

Cantower XV**The Elements of Meaning****June 1st 2003****15.1 Elements, Canons, Coordinations**

“I am a child of the streets of New York City; and although I reveled in a million details of molding on the spandrel panels of Manhattan skyscrapers, and while I marveled at the inch of difference between a forgotten foul ball and an immortal home run, I guess I always thrilled more to the power of coordination than to the delight of a strange moment - or I would not have devoted 20 years and the longest project of my life to macro-evolutionary theory rather than paleontological pageant.”¹

The quotation, I hope, shifts you immediately into the context of the previous **Cantower**. We are reaching in that context for the meaning of a New Yorker for whom the meaning of New York had a richness that I, and no doubt you, can only smell by analogy with a native city: for me, the Dublin of Brian Boru and Swift, Robert Emmet and Joyce, where river runs past Eve and Adam. I quote from the concluding pages of Gould’s mighty last work. He died on May 20th 2002, a year after the Library of Congress named him one of America’s 83 Living Legends. The last thing I would wish to do is belittle him by some summary treatment here. The first thing I would wish to do is to invite you into this world of a million details that he carries one into with his peculiar style, leading persistently towards his coordinating view of “the lovely puzzles, the enchanting beauty, and the excruciating complexity and intractability of

¹Stephen Jay Gould, *The Structure of Evolutionary Theory*, The Belknap Press of Harvard University Press, 2002, 1339. I refer to this work below simply as Gould.

actual organisms in real places”.²

By ‘you’ here I mean the person aspiring to foundational work, aspiring to be a founder. It may not be **you** reading now: recall **Cantower VIII** that dealt with the topic of slopes. The search for the Dark Tower of **Cantower IV** is as yet little more than a hope. But surely we can envisage and admire and cultivate a context for that hope, thus taking a stand for the **Tomega** principle of *Insight* 417[442} against the mood mentioned immediately in the text there. “It lauds the great men of the past, ostensibly to stir one to emulation, but really to urge one to modesty.” My stand here is that we can do deeply better with a coordination that is a present fermenting of evolution. My stand is on A Structure of Evolutionary Practice that pushes on from the Systems Theoretic of **Cantower VII**. My stand is on the cultural significance of the Eight Elements of Metaphysics identified by Lonergan thirteen years after he wrote of The Elements of Metaphysics in *Insight* chapter 15, a blossoming of his devotion to a macro-evolutionary theory. But I wish here to move slowly, gently, persuasively to the identification of that stand.

This **Cantower** is substantially longer than my previous monthly efforts and I would wish to steer you through it, round it, as comfortably as possible. My ‘stands’ of the previous paragraph already put you in the picture descriptively, especially if you have been following my trail through this Proustian and Pound adventure. Evidently I am relocating, revitalizing, the fifteenth chapter of *Insight*. I am, if you like, putting forward a new First Canon of method for either the list of chapter three of the book, or the list of chapter seventeen. It is the same message, if more refined, than the message of chapter three of *Pastkeynes Pastmodern Economics: A Fresh Pragmatism*.

Whether Gould is correct, or his various adversaries, they are all trying to **Be Sensable** where the meaning of that norm is sufficiently vague to suit any talker or

²Gould, 1338.

thinker. To that pragmatic principle I simply add my first pragmatic canon: we could do better than Gould and his adversaries if we modified our debating strategy. That strategy is already at least descriptively familiar to you, especially if you have struggled through Lonergan's *Method in Theology*. Gould's final work offers a chance to push for more light on that strategy and that in a way that is more to the point than the similar final work of Schumpeter, *History of Economic Analysis*. Schumpeter wrote in an amazingly detached fashion, although he was far from detached.³ Gould is not thus detached. Certainly he tackles the history of evolutionary analysis, but he is heading towards his own stand. If you have been with me so far in these **Cantowers** you already suspect where I am going. Gould, you might say, is another candidate for the group writing their books ala page 250 of *Method in Theology*. Might a 21st century Gould do a better job of the final chapter within that new context?

Some, perhaps many, of you may be quite unfamiliar with Gould and his work, and it would be a pity to lose you for that reason, so perhaps an overview of the man and his effort would help us along. I doubt if I could do better than the blurb on the dust-cover of the book.

"The world's most revered and eloquent interpreter of evolutionary ideas offers here a work of explanatory force unprecedented in our time - a landmark publication, both for its historical sweep and for its scientific vision.

