

- ① When many things are put in the same. { Met. 1494;
de An. 706
de Te. 2, 3, 8.
- ② Sens. matt. ^{nt} of definition of math. things { Met. 1503 1522
1505
1519

- ③ Qdo non idem qd qd et id eius Met. 1522 1521
1534
1762 statim
de An. 708
709
710

- ④ Mater. indiv. et palter qd qd et Met. 1535
de An. 706

- ⑤ Materia ratio diversif. sec. numer. de An. 2, 3, 8^m Met. 1521-2

- ⑥ Proportio { homo ad canes Met. 1517 1519
1518
prope ad lineas

- ⑦ Mat. intell. indiv. non de eadem specie Met. 1522

- ⑧ Primo quantitas de An. 2, 3, 8^m c.
Phys II 3, de An. 707

- ⑨ Remanet in intellectu continuum Met. 1508 1760 de An. 712-713.
de An. 707 1532

- ⑩ Mat. indiv. etiam in mathematicis Met. 1494

- ⑪ Imaginatio Met. 1494-5 dum sub sensu.
de An. 2, 3, 8^m diversa inop. sec. numerum.

- ⑫ Intel. corrupt. Met. 1494, de An. 745.

- ⑬ Intellect. cognosc. qd qd et canis et eorum indiv. 712-713

- ⑭ Mat. intell. sub quantitate

Abstraction

Metaph. $\text{VI}, 1$; $\text{VIII}, 1$; $\text{XI}, 7$. $\text{XII}, 2$, 24-26-7; $\text{VII}, 1, 11$, 15-26-7.

de Caelo I, 19, 4, 7-8.

Curve is neither hard nor soft, heavy nor light, warm nor cold.

Not in Math. not metaph.

^{definite}
The structure we can obtain
with more of the same.

A structure of which
is more of the same.

if we def. quality without substance,
def. of a category

⑧

The problem of contingency

Runs unstated through most of Med. Phil.

St Thomas's doctrine very complete, found mainly in his comm. on Arist.
Many of the distinctions he made have for centuries been neglected.
Taken up by him in radically different ways, according as he views
it in logic, phil. of nat., metaph., or moral philosophy, or sacred Theol.
We will follow this order in the present seminar...

It has been brought to light again by the existentialist movement
of our time: Heidegger in phil.; Camus and Sartre in literature.
Sartre, in particular, especially in *La Nausee*, declares all
contingent, basically irrational. And there may be a sense
in which this is strictly true of all creation.

You might say: but of course all creation is contingent - something which
St Thomas never said, at least not in such terms. At any
rate he would have made some distinction, which we no longer
feel it necessary to make.

Curiously, the neglect of the dist. between the contingent
~~and~~ opposed to the impossible, and the contingent ~~as~~
opposed to the necessary, between the intrinsically
contingent and that which is extrinsically so, is
correspondingly attended by a neglect ~~of~~
of the distinction between what is good sec. quid
and what is so simpliciter - a distinction corresponding
intrinsically to that between one simpl. & esse secundum
quid. We might even mention the very idea of good,
which, since Descartes, has been interpreted very in accord
~~differs~~ quite opposite to that of St Thomas. (C. Hollenbaum,
Causa causarum, Press. Univ. Harv.). Especially since
according to St Thomas the good essential to the contingent
as opposed to the necessary.

The role of contingency in our life is of course
very great. Like every creature, we extrinsically
contingent... But also intrinsically. In first
instance, clearly no choice: God, and, in some
measure, the parent. But the latter very uncertain
and involved; does not exclude even chance from
of intrinsic contingency: fortune: accident: meeting.
Then, the kind of person: did not choose genetic
structure: shape of nose or cast of mind. German
messels, or the mumps, in mother's pregnancy.
All subject to that stumpy prince, who stands
upon the rolling stone... description of this situation
at times appalling & terrifying. Greek tragedy
revolves around it.

It is curious that a situation ^{we could have become so blind to} that obvious.

Modern philo.

^{many}
Descartes

Leibniz

XVIIIth & XIXth century optimism.

Hegel

Horse

(dewey)

Existential.

Our plan.

If this difference is denied, * if we declare both statuses of
contraries to be ^{finally without} one and the same, then the real, as distinguished
from the rational, becomes contradictory.

On the conditions of becoming.

Parmenides, Regal, ^{Havits,} Dewey, Math. phil. Russell, Kasner.

The matter-prince.

Major.

All agree that the principles are contraries.

How we speak about becoming

Mobile being should not be taken here in the more
and narrower ~~restricted~~ sense of what is subject to movement
in the proper sense of this term - to be defined
later, in Book III. It means the being
that is subject to any kind of change -
either absolute, as when Socrates becomes
as a man, or relative change, like when
he becomes pale, or increases in size -
and therefore all the things that we are just
acquainted with in common experience.

We are not expected to see clearly that all the
things making up reality are of this nature.
We begin by this because of the identification,
based upon induction, that omne quod habet
mater, mobile est.

And there are no seeds of time, but all that comes to be already
is and so does not really become, but no more than apparently.

The things that surround us, like we are, like ourselves, subject to change. Those things which appear the most stable, like rocks, the earth itself, the sun, and even the remotest stars, all have come to be ~~what~~^{so} they are by some change. In ~~our~~ ordinary experience, living things ~~things~~ seem to be the most ^{meaningful and} transient of all that we call beings. They come to be, and pass away. How deep-seated is their becoming, and their eventual destruction? That this tree, or this man ^{with} ~~that~~, is commonly held to be true only so long as it does exist.

Is this man something apart from other things, as our designation seems to imply? ~~Not at all~~ Or is he no more than a temporary ^{and accidental} assemblage of materials ~~already~~ that were already given, like a house? There is no doubt that the electric charges ~~that~~ ^{which} make up Socrates could be traced ^{to} when they were somehow already there before he was, and they ~~could not have been there~~ ^{could only be followed} when he has ceased to be.

Is there any notable difference between the way in which the stuff is that Socrates is made of — whether it be particles that retain, for a time, their numerical identity, or whether it is no more than passing events where permanence is no more than a convenience of the imagination and linguistic reflection in linguistic expression.

Neither be same or not the same. Nor similar, for there was not really a 'that' which was. Things seem to have no more permanence than what there lags of them in memory. And how the memory of one who is as evanescent as the things that memory holds can be at all

This raises the general question of what is first and more known to us. St. Thomas treats of this ~~next~~ more fully in an article of the Summa Theologiae, where he asks whether the more universal is prior in our intellectual knowledge.

In our knowledge there are two things to be considered....

.....

.....

.....of the less common.(1)

(1) Ia Pars, 85.3, c.

There is a kind of rational justification for Leucylos' reluctance.
For if time is made of past and future divided by the
instant which not time, then nothing is but at the
indivisible of time, which is unceasingly other and other;
by the time we think that a thing is it is no longer, and
nothing takes place in time.

