

Cours de Théologie - De Navisani mis

~~1963~~
11-3

Q. 69 à Q. 97.

sur la résurrection
la mort
les suffrages pour les morts
l'enfer -

je daterais ce manuscrit de 1963
parce que dans ses cours de 1963 sur
le De Anima, il emploie la même plume.

19 pp. manuscrites

- I Où font les âmes séparées?
- II En quel sens la résurrection s'y-elle
naturellement nécessaire, bien que
la nature seule ne puisse la
réaliser?
- III

III^a { de Verbo Incarnato
 { de sacramentis { praecedentia resurrectionis: conditio animae separatae.
 { de Resurrectione { concomitantia
 { sequentia

1. Utrum animalibus separatis receptacula assignentur.

Quid in loco esse?

diffic.: intell. liée à
imagination.

Ni les anges, ni les ^{âmes} ~~divinités~~ épiques.

autres. Mais non selon le cœur.
Rien à dehors de us, barren plus entrin...

Dono sicut numeri, per oppositionem aux partibus
d' un continu.

d'un continu.
L'âme séparée, n'étant pas quantifiée, encore
qu'individuelle, ne peut être dans un lieu
par rapport à ce qui est lieu dans notre
univers. Cependant, certaine affinité
avec lieu : 1° parce que l'âme naturellement
dans un corps ou corps naturellement dans
l'âme. 2° Son extériorité par rapport aux
autres âmes individuelles, diffère de celle des
anges. 3° Selon que ~~l'âme~~ l'état de perfection
diffère de l'une à l'autre, proportion entre
son lieu lumineux et ténébreux.

Où l'âme du défunt est-elle
recue ? Quel endroit ?

S. Th., parlant lui-m., écrit ainsi le receptaculum au
sens matériel de ce mot. — Après l'éclair. L'in
receptaculum et non

2. Que certains âmes vont imméd^t au Ciel, d'autres en enfer.
 Quid Ciel? Quid Enfer? Imposition, empruntée
 aux choses sensibles, comme id a quo. Hic, signifie
duo: ut supra, mais aussi et surtout "état d'être
 récompensé ou ~~puni~~ puni. Même trois états: celui
 où l'âme n'est pas suff^t préparée. "Contrarium pro
 haereri et habendum."

Quidam: glorif. de l'âme doit attendre la glorification
 des corps. E.g. Jean xii (qui canonise S^t Th.). 1316-1334
 Bonif^{icatus} xii

3. Peuvent-elles quitter le Ciel ou l'Enfer?
 Par dispensation divine. Pas d'elles-mêmes ni naturellement.
 Encore: "ut ita sunt paucis oppressi (mortui) ut de sua
 miseria magis dolent quam curent aliis apparere." ad 1.

4. Les limbes de l'enfer et le sein d'Abraham. [limbus: bord]

Abraham et l'sempiternum (sempiternum) du croyant,
 le premier à se séparer de la foule des non-croyants.
 (Hist. d'Isaac) Très grande épreuve: le Père éternel
 demande à ce père l'innocent d'immoler son fils. Le Fils
 du P. éternel sera un jour immolé par la main ~~des~~ ^{des} ~~justes~~ ^{justes}
 de ceux qui n'ont aucune foi surmont.

Ides, le repos donné aux âmes ^{mais avant la mort du X} après la mort, s'appelle "sein
 d'Abraham". Après la venue du X, repos dans la vision.

S. Th. : le repos avant la vision: sein d'Abraham; imparfait

~~après, devant soi~~ de ce repos: les limbes.

Après la venue du X, le sein d'Abraham maintenant,
 mais avec repos complet.

Avant: sein et enfer, idem, être imparf.

Après: repos compl., avec sein d'Abrah. et plus enfer.

, dans la langue des morts,

3

C'est le lien définitif que demande l'Egl. pour ses fidèles:
"que les anges portent l'âme du défunt dans le sein d'Abraham".

5. Les limbes sont-ils identiques à l'enfer des damnés?

dist. { situs: probat in lieu. (Attention "lieu"); le X descend aux limbes et en enfer
qualité: distinct de l'enfer.

Diversimod. X^m dicitur infernum ^{morsio, morsio, clapsio.} motu volente et in infernum descendere (non y entrer les âmes).

6. Les limbes des enfants sont-ils ident. aux limbes des Pères?

Sic, selon que sont différentes la récomp. et la peine ou punition.

Les enfants n'ont pas l'espoir de la vie surn.

Quant au situs, probat in.

Les Pères et les enfants sans la grâce diffèrent.

Dans les Pères la faute originale est expiée car
en tant qu'elle affectait la personne - mais demeurait
dans les enfants, un ^{dans une nature en quoi elle est transmise.}

empêché et pour la personne

et pour la nature. Mais la personne n'est pas punie pour faute
personnelle. Tamen in inferno punire.

7. Faut-il distinguer plusieurs endroits pour l'état de peine?

"Bonum contrahit in uno, sed malum multiplex."

Il est invraisemblable que le "lieu" des bienheureux
soit un, mais que les autres ont des lieux multiples.

Car la plus grande peine est comprise pour chacun
une solitude. La joie se partage, la douleur
incommunicable, homo. * Enfer, grande solitude.

Présence des autres ne la fait qu'augmenter; et
la joie des autres davantage par envie.

Tamen, dans du sang.
Le riche en enfer.

Q. 70.

Mais, je ne saurais m pas que je le suis. Que
je sache que j n'existe plus implique une
contradiction. Les mots se sont pas qu'ils
sont mots.

1. Les puissances sensibles demeurent-elles dans l'âme séparée?
Ce sont des "potentia^(organiques) conjuncti", âme principal^{est} corruptibles.
des potentia omnino incorp., âme principe et sujet. Tamen.
Mais prin. organ. demeurant dans l'âme et in radice.
Après résun., la m âme sera princip^{ex} des m facult^{is} organiq.
2. Si les prin. sont corrompues, après les actes. Mais
la racine éloignée demeure.
3. L'âme séparée peut-elle subir l'attribution du feu corporel?
Le corporel ne peut pas agir sur l'âme séparée.
Il n'est pas acquis qu'il doive s'agir d'un feu
corporel. C'est toujours probable si on entend d'une réalité
corporel qui sert d'instrument divin pour tenir l'âme
captiv^{ée}, et l'âme, comm. le feu comme étant le lien
de sa captivité, en souffre.

Q. 71.

1. (Question générale:) Les suffrages (ou prières) faits par
l'un peuvent-ils profiter à l'autre?
Tous les fidèles sont unis par la charité, et sont
membres du corps de l'Eglise. Or les membres d'un
corps s'aident mutuellement. Ceci, selon S. Paul, est
vrai non seulement du corps physique mais aussi du
corps mystique. Donc les mérites de l'un peuvent servir
à l'autre.
Tamen dist. Nos actes peuvent servir à deux
choses: 1° pour obtenir un état de l'âme; c'est ainsi
que par le mérite on obtient la béatitude, l'état
de béatitude. 2° A quelque chose de consécutif à
un état de l'âme, et c'est ainsi que nos actes peuvent
mériter quelques récompenses accidentelles ou la
rémission de la peine.

Mais ces deux choses, nos actes peuvent les obtenir
de deux manières:

(a) par la voie du mérite;

(b) par voie d'oraison.

Elles diffèrent par ceci - le mérite est fondée sur la justice;
- l'oraison fait appel à la libéralité
de celui à qui ~~seule~~ la prière est
adressée.

Voici maintenant une réponse articulée à la question
posée: Pour ce qui regarde l'état de l'âme - fin la béatitude

a) Par voie de mérite l'œuvre de l'un ne peut pas
obtenir pour autrui un état de l'âme, en
sorti par un fidèle ~~de telle manière~~
mériterait la vie éternelle par les œuvres
qu'il fait un autre fidèle. Car, quand il
s'agit précisément de la fin ultime qu'il
la béatitude, elle est donnée selon la mesure
de celui qui la reçoit; l'âme, en effet,
est donnée ~~par la justice~~ ^{et l'œuvre de la justice} de la béatitude,
et dispose ~~par ses~~ ^{par ses} ~~actes~~ ^{actes} propres de la
personne, et non par les actes d'une autre
personne.*

b) ~~Par la~~ ^{Av.} ~~Par la~~ ^{Par la} ~~voie d'oraison~~, l'œuvre de l'un
peut ~~valoir pour un~~ ^{valoir pour un} autre (viator) même un
état de l'âme, en lui obtenant une première
grâce. Cet effet est dû à la libéralité
divine qui s'étend à tout ce à quoi s'étend
sa toute-puissance, laquelle se manifeste
surtout dans la miséricorde: "Deus qui
omnipotens nam parcendo maximè et miserando
manifestus..."

* La vie éternelle ne
se donne que par
les œuvres de celui
qui la reçoit; mais
on peut obtenir à
l'autre la grâce de
pouvoir se disposer à
cette vie éternelle
par ses œuvres. Par
la prière on peut
obtenir pour autrui
la grâce de pouvoir
la vie éternelle.

de tous ses membres, les œuvres d'autrui devenant en quelque sorte les œuvres de celui pour qui elles sont faites, comme si le bienfaiteur les avait ~~avec donné, par son intention intime, ses œuvres~~ transmissées, par son intention intime, d'une façon si radicale, qu'elles sont en autrui comme les siens propres. [Analogie: l'héritage, où le bien du père devient bien du fils, qui le mérite d'une filiation.] Et ces œuvres peuvent lui servir pour l'expiation de ses fautes, ou quelque autre chose de ce genre qui ne change pas l'état de l'âme.

4. Les suffrages ne valent rien pour les damnés. Preuve, l'Eglise ne prie pas pour eux.

6. Les suffrages des vivants - sont-ils utiles aux âmes du purgatoire? Les âmes sont confirmées dans le bien, et la peine du purgatoire a pour but de compléter la satisfaction que l'homme n'a plus consommée pleinement quand l'âme était unie au corps. Nous avons vu d'autre part que les bonnes œuvres de l'un peuvent satisfaire pour un, mort ou vivant. Les suffrages sont donc utiles...

7. Ne servent à rien pour ceux qui sont au ciel.

6. Le Sacrement du Mystère de la foi contient substantiellement le bien commun de l'Eglise tout entière, il est source et bien de la charité qui unit ses membres dans le Christ. Voilà pour la cause. Quant aux effets, de la charité, ce sont les aumônes, données par miséricorde qui, après la charité, est maxima virtutum, qui sont le plus efficaces.

Mais quand à l'intention dirigée vers les âmes au purgatoire, parmi les suffrages c'est la prière qui est le plus efficace, car la prière, de sa nature ne dit pas seulement un rapport à celui qui prie, mais ~~par~~ ^{elle}, en plus des autres œuvres, elle est ordonnée à ce que demande la prière.

10. Les indulgences. Quand l'indulgence est accordée sous la forme que voici: "Quiconque fera ceci ou cela gagnera tant ou tant d'indulgence, soit pour lui-même soit pour les ~~autres~~ ^{autres} âmes du purgatoire," l'indulgence peut secourir non seulement les vivants mais aussi les morts. Car l'Egl. peut appliquer aux morts les mérites communs, mérites qui sont la source des indulgences, pour la même raison qu'elle les applique aux vivants. Les indulgences doivent toutefois être accordées pour des raisons convenables.

12. Les suffrages ~~pour les morts~~ ^{un rapport} ~~pour les morts~~ ^{un rapport} faits spécialement pour un mort lui sont-ils plus utiles qu'aux autres?

Les uns: sont plus utiles à ceux qui en sont plus dignes, bien que les fidèles prient avec plus de ferveur pour leurs proches soit en amitié ou par le sang.

Les autres, le contraire.

Le Christ et
les fidèles
causes

Solution:

L'effet des suffrages pour les morts ~~peut~~ être considéré être :

(a) les suffrages sont efficaces en vertu de la charité. Or, la charité rend communs tous les biens. Elle est, en effet, l'amour qui est Dieu, et Dieu est le bien commun par excellence. Sous ce rapport, les suffr. profitent davantage à celui qui a le plus de charité, bien qu'ils ne soient pas faits spécialement pour lui. Cet effet des suffrages consiste dans une consolation intérieure ~~pour ce que~~ de celui qui, par son amour de charité, se réjouit des biens accordés à autrui, plus que de la diminution de la peine.