With characteristic attention to detail, Stephen Jay Gould first describes the content and discusses the history and origins of the three core commitments of classical Darwinism: that natural selection works on organisms, not genes or species; that it is almost exclusively the mechanism of adaptive evolutionary change; and that these

³So, for example, his review of Keynes' *General Theory* in *Journal of American Statistical Association* is, December 1936, 791-795, is not gentle. But he backs off from such vigour in his *History*. There is, of course, the other issue here; how was I to handle the task of reviewing Gould?

changes are incremental, not drastic. Next, he examines the three critiques that currently challenge this classical Darwinian edifice: that selection operates on multiple levels, from the gene to the group; that evolution proceeds by a variety of mechanisms, not just natural selection; and that causes operating at broader scales, including catastrophes, have figured prominently in the course of evolution. Then, in a stunning tour de force that will likely stimulate discussion and debate for decades, Gould proposes his own system for integrating these classical commitments and contemporary critiques into a new structure of evolutionary thought.’

My interest here is in envisaging a twist to the debate that might occur in the decades to come, a turn in thought and talk that would mesh into “a normative pattern of related and recurrent operations yielding cumulative and progressive results”.⁴ I have in mind not only the main twist but various aspects of that twist, aspects that not only twine into Gould’s study, his self-defense, his theses, his presuppositions, his problems but that are the weave of a more fundamental account of the realities with which he deals. We had best sort out these aspects in some preliminary fashion so as to cut down on obscurities and misdirections.

And again, it is a matter of not losing you, especially in Gould’s specialized talk, which includes eccentric terminology of his own. Obviously, we are dealing here with precise debates about refined distinctions. At an earlier stage of work on this ***Cantower*** it seemed to me best to let the treatment of the topic flow way beyond the usual length, beyond the 100 page mark. But what benefit would that be, since it would still be summary treatment, when what is needed is extensive foundational pedagogy - we will come back to that. My final decision is to be emphatically programmatic, hopeful in that emphasis that others would pick up on the problem zones. My hope here is doubly boosted: there is the boost that comes from the possibility, slim probabilities,

⁴*Method in Theology*, 4.

of the hodic challenge being taken up, and this is the topic of the final section here. But there is also the boost of the increasingly-obvious failure of Lonerganism to pick up on his rich culturally discontinuous suggestions. I have, indeed, drawn attention to his suggestions in this area before, in a doctorate work in Oxford.⁵ With the exception of the follow up work of Ken Melchin⁶ a decade later, nothing much seems to have stirred in Lonergan studies since, and certainly nothing of Lonergan's heuristic novelty as meshed into the zones of inquiry represented by Gould. We will deal with some of this novelty shortly. Indeed, it is time to help you get into focus on just what we are getting into here.

The eight sections to follow speak of needs - *capacities* and *needs* if you wish to advert to a fuller context; *incapacities* if you are being realistic. The incapacities are due

⁵The thesis was originally (and strategically!) titled "The Logic of Discovery in Statistical Science with Special Reference to Evolution Theory". It was later published as *Randomness, Statistics and Emergence*, Gill Macmillan And Notre Dame, 1970. A modified and shortened version was accepted by Oxford: for example, the eighth chapter, which deals with "The Foundations of Statistics", with Lonergan's foundational change on the subject between the first and second editions of *Insight*, was rejected by one of the two examiners as being merely mathematics.

⁶His Concordia University thesis was published by University Press of America (1987; 1999²) under the title *History, Ethics and Emergent Probability. Ethics, Society and History in the Work of Bernard Lonergan*. Melchin and I had many pleasant and enlightening discussions in the topic in 1979, when I was in Concordia as Visiting Fellow in the new Lonergan College and he was pushing forward in his thesis. He will be amused to find - he has not seen this, nor, obviously, the unwritten **Cantower XVIII** on "The Possibility of Cultural Ethics" - that twenty two years later I have a clearer grip on where his thesis might have gone. In my marked 1988 copy I find marginal notes on his final section "The Possibility for Reversal: History, Ethics and Religion", pp. 247-49, on cosmopolis, on operative immanence in subjects, etc. The markings have to do, as **Cantower XVIII** does, with functional specialization as operatively immanent in culture.

to present *institutions, roles, tasks*. This gives you a perspective on the first six (sections 2 to 7) of the seven sections. They are something of a wish-list: “wouldn’t it be nice if...”, and this in spite of present institutions of learning. In evolutionary terms, you might think of sports⁷ or perhaps in an analogy with the need for an initial shift in the statistics of moth color pressured by the blackening of the tree of culture. Then there is the final section which shifts the wish-list into the new hodic context. Again, you might think in evolutionary terms, even perhaps in terms of Gould’s “punctuated equilibrium”. The problem there is the problem of the entire **Cantower** series but here located in a particular zone of inquiry: the fuller task is a shift in ecosystem, in institutions of mind-emergence, that for some would seem to be catastrophic.⁸ But I leave further pointers on that to section 8.

