

The Human Knowing Process

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Introduction

Man is placed "on the confines of spiritual and corporeal creatures and therefore the potencies of both meet in the soul." "Man can acquire universal and perfect goodness because he can acquire beatitude; and, therefore, the human soul requires many various operations." (Summa Theol. 1,77,3) In this treatise we would like to inquire how these various operations are exercised by the soul. The soul is the principle of motion and action of man, for it is his substantial act.

Man has a very complex nature. With his intellect he reaches to the contemplation of Truth. In the lower functions of life, however, he is very similar to a plant. Between these two extremes--intellection and vegetation--his sense knowledge holds a unique position. We want to inquire into this sense knowledge of man, which, although the lowest form of cognition, is nonetheless essential in our process for acquiring truth, since the human intellect naturally depends on sense for its data. Because sense life lies between vegetation and intellection, it shares something of each. Like vegetation, it is a life depending essentially on matter. It is material. Like intellection, it shares more or less in the immaterial and possesses a certain kind of spirituality.

From sensation of external things our mind builds up all its ideas and judgments about the nature of the physical universe and, in fact, all being. But before these ideas and judgments are formed, the data received by the external senses need

to be elaborated and organized into purely mental, though still sensible, representations or images of the external objects. We need to study separately, though not in detail, the five internal senses that perform this function. 24

We shall see that the nature of the intellectual cognoscitive faculty, the possible intellect, which is primarily a passive potency, requires an information and actuation by the intelligible species, which the internal senses prepare. Here we want to see how this species is obtained through the process of abstraction by the joint causality of the agent intellect and the phantasm.

Man's intellect has three principle operations: simple apprehension (or conception), judgment, and reasoning. The latter two follow the first, since by them we manipulate the ideas which we attained in the act of conception. In our last section, part V, we want to see in just what the act of conception consists, and how it is related to the sensory operations which we have just studied. 5

A treatment of such a wide subject as the intellect will take more than thirty pages, of course, but I hope that this thesis can be a backbone for a more intense study. Since the thesis is planned to give only the main points of our knowing process, this should be a help to see the total process without additional considerations in a quick perusal. /

II. External Senses and Sensation

All man's knowledge begins with sensation, or as St. Thomas put it in his Summa Contra Gentiles, "Nihil est in intellectu quod prius non fuerit in sensu,"¹ or even yet in a more poetic structure, "Nihil est in intellectu nisi prius in sensu."²

But just what is sensory knowledge? "Sensory knowledge may be considered as an act of the one knowing and as such is the organic perception which makes one aware of a material object presented by the external senses (sight, hearing, smell, taste, touch), or recalled by the sense memory or reproduced by the imagination. It is always the perception of a definite, particular concrete object."³ There are five distinct formalities of the world of these material objects which we commonly experience: color, sound, odor, taste, hardness, and softness. These form the formal objects of the external senses. Scholastic philosophers distinguish five external senses: sight, hearing, smell, taste, and touch; but it should be noted that the metaphysics of man cares little whether there be five or fifty distinct sense faculties--question is whether they provide us with data necessary for intellectual knowledge of essences.

Just why do we need sense knowledge? If the object is not originally in the subject, it must be united with it, and made one with it. This union is brought about, in St. Thomas's expression, by the assimilation of the knower to the object known.⁴ By assimilation the thing which knows is made one with the thing known--the sense, for example, becomes the thing understood in

act. 5 This does not mean that the very substance of the knower becomes the thing known, for only in God is the substance of knower and the known thing identical. 6

Physical movement in the sense organs, and the subsequent movements which they cause in the nervous system and brain, are not sensations, but they are the necessary physiological conditions of sensations. We have sensations when physical causes in the world around us act upon our sense organs and, through the physical changes produced in them, somehow produce in us conscious sensory apprehension of the thing in the world around us. 7

Our mind builds up all its ideas and judgments about the nature of the physical universe from these sensations of external things, and therefore, ^{subject} is connected to the intellect as its source of data. Gredt mentions this very concisely:

Non vero intendimus excludere obiectivam dependentiam, quae in eo consistit, quod (pro praesenti statu coniunctionis animae cum corpore) intellectus intellectionum suarum materiam seu obiecta sua ex sensili cognitione desumit, ac proinde obiectiva a sensibus et a corpore dependet. 8

The intellect is said to be objectively dependent on the phantasm for its ideas (the phantasms are sensible representations which are formed by the imagination, as will be explained later). It is only fair that these two, the knower and the thing known, should be proportionate in their modes of existence, since the intellect is found in a material being. 9

Experience is the best proof of the dependence of the intellect in its thinking process on the external senses and the

brain. Exhaustion of brain power accompanies the work of thinking. "The fact that the exercise of imagination or of external sense forms a 'condition sine qua non' of intellectual activity, accounts for such consumption of cerebral energy." 10

It is false to say that the brain thinks, or even that the mind thinks with the brain as its organ, although we may allow the phrase that it sees by the instrumentality of the eye or hears by that of the ear. "So, too, the intellect understands, apart from sensible matter, a line existing in sensible matter, although it can also understand it with sensible matter." 11

III. Internal Senses

Before ideas and judgments are formed, the data received by the external sense are elaborated and organized into purely mental, though still sensible, representations or images of the external objects. This part of the work of knowing is done by the internal senses. Gredt defines an internal sense as such:

Cognitio enim sensuum internorum in eo consistit, quod aliquid iam cognoscitive apprehensum ulterius elaborant. Objecta autem sensuum internorum non sunt objecta pure externa, cum his sensus semper referantur ad aliquid intentionaliter in cognoscente iam acceptum. 12

St. Thomas, following Aristotle, attributes to man four internal senses. They are so called because they have no external organs receptive of direct impressions from the external world, but instead receive their data from the external senses and through the organs of these latter. The internal senses are

common-sense, imagination, cogitative sense, and memory. 13

The first of these is the sensus communis. According to Renard, the common sense is "that operative potency which terminates the mutation of all the external senses." 14 Our external senses give us only their proper objects--colors, sounds, odors, tastes, tangible qualities. Through these we perceive also certain common objects like shape, size, distance, movement and time. We perceive these latter through the special senses, but by the common sense. This is the reason this operative potency is called "common": it is "the common root and principle of the external senses." 15 The external senses cannot combine or integrate into unified objects the various impressions which they receive, because each sense receives only its own special kind of impression and not that received by the other senses. This unification of senses enables us, not merely to receive the proper sensibles, but to distinguish between the different sensibles which affect the same sense. 16

The second of the internal senses is the imagination, which is "the faculty of forming mental images or representations of material objects apart from the presense of the latter." 17 The reason for the need of such a preparation is that in external senses the species is caused by the object here and now, and cannot be retained unless the agent be present. 18 There is a need of the imagination which preserves species from the external senses, which are distinct from the imagination. We picture in our mind things which we have previously perceived, although

at the moment when we picture them they are not acting upon any of our external sense organs. This means that we have a power or faculty for preserving the sensory impressions produced in our consciousness and of representing, in their absence, the objects which produced these impressions. We may imagine a thing as we actually perceived it, or we may combine in one representation sense impressions which were not actually perceived together, thus constructing "imaginary" objects. These mental representations which we form by this power are called phantasms.