(b) les suffrages diminuent la peine. Sous ce rapport ils prof. davant. à celui à l'intention de qui sont faits les suffrages. Distrip.

intention contrée

inhibition diffuse

13. Les suffrages faits pour plusieurs morts leur sont-ils aussi utiles que si on les faisait spécialement pour chacun d'eux ?

Même dist. ut supra!

Consol. pour les
priants pour
les morts: ils
ne sont pas
seul - mais tous
les âmes, au ciel
et au purgatoire,
s'en réjoignent.
Grande attente
de leur part.

(a) En tant que les suffrages tiennent leur valeur de la charité, ils sont autant utiles à tous qu'ils le sont pour un seul. Car la charité s'accroît par la division ^{de ses effets}, au lieu de s'amoindrir. La joie étant plus vive d'autant qu'elle est partagée par un plus grand nombre, ~~de ne se réjouit pas moins au purgatoire de bien fait à plusieurs que du bien fait à un seul~~ la multitude au purgatoire ne se réjouit pas moins d'un bien fait à un seul que ne s'en réjouit ce dernier.

(b) Sous le rapport de l'intention de celui qui applique les suffrages, comme des satisfactions transmises aux défunts, les suffr. faits particulièrement pour un seul lui sont plus utiles que ceux qu'on fait pour lui tout ensemble et pour plusieurs autres. Puisqu'il s'agit ici de mérites, la justice divine ~~les applique~~ partage les mérites entre tous ceux à qui ils sont appliqués.

Pour l'âme, l'incapacité de l'homme dont elle est
l'âme est un mal. C'est m, et d'abord plus tôt,
le plus grand mal. Toute vertu héroïque de faire
face à la mort pour bien spirituel. La crainte
de la mort était dans le X, encore plus contenue
par la vertu de force, plus grande qu'en tout
autre homme - lui dont la personne est glorieusement
immortelle.

Arg. ~~perpetua~~ script. et théol. :

~~Exode~~

Exode iii, 6: "Ego sum deus Abraham et deus Isaac
et deus Jacob, quia non est deus mortuum,
sed viventium."

Job xiv, 12: "Homo, cum dormierit, non resurget, donec
alteretur calum."

xix, 25: "Scio qd Redemptor meus vivit, et in
novissimo die de terra surrecturus sum, et
rursus circumdabor pelle mea - et in veni
Dei dans ma chair."

où l'on voit que
dès diff. croy.
Résurrection.

Matth. xxii, 31, où N. P. cite l'Exode. Voir Suppl. p. 75, a. 1, ad 2.

Anima mea non est ego, P.F. p. 12.

"Pierre" dyedoché III S, d. 22, p. 1, a. 1, ad 6.

I Cor. xv.

Quidam: les maux sont tels que l'âme ne peut être
heureuse dans l'union au corps.

Les Manich.: le corps provient d'un premier principe du mal.
Platonie. et neo-pl.: le corps n'est qu'un instrument de
l'âme et non de l'homme. Contra de An. II 414 a 12.

désormais Cg IV 79-97.

79. (a) Vérité de foi.

(b) Evidens ratio:

1. Présupposés:

a) immortalité de l'âme (II, 79)

b) union naturelle de l'â et du c. (II, 83, 68)

γ) rien de contraire à la nature peut être perpétuel. (de Coelo I 289b)

2. L'homme tend nat^t vers la félicité: i.e. vers la perfection de l'heureux.

L'âme séparée du corps est imparfaite, n'ayant que le caractère de parti.

L'homme ne peut atteindre ~~à~~ au bonheur ultime en cette vie.
Donc dans l'avenir, ce qui demande réunion de l'âme au corps.

3. La divine Providence doit, en justice, punir les pécheurs et récompenser les bons. C'est dans cette vie que les hommes, composés d'âme et de corps, commettent le péché ou font le bien. Donc... Or, en cette vie, pas de justice...

80. Objections:

1. La chose une fois détruite ne peut revenir à son être numériquement ident.

2. Dans la mort un des principes essentiels est détruit: le corps.
L'âme ne peut être unie qu'à un autre corps.

3. Qu'un malade recouvre la santé, la santé retrouvée ne sera pas numériquement la même que celle d'auparavant.
A fortiori de la substance.

4. S'il faut restituer à l'homme tout ce qui lui appartenait, s'ensuivrait bien des inconvénients. Il devra de nouveau se raser, se tailler ongles et poils. Puis d'autres fonctions devront être reprises. Ergo, "indecentis magnitudo consurget - una neque indecentia se relevabit".

5. Il arrive à certains hommes de se nourrir de chair humaine, il est même possible de n'utiliser que cette nourriture. Après quoi ils engendrent des enfants. De même la chair se trouve donc chez plusieurs hommes. Comment donc chacun pourrait-il récupérer sa propre chair?

6. La résurrection n'est pas naturelle, car aucun agent naturel n'est assez puissant pour y réussir.

7. Ressusciteront seulement ceux qui auront eu part à la libération de la faute, méritée par le X. Donc la résurre. ne sera pas universelle.

81. Dans l'état de justice originelle, par don prématuré, immortalité de l'homme, donc quelque chose de plus que ce qui convient au corps comme principe naturel de l'homme. L'âme n'était pas le principe actif de cette immortalité. Celle-ci était pourtant naturelle en égard à la fin, qui demande que la nature soit proportionnée à sa forme naturellement incorruptible. Par le péché, l'homme a perdu ce supplément d'être, que fut l'incorruption du corps. La mort, dans cette perspective est comme un accident - que le Christ a ~~effacé~~ détruit par sa propre mort. La puissance divine peut restaurer l'incorruption.

Réponses:

1. La puissance divine en agit avec la nature de telle sorte qu'elle ^{peut} produire, sans la nature, un effet de nature. La puis. divine demeure la même malgré la corruption des choses. Étant antérieure et transcendante, elle peut faire que la même chose soit de nouveau. Ici, important, l'identité numérique de l'action divine,

Source de l'identité numérique de la chose renouvelée. Si la puissance divine était autre en créant et autre en restaurant, la chose restaurée serait numériquement autre que celle dont elle serait la restauration: elle ressemblerait.

2. Les deux principes demeurent: l'âme subsiste; la matière demeure sous les m[^] dimensions (infinies) qui faisant d'elle une matière individualisée.
- ✱ Dans l'homme, la corporeité n'est autre chose que l'âme raisonnable, intellectuelle - c'est en raison de celle-ci que l'homme est étendu suivant trois dimensions.

Si, toutefois, nous entendions la corporeité comme forme accidentelle selon laquelle le corps est dans le genre quantité, qui est une catégorie accidentelle, elle n'est autre que les trois dimensions déterminées, qui constituent un corps donné. C'est la corporeité du premier sens qui n'est pas détruite, mais demeure identique.

3. L'être de la matière et de la forme est unique. Si subst. entièrement corruptible, être détruit. Si forme incorruptible, non. L'homme doit son être à sa forme.
4. En cette vie l'incessants échanges et changements de matière n'empêchent pas ^{l'homme d'être} ~~un~~ numériquement un.
5. Sans une matière donnée peuvent exister un nombre de principes d'individuation tant qu'on veut.
6. Résurre. est naturelle quant à sa fin, car il est naturel que l'âme soit unie au corps. le principe actif est Dieu - comme dans la création.
7. Il vient pour réparer la nature humaine.

c. 82. Les hommes ~~resuscités~~ n'auront plus à mourir,
car par sa mort le X a détruit la mort.

Rom. vi, 9: "le Christ ressuscité des morts ne meurt plus."

Si il n'y a aucune raison pour qu'ils ne meurent
pas après une deuxième mort, pas non plus pour
pour qu'ils meurent après la première résurrection.

Dans la génération la nature lund vers la perpétuité
des espèces, non des indiv. Mais...

Dans la génération, l'âme est adapté au corps pré-existant.

" " résurrection, le corps est adapté à l'âme.

c. 83 Plus besoin de se nourrir, plus de relation charnelles.

La nourriture est pour la vie corrompible: restauration et croissance.

L'union charnelle aussi: Les individus se maintiennent.

Plaisir? Fonctionnel, moyen de la nature pour 403x

Dependraient trop pros!

c. 84. Identité de nature des corps ressuscités.

"Touchez et voyez, un esprit n'a ni chair ni os comme vous
voyez que j'en ai." Lc 24,

Proportion acte & puis, matière et forme.

Matière spécifie autre, l'espèce autre. (Cheval, p. x.)

Il me faudra ma chair et mes os, ceux que j'ai
maintenant, quoique d'une autre condition.

Job: "de nouveau je serai entouré de ma peau (pelle mea),
et de ma chair je verrai Dieu; je le verrai, moi,
non pas un autre - vivemus cum ego ipse, et non alius.
(XIX, 27)

~~Le corps ne peut devenir une substance
spirituelle. ~~Il est impossible~~ Si l'âme paraît
dans une autre substance, celle-ci spirituelle ou non.
Si spirit., celle-ci subint. donc subP. composée
de deux. —~~

Pour être homme, il faut que le ressuscité soit
animal, donc doué de toucher. (Opportet
indicare)

85. Condition nouvelle des corps ressuscités.

Oportet incorruptibile hoc
inducere in corruptionem, et
mortale hoc inducere
immortalitatem. Pl. 15/55

L'âme cause formelle du ressuscité en corps.

" étant incorruptible, lui couvrent un corps incorruptible.

rien cause active.

Hoc ipsum corpus corruptibile, incorruptibile pet:

Où l'Apôtre dit (I Co. 15/50) "Les chairs et le

86. La qualité des copies glorieuses.

qualité des corps glorieux.
Dist. perfection & imperf. de { nature : imperf. supprimée.
 { personne : selon bon ou mauvais,
 selon mérite
 personnels.

Corps toujours composé de contraires,
cependant incorr., par la puissance de Dieu, soumis à l'âme.

- dans l'ensemble, corps soumis

- passant à l'élu

- quant aux actions, passions, mouvements et qualités corporelles.

Les corps vivants de la lumière de plume affectant la
personne entière. "Le corps ressuscitera dans
la gloire" (P. 19). Lumineux? 19aintement

In. 15/43 →

la gloire. (Quel luminare? Maintenant
principalement animalité; alors on verra le corps
gomo à la lumière de l'âme.)

"Des justes resplendiront comme le soleil,
dans le royaume de leur Père." Mt 13/

Le corps est mis par le désir de l'âme. Etant
tôt soumis à l'âme, aussi tôt soumis
au désir de l'âme, à son empire. Voilà
l'apilite. "Perné dans la faiblesse, il
ressuscitera dans la force". I Co. 15/43
Plus de labor.

Certaines théor. du travail
du moins venons ce p^{er}
ent-ils leur ont s'ils
avaient su ce qu'ils
disaient.

La possession du souverain bien exclut tout mal. Le corps doit être immunisé contre tout mal pour le bien de la personne. C'est l'impossibilité, excluant corruption, mais non pas l'impossibilité qui excluerait la sensation. Les sens servent sens de connaissance.

N. B. Le "corps animal", corps en tant que parasite (1^{er} sens), en tant que sujet aux passions, douleur, faim, tristesse, fatigue, besoin de sommeil, etc.
Le "corps spirituel" parce que entièrement soumis à l'esprit.

87. De loco corporum glorificationum.

Ad Ephes. 4/10: Qui ascendit super omnes caelos, et adimplet omnia.

Le corps ne sera plus "interdictus, prohibitus, exhaustus" au sens où il l'est maintenant.
Ceci ne doit pas trop nous étonner, vu les corps en orbite. Gyronope.

88. Sexe et âge des ressuscités.

Ces organes de la génération relevant de l'intégrité du corps humain (= comme les organes de la nutrition) signes sensibles de la fécondité de la nature dont nous sommes le fruit. Vriti plurième du genre humain. (Voir perfection de la sauvegarde - surtout grecque et romaine. avec Michel. Aug. et Pirandello.) Aussi, heureuse diversité. Aussi, Adam et Eve. Glorifiée par l'acte de Rédemption.

"Homme et femme il les fit."

88. De sexu et aetate.

de sexu: trois genres d'organes:

- (a) nutritionis
- (b) generationis
- (c) cognitionis

Prems aspectu, e tantum
sed hoc est superficiali. 1° Quia ea quae fiunt generatione et crescunt non
possunt sufficienter intelligi nisi cognoscatur modum quo fiunt sine
simplicitate sine secundum quod. Hoc autem continet media generationis,
quae sunt organa.