So we have the first six sections and I would note immediately that there is nothing very sacred in the list: there might have been a dozen of such topics where novel slants on old problems are suggested. However, I put the topics chosen in an order of that was both pedagogically helpful and relatively logical.

Section 2, then, picks up on some simple aspects of Gould’s struggle with the notions of *cause* and *law*, aspects that are relevant to any area of inquiry but that are particularly important when one seeks perspectives of concrete reference as in history or evolution. Section 3 has a few things to say about the notion of ‘thing’ gallantly raised by Gould. The fourth section follows easily from the third in that Gould’s reason for raising the problem of ‘thing’ was the need to reach a better view on the units of evolutionary progress: are they genes, or species in Gould’s sense, or - as I suggested in *Randomness, Statistics and Emergence*, recurrence-schemes? The next section ventures

⁷Franklins, in Gould’s quaint terminology, “are not actual but unemployed ‘things out there.’ Franklins are alternative potential functions of objects now being used in another way.” (Gould,1278).

⁸Gould considers catastrophic phenomena at length. See the index.

into deeper water, the troublesome area of hierarchy theory which we already met as problematic when dealing with Systems Theory in ***Cantower VII***.

Section six picks up a title from chapter one of Gould regarding revisions of the Darwinian perspective. The section is a move forward to connecting the needs inherent in Gould text and view with the elements of meaning that Lonergan presents so briefly in the fifteenth chapter of *Insight*. Section seven brings a certain unity to the previous reflections: its title is the last seven words of the table of contents. It can be seen either as an effort to point to a sublation of the first and last chapters of Gould's book into the perspective hinted at in the previous sections, or simply as a commentary on the blurb on the dust cover that I already quoted.

The last section, as I mentioned already, points towards a change of gear, new bottles inviting strange future wine, empty evolutionary spandrels poised for exaptation. And it is surely better to add some sense to that phrase here. First, I quote from a paper that Gould himself quotes, a neat guide to his meaning which also is suggestive of my own sublating meaning.

“The term spandrel originates in architecture and is used to describe spaces left over as a consequence of some other design decision, such as the triangles that remain behind when a rectangular wall is pierced by an arched opening. No self-respecting architect would simply leave such spaces, especially in a grand cathedral with a rich patron. Instead they would be decorated, as is the case of the four pendentives under the dome of San Marco in Venice, which are decorated with the four evangelists. The example is a good one, because the historical sequence of events is known.. The spandrels are the consequence of a structural design decision, a by-product of placing a dome on rounded arches; three centuries later, mosaicists decorated these spaces. Thus spandrels are not primary adaptations, but, because they can have later uses, they

become in Gould's terminology, exaptations".⁹

Might there be spandrels of human community awaiting future recurrence-schemes for the constraining¹⁰ of fresh realities?

A word on the relation of this **Cantower XV** to chapter 15 of *Insight*. I suggest restricting the relating to four sections: 1. Potency, Form and Act; 2. Central and Conjugate forms; 3. Explanatory Genera and Species; 5. Potency and Finality. So, I suggest passing over or omitting three sections: 4. Potency and Limitation; 6. The Notion of Development; 7. Genetic Method. This omission is strategic. Development and Genetic Method, topics already raised in **Cantower VII** and raised here by Gould, are massively complex in themselves, as well as involving the untreated topic of hierarchy. It will be a topic in **Cantowers XXVII-XXX**. Potency and limitation, in its elementary aspect, is certainly relevant here, but I am thinking of the more difficult zone of the connection of potency with theories of energy and entropy, a connection which will involve a great deal of fresh work. It will be a topic in **Cantower XLVI**.

Finally, there is the problem of my strategy of presentation, which I hope, does not strain your patience in appearing initially too elementary or too bluntly critical. The issue here is indeed elementary, to do with elements. I wish to expose the need for certain elements of meaning in a blunt unscientific fashion, where the meaning of 'unscientific' here - related to suggestions in section 6 of **Cantower IX** - is left hanging until the beginning of section 6 below.

The "Elements of Metaphysics" in a fundamental sense are elementary, but they just don't cut it at present, and this I wish to **show** in a scientifically inadequate fashion

⁹Quoted on Gould, 1270, from Sydney Brenner, "Refuge of Spandrels", *Current Biology*, 1999, 669.

¹⁰Gould's reflections on constrains are worth sublating, but I only mention briefly later (p.22) the possibilities of a metaphysics that would handle such sublating: questions of aggregations of lower acts, capacities, finalities, etc emerge.

in sections 2 - 5. What is needed, in the drive towards a fresh unity and beauty of metaphysics, is a fresh view of operable elements, fresh schemes of adaptation. Towards the plausibility of that need and that freshness, the topic of section 6, we need something like a macro-evolution of the micro- evolutionary sports of the previous sections. Section 7 is descriptive of that shift, anticipating “The Deepening of Metaphysics” that is to be discussed in ***Cantowers XVI*** and ***XVII***.¹¹ The deepening involved here, however, is the deepening that occurs through a sublation into the hodic context.

