribus priorum, qui scilicet successores postea post primos accipiunt a priorbus inventa, et addunt sua ad artis et scientiae incrementum.

Quae autem in primis ex principio dictionis inveniuntur, parum valde in primis inventoribus augmentum sumere solent: quia non sunt nisi quaedam communissima, in quibus scilicet parum scitur de arte. Utilius autem est plurimo illo invento quod scitur postea additum et inventum a posteris: quia hoc coarctatum est et appropriatum conclusionibus artis: et ex hoc fit artis et scientiae augmentum usque ad perfectionem scientiae et arti debitam.

Maximum enim omnium fortasse principium est.

Et dico *fortasse*, non quia dubium sit, sed quia non est maximum quantitate, cum sit unum ex duobus simplicissimis principiis et incomplexis, subjecto scilicet et praedicato: et ideo quantitate substantiae minimum est, maximum autem est potestate, quia super omnes conclusiones influunt principia :

et hoc quidem dicitur ab omnibus Philosophis.

Propter quod et principium maxime primum ad inveniendum, non ad cognoscendum, est difficilimum, et praecipue quod in ratione principii, et non tantum in ratione veri cujusdam inveniatur: quanto enim optimum sive potissimum est potestate influendi super plures conclusiones, tanto parvissimum est magnitudine substantiae: quia ex duobus minimis est et simplicissimis praedicato et subjecto: et propter hoc difficillimum est videri quoad inventionem secundum quod influentiam habet super omnes conclusiones scientiae.

Hoc principio invento facile est addere sequentia, quae jam potestate sunt in ipso principio: et ideo notitia principii influit et illuminat ad sequentium inventionem et additionem. Unde facile est sic invento principio augere reliqua ad scientiam et artem pertinentia. Et hoc probatur per hoc quod talis inventio et talis

additio etiam circa rhetoricas accidit orationes. Et pene circa omnes etiam accidit iste modus augendi circa omnes alias artes et scientias.

Translation of Albert the Great's *Commentaria in Libris Elenchorum Sophisticorum Aristotelis*, Liber II, Tractatus V, Caput III, Doyon ed., pp. 254-255

It is necessary however for us not to hide what happens about sophistic and the whole logical enterprise as far as the way of finding it and ordering it into a complete art or science.

For of those things which are found in all the other sciences, or have been found, some to be sure are taken from others, by whom first they have been worked out, while others have been made to grow in particular by those coming later, who, adding their own discoveries to those found before, have made the science grow in particular ways. Thus the first things having been found by the first thinkers, their successors take the things found by the first and add their own to the growth of an art or science.

The things which are first found by those who begin to speak of a subject have little growth in these first thinkers because they are very general in which little is known of the art. But they are more useful than all that is found and known and added later by those who come after; because these are confined and made proper to the conclusions of the art. And from this, a science or art grows up to the perfection due to art and science.

For the beginning is perhaps the greatest of all.

And I say *perhaps*, not because it is doubtful, but because it is not greatest in size since it is something one from two most simple and incomplex beginnings, a subject and a predicate. And therefore it is least in the quantity of its substance, but greatest in power, because the beginnings flow into all conclusions.

And this is said by all philosophers.

> And on account of this the beginning is most difficult to find and know, and especially to find and know as a beginning and not just as something true. For just as it is best or most powerful in its ability to flow into many conclusions, so it is most small in the size of its substance because it is from two most small and simple things, a predicate and a subject: and on account of this it is most difficult to be see it in the influence it has over all the conclusions of the science
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> But when this beginning has been found, it is easy to add the things that follow for they are already contained in the power of the beginning itself. And therefore the knowledge of the beginning flows over and lights the way to the finding and addition of what follows. Whence, it is easy, the beginning having been found, to add the remaining things pertaining to the science or art. And this is proved by this that such discovery and such addition also happens about rhetorical speeches. And this way of growing happens in almost all arts and sciences.

Foreword to the Study of the above Text

Albert does not divide and give the order of Aristotle's text as Thomas does. Rather he gives a paraphrase of the text and sometimes goes into questions it raises. The paraphrase does not need any commentary on it, but note that Albert says about its teaching: "And this is said by all philosophers." Perhaps this could be said of all the philosophers who are in the great tradition going back to Plato and Aristotle whom Thomas calls the "chief philosophers".