Suppose we start to investigate what man is. We
ought to know first what we mean by the name. Suppose
that until now we have assumed that what it refers us
to is the kind of animal that reasons, and by 'reasoning'
we intend an activity that implies the perception of relations.
Then we find out that other animals also apprehend
relations, and that even machines can operate as if they did, too.
Some then jump to the conclusion that the activity which
we had named as characteristic of man is common to animal
and machine, and that as a consequence, we learn that
they are really all the same. Yet there is another possibility;
suggested by the fact that man does so many things that
other animals do not do, nor does any machine - like performing
experiments with chimpanzees, and ~~computers using~~ ^{making} computers and using them for a purpose. Could
it not be that we have not been clear enough about
'relating things one to the other' as an operation proper to
reason?

A dog ^{may see that this} ~~is~~ bone as ^{that one,} ~~is~~ larger than another, and
knows ~~that~~ where he concealed a bone and that to get
at it again he must dig for it. This implies knowledge
of relations, and means to an end. And when a horn on
the field hears the dinner bell he starts shaking his head,
~~for the oats~~ for he knows it is time for the oats.

To make the kind of assimilation intended, one would have
to assume that the dog apprehends the larger bone, not
merely as promising more satisfaction, but also and ^{the relation of inequality as such, and} the larger bone
precisely as larger, and as nourishing; or that the machine
knows what it is doing.

Chapter III

A first approach to the principles of the subject of this science:

The opinions of those who denied the subject.

It was stated that the subject of this science is mobile being, or being that is subject to change. Now, if there is to be ~~existence~~ scientific knowledge about this subject, we must determine the kind of principles from which such knowledge can be had. However, mobile being as such already presents a special difficulty. For, before seeking its property, we may ask what it is that changes, how far the change can go, what the change is from and where to? Though the fact of mobility seems to impose itself, it implies not less strikingly much that is obscure. This is borne out by that from antiquity to the present day ~~many have denied~~ many have denied mobility as no more than appearance.

There would be few to disagree with the principle that in any science we ought to start/what is more known to us. The difficulty arises when we try to determine what it is that is at first more known to us, and to see how it compares with what is most knowable in itself. ~~The whole of this is complicated by the fact that~~ ~~mathematics~~ To understand what Aristotle has in mind here we must realize that he is not concerned for the moment with the order of demonstration, which he ~~treats of~~ ~~considers~~ in the following Book, but with the order in which the various things ~~are considered in the~~ ~~which~~ that the science ~~ought to~~ is concerned with ought to be considered. We must distinguish, further, between what we know first and more, and what we distinctly realize as being first and more known. With regard to first principles, for instance, we hold that the proposition 'it is impossible to be and not to be at the same time and in the same respect' is the very first and most certain, yet discussion of this fact has led to the most divergent views. ~~If~~ ~~we ask~~ ~~if~~ ~~someone~~ ~~if~~ ~~in his opinion,~~ 'mobile being' is what he knows first and more in all nature, we may obtain the answer that he does not know about ~~mobile being~~ mobile or moveable being, but that he ^{is} overwhelmingly certain that his brother in law likes porkchops. Another would say that he does not know what ~~mobility~~ mobility could mean until he has measured a movement, and that he then no longer cares about mobility. This was/ ~~Descartes~~ ^{somewhat} Descartes' opinion: movement, to him, was something so utterly clear that any attempt to define it could be no more than nonsense.

P Descartes also held that the things first and more known to us, ^{that} indeed ~~maximal~~ are the essence of God and/of our own soul, which are/good instances of what is most knowable in itself, but least knowable to us.



UNIVERSITÉ LAVAL
QUÉBEC, CANADA

Québec, le 6 novembre 1956.

Cher Monsieur,

J'ai le regret de vous annoncer la mort de l'honorable Juge Jules-Arthur Gagné, professeur émérite et ancien doyen de la Faculté de Droit, décédé subitement lundi, le 5 novembre, à l'âge de 74 ans.

Les funérailles auront lieu à l'église des Sts-Martyrs Canadiens le vendredi 9 novembre, à 9 heures.

Les professeurs voudront bien revêtir la toge à la sacristie à 8 heures et 45.

Je vous prie d'agréer l'expression de mes sentiments dévoués.

Le Secrétaire général,

Jacques Garneau, ptre.
Jacques Garneau, ptre.

JG/fb

~~Constantly~~ frequently We have been using the demonstrative pronoun 'this' to express something individual. designation of the ~~thing~~ individual.

Such designation is also called demonstratio ad sensum, where demonstration is taken in the original sense of showing, or setting a thing apart from other things, by pointing it out. ~~It is now~~ We can now be clear on the subject, and distinguish three kinds of pointing out to sense, corresponding to the general division of what is sensible. ~~The distinction are importance of these distinctions the distinction~~ That we ought to be aware of these differences is plain from the fact that 'this' in

Failing to observe these distinctions we will be led to say either that all qualities are of the mind or that the qual. are the in the way the form is there.

'this sense?'

Sensible matter is essential to the definition of natural science, whether we intend definition as an expression of what the ~~definition is~~ thing is or, or as the definition of the name.

But ~~then~~ we can define certain things without sensible matter....

Now since defin. is principle of science, if there are modes of defining that are irreducible one to the other, we will have diff. principles of science in such a way the body of Aristotle. in such a way that

En Note

Later we shall see that in defining a magnitude
as ~~curve~~ without ~~any~~ sensible matter, like
the curve of a snub-nose, without bone and
flesh - we have mathematical abstraction,
founded on the absolute priority of quantity
to quality, ^{that we may always proceed}
from what is first in itself as if it were also
first to us, is a basic assumption of Descartes' philosophy,
~~philosophy, ^{leading up} that eventually ~~leads to~~~~
~~the denial of every true knowledge of things~~
~~in themselves, as it does, ^{with Kant} this~~
~~confines all our knowledge to the kind that~~
~~of reality (as distinct from ^{awareness} ~~subject and mathematical~~~~
~~abstraction) to the kind that ^{has of}~~
nature, viz. not knowledge as true, but knowledge
only of what is ^{good to senses} ~~to the senses~~, like food, or ~~like thirst~~
~~like thirst~~ - which ^{in man} corresponds ~~with~~
~~man's~~ to the judgment of practical reason.

like surface to colour.

leading,
to a denial of every true speculative
judgment and science about things,
thus confining our knowledge of
of them to the kind that the mere
animal has: nature; ~~not~~
knowledge knows true, but only
of what is ~~in some~~ agreeable or
disagreeable to the mere animal

repugnant to the senses, like
food ~~and~~ or thirst.

The enclosed offprint will tell you how much
I enjoyed your article on the Nobility of Light, which
I read, after an absence of over a year.

10 Abstraction as a common
condition of science: \rightarrow Mater. singular.

20 Abstraction that distinguishes
the sciences: definitions:

- cum mat. in esse et def.
- sine mat. in def., cum in esse
- pure " " " et " "

Three things to be shown:

1. Singularia materialia nec ex nec cognosci
possunt componendo univocalia.
de Va., p. 2, a. 5, c.
2. Hæc enim non possunt exerceri in mat. sensit.
Substantia quantum non sine forma, nec
forma sine dispositione substantiæ, quæ
in subst. mater. est qualitas sensibilis,
sive immediat. sive mediata.
3. "Degrees of abstraction": modus definiendi.
Abstractio formæ. Quid?