So, those two ***Cantowers*** are named, respectively, “Hodics as Science II”, “Hodics as Science I”. You might find it interesting to think of that pair in relation to the phrase “Word and Idea” that occurs in the title of Volume 2 of Lonergan’s works, a curious ‘wrong order’. The incarnate idea-ing that is the fermenting of the dialectic community is to bring forth, in continual discontinuous evolution, the inner words and outer words of that ground the fantasy of founders.

The final eighth section reaches forward in that fantasy towards a whisper of the exigencies within the empty spandrels of history’s groaning molecules.

15.2 Causes and Laws

Sometime in the second month of my introductory class in philosophy we plunged into the problem of our use of “Why?”, “Why is a bicycle wheel round?”. To make the matter existential we might envisage leaving the classroom and finding a fresh digging in the corridor that *might* lead to the question, “Why is there a triangular hole in front of the elevator?” Of course, it might not: my students acknowledged a certain drifting attitude, drifting mindlessly down the stairs. To make the matter historical we might recall the *Bagavad Gita*:

¹¹The original title of Chapters 16 and 17 of *Insight* was “The Deepening of Metaphysics”, a single chapter divided in two during the writing.

“Arjuna, learn from me
 The five causes
 For the success of all actions
 As explained in philosophical analysis.

They are the material basis,
 The agent, the different instruments,
 Various kinds of behavior,
 And finally fate, the fifth”.¹²

Not a bad effort in ancient India. I would not mention Aristotle, which would have spoiled the hunt: the problem was to mess around in class for a few days to bring a majority to self-notice five types of “why” question. Regularly, the last answer to be noticed, in the case of the wheel, was “because it is made of something solid”. But eventually attitude-analysis got us to repeat in our own shabby way Aristotle’s achievement: the childhood sequence “Why?... Because” has five types of answer and we could get far enough through illustrations to identify which **cause** we were talking about in any instance. We could go on to talk about the **causes** of a bridge, or of a fine dinner. We had reached an introductory control of our meaning when we used the list material cause, formal cause, efficient cause, exemplary cause [that needed a little work, getting from ‘plan’ to ‘exemplar’], final cause [another tricky topic¹³]. And there was the wonder of finding that the five connected with the five dynamic levels of

¹²I am recalling here briefly reflections on Arjuna, causality etc from pages 11-16 of *Process. Introducing Themselves to Young (Christian) Minders*.

¹³The reader could make a beginning here with articles that deal with these topics (causality, final cause, finality, *finis operis et operantis*, etc) in B. Lonergan, *Collection*, starting with the index references.

inquiry on which we had spent the previous months.¹⁴ The self-attentive philosophic analysis was far from India in its necessary self-luminosity: but was it far also from Gould's venture in his double major of geology and philosophy?¹⁵

Gould's entire book is about the cause or causes of evolution, and it is the center of debate with his colleagues. I spent a considerable amount of time hunting through his various usages of the word or its equivalents. My elementary conclusion is that Gould is relatively *voraussetzunglos*.¹⁶ If the debate is to be refined and progressive, surely the community needs a precision regarding the issue?

Furthermore, the precision needed goes far beyond the elementary achievement of first-year students of philosophy, with their minimal but genuine grounding of a simple metaphysical perspective in self-understanding. That going-beyond is certainly not a topic for this or even for the next, which corresponds with "Metaphysics as Science": if I list the climb, it is obviously just a tabling of contents for a later metaphysical literature.

So, there is the need to thematize accurately the mounting complexity of the objects¹⁷ reached by the answers to questions especially as they emerged in the past few centuries. There is, for example, the sophistication of the heuristics of the what-

¹⁴I will return to the topic in ***Cantower XIX***.

¹⁵Gould, 44.

¹⁶I ask your patience here: I do not regard the conclusion mentioned as sufficient sound interpretation. Lonergan's single use of the word *voraussetzunglos* in *Insight* (578[600]) is introductory to his sketch and canons of adequate hermeneutics. Section 8 will contextualize my casualness above.