* * *

We can now turn to one of the greatest physicists of the twentieth century:

Werner Heisenberg, “The History of Quantum Theory” in *Physics and Philosophy*, Harper, N.Y., p. 35:

> Bohr’s theory had opened up a new line of research. The great amount of experimental material collected by spectroscopy through

> several decades was now available for information about the strange quantum laws governing the motions of the electrons in the atom. The many experiments of chemistry could be used for the same purpose.
>
> It was from this time on that the physicists learned to ask the right questions; and asking the right question is frequently more than halfway to the solution of the problem.
>
> What were these questions? Practically all of them had to do with the strange apparent contradictions between the results of different experiments...Again and again one found that the attempt to describe atomic events in the traditional terms of physics led to contradictions.

Foreword to the Study of the above Text

This text from Heisenberg's Gifford Lectures is very interesting for a number of reasons. We have included it here because Heisenberg applies to a beginning that is a question the thought of Plato and Aristotle that the beginning is more than half. The beginning about which Plato and Aristotle said this was something known rather than a question. But Heisenberg is pointing out from his experience that asking the right question is often to go more than halfway. If we represent by a straight line the time and effort it takes to go from ignorance to knowledge, asking the right question is often more than half the distance from ignorance to knowledge. This has also been my experience. Socrates denies that he is teaching the slave-boy in the *Meno* how to double a square since he uses only what the slave-boy has answered out of his knowledge to come to know this. But in asking him the right questions, Socrates is doing much more than the slave-boy.

The text is also important in bringing out the connection between seeing a contradiction and asking the right question.

* * *

Werner Heisenberg, *The Physicist's Conception of Nature*, Scientific Book Guild, London, p. 53:

> ...what always distinguished Greek thought from that of all other peoples was its ability to change the questions it asked into questions of principle and thus to arrive at new points of view, bringing order into the colourful kaleidoscope of experience and making it accessible to human thought...
>
> Whoever delves into the philosophy of the Greeks will encounter at every step this ability to pose questions of principle, and thus by reading the Greeks he can become practised in the use of the strongest mental tool produced by Western thought.

Foreword to the Study of the above Text

Heisenberg praises the Greek philosophers for their ability to ask questions of principle. These are questions which are about a beginning. Since such questions help us to see a beginning, and the beginning, although small in size, is great in its power, such questions are "the strongest mental tool produced by Western thought." Heisenberg urges us to read the Greek philosophers so as to acquire something of this ability.

* * *

Werner Heisenberg, *The Physicist's Conception of Nature*, Scientific Book Guild, London, p. 63:

> Those, however, who...wish to get to the root of things in their chosen vocation...are bound sooner or later to encounter the sources of antiquity, and their own work can only benefit if they have learned from the Greeks how to discipline their thoughts and how to pose questions of principle.
>
> I believe that in the work of Max Planck, for instance, we can clearly see that his thought was influenced and made fruitful by his classic schooling.

Foreword to the Study of the above Text

Heisenberg in this passage again speaks of the importance for thinkers of reading the Greeks so that they can learn "how to discipline their thoughts and how to pose questions of principle." These two go together because discipline or order is based on some principle or beginning.

Since order is based on some beginning, a defect of a beginning in a philosopher results in disorder in his thinking.

The example of Max Planck is very significant because he began the physics of the twentieth century. When Planck was a student, it was thought by many that physics was complete in its principles. But he discovered a beginning, the quantum, which led to the greatest change in physics since Galileo, Kepler and Newton.

* * *

Descartes, Letter to the Translator of his *Principles of Philosophy*, Dover edition of Descartes' philosophical works., Vol. I. p. 208:

> ...just as in traveling while we turn our backs on the place to which we desire to go, the longer and the quicker we walk the further we recede from the place we are making for.... so when our principles are bad, the more we cultivate them and the more carefully we apply ourselves to derive from them various consequences, thinking that we are philosophizing very well, the further we are moving from the knowledge of the truth and from wisdom.

Descartes, in the fourth of his *Rules for the Direction of the Mind*, Dover edition of Descartes' philosophical works. Vol. I. p. 49:

> it were better never to think of investigating the truth at all, than to do so without a method. For it is very certain that unregulated

> inquiries and confused reflections...only confound the natural light and blind our mental powers.

Foreword to the Study of the above Texts

In the first text, Descartes is agreeing with Plato and Aristotle that a mistake in the beginning becomes greater the further we proceed from it. However, his road image does not illustrate this as well as the fork in the road image used above by Thomas.

In the second text, he considers in particular the importance of that beginning which is sometimes called *method*. Method here seems to mean a knowledge of the road to follow and how to proceed in our thinking. Descartes is very strong here on the effect of the disordered thinking which results from ignorance of that road and way of proceeding. We become blind, as it were, and unable to see (that is, understand).