Order: secundum

Objectum scientiae, quid complexum, scil. conclusiones,
seu id quod per scientiam manifestatur tamq.
illatum et probatum.

Concl. qd quid complexum: praedicatum
dicitur de aliquo subiecto. Conclusio
qd ergo objectum scitile, i.e. id quod
scitur et inferitur in aliqua scientia.

Subiectum: illud de quo, in conclusione, praedicata
seu passiones inferuntur et probantur.

Sed priores propositiones, ex quibus inferitur conclusio,
circa idem subiectum aliquid continent, ex
quo tamquam per connexionem inferitur
id quod in conclusione praedicatur: ideo
principia et conclusiones in scientia circa
idem subiectum versantur.

In principiis autem praedicantur ea
quae sunt per se nota, sicut praedicata
essentialia seu definitiones, quae non probantur
per aliud medium. In concl. autem praedicantur
ea quae ex istis inferuntur, scil. passiones.

Objectum:

materiale: illa propositio quae per illationem probatur
et scitur tamquam veritas illata.

formale: ratio illa sub qua, et per quam illustratur
et manifestatur talis conclusio, ~~scil. per~~ ^{scil. per} ~~mediam~~
demonstrationis, per quae conclusiones cognoscuntur.
Ar. definitiones, vel ea quae loco definitionis.

Motus qd actus existens
in potentia impuans
huiusmodi;
Existens in potentia in
qnt huiusmodi, et
mobile.*
Ergo motus qd actus
motilis, imp. existens

* Mobile, non autem
moveri, quia necesse
in qnt huiusmodi
qd ens in actu.
Phys. III,
l. 4, n. 1

Subiectum

materiale: res illa de qua aliquid demonstratur in aliqua scientia.

[V.p. in phil. nat., ipsa corpora.]

formale: illa habitudo, seu ratio, secundum quam subiecta illa (ut corpora) considerantur in tali scientia.

[V.p. in phil. nat.: by "mobile".]

Obj. mat. fidei: ipse
Deus et multa alia
sed ut habent ordinem
ad Deum.

II^a II^a, q. 1, a. 1, c.

Obj. formale fidei:
veritas prima:
quia a Deo
revelatum.

Other meanings of "science": i.e. of to know why. ~~usually~~ The reason why usually refers to the reason of something else.

First principles.

Established facts. Scientia per experientiam.

Opinion, because of ~~some~~ reason given, though not definitive.

Not all these meanings refer to science proper, i.e. demonstratio.

Subject { as first known: that about which we seek knowledge by proof.
as last known: that about which we pose " " " "

Last: "What the science is really about": the many subjects (material) about which we seek further knowledge: species of things; ~~and~~ their properties ~~and~~ and coordination.

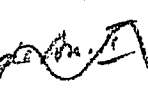
object seen is the son of Socrates
is perceived incidentally by sight,
inasmuch as whiteness happens
to belong to what is sensed: but the
sense is unaffected by that object
as such. For sight is specified by
colour, not by ~~what it is the colour~~
~~of. And so~~ the subjects of ~~the~~
colour. And substance as such is knowable to intellect only.

~~Again, sensible matter, apparently,~~
~~is not mentioned in the operational~~
~~definitions of mathematical physics, which~~
are confined to the measurable aspect
of things. No matter is mentioned in the
definition of length, for instance.

On the other hand, physics has proposed
the very 'objectiveness' of physics is
due to the fact that "the physical
definitions of tone, colour, and of temperature
are today in ~~no~~ no wise derived from
perception through the corresponding
senses". (1) On the other hand, sensible
'matter' is apparently not mentioned
in the operational definition of physics

Again,
mathematical
physics owes its objectivity

(1) Max Planck.

activity of ~~the mind~~ ^{the mind} ~~become~~ ^{cora} common sensibles -
collatio ... X.P.S. 
de Ven. I.H.C.

Hence, in calling a thing sensible,
 we do ^{not} intend to refer the thing to
 the sense as if that were what it
 is. We call it sensible because
~~the sense referring to it~~ refers
 to it. (Met. V, L. 17, m. 1026-7) or belonged to,

And when ^{we} call ~~the~~ 'sensible' and
~~the~~ 'sense' correlative, the true reason
 for referring one to the other is entirely
 on the part of the sense; ~~and not~~
~~because the sensible refers the thing~~
 to called sensible because the sense
 refers to it. (1)

Aristotle, Metaph. V
 (1) ~~Met. Op. cit.~~, c. 15, 1021b.
 (St. Thomas, lect. 17, m.
 1026-1029.)

Therefore, the ~~sensible~~ 'matter' of our
 definitions is called 'sensible' because
 the sense refers to it, not because the
 matter in itself refers to the sense, or
 because it has an actuality to be defined
 by the sense. This shows, too, that the
 'sensible matter' of definitions is not
 confined to the things ^{alone} which we can
 have an actual perception, like tree. Anything
 that is one in genus with what we can
 actually sense will be defined with sensible
 matter. ~~Sensible matter~~ When we call 'bones
 and flesh' sensible matter, ~~we refer them to our actuality, expressing~~
~~our mode of knowing~~ we imply a reference
 to our senses either because we can actually
 sense them or because they are one in nature
 with what we can actually sense.

But if so, why
 define with
 sensible matter?

(over)

The fearful thing about
the nuclear bomb developed
through to highly theoretical
physics so far removed
from the representation of our
sense is that they do turn
out to be a menace to our
sense of touch and thing
to the life of the animal.

Getting behind our sensations,
in imaginary space and trying
to make this primary in our perception.

~~Et perinde~~ Sentire consistit in moveri
et pati: ~~per~~ Est enim sensus in actu,
quaedam alteratio: quod autem
alteratur, patitur et movetur. de An. 350.

Quidquid facit differentiam in ipsa
passione vel alteratione sensus, habet per
se habitudinem ad sensum, et dicitur sensibile
per se. Quod autem nullam facit differentiam
circa immutationem sensus, dicitur sensibile
per accidens... a sensibili per accidens nihil
patitur sensus, secundum quod huiusmodi. de An. 393

Sensible matter or being... ~~knows~~ the sensible
qualities and their proper subject are
not the cause of this kind of being.
Sensitive is not a propria passio of mobile
being. Matter accounts for its mobility,
but not qua sensitive. The sensitive matter
is a determinate substance whose matter
is sec. se unknowable.

Sensibility is not a propria
passio from which something
can be demonstrated about the
nature of our mobile.

Sense and sensitive go to show
that we are of the same nature,
but not what that nature is.