¹⁷I am using 'object' in a technical sense, not to be confused with 'thing', a topic for the next section. The astute reader will notice, too, that I skipped past the less demanding task of thematizing the elementary objects to reach a perspective on central and conjugate forms and their corresponding potency and act. No point in a meaningless summary of the summary treatment of chapter 15 of *Insight*.

question when the answer - the form - reached is a component of a relational structure integrative of aggregates of acts, or of systems - be they systems of logic¹⁸ or sunflowers or ecosystems or even the dialectic and coincidental mesh of systems and non-systems that is the form of common sense.¹⁹ There is the sophistication of determining precisely what is the relation, form, of dependence involved in either efficient or final causality. There is the challenge of linking the meaning of *law* to both *form* and *intelligence*, and of determining the metaphysical equivalents of combinations of laws, mounting up from such simple instances as motion and friction to way beyond the Einstein-Maxwell combining to a reach for the realized form, meshing all known force-possibilities, of real finite geometry, a geometry which of course underpins the dynamic reality of evolution.

Instead of this one finds in Gould an educated common sense - meshed with accepted cultured nonsense. Certainly, he has heard of the Aristotlean causes: indeed it seems worthwhile to hear it from himself at some length, since it gives the contextual mood of the cultured debate that he holds with his critics.

“The central problem lies as deep as our definition of the key concept of ‘cause’ in science. Aristotle proposed a broad concept of causality divided into four aspects, which he called material, efficient, formal and final, for, roughly, stuff, action, plan, and purpose - that is, the bricks, the mason, the blueprint, and the function, in the standard ‘parable of the house,’ used for more than two millennia to explicate Aristotle’s

¹⁸See *Phenomenology and Logic* on systems of logic, their genesis, their genetic relations, their relations to truth.

¹⁹What is the heuristic of the **form** of common sense? Is this not the question of chapters 6 and 7 of *Insight*? “To this end the present chapters are contributory. May we note before concluding that, while common sense relates things to us, our account of common sense relates it to its neural base and relates aggregates and successions of instances of common sense to one another”. (conclusion of chapter 7 of *Insight*). Then there is “The **Form** of Inference” (*Collection*).

concept. As many historians have noted, modern science may virtually be defined by a revision of the broad view, and a restriction of ‘cause’ as a concept and definition, to the aspect that Aristotle called ‘efficient’....

The Cartesian or Newtonian world view, the basis of modern science, banned final causes for physical objects (while retaining the concept of purpose for biological adaptation, so long as mechanical causes, rather than conscious external agencies, could be identified - a problem solved by natural selection in the 19th century). As for Aristotle’s material and formal causes, these notions retain their relevance, but lost their status as ‘causes’ under a mechanical world view that restricted causal status to active agents. The material and formal causes of a house continue to matter: bricks or sticks fashion different kinds of buildings, while the bricks remain a pile, absent a plan of construction. But we no longer refer to these aspects of building as ‘causes’. Material and formal attributes have become background conditions or operational constraints in the logic and terminology of modern science”.²⁰

15.3 Things

Gould ventures into the problem of defining “thing” and “individuality”.²¹ What I write here about his venture is obviously impressionistic. However, as in the previous section and in the following two sections, I would hope that my strategy of presentation gives some pointers to the problem of interpretation as a functional specialty. Recall, then, the lightweight description in

²⁰Gould, 626. Later on (1196-8) there is the simple-minded identification of final cause with utility. This elementary muddling needs the self-attentive effort that would distinguish an objective genetic dynamic reality from the objective of an intending subject. Finality and final causality are two very different ballparks. See the reference at note 13 above.

²¹Gould has no entry in the index under *thing*. There is a set of entries under *individuality, meaning of*, but this does not including references to his discussion of ‘things’.

Method, 7.1. It begins by noting the advantage of understanding the object. So, here, I begin not with Gould but with *my* best understanding of the object, or rather pointers towards where it is to be sought. Do you find this problematic? It is, perhaps, worth a paragraph.

Obviously, I am going against *the principle of the empty head* but how far? Oddly, a detour into another zone will help, especially as the work there is available. Terrance Quinn has tackled the problem of interpreting Newton on the theory of gravitation, in particular the interpretation of the famous *Principia*. A present spontaneity would suggest that all he need is to understand Newton is an understanding of Newton's work and its context. But what is the context? Life and Times - including the physics of the time? I would suggest, and so does Quinn, that understanding the object, and the heuristics of that understanding, is relevant to interpreting Newton's partial success. What is needed is that categorial perspective given by "a potential universal viewpoint,"²² filled out, moreover, by the best contemporary understanding of gravitation. "The special aim of physics is to give a classical and statistical account of the quantodurational networking of geometrical relations, primary and secondary, that are the actuality of the things of physics. The center stage here has come to be occupied by gauge theory, whose 'geometrical nature is not always fully understood... partly because gauge theory is not metrical'."²³

And gauge theory, through its reach into the fibre-bundle form of differential geometry, brings us full circle to the question of physical realities in their secondary determinations".²⁴ To interpret Newton is to locate his effort within this context.²⁵ And

²²*Method in Theology*, 288.