The imagination and common sense are closely connected, for the imagination completes the operation of the common sense. The common sense can know and feel what the external senses feel, but only when they feel. "The common sense does not perceive the object unless it receives the term of the mutation which is caused by the proper sensible in external sense. The imagination retains, preserves, recalls, and, sometimes, from the data received, creates new phantasms, new preceptions." 19 The imagination is, then, only a continuation of the common sense.

The third internal sense is the cogitative (vis cogitativa). It is a fact that we perceive things not merely as objects having certain sensible qualities, but also as being good or bad, desirable or repellent, useful or harmful. St. Thomas uses his favorite illustration of a lamb fleeing from the wolf without having to be taught. 20 This "harmfulness" is not a sensible quality which any external sense organ can perceive.

St. Thomas uses "insensate intention" (species insensatae) for estimative impressions, meaning those objects of knowledge not experienced by external senses. 21 Gredt defines the "vis aestimative," as it is called in animals, as such:

Vis aestimativa est sensus internus, quo animal in re externa per sensus externos apprehensa percipit "intentiones insensatas" seu id, quod neque sensibus externis neque sensu communi aut phantasia percipitur. 22

After he gives his explanation of the "vis aestimativa," he goes on to say that man is an animal with the same power only not as necessary for his operation that is called the "cogitativa" power. Essentially this power is the same in animals and in men, but its actual exercise in men is superior because in them it operates in subordination to and under the influence of reason. Animals absolutely need to perceive such intentions that the external senses do not perceive.

These insensate intentions may be defined as aspects of individual sensible bodies not perceivable by any external sense, yet grasped by the sentient subject in the total perceptive act. This power is dependent on the senses, and, therefore, is like the intellect which also depends on the senses. St. Thomas says this in the Summa Theologica:

Although the operation of the intellect has its origin in senses, yet, in the things apprehended through the senses, the intellect knows many things which the senses cannot perceive. In like manner does the estimative potency, though in a less perfect way." 23

The difference between the estimative sense of brute animals and the cogitative power of man is not in sensible forms, for they are similarly moved by external senses. The difference

lies in the intentions, for brute animals perceive these intentions only by some sort of natural instinct, whereas man perceives them also by means of a certain comparison. "Therefore it is also called the particular reason...for it compares individual intentions, just as the intellectual reason compares universal intentions." 24

The last of the internal senses is memory. It is similar to and yet different from imagination. The functions of memory and imagination are identical so far as the original experience, retention, and revival are concerned. 25 But in the case of memory there is a definite recognition of a quality of "pastness" in the image which is present to consciousness that the imagination does not have. It is true that the imagination is a treasure house for sense perception, but it does not succeed in apprehending all the aspects of sensibles; the useful or the harmful escape its grasp. 26

The phantasms or images produced by the imagination are constructed out of the data received by the external senses and integrated by the central sense, the sensus communis. Such images represent or remember a picture as the subject actually experienced it on a definite past occasion, so that the occasion and the experience are as much a part of memory as is a particular object with its color, size, and shape. "The sensitive memory, in man as well as in brute animals, requires two distinct faculties: the imagination, which retains the 'sensitive' intentions; and the memorative which keeps 'insensitive'." In imagin-

ation we merely represent to ourselves some object as it appears to the external senses supplemented by common sense; in memory we represent the object and recognize it for what it was in our experience of it. This enables a man to become "experienced" and to acquire different skills.

Like the cogitative sense, memory is essentially the same power in animals and men, but the actual operation is superior because of the influence of the intellect to which it is joined and subordinated. "Sense memory does not abstract from singular conditions, it does not belong to the intellective part of the soul, which is cognizant of universals." 28

IV. The Intellect

The intellect is a supra-organic faculty which knows things in an essential non-material way; a supra-sentient, spiritual faculty, being a capacity or power for vital activity. Gredt defines the the intellect as the power for apprehending the essences of things.

Nomine intellectus potentiam cognoscitivam significamus, quae essentias rerum apprehendit, ac proinde conceptus formulat universales, abstractos a notis individuantibus, distinguendo id, quod necessario seu essentialiter rei convenit ab iis, quae accidentaliter et contingenter insunt. 29

The word "intellect" itself is related to "intelligence," and, according to St. Thomas, the only difference in the two words, is that "intelligence" is the ability to think and "intellect" is the exercise of ability. 30 Both words come from the two latin

words "intus-legere"--to read within, to penetrate beneath outer apperances of things, or in a philosophical sense, to apprehend the essences of things.

The human soul is not, strictly speaking, an intellect. But instead the intellect is a power of the soul, which imparts a degree of perfection to the soul. This power of the soul is a passive power because by the mere fact that the intellect is created it is in potency to all intelligible reality. 31 God, on the other hand, the highest degree of an intellectual nature, has an intellect whose relation to universal being consists in being the very act of being taken in its totality. The Divine intellect is absolutely without potency. Last in the order of intellects, and as far removed as possible from the Divine intellect, the human intellect is in potency to act, since it must receive an actuation to acquire this new knowledge. 32