Show the distinction ^{between} the negative aspect of abstraction from the singular - the barren individual that contributes nothing to further knowledge, like this epistemological triangle - which entails a loss when there remains so much to know from the individual; and the positive aspect - the actual intelligibility achieved. Show this when pointing out the difference between natural and mathematical abstraction.

The passage from species to genus is not one to greater intelligibility. It is the passage from sensible matter to definition without is that leads to greater intell. for us. The passage to what is without sensible matter in re and in def., is towards what is more knowable in itself, but not to us; and this is achieved via demonstration.

Animal more knowable
to us than man, but
man more in se.

A proper of 'incidentally sensible', critiq. Edd. conception of substance.

As to mathematical physics, it is a special study of nature, in which symbols are ~~indispensable~~ indispensable, not only because it is mathematics applied to the quantitative aspect of natural things, which involves calculation; but more particularly because, as we shall see (Part II, chap. 3), its method of definition by physical measurement is such that there is no way of dealing with the results except in symbols.

H. Major
B.

In the inductive syllogism, the minor is
constituted by the enumeration: Let a_1 & b ,
 a_2 & b , a_3 & b , et sic de aliis...

The universal of science is a complex universal,
e.g.: every triangle has its angle, ...

The induction leading to incomplete terms, such
as 'act'.

The dial. and demonst. syllogisms do not differ
in form, but only in their matter.

Every induction must be complete in its form. Incomplete,
refers to the matter.

Ref. induct.: Prin. 23, 68b 9-14.

Incomplete induction is universal only in form.

tion. On the other hand,
in experience, of things no
know first and best: they
because they are used to
sitions are ^{needed} at all to the pe
convey what we know. If
inasmuch as they are signs
one of words, ^{for} ~~these~~ these ar
bus." (1) Yet the ~~the~~ problem is not so much
"sapientis enim non est curare de nominib-
that the wise do not bother about words —
first sight. In fact, St. Thomas said
this suggestion seems plausible, on

Philosophy is to go beyond mere sense
experience and the
practical life,

*if philosophy is to go beyond mere sense
experience and the
practical life,*

~~This~~ suggestion seems plausible, on
first sight. ~~from~~ In fact, St. Thomas said
that the wise do not bother about words —
"sapientis enim non est curare de nomini-
bus." (1) Yet the ~~ex~~ problem is not so much
one of words, ~~since~~ ^{for} these are relevant only
inasmuch as they are signs established to
convey what we know. If ~~these~~ original im-
positions are ^{needed,} ~~at all to the point,~~ it is ^{only} ~~only~~ ^{after all}
because ~~the~~ they are used to signify what we
know first and best : they can be verified,
in experience, of things no one would ques-
tion. On the other hand,

~~The following passage from St. Thomas~~
~~brings this out.~~

The relevance of this distinction
is made plain in a passage from
St. Thomas where ~~he points out~~ ~~that~~
~~having stated that the imposition of~~
~~a name~~ he says that ~~the imposition~~
of a name may be ~~it~~ considered either
on the part of the one who imposes it,
or on the part of the thing ~~upon~~ ^{upon} which the name
is imposed. "On the latter case, the name
is said to be imposed from that which
completes the notion of the thing signified
by the name; and this is the specific
difference of that thing (i.e., that which
in ~~each~~ sets it apart from other things).

de Pol. 2/4/c.

Propria ratio nominis et quam significat nomen.

Id autem cui attribuitur nomen, si sit recte

sumptum sub re significata per nomen,
sicut determinatum sub indeterminato,
dicitur supponi per nomen; si autem non
sit recte sumptum sub re nominis, dicitur
copulari per nomen:

Sicut hoc nomen animal significat
substantiam ^{animatam} sensibilem, et album
significat colorem disgregativum visus:

homo et animal.

homo vero recte sumitur sub ratione animalis,
sicut determinato sub indeterminato. Est
enim homo substantia animata sensibilis
tali anima, scilicet rationali;

homo et albus.

sub albo vero, quod et extra essentiam ejus,
non directe sumitur.

Unde homo supponitur nomine animalis, copulatur
vero nomine albi.

Et quia inferius quod supponitur per nomen commune,
se habet ad commune sicut determinatum ad
indeterminatum: id quod erat suppositum, fit
significatum, determinatione apposita ad commune;
animal enim rationale significat hominem.

Here, too, lies all the difference between
the interpretation of a word and the definition
of the thing which the word signifies. (x)

(x) In II Post. An., lec. 6.

In Book II of the Metaphysics Aristotle
says that there is a general doctrine of logic,
which applies to every science,

There is a notable difference ^{as we shall see in Part II,} between interpreting the word horse by pointing out a horse, and interpreting the word ^{white} ~~horse~~ by calling attention to something white. ~~What we call~~ white is ~~not~~ sensible per se, whereas a horse ^{is not} ~~whatever~~ its ~~per se~~ ^{sensible} qualities or ~~any~~ quantity ~~is not~~

Lex formitis

Pa Pa, 9. 93

Oscar Wilde
l'original anglais.

In the preface to Sir Thomas Heath's ~~work~~
~~work~~, published after his death, under
 the title Mathematics in Aristotle,^(x) published
 after his death, Lady Heath tells
 us that this ~~work~~ study "is the result of
 work done during the last years of my husband's life... His
~~life~~ ~~work~~ "His eagerness to return
 to this work too soon after a serious illness in
 1939 was probably instrumental in hastening
 his life." The work is an unusual tribute to
~~Aristotle's philosophy of mathematics~~ Aristotle as
 a philosopher of mathematics as well one who,
 contrary to ~~an~~ ^{an} unscholarly opinion still
 being repeated in histories of mathematics, was
 quite cognizant of the mathematics of
 his time. Indeed, A. E. Taylor, ~~the~~ in earlier writing,
 well-known ~~Platonist~~ platonist, who had been so
 severe towards the philosopher, in this regard,
 insisted, in one of his last ^{studies}, on making
 an 'amende honorable' in this regard. (xx) Sir David
 Ross, in his introduction to Aristotle's Prior and
 Posterior Analytics has this to say: "It is not
 unusual..... of the nature of ~~mathematics~~ mathematics." (xxx)

(x) Oxford, 1949.

(xx) Philosophical Studies,

(xxx) Oxford, 1949, p. 59

It should we believe that we must exclude
from nature the things we have

I do not know, in terms of proper sensibles,
what 'the colour of the universe' means, nor the
weight of the Sun nor its temperature. Whatever
can be defined of them ^{could} be had only in terms
of measure. Does this imply that 'sensible qualities'
can hold true only ~~within~~ the narrow realm within
which we have our immediate sensations?