²³Lochlainn O'Raiartaigh, *The Dawning of Gauge Theory*, Princeton University Press, 1997, 3.

²⁴P.McShane, "Elevating *Insight*. Space-Time as Paradigm Problem", *Method: Journal of Lonergan Studies* 19 (2001), 213. There is a lengthy footnote in

to interpret Gould is to place him in an analogous context: we will make a beginning of chasing down that context in section 5 of ***Cantower XVI***.

What, then, is meant by *thing* and by *individuality*? The best I can do here is to refer you to the indices of Lonergan, *Insight* and *Verbum*. In ***Cantower IX***, section XX, I noted my own struggle with the notion of thing through 1964-5, after which I went on to grapple with evolution theory.²⁶

Gould's reflections on "things" and on individuality are quite naive, but handling his confusions would require doing a work such as Quinn's on Newton. I can only give vague indications here.

Curiously and usefully, the problem of "thing-thinking" comes up almost immediately in Gould's book. He is interested in "our ability to define the central features of Darwinism".²⁷ "By any fair criterion in vernacular understanding of language, or by any more formal account of departure from original premises, our current explanatory theory must be described as a different kind of mental 'thing'."²⁸ The problem here is whether there is a change in the essence of the theory. I will return to this question in section 2 of ***Cantower XVI***, where Thomas Kuhn has center stage, but it is worth a comment here.

this text here on fibre bundle geometry which need not bother us. This article also brings out the fact that the unexamined application of the notion of thing in physics is extremely problematic.

²⁵This is as far as I wish to venture for the present. Recall part one of ***Cantower XIV*** where I raise the question of meshing the two sets of canons of *Insight*. More about this in ***Cantower XVII***.

²⁶The result of the effort appeared in *Randomness, Statistics and Emergence*, Gill Macmillan and Notre Dame, 1970. To be referred to below as *Randomness*.

²⁷Gould, 6.

²⁸Gould, 6-7.

Gould's raising of the issue of 'thing' in this context is useful in that it points to a generic and genuine operation of the notion of thing, a genuineness that could undermine current (including Gould's) naivety regarding real objects. The notion of thing is applied generously and genuinely by us in the broader vernacular thinking that invents nouns. We think of the character of the Renaissance; we speak of the development of relativity theory. Neither the Renaissance nor the theory are things but formal, artificial, unities. This problem of unity runs right through the next few sections, indeed, is the deep colour of the entire next **Cantower**. But let us keep to the simpler aspect of the problem here.

So, we skip to Gould's lengthy eighth chapter, where he tackles "The Evolutionary Definition of Individuality"²⁹ The central question is posed quite plainly. "What is an individual? Are vernacular bodies the only objects in nature that merit such designation - especially when discrete 'bodiness' doesn't always define an unambiguous individual at the focal level of Darwin's intent (not to mention the difficulties encountered in trying to characterize entities at levels above and below bodies in the genealogical hierarchy of nature)?"³⁰

Here you notice immediately - if your context of interpreting Gould's chapter 8 is your intussusception of Lonergan's chapter 8 - that Gould is caught in the problem of "bodies". How he is caught and what precisely is his counterposition is clearly a topic for a large creative work.

Here I am only pointing to the confusion, to that topic, to the need for a larger context that we will reflect on in the concluding section of **Cantower XVI**. What is of

²⁹Gould, 595. The first sub-heading of the chapter. I note here that Gould does not at any stage raise the fundamental problem of individuality (see *Insight*, on the empirical residue), a problem which occurs both in regard to things and to other unities such as symbols of art and of mathematical logic.

³⁰Gould, 597.

immediate interest here is where Gould is going with all this. He is in fact heading towards the issue of the proper units of evolution. A quotation by him from D.I Hull serves to pose the problem, his problem and ours: “Entities at various levels of organization can function as units of selection if they possess the sort of organization most clearly exhibited by organisms; and such units of selection are individuals, not classes”.³¹ What sort of organization might be involved?

15.4 Units of Evolution

Again, I start not with Gould but with the object. What are the units of evolution? Both Lonergan and *Randomness* suggest Recurrence-Schemes. *Randomness*, chapter 10 discusses the emergence of such schemes, macro and micro; The following chapter is “Probability Schedules of Emergence of Schemes”: and these chapters demand, not summary but a larger work.³² Perhaps the best I can do here is to give a vague popular indication of the relevant heuristic, followed by a quotation from Gould that can be read luminously in the context of that heuristic.