2° Quia est profunda diff. personarum sc. sexum, quare primum
radicem habet in corpore et deinde in anima. In maximis sunt
ma caro, in quo est princip. generationis. Beata Virgo, et Eva, et filium Eve...
3° Ordo generationis observatur etiam in charitate. Diff.: in Ordo neque
nubent neque manducant. Resp.: relatio, tamen adoptionis, filiationis
et paternitatis et consanguinitatis remanent in aeternum.

Ragarus et divus.

Il appartient aux personnes humaines de porter dans leur être earthly
des signes phypiques de ces réalités.

4° Ordo generationis in natura et generatio in divinis sunt generationes
in quarto modo dicendi per se. Imperfecta perfecta. Divina
maternitas et filialis temporalis.

Pecunia, gloria non destruit naturam sed perficit. Unde, les hommes
seront plus masculins et les femmes plus féminins. Sed ex perfectio —
in linea naturae, in linea gratiae et gloria secundum qd procedunt
etiam naturam magis perfectam in linea naturae.
(Christi autem: ne cum patre d'i d'm, mais meilleur commun d'm
et participat à la vie dominique.)

Apex mentis in. Mais la personne n'est pas son apex mentis.

Aetas: Ex. plus frappant: les nouveaux-nés, baptisés mais morts. Leur
nature complète d'enfants n'est pas à la mesure de la vision béatifique
pour leur personne: aucune proportion entre vision et autres connaissances
et communion des saints.

Si nos...

93. Immutabili voluntas in bono vel malo: immutabilitas in haerendum finis
quem sibi elegerunt. Per servum. Vide text. p. 440: c'est surtout le
bon viri talis qui sera cause d'affliction: déposit. Malitia: le méchant
méprise l'homme de bien et se réjouit du malheur de celui-ci.

←
ve p. 17

96. de finali judicio.

Duo : (a) chacun meurt isolément

(b) Résurr. gén. : jngt générale. Luc 12, 2-3.

Mentel. Vr. Suppl. 88, a. 2.

97. de State mundi post judicium.

Jean, Logica II p. qu. 4, art. 1:

"Fundamentum conclusionis.."

La thèse (voir si elle est partagée par Suárez) qui nie que l'universalité soit représentée dans la species, en tant que celle-ci émane de l'intellect agent, et avant tout acte de connaissance de l'intellect possible: cette thèse est une thèse averroïste. Du moins on la rencontre expressément dans Siger de Brabant (De aeternitate Mundi, in Mandonnet, p. 76 sv et p. 41, l. 23).

Il s'agit en somme de savoir d'où vient l'unité (unitas praecisionis) de l'universel. Deux hypothèses, en dehors de la vraie:

a) où bien l'unitas praecisionis se trouve a parte rei: platonisme, scotisme.

b) où bien l'unitas praecisionis est le fait de l'acte de connaissance posé par l'intellect possible.

Pour éviter la thèse platonicienne, Siger tombe dans la seconde. Mais il suit de celle-ci que l'intellect, dans l'acte même de connaissance, fait une unité qui n'était point donnée dans l'objet tel qu'il est représenté par la species émanant de l'intellect agent. Cela n'est pas loin de Kant. C' en est même tout près. Pour Kant, ce qui est donné à l'entendement, est de soi, multiplicité pure: extension et dispersion dans l'espace et dans le temps. Et l'entendement, en appliquant les catégories sur ce divers, en fait une unité objective.

L'averroïste veut tellement s'éloigner de Platon, ~~qui~~ ~~rien de l'universel comme tel~~, il veut tellement que toute réalité soit singulière, que celle-ci doit exclure de soi tout ce qui caractérise l'universel comme tel. Tout ce qui appartient à l'universel comme tel est donc, conclut-il, le fait de l'acte de connaissance. Il applique ici de travers le grand principe: l'intelligence en acte et l'intelligible en acte ne font qu'un. Donc, puisque l'universel ne se rencontre que dans l'intelligence, c'est du fait même de l'acte de connaissance que l'universel est ce qu'il est. Il n'est aucunement universel avant d'être un avec l'intelligence. Il n'y a rien de l'universel avant l'acte de connaissance. Et par là l'on s'éloigne beaucoup plus de Platon, semble-t-il.

Mais l'averroïsme aboutit alors au nominalisme. La réalité est tellement singulière que l'on ne peut plus discerner en elle, une natura secundum se, qui n'est, secundum se, nec una nec plures. La nature des choses exige secundum se d'être multipliée en singuliers. Voir Siger: "Utrum haec sit vera: 'homo est animal', nullo homine existente?" (Mandonnet, op. cit. p. 49 sv), où il écrit ceci: "si igitur, ablati individui, auferantur ea sine quibus non potest esse natura humana, auferetur et ipsa natura humana". Otez les individus, vous ôtez la nature. Donc, natura secundum se non potest esse nisi plures.

Distinguons: si l'on ôte les individus, on ôte la nature quant à son existence réelle, concedo; quant aux prédicats qui la constituent secundum se, nego. Car, la natura secundum se sumpta n'exige pas d'exister réellement.

Il s'ensuit de la doctrine averroïste, que la connaissance en faisant un unité de ce qui de soi est multiple, n'est pas objective. Il y a opposition entre l'intelligence et l'être,

le moi et le non-moi, comme ils diront plus tard. Idéalisme. Les concepts en tant qu'universels ne représentent pas les natures des choses, parce que l'on rejette ce moyen terme entre la nature singulière et la nature universelle, qui est la natura secundum se, nec una nec plures. Et pour ne pas séparer les formes et les essences du réel, on en séparera l'intelligence.

Pour mieux échapper à Platon, qui pensait que l'essence peut subsister sans les individus, parce que ceux-ci n'appartiennent pas à la constitution de l'essence, les averroïstes diront le contraire: l'essence ne peut subsister sans les individus, donc les individus sont exigés par l'essence (Siger, in Mandonnet, op. cit. p. 50, l. 22). Mais, ils partent ensemble d'un même principe commun:

Tout ce qui est exigé par la subsistance et par l'existence de l'essence est contenu dans l'essence.

Sous cette majeure commune: "la nature de la 'natura secundum se'"

le platonicien, il y a contradiction entre l'averroïste

Or aucun individu n'est la nature. Or, les individus sont exigés inscrit dans l'essence, par la subsistance et par l'existence de l'essence.

Donc aucun individu n'est la distinction entre nature exigé par la subsistance. Donc, les individus sont et par l'existence de l'essence inscrits dans l'essence.

Les conséquences sont bonnes: en Camestres dans le syllogisme platonicien; en Barbara dans celui des averroïstes. - Les mineures sont vraies. - Les conclusions sont fausses. - Donc, il faut nier la majeure.

Pour nier la majeure, il faut distinguer la natura secundum se et le status naturae. La natura secundum se n'exige que les prédicats constitutifs de cette nature. Or aucun des prédicats appartenant à un quelconque status naturae n'est constitutif de cette nature. Rursus, la subsistance et l'existence de la nature en concernent le status. Donc, tout ce qui est exigé pour la subsistance et pour l'existence d'une nature n'est pas contenu dans l'essence.

Siger: "...quia illa (scil. res significata par terminum communem) modum secundum quem significatur abstracte ab individuantiis principiis non habet in essendo, sed solum apud intellectum." (in Mandonnet, op. cit. p. 42, l. 19).

Vrai, mais insuffisant: la "natura intellecta ou significata" n'existe pas sous l'état d'abstraction, l'homme a parte rei. Mais, autre chose est qu'elle n'existe que comme singulière et autre chose qu'elle existe et soit singulière secundum se et par l'exigence des seuls de la prédicats qui la constituent & secundum se. Or, secundum se, la nature n'exige et ne revendique ni l'état de singularité ni l'état d'abstraction et d'universalité. Il n'y a pas de debitum. Pas plus que la nature pure n'exige la justice originelle. Les jansénistes transposeront, en cette matière, la majeure commune aux platoniciens et aux averroïstes. Et c'est Voltaire qui aura raison contre Pascal: "A ne raisonner qu'en philosophe, j'ose dire qu'il y a bien de l'orgueil et de la témérité à prétendre que par notre de l'intellect séparé cette conjonction

nature, nous devons être mieux que nous ne sommes." & (Remarques sur les Pensées de M. Pascal, 28). Il est sûr par la foi et par notre révélation, que nous sommes tombés; mais rien n'est moins manifeste par la raison: car je voudrais bien savoir si Dieu ne pouvait sans déroger à sa justice créer l'homme tel qu'il est pensés aujourd'hui?... Qui vous a dit que Dieu vous en devait davantage? (ibid. 29).

Il est vrai que Votaire exagère un peu. La position de st. Thomas est plus fine et plus sage: le péché originel ne peut pas être démontré par la raison naturelle. Mais les malheurs de l'humanité et son état actuel, permettent de conclure avec une certaine probabilité à ~~à une catastrophe~~ à une certaine catastrophe.

S'il n'y a plus de moyen terme de la "natura secundum se" entre la nature dans l'état de singularité et la nature dans l'état d'abstraction, il y a contradiction, entre qui la natura a parte rei et la natura a parte mentis, fait. Mais pour les averroïstes, la nature, de soi, exige la multiplication dans les singuliers, de même que pour Platon elle exige, de soi, l'état d'abstraction. Ils conviennent dans la même ignorance de la distinction entre nature et état.

Si la natura secundum se exige l'état d'individuation, le fait d'abstraire contredit la natura secundum se: on voit mal le rôle de l'intellect agent dans la philosophie averroïste.

Averroïsme et "litterae humaniores".

"Sed qualiter tunc debeat intelligi quod scientia est qualitas de prima specie qualitatis, in predicamentis, vigiles et studeas atque legas ut, ex hoc dubio tibi remanente exciteris ad studendum et legendum, cum vivere sine litteris mors sit et vilis hominis sepultura" (Siger, in Mandonnet, op. cit. p. 115, l. 19).

A commenter avec l'"Epistola de intellectu" d'Averroès (fragment dans Renan, Averroès et l'averroïsme, p. 465-679). La fin de la matière première, dit le Commentator, est de se joindre par l'homme et en lui, à l'intelligence séparée. Là est le complément et le couronnement du monde et de l'homme, complément logé par le créateur dans la puissance de la matière première.

En quoi il faut noter deux choses: que la fin de l'homme est le complément de lui-même et du monde; que ce couronnement on y atteint par l'étude, par la science.

Le premier point n'est pas totalement éloigné de la doctrine scotiste sur le motif de l'Incarnation.

Les deux ensemble appartiennent à la définition de l'humanisme.

Noter encore qu'Averroès met une sorte d'urgence dans la matière première à l'égard de ce couronnement, de cette conjonction avec l'intellect séparé. De même, que les essences matérielles exigent secundum se les individus. Debitum.

Et que c'est l'opération même de l'intellect séparé qui est ainsi la fin de l'homme, puisque cette conjonction

n'est pas une information par l'âme intellectuelle, mais le fait de l'opération de l'intelligence séparée sur les phantasmes. Si je pense, c'est que l'intelligence séparée opère en moi. ~~Donc l'appropriation, l'intégration~~ à mon moi de la pensée est l'appropriation de la pensée en tant qu'elle est une opération. Mon moi, comme sujet pensant, c'est l'acte de la pensée pensante, acte, opération à quoi je participe. Par conséquent, ma substance même comme sujet pensant, c'est le cogito. Bien voir, dans tout cela, que la pensée pour l'homme n'est pas dans la participation à un objet, mais dans la participation à l'opération même de l'intelligence séparée. Comment se peut-il qu'une opération qui a pour principe une substance séparée soit une opération mienne? C'est précisément la question que st. Thomas pose ~~aux averroïstes. Et la réponse mettra deux choses:~~

1° que ~~dans la question de savoir si la pensée est une opération de l'âme séparée ou si elle est une opération de l'âme unie au corps, il faut distinguer deux choses:~~ doit, en tant que telle avoir une action propre, ~~une action qui est la fin de la vie humaine.~~ tient pour la négative contre J. et st. Thomas etc., fait appel à un principe qui est analogue à celui par lequel les averroïstes essayent de prouver que "je" puis penser quand je participe à la pensée de l'intelligence séparée. En effet, pour Suarez, l'action peut être attribuée à l'instrument, alors même que celui-ci n'en serait ~~rien~~ principe, ni quant à sa substance ni quand à sont mode. L'instrument inanimé, inopérant opère; de même que pour Averroes et Siger, l'homme inintelligent pense, simple parce que l'intelligence séparée opère en lui.