Two things must be pointed out in this
connection:

(a) That ~~these~~ the common sensibles which
we first know in perceiving some proper sensible,
are per se sensible inasmuch as they, too, produce
a change in our senses - a physical one as well
as a cognitive one - like when the shape of an
object ~~I feel is imprinted in the skin of my hand~~
~~which I touch~~ object is my hand when I feel it.
Now, when the physicist ^{determines} the size of the
Sun, of a galaxy, he still defines size in terms of the
way in which we measure ^{it} here on ~~earth~~ earth
by means of a standard agreed upon. If he ~~again~~ may claim
to know anything ~~that~~ ^{first} about what lies beyond
the immediate reach of our senses, way out there, or even far
~~the~~ within our ^{very organs of sensation} ~~own physical self~~ he must make this
basic assumption. He cannot mean size ^{like} in geometry.
And the temperature of the Sun has something to do with
its size. For, by the sensible nature of the common sensibles
we do not mean that ~~they~~ ^{all} can be actually
sensed, but we do mean that ~~these~~ ^{the} numbers,
magnitudes, and quantitative modes ~~depend~~ ^{are} ~~of the same~~ ^{of the same} ~~order~~ ^{order}.

Princip in, here, Eddington's
assumption of an intelligence
above nature....

Role of fiction - fictive
universals.

Like the poet moves to tears
through, so the physicist
through bomb burns the
truth. Both are effective.

And this brings us
back to proper sensibles.

What happens to a man in
the heart of a nuclear
explosion?

Notes on individual and
common sensible matter.

Summ.

St. Thomas, Met. 673

de An. 595-6

Met. IV 5, 1010 & 30

Mohr, Tempus quanta, Met. 985

Si sensibilia non essent in
in pot actu sensibilis, non
essent nisi in quantum actu
sensitive. Met. 705

'Sensible' is a denomination
taken from the senses, which
are sensible in act, whereas
the things that cause the
sensation are sensible only
in potency. ~~If they were properly~~
If to be sensible were the same
as to be sensible in act, the
things called sensible would
be only insofar as they are
sensed.

75

may be so

Whatever the physical property of length, a mind that needs neither sensation nor an operational process to know it, how do we know it to be a physical length? If we consider merely the curve of a snubnose, prescinding from bone and flesh, will our definition of it still be a physical one? If we ~~could~~ call it physical, we would have to assume that there are curves in nature apart from anything like a nose or a moon or its orbit. The abstract curve has a simplicity nowhere matched in experience, no more than a star is like a point. That is precisely what happens to our ~~sensibles~~ common sensibles when we divorce ~~x~~ them from ~~sensibles~~ all sensible quality. The curvature becomes something that can no longer be verified in ~~nature~~ experience, with anything like exactness.

a

What makes ~~the~~ curve to be the curve of a nose? When we say 'the curve of a nose' or 'the curved that is a nose', we express a subject that cannot be conveyed to us except through a perception of sensible quality. It is through this perception that the physical ~~status~~ status of the common sensibles is known to us. True, when we speak of the curvature of a line or of a surface, we still have a subject--line of surface--but what is its status compared to the kind of reality we want to know in physics? ~~Such curvature could never be sensed except with quality attributed to a subject.~~ But the subject which enters into the definition of the curve is not enough to make it something physical like a snubnose; whatever such a subject may be, it is not the kind of thing that we can know to ~~have the kind of status~~ ~~required in physics~~ be real in any physical sense. The mathematical continuum is matched ~~with~~ nothing we ~~can~~ can verify in nature.

b

What makes a curve to the curve of a nose? Certainly not the curve as such. While we can ~~have~~ consider curve without considering anything like a nose, we cannot consider nose without some kind of curvature. But whatever this curvature may be, it will have nothing like the simplicity of a purely geometrical one. This we know, because no common sensible curve can be reduced to that simplicity and still ~~be quite like~~ be quite like what we actually sense. We know that our senses never offer more than an appearance of geometrical exactness. To be sure, we must keep such exactness in mind, but it is not the exactness that physics is about. ~~In short, when we abstract sensible quality from sensible quantity, or from the quality of a quantity (like figure), the quantity ceases to be a sensible one.~~

75

this would lay claim to them

In short, when we ~~abstract~~ abstract the common sensible, like the curvature of the snubnose, from every sensible quality, like hard or soft, warm or cold, colour, etc., the common sensible ceases ~~to~~ altogether to be something sensible: the quantity or quantitative modes that remain in our consideration have lost their physical status. Therefore, if in its idealisations, tentative generalisations, hypotheses and theories, mathematical physics aims to provide knowledge about nature, this ~~can~~ can only ~~be based~~ be based on the assumption that physical reality is everywhere somehow one in nature with the kind of reality that is conveyed to us in ~~the sensations of quality~~ sensations of quality.

That is why the different measure-numbers of physics remain bound to the different kinds of contrivances and operations we perform to obtain them, to each with the standard of length will be

on our scale

my tangible self, that world would be no less objective than a world made up of many distinct beings, one knowing the other. (may be

original
If ~~it were~~ objected: 'How do you know that the qualities you sense are more than your own in the way ~~that the temperature of~~ the temperature you feel when you touch your ~~own~~ head is your own? And would this not mean that the percipient ~~never~~ senses more ~~than qualities inherent in his self as a~~ than qualities inherent in his self as a percipient? The point is that even when I say 'this water feels ~~warm~~ warm' I do not intend it as an expression of how I feel apart from the ~~water~~ water. How much of what I feel is due to the water and how much to my own temperature is not made plain to me in ~~this particular sensation~~ this particular sensation. But I do know that that water over there feels cold, so that my sensation ~~has something to do with~~ here has something to do with things other than myself inasmuch as they ~~can~~ can ~~modify~~ modify ~~the~~ the awareness. I also realize that the measurable temperature of my hand is as much my own as that measurable temperature there ~~is~~ belongs to the water, whatever it may be that makes the thermoeire behave as it does.

The point that really concerns us here is the following. When I ~~have a sensation~~ have a sensation of warmth, as I put my hand in this water, I realize that ~~the~~ ^{my} hand itself is getting warmer: a physical change is taking place in it. This change is not my knowing of it: it is what ~~I know~~ I know as ~~a sensation of~~ warmth. And I know this to be true in the sense of physical reality: something taking place here and now. Now, if the warmth I feel is true in this ~~sense~~ meaning of truth, and if the same holds for every other kind of quantity I perceive in sensation, this does not mean that I ought to be able to find all, or at least one these qualities in anything that is physically real. It implies no more than this: ~~that all physical reality must have something in common~~ that whatever reality is ^{so} called physical in the sense in which my sensation is ~~one~~ of something physically real, must be ~~something~~ one in nature with what I can actually perceive.

that the general subjectum remains the same.

*Like when Libera's steps on weighing machine,
that a human substance is being weighed
is incidental*

*The act of knowing is an individual act.
That about which it is is not.*

basic. Whether these measures are eventually known ~~by means of sight~~
by visual, tactual, or audible qualities, makes no essential difference.
Any attempt to describe physical properties without regard to what
is known to us in that kind of sensation is either mathematics or
meaningless jargon. *, fiction,*

However, there is no getting around the fact that we cannot
be too clear about the proper sensibles when we say that they
are the ones to convey to us the kind of reality that the science
of nature is about. Surely the assumption we mentioned does not
imply that at least one, if not every, sensible quality must pervade
the whole universe, leading to ~~questionable~~ preposterous questions like:
What would be the colour or the ~~Universe~~ universe? Would it feel cold,
tepid or hot? The essential thing about the proper sensibles as
they concern us is here is not ~~that~~ warmth as felt by the hand, colour
as seen by the eye, and so on: it is that in the perception of such
qualities we attain the kind of reality that we cannot abstract from
in the study of nature.