Think, then, of the tree nearest to you even if you are in Brooklyn, “a tree grows in Brooklyn”. How does this tree survive, in an evolutionary sense. It survives itself long enough to replicate. What one has to notice in a concrete preliminary way is that survival and duplication is a complex mesh of repetitive structures within and ‘without’ the tree. One might complicate our reflections by raising the question, What is the reality of this tree? Does the question not strike you as odd? Indeed, it is: and it throws us forward into the “deepening of metaphysics” that is a full heuristics of relations, some glimpse of which can emerge from our reflections in section 3 of

³¹Gould, 600. He is quoting from p. 182 of Hull’s “Are Species Really Individual”, *Systematic Zoology* 25(1976).

³²See also Kenneth Melchin, *History, Ethics and Emergent Probability*, University Press, of America, 1999.

Cantower XVI

But let us keep it light here. The nearest tree lives within its laws, forms relatively unknown to us. A struggle with the fifteenth chapter of *Insight* and presuppositions from other chapters would bring light on the linkage of form to matter and to its acts. The main point here is to notice that the acts of the layered forms of the tree are meshed into a net-working of the tree with other things. They are layered into and up from a dispersedness that we name spacetime that is a rich coincidental impressionist, but invisible, basic tapestry of dispersed being. The trees chemistry, like that of the sunflowers of ***Cantower II***, gives it a place in the sun, indeed in the Son. Its life patterns are very precisely within the scheme of things, in a fully determinate sense that calls for the scientific effort to painstakingly fill out the packed heuristic that identifies its living as within and 'without' "a flexible circle of ranges of schemes of recurrence", recurrence-schemes that are layered in galactic glory.

This is all to rushed, of course, but perhaps it gives an impression of the fuller context needed for Gould's pointings: "units of selection must be defined as *interactors*, not as *replicators*."³³ Because of the missing context, features of which we have already touched on and more of which will emerge as we move through this and the next ***Cantower***, his efforts to define selection lack heuristic and scientific clarity. Still, we can read his compendious claim - summarily presented immediately - with sympathy, noting the problem regarding causality that looks back to section 15.2 and adverting to the inclusion of hierarchic thinking that carries us into the next section.

"We define selection as occurring when plurifaction results *from a causal interaction between traits of an evolutionary individual* (a unit of selection) *and the environment* in a manner that enhances the differentail preproductive success of the individual. Thus, and finally, *units of evolution must, above all, be interactors*. Selection is a causal process, not a calculus of results - and the causality of selection resides in the

³³Gould, 622. Italics his.

interaction between evolutionary individuals and surrounding environments. The study and documentation of group and higher-level selection has been stymied and thrown into confusion over these issues - and especially by the blind alley of a logically false argument that identifies replicators rather than interactors A.A.S. units of evolution, and then constructs a fallacious reductionist theory, precisely opposite to the hierarchical model, by specifying genes (because they replicate faithfully) as ultimate or exclusive units of selection”.³⁴

15.5 Hierarchies

Se we arrive at the final topic in Gould’s work that I select for brief comment. We already came across it in noting the failure of the various forms of systems theory to handle the issue.³⁵ That issue is buried neatly in the first outer word of metaphysics, particularly in the symbols “ S ” and “ ; ”.

We need to develop the corresponding inner further than it has been so far in these **Cantowers**, or in *Insight* chapter 16, if we are to handle the topic adequately. Perhaps it is as well to repeat that outer word here; you may not as yet be **at home** in it, **lodged** in it and it in you, in the embrace of “quite a homely affair”³⁶:

$$\mathbf{H S f (p_i ; c_j ; b_k ; z_l ; u_m ; q_n)}$$

Coming to grips better with the meaning of “H” and “S” will be required to deal with the matter fully, especially with the hierarchies of recurrence- schemes, but

³⁴Gould, 623. Italics his. In *Randomness* I took as my primary opponents the ‘gene’ or ‘gene-pool’ theorists.

³⁵See **Cantower VII**, section 7.3.3.

³⁶The lodging will be a key topic, the topic of contemplation and the **Tomega** principle, in **Cantower XXI**, “Epilodge”, which corresponds to the Epilogue of *Insight*. For the meaning of “at home”, “a homely affair” see *Method in Theology*, 14, 350-1.

here let us pause, for a moment or a month, over the meaning of “ ; “.