2° Que la fin de l'homme étant de se conjoindre à l'intelligence séparée en tant qu'elle est en moi principe d'une pensée que je peux dire mienne cependant: la fin de la vie humaine est donc pour l'homme de retrouver ce qui est en lui, principe des opérations humaines. ET HOC EST VALDE NOTANDUM. L'homme est individu n'est pas un principe intrinsèquement doué d'une nature intelligente et la vie de l'individu n'est pas d'ordonner toutes les opérations qui émanent de ce principe à une fin dernière. La fin del'individu est de pouvoir dire "je fais mienne" par l'étude et par la science, litteris etc., ~~la pensée, l'intelligence.~~ la pensée, l'intelligence. La fin de l'homme est de pouvoir dire "cogito". La fin de l'homme est d'acquérir son "je" comme pensant. Sed de his infra iterum.

Et comme l'intelligence opère en moi sur les phantasmes, ~~que c'est par les~~ et comme c'est par les phantasmes que je puis me continuer à l'intelligence séparée, ~~reci~~ l'averroïsme entraîne l'homme à vivre dans l'imagination. Il détourne l'homme des sens extérieurs et du contact sensible avec la nature. D'un seul et même coup, il prépare donc et la révolution mathématicienne des sciences et le romantisme (celui-ci étant averroïste d'ailleurs non seulement par la prédominance de l'imagination, mais par la recherche du "moi"): vg, averroïsme de Poë, amator mathematicorum fantasticus.

Pour nous, nous disons que tout l'univers est pour le

Christ, "omnia subiecisti sub pedibus eius". Mais nous ne disons pas que le Christ est dû comme son couronnement à l'univers. De même, nous dirons que le monde de la génération et de la corruption est ordonné à l'homme, mais nous ne dirons pas que celui-ci est exigé par celui-là. Non, Le Christ étant venu, l'homme étant venu, les choses inférieures leur sont toutes rapportées.

Il ne faut pas mettre dans la puissance et dans la matière une exigence de la forme. Ce serait méconnaître la puissance et la finalité. Finis potentia in actus est. Qu'est-ce qu'être en puissance? "Id dicitur esse in potentia, quod si ponitur esse actu nihil impossibile sequitur". (in Met. n° 1.804). On dit qu'une chose est en puissance, si une fois qu'elle est posée en acte, rien d'impossible ne s'ensuit. C'est tout. Cela ne veut pas dire que la puissance de soi, secundum se, exige l'acte. La puissance se définit par la négation de l'impossible une fois que l'acte est là. Et l'acte est la fin de la puissance, non point parce que celle-ci le revendique, mais parce qu'il en est la perfection et la détermination. La seule revendication de la puissance, c'est que la position de l'acte n'entraîne rien de contradictoire. Et il suffit à la fin pour être fin d'être en perfection de la puissance: il n'est pas nécessaire que la puissance réclame cette fin. Et même, la fin sera d'autant plus parfaitement fin et perfectrice qu'elle se sera plus parfaitement et plus exclusivement par elle-même, sans exigence du côté de la puissance, sans autre exigence que la négation de l'impossible. C'est pourquoi il y a des fins qui sont purement gratuites et c'est pourquoi les fins de cette espèce sont d'autant plus parfaites en tant même que fins. Et tu comprendras alors pourquoi, plus une chose est en acte, et moins elle est mêlée de puissance: et plus elle a de peine à se subordonner à des fins futures gratuites. Sicut patet in peccato angelorum, qui est déterminé par la puissance.

Les fins gratuites sont d'autant plus parfaites en tant qu'elles sont d'autant plus parfaites in ipso actu. Sicut patet in peccato angelorum, qui est déterminé par la puissance.

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Il y a deux aspects dans l'immanentisme des modernes: d'une part on part de ce principe faux qu'une chose est d'autant mieux ordonnée à des fins éminentes qu'elle est plus parfaite en soi. Ceci se voit dans l'apologétique des modernistes. Il faut montrer la grandeur de l'homme pour l'amener à la religion révélée. D'autre part, on met inversement dans la potentialité et la faiblesse humaine une exigence de la grâce. Ceci se voit dans Pascal.

Ces deux aspects se retrouvent tout le long de l'humanisme qui insiste à plaisir et sur la grandeur et sur la misère de l'homme. Ils impliquent une égale méconnaissance de la nature de la finalité, de celle de la puissance et de celle de l'acte. Car la fin c'est l'ordre de la puissance à l'acte. Et la puissance n'exige pas de soi l'acte. Et, puisque l'acte est fin, il n'est pas ordonné à une fin, en tant qu'il est un acte: sicut patet in actibus immanentibus.

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Ils imaginent qu'en approfondissant la puissance, ils y trouveront la détermination de l'acte. Quod est plane absurdum: "...manifestum est quod id quod est in potentia est idem in potentia existens ad contraria. Sicut quod potest convalescere, hoc potest infirmari et simul est in potentia ad utrumque. Et hoc ideo quia est eadem potentia utriusque, convalescendi et laborandi... et aliorum hujusmodi oppositorum." (in Met. n° 1.883)

La négation est plus déterminée que la puissance: caecitas est privatio visus. Et peut-être est-ce pour cela qu'ils confondent puissance et non-être: car ils veulent trouver dans la puissance la détermination de l'acte. L'humanisme, l'immanentisme etc ont besoin de cela. Hegel, le consacre. Et le marxisme: le prolétariat, hypostase de la privation de tous les biens humains, en est aussi l'exigence déterminée.

Que la puissance soit simplement ce qui, l'acte étant posé, rien d'impossible ne s'ensuit, que la seule exigence de la puissance soit ce refus de l'impossible dans la position de l'acte - cela se retrouve un peu partout, vg:

a) dans la question de l'universel: natura secundum se potest esse sub statu singularitatis et sub statu abstractionis. Mais in sensu diviso: car si elle était à la fois sous ces deux états, il s'ensuivrait quelque chose d'impossible, ce qui irait contre la définition de la puissance. Cependant, la natura secundum se ne revendique déterminément ni l'un ni l'autre de ces deux états.

b) dans la question du sens composé et du sens divisé, qui est toute fondée sur la puissance, l'acte et sur leur distinction. Sedens possibiliter stat: cela est vrai in sensu diviso, autrement il s'ensuivrait de l'impossible.

Même méconnaissance de la puissance chez les molinistes: surcompréhension de Molina, ou vérité déterminée des futurs de Suarez. Ils supposent que tel acte déterminé est déterminé dans la puissance et qu'il suffit d'approfondir la puissance pour y trouver la détermination de l'acte.

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La métaphysique de l'humanisme se définit, du côté de la créature par l'ignorance de la puissance et, du côté de Dieu par la négation de la Miséricorde. Deux choses corrélatives, car la puissance se limite à l'impossible, de même que la miséricorde qui est fondée sur la toute-puissance. D'un côté la puissance pure et de l'autre, la toute puissance de l'acte pur.

C'est pourquoi l'apologétique qui est la défense humaine de la miséricorde divine est en grande partie consacrée à établir simplement: "...impossible inde non sequitur", vg dans le mystère de l'Incarnation. Quant aux raisons de convenances, elles font simplement paraître que l'ordre surnaturel parfait la nature, sans être exigé par elle; que les fins surnaturelles sont d'autant mieux des fins pour la nature qu'elles sont gratuites. Finis in ratione misericordiae magis est finis quam in ratione iustitiae, ...

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L'averroïsme exclut la vie morale, politique etc. C'est que Pierre et Paul ne sont plus les principes des actes humains. Le principe en est l'intelligence séparée. Par conséquent la vie morale, politique ne se définit plus, pour nous, par un bien commun qui est une fin, mais par un bien commun qui est un principe commun d'opérations. La fin meut le sujet. Le sujet est principe de ses actes. Donc, si je ne suis pas un sujet intelligent et doué de volonté, intrinsèquement, la fin ne peut plus me mouvoir. Il n'y a plus de prudence, de vertus morales etc.

C'est peut-être par ce renversement du bien commun qui est une fin, en bien commun qui est un principe, qu'il faut comprendre la politique humaniste (Machiavel, Marx, Hitler etc etc).

Il ne suffit, pour aller contre tout cela - mais veut-on aller contre tout cela? - de faire de l'homme individuel, de la personne humaine le principe des ~~opérations~~ actes humains. Car on tombe dans l'individualisme et tout l'on reste encore trop près de ces erreurs. IL FAUT SE RETABLIR LE BIEN COMMUN COMME FIN DE L'HOMME.

Ne pas avoir avec l'humanisme averroïste ce principe commun que la vie humaine ne se définit pas par le bien commun qui est une fin; que la vie humaine se définit par le principe des actes humains.

Majeure commune: Les principes des actes humains définit la vie humaine (Averroès).

~~Minors & totalitariae~~
MINEURS humanistico-totalitaire MINEURE democratico-personnalis-

Or, les individus ne définissent pas la vie humaine. Or les individus sont les principes des actes humains. Donc les individus ne sont pas. Donc les individus ne définissent pas la vie humaine.

Consequentiae notae. Minores verae. Ergo major falsa. Cette majeure, est sinon explicitement, du moins nécessairement d'Averroès. En effet, pour lui, la vie de l'individu consiste à se joindre à l'intelligence séparée. Or l'intelligence, et la volonté qui s'ensuit, sont les principes des actes humains. Donc, la vie de l'homme est de se joindre au principe de la vie humaine.

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Depuis et d'après Averroès, la vie de l'homme est de chercher son moi, de faire son moi, comme sujet pensant. De se mettre en continuité par l'étude et par les lettres avec l'intelligence séparée, de telle sorte que que je puisse dire "je pense", quand l'intelligence séparée pense sur mes phantasmes.

La critique de st. Thomas porte sur ce point principal. Elle est terrible. ~~Et qui laisse bien comprendre que tout humanisme - tout l'humanisme - tombe et se détruit.~~

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Sentent donc l'averroïsme tous ceux de nos jours, qui, plus ou moins, et par implicitations circonlocutoires, font de l'accomplissement de la personne humaine la fin de l'homme. Car la personne est principe des actes humains. Elle n'en n'est pas la fin. Pour eux l'individu court après la personne, comme pour Averroès, le "je" comme singulier matériel court après le "je" comme sujet pensant participant à l'opération de l'intelligence séparée.

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Peut-être que toutes les erreurs d'Averroès viennent d'un certain éblouissement devant ce principe qu'il a si magnifiquement formulé: l'intelligence en acte et l'intelligible en acte sont plus un que la matière et la forme, etc. Cf Cajetan, Ia, qu. 14, art. 1.

Alors, il a conclu de l'identité intentionnelle à une identité entitative et la species qui représente l'objet ne peut pour lui être inhérente à un sujet composé de matière et de forme; il serait contradictoire qu'elle soit entitativement gréffée dans un sujet singulier composé de matière et de forme. C'est-à-dire qu'il suppose que l'inhérence de la species dans un sujet individuel détruit l'intentionnalité de celle-ci quoad objectum specificans. Si elle est universelle intentionnellement, elle ne peut pas être individuelle même entitativement. Et par suite, l'âme intelligente qui est le lieu des species ne peut pas être la forme du corps.

Il retourne donc l'idéalisme platonicien et le transpose en idéalisme subjectiviste. Car de même que Platon concluait du mode de l'objet connu dans la connaissance au mode entitatif de la chose dans la réalité, Averroès conclut du mode de l'objet connu dans la connaissance au mode ~~du sujet pensant~~ entitatif du sujet pensant. Pour Platon l'objet dans la connaissance est immatériel, donc, la chose ~~est~~ est immatérielle dans la réalité. Pour Averroès, l'objet est immatériellement reçu dans la connaissance, donc le sujet pensant ne peut être comme sujet qu'absolument immatériel.