On the one hand, I cannot know reality
except in the sensation of some quality,
and it is because of sensible quality
that we speak of sensible matter.

Yet from this should follow that every
sensible matter must be either
hard or soft, warm or cold, bright
or dark, and so on.

But only that ~~if~~ every sensible matter
belong to the genus of the kind I
know in sensation.

So that even if the world were known without
it acting upon us in sensation, the
same propositions would still be
true of it. That is also why we do
not qualify the subject of this
science as "sensible matter" or
"sensible beings". Sensible is a property relating to

Certain as I am ~~that~~... not ~~where~~. Na, it is normal
that we should be wrong in judging the size of the sun
or moon. Yes such questions cannot be answered in
terms of proper similarity.

Correction: I will feel no warmth & there is no diff.
in temp. between ~~hand~~ and water.

~~'Pointing out' different.~~

~~Sen. corp. to recipit. de. de. 377~~

~~Quomo 'like' 'like'. de Anima.~~

Immutatio naturalis: what happens when a quality
is received by a subject according to the material
mode of the subject's own existence, ~~as~~, e.g. when
something is cooled, or heated, or moved about in space; whereas
by a 'spiritual change' I mean, here, what happens
when the likeness of an object is received in the
sense-organ, or in the medium between object and
organ, as a form causing knowledge, and not
merely as a form in matter. For there is a difference
between the mode being which a sensible form
has in the senses and that which it has in the
thing sensed. (And so on, import.) n. 419

anima subf.
solo intell.
420

~~Instrumentum tactus, et potest in deum daturum a sensu tactus. de. 485~~

~~Tactus et de sensu et de deum 547-8~~

(32) Fire, x. of intangibile because de. sensu. op. 549.

Note: all the op. can be destroyed by excessive temperature. We do know that high temperature will destroy our sense of touch.

To receive form according to another mode of existence 553-4

~~Sum. of properties 556~~

is but the consequence of disengaging from them something which they could not convey if they are to be the very first principles of our knowledge, ~~disengaging us from~~ ^{bringing us into} contact with ~~the~~ reality ~~in~~ through a physical union with it. This is most obvious in the sense of touch: the sensation of warmth or cold depends upon a ~~difference~~ ^{difference} of temperature between the organ of touch and the object. ~~Just as this difference contributes to the sensation that we have~~ Just why ^{and how} this difference should give us such a sensation is not revealed by the sensation itself. This very relativity as conditioned by the ~~human~~ measurable temperature of my own hand shows ~~that~~ the reality of such a perception.

add to
center
text

Where? we cannot answer this question in terms of proper sensual.

It is in this that we have, primarily, a feeling
of reality. Dr Johnson was right.

Tangible qualities affect us physically: this is no sensation,
but sensation is not without it.

[illegible]

Don't try any

Immutabilis pedunculata *Wats. & Hoffm.*

is received by a subject and made of the subject as something is cooled, or heated by a 'spiritual change'. When the likeness of an object sense-organ, or in the mind organ, as a form causing truly as a form in matter between the words being ~~has~~ in the sense, and being sensed. (And so

[illegible]

Sacharidulosehins-phenomen 54

Five, x. of integrals because displays.

Noti: all the op. can be destroyed

To receive form according to model

255 Cambridge St

420
Control.
Subst.

were the colour of the coloured, than there is for putting the warmth that I feel, entirely in the water apart from my feeling of it. ^{of}
~~The error of this interpretation lies in the fact that~~

The difficulty arises as it does because ~~we cannot~~ concerning the proper sensibles we allow ourselves to ask ~~question~~ the kind of question that is peculiar to the common sensibles, and which presupposes the validity ~~of the~~ of the proper sensibles in their own field: we cannot attain the common sensibles without the proper ones. My feeling of warmth is of no help to thermodynamics, yet we must have a perception of some kind of proper sensible if we are to start using a thermometer: the pointer-reading must be ~~conveyed~~ conveyed to ~~the~~ sight, hearing, or touch. It ~~is~~ is ^{one} by such sensations that all our knowledge of reality depends, ~~upon~~ and because of which we know that the hypotheses and theories of mathematical physics are physical and not merely mathematical. _{other}

There seems to be an attempt, in this diff: to try to know something without feeling or having no sense of them.

(32) he would still have to relate what he is told or what he reads by touch, to the kind of sense experience that he has. In fact, we must all do this when learning about temperatures so high that they ~~cannot~~ are in no way conceivable in terms of the warm and cold we sense.

If to know what we mean when speaking of colour we had to realize ~~know~~ all that goes on in the world and in ourselves to produce such a sensation, we could never know what we are talking about.

Whatever an electron may be, if it is to be a constituent of the world first known to us, however confusedly and associated with representations that do not correspond to what is there ~~as we see it~~ in the manner in which we think, ~~they~~, it must be conceived as something belonging to that world. It must belong to the genus of the subject of the science of nature.

1
can
This last point/~~may~~ be used
to show that quantity ~~maxixion~~ may be
considered in two ways: as dividing
one thing or part over and against
another, what is called ~~quantitix~~
quantitas dividens; and quantity as a
~~establishing a certain order of a number~~
~~xxxxxx of a quantity~~ ~~the first~~

establishing a certain order such as
that of ~~the~~ 'ten bowling-pins' or of
the parts on a line

one thing or part of it over and against
another while they are of the same nature

5
This last point can be used to show
that quantity may be considered in two
ways. [a] First, as dividing, as making
one thing, or a part of a thing, outside
the other while they are nevertheless of
the same nature. Thus, the bowlingpins
are each outside the other, and any part of
each pin we wish to designate is outside
the rest. And this was called quantitas
dividens. [b] Second, as establishing a certain order
or the parts with regard to the whole,
~~such as the set of ten bowlingpins qua distinguished~~
~~from another set of ten~~ ~~xxxxxx~~

such as the set of 'ten' bowlingpins qua distinguished
~~distinguished~~ from a set of another number,
~~xxxxxx~~ or the size of a
the bowlingpin qua different from the
size of something else. (This twofold role
of quantity is brought out more clearly
when we consider the length of Socrates
as belonging to him, and his length inasmuch
as it may vary. He remains the same person
throughout the change of his dimensions.

Quantity is the called
ordinans et terminans.