I would say that the meaning of the semi-colon represent a crisis and a challenge to present Lonergan studies, as well of course as to systems theoretics and evolutionary theory. At a first and elementary level the semi-colon points to aggreformism, to the refinement of Aristotelian hylemorphism that the development of the last few hundred years requires. Metaphysically we may speak of a lower aggregate of acts being the material cause, the potency, for a higher form, but it is better here to stick with a cognitive (heuristic) equivalent: one can affirm the potential occurrence of an aggregate of affirmations regarding some “this”³⁷ that is the focus of inquiry, but also one can affirm an integrality of the acts grounded in central and conjugate forms on that integrative level. This is already heavy stuff, but there is more to the semi-colon. So, for example, p_i refers to the forms, the formal ‘simple’ laws of physics, the primary relativities which become an explicit topic only in section 2 of chapter 16 of *Insight*. So, here they are not a topic until we venture into the next **Cantower**. All that I wish to say here is that the affirmations of the acts of those forms and the secondary determinations that correspond to them are all “covered” by the semi-colons of the symbolization in the first word of metaphysics. Heavy stuff: but did you expect that the integral heuristic account of protons and plants and pigs and persons in their eco-systematic living would be some simple affair?

At all events, this short pre-scientific ramble is perhaps sufficient to intimate that neither systems theory nor Gould is in this ballpark, and there really is no point in my going into any of the details of Gould’s very lengthy discussion of hierarchies and their

³⁷I can only invite you to venture, at some later time, into the third paragraph of Lonergan, *De Deo Trinito. Pars Systematica*, 282, where Lonergan writes of the ambiguity of “hoc”. Here you may take the “this” to be the imaginal “re-presentation” of what you are trying to understand, for example, the physiochemically-active amoeba.

significance.³⁸ As well as hierarchies of forms and acts within things, there are hierarchies of schemes, the consideration of which would require further elaboration of the previous section.

15.6 “Revising the Three Central Features of Darwinian Logic”³⁹

You may, or may not, recall that, at the end of section 1, I noted a shift to be made here in our reflections. I was to throw some light on the claim made there that the discussion of the previous 4 sections was pre-scientific, that a scientific discussion was another matter entirely. So, here we pause over this issue, angling around in what I hope are helpful ways.

First we can brood over meanings of the word ‘revising’. Perhaps the brooding can be helped by recalling our reflections on New York and its mesh of founders. What is it to **revise** New York? The question has many layers, bringing to mind the legions of architects and art-dealers, butchers and bakers, all the way to the zoo and Manhattan zen. **Cantower XIV** pointed to the complexity, the massive difficulties, of revising New York. Here we are dealing with a New Yorker pushing for a revision of a piece of New York thinking which is also, in our contemporary world of science, a global thinking. Is he revising that thinking in any fundamental, significant, implementational sense? Certainly there are great works that gradually flow into local or general culture as evolutionary shifts: Darwin’s work surely fits the bill. What of Gould? I this really “the stunning tour de force that will stimulate debate for decades?”, as the blurb quoted above claims? I think not and I hope not.

There is a radical change of cultural context pressing upon us that gives **revision**

³⁸There are hundreds of pages scattered throughout the book; the index entry on *hierarchy theory* is one of the longest in the book.

³⁹A subtitle in Gould, chapter 1.

a fresh discomfoting normative meaning. I would hope that, in decades, its challenge would be faced in the academy and within cultural reflection generally. The radical change is, of course, the Vortex Movement that has been my topic since ***Cantower I***. The change is to a massive complex recurrence-scheme of recurrence schemes, a stabilizer of intellectual evolution and to be a key unit in its creativity. De facto, within the present recurrence schemes of intellectual debate Gould's work will stimulate some discussion, perhaps some refinements, in the present ethos. But in the whirl of the new method its scattering of insights and deficiencies and obscurities will be identified, sifted for seeds of progress, relocated in its lost possibilities, its promises, its twists of positional thinking.

So, we come to the point of the previous four sections. What I wrote there may well nudge some few to approach either Gould or Lonergan freshly: but the sections have the character of pre-scientific discourse, even if there are seeds there of significant evolutionary sports. What Gould does to his adversaries in his rambling book, I do to Gould - on the level of method - in an equally rambling fashion that is quite inefficient. I may say the same, indeed, of my own rambling book of thirty years ago, *Randomness, Statistics and Emergence*. And finally - and here's the key point - we can say the same of the non-rambling book *Insight* of fifty years ago.

What is needed is a re-cycling evolutionary structure of survival of the seeds of progress in beings of meaning, rambling-rose or not. No doubt I am repeating myself, but it seems significant to do so in this new context. The key diagram of the enterprise that I envisage has the marginal comment, "normative mutual self-mediating matrix of period- cycles of the being of *controlling* meaning".⁴⁰ One might get a sense of how it would concretely operate here by returning to the considerations of dialectic, and of

⁴⁰This fundamental diagram is included as an Appendix in ***Cantower III***. It was taken from *A Brief History of Tongue. From Big Bang to Coloured Wholes*, page 124.

page 250 of *Method*, in ***Cantower VIII***, section X. There one can add the name Gould - or his twenty-first century equivalent - to the list of participants. On the other hand, one can get a sense of present operations by checking the journals for reviews of the