* * *

George Washington, Philadelphia, 31 May, 1776, *Letter to John Augustine Washington*:

> To form a new government requires infinite care and unbounded attention; for if the foundation is badly laid, the superstructure must be bad.
>
> Too much time, therefore, cannot be bestowed in weighing and digesting matters well.
>
> We have, no doubt, some good parts in our present constitution; many bad ones we know we have. Wherefore, no time can misspent that is employed in separating the wheat from the tares.
>
> My fear is, that you well all get tired and homesick; the consequence of which will be, that you will patch up some kind of a constitution as defective as the present. This should be avoided.

> Every man should consider, that he is lending his aid to frame a constitution, which is to render millions happy or miserable, and that a matter of such moment cannot be the work of a day.

Foreword to the Study of the above Text

This text from the Father of his country is about a very different beginning than those discussed above in philosophy. However, it is can serve as an excellent *manuductio* by likeness.

Washington here compares the beginning to the foundation of a house. If that is not well laid, everything built on it will suffer. He see how necessary it is to lay this foundation well since the happiness or misery of millions of citizens will depend upon how it has been laid.

Likewise, the beginnings of philosophy (especially in our knowledge) can be compared to the foundation of the house. And since a godlike happiness is found in knowledge for its own sake and error is a great part of misery, we cannot be too careful that the beginnings are well laid.

The great Washington could hardly emphasize more the great care which must be taken about a beginning. It requires, he says, "infinite care and unbounded attention." He points out the time it will take: "a matter of such moment cannot be the work of a day." And even more strongly: "Too much time, therefore, cannot be bestowed in weighing and digesting matters well."

Likewise, much time must be spent on the beginnings of philosophy to insure that they are well laid.

George Washington, "Queries on a Line of Conduct,", May 10, 1789, *The Writings of George Washington,* Washington, D. C., United States Government Printing Office: 30: 321:

> Many things which appear of little importance in themselves and at the beginning, may have great and durable consequences from their

> having been established at the commencement of a new general government.

Because the beginning, although it appears small, is great in its power or consequences, as Washington notes here, it requires a statesman to see the danger in even a little mistake there. Hence, the following statement of Aristotle.

Aristotle, *Politics*, Book V, 1308a 33-35:

> To know what is bad in the beginning does not belong to just anyone, but to the statesman (the political man).

* * *

Shakespeare is also touching upon the beginning in these famous words:

Shakespeare, *Hamlet,* Act II, Sc. 2: "brevity is the soul of wit"

Foreword to the Study of the above Text

As Kittredge and others have explained, *wit* is here taken in the older sense of wisdom. Shakespeare is saying that brevity is the soul of wisdom.

Shakespeare puts these profound words in the mouth of a man who does not exemplify them anymore. For Polonius is, as Hamlet says (in Act II, Sc. 2, line 220), one of "These tedious old fools". Why does he do this? Perhaps both a poetic and a philosophic reason can be given. Since it is humorous when a man is the opposite of what he says, putting these words in the mouth of Polonius pleases the audience and also avoids the appearance of the playwright lecturing us. But at the same time, since opposites are more clear when laid along side each other, it serves as a manuductio *per opposita*.

The fool multiplieth his words. His words are like those of Gratiano as described by Bassanio (*The Merchant of Venice*, Act I, Sc. 1):

> Gratiano speaks an infinite deal of nothing, more than any man in all Venice. His reasons are as two grains of wheat hid in two bushels of chaff: you shall seek all day ere you find them, and, when you have them, they are not worth the search.

But the wise man says more than others in fewer words. His words are more powerful. In this respect, they are like the words of those in power. In Shakespeare's *Timon of Athens*, the First Senator says to Alcibiades (Act III, Sc. 5):

> Do you dare our anger?
> 'Tis in few words, but spacious in effect,
> We banish thee for ever.

In like manner, the king's words in Shakespeare's *King Richard II* (Act I, Sc. 3):

> King Richard:
>
> > Uncle even in the glasses of thine eyes
> > I see thy grieved heart: thy sad aspect
> > Hath from the number of his banish'd years
> > Pluck'd four away [to Bolingbroke] Six frozen winters spent,
> > Return with welcome home from banishment
>
> Bolingbroke:
>
> > How long a time lies in one little word!
> > Four lagging winters and four wanton springs
> > End in a word: such is the breath of kings.