4

It is not our purpose to show here
just what the principle of individuation
is

We said that 'matter' first meant
timber, or lumber, and then was extended
to mean whatever a thing is made of, even
to the terms and propositions of a syllogism.
But when we say that ~~wood is matter~~
~~of~~ a bowling-pin has wood as its matter,
we are still using the latter word in its
primitive sense. Now, we know that there
can be as many bowling-pins as we wish
provided ~~provided~~ there is enough material.
This seems to place the burden of individuation
upon the wood or matter of the pins. Not
on the wood alone, but on the amount of ~~the~~
matter. Surely the wood as such, or whatever
bowling-pins can be made of, could not be
the reason why this pin is not that one,
for the same problem arises concerning
the wood itself: Why is the matter of this
pin not the matter of that one? Nor can
the answer be found in the quantity alone,
when the size or magnitude of the pins
is also the same, each pin having its own.
This magnitude, too, requires individuation.
~~Which shows that quantity~~
~~is not the principle of individuation~~

~~But what does quantity mean?~~
Now, just what do we mean by 'quantity'?
~~Is it the same as quantum?~~ Or, more simply,
what does 'quantum' mean? "Quantum means
that which is divisible into constituent
parts of which each is ~~of one nature~~
and a 'this'. A quantum is a plurality if it
is numerable, a magnitude if it is measurable. (1)
The parts, then, must be of the same nature;
a part of a line is a line, and each constituent
of the number of bowling-pins is a bowling-pin.
And each of the parts must be a 'this', i.e. ~~something~~
~~that is distinguished from the other parts~~
by way of designation.

Metaph. V, c. 13, 1020a7
discernible from the
other parts not by
"what" it is, but

The reason why the mere individual can be neither defined nor adequately described resides in the fact that that to which it owes its individuation is something extrinsic to "what it is", something indefinite allowing a thing to be this without any differentiation whatsoever from that besides their numerical distinction involving place and time. Plainly, this has something to do with quantity, but quantity is not enough, when the size or structure of this may be indiscernable from the size or structure of that.

It has been suggested that the principle of individuation is precisely the "thisness" of this thing. But that is an attempt to solve the problem by an abstract term, which amounts to saying that a thing is this because of its thisness. Actually it could be no more than another way of saying that this thing can be distinguished from that only by way of designation, ~~by pointing~~. The abstract term leaves us with the question: What is "thisness"? The only possible answer would lie in pointing out an instance, which leaves ^{us} where we started from. Remember the example of the bowling-pins. They are ~~they were~~ indiscernable in ~~for~~ figure or form; they were made of the same kind of wood. ~~Surely~~ No one will offer that they could be ~~they were~~ distinct because ~~of that~~ of that ~~in~~ by reason of which they are equal and similar. There is something implied that has the nature of subject, comparable to the wood in which the figure of a bowling-pin is received from the ~~of~~ craftsman: the same ~~idea~~ idea can be realized as many times as there is wood to ~~make it out~~ work it out. We have already said that the wood as such is not the reason why this ~~that~~ pin is this, and that, that. The wood itself requires something other than itself qua wood. * A.v. the wood, too, ~~implies~~ implies some ~~subject~~ kind of numerically distinguishing subject. The only terms in which we can describe ~~this~~ this ~~individuating principle~~ is: a subject that can be designated by reason of the quantity. are

The reason why the mere individual
can neither be defined nor adequately
described lies in the fact that ~~the~~ that ~~is~~ which
~~is~~ to which it owes its individuation
~~is something indefinite and indeterminate~~
~~allowing something to be something without being something~~
~~which is not something~~

is something which cannot be contained by
~~the~~ a definition or description,
something foreign to "what it is", allowing
a thing to be this without any differentiation
whatsoever from that, and so on indefinitely,
like all the possible instances of the integral
number 2. While the class ~~of~~ whose ~~number~~
number is 2, is distinguished from every other
class, the members are indiscernable from one another
qua pertaining to the class of that number.

That which is expressed by the definition
compares to the individual instance as form
to matter, like in the example of the ~~bowling-pins~~ bowling-pins, indiscernable
~~bowling-pins, where the figure is the form, the~~ in figure or form, distinguish-
~~wood, the matter is the form, and the wood is the matter~~ ble only as the one of this
wood and the one of that same
~~wood~~ kind of wood. Note that
even the wood of this one, is indistinguishable from
the wood of that one, qua this kind of wood.

But why say "this",

But even if we did know ~~the differences~~
~~the differences of these pieces of wood from the~~
differences of these pieces of wood from the
same tree, we would not consider ~~them~~
them to be the reason why this pin is not that one.
~~Certainly the craftsman did not~~ The craftsman
~~did not have to know these~~ such
differences to make this set of pins. No one
would suggest that if the pins were actually
as similar ~~to one another~~ to one another
as equilateral triangles of the same size, they
would lapse into ~~a single pin~~ a single pin. We would
still be left with the individual triangles
that we use in mathematics, ~~which is~~ giving rise to
much the ~~same~~ same problem.

We said that ~~the matter of the bowling pin~~
'matter' first meant timber, and was then extended
to mean anything out of which something is made,
even the terms and propositions of a syllogism.
We use the word in its primitive sense when we
say that wood is the matter of a bowling-pin. And
~~But we also pointed out that wood as such is not~~
the reason why this pin is not that one. Our
problem of individuation arises concerning the
wood itself, i.e. concerning the matter of the
bowling-pins. The craftsman ~~said he can~~ says he can
make as many pins as we wish, provided ~~we~~
there is enough ~~wood~~ wood. This seems to put the burden of individuation
~~burden~~ on the ~~quantity of wood or the wood or matter~~ material
amount of material, on the quantity of wood, or of
whatever happens to be the matter.

there is enough wood.

And we know that bowlingpins can be made without
en d, ~~provided we have enough wood~~ provided there is
enough wood. This seems to place the burden
of individuation on the ~~matter of the pins~~ wood or
matter of the pins. Yet the wood as such, or whatever
matter the pin is made of, is not the reason why this
pin is not that one. The same problem arises concerning
the wood itself: Why is the ~~wood of this bowling pin~~ matter of this pin
not the ~~matter of that one~~ matter of that one? Why is this
piece of wood not that?

We have so far considered the modus definiendi in the study of nature. All the definitions must include sensible matter. And even though the definitions of math. physics in particular remain in the nature of nominal definitions verified by demonstration to sense, they are intended to refer, ~~to~~ however tentatively, to something which would be defined absolutely if only we were not so dependent upon our chosen standard of length.

^{In} passing showing what ^{is} meant by a material individual we have that there can be no definition of it.

Standard of length: unit ^{defin.}
But this definition is not what the phys. unit to measure length.

In what sense the operational definitions of physics are definitions.

Mathematical science and 'logismos'?

Mathematics

When 'mathematics' abstracts from the distinction
between 'per se' and 'per accidens'.

1. The preknowledge of the things to be known before knowledge of the conclusion.

(a) As to the knowledge itself.

What is sought is a conclusion in which a proper passion is predicated of some subject, which conclusion is inferred from certain principles.

This complex thing (viz. the concl.) must be preceded by knowledge of simple things, n.l. the subject and the passion, and also by knowledge of the principle, since from it the conclusion is made known.

Of these three there is a twofold mode of foreknowledge:

that it is, and what it is.

