

# The Heuristic Notions of Space and Time

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For a variety of reasons attention is now directed to the notions of space and time. Not only are these notions puzzling and so interesting, but they throw considerable light on the precise nature of abstraction, they provide a concrete and familiar context for the foregoing analyses of empirical science, and they form a natural bridge over which we may advance from our examination of science to an examination of common sense.<sup>1</sup>

## First and Second Objectifications

A. James Duffy

### First Objectification

Where I live a common expression is “*Ahorita vengo*,” which can mean anything from “I’ll be there straightaway” to “I’ll be there in an hour or two.” Like the expressions “a little to the left” and “We’re almost there,” “*ahorita*” is a description relative to a personal frame of reference. Commonly we use calendars, maps, watches, and clocks to correlate each one’s personal *here* and *now* with public reference frames. We get by synchronizing watches and suggesting that we rendezvous at such and such place “over yonder.” Ordinarily our ordinary understandings are just fine and dandy even though there can be challenges synchronizing.<sup>2</sup>

So what’s the big deal, the puzzling and interesting notions that ‘form a natural bridge’ to cross before scrutinizing practical common sense and ‘the drama of human living’? Is it really necessary for me to direct my attention to the notions of space and time before delving into other juicy topics in the hopper—patterns of experience, dramatic bias, tension and dialectic of communities, three other biases, the longer cycle of decline, and cosmopolis?

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<sup>1</sup> CWL 3, 163.

<sup>2</sup> Public time is more fluid in many parts of Latin America than it is in most parts of the US. After living in Mexico for nearly 20 years, I still find it challenging to live *On Mexican Time* (New York: Broadway Books, 2000).

What I understand about chapter 5 has a story, and my task in this first objectification is to identify my horizon as best as possible. In the spring of 1981 I first read chapter 5 of *Insight*. The year before I had decided to change majors—from engineering to philosophy—and declare two minors, one in theology and the other in mathematics.<sup>3</sup> High school physics and a first-semester course “Introduction to Mechanics” were part of what I brought to the text in 1981. There are markings in chapters 6 and 7 of my 1981 copy of *Insight*, but not a single note in chapter 5.<sup>4</sup>

Time and space became puzzling notions sixteen years later, when I was asked to teach “Great Ideas in Math and Science” at Saint Mary’s University of Minnesota. There are notes, scribbles, diagrams, and handwritten equations in Part I “The Special Theory of Relativity” of my copy of *Relativity: The Special and the General Theory*. That was the text that I was asked to teach honors students at Saint Mary’s University.

Years later, in 2010, I was asked to give a seminar “On Time” at the local public university where I live in Mexico. That was another opportunity to think about and teach the puzzling notion of time—this time to graduate students in the *Facultad de Filosofía Samuel Ramos*. I botched up that opportunity.<sup>5</sup>

What do I find in chapter 5 after various stints trying to teach and read these pages? It is clear to me that Lonergan is not inviting me to puzzle about how I conveniently handle daily tasks, nor is he asking about the anthropological significance of “*Vengo ahorita, mi amor.*”<sup>6</sup> His focus is on “how scientists may correctly explain Space and Time.”<sup>7</sup>

In classical mechanics the problem of dealing with multiple reference frames is answered by positing absolute space and time. So the true motion,

<sup>3</sup> The transcripts from my undergraduate studies at LMU are quite a smorgasbord: Calculus I, II, III; Introduction to Axiomatic Systems; seminars on Aquinas and Kant; Introduction to Mechanics; History of Christianity I; Acts and Pauline Epistles; two semester-long seminars on *Insight*.

<sup>4</sup> The journal that Mark Morelli asked me to keep while reading *Insight* in the spring of 1981 is somewhere in storage. It might contain further clues about what was or was not on my twenty-year-old mind.

<sup>5</sup> See note 11 in “Effective Dialectical Analysis,” *Journal of Macrodynamic Analysis*, 13 (2020), 24. Good teaching, good popularization, moves away from the doctrinal mode. See further “Elevating *Insight*: Space-Time as Paradigm,” *Method: Journal of Lonergan Studies*, vol. 19 (2001), 216, 224–225.

<sup>6</sup> I’ll be there in a few seconds / a minute / 5 minutes / 25 minutes / an hour, my love.

<sup>7</sup> CWL 3, *Insight*, 175–76.

for example of a penny falling to the floor of a moving train,<sup>8</sup> is relative to absolute space and time. Remove all pennies and trains, all spheres of different masses and all towers, and everything else you can imagine, and there is still absolute space—*There* with a capital *T*—and absolute time—*Now* with a capital *N*.

The solution to the problem of synchronization pivots on some “lettings,” e.g., “Let us now define Space as the ordered totality of concrete extensions, and Time as the ordered totality of concrete durations”<sup>9</sup> and “Let the point  $(x, y, z)$  in the frame *K* be identical with the point specified as  $(x', y', z')$ .<sup>10</sup> The solution also pivots on searching for ‘the absolute’ in abstract propositions and invariant expression, not in transformations of reference frame. Who would have known?

The key insight—which I am still trying to absorb<sup>11</sup>—is that thinking about space and time, which, thank goodness, are easier to think about than biochemical things like lemon trees and psychobiological things like Shetland sheepdogs, *might* “advance from [any and all] reference frames to geometrical principles and laws whose expression is invariant under transformations.”<sup>12</sup> Aristotle’s outermost celestial sphere, Newton’s absolute empty space and time, and Kant’s transformation of Newton’s absolutes into a priori forms of sensibility do nothing for my untutored basic inclination. As an extroverted animal, who is or at an earlier age was capable of Lupita-like curiosity, I am inclined to “look for the fixed or absolute on the level of particular places and times.”<sup>13</sup>

<sup>8</sup> This is the example Lonergan gives on page 176.

<sup>9</sup> CWL 3, 166

<sup>10</sup> CWL 3, 168–69. I will come back to “lettings” in my second objectification.

<sup>11</sup> I believe that intussuscepting chapter 5 is a stepping-stone exercise en route to becoming a “comeabout” character, not an “extroverted subject visualizing extension and experiencing duration,” but rather a “subject oriented to the objective of the unrestricted desire to know and affirming beings differentiated by certain conjugate potencies, forms, and acts grounding certain laws and frequencies.” CWL 3, 537.

<sup>12</sup> CWL 3, 194–95. Early education conditions *might*.

<sup>13</sup> CWL 3, 184. Is there an analogy between gazing at an ellipse tattooed on my partner’s upper back and the act of defining an ellipse? Or between imagining absolute *Space* (*There*) and *Time* (*Now*) and understanding invariant transformations of expressed propositions? Not really. When defining and understanding there is an *emanatio intelligibilis*, “a procession from knowledge as knowledge, and because of knowledge as knowledge.” CWL 2, (*Verbum: Word and Idea in Aquinas*), 56. See also the distinction between “the self as perceiving” and

There are sections of chapter 5 that I cannot read except in the manner of skimming or scanning that I described in a prior essay.<sup>14</sup> I do not have tensor calculus ‘in my intellectual paws,’ nor am I familiar with the names dropped (scientifically) in the discussion of three interpretations of the elementary paradox involving the invariant transformation of standard units of time and distance.<sup>15</sup> And I am not in a position to say much about the final paragraph beginning “The answer is easily reached.”<sup>16</sup>

## Second Objectification

We emphasize repeatedly that our reflections here are not towards revolution but towards patience and tolerance and fantasy.<sup>17</sup>

A first result from developing and reversing is a frank acknowledgement, on the part of various Lonergan enthusiasts, of having skimmed, scanned, or simply skipped chapter 5, possibly not having done the “five finger exercises” of the first four chapters.<sup>18</sup> Teachers and researchers will honestly, humbly, publicly acknowledge that chapter 5 is a bridge that they have not crossed.

A second result of my positioning is a frank debate—an interpersonal encounter<sup>19</sup> that makes possible movement from indirect discourse to direct

“the same self as inquiring and reflecting” (*Ibid.*, 498). If Lonergan had added exercises to the end of chapter 5, would they have been of much help for the average reader interested in appropriating the precise nature of enriching abstraction and the wonder of implicit definition?

<sup>14</sup> See “‘MacIntyre and Lonergan’ Revisited,” *Journal of Macrodynamic Analysis*, 12 (2020), 60–63.

<sup>15</sup> The names are Fitzgerald (contraction) and Minkowski (space).