Scientific Methodology

I. Introduction

- A. Scientific methodology in general can be taken to mean a study of the rules, principles, or ways followed in science. Here science is taken in the general sense to include philosophy as well as the experimental sciences. It doesn't mean to teach the method itself of procedure in the acquisition of science, for this is furnished by logic. It is rather a metaphysical critique considering the value of the knowledge acquired by this method -- the stability of the physical definition.
- B. However, more precisely by "scientific" we do not mean science in the strict Aristotelian sense, but in the modern sense meaning discursive, non-philosophical knowledge, or facts controlled by a method.
- C. The procedure is by measurement; laws are constructed on the relations between measurements, and these are explained by theories, which are the results of the application of experimental logic. We try to evaluate these.
- D. Methodology is part of the philosophy of science which is that body of doctrine in metaphysics which is concerned with scientific problems (I-II, 57, 1 & 2).
- E. There are three groups of questions in philosophy of science:
 - 1. Concerning experimental science in itself -- the inductive method -- this is methodology.
 - 2. Relations between experimental science and the other sciences (e.g. how can experimental science prolong the philosophy of nature?)
 - 3. Judging and using the conclusions of experimental science (e.g. is exp. science concerned with finality?)
- F. Methodology is a complement of metaphysics enabling it to proceed to concrete laws, etc. If metaphysics remains in generalities, it is imperfect.
- G. Experimental science must constantly confirm its findings in experience. This is not true of phil. of nature which although based on experience does not need to confirm constantly its conclusions in experience once they are established.
- H. Dialectical prolongation of phil. of nature is of two kinds:
 - 1. That which is subalternated to mathematics; it proceeds by measurement and determinate quantitative aspects. The most rigorous among these is mathematical physics which treats of natural being insofar as measurable.
 - 2. That not subalternated to math. although tending toward it (e.g. biology). The method of mathematical physics is also applied to biology and psychology, but only insofar as they use certain measurements.
- I. Order of course:
 - 1. How are terms defined?
 - 2. The relations between terms -- physical laws, their value and relation.
 - 3. Theories.
 - 4. What is induction; is it strictly restricted to experimental science?
 - 5. In formulae what comes from nature and what from reason?

1.- II. How are terms defined?

- A. In order to characterize a science its mode of defining must be studied (Physics II, 1. 3). This is also held by moderns. Eddington - to begin physics we must abandon previous definitions and build new ones based on measurements; all are defined in relation to instruments of measurement. We abandon proper sensibles and keep the common sensibles.
- B. (Metaphysics X, n. 1935) measurement is always imperfect and consequently also such definitions. Measurements of very small quantities only serves to change the thing measured, e.g. a small quantity of water is changed in temperature by the temperature of the thermometer.
1. Definitions are always variable.
 2. They do not attain the nature or essence of the thing but are only signs, attached to the first accident of substance; figure is the sign closest to substantial form.

2.-

- C. Physical law - an algebraic relation between numbers, measurements. They do not express efficient causality, but only relation and function (e.g. they do not say that lessening the pressure is the cause of an increase in volume). Is this relation in nature or only in the mind? They are based in nature but the universality is given by the mind because laws are not perfectly able to be verified in experience. It is impossible to apply them directly and completely to reality. They are obtained from reality, but generalized by the mind. As to certitude, physical laws are merely approximative, not rigorous, for they are of an ideal object which does not exist.

relation only -

universality given by
the mind

certitude - approximate

3.- III. Nature of physical theories.

- A. A. Physics tends to unity, tries to synthesize experience into general formulae. This is attained even in laws, but theories represent a vaster synthesis: --
theory : law :: law : facts.
- B. Theory or hypothesis - a proposition or group of propositions posed to explain known laws and suggest new experiments. They should imply consequences which can be deduced and compared with other known laws (something similar happens in daily life: a friend is late, we guess a reason to explain this and from this we predict the hour when he will arrive) It is not a mere resume of facts of experience, but is on another plane, that of invention or discovery of a relation between known facts. The hypothesis remedies the incoherence of unrelated facts; it is not seen in reality, but is made by the creative imagination. It must make a relation between facts and make predictions.
- C. Law ceases to be empirical and becomes rational when it can be attached to a theory, when we see the why, when it is not known merely by experiment. Duhem (p.24) does not believe theories to really explain facts; they are logical from which we can deduce laws. We create a theory when we can see relations between symbols and can see in it all known laws.
- D. Distinction between theory and hypothesis:
1. Hypothesis has no confirmation in experiment; when

corroborated it is a theory (a hypothesis confirmed by facts).

2. Hypothesis is the foundation on which ~~is~~ a theory is built; theory implies a complete form or ensemble. Hypotheses are propositions which enter into a theory (the form which groups and orders hypotheses.)

E. Distinction between general and particular theories - made to avoid false problems on the value of physical theories.

1. General - not general in the sense that it explains a great number of facts, but rather that it gives a vague and general explanation of phenomena; no rigorous formulae or precision. These are more definitive and have greater certitude.
2. Particular - a circumstantiated and precise explanation of facts; formulae capable of serving as basis for deductions. These evolve constantly.

F. Role of theories - we define them by their role.

1. Explain facts - to make known the reason or motive for facts, rendering them coherent by creative thought. Poses a system of equations from which we can deduce laws; gives an origin. The explanation remains subject to change, but is of value. In math. physics we put laws into a mathematical setting. Our intellect is naturally bent toward deduction in order to see relations between brute facts (those which can not be attached to a theory). As long as they remain unrelated, they are incoherent ∴ we seek to construct a proposition from which they can be deduced. A theory makes a synthesis and hence is more intelligible than dispersed laws; then we can say that they are explained. "Save sensible appearances" - to explain them by propositions whose consequences agree with known facts. (I, 32, 1, ad 2) a certain hypothesis can safeguard appearances but this does not mean that perhaps they couldn't be better safeguarded by other hypotheses.
2. Provide means of prediction - (physical criterion) - other phenomena should be able to be deduced from it. Scientists look at facts to see if any disagree with the old theory and agree with new. They try to confirm their predictions in reality. If a theory is good it contains many deductions, some corresponding to known laws, others unknown; some of the latter could be false. The hypothesis has for its object to make new discoveries and advance science.
3. Economy of thought - (logical criterion) - Einstein's theory of relativity is good because it is simple and logically general, i.e. it explains many facts. A theory should:
 - a. Substitute a formula which virtually contains many laws.
 - b. Introduce an order among facts, even if provisional; group and make a resume of previous knowledge.
 - c. Awaken thought; thereby provoking discovery of things which would have remained undiscovered without the theory.

G. Poincare, "Science and Hypothesis", ch. 9: divides hypothesis into three groups:

1. Natural - forms the common foundation for all physical theories and hence cannot be abandoned (these are really methodological principles).
2. Indifferent - secondary hypotheses which are needed in calculation, but are not themselves criticized, not confirmed or destroyed.
3. Generalizations - those which are confirmed or rejected by experiment. (hypotheses are not generalizations of laws; there is also the intervention of the creative imagination).

H. Confirmation of theories ("verification" - but must not think that a theory is true) Characteristics of a good theory:

1. Secondary - seemingly true, not intrinsically incoherent, related with other theories. (But these are not too absolute because at first most important theories seemed absurd. Schiller - hypotheses are progressively knocked into shape :.not necessary for it to be correct or probable in the beginning. We cannot compare it with abstract, a priori criteria. But it is essential that it suggest a method to explain reality. Note also that basic hypotheses are not directly compared to facts, but only through deductions.)
2. Primary - theory is good if it fulfills its role of:
 - a. Simplicity - two things to be considered here:
 1. Basic Formulae
 2. Deductions to reach reality - in modern theories these may be very complex but the basic formulae still be simple. The simpler the theory and the more it embraces, the more difficult become the deductions and mathematical calculations.
 - b. Explaining facts.
 - c. Prediction - suggest new experiments thus opening new paths to science. Pasteur - good theories can surely predict new facts from their relation to the old. Bad ones always have to graft on new hypotheses on to the old when new discoveries are made. Good ones keep their unity and coherence; bad ones become more and more complicated, become impractical and incoherent and :.must be discarded.
3. The relation between the equation of a hypothesis and reality is not exact. Experiments show it to be good, but do not prove that it is rigorously true.
 - a. Imprecision of measurements - we can never have precision although we tend toward it. Formulae made from experiments are only approximations and can never include all conditions. Change in theories can result because a new one can more precisely explain facts.
 - b. Sophism of the consequent - (Sophistics, 167 b 1) The sophism is when we think that the relation of the antecedent and consequent is reciprocal: if A exists then B exists :.if B exists then A exists. If we could say "only if A exists then B exists", we could reverse it. But we cannot say this.

because it is always possible that another antecedent could better explain the consequent. (I, 32, 1, ad 2)

- c. The fact that we can always have better hypotheses lowers the value of a resolution to the absurd. (i.e. saying: if proposition B is against experience then A is true).

1) There is involved not only proposition B, but also many theories in connection with it. When we contradict B we are not sure that it is really B that is contradicted; it may be one of the other propositions used. All we know is that something is wrong in the ensemble. To attribute it to B, we should know with certitude that all the others are o.k.

2) Even if we disprove B we cannot say that A is true because there may be a C, etc. There are not only two alternatives. A supposition is good when it leads to deductions which agree with reality.

- d. Einstein - theories are not merely determined by exterior reality; not merely read in experiment, but are creations of the imagination. (e.g. the closed watch - we imagine a structure from which we can deduce the observable motion, but we could suppose many kinds of structures. We can never compare our image with the real mechanisms -- comparison of formulae to reality are not made directly, but through deductions.)

e. But a theory is more than a mere logical resume of laws; it must have a certain similarity to reality.

4. Sense of the term "probable" as applied to a theory:

- a. If we throw dice there is 1:6 probability of getting number two; also it is probable that a train arrive at a given time. An event is probable even if it actually does not occur. The uncertainty is with respect to the fact, not the probability. The result is something determinate and precise, there can be no approximation, e.g. nearly number two.

b. But in physics probability is somewhat different. In laws and theories terms have no such precision. What is an atom? The sense of the term elaborates and changes and always remains provisional. We cannot hold that "atom" really adequately represents reality, but neither can we say that it does not represent it at all. It is an approximation in an endless chain of attempts, as a sketch which an artist ~~xxxx~~ renders more and more perfect, but which gives an image of reality. It is not as the arrival of the train which is either completely true or completely false.

- c. (Meta. XII, lect 9, 2565) movements of stars are known by:

- 1) Sight
- 2) Instruments and attentive consideration
- 3) Declared by reason - i.e. a hypothesis. We pose a movement in order and reduce to unity certain movements which seem irregular and without reason.

probability

(n. 2586) does not attribute necessity to his theories.

5. Practical and speculative truth of theories.

- a. (Introd. on Soul of DeKoninck - provisional character of theories p. 75) in constructing theories speculative knowledge is sought, not merely their practical value of changing the world.
- b. Two value of a hypothesis:
 - 1) Instrumental - practical progress in science.
 - 2) Speculative - attaining truth.
- c. We must not deny the ability of any real explanation, even if it is approximative. If so "atoms" etc. would be purely fictive. This is Poincare's position; he insists on their purely instrumental and arbitrary nature. They are merely a resume, a logical synthesis of experimental laws, and cannot give the nature or real structure of things.
- d. This position in all its rigor is not admissible. Physics studies natural being under its quantitative aspect. But quantity is the first accident and fundamental attribute of material substance, for it inheres immediately in substance (De Anima, III, 707) Figure is a quality determining quantity; it is very close to substantial form and the surest sign of a species (I, 35, 1 - Physics VI, lect. 5, n. 5). Physico-mathematical theories because they are about quantity and figure are close to reality and reveal something of the nature itself. If not nature itself, at least its figure (Plato's allegory of the cave and figures on wall, Republic VII)
- e. Newton's theory is still good, but is seen to be restricted. Relativity replaces it in the sense that it is more vast. Newton's becomes as a part of theory of relativity.

IV. Life of theories.

- A. Discovery of theories - no one can give infallible rules for discovering theories. It is necessary to have a capacity for seeing subtle similarities and rapidly evoking suppositions. This may be called "creative imagination."
1. Solertia - seems to be equivalent of the modern "creative imagination."
 - a. (I Post. Anal., ch. 35) Solertia is a vivacity of mind, a facility to see immediately the middle term which is the cause of the connection of subj. and predicate in the conclusion.
 - b. Two procedures in the acquisition of science (II-II, 48, art. 1 and 4; Ethics IV, 1219).
 - 1) communicated by another (disciple, virtue of docility)
 - 2) by oneself - application of first principles to determinate matter (De Veritate II, 1)
 - a) by syllogism - application of first principles to determinate matter (De Veritate II, 1)
 - b) by hypothesis - when we do not know first principles, but only certain propositions (I, 32, 1, ad 2)

- c) Solertia depends much more on a natural gift than on application (I-II, 63, 1)
- d) A theory is as a middle term which says the "why" of physical laws.