- Now, complex things are not defined: e.g. of 'white man' there is no definition, and much less of any enunciation.

But a principle is a certain enunciation. Hence one cannot know of it what it is, but only that it is true.

- Of the passion, however, one can know what it is, since accidents have, in a way, a definition.

But the existence of the passion and of any accident consists in inhering in the subject - which existence is concluded by demonstration.

Therefore it is that ~~known~~ foreknowledge of the passion that it is, but only what it is.

- The subject, however, both has a definition and its existence does not depend upon the passion but its own proper existence is presupposed to the existence of the passion in it.

Therefore, of the subject it is necessary to foreknow both what it is and that it is, especially since it is from the definition of the subject and the passion that the middle is taken.

2

Hence, with regard to science, there are some things concerning which it is necessary first to know that they are, as in the case of principles, e.g. of everything there is a true affirmation or negation.

There are other things, concerning which it is necessary to foreknow what it is said to be, as in the case of the passions. But it cannot be shown of something whether it is, unless it is first understood what is signified by the word.

- E.g. It is necessary to foreknow that the name 'triangle' signifies that which is contained in its definition. [Meaning, I presume, that whatever triangle is absolutely, the name must be understood as the oral sign of that as yet not necessarily known as to just what its definition is.] Now we can
- show what the name means by constructing a triangle. But this presupposes a subject, like point, line, and surface. These being presupposed, we can demonstrate that there is an equilateral triangle. Here we have two things, viz. 'that which' and 'to have its three sides equal': this 'to be an equilateral triangle' ~~property~~ is signified as a property, not as a subject.
 - Now we can go on to prove certain further passions, like that its angles are equal ~~to~~, or some other thing. In this second case, the triangle is made known as the subject of the property 'to have its angles equal'.

Now, ~~triangle~~ that which is to be known of the meanings of the word 'triangle', in the present context, is the triangle as a property, i.e. something attributed to a subject, and not triangle as a subject of 'to have equal angles'. Hence we know what it is as a passion.

There are certain things concerning which it is necessary to pre-know both what it is and that it is.

Eg. the unit: ^{which is a principle in every genus of quantity:} concerning it, the mathematician

that it is
and that
it is.

must know ~~it as a subject~~: it cannot be taken as a property, since in the genus quantity it has nothing prior to it.

Hence there is a diversity concerning the foreknowledge of principles, passion, and subject.

Principles are known through the act of composing and dividing;

Subject and passion through the act of apprehending that which something.

Yet differently { for subject is defined absolutely

while passion is defined with dependence on the subject, is placed in its definition.

There is an order in foreknowledge: either in time or in nature, or both by time and nature.

Some things are pre-known both in time and by nature:

e.g. whatever are contained under universals when they are known as contained

apples may have
that the ~~apple~~ ^{apple} has something
to do with ^{the} taste that I have. Taste, then,
plainly stands for two things: the particular
kind of sensation I have when eating an apple,
and some absolute property in the apple that
contributes to the sensation when I eat it.

trying to improve.

As if we expected the apple to taste good when
no one is tasting it.

Such is the case of all tangible qualities.

This is the taste that is in the apple. And is quality.
And it is not definable as a quantity, although
it has a quantitative mode.

Now, it is not just the taste in the apple that is outside
the mind: the taste I have is also outside the mind
inasmuch as it is here and now I have it in this
sensation here and now, which I cannot put to have unless
I withdraw my hand which
will be burnt still / or some time.

I cannot say
here of the
def. of man as
I can say here
of this apple.

1. Scientia dicitur una ex hoc quod est unius generis subjecti:

Scientia motus ~~terminans in finem~~
in terminum, ex quo est unitas.

Terminus est genus circa quod est scientia.

Sed una scientia communior est alia.

Qualia sunt illa genera de quibus ~~est~~ promissum ex scientia.

Duae conditiones: (a) Quaecumque ex primis componuntur

(b) et pars et parsime eorum sunt per se.

1^{ma} Omnis motus a principio quodam procedit in aliquid terminum

Id ex quo procedit sunt principia quaedam prima.

Unde, ubi non sunt priora secundum se, non
potest haberi scientia sec. qd hic accipitur.

Sed promissum, scilicet de eis an sint, et quid non sunt.

Sicut

Tunc utrum posterioribus ut prioribus.

Sed illa de quibus habetur scientia per ea quae
sunt priora simpliciter, sunt composita secundum
se ex aliquibus prioribus.

Quaecumque vero cognoscuntur per posteriora, sed
prima quoad nos, etsi in seipsis sint simplicia,
secundum tamen quod in cognitione nostra accipiuntur,
componuntur ex aliquibus primis quoad nos.

2^{ma} Subiectum alienius scientiae duplices partes habere potest:

(a) pars ex quibus componitur ~~pro~~ sicut ex primis: scilicet ipsa
scilicet ex quibus componitur principia subiecti; et

(b) partes extrinsecas.

Hic magis de primo genere: scilicet principia subiecti de
quibus est prima consideratio: ut prima et materia in naturali
Est etiam in qual. scientia aliquid ultimum, ad quod
terminatur consideratio scientiae: ut scilicet passiones
subiecti manifestantur.

For, if ~~to be a circle~~ 'what a circle is' is not the same as to be this circle (if it were there could be no other but this one), then this circle owes its being this to something extrinsic to ~~what it is to be a circle~~ 'what a circle is'. Much like in the case of our bowlingpins. We must, therefore, consider a kind of matter. But why call it intelligible? Because, while not being sensible in any way, it is yet related to quantity in the way the incidentally sensible matter is related to sensible qualities. Now the incidentally sensible is subject per se known to the mind; and in a similar way the subject of quantity is per se known by the mind without being sensible even incidentally. The mind alone terminates in it, and so it receives its denomination from the mind not from the senses.

"Regarding the objects of mathematics, why....

"Of matter, some is intelligible, some is sensible...

Metaph. considers about matter of the objects of Math.

B.R.
He never saw the diff. between one two and two ones.

Unis. intell. matter not imagined, yet, like comm. sens. matter requiring refer. to the obj. int. sup. sens. matter. Not the metaph. qua relating otherwise we could not

1037 a common of number greater than the in coll. dist. in atom. se

1045 a 30.

1059 a 15

(2)

Sed tamen primam partem quam passionem
possunt alicui attribui per se et non
per se. Nam ea quae sunt per se
principia et passiones trianguli, non
sunt per se princ. isoscelis inquit isoscelis
et, sed in gub. triangulus. Nec trianguli
aeris aut alii.

Unde, si qua scientia res, quae est principis
trianguli manifestaret passionem trianguli,
huiusmodi scientiae subiectum non res
isoscelis, neque album aut aer, sed triangulus;
cujus etiam per se subiectivae partes sunt
isoscelis, equilaterus et quadratus.

Sed hae partes subiectivae non ita convenienter
accipiuntur hic, quia magis se eo quod se
habet aequaliter ad totum genus potest accipi
qualiter scientia se habeat ad huiusmodi
partes subiectivas.