The intellect operates as a complete whole in forming ideas or concepts, and acts according to its own particular nature and function in producing and possessing these concepts, as will be shown later. But the intellect is dependent on the whole system of external senses, since the proper object of the intellect whereby it reaches intelligibles is material objects, that which is known first and per se, i.e., not under the aspect of another object. "The proper object of the human intellect is the quiddity or nature existing in corporeal matter." 33 We need a power to go beyond the data of sense. The human intellect does this, for man understands essences of things; still these essen-

ces are in matter, they are material. Hence our knowledge of immaterial things is analogical and imperfect. It can be attained only by reflection upon the essences of material things--by using the data received from these things. Out of the proper concepts of material things we construct our knowledge of immaterial realities. "It is through these natures of visible things that the human intellect rises to a certain knowledge of things invisible." 34 Gredt calls the intellect the root of all immaterial knowledge whereby we have a certain "eminence" over matter. 35 We can go beyond to the invisible. In our improper concepts of invisible things we retain the material viewpoint of our concepts of material being. The quiddity in matter is the proper object of our intellect. "It is proper to the human intellect to know a form existing individually in corporeal matter We must needs say that our intellect understands material things." 36

Spirituality of the Intellect

The intellect is a faculty of man, but it belongs to man's spiritual soul, having no bodily faculty or organ, not even the brain. Thus, without the body and its sense organs the soul would be cut off from all intelligible natures, and could never formulate an idea. Hence, the intellect has a body in order that through the sense organs of that body its intellectual power may attain to its intelligible object. 37 Using the senses the intellect is able to carry out its spiritual operation of

grasping material things in an abstract and universal way, for this spiritual operation is superior to the mode of sense operation.

Intellectus cognoscit essentiam abstractam universalem.
Atqui potentia organica non potest cognoscere essentiam abstractam universalem. 38

We can go beyond the senses in knowing things in an essential way, i.e., we can know a tree in general--know the essence of tree. The scholastics implied that this is a function of the mind alone; that unlike sentiency it is not exerted by means of any organ. "The soul was found to be in potentiality to intelligible things, as the senses are to sensible things." 39 Gredt also formulates St. Thomas' thought.

do we know
the essence of
a tree; St. Th.
says he does
not know
the essence of
a tree.

Asserimus intellectum in esse et agere non esse dependentem ab organo, ac proinde esse separatum a materia... ita habet potentiam intellectivam, quae inest in sola anima, et quae in esse et agere est independens a corpore, quae proinde resultat ex anima, non prout informat corpus, sed prout est spiritualis seu independens a corpore." 40

Division of the Intellect: Active Intellect

Nothing can be moved from potentiality to actuality in any respect except by something which is already in act. Therefore, the form in the phantasm can be made actually intelligible only by some agent which is itself actually intelligent. This agent is the intellect itself which, being an imaterial form, is actually intelligible. Consequently, the intellect itself makes the form embodied in the phantasm actually intelligible before it receives that form into itself. Following Aristotle, therefore, St. Thomas distinguishes two intellects or two distinct

powers of the human intellect, namely, the active or agent intellect which makes things actually intelligible by freeing their form from its material conditions in the intelligible object by receiving the form or species abstracted by the agent intellect. "The intellect's understanding of the generic or specific nature apart from the individuating principles is due to the conditions of the intelligible species received into it, for the species is immaterialized by the agent intellect through being abstracted from matter and material conditions whereby a particular thing is individuated." 41

The possible is
received

For the most concise, but complete definition of the agent intellect, Gredt's is the best.

Potentia anorganica abstractiva tantum, non formaliter intellectiva, quae producit ex phantasmate in intellectu possibili speciem impressam, qua hic constituitur in actu primo intelligens. 42

This active intellect is a ray of spiritual light falling upon the phantasm, which is the sensible representation of the corporeal object, elevates it, transforms it, and by its instrumentality produces in the possible intellect the intelligible species by which the possible intellect is actuated. This agent is called a light because just as a corporeal light it makes corporeal things to seem to appear visible, so this spiritual light makes quiddity from the phantasm to appear to the possible intellect. It is called "abstract" because it produces an intelligible species, abstracting it from individual conditions.

To have an act of intellection in the state of union with the body, some means of union of the phantasm is required by

which the intellect might abstract its own object.

Phantasma per se solum non sufficere ad actum intellectus explicandum, sed requiri praeterea aliam causam, intellectum agentem. 43

Without the agent intellect the phantasm cannot be a cause in producing the impressed species in the possible intellect. One must remember that the phantasm is corporeal, while the intellect is itself spiritual.

Corporeum non potest agere in intellectum nisi cum eo concurrat altera causa spiritualis seu potentia anorganica. Atqui phantasma corporum. 44

Something corporeal cannot produce something spiritual unless it occurs with another spiritual cause at the same time, otherwise the effect would exceed the cause. Our knowledge, then, depends on the agent intellect as its first principle.

As for the function of this power, we know that the forms to be found in matter are themselves evidently not intelligibles in themselves, since it is immaterialness that confers intelligibility. The forms which our intellect knows in sensible things must be rendered intelligible in act. Only a being in act can cause something to pass from potency to act. There must be attributed to the intellect an active virtue or power which renders the intelligible, contained potentially in sensible reality, actually intelligible. Aristotle in his physics says "that, before learning, a man is in a state of essential potentiality with respect to knowledge and therefore needs a mover to bring him to a state of actual knowledge, but, when he has already learned he needs no mover essentially so called. Therefore, the

influx of the agent intellect is necessary." 45 The function, then, of the agent intellect in regard to the intelligible species is simply "to render them fit vehicles for the possible intellect's understanding." 46 The agent intellect renders the species actually intelligible, not that they may serve as a means of understanding on its part; on the contrary, it is that the possible intellect may understand by these species which the agent intellect has made actually intelligible.

The agent intellect is proportionate to the possible intellect, and so it will not be a separate substance since the possible intellect is a part of the soul. Also, the agent intellect is always acting, but the phantasms are not always made actually intelligible. 47 It has a transient action, producing its effects outside itself, not formally understanding.

Passive Intellect

The human intellect, last in intellects and far removed from the Divine intellect, is in potency to all intelligibles, not only in the sense that it is passive when receiving them, but also in the sense of being deprived of them. As Aristotle said, to start with the soul is like a "tabula rasa" without any writing on it. 48 It follows necessarily that the intelligibles must set this intellect in motion to render knowledge possible. The possible intellect, in light of this, is defined by Gredt as:

Potentia anorganica formaliter intellectiva, quae, per speciem impressam constituta in actu primo, elicit intellectionem. 49

In other words, it is the intellectual power that actually understands and produces the act of cognition once constituted in actu primo by the impressed species.

When the possible intellect is actualized and determined by the intelligible species, it is fully disposed to perform its own operations. The first of these is the simple apprehension or understanding of the nature of some external thing. The intellect in apprehending, like the sense in imagining, produces a mental representation of its object. This is what we commonly call the concept or idea. It is not the intelligible species informing the intellect, any more than the phantasm is the sensible species informing the sense; it is a conscious intelligible likeness of the thing apprehended. It is the actualized intellect's expression of itself, and as such it cannot be anything other than the likeness of the thing whose form the intellect has received; because at the moment when the intellect produces this expression it is one with the thing by whose form it is determined.

"Phantasms are to the possible intellect what sensibles are to the senses." 50 The universal form or species abstracted from the phantasm by the active intellect is received into or impressed upon the possible intellect in a way analogous to the impression of sensible species upon the sense powers. The intelligible species found in the possible intellect are derived from the phantasms. Intelligible species even of contraries are not contrary in the intellect, so there is nothing contrary in the possible intellect that could prevent it from receiving all

intelligible species. St. Thomas says that these intelligible species received into the possible intellect functions as the thing by which one understands, and not as that which is understood. 51

As stated above, the active intellect means the capacity of the intellect to abstract the essence from the phantasm, likewise, the term "passive intellect" means that the intellect is capable of being actuated. It must be noted that there is no real distinction between these two powers, nor is there two divisions or parts of the one intellect, for the intellect is a power or faculty of the soul which cannot be divided or extended. 52

The passive intellect becomes the intellect in act and is made at the same time and by the same token the intelligible thing in act. "Sensibile in actu est sensus in actu, et intelligibile in actu est intellectus in actu." 53 For the intellect is the actuality of the intelligibility of the object and the intelligence of the subject once informed by the species. Prior to this, the intellect is a power or potency for knowing, and the thing is a potency for being known. Informed by the species, the intellect is a new reality in which are actualized both these potencies; hence, the intellect is both of them at once--the intellectum in actu and the intellectus in actu.

The passive intellect, then, holds, possesses, understands, interprets, and modifies that knowledge which the "active intellect" presents, and thus, having been actualized, moves the will.

Speculative and Practical Intellect & Intellectual Habits

The intellect in itself is always speculative because secundum se it exists in pure contemplation, but by extension it becomes practical. 54 To be extended in this sense is for the faculty to operate outside of itself. Speculative intellect contemplates truth, and the practical intellect directs to operation. Such a distinction, because it pertains to the end, is only accidental to the object of the intellect--namely being. These two intellects are not two distinct faculties, but two functions of the same faculty.

Quare memoria intellectiva, facultas iudicandi, ratio seu facultas rationandi, intellectus speculativus, intellectus practicus non sunt potentiae ab intellectu distinctae, sed sunt unus idemque intellectus secundum diversa munera consideratus. 55

When joined to another power for operation, the intellect is called practical. It has the act of prudence when joined to the will in order to determine acts according to the moral law; the beautiful arts when joined to the imagination in order to determine the conception of a beautiful thing; and the habits of the mechanical arts when joined to the external powers in order to determine their operation. 56 These intellectual habits are necessary, for just as the possible intellect could never elicit the act of understanding, of itself, without the data of the senses, likewise, in order to make the act of the understanding more easy, it is necessary that the species be retained in the intellect as dispositions for future actions. Man needs the speculative habits necessary for the contemplation of truth as

well as the practical virtues for directing his manifold actions. Habits are needed because the faculties of man, his operative potencies, are not able to perform the actions needed for development and perfection, constantly, easily, and with pleasure, unless they are informed and determined by acquired dispositions which prepare them for actualization and action. Man always operates for perfection of his operational ability. Intellectual habits perfect the intellect itself so that they help the intellect to judge through proper causes, and to check its knowledge logically and surely.

Part V. Function of the Intellect

Simple Apprehension

The senses perceive their respective objects as material, concrete, individual things. The sense-findings are retained in the inner sense called imagination, are subject to the action of the active intellect, and are rendered intelligible or understandable by stripping away their individuating marks and material conditions, laying bare the understandable essence as such. This understandable essence is called "the intelligible species," an abstracted essence, the "the impressed species." The possible intellect reacts to the impression, laying hold of the impressed species. This possessive grasp of the possible intellect is said to "express" the understood essence, and the intelligible species is now the "expressed species," the idea or concept. Ideas are the fundamental elements of intellectual knowledge, of judging, and of reasoning.

In ~~a~~ definition form, simple apprehension or understanding is the act whereby the intellect grasps and represents to itself the nature or essence of some object. The object may be a thing, a quality, a relation, an action, or any kind of being whatsoever. 57 Gredt defines it thus:

Actus, quo intellectus aliquam essentiam cognoscit, quin quidquam de ea affirmet vel neget; qua cognitione producit conceptus. Simplici enim apprehensione intellectualiter concipimus rem. 58

The purpose of this act of the intellect is the formation of concepts or ideas. In other words, the intellect perceives reality, and makes ideas conform to that reality. It forms within itself a true representation or likeness of the reality which exist outside itself.

The intellect in forming an idea or expressing a species apprehends an essence, knows it intellectually. It makes no affirmation or denial about the essence, but grasps it "simply." Hence, the action of the intellect in forming the idea or expressed intelligible species is called "simple apprehending," and the idea itself, which is the fruit of this simple apprehending, is called "simple apprehension." 59

Simple apprehension is the act by which we know what something is; for example, what a circle or man or beauty is. It is not merely the act of ~~pre~~ceiving a circle or a man or something beautiful--any of these things can be perceived without the perceiver knowing what they are. To apprehend something intellectually, that is, to understand it, we have to form in our mind an idea or concept of it--an idea which represents, not how the

thing looks or feels, but what it is (quod quid est). This representation of the "what it is," or quiddity, of something is what we call an idea or concept. This idea is different from an image or phantasm. The content of the latter is sensible and concrete, representing how a particular thing appears; the content of the former is intelligible and abstract, representing what a thing is. The essential difference between the image and the idea becomes clear in cases where we perceive something without at all understanding what it is; we can perceive and imagine the object clearly, but we "have no idea what it is." Our intellect has not yet probed beneath the perceptible aspects of the thing to its intelligible essence. Ideas are universal while the images are particular. These universal, immaterial concepts are formed by the intellect from particular, material phantasms.

Ideae immediate^a (conceptus primitivi) sunt eae, quae simplici apprehensione immediate a phantasmate, i.e. ex accidentibus sensibilibus abstrahi possunt. 60

Also, as has been stated above, before the representation of a material object can enter the intellect, the phantasm or cognitive representation of the object first must be modified by the intellect, for the latter is a spiritual substance. "The sensitive powers are unable to know universals; they cannot receive an immaterial form, since whatever is received by them is always received in a corporeal organ." 61

Simple apprehension cannot err in respect to that which is its proper object--essence or quiddity. Hence, it can never be false in respect to a simple or incomplex essence, as, for example, being. It can, however, accidentally err in respect to

in what sense
is being,
an essence
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measure,
composites.

complex essences. The reason why it cannot err in respect to simple essences is the fact that it is wholly determined in its act by the form which it cannot fail to apprehend the nature of which that form is the likeness; therefore, it either apprehends an incomplex essence rightly or not at all. But it can accidentally be in error concerning a complex essence, since it may combine in one conception simple essences which are not, in fact, found together in nature.

Reflection

It is unquestionably true that corporeal things can have no direct contact with, and make no impression upon, the spiritual, but the reverse is not true, i.e., a spirit can move the body as in the case of the union of the body and soul. What exactly is the process by which the intellect gets at the singular? What did St. Thomas mean when he said, "as it were by a kind of reflection" and "the intellect needs to turn to the phantasm"? 62 St. Thomas maintains that since the intellect does not know the singulars by means of a concept which communicates a nature as individualized, it does not directly know the singular, "but indirectly, and as it were, by a kind of reflection; because, even after abstracting the intelligible species, the intellect, in order to understand actually, needs to turn to the phantasms in which it understands the species. Therefore, it understands the universal directly through the intelligible species, and indirectly the singular represented by the phantasm. And thus forms

the proposition: Socrates is a man." 63.

From the phantasm our intellect abstracts the universal ideas, thus getting direct knowledge of the universal. But by reflecting upon its own act of abstraction the intellect comes to a consideration of the phantasm whence it drew the intelligible species, and from the phantasm it is led to an indirect or reflex grasp of the individual thing whence the phantasm was formed. Hence, while we know universal natures directly in intellectual knowledge, we also know singulars indirectly by reflection on the phantasm from which we abstract the universal.

Gredt explains the process of reflection as the human intellect knowing a singular body, not quidditatively, but only imperfectly by diverse individual notes, which essentially do not constitute a numerical difference, but are contingently joined. Since ^{the} singular material is less perfect than the intellect, it is not known immediately by the intellect. Therefore, the intellect cannot know singular material things except mediately by means of its own mediant formal object, going beyond the "concept," since spiritually it is contained in the cognition of the universal essence. This mediant knowledge is called reflection because it comes from the intellect by retreating to the principle whence intellection began, i.e., to the phantasm. 64

We also experience by our reflection that we know abstractly the knowing subject. 65 The intellect must also be subjected to reason's critical reflection; only by knowing its own nature as the principle of its operation can the intellect become abso-

lutely certain of its hold upon truth. When the intellect turns its attention upon its own operations, it very quickly sees that it does only one thing, wants only one thing, and can do only one thing, that is, to put itself in conformity with reality. So therefore, the soul can reflect. The term is from the Latin re - "back," and flecto "I bend." The soul can bend back upon itself. It exercises this function by its intellect. The mind can know itself knowing; can think of its thinking; can make itself and its processes the object of its own study.

Judgment

Simple apprehending begets the idea; judging begets the judgment. In forming the idea, the intellect grasps an essence, grasps it simply as presented and expresses it simply within itself, making no pronouncement about its relation to any other idea. In judging, the intellect takes ideas already formed, compares one with another, notices agreement or disagreement, and pronounces its findings. Ideas are the elements of knowledge, but judgments are the fundamental processes of thought. In judgment, and not, strictly speaking, in the idea, is discerned truth or falsity.

The act of judgment is the "act by which the mind perceives the identity or diversity of the objects of two simple apprehensions." 66 Or as Gredt expresses it:

In affirmatione vel negatione seu in sententia, quam fert intellectus perspicendo convenientiam vel discrepantiam duorum conceptum inter se, consistit essentia iudicii. 67

One act of the intellect strictly represents to itself an aggregation of things without affirming or denying anything about them. This is the act of simple apprehension. Another act of the intellect in affirming and denying considers the likeness or dislikeness of two of these simple apprehensions. In this act consist the essence of judgment. Matter for this act consist of the subject and predicate of a syllogism. The form is the act of composing or dividing. When the intellect pronounces judgment, it affirms or denies that one idea agrees with another, and its pronouncement is called a "predication." For one of the two ideas pronounced upon is that of or about which the other is predicated. 68

It is true that in easy spontaneous judgments some of these elements of affirming or denying are so rapidly slurred-over as to be scarcely discovered. In a question such as: Is the prisoner guilty? one is able easily to distinguish these several steps. When the judgment refers to some concrete fact or event the primitive act of apprehension is indistinct. We are only implicitly conscious of the predicate. Judgment thus involves both analysis and synthesis--breaking up of the original presentation and the reuniting of its parts, which are now explicitly recognized as distinct constituents ^{of} the total object. *f*

Before the act of judging itself, there is first a need for simple apprehension of the subject and predicate, then a comparison of them. The product of this comparison is another simple apprehension connoting (not affirming or denying) the agreement

or disagreement of the predicate with the subject. Last comes the act of judgment--the affirming or denying of the agreement or disagreement of the predicate and subject. In comparing the subject and predicate, both are known separately, though at once and a new idea which is neither of them arises in the intellect. This is the simple apprehension of the relation between the two. To judge that anything is or is not anything else the single knowing agent must know the two things at once and distinctly and see in the two taken together a third thing which is neither of them, namely their identity or non-identity.

In the act of simple apprehension, the intellect knows only the universal essence, or material quiddity of a thing since that is its proper object. The intellect does not know this essence inasmuch as it attains to it in seeking the medium of its own cognition--the intelligible species. 69

There are two different ways in which the agreement between the subject and predicate is known--immediately and mediately. Immediately we know this agreement from experience and from the terms themselves which connote each other. The mediate way is by using a third term in a syllogism or from the authority of faith. 70

Truth, the correspondence between the intellect and the thing, and falsity, the lack of correspondence between the intellect and the thing, are properties of judgment, which are immediately derived from the essence of judgment. Both of these are in the act of judgment, though not in the simple apprehen-

sion by which the relation between two things is presented. The simple apprehension does not know the correspondence between the mind and the thing in simple apprehension, although there is likeness between the intellect and reality.

In simplici apprehensione mens est adaequata rei, sed suam adaequationem non cognoscit ac proinde neque enuntiat rem esse sicut revera est. 71

But the intellect, on its part, has the likeness of the thing understood according as it conceives the natures of incomplex things, yet it composes or divides. Since judgment knows the correspondence between the intellect and reality, truth or falsity is proper to judgment. An external sense cannot be deceived about its own proper object because the only power any sense has is to apprehend the proper sensible appearance presented to it, so falsity is eliminated from them also. "But although in sensitive cognition there can be a likeness of the thing known, yet to know the reason for this likeness does not pertain to the sense, but only to the intellect." 72

It must be admitted that the will and the intellect act and react upon each other in the most intimate manner. While the will is moved to desire through the apprehension of motives by the intellect, the intellect is itself moved to observation and study by the effort of the will. In many acts of judgment it is the faculty of volition which directs and concentrates attention upon the attribute or relation that is the matter of the judicial act. If the truth is evident, the will is powerless; but if it is not evident, the will may largely influence assent, either

by withdrawing attention from the considerations in favor of one side and focussing it upon those which favour the other, or by directly impelling the mind to assent and embrace an opinion while the evidence is felt to be insufficient. It is in this way that the will is often the cause of error. 73

Through this judgment of the intellect is freely made, it is nevertheless a necessary condition for the will's act of choosing. The intellect moves the will by specifying its act; that is, the intellect is formal cause relative to the will-act. The will always chooses according to a last practical judgment of the intellect. (By a practical judgment is meant an order from reason to act or not act, to do this or that.) This choice is made with true freedom of indifference because this judgment was made freely: the intellect without having had to make the judgment made it, because it made it only as moved by the will, which did not have to move it. Practical judgments concerns individual acts actually exercised by the person making the judgment. They are not merely speculative judgments about the character of some action, but are directives of reason determining what is actually to be done. They do not take the form, "This is right to do;" but the form, "Do this." They are acts of the intellect determining what is to be willed.

Reasoning

Often the intellect is unable to render judgment by making a simple comparison of ideas. For the two ideas compared may

not be clear and distinct; the intellect may not know them in their implications, and so there is not sufficient evidence in the ideas as known to warrant judgment. In this case the intellect must reach judgment by a round-about process. It calls upon a third idea which is known in relation to the original two, and through this median ^{um} it reaches the evidence required for judgment. Thus through a median ^{um} or middle idea which it employs in two preliminary judgments or premises, the intellect is enabled to reach the judgment originally sought, and sets this forth as a "conclusion." This process is called "mediate inference" or simply "reasoning."

Reasoning is called mediate inference because it uses a medium. The intellect is making self-evident judgments exercises "immediate inference" because no medium is required or used. Reasoning is always "mediate" inference.

The act of the intellect in passing from something known to something as yet unknown, and inferring or concluding about that unknown thing is the act of reasoning.

Ratiocinium est actus mentis, quo ex veritatibus cognitis, mens aliam veritatem cognoscit. 74

Reasoning, being an exercise of judgment, is a more complex process of analysis and synthesis, devisionis et compositionis. Reasoning, like judgment, is concerned with singular bodies. These singulars are known by the intellect, which carries out its function of judging and reasoning. 75 Reason is called a discursive faculty. A pure spirit apprehends truth absolutely with no need of advancing from one thing to another, but reason im-

plies passing from potency to act. Reasoning is not a faculty distinct from the possible intellect.

When compared to the possession and contemplation of truth which is rest, reasoning is like a movement, a becoming. All movement proceeds from something immovable and ends in something at rest, else there would exist no being, no reality. Reasoning which is a "becoming" is no exception. Consequently, in the order of discovery or inquiry, reasoning proceeds from the first principles which are absolutely immovable, and in the order of judgment, reasoning returns by analysis to first principles, in the light of which it examines what it has found.

Sometimes the intellect reaches judgment by working from individual instances or singular data to a general conclusion. The intellect in this case works on the principle, "What is true or false of the individual members of a class, is true or false of the class as a whole." Individual data enables the mind to reach a universal conclusion about the whole class which is contained in the individual data. The Latin for "led in" is inductus, and this method of reasoning is called "induction." Induction is the method of reasoning employed by all the laboratory sciences.

The second method of reasoning is called "deduction," a name which is derived from the Latin de-ductus or "led from," "drawn from." 76 Deduction works on the principle, "What is true or false of^a whole class is true or false of the members of the class." An example of deduction is the following:

All the known metals are heavier than water;
Zinc is a known metal.
Therefore, zinc is heavier than water.

In the reasoning process, the intellect gradually evolves itself, passing from imperfect to perfect, first knowing a greater universal before the lesser universal. More universal knowledge is imperfect in regards to less universal knowledge. For example, it is more perfect to know man than to know animal, nor can man be known without knowing animal. 77

When we pass from a single judgment to another one contained in it, the act is styled an "immediate inference." Thus, from the proposition, "All men are mortal," we "immediately" conclude, "Some mortal things are men." When we proceed from two or more judgments, to a new judgment following from their combined force, we have "mediate inference." This is the mental act by which from the comparison of two ideas with a third we ascertain their agreement or disagreement. 78

Reasoning, in addition to analysis and synthesis involved in all judgments, includes "identification," or "the explicit perception of an element implicit in the previously known relations." 79 The synthesis in the conclusion is the evolving of this implicit relation into consciousness. This perception of the consequence is expressed by the words "therefore, since, because," etc. In this consist the essence of reasoning.

Part VI. Summary of Scholastic Teaching

In summary, the scholastic teaching relative to the opera-

tion of the intellect is as follows: an object produces an impression on a sensitive faculty. This results in a sensuous phantasm in the imagination, and here the work of the sensuous faculties of cognition have their source in a soul also endowed with intellectual aptitudes, the latter now issue into action. The presence of the phantasm forms the condition of rational activity, and the intellect abstracts the essence; that is, by its own active and passive capabilities generates the concept which expresses in the abstract the essence of the object. By a further reflective act it views this abstract concept as capable of representing any member of the class, and thus constitutes it a formally universal idea.

The main function of the intellect is thought, which takes place through the medium of three processes: (1) the formation of the concept or idea; (2) judgment, the discerning of the identity or diversity of two concepts or ideas; (3) reasoning, the affirmation between them and a third concept.

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Footnotes

1. Henri Renard, S. J., The Philosophy of Man, p. 107.
2. Iosepho Gredt, O.S.B., Elementa Philosophiae, no. 553.
3. John D. Redden and Francis A. Ryan, A Catholic Philosophy of Education, p. 151.
4. Omnis cognitio perficitur per assimilationem cognoscentis ad rem cognitam; ita quod assimilatio aicta est causa cognitionis. St. Thomas, De Veritate, q.1, a.1.
5. Unde dicitur in lib. 3 De Anima . . . quod "sensible in actu est sensus in actu; et intelligibile in actu est intellectus in actu." Summa Theol., I, q.14, a. 2.
6. Neque species intelligibilis sit aliud a substantia intellectus divini, sicut accidit in intellectu nostro, cum est actu intelligens. Summa Theol., I, q.14, a.2.
7. Summa Theol., I, q.78, a.3.
8. Iosepho Gredt, op. cit., no.542,3.
9. Ibid. no. 552,1.
10. Michael Maher, S.J., Psychology, p. 241.
11. Summa Contra Gentiles, II, cap. 75,8.
12. Iosepho Gredt, op. cit., no.483.
13. Summa Theol., I, q.78, a. 4.
14. Henri Renard, op. cit., p. 107.
15. Summa Theol., I. q. 78, a. 4.
16. Henri Renard, op. cit., p. 105.
17. Michael Maher, op. cit., p. 163.
18. Henri Renard, op. cit., p. 104.
19. Ibid. p. 108.
20. Summa Theol., I, q. 78, a. 4.
21. Ibid.
22. Iosepho Gredt, op. cit., no. 501, 1.

23. Summa Theol., I, q. 78, a. 4.
24. Ibid.
25. Ibid. I, q. 78, a. 4.
26. Herri Renard, op. cit., p. 112.
27. Ibid.
28. Summa Contra Gentiles, II, cap. 75, 8.
29. Iosepho Gredt, op. cit., no 542,1.
30. Robert E. Brennan, O.P., General Psychology, p. 324.
31. Etienne Gilson, The Philosophy of St. Thomas Aquinas, p. 324.
32. Henri Renard, op. cit., p. 117.
33. Summa Theol., I, q 84, a. 8.
34. Ibid. I, q. 84. a. 7.
35. Iosepho Gredt, op. cit., no. 542,2.
36. Summa Theol., I, q. 85, a. 1.
37. Summa Contra Gentiles, II, cap. 68.
38. Iosepho Gredt, op. cit., no.543, aug. II.
39. Summa Contra Gentiles, II, cap. 75,8.
40. Iosepho Gredt, op. cit., no. 571,2.
41. Summa Contra Gentiles, II, cap. 75,8.
42. Iosepho Gredt, op. cit.,no. 571,2.
43. Ibid. no. 571,1.
44. Ibid. no. 572.
45. Aristotle, Physics, Book VIII, chap. 4, 255a.
46. Summa Contra Gentiles, II, chap. 75, 7.
47. Ibid. 76,3.
48. Summa Theol., I, q. 69; a. 2.

49. Iosepho Gredt, op. cit., no. 571;2.
50. Aristotle, De Anima, Book III, chap. 7, 8, (431a 14;432a)
51. Summa Contra Gentiles, II, chap. 75, 7.
52. John D. Redden and Francis A. Ryan, op. cit., p. 145.
53. Summa Theol., I q. 85, a. 2 ad 1.
54. Iosepho Gredt, op. cit., no. 548.
55. Ibid.
56. Ibid. no. 103.
57. John D. Redden and Francis A. Ryan, op. cit., p. 148.
58. Iosepho Gredt, op. cit., no. 6.
59. Paul J. Glenn, Psychology, p. 310.
60. Ioseph Gredt, op. cit., no. 583, 2b.
61. Summa Contra Gentiles, II, cap. 75, 8.
62. Summa Theol., I, q. 86, a. 1.
63. Ibid.
64. Ioseph Gredt, op. cit., no. 556.
65. Ibid. no. 543.
66. John D. Redden and Francis A. Ryan, op. cit., p. 146.
67. Iosepho Gredt, op. cit., no. 26.
68. Paul J. Glenn, op. cit., p. 312.
69. John D. Redden and Francis A. Ryan, op. cit., p. 146.
70. Iosepho Gredt, op. cit., no. 26.
71. Ibid. no. 27.
72. St. Thomas, Metaphysics, VI. $\wedge \wedge$?
73. Summa Theol., I, q. 17, a. 6.
74. Iosepho Gredt, op. cit., no. 52.

- 75. Ibid. no. 556.
- 76. Paul J. Glenn, op. cit., p. 316.
- 77. Iosepho Gredt, op. cit., no. 583,2.
- 78. Michael Maher, op. cit., p. 163.
- 79. Ibid. p. 321.

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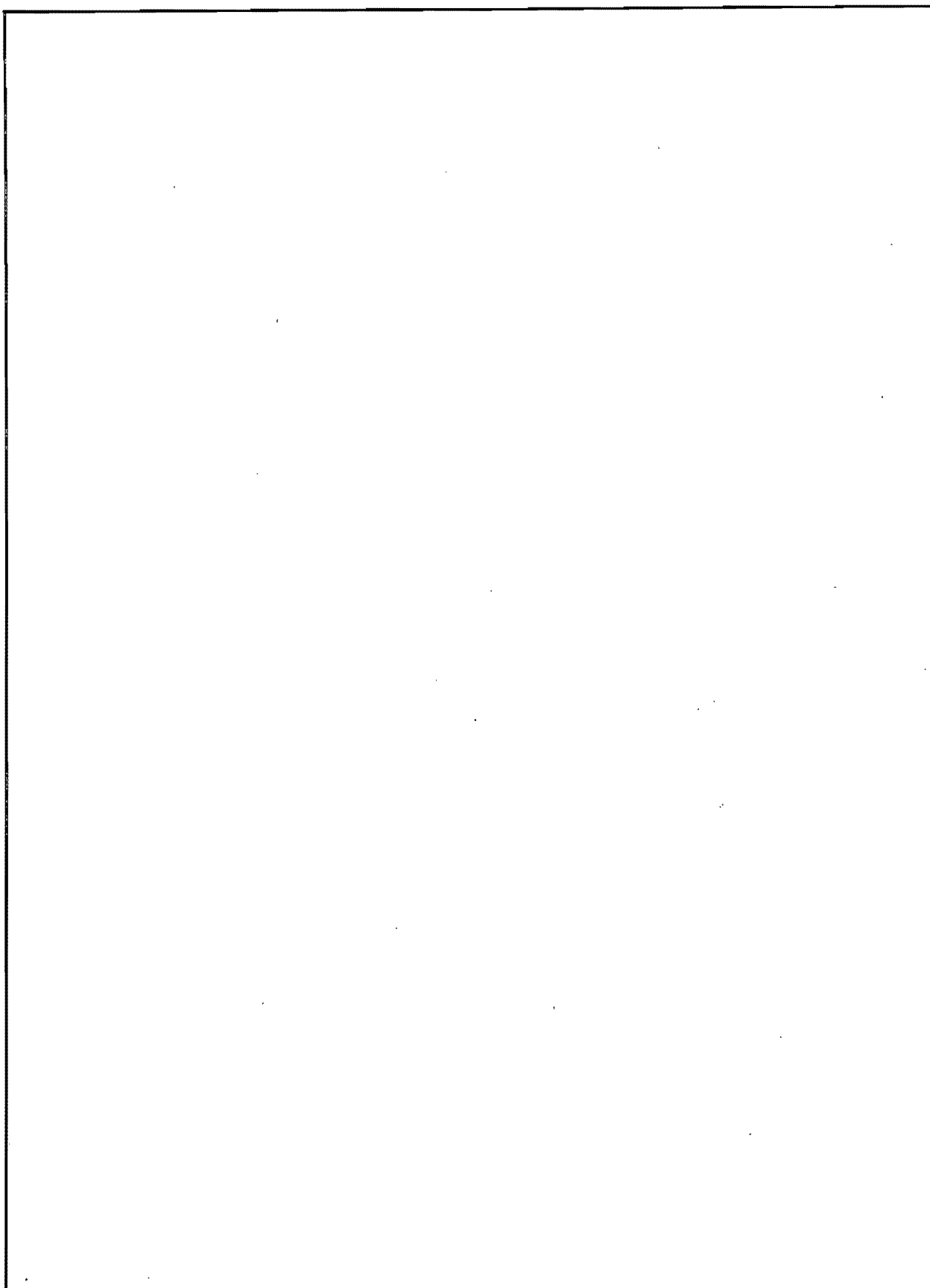
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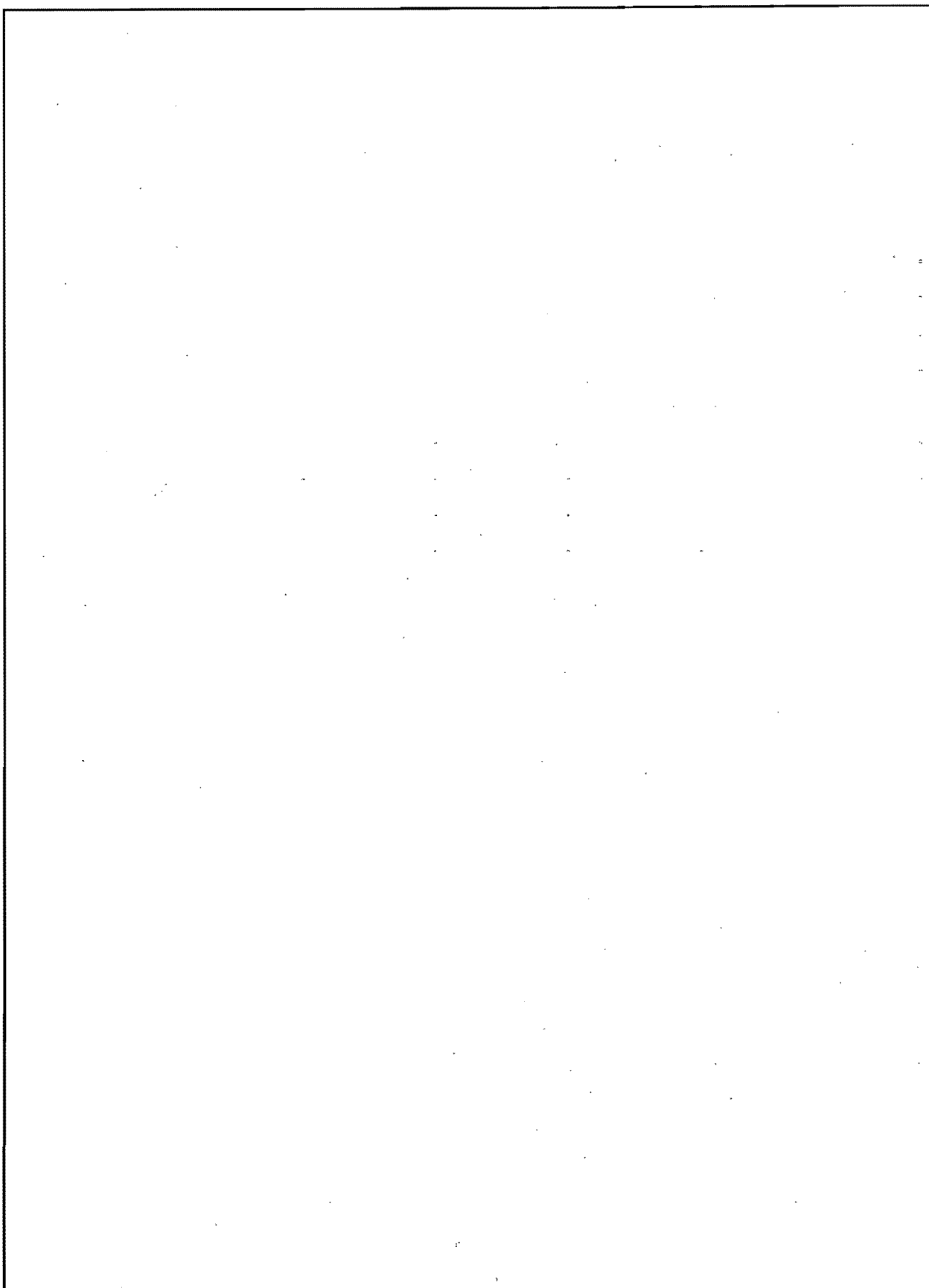
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Keith Laux

The thesis will be undertaken as a study of the external morphological changes of the chick embryo (Gallus domesticus) from the day the egg is laid up to, and including, the seventh day. The eggs will be incubated and the development will be recorded for various stages. Charts and photographs will be used to illustrate the embryological changes that have taken place. Specimens will be preserved and deposited in the embryology collection of the Biology Department of St. Meinrad Seminary.



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