2. Discernment of analogy - a resemblance of relation.

a. Meaning of "analogy" as used here:

- 1) (I Parts of Animals, 645 b 4-10) some animals have blood others have something else playing a similar role.
- 2) (Post. An. ch. 8 a 20 ?) there are analogical genera of things playing the same role, a resemblance of relation or proportion; a rhythm of thought between relations: lung : air :: x : water.

b. Kinds of analogy:

- 1) that enabling us to posit the existence of something (an est):
conditions on earth ---life.
conditions on Mars ----life.
We posit as a hypothesis the existence of life on Mars because of a similarity between conditions on earth and on Mars.

- 2) That enabling us to posit the nature of something (quid est).
lung ; air :: x : water.

We conclude to the nature of x because of a similarity between the two relationships.

c. The mind surpasses what experience gives.

d. (I Topics, ch. 17, 108 a 8) we should seek resemblances.

B. Evolution of theories

- 1. Theories are perfected as is a sketch. If a theory ceases to predict, it must be replaced because it has become too narrow. This evolution is not bad for science; in fact, it is an essential condition of its development. If evolution ceased, progress would cease.
- 2. Claude Bernard - too great faith in theories is scientific superstition.
- 3. Science must be submitted to facts. Even one well-established minor fact can cause the evolution of even the most logically thought-out theory. Primacy belongs to facts, not to theories (De Caelo II, ch. 13, 293 a23).
- 4. Evolution of theories is not bad for science because nothing is lost. The new theory embraces new facts and also all the old facts contained in the old theory. The point of departure is always seen, but is of smaller significance because the new theory is vaster.
- 5. Eddington "Nature of the Physical World"- we must not base on scientific theories, positions which pertain to other fields, such as philosophy or religion.
- 6. Aristotle's position on physical theories - not merely from historical point of view, but to seek methodological principles.
 - a. Some moderns reproach Aristotle for not being experimental
 - b. but only logical: despising experiments, a mere verbalism or analysis of concepts. - Others hold that he was too experimental and not speculative enough, did not create enough theories.
 - b. Aristotle is held by scientists such as Darwin to be the father of biology.
 - c. Einstein says that science is merely a purification of daily thought ; methodology is not something secret or unique.
 - d. We must distinguish between:

1) Basic principles.2) Practical artifices of experimentation

Basic principles can be had even when artifices are not very developed, or before artifices. Even when artifices are developed we should reflect on basic principles.

- e. All theories are formed on a too narrow experimental base; this is why they are replaced. If scientists waited for all the facts, he could never begin. All theories contain arbitrary postulates.
 - f. Basic principle in Aristotle - theories must always remain subordinated to facts and sense experience.
 - g. Even if he holds something as definite, this does not ruin his basic principle. (De Caelo I, ch. 3, 270 b 5-7) the incorruptibility of the heavenly bodies seems to be upheld by the sense by human conviction. (St. Thomas on De Caelo I, lect. 7, n. 6) --human conviction means a certitude based on observations of short duration of objects far away. ∴ only a probability, not necessity. The heavens could be perishable, but of such a long duration that we cannot observe changes.
 - h. One can use the experimental method without making experiments (changing the course of nature), merely by making observations. In astronomy experiments are not possible.
 - i. We should adapt a theory to conform to nature, not vice versa. We must trust primarily experiment, theories only insofar as they conform to experience. To find the value of a theory we must enquire as to the consequences of its application. It is not the principle which gives value to the conclusion but rather the conclusion which justifies the principle.
 - j. Necessity of experience - when we cannot construct a general principle this is due to a lack of experience, as was the case with the Platonists. We should not base ourselves on purely dialectical or logical reasons; these are too general or empty. We should base ourselves on proper principles derived from experience. If we fail in this, the conclusions are empty because they are tied to causes only in appearance (e.g. story of the mule). He distinguishes between logical reasoning (common principles) and physical reasoning (proper principles of natural things) --III Physics, ch. 5, 204 b 4. He also realized the insufficiency and difficulty of observation particularly with regard to the heavenly bodies.
 - k. Value Aristotle placed in theories -- When further facts are observed, then old theories may have to be changed (De Gen. Animalium III, ch. 10, 351 a 19). He saw theories to be plausible conclusions in which the mind went beyond facts. He stressed not seeking the same degree of certitude in all sciences; sometimes only possible conclusions can be attained. For a theory the only necessity is that it mustn't be impossible or inconvenient; i.e. producing conclusions contrary to sense experience.
 - l. Just because a science poses a priori hypotheses does not mean that it is bad; in fact, the scientific mind is characterized by its ability to do this. We can perfectly employ the experimental method even if theories are false and observation imperfect. The method is independent of this.
7. Pascal - experience is the only principle in physics. The ancient theories were good for the amount of experience they had. Proofs in physics are effected by enumeration of experience, not by demonstration.

C. Role of reason physics - we try to determine the respective parts reason and experience play in theories.

1. Here we do not mean the reason which deduces from physical theories, but rather, the capacity to create beings of reason, i.e. those beings whose existence depends on reason (John S.T., *Cursus Phil. I*, p. 235; *Summa I*, 13, 7; 28, 1) There is a double dependence:
 - a. As an effect of reason - reason being considered either as an efficient or a material cause (e.g. as a habitus depends on reason for its existence).
 - b. As an object in the reason - the object has no real existence, but only exists in the mind (beings of reason):
 - 1) Negation
 - 2) Relation
 - a) corresponding to something in reality.
 - b) 2nd intentions, i.e. something as known.
2. In the universality characterizing laws, the intellect surpasses what is guaranteed by experience. The rational plan is not immediate in reality, but is constructed by reason. (Being of reason -- a priori concepts) Experience furnishes certain points of this plan, but there are gaps because not all possible experiments have been made. The physicist tries to fill these gaps by reason and form general laws and theories capable of explaining them. Experience alone does not give universal laws, nor the reason for them :. reason must intervene, hence science is a mixture of experience and reason.
3. Preconceived idea (a working hypothesis) when we say that the scientist must begin without preconceived ideas we mean that he must be ready to reject any hypothesis which contradicts experience, but not that he should start experiments without having a problem or question to pose. This is a preconceived idea, a being of reason because formed before experience can back it.
 In experiment there are two operations to consider (C. Bernard)
 - a) premeditate, establish or determine a plan of experiment - the question we want answered (preconceived idea).
 - b) Read the facts - result of experiment (no preconceived idea)
 A preconceived idea is an anticipated, :. a priori, position, a question posed to nature. All hypotheses constitute a question; we predetermine a possible answer (e.g. is man a rational animal?)
4. Role of reason in organizing experiment - reason attributes to phenomena a simplicity which they do not have, to laws a universality which they do not have, and to elements a purity which they do not have. This occurs largely by controlling the circumstances in which phenomena take place, e.g. falling bodies in a vacuum. In nature there is no vacuum; also, a perfect vacuum cannot be produced. It is a being of reason, having no adequate correspondence in reality. The scientist creates systems, drops variables, etc. In a sense we can say that physics does not attain reality, but an abstraction drawn from reality; yet its aim is to know reality better. Bodies and elements are idealized; their perfection is owed to the intellect. In measuring, the scientist, as it were, has two instruments: the real one, and an ideal one in the mind. He must correct the real with relation to the ideal.

- a. Reason universalizes a law:
 - 1) By interpolation - e.g. performs experiments on 0 & 2 and guesses at 1.
 - 2) By extrapolation - e.g. experiments between 0 & 500, then extends curve before 0 and after 500.
- b. Reason in theory - seeks the "why" of laws. This can never be achieved by empiric study. He must postulate by creative imagination certain structures in order to explain laws. Theories are not directly drawn from experiment. (Proton is posed only for symmetry's sake, 1944); many pure beings of reason are posed for aiding calculus).
5. Justification of this process - science cannot progress without hypothesis. Those who refuse to go beyond the facts often cannot even attain to the facts because often their discovery depends on hypotheses. It is impossible to create a theory merely by the inductive method. Beings of reason are necessary because of the weakness of the human intellect which cannot directly attain reality. These hypotheses are dangerous only if we consider them adequate representations of reality. This would be idealism.
- D. Experiment in physics.
 1. Experiment has two parts:
 - a. observation of facts - for this is not necessary to know theories
 - b. interpretation of facts - can only be done thanks to theories; must know them and how to apply them.

∴ theory intervenes in experiment and results have no meaning without reference to theories.
 2. Scientific facts already include a great deal of theory. Facts do not interest the scientist except as verifying or explaining theories. To make the connection between facts and the questions asked by the physicist already presupposes a body of theories. The common man sees only brute facts; the physicist sees them as scientific facts (deductions from brute facts by means of theories). As soon as a science is advanced, what is called a fact is far from being a pure fact.
 3. Kinds of facts:
 - a) Occurrences - (e.g. historical facts) no theory intervenes.
 - b) Mercury boils at 327° - physical law ∴ only approximative; taken in all its rigor it would apply only to ideal mercury, a being of reason, for reason intervenes to generalize. It is fact because easily confirmed.
 - c) Light rays curve when passing near the surface of the sun -- here ~~xxxxxx~~ it is very complex; the role of simple observation is negligible: spots on a negative; the rest is deduced by reason.
 4. Brute facts are as the material from which science cuts out its scientific facts. In astronomy there are no pure facts of observation; those enunciated are already scientific facts.
 5. Difference between common and scientific experience:
 - a) common - the senses state the immediate existence of a fact; complicated apparatus or use of theories is not needed. Its characteristics are that it is not very detailed or precise.
 - b) Scientific - is precise and detailed; tries to interpret observation by theories.

Scientific is better as to precision and detail but the common is more certain because it concerns only generalities.
 6. Sciences of observation and sciences of experimentation - the reasoning is the same, but facts have different origins. We can use the experimental method without making experiments: merely submitting ideas to the criterion of facts. It does not matter

if these facts came from observation or experiment. Even if the ancients did not make many experiments this does not mean that they did not understand the experimental method. It is just as valid to use facts obtained by mere observation.

E. Induction

1. The term "inductive sciences" is usually restricted to the experimental sciences, but the process of induction is not proper to these alone. Induction is presupposed to all science, even science in the Aristotelian sense.
2. Dewey "Logic", ch. 21, pp418-440 - Aristotle's method was developed before the scientific method, which is the only valuable one \therefore it is valueless and is as an encumbering debris. We need a complete reform in the theory of induction; maintains that Aristotle's logic is tied to his cosmological beliefs. He ignores the Topics and says that Aristotle said that induction is supposed to lead to universal and necessary forms. Dewey holds that induction is an ensemble of operations establishing a generalization.
3. Aristotle (Topics VIII, 105 a 13) induction is progression from particular cases to the universal, from singulars known by sensation to universal (156a5) an idea of movement or progression rather than of ratio.
4. Post. An, 81 2 38 (St. Thomas, lect. 30, n. 4-6) we cannot know the universal except by induction.
5. (Ethics VI, 1139 b 28) all science can be taught; all teaching proceeds from previous knowledge either by syllogism or by induction (Post. An. I, ch. 2, 71 a 7-10)
6. Division of induction by consideration of the terms to which it arrives:
 - a. To universal concepts - through propositions
 - 1) Absolutely universal - induction is at least indirectly at the base of all definitions. Even if logic does enter in, it combines general notions obtained by inductions.
 - 2) Approximatively universal - in the experimental sciences induction is much longer and more difficult. Construction is interminable \therefore a true universal is not attained, but only a provisory and approximate generalization which does not reveal the essential nature.
 - b. To universal propositions - usually through reasoning, but not always, as in : "whole is greater than its part". Yet even here it is possible to dispose it in the form of inductive reasoning.
 - 1) Absolutely universal - first principles of science.
 - 2) Approximately universal
 - a) Based on common experience (probable) e.g. mother loves her child.
 - b) Based on scientific experience (probable) physical laws.
7. Form of induction - from the point of view of formal logic. (Albert, I Prior An. Tract 7, ch 4, p. 147-8) (Aristotle, II Prior An, ch. 23).
 - a. Form - seeing how terms are disposed as to quantity and quality, and other logical properties. This point of view is presupposed to its application in particular sciences. This study is common to both dialectician (probability) and sage (certitude). It is established according to diversity of matter (object under such a form). From the formal point of view induction is either complete or doesn't exist at all. From the material

point of view it can be either complete or incomplete. But this viewpoint comes after the formal one.

- b. The study of the form of induction is related to that of the form of the syllogism and is implicitly contained in it. In induction reason does not see the goodness of the formal conclusion and \therefore it is called an imperfect form of reasoning from the formal point of view. Knowledge of the figures of the syllogism clears up the form of any kind of reasoning, including induction.
- c. Certain animals live a long time because they are without bile:
 A - to live long; B - to be without bile; C - horse, mule.
 - 1) Syllogism: B - A
 C - B
 C - A
 - 2) Induction: C - A
 C - B
 B - A

Induction shows that the middle belongs to the major by means of the minor, but in induction the minor plays the role of middle.