But the brief words of the wise man are not powerful in the same way as those of the king. They are brief like the lightning in their power to illuminate, but are often forgotten by fools. Shakespeare speaks well of this brevity of lightning in *A Midsummer Night's Dream* (Act I, Sc. 1):

> Brief as the lightning in the collied night,
> That, in a spleen, unfolds both heaven and earth.
> And ere a man hath power to say, "Behold!"
> The jaws of darkness do devour it up:

So quick bright things come to confusion.

But a fuller and deeper understanding of Shakespeare's words that brevity is the soul of wit or wisdom can be seen from Thomas' commentary on the words of Aristotle in *Metaphysics*, Book VII (1041a 19-20):

But this is common to all and short

The Greek word for short here (*suntomon*) is translated in Thomas' Latin, by *breve* which is connected with Shakespeare's English word *brevity.* (Shakespeare, it has often been noted, stays close to the Latin etymologies of his words.) Thomas explains the words of Aristotle (*In VII Metaphysicorum*, Lectio XVII, n. 1654):

> Sed etiam dato quod haec esset alia ratio a praedicta, tamen hoc etiam est commune omnibus, quia unumquodque est indivisibile ad seipsum. "Et est quod breve", idest se habet ad modum principii, quod est parvum quantitate et maximum virtute.
>
> But even given that this was another reason from the foresaid, nevertheless this also is common to all because each thing is indivisible from itself. "and it is short", that is it has itself in the way of a beginning that is small in size but great in power.

If we understand by *brevity* in the quote from Shakespeare a reference to the beginning that is short or small in size, but great in power, we can see that such brevity is indeed the soul of wisdom. For such beginnings give rise to the whole of wisdom. The common to all could also be understood in the light of a beginning which extends in its power to other things without limit as in the fragment of Heraclitus (DK 114):

> Those who speak with understanding must be strong in what is common to all, as much as a city is strong in its law, and even more so. For all human laws are fed by one divine law which governs as far as it wishes and is more than sufficient for all.

Wisdom is called *first philosophy* among other reasons because it is about first things; that is, about beginnings. As Boethius teaches us, it proceeds understandably. What gives life to this understanding are the brief beginnings which are the beginning and the end of the wise man's thinking.

* * *

Edgar Allan Poe, as Charles DeKoninck noted, also saw some of these points about the beginning

Edgar Allan Poe, "The Gold-Bug", *Complete Short Stories of Edgar Allan Poe,* Doubleday & Company, 1966, pp. 95-96:

> "I suppose," said I, "you missed the spot, in the first attempt at digging, through Jupiter's stupidity in letting the bug fall through the right instead of through the left eye of the skull."
>
> "Precisely. The mistake made a difference of about two inches and a half in the 'shot' - that is to say, in the position of the peg nearest the tree; and had the treasure been *beneath* the "shot,' the error would have been of little moment; but 'the shot,' together with the nearest point of the tree, was merely two points for the establishment of a line of direction; of course, the error, however trivial in the beginning, increased as we proceeded with the line, and by the time we had gone fifty feet, threw us quite off the scent."

Foreword to the Study of the above Text

In the words "of course, the error, however trivial in the beginning, increased as we proceeded with the line", Poe has given us another manuductio for the danger of even a "little" error in the beginning which becomes greater the further we proceed. It is similar in reason to Thomas' one from taking the wrong turn at a fork in the road.

* * *

Edgar Allan Poe, "The Purloined Letter", *Complete Short Stories of Edgar Allan Poe*, Doubleday & Company, 1966, p. 135:

> "The material world," continued Dupin, "abounds with very strict analogies to the immaterial; and thus some color of truth has been given to the rhetorical dogma, that metaphor, or simile, may be made to strengthen an argument, as well as to embellish a description. The principle of the *vis inertiae*, for example, seems to be identical in physics and metaphysics. It is not more true in the former, that a large body is with more difficulty set in motion than a smaller one, and that its subsequent *momentum* is commensurate with this difficulty, than it is, in the latter, that intellects of the vaster capacity, while more forcible, more constant, and more eventful in their movements than those of inferior grade, are yet the less readily moved, and more embarrassed and full of hesitation in the first few steps of their progress."

Foreword to the Study of the above Text

In this beautiful passage, Poe has touched upon the greater mind's care in the beginning. The reason for this is that the beginning is that upon which everything else depends so that the better one considers the beginning, the better one will be in everything that comes after. And the other reason is that even a "little" mistake in the beginning is a great one in the end. Hence, it behooves us to be especially careful in the beginning. This is why Thomas could have been called The Dumb Ox.

* * *

Deo gratias who is the beginning and the end of all things.

Duane H. Berquist