<sup>16</sup> There are some pointers in T. Quinn, “Interpreting Lonergan’s Fifth Chapter of *Insight*,” *Seeding Global Collaboration* (Vancouver: Axial Publishing, 2016), 35–36, 39–40.

<sup>17</sup> J. Benton, A. Drage, and P. McShane, *Introduction to Critical Thinking*, (Nova Scotia: Axial Publishing, 2005), 170.

<sup>18</sup> “The first eight chapters of *Insight* are a series of five-finger exercises, inviting the reader to discover in himself and for himself just what happens when he understands.” *A Second Collection: Papers by Bernard Lonergan, S.J.* Edited by William F.J. Ryan, S.J., and Bernard J. Tyrrell, S.J. (London: Darton, Longman & Todd, 1974), 269.

<sup>19</sup> “Encounter is more [than research, interpretation, history]. It is meeting persons, appreciating the values they represent, criticizing their defects, and

discourse—regarding the boondoggle of teaching without implementing homely heuristics.<sup>20</sup> Developing positions and reversing counterpositions will see the emergence—the sooner the better—of public discussions regarding how to develop halfway decent reading, writing, and teaching habits in the next generations of students. Let us take “as our starting point and clue the discovery of some precise issue on which undoubtedly” we were or are mistaken.<sup>21</sup>

Another result that develops my positioning is letting “letting” loose. Letting was certainly let loose throughout *Insight*.<sup>22</sup> One of the first appears in the Introduction: “Let us say that this [your, my, her, his] noetic activity is engaged in a lower context.”<sup>23</sup> Ho, ho, ho, yes, let us say that! In some

allowing one’s living to be challenged at its very roots by their words and by their deeds.” *Method in Theology*, 247; CWL 14, 232.

<sup>20</sup> See further *Lonergan Gatherings* 7, “Words, Diagrams, Heuristics” (available at: <http://www.philipmcshane.org/lonergan-gatherings>). The simple point that modern science has made possible advances in heuristic structures is made throughout *Insight*, where “heuristic” and various derivatives appear over 200 times. See, for example, the short section “The Significance of Symbolism” (42–43); chapter 2 “Heuristic Structures of Empirical Method” (57–92); “Complementary Heuristic Structures” (128–29); the convenient symbolisms in chapters 5 and 8; the discussion of explicit metaphysics (416–17); mention of the need to invent “appropriate symbolic images” of chemical and physical process (489); “The Heuristic Structure of the Solution” (718–725).

<sup>21</sup> See end of note the following note.

<sup>22</sup> “Let us suppose it [the imagined dot] has only position or only length.” CWL 3, 32 “Let us say, then, that for every basic insight there is a circle of terms and relations, such that the terms fix the relations, the relations fix the terms, and insight fixes them both.” CWL 3, 36 “Let number be defined implicitly by operations.” CWL 3, 40 “Let  $x$  be the required number.” CWL 3, 60 “Let us now define Space as the ordered totality of concrete extensions, and Time as the ordered totality of concrete durations.” CWL 3, 166 “Let us make this general statement more precise by recasting it in our metaphysical terms.” CWL 3, 484. (The general statement: “In the plant there is the single development of the organism; in the animal there is the twofold development of the organism and the psyche; in man there is the threefold development of the organism, the psyche, and intelligence.” Ibid.) Let us take “as our starting point and clue the discovery of some precise issue on which undoubtedly” (CWL 3, 736) we were mistaken.

<sup>23</sup> “Let us say that this noetic activity is engaged in a lower context when it is doing mathematics or following scientific method or exercising common sense. Then it will be moving towards an upper context when it scrutinizes mathematics

fantasyland over the rainbow, self-appropriating chapter 5 will be pivotal for breaking from extroversion, a natural bridge to cross.<sup>24</sup> As it is (as I am), I spontaneously rebel against someone fiddling with my ordinary notions,<sup>25</sup> making it hard to fathom my transformation, the recovery of integral whatting and whying—intelligence, sexuality, dreams, and reasonableness mine oh mine.<sup>26</sup>

### B. Robert Henman

#### **First Objectification**

Recently, I worked through to a new way of understanding certain spaces (with emphasis on space rather than time) and advanced somewhat in my *heuristics of seeking explanatory understanding of heuristics of seeking explanatory understanding*. My focus was on Boyle's law, and my understanding of this law involves several insights.<sup>27</sup> I describe and then, on a hunch, also measure pairs of lengths with rulers. I gather numerical results in tables and graphs. By a further insight (which includes ignoring "experimental error"), I discover the relationship  $PV = \text{Constant}$ . I have gone beyond both description and nominal understanding. It also occurs to me that I now also have

or science or common sense in order to grasp the nature of noetic activity." CWL 3, 20.

<sup>24</sup> In chapter 7, on the other side of the bridge chapter, Lonergan lets X name an unbusy group, a global team who are not policing but striving to implement timely ideas in a way that is "too universal to be bribed, too impalpable to be forced, too effective to be ignored." CWL 3, 263. I fantasized a gathering of elders in the Editor's Introduction to *Divyadaan* vol. 30, no. 1 (2019), 12–15. Only two of the ten elders in that fictitious gathering in the Black Forest have crossed the bridge of chapter 5.

<sup>25</sup> Special relativity "implies drastic revision of ordinary notions of space and of time, and against any such revision the spontaneous anticipations of human intelligence vigorously rebel." CWL 3, 48. The context is the discussion of "the small but significant class of inverse insights." Ibid., 43.

<sup>26</sup> A context is the discussion of human development in *Insight*, CWL 3, pages 494–504.

<sup>27</sup> "Beginnings in describing understanding pressures and volumes, called Boyle's law" is available at: <https://bentonfuturology.com/resources>. Before providing this reflection for the Dialectical Exercises, I assembled 3 diagrams displaying possible experiments of how to test Boyle's Law. Each experiment tackled the law in different manners. They are useful for pedagogical reasons in line with Aquinas' statement that we need a phantasm to understand.

experience in understanding something about my experience of “space.” No longer merely describing, I am aware of a relation between pairs of experienced and measured lengths (spaces) that, as it happens, represent pressures and volumes.

With Boyle’s law in mind, I also realize that an “explanatory heuristics of heuristics” is going to be something challenging. It will need to include and be “verifiable” in my searching for and (re-) discovering Boyle’s law.

I also note that Mock Experiment B<sup>28</sup> is out of sync with how the law was discovered. But I devised the first experiment before finding the other two experiments online. So, in terms of my developing understanding of Boyle’s Law, the presentation here is chronological in terms of my growing understanding.<sup>29</sup> Rather than help a student wonder about pressures and volumes, and eventually discover Boyle’s law, the second presentation states Boyle’s law up front and asks students to follow a “demonstration.” This is just one instance of what I have observed more broadly, namely, that at this time, modern education emphasizes rote work (and other “nominal understanding”), rather than inquiry toward “explanatory understanding.”

### **Second Objectification**

There are further insights there that I will need to unpack and that will contribute to the view that would result and that I suspect, will be important for moving forward in my and our heuristics of explanatory heuristics. For instance, Lonergan speaks of “correlation of correlations of correlations.”<sup>30</sup> It would be good to identify such things in my and our experience.

Taking them at face-value, the first and third experiments bring out the fact that Boyle’s law is not an isolated result but is used, verified, and demonstrated in conjunction with other understandings and technologies. This practical use and repetitive experimentation of Boyle’s law does not explain why this relationship exists between pressure and volume.<sup>31</sup> For

<sup>28</sup> See pages 4–5 of “Beginnings.”

<sup>29</sup> The first experiment in “Beginnings” is one I devised myself as a way of exercising my imagination before finding the other two experiments. So, for me, the order of the experiments in terms of chronological understanding is correct.

<sup>30</sup> Bernard Lonergan, CWL 3, *Insight: A Study in Human Understanding*, chapter 3, “The Canons of Empirical Method.”

<sup>31</sup> The nature of the intelligibility of the universe implies that classical laws are always in play and the same at all times and places under similar conditions enabling science to be possible. See A. D’Abro, *The Rise of the New Physics*, (New

instance, while it is not part of my present background, historical accounts bring out that pressure due to “weight” is better understood through Newton’s laws of motion<sup>32</sup> which in turn, are used to engineer modern pressure gauges. To provide an explanatory account and generalization of what is the explanation of this relationship would involve the mathematization of the results in terms of differential equations and the derivatives that would reveal a pattern in the decreasing rate of change.<sup>33</sup> I don’t know if I will get to this work, but in our quest for making progress in heuristics of space and time, unpacking further examples and experiments (“mock” and “actual”) will, I expect, also be helpful.

The first objectification assembled materials by first displaying 3 different experiments related to the establishing of a relationship between pressure (weight) and volume. A second set of materials consisted of the various lists of measurements observed during the three experiments.<sup>34</sup> A first insight revealed, as a result of what questions, that when weight or pressure is added, the volume of air decreases. A third set of materials consisted of the products of the two lists of measurements of weight or pressure and volume. A second insight revealed that this third column of numbers were similar in approximate value.

There has been a shift of attention from outer circumstances in the visual experiments and the lists to inner circumstances when the various insights revealed the different intelligibilities immanent in the data. What are primary are the insights that revealed the intelligibilities. These insights are now our assembled materials. Note that the insights occur as a flow of intelligibilities.

Now, what does such a procedure offer for a science? These insights that occurred set up the possibility of working out correlations of correlations of

York: Dover Pub, Inc., 1952), 179 on the expression of physical laws in differential equations.

<sup>32</sup> Peter Bergmann, *The Riddle of Gravitation*, (New York: Charles Scribner’s Sons, 1968), 140–143. Specifically, the Third Law of Forces: “To every action there is always opposed an equal reaction: or the mutual actions of two bodies upon each other are always equal, and directed to contrary parts.”

<sup>33</sup> The experimenter controls the addition of weight or pressure by adding equal amounts at each time of measurement. The further question is what controls the decreasing amount of the gas so that its rate of decrease forms an intelligible ratio?

<sup>34</sup> It is to be noted that we are not measuring pressure and volume in our first two experiments. We are taking readings from rulers and comparing those readings. Only in experiment 3 is pressure in psi, and volume in mls compared.

correlations.<sup>35</sup> In doing so, we get a glimpse of the unfolding of our own heuristic dynamic. That dynamic assists in the ordering of insights in an intelligible sequential series setting up the possibility of a genetic control of meaning by working out the relations between the different insights. Distinguishing between the different types of questioning and the different type of insights and working out the relations between the insights assists in understanding why the order of the emerging insights is as it is. This enables, for the individual, the possibility of providing an adequate history of a science's development, as well as what development is. Once this order is understood one can work out how progress occurs and what progress is.

Assembling the insights provides an entirely different process and procedure than merely attending to the data of sense. This assembling required a shift of attention. This shift from outer circumstances to inner operations orchestrates a move towards reversing the counterpositions of reductionism and positivism. It reveals that abstraction, through insight, is the procedure that adds the operations that lead to concepts and knowledge. This understanding of the insights also enables the teacher the ability to provide adequate pedagogy that does not violate the student's cognitional dynamic and discourages memory and rote learning which is often quite common in classrooms. A better understanding of Generalized Empirical Method<sup>36</sup> is made possible for the individual who enters into the process of trying to understand relations in an experiment such as is provided above while being aware of the different operations and their content.

There has been a shift in my horizon as I moved from description to discovering intelligibilities in the various forms of data. That is the essence of what I have attempted to do and reveal to myself and to readers. The procedure of working out the relationships involved in the experiments and various measurements required that shift. It is to be noted that the insights that I experienced in this process reveal intelligibilities that a relationship between pressure (weight) and volume exists, but these insights do not explain what that relationship is. Is it enough to say that because the

<sup>35</sup> Terrance Quinn, *Generalized Empirical Method: In Philosophy and Science*, (Singapore: World Scientific Publishing, 2017), 21–26. Quinn offers a discussion on the triplicity of correlations using Galileo's experiments on falling bodies.

<sup>36</sup> Bernard Lonergan, *A Third Collection*, (New York: Paulist Press, 1985), 141. “Generalized empirical method operates on a combination of both the data of sense and the data of consciousness; it does not treat of objects without taking into account the corresponding operations of the subject; it does not treat of the subject's operations without taking into account the corresponding objects.”

experiments result in an approximate constant that an explanation is provided for that relationship? Something to think about?

There are two different types of insights relevant here, those revealing a relationship and those that would offer an explanatory account of what that relationship is.<sup>37</sup> I have focused only on the first type of insight here. More work would be required to reach the second type of explanatory insights.<sup>38</sup>

Does this process help me in understanding the heuristics of space time? It shifts the common experience of extensions and durations from the “already out there now” towards the explanatory. It remains for further work to refine the explanatory process in terms of what is defined by Generalized Empirical Method. I am of the opinion that a full self-appropriation of the data of consciousness, the heuristics of space and time and an understanding of abstraction cannot be achieved without experience in scientific work<sup>39</sup> that strives for an explanatory account of some data.<sup>40</sup> I welcome the experience of others on my opinion.

This exercise has helped in refining my own understanding of the existence and influence that my own counterpositions still orchestrate over my own intellectual efforts. What counterpositions are operating in present scientific procedures is a different question to be met with a different procedure. Only if one has worked in such a procedure as outlined here and

<sup>37</sup> This procedure would require work in the kinetic theory of gases and an understanding of molecular bonding and quantum theory.

<sup>38</sup> The distinction between these two types of insights indicates a distinction between intellectual and theoretic conversion. See *Searching for Cultural Foundations*, ed. by Philip McShane (Lanham: University Press of America, 1985), vi–vii. McShane sets up that difference descriptively in the Preface. Intellectual conversion is an awareness of one’s intellectual operations, and theoretic conversion is an allegiance to the explanatory or higher viewpoint that occurs only after much effort at attempting to understand such things as “electrons, or stones”. This effort offsets the general bias of common sense as omnicompetent.

<sup>39</sup> It brings to mind a question asked of Lonergan in the late 1970s at a Boston Workshop, “How much physics need a theologian know?” Lonergan replied: “Well, he should be able to read *Lindsay and Margenau*”.

<sup>40</sup> I would also include self-attention in art or in historical writing as means to self-appropriation. What scientific self-appropriation brings to all these realms of meaning is a procedure for a refinement and a better control of meaning. See Patrick Brown and Michael Shute, “A Concise Primer on Lonergan’s Theory of Art: Part 1: Elemental Meaning and the Artist’s Idea,” *Divyadaan: Journal of Philosophy and Education* (2019), for an introduction into self-appropriation in the aesthetic. For related articles see “Aesthetics,” *Journal of Macrodynamic Analysis*, 6 (2011).

in Lonergan's directions provided in *Insight's* first 4 chapters can one acknowledge the errors in one's own notion of objectivity and knowing. Some development in addressing my own counterpositions was accomplished by working with these experiments in terms of appreciating the difficulty in understanding just what I was doing when measuring.<sup>41</sup> This work forced a shift from intelligent observing to understanding. Reflection on the operations gradually moves me away from intelligent observing to organizing my intelligence-somewhat. The position I am slowly arriving at is a better appreciation of what abstraction is. The movement from outer circumstances to inner operations is a conscious one of shifting awareness. Once I become aware of my operations and the role they play in understanding, I am challenging my own naïve realism and any naive position I may have on objectivity. Often times the notion of abstraction is used to refer to an impoverishment, a replica that is one or more steps removed from the concrete. The experience of abstraction I am describing is an adding on, an enrichment that both grasps what is significant in the data and omits what is insignificant. An explanatory account of abstraction would be a further achievement. Something similar for the notion of a heuristic would seem to apply.

That appreciation, I think, also sheds some light on the heuristics of space time. How is this so? When I made the shift from observing the experiments to reflecting on numbered values and then through insight, grasped the intelligibility of the constant character of the product results, I was no longer observing the data of sense; I was arriving at intelligibilities beyond the original data of the experiments. I was moving towards the experience of

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<sup>41</sup> I had a similar experience when doing functional research in neuroscience in 2011, later published as "Functional Research in Neuroscience," *Seeding Global Collaboration* (Vancouver: Axial Publishing, 2016), 1–27. That research brought to light questions for me that I later addressed in 3 articles, now published in *Global Collaboration: Neuroscience as Paradigmatic* (Vancouver: Axial Publishing, 2016). This research work revealed to me one of the functions of doing research. It raised questions for me that could only be addressed by the specialty Interpretation. I attempted to outline the source of the counterpositions in neuroscience and offer accounts of what would help in reversing those counterpositions. That entire bit of work took five years and perhaps provides a glimpse of my slow rate of growth in understanding but perhaps more importantly the difficulty in communicating with a science. The articles are published at the *Journal of Crossing Dialogues Association*, Rome, Italy, and available at <http://www.crossingdialogues.com/journal.htm>. See vol. 6, no. 2 (2013), vol. 8, no. 1 (2015), and vol. 9, no. 1 (2016). The articles assembled materials in a descriptive manner. They are not science per se.

abstracting. If I develop differential equations that express the generalization of Boyle's law, I will have moved towards a fuller experience of abstraction as an invariant expression that is verifiable and not subject to the space or time that the experimental data are subject to.

Understanding chapter 5 of *Insight* as a natural bridge from an examination of natural science to an examination of common sense establishes emergent probability as the context in which all human, animal and life forms perform. Abstraction potentially offers explanatory accounts of such events that have the possibility of being invariant. As much as my experiments dealt with only spatial entities<sup>42</sup> they perhaps provide some pointers towards understanding that bridge. "The abstract intelligibility of Space and Time ... (is) of physical objects in their spatiotemporal relations." My experiments were an effort to understand the spatial relations immanent in the process of measuring. For we must go beyond believing Lonergan to verifying his statement, and this exercise seems to point to achieving that by personally participating in some scientific exercise. So I began with spatial marks on a ruler and moved to listing those spatial marks as numbers in a list. Due to the approximate constant of the products of the two lists I concluded that there is a relationship between the spatial numerical listings of correlations of correlations of correlations. That constancy reveals that an intelligibility of that particular spatial relation of those physical objects exists.

Now, a heuristic is defined as a method or procedure of doing something, and our experiments are three different ways of performing the same experiment and so qualify as heuristic generators of my whatting which comes alive with wanting to understand. I am trying to get to my heuristic, and that method or procedure pertains to the functioning of my intellectual operations. Any experiment, such as those provided in this paper, has the potential to offer experience of our own heuristic, if we are curious.<sup>43</sup>

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<sup>42</sup> Time would not be a variable in this experiment. It could be performed at day or night or in winter or summer with no variance. Temporality would be an existential variable relating to my time that it took to arrive at some understanding of the experiments which is unrelated to the intelligibilities discovered. What would be variables are the temperatures of the liquids or gases used and the particular gases and liquids that are used in the experiment and the height above sea level which alters atmospheric pressure. But even if the variables are changed for subsequent experiments, the constancy of product values will be maintained for each individual experiment verifying that  $P = V \times P$ . What is necessary is that these variables do not change while one particular experiment is being carried out.

<sup>43</sup> Robert Henman, *Reorienting Education and the Social Sciences: Transitioning Towards the Positive Anthropocene* (Amazon, 2019), chapters one and two on

Third objectifications will assemble, complete, compare, reduce, classify and select these materials outlined in our first and second objectifications to bring each of us more in touch with our own counterposition(s) that we might better recognize the counterposition(s) of other expressions and develop ways of assisting others. That is the long term objective of this exercise and the doing of a bit of science.<sup>44</sup> The nominal definition of science that is only procedural is that science is the relating of things to things. That definition does not provide one with an experience of science, of explanatory thinking or of one's heuristic. The experience of puzzling out some unknown can help us unravel our own counterpositions by assisting us in becoming more familiar with our own operations, our own heuristic dynamism.

As much as the sciences are mired in the counterpositions, it has been stated that Lonergan scholars suffer in a different way due to some form of assumption that we have personally moved beyond the counterpositions<sup>45</sup> while avoiding science and probably chapter 5 of *Insight*, thereby having little empirical notion of what abstraction is or why chapter 5 forms a natural bridge from an examination of empirical science to an examination of common sense. I have not made a significant leap in either of these zones.

curiosity. See also Philip McShane, *Futurology Express*, (Vancouver: Axial Publishing, 2013), chapters 3 and 4 on whatting, the origins of our heuristic. I used McShane's book as a course text in philosophy courses for five years in an effort to support my own emphasis in jump starting students' heuristic.

<sup>44</sup> The hope and heuristic is that in the long term Cosmopolis will be seeded, even if only as a small group.

<sup>45</sup> Philip McShane has made this statement often in his writings over the years. See, for example, "The Hypothesis of a Non-Accidental Human Participation in the Divine Active Spiration," *Method: Journal of Lonergan Studies* N.S. 2.2 (2011), at notes 4, 11, 29, 56, 57, and 66. It would be an interesting research for some doctoral candidate to study the situation. In June of 1978, McShane and I flew to my first Boston Conference. I was excited about going and meeting Lonergan. Phil replied; "Don't expect too much." I was two decades away from some understanding of what he meant and that gap is still challenging my own slow growth. I attended further conferences held in Boston until the late 1980s and continued to read articles in *Method: Journal of Lonergan Studies* and various texts published in Lonergan scholarship while working in some science to try and appreciate this existential gap or even if there was a gap. It was more of a feeling at that time. In 2002 McShane held conferences in which he used "simple" experiments to engage participants in the process of scientific understanding. Only then did I realize my gap. In 2010 I began to do some study in physics which still continues today helping to close the gap.

Understanding the experiments manifests the difficulty in understanding within a scientific context.<sup>46</sup> It provides a small increase in understanding the difficulty in my growth and a better appreciation for the need to grasp what Lonergan was up to.

Earlier in my second objectification I stated that adequate self-appropriation cannot be achieved without some experience of science. Perhaps in the experience of this exercise we can achieve a glimpse of the meaning of that statement in noticing how different operations are called forth when involved in trying to understand a classical law. Such development with the addition of statistical method provides the possibility of communicating with scientists on their level increasing the probabilities of effectively reversing their counterpositions. Without such development in myself I cannot talk adequately to a scientist about Generalized Empirical Method or Functional Specialization. Implementation is not possible.

I am not finished with understanding further understandings related to abstraction, the bridging of chapter 5 or an explanatory account of the heuristics of Space and Time, but this exercise has for me reflected the meaning of Lonergan's first line in *Insight*: "In the midst of that vast and profound stirring of human minds, which we name the Renaissance, Descartes was convinced that too many people felt it beneath them to direct their efforts to apparently trifling problems."<sup>47</sup>

C. Terrance Quinn

### **First Objectification**

Now," in "ongoing present," the assembled text is "in front of me," seen edges, shapes and lengths of black, on a page of a book, in a room, in a building; window views are of greys, blues and silvers in sight; and

<sup>46</sup> It is to be noted that this exercise is not within the context of modern science. These exercises are within the context of the classical kinetic theory of gases. Noticing the approximate constant of the products oscillating about one value is a glimpse of statistical theory in a rudimentary manner. Later work in the new quantum statistics would supersede the classical kinetic theory of gases and provide a more accurate account of the relationship between pressure and volume. It is interesting to note that where in the first and second objectifications an example of correlations of correlations of correlations of the classical type was provided, the emerging context of quantum statistics reveals a correlation between classical and statistical theories that lays the foundations for a theory of emergent probability in light of the complementarity between the two theories.

<sup>47</sup> CWL 3, *Insight*, 27.

contours of greens, browns, and ochres, ..., a harbor island that I explored as a child.<sup>48</sup>

I was pleased to return to the first paragraph of chapter 5 of *Insight*. I say ‘return’ because it is not the first time that I have worked at reading that text.<sup>49</sup> The assembled text is the first paragraph of a short chapter in a long book that is part of Lonergan’s opera omnia. That opera omnia is part of history. I am viewing the assembled text and chapter 5, chapters 8, 15, and beyond, from my present view that includes ranges of sequencings of geohistorical contexts, tentatively identified. Some of these are within, or in relation to, Lonergan’s works while others “cross” cultural, societal, and disciplinary “boundaries.” My present tentative view is “more in the style of Burckhardt than Ranke.”<sup>50</sup>

What does all of this have to do with “common sense,” “science” and “notions of space and time?” mentioned in the assembled text?<sup>51</sup>

Surprisingly, perhaps, except in a special sense, the problem involves but is not reducible to physics. In this exercise, I can only briefly point to a few elements of the story.<sup>52</sup> For several centuries, physics has been making notable progress in understanding “concrete extensions and durations.” So far, however, thought on the nature and significance of that development has

<sup>48</sup> I am describing and that way reveal something of my present positioning.

<sup>49</sup> See, e.g., Terrance Quinn, “Space and Time,” ch. 1, 1–34, and “The Concrete Intelligibility of Space and Time,” ch. 5, 140–176; chapters in Terrance Quinn, *Invitation to Generalized Empirical Method in Philosophy and Science* (Hoboken NJ: World Scientific, 2017); Terrance Quinn, “Interpreting Lonergan’s Fifth Chapter of *Insight*,” in *Seeding Global Collaboration*, eds. Patrick Brown and James Duffy (Vancouver: Axial Publishing 2016), 29–44; Terrance Quinn, “The twin paradox (in special relativity) – Working toward functional interpretation,” *Journal of Macrodynamic Analysis*, 4 (2004): 1–25.

<sup>50</sup> *Method in Theology*, 250; CWL 14, 235.

<sup>51</sup> CWL 3, 163.

<sup>52</sup> In dialectics, eventually “there is to be a common solid competence in scientific understanding, one comfortable with the problematic of each advancing science, though not at home in the frontline work.” Philip McShane, *Futurology Express* (Vancouver: Axial Publishing, 2013), 62. I draw on a background that includes (among other things, see, e.g., “Invitation to Generalized Empirical Method in Philosophy and Science”) forays in tandem method in classical physics and relativity, statistical mechanics and quantum physics, graduate work and beyond in operator theory (an area of mathematics that emerged from quantum mechanics), and modern mathematical biology.

involved non-verifiable notions of space and time that do not cohere with experience. There are, for instance, Galileo's definitions of "primary and secondary qualities"<sup>53</sup> as well as "Newtonian thought" regarding "absolute space" (to be distinguished from Newton's brilliant thought in mathematics, dynamics, and gravitation). And confusion about such issues continues in contemporary philosophy of physics.<sup>54</sup> The problem, however, is not limited to physics and philosophy. Naïve notions of space and time ground reductionisms whereby, for instance, living things (including "human things") are thought to be aggregates of imaginable molecules that "occupy space"; molecules, in turn, are imagined to be aggregates of variously transient elementary "particles" that—uncertainty principles and orbitals aside—move about "in space."<sup>55</sup> Such thinking has contributed to the emergence of horrific views of human development. And, in many respects, hermeneutics has become a matter of organizing texts. Witness, for instance, the tradition of scholarship that includes fictitious "dialogues," "communications" and "conversations" between, for example, Lonergan and Balthasar, Lonergan and Rahner, and so on.<sup>56</sup>

In the 33 pages of chapter 5 of *Insight*, Lonergan sorts out fundamental aspects of these issues, and more. I'm not suggesting that he knew today's Standard Model (a non-abelian gauge theory). He was up on details of Special and General Relativity, statistical methods, and much else from physics and other sciences of the time. By attending to core data, he solves "Galileo's problem" en passant. His *Theorem*<sup>57</sup> on the *abstract intelligibility* of Space and Time is a general result that is permanently valid. He does not stop there.

<sup>53</sup> Julio A. Martinez. "Galileo on primary and secondary qualities," *Journal of the History of the Behavioral Sciences*, vol. 10, no. 2 (1974), 160–169.

<sup>54</sup> The literature is vast. To my knowledge, there have been no fundamental shifts in foundations.

<sup>55</sup> Lonergan described the problem in his 1953 article published in *The Canadian Messenger of the Sacred Heart*, "Respect for Human Dignity," ch. 19, in *Shorter Papers*, vol. 12 of Collected Works of Bernard Lonergan, eds. Robert C. Croken, Robert M. Doran and H. Daniel Monsour (Toronto: University of Toronto Press, 2007). The problem has deepened enormously. I think, for instance, of the massive destructiveness of constructivism in modern education, globally, and consequences of modeling human intelligence on the basis of spatially imagined networks of computer circuitry.

<sup>56</sup> Eventually "the only order is spatial." CWL 3, 605. Authors long dead "speaking for themselves is just a metaphor... [which] contains a piece of humbug, and the root of that humbug is the counterposition." CWL 3, 606.

<sup>57</sup> CWL 3, sec. 5.3.1, 173–4.

Asking about *all* concrete extensions and durations, he provides a second theorem, on the *concrete intelligibility* of Space and Time. With an advanced heuristics, the genius writes that “the answer is easily reached.”<sup>58</sup>

As I alluded to above, I am reading the assembled text from my present foundations. I have made some (modest) progress in metaphysics, as invited by Lonergan in chapter 15, that is, through instances. I affirm the need for “metaphysical analysis”<sup>59</sup> which “supposes transference [of description] to the explanatory field.”<sup>60</sup> I assent to Lonergan’s identification of the possibility of “comeabout,” wherein “the extroverted subject *visualizing extensions and experiencing duration* gives place to the subject orientated to the objective of the unrestricted desire to know and affirming beings differentiated by certain conjugate potencies, form, and acts ground certain laws and frequencies.”<sup>61</sup> And it is within so-grounded progress in heuristics that I glimpse at least something of the possibility of *explanatory hermeneutics*, summarized in crystalline density: in a mere two paragraphs, Lonergan describes a “canon of explanation.”<sup>62</sup>

Explanatory interpretation is a remote future possibility. In particular, adequately interpreting the assembled text, as meant by Lonergan, remains beyond our present reach. At the same time, to the best of my present “tandem reckoning,” my position is that (a) Lonergan’s (mainly doctrinal) chapter 5 on Space and Time is correct; (b) it describes how to go about resolving several fundamental problems in philosophy of science; (c) progress in its implementation will provide us with the basis needed to be effective in rooting out, or at least minimizing the influence of, “pseudometaphysical mythmaking;”<sup>63</sup> and (d) progress in its implementation is needed for ongoing progress in foundations in all areas (in particular, in interpreting Lonergan’s chapter 5 of *Insight*), including Christian theology.<sup>64</sup>

With all of this in mind, for the purposes of global progress, I am inviting consent to the assembled text.

<sup>58</sup> CWL 3, 195.

<sup>59</sup> CWL 3, 519.

<sup>60</sup> CWL 3, 519.

<sup>61</sup> CWL 3, 537.

<sup>62</sup> CWL 3, 609–10.

<sup>63</sup> CWL 3, 528.

<sup>64</sup> See page 84 below.

### A few observations about my second objectification

In my second objectification, below, I indicate aspects of a view that, to my thinking, will be consequent to consent to the assembled text. In that effort, I was pushed to advance (somewhat) in my own foundations, in at least two respects: my immediate focus, and the task itself.

Foundational development will be part of both functional dialectics and functional foundations. I do not consider my admittedly modest shift in foundations about Space and Time—communicated below—to be a contribution to *functional foundations*, at least not directly. Why not? To give an answer to that question will be a future community achievement. Among other things, we will need a filled-out provisional heuristics of the entire methodology. Here, I am merely sharing a few preliminary observations about my experience in this exercise.

For instance, I notice that there are specific dynamics in play, in me and in our groups. I am (we are) bringing results of first and second objectifications to our collaborators, to be “scrutinized” in “third objectifications.” Once functional cycling is on the move, that which will be passed forward to those in the fifth task will be the results of “shared consent,” consensus that in some cases may well be “hard won.”<sup>65</sup> (Although, there will be “cross-talk,” e.g., C(i, 5) and more generally C(i, j)<sup>66</sup>.) But notice, also, that determining *ways* and working out *to what extent* shared consent to the assembled text *will in fact bear fruit* will be the work of further tasks, namely, the creative work of the “forward specialties.” Cumulative results will be borne into the “plane of common meanings”<sup>67</sup> in agriculture, hinterland management, in villages, towns, neighborhoods, cities, schools, local, regional, and global economies, governments, cultural development, religious traditions, and so on. And so on to further cycling.

### Second Objectification

The words “common sense” (symbolized here by ‘CS’) are part of the assembled text. It is a name for an indefinitely vast range of human achievement (and failures)—in-with (spatial-temporal) emergent probability. Luminous “classifications” of “common sense” are (distant) future

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<sup>65</sup> Philip McShane, *Futurology Express* (Vancouver: Axial Publishing, 2013), 72.

<sup>66</sup> Philip McShane, *A Brief History of Tongue: From Big Bang to Coloured Wholes* (Nova Scotia, Axial Press, 1998), 108.

<sup>67</sup> See note 65.

possibilities.<sup>68</sup> Anticipating the need for metaphysical analysis,<sup>69</sup> I adapt existing symbolism to provide the following metagram:<sup>70</sup>

$$(CS)(p_i; c_j; b_k; z_l; u_m; r_n) \prec HS_{RP}(p_i; c_j; b_k; z_l; u_m; r_n).$$

But more is needed. Where, for instance, are the sciences? Where are philosophy and theology? Where is the science of near-future possible progress and decline?<sup>71</sup> As Duffy has hinted in e-mail seminar correspondence,<sup>72</sup> each of us in this exercise has (at least provisionally) consented to the progress-potential of functional collaboration. And so,

<sup>68</sup>The “examination of common sense” is a far broader task than “examination of science.” “Common sense” serves science. In specialized contexts, “description supplies, as it were, the tweezers by which we hold things while explanations are being discovered or verified” (CWL 3, 316). Progress in an “examination of common sense” will need to luminously take up emerging results from developmental biophysics, biochemistry, neuroscience, and psychology, not to mention ranges of “common sense” knowing and deliberation. Not yet luminous in their work, contemporary sciences have been making progress in identifying complex “layerings and heterarchies” of “correlates” of diverse “modes” of “common sense” understanding and deliberation, including our “imaging” capacities in “sensitive consciousness” (which includes imaging when working in the sciences). Perhaps surprisingly, then, minimally, progress toward up-to-date “examination of common sense” will also need to include and be informed by “examination” of sciences—where “examination” will mean through adequate empirical method (a.k.a. “generalized empirical method”). All of these issues, however, are subsumed in pointings given by CWL 3, 609–10.

<sup>69</sup>CWL 3, 519.

<sup>70</sup>The list of metagrams developed by Philip McShane is: W0, W1, ..., W7, etc. Why is there an “etc.”? “The list is neither complete nor fixed: think of the manner in which the periodic table diagram is supplemented, e.g., in an organic chemistry text” (Philip McShane, “Metagrams and Metaphysics,” Prehumous 2, available at: <http://www.philipmcshane.org/prehumous>.

<sup>71</sup>Empirical probabilities (for what is possible) are verified in what has occurred and occurs. “The history of any particular discipline is in fact the history of its development. ... Now, as one studies this movement [one] learns about this developmental process and so now possesses within [oneself] an instance of that development which took place perhaps over several centuries. ... And it is not enough that [one] understand it in any way at all, but [one] must have a systematic understanding of it.” CWL 23, 175–77.

<sup>72</sup>James Duffy, “First Attempt,” email message, August 20, 2020.

"intending of history as emergent fact,"<sup>73</sup> with  $CS$  representing all instances of "common sense," it may not be surprising that I suggest that versions of the following metagram will be gradually fleshed out<sup>74</sup>:

$$\left( (CS)(p_i; c_j; b_k; z_l; u_m; r_n) \succ (FS)(p_i; c_j; b_k; z_l; u_m; r_n) \right) \prec HS_{RP}(p_i; c_j; b_k; z_l; u_m; r_n).$$

I used the expression "fleshed out." In Christian theology, there will be those who, at the level of the times, are luminous in our "space-time solidarity"<sup>75</sup> with Him, one Body, the Living Bridge. Not only an invitation to a Friendship (John 15: 15) then, but actual: "I am the vine, you are the branches. Those who abide in me and I in them bear much fruit, because apart from me you can do nothing" (John 15:5).

### Third Objectifications

#### A. James Duffy

- Henman's Objectifications

After discernment, possibly dialogue, Henman consented to (self) assemble Boyle's law, and proceeded to recount his three week-adventure trying to understand the 17<sup>th</sup>-century discovery. Someone in the community encouraged Henman to "learn a bit of science."<sup>76</sup> His decision is admirable, something similar to taking a few weeks or more to learn the meaning of

<sup>73</sup> McShane, *A Brief History of Tongue* (Nova Scotia: Axial Press, 1998), 120.

<sup>74</sup> The first ' $\succ$ ' points to "common sense" within the emerging care of functional cycling. The topology of meanings is complex. See, e.g., note 68. The second ' $\prec$ ' is not set-theoretic. It is the only symbol from my present computer program that plausibly could be used to point to the fact that human history is in-with emergent probability (see note 75).

<sup>75</sup> Bernard Lonergan, "Finality, Love, Marriage," in *Collection, Collected Works of Bernard Lonergan*, vol. 4, eds. Frederick E. Crowe and Robert M. Doran (Toronto: University of Toronto Press, 1988), 38.

<sup>76</sup> The phrase comes from a description of "The Genetic Circle." "That circle—the systematic exigence, the critical exigence, and the methodical exigence—is also a genetic process. One lives first of all in the world of community and then learns a bit of science and then reflects, is driven towards interiority to understand precisely what one is doing in science and how it stands to one's operations in the world of community." *Early Works on Theological Method I*, CWL 22, 140.

*velocity* and *acceleration* well enough to read those words in CWL<sup>77</sup> or anywhere else, and teach Newtonian physics, not as a techy,<sup>78</sup> but in childout funagain form.<sup>79</sup>

Henman's three-week exercise yielded data on a personal transition from description to explanation and a turn from relations of sensible terms such as "long" (rod) and "light" (pressure) to relations between correlated numbers. "Such is the fundamental significance and function of measurement."<sup>80</sup> He does not comment on whether or how determining length relates to determining simultaneity, nor does he ponder how to escape the relativity of simultaneity.

There is a phrase in Henman's essay that, I believe, merits attention, discussion, debate: *heuristics of seeking explanatory understanding of heuristics of seeking explanatory understanding*. He does not show and tell what the duplicating heuristics might look like, but he raises a timely question, one that intimates the possibility of speaking of pressure and volume or the intelligibility of time and space better than the names dropped in chapter 5 of *Insight*.<sup>81</sup> Those bright guys were seeking explanatory understandings, but they were not interested in "throwing light on the precise nature of abstraction" or "transposing in terms of insight,"<sup>82</sup> by "picking out the

<sup>77</sup> While writing "Minding the Economy of *Campo Real*" (*Divyadaan* 29/1 [2018], 1–24), I tracked down analogies involving differential calculus in the Collected Works. The results are in a long footnote #27 on page 11.

<sup>78</sup> CWL 10, 205.

<sup>79</sup> Years ago I brought a hanger, two bananas, some rope, and a bucket of water into an undergraduate philosophy course. I had hopes of recreating "a dramatic instance" of wonder about the principles of displacement. I rushed the exercise and failed to cajole the students into taking it seriously. After class one of them commented to me: "James, the university is not the place to do this kind of thing."

<sup>80</sup> CWL 3, 189.

<sup>81</sup> The name dropping does not begin until section 3.2 *Euclidean Geometry*. In section 3.3. *Absolute Space*, Lonergan refers to Newton, Galileo, and Kant, and he continues to do so in section 3.4 *Simultaneity*. Aquinas and Aristotle are mentioned in section 3.5 *Motion and Time*, at the end of which Lonergan refers to the Einstein-Lorentz transformation and Minkowski space in a footnote where he references Lindsay and Margenau, *Foundations of Physics* (John Wiley and Sons, 1936). In section 4.1 *The Elementary Paradox*, Lonergan refers to the Fitzgerald contraction.

<sup>82</sup> Val Rice repeats the phrase of Lonergan in an interview: "You took that book by Lindsay and Margenau to teach yourself contemporary physics, and you use a phrase, you 'transposed Lindsay and Margenau in terms of insight.' What do you

insights behind the moves,”<sup>83</sup> nor where they en route to an “examination of common sense.” It was not their concern. If it is yours, mine, ours, then the duplication of “heuristics of seeking explanatory understanding” joined by the little word “of” is a move in the right direction.<sup>84</sup>

- Duffy’s Objectifications

In his first objectification, Duffy states what chapter 5 is and is not about and admits there are parts of the chapter that he skimmed. In his self-positioning, he refers to two teaching experiences, the second a failure to teach *time*, but he does not go into details of how to effectively teach the abstract intelligibility of Space and Time, except to insist that it will not be ‘the boondoggle of teaching without implementing homely heuristics.’

In what results from his positioning, Duffy comments on teachers and researchers and ‘Lonergan enthusiasts’ acknowledging not having read chapter 5. The demand might sound a bit rigid, perhaps even cultish, but it resonates with the demands of reading the chapter as a natural bridge to cross over in order to examine common sense.

On a related note, one thing that might deserve further discussion, debate, assembly is what Duffy writes about “letting ‘letting’ loose” and what Quinn proposes in his second objectification. Historically, heuristics have helped those with eyes to see them and will continue to help those seeking explanatory understanding.<sup>85</sup> Would sufficiently-cultured readers of *Insight* doubt this in the least? If there is a reason to highlight this simple point and highlight it in yellow or green, it is because it has been missed and been “replaced by the conventions of a clique.”<sup>86</sup>

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mean by that?” Pierrot Lambert and Philip McShane, *Bernard Lonergan: His Life and Leading Ideas* (Vancouver: Axial Publishing, 2013), 172.

<sup>83</sup> Lonergan replies to Rice: “Yes, they were intelligent people, eh, and they knew how to set up the foundations of physics. And the question is, in each of these examples, each of these moves they had, eh, I wanted to pick out the insights behind the moves.” *Ibid.*

<sup>84</sup> The move is part “inquiry today prepared and supported in a manner unattainable in earlier centuries.” CWL 3, 411.

<sup>85</sup> See note 20 about the implementation of heuristics—a simple point being made by modern science. A high point, high note of *Insight* is the arrival, finally, on page 484: “To prepare our statement of the integral structure that we have named metaphysics, attention must now be directed to genetic method.” It is easy to read the book and miss a central pointing to genetic method.

<sup>86</sup> *Method in Theology*, 80; CWL 14, 78.

- Quinn's Objectifications

By reason of formation and teaching experience, Quinn is in the best position of the three of us to position the 72 words on page 163 of *Insight*. One good thing he hits upon that merits discussion and follow-through is how confused notions of space and time affect physics, philosophy, and just about everything in between.<sup>87</sup>

The focus of Quinn's second objectification is a non-commonsense symbolic representation of a range of commonsense achievements and failures. I find the symbolization marvelously suggestive even though I do not have enough control of the ";" after p<sub>i</sub> to teach it—never mind the other semicolons.

In Quinn's first metagram—which is based on one of McShane's—there is a duplication of symbols, which, I believe, is a good thing related to Henman's intriguing mention of a *heuristics of seeking explanatory understanding of heuristics of seeking explanatory understanding*. The symbols help me make a little better sense of what is happening when I say "aguia" or "ni modo."<sup>88</sup> As expressions, both of these are higher integrations of the tonguing or signing (think of Helen Keller) psychobiochemical thing moving my tongue to make noises or tapping keys to make the black marks in front of your nose. The noises and marks point to intelligent integrations, possibly to weeks or months trying to understand the signed "water," or in the case of Henman to incarnate  $P \times V = C$ . The advantage of typing Spanish expressions (for the reader unfamiliar with Spanish) is that they are just marks on a paper, marks which might lead you to wonder what they mean in Duffytown.

Quinn's brief second objectification includes possibly relevant, implementable symbolization of what is happening when I am intelligently making noises or typing black marks on a computer screen. The symbols could prove helpful for luminously meaning "science," "examination of science," "common sense," "examination of common sense," and "a natural bridge over which we may advance." Indeed the symbolization could lead to a better understanding of the symbiosis of a slowly emerging shift towards

<sup>87</sup> The mess in philosophies and theologies of hermeneutics is a particularly fragile zone, whose transformation pivots on reading methodical hermeneutics into history. The challenge is to take seriously the analogy between the canons of empirical science and the canons of methodical hermeneutics, which would, will in good time, make "the bridge" we are assembling in this exercise a topic.

<sup>88</sup> This is a common expression where I live in Mexico that means something like "that's life," "whatever," "shit happens."

system, named by G. Simmel *die Wendung zur Idee*,<sup>89</sup> with “the world’s work,” business, and education.<sup>90</sup>

Quinn reminds us that common sense is a range, indeed a vast range.<sup>91</sup> The non-commonsense thing to note is that the symbolism could help some few, a future not numerous creative minority, to read the concluding note of chapter 7 of *Insight* better than it was.<sup>92</sup> To this end appropriate symbols must be invented, unless one is a reductionist or spiritualist.<sup>93</sup> To which end? To inviting “the vast potentialities … and desire to correct the general bias of their common sense.”<sup>94</sup>

A question emerged for and in me about Quinn’s use of the word *consent*.<sup>95</sup> Normally we consent to do something. Commonly people consent to treatments or to release information. A few months ago I consented to reading, writing, assembling the first paragraph on page 163 of *Insight*, to identifying my horizon, as best I can in a limited amount of words, and finally

<sup>89</sup> *Method in Theology*, 139; CWL 14, 133. A displacement towards genetic thinking is emerging alongside common sense, and indeed is both from and for common sense. (“From” and “for” are represented by the up and down arrows in W3, as well as the bottom and top of the “staircase” diagram.) In good time teenagers will not credit objective space and time with their personal spatiotemporal reference frames or feelings. See further CWL 3, 563.

<sup>90</sup> “It is not the philosophic or scientific theorist that does the world’s work, conducts its business, governs its cities and states, teaches most of its classes and runs all of its schools. As before the emergence of theory, so too afterwards all such activities are conducted in the common sense mode of intellectual operation.” *Method in Theology*, 97; CWL 14, 93.

<sup>91</sup> “For every difference of geography, for every difference of occupation, for every difference of social arrangements, there is an appropriate variation of common sense.” CWL 3, 203.

<sup>92</sup> The note reads: “May we note before concluding that, while common sense relates things to us, our account of common sense relates it to its neural basis and relates aggregates and successions of instances of common sense to one another.” CWL 3, 269.

<sup>93</sup> “To this end [linking physiology with biochemistry and biophysics], there have to be invented appropriate symbolic images of the relevant chemical and physical processes.” CWL 3, 489.

<sup>94</sup> CWL 3, 266.

<sup>95</sup> “I am inviting consent to the assembled text.”

to encountering others doing the same procedure.<sup>96</sup> My two colleagues consented to perform the same tasks.

Chapter 5 is primarily a doctrinal block of words, as Quinn notes. I believe he is inviting the reader of his assembly to “progress in its implementation,” i.e., to consent to the worthwhileness of implementing the assembled block of text along the lines of the three-step procedure—so not haphazardly or in any way whatsoever—thus realizing its potentially transformative meaning.<sup>97</sup> “These 72 words and this chapter are worth reading, interpreting, and implementing better than they are, into the flow of history. What do you say?”

### B. Robert Henman

- Duffy’s Objectifications

Duffy discusses the missing of chapter 5 of *Insight* as leading to a missing of the experience and meaning of abstraction leading to the counter positions (CP) presently dominant in Lonergan scholarship. This CP pervades comparison and interpersonal dialogue which Duffy says would assist in our own personal development. Such forms of dialogue would he states help future students as well as help in breaking free from extroversion—a natural bridge to cross. Such a crossing would he states, help in our letting loose. Exactly what is let loose requires more explication but it points to an openness I think, regarding curiosity and creativity. So, finally Duffy’s paper highlights chapter 5 as a way towards personal development by meeting our own personal counter positions enabling a development of a personal positioning that would eventually show its results in others in which we enter into dialogue. The struggle is to do the work and impetus for that seems to be the most difficult component of moving forward for Lonergan readers.

- Henman’s Objectifications

I offered as a position on self-appropriation in my essay that there is the need to do a bit of science in order to reach adequate self-knowledge. Quinn picked

<sup>96</sup> The people doing these exercises consented, for one reason or another, to do them, without fully understanding how to do them. See further the concerns that Cecilia Moloney raised in her third objectification in “Assembling the Meaning of Probability,” *Journal of Macrodynamic Analysis*, 13 (2020), 108–111.

<sup>97</sup> It is possible that Quinn and I are emphasizing two different but related levels of the structure of dialectic. “On an upper level are the operators. On a lower level are assembled the materials to be operated on.” *Method in Theology*, 249; CWL 14, 234.

up on this as his own background in mathematics would confirm my position. The doing of the experiments elicits, or should, the operations that provide the data of consciousness necessary for one to begin the process of self-understanding. Here I again pose it as a question or at least a position that further discussion can only lead to self-exposure of where we are at in our own struggle with self-luminosity.

This all said, I too invite consent to my position in the form of further discussion. For ascent does require adequate understanding of what the consent consists. Finally, is it a position? That is a question for deliberation that presupposes that one has worked through answers to the various "what" questions involved in coming to an understanding of the experiments and an understanding of one's own operations while in the process.

- Quinn's Objectifications

Quinn discusses briefly the present counterpositions of nominal comparisons, common sense, contemporary science and description not meeting the call of history. He offers that getting beyond common sense description and comparison will depend on explanatory interpretation, which he states, and is a remote future possibility. These are the counter positions. Quinn goes on to state that his position as: "Lonergan's (mainly doctrinal) chapter 5 on Space and Time is correct." This section of his first objectification gives us 3 more doctrinal statements that provide a mapping of future work required all the way up to theology. He concludes his first objectification with an invitation to consent to the assembled text. Such consent may elude many of us as Quinn brings to his reflections years of experience in mathematics and physics. But what does not elude us is his dedication to history and progress.

Quinn's second objectification focuses on common sense in its possibilities beyond the fragmented common sense of our present times. He then provides us with 3 metagrams symbolizing a future way forward. We are reminded of Lonergan's quote; "We are not there yet."

Somewhat like my comment on Duffy's paper, it again highlights the difficulty of moving ourselves forward. While we may reverse our own counterpositions, to some extent, it will be a secondary task to assist others in reversing theirs. Our collaboration in this manner has possibilities.

The three of us, Henman, Duffy and Quinn have come to this process of reflecting on chapter 5 of *Insight* from different backgrounds and so our "cards on the table" are varied. But our fundamental stance is one. We desire to understand what Lonergan is about in this chapter in an effort to further advance the foundations we believe Lonergan has provided. And perhaps

that belief is the crux of the matter. Until we understand we are to some extent believers, but in the spirit of Aquinas, we are seeking understanding to fill out our beliefs. And if Lonergan has taught many of us one thing, it is the raising of questions that provides the possibility of insight.

### C. Terrance Quinn

- Duffy's Objectifications

Duffy invites us "in" to the problem. He speaks directly, to each us. He begins by asking us to advert to and describe familiar experiences that are 'spatial' and 'temporal.' Duffy lays his cards on the table.<sup>98</sup> His discussion reveals a remarkable control of meaning. He does not "attempt the impossible," namely, to lay "all of his cards" on the table. He does so judiciously, by drawing attention aspects of his position deemed relevant to his discussion of the assembled text. I find the autobiographical content helpful. It is part of Duffy drawing attention to his sources and experience. It is directly relevant to the present task and the problem set by the assembled text. This prepares for and leads up to his courageous concluding sentence of his first objectification: "I am not in a position to say much about the final paragraph [of chapter 5 of *Insight*] beginning 'The answer is easily reached.'"<sup>99</sup> While such claims are normal and helpful in scientific collaboration, I do not recall reading any such admission in the Lonergan Studies tradition. As is evident both from the lead up to this statement and to the text that follows, this no mere admission but is, rather, an *informed nescience* by which Duffy is able to go on to provide reconnaissance on the way forward.

The first objectification centers on the problem of "how scientists may correctly explain Space and Time."<sup>100</sup> The emphasis is on explanations reached by physicists. To be sure, physics is a focus of chapter 5 of *Insight*, leading up to Lonergan's remarkable Theorem on the abstract intelligibility of space and time. But as Duffy goes on to observe, the assembled text and chapter 5 of *Insight* also point to an unlimited range of experience and scientific explanation which includes all notions of space and time, including those that we find in 'common sense.' As experience reveals, 'common sense' is operative (in description of concrete extensions and durations) in all scientific explanations. And so Duffy goes on to enlarge the context. For instance, he expresses a serious interest in "biochemical things like lemon

<sup>98</sup> CWL 14, 180.

<sup>99</sup> Duffy, p. 68.

<sup>100</sup> Duffy, p. 66.

trees and psychobiological things like Shetland sheepdogs" as well as in his own "untutored basic inclination," which is common to us all.

I am, then, inviting consent to Duffy's first and second objectifications, in both content and in method. We are searching together, and I think that I share in his quest. His method is empirical and personal. He takes a stand regarding the assembled text. He makes his positioning known. He draws attention to a fundamental problem in contemporary Lonergan Studies that has been blocking the possibility of contributing to global progress (the prevalent and radically mistaken notion that one can skim past, or even skip, the development called for in the first five chapters of *Insight*). Taking Lonergan's counsel to heart, Duffy invites "frank debate—interpersonal encounter,"<sup>101</sup> another kind of bridge to be crossed that, once initiated, will contribute toward revolutionizing Lonergan Studies and philosophy of space and time, indeed, will revolutionize Space and Time.

- Henman's Objectifications

The Hindu mathematician Bhaskara (circa 1114–1185) "proved" the Pythagorean Theorem by drawing a figure and saying "Behold!" The elementary theorem has been a catalyst for more than three millennia of mathematical development. In like manner, I draw attention to Henman's article, also a figure with three sides: Introduction, first and second objectification. Like Bhaskara, I too say, "Behold." As with the figure for the Pythagorean Theorem, and indeed, as with empirical exercises grounding and throughout all of *Insight*, one is invited to "do the exercise." In the present instance, that means follow in Henman's (print-) tracks and that way have an insight. I note, however, that in some respects, Henman has provided us with considerably more help than either Bhaskara or Lonergan did. Henman shares essential details of his journey in learning. He makes it possible for the engaged reader to also break through to what for him was "a new way of understanding certain spaces and times (with an emphasis on space rather than time) and ... [advance] somewhat in ... heuristics of seeking explanatory understanding of heuristics of seeking explanatory understanding."<sup>102</sup> Indeed, to do so is essential to the problem posed by the assembled text and chapter 5 of *Insight*.

So pleasantly accessible is Henman's discussion that there is no longer any excuse for scholars in Lonergan Studies to skip the elementary work called for by Lonergan in chapter one of *Insight*. If the solution to the problem

<sup>101</sup> Duffy, p. 68.

<sup>102</sup> Henman, p. 70.

of floating bodies presented in section one of the book seems too obscure to be of interest, there is no way to legitimately ignore the more modern but still elementary challenge of understanding how pressures and volumes correlate. Does Henman's invitation make your brain blood boil? Or as is to be hoped, does working through his invitation make your brain blood Boyle with interest, insight, and delight? Inquiry in the J-tube experiment (or some equivalent) is a needed first step to getting beyond the "biased commonsense bluff, made plausible, indeed inevitable, by the culture of our times"<sup>103</sup>; it (or some equivalent) is a needed first step toward the possibility of being luminous in "correlations of correlations of correlations."<sup>104</sup> In other words, inquiry in Boyle's J-tube experiment is a first step toward J-wrapping what McShane points to in chapter "J ~ Inventing Techniques," in *Interpretation from A to Z*.<sup>105</sup>

Whether in brain or in J-tube, we can let pressures and volumes be put to good purpose. Henman points the way forward. In support of Lonergan's discovery and invitation, he correctly indicates that such work will be needed toward the possibility of a "Generalized Empirical Method ... made possible for the individual who enters into the process of trying to understand relations in an experiment such as is provided ... while being aware of the different operations and their content."<sup>106</sup>

I am, then, inviting consent to Henman's first and second objectifications. He invites readers to first steps toward a future "generalized empirical method" at the level of the times. Note also, Henman's implicit consent to the assembled text, evident in the sense that he makes progress in understanding certain concrete extensions. Finally, there is Henman's teaching by example, teaching us the "secret of begin."

- Quinn's Objectifications

By working with some examples in modern contexts, in the last two weeks I have made some progress in heuristics of aggreformism. This has increased my confidence in the metagram provided by me two weeks ago. It still seems correct and I think it will be helpful. Among other things, it draws attention to the fact that commonsense is universal and, in particular, operative in all descriptions and notions of space and time. It provides symbolic heuristics that will be helpful in my and our search for Lonergan's remote meaning of

<sup>103</sup> McShane, *Interpretation from A to Z* (Vancouver: Axial Publishing, 2020), 77.

<sup>104</sup> Henman, pp. 72 and 76; CWL 3, 103 (last six lines); and CWL 3, 271.

<sup>105</sup> McShane, *Interpretation from A to Z*.

<sup>106</sup> Henman, p. 73.

"fuse into a single explanation."<sup>107</sup> (As progress is made, we can expect ongoing refinements and sub-symbolizations.) The symbolism emphasizes aspects of the problem of explanatory interpretation of non-explanatory meaning<sup>108</sup> including, for instance, **when non-explanatory meaning is descriptive of extension and duration as extension and duration.** The metagram meshes with previous metagrams invented by McShane, as well as with a diagram also invented by McShane, what he called Lonergan's Dream: The Tower of Able.<sup>109</sup> Details will need to be worked out through implementation.

And so, I invite consent to my first and second objectifications regarding the assembled text on Space and Time, from mid-August 2020.

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<sup>107</sup> CWL 3, 610.

<sup>108</sup> CWL 3, 610.

<sup>109</sup> Pierrot Lambert and Philip McShane, *Bernard Lonergan: His Life and Leading Ideas* (Axial Publishing, Vancouver, 2010), 163. It strikes me as a remarkable and happy coincidence (perhaps no accident) that page 163 is also the page number for the first page of Lonergan's chapter 5 "Space and Time." In my view, Lonergan's Dream is a further specification of the heuristics obtained in the earlier work.