- d. Comparisons:
 - 1) The conclusion of the syllogism is major premiss in induction and conclusion of induction is major premiss in syllogism. This is necessary because induction has as its aim to furnish conclusions to serve as point of departure in syllogism.
 - 2) Minor term in syllogism is middle in induction and middle in syllogism is minor in induction.
 - 3) In syllogism the connection between extremes is established by the middle which is a true universal, while in induction the major is attributed to the middle by the minor which plays the role of middle -- These are enumerated singulars.
- e. Induction is imperfect because its middle is not a true universal and also, what serves as a middle does not have an intermediate position among the terms \therefore The conclusion is not immediately seen.
- f. In induction the minor premiss is affirmative and B is particular yet we conclude to a universal affirmative \therefore the conclusion does not seem true. It would be false from the viewpoint of logical form to arrive at a valid universal proposition as a conclusion. We must suppose on the side of C that the enumeration is complete, that C contains all animals without bile, and that B has no greater extension than C, thus making the proposition convertible \therefore we use "et sic de aliis" which permits conversion of the proposition. This conversion makes possible the formal consequence which could not exist unless there were a complete enumeration of singulars. Having this complete enumeration B has no greater extension in the conclusion than in the premisses.
- g. But does experience justify our posing "et sic de aliis"? This does not concern us here, for this comes from material induction; in formal induction we merely posit it. All inductive reasoning must possess a note of universality in its form (Ipost An lec. 4) he who proceeds by induction from singulars to universals does not demonstrate by necessity because enumeration is not complete.
- h. The form of induction is not transposed to the syllogism. They are two irreducible forms. Induction has no true middle term; it is merely an enumeration. What we do is use the same matter which was under the form of induction and then rearrange it in syllogistic form. However, this syllogism is not a strict one, for its conclusion is not a mediate one proved through a middle term. Its conclusion is immediate because it is the same proposition

obtained by induction from the enumeration of singulars. Induction is a form of argument which in order to be valid as to form requires complete enumeration of singulars. ^{be}

8. Matter of induction - singulars are furnished by experience; these form the basis for induction. Certitude of induction is divisible according to its matter.

a. Certain induction

- 1) By complete enumeration - the singulars examined are few and complete enumeration is possible: universality exists both as to matter and form: conclusion is certain. Although not truly scientific in the strict sense because it is not knowledge by causes; it does not give us the universal ratio. The enumeration is cause of certain knowledge of the thing, but not of the thing itself.
- 2) By incomplete enumeration - it is not necessary to examine all singulars in order to say "the whole is greater than its part." If we multiply cases it is more to illustrate the principle than to prove it. It is not based on the enumeration as such. It is an essential predicate, an essential tie. The mind sees it to pertain to all singulars even to those not enumerated. It is equivalent to a total enumeration even though it is not made. Universality is had both on the side of the matter and of the form, whereas in dialectical induction we have only formal universality (et sic de aliis), but as to matter only an approximated or constructed universality. Enumeration is merely the occasion for seizing principles evident in themselves. Propositions arrived at in this way are:

- a) common and general propositions (dignitates)
- b) proper principles of sciences.

Induction is guided by dialectics (Topics, ch. 2, 101 a 34), the most proper function of dialectics is to enable us to find first principles by facilitating induction.

- b. Probable induction - here propositions are not necessary even if enunciated in a universal form for such universality is merely constructed and approximative. As universal it is a being of reason. Two kinds of such propositions:

1) Those based on ~~scientific~~ common experience (e.g. mother loves her child).

2) Those based on scientific experience - physical laws.

In both kinds the incertitude of the matter impedes certitude and universality as to matter.

- c. In which measure are we justified in adding "et sic de aliis"? In dialectical induction assent and conclusion are based solely on the repetition of experience. The conclusion is posed as universal, not because it is confirmed by experience but merely because needed for the progress of science. If nothing is to the contrary and if sufficient number of enumerations have been made we must consider the universal as attained (Topics, 157 b 33). All propositions seemingly true of all or most cases must be taken as principles accepted by all (Topics 105 b 10) To refuse to do this would be foolish (160 b1) In dialectical induction the difficulty is to pose a subject or universal representing the singular which is not too broad or too restrained. It is not formal universality which is difficult, but material universality.

9. Physical laws are acquired by induction. Is it the same with theories? It is impossible to construct a theory on a purely inductive system. In theory we do not go step by step from laws; the creative imagination enters in.

F. More precise study of induction in the experimental sciences.

1. The method followed to make an induction in the experimental sciences bases itself entirely on enumeration as such. How does one make a good enumeration? They try to isolate one particular thing from others and then make a generalization on it.

a. Procedure of simple enumeration - simply count the instances when a phenomenon happens. No effort is made to find exceptions or make phenomena vary. But this procedure is a little childish and its conclusions precarious; sometimes based on insufficient number of cases, and only the most obvious ones. It does not consider the ensemble of circumstances, nor establish that other factors have no bearing on the conclusion.

b. Rules for induction - certain terms are used: antecedents and consequent; cause (efficient) and effect. Now, "cause" is not used much but is replaced by the idea of relation which is vaguer. Laws of mathematical physics do not mention efficient causality. John Stuart Mill has 4 methods which presuppose a general principle: if all other circumstances remain the same and if one cannot discard or quantitatively change a factor without changing the effect, then this factor is the cause of or related to the effect; and inversely, if we remove or change the factor and no change occurs in the effect, then such a factor is not connected; we must study effects (phenomena) in circumstances as variable as possible.

1) Rule 1: method of concordance - when one antecedent (A) is common to all effects (a) then it is the cause of (a) which is sought. This rule tries to establish that such a relation is constance, and that other factors are not pertinent with respect to this effect (negative aspect). In its positive aspect it gives several ensembles to support the generalization. The weakness of this method is that it is difficult to eliminate fortuitous coincidences.

2) Rule 2 when two effects have the same antecedents excepting one, then this one is the cause sought. The difficulty is to suppress an antecedent which is truly unique, i.e. without suppressing at the same time more than one antecedent.

3) Rule 3: concomitant variations - when a phenomenon varies and when only one of its antecedents varies in the same proportion, this antecedent is the cause sought. We must determine up to what limit variation takes place.

4) Rule 4: method of residues - one presupposes a complex antecedent which is the cause of a complex consequent. If we can assign all elements but one of the antecedent, then the remaining element of the consequent corresponds to the remaining element of the antecedent. The difficulty is to see that only one antecedent remains; things are not always clear cut.

e.g. If A B C D then A
 ? ↓ ↓ ↓ ↓
 b c d a

c. These rules are more useful for destroying a generalization than for proving any particular thing. One well-established fact can destroy the universality of a generalization, whereas no number of instances can confirm it, for they are mere enumerations. These rules are more a method of verification rather than a means of suggesting new experiment.

2. Methodological principle of induction. in spite of their number and variety, experiments bear only on a limited number of cases ;. our formulae (physical laws) include even cases not submitted to experiment; extrapolation --from a limited number we arrive at a general affirmation. To do this we must base ourselves on the principle of induction. This is not necessary to assure the goodness of the formal consequence of induction (use "et sic de aliis". This principle is not necessary when enumeration is complete, when propositions have essential predicates, or with first principles. It is needed when enumeration is not complete and conclusion is based on the enumeration as such. This principle does not enable us to arrive at a proposition which is certain and rigorously universal, but enables us to progress and proceed to an approximative universal; it is a supplement on the side of matter, of the singulars which are always insufficiently enumerated. It doesn't express a law of nature, but only a law of the intellect's progress. It allows generalization and progress of science toward unity, but does not confer certitude to the conclusion. The principle is that we should accept a proposition as universal after sufficient enumeration even if we do not see the predicate to be essential and the enumeration is not complete. This principle cannot be discovered or verified by experiment. This would be a vicious circle, for experiment already presupposes this principle. This principle is based on another and more vast methodological principle: the belief of the uniformity of nature; it is an extension of this principle. Mill considers it a scientific fact based on previous experience, but this leads us to the vicious circle. This does not mean that it precedes all experience; it does not come before common experience (less precise, but more certain than scientific experience). Poincare says that the best justification for this principle is that we cannot do without it.

POSSIBLE DISSERTATION TOPIC

General interest: the nature of the art of teaching, chiefly its essential, and not its introductory or concluding, activity.

Reason for interest:

- a. It bears a relationship to the art of logic, which is the method of all science.
(Logic seems to be the solution for many of the current problems in teaching and learning.)
- b. I have had direct experience with only a few good teachers. Many other teachers whom I have had seem unaware of what the art of teaching should be. Even conversations with teachers whom I have not had in class reveal that they do not know what is the essential activity they must perform in order to teach others.
(My position in our college is the training of teachers.)

Possible specification of interest: An analysis of some section of a writing (?) of St. Thomas in relation to the teaching procedure (method) used so that the readers would be able to arrive at the proper conclusion. This analysis would illustrate (for the instruction of those reading the thesis) the meaning of the principles essential to the art of teaching. Naturally, these principles would have to be examined at length.

① ② ③ ④

Versions successives de :

Philosophical Terminology as Deliberately
Ambiguous

Confé. Cong. ~~de~~ Société Internationale
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④ dern. version annotée par CDK.

PHILOSOPHICAL TERMINOLOGY AS DELIBERATELY AMBIGUOUS

Hermann Weyl observed that the first step in explaining relativity theory must always consist in

shattering the dogmatic belief in the temporal terms, past, present and future. You cannot apply mathematics as long as words still becloud reality.

In this connection, Weyl quoted Andreas Speiser:

By its geometric and later by its purely symbolic construction, mathematics shook off the fetters of language, and one who knows the enormous work put into this process and its ever recurrent surprising successes cannot help feeling that mathematics today is more efficient in its sphere of the intellectual world, than the modern languages in their deplorable state or even music are on their respective fronts.

On still another page, Weyl tells us that

The mathematical game is played in silence, without words, like a game of chess. Only the rules have to be explained and communicated in words, and of course any arguing about the possibilities of the game, for instance about its consistency, goes on in the medium of words and appeals to evidence.

Any respectable word is so ambiguous that in various areas of human knowledge ^{oral terms} words may in fact be described as beclouding reality and as fettering our thought. But we should notice that the authors just quoted are stating their apposite case in words, nor could they do otherwise, while they themselves acknowledge this. Still, not enough attention is being paid to the precise reason why even meta-mathematics resorts to words. All this we somehow take for granted. It is all very well to point to exasperating ambiguity, but the real problem remains: how could we do without words? Moreover, how could we do without their very ambiguity? How could we prevent their use except by forcing people to shut their mouths? I mean that as our knowledge progresses the need for imposing new meanings upon terms

already in use is imperative. And I insist that this is in practice acknowledged even by those who make the most irate attacks upon the slipperiness of human speech as distinguished from the symbols and symbolic constructs of logistics, mathematics and mathematical physics.

Let us take as an example the polyvalent Greek word hylê and its Latin equivalent materia. Lexicons will list several meanings somewhat in the following order: (a) forest, woodland; forest-trees; (b) wood cut down; timber, lumber; (c) the stuff of which a thing is made, material; generally, materials. Finally these words were extended to mean 'that of which' anything is composed, even though this might be as various as the vapour of a cloud, the sides of a triangle, or the terms of a syllogism. We know ^{that} hylê in Aristotle ^{to be} receives a new imposition ~~that is~~ found nowhere else. But the point is that in this instance too it remains related to those more familiar meanings, even as that which it is supposed to signify depends on knowledge of what the word had already been used to signify.

In other words, a term (and this word term is itself a case in point) may have some original meaning which it is well to know if its later impositions are to be understood, that is, whenever the term is applied to things which cannot be known nor, therefore, named without reference to something earlier and more known to us. For, if words are first signs of what we have in mind regarding certain things, so that they refer to these things only through the medium of the mind's conception of them, then, the way in which words signify will not depend immediately on the way in which the things that they stand for are in themselves, but on the way they become known to us and are present in the mind. And hence it is that we can name a thing only as we know it, and that in naming things we

follow the progress of knowledge. It is only natural that we should transfer names of things more known to things less known, where our knowledge itself proceeds from the more known to the less known with dependence upon the former. Thus the word distance has been transferred from things that are apart locally, to distance in time, distance between simple and complex systems, between ideas, and philosophies.

Notice now that I am not speaking of original meanings of words in the sense of etymology, although the true meaning of a term in this narrower sense may sometimes be of use. Even erroneous etymology can on occasion make do, provided the word is first applied to something that can be readily and immediately identified, that is, if first intended to convey something we know well. I mean that etymology may be one thing, and meaning still another. The former aims to tell us where the word was taken from for the sake of signification; whereas the meaning of the word concerns that upon which it is imposed for the purpose of signifying. Thus the term manifest (whether it be taken as a verb, an adjective, or a noun) comes from a Latin compound, manu(s) and fendere, which meant 'to seize by the hand;' hence 'palpable.' Fur manifestus was a thief caught in the act. 'To manifest' became 'to make plain,' 'to make to appear distinctly,' 'to put beyond question or doubt,' etc. The adjective came to mean 'evident to the senses,' especially to sight; 'apparent,' 'distinctly perceived;' hence 'obvious to the understanding,' 'evident to the mind;' 'not obscure or hidden.'¹ Plainly this same word still retains many meanings. Knowledge of the

1. Another example would be 'verifiable in experience.' The first term in this expression is already analogous, for it means one thing in verifying a name, another in verifying a symbol, another in verifying an enunciation, and another again in verifying a proposition or conclusion. 'Experience' is not less ambiguous, having a distinct meaning in different sciences, and even in different parts of a single science. 'Sense experience' is itself an ambiguous expression, and so is the sole word 'sense.'

etymology is not indispensable, but reference to something in the order of sensation is a requisite. What I do want to point out at this juncture is that these several meanings are interrelated as primary and secondary, and that the term is thus analogical.

Before going into this question of inter-relationship, I must point out that in the case of words signifying things first known to sense, such as noise, smell, sweet, pain, smooth, in~~in~~, feel, move, 'that which they mean' and 'that from which their signification was drawn' are one and the same. Whatever their philological origin, they are not named from other things; and when they are it is purely incidental to what we now intend. This is not the case of words such as bluefish. If, aware that the name is taken from blue plus fish we insisted that all blue fish ought to be bluefish, and all bluefish, blue, we would in this event be confusing etymology and meaning, namely that whence with that which the word signifies. (cf. I 13, 11, 1^m)

You can see how anyone who follows Aristotle on the various 'intentions of names' (Metaphysics V) must agree with logical positivists and analytical philosophers who insist that if a term is to have meaning it must refer to something that in one way or another can be verified in sense experience. Notice the qualification, which some ^{of them} would not accept (though implicitly they do so in their own writings), namely, 'in one way or another.' Take for instance the terms light and sight. These were originally imposed to mean that which allows our eyes to see, such as sun- or candlelight; and eyesight. Then, according to common usage the term sight extends to all knowledge obtained through the other senses. Thus we say, as St. Augustine pointed out, "See how it tastes, how it smells, how warm it is." Thus it is with the name light, which was extended to mean that which makes manifest according to knowledge of

any kind. And so we say things like: 'Let us look at this problem in the light of new evidence,' or 'If you view this question in the light of the new calculus,' etc.

The analogous term, then, though one as a name, has many distinct meanings as the result of new impositions. Now these are not haphazard. If they were, our term would be simply ambiguous, like 'dog', which may mean the animal, or the constellation. Take that analogous term sight. It means one thing in 'to see the equilateral chalk triangle/on the blackboard,' another in 'to see what the term equilateral triangle means.' As to us, the former is the first meaning. This is what seeing means per prius. The other is not so well known. Still, it refers to a sight that is in a sense more so than that which I share with my cat. The new meaning comes second in our knowing, but what it now refers to, namely this new kind of knowing, is, absolutely speaking, prior to what is conveyed by the previous meaning. One would rather lose eyesight than mind.

Such terms, then, are ambiguous, but they are not so by mere chance: they are intended as ambiguous — a consilio. The conceptions they refer to are as many as whatever they were made to represent, but they are related in such a way that the one is not named without dependence on the other. 'The light of calculus' cannot be grasped without reference to the light we need to see with our eyes.¹ There is no escaping this demand of the logical positivists. (It is interesting that they should be called 'logical,' for Metaphysics V is about the intentions of names, which in fact are works of reason. I definitely side with them in this particular regard, rather than with the Thomists of our day, whose

1. To the person blind from birth, some reference to sense would still be requisite.

conception of analogy, one that began with Cajetan, would rule out once and for all the very possibility of metaphysics — as Kant so convincingly made plain in the Prolegomena.)

264, 1, 11
Pst. 12
2, 3^m
13, 2, 0.
The distinction between a given term as analogous or as metaphorical is not always unmistakable. Light, for instance, in 'the light of calculus,' can be an analogous term, but can also be taken as a metaphor. It is a case of metaphor when not extended and given further meaning to express a new knowledge acquired at the term of some discourse or other. The metaphor is based upon a likeness first grasped by the one who expresses it in the mode of apparent identity. But the analogical term has at least two, inter-related, meanings with dependence of the one upon the other.

Many of the so-called technical terms of philosophy look forbidding (if not pedantic) because they are borrowed from another language, like the word 'philosophy' itself. *This may be the reason they are called technical.* And they appear all the more remote because they are usually taken according to later, more abstract impositions which had become theirs in that language. Such is the case with the words 'syllogism' and 'abstraction,' for example. Even in Latin, the adverb syllogistice (used by Cicero), as well as the low Latin noun syllogismus, refer immediately to an extended meaning of the Greek syllogismos and this is the imposition which Aristotle uses in logic. The word derives from syn (with, together) and logismos (counting, calculation, and also reason). So, in Latin, French, and English dictionaries, the very first ^{and only} meaning of 'syllogism' is 'a term of logic,' and reference is made to Aristotle. Actually, the word was once used by the man in the street who knew nothing about its extended meaning, even though he put two things together and concluded to a third. Yet the passage from the meaning of the word in common use to its extended

aning can be followed as easily as the transition from 'light,' as in 'sunlight,' to 'enlighten' in 'enlighten me on this subject of geometry.' Both in French and in English, the disparaging remark 'What does reasoning have to do with syllogisms?' may well draw applause from the gallery. Such resentment is only natural when the borrowed term is used outright to signify something that, without reference to something more known or more knowable to us, can be understood only with difficulty, or not at all. Such a reference must be provided either by an earlier imposition, or by an etymology that helps to grasp a previous meaning. Failing this verification, such so-called technical terms take on an air of fraudulence which calls for exposure so long as one is presumed to know just what they mean — which appears to be the case of metaphysics in our time.

The same holds for the word 'abstraction.' Both in French and in English it now means, first and immediately, something far removed from what is more known to us: viz., 'a certain operation of the mind,' or 'the status of something related to thought as distinguished from mere sensation.' The original Latin (just like the Greek aphairesis) conveyed 'the act of drawing or separating from,' a meaning very near to the etymology: ab, abs (from) and trahere (to draw, pull, take away). The sculptor, hewing away stone from stone, performs an abstraction in that primitive sense of the word. (This meaning was retained in the English adjective 'abstract,' but is now archaic.) Present-day discussions on the nature of abstraction show how bewildering are the consequences of using words intended to mean, from the first, something which can be properly known only by dependence upon something of which we are more immediately aware and ^{upon} ~~the~~ which the same word had already been imposed.

The need to lead extended meanings back to those that can be verified of things more known and unquestioned would not arise if, with Descartes, we could assume that what is most knowable in itself can be equated with what is most knowable to us — which is indeed the case in mathematics. To him, the words 'God' and 'soul' meant something first and most clearly known to us by intuition. He believed that he was using the word 'soul' according to the sense in which Aristotle uses the word psychè (originally 'breath of life') in Book III of De Anima. We do not mean that Descartes had nothing in mind when he used this word, but only that he nowhere provided a means of verification. Nor would he need to do so if we enjoyed the kind of intuitions with which he credits us. (Note that we are not speaking of propositions, but simply of the meaning of the words.) Actually, many later impositions of words depend either upon a comparison between something already known and named, and something we come to know, with dependence on the former, through some discourse of other. By forming an analogical term we express such a process which in every instance will somehow fall back upon sense experience.¹ For we can name things only as we come to know them. Hence the very words we use to signify things that we can never know except by some comparison or reasoning process could not obtain such a particular meaning without these. Any statement containing

1. Although geometrical points, lines and surfaces may be named after the crude objects of sensation (a respect in which such terms are analogical), nonetheless, so long as they are taken within the order of mathematical abstraction they have a single meaning. I mean that a straight line is just as much a line as a curved one; and 'point' refers to what the very different one-^{dimensional} and four-dimensional points have in common. This utterly univocal character of all mathematical names is proper to this science. On the other hand, if, as Hermann Weyl said, it is irrelevant for the mathematician what circles are, there will be no need for words that he distinguished from symbols.

for instance, the word 'soul,' taken in a sense far removed from sense experience, yet with the assumption that this could, or should be its first imposition — like that of words for things immediately known, such as hot, white, breath — is going to be like any other enunciation made in terms not entirely understood by its author. The neglect of meanings relating to experience opens the way to a philosophical jargon that all can repeat but no one understands.

It has been observed that the original meanings of words have to do with things of rudimentary sense experience and practical life. For instance, the Greek for 'soul' (psychè, whence our psyche, psychic, psychology, psychiatry, etc.) first meant the breath of life; while the Latin anima was used for air, a current of air, a breeze; and we saw that the adjective 'manifest' meant seized by the hand. For this reason, many believe that to recognize the simplest words of common speech (although the whole of Aristotle's vocabulary, however awesome it may have come to look in modern languages, was derived from them) as relevant to philosophy, is to condemn the latter and abandon it to anthropomorphism. This is a denial of the progress of knowledge from more to less known, ^(and of the attendant meaning.) Rather than surrender to words in common use, some suggest that the philosopher should create his own vocabulary, out of nothing, so to speak, and employ only 'technical' terms divorced from usual meanings; much as the mathematical physicist, who must have recourse to symbols from the very start.

If this assimilation were correct, it would imply that philosophy is a body of knowledge unrelated to what is actually more known to us; that it is based, perhaps, on some intuitions that are the privilege of a few, the only ones to have the right of calling themselves philosophers; or that the science is based on intuitions proper to some particular school. In effect, the reason why one does not understand the technical

terms would be the lack of the proper intuitions. This position, which is rather widely received, implies that progress from the more commonly known to the less known, as well as the new impositions of words that attend it, cannot be achieved. Thus a word whose more original meaning referred to something practical, like 'manifest' means to seize with the hand could never be used to signify, in a proper sense, anything but that; or even 'symbol,' which meant the sign of a contract or convention, such as a wedding-ring, could not be reasonably extended to mean the sign of a collection that cannot be named. So that once a word has been used to refer to something in the order of sensation or in that of action or of making, it should never be employed to mean anything else in any proper sense. If such were the case, we admit that philosophy could not name anything. And the reason would be that there would be nothing known to require a name.

Philosophical terminology, much like that of common speech, is ambiguous, ^{and} quite deliberately so. Although confusion may at times be in fact the result (one that the sophist will chose to exploit), it is meant to reveal order by expressing progress in knowledge from the more to the less known, inasmuch as the latter is dependent on the former.

It might prove interesting to show that every philosopher, no matter what his dissension — even he who denies all philosophy, while he covets the title and in a sense deserves it — does in fact use analogical terms. Nor could he have anything to say without these — except perhaps in dubious metaphor.[†] However, this verification lies beyond our present scope.

[†] It would imply that phil., like poetry, has to do with the ineffable even when it using the word 'cause' as applied to purpose, or principle to proposition.

(all artificial means of expression,
Can it be that he who maintains ^{that} all words should be univocal
and, when applied to something else, no more than metaphors,
thereby confines himself to a logistic or mathematics whose
symbols and rules could never be discussed except in words
condemned as hopelessly confusing? Progress in any field
outside of these techniques would in fact reduce to mere succession,
like touching one thing and then another, or hearing and then seeing
it, seeing a tree and then seeing a horse. I believe, all the same,
that my speechless cat can do better.

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*limitation in representando
of nomina analogia - alijs quoniam
metaphorae.*

*lossiness of vocabulary shows that words
are in the service of thought. E.p.
"Principium" made to stand for
"efficient cause"; or "animal" for god,
in "Supra- and everlasting animal".
(Mta 12, c. 7, 1072 b25; c. 8, 2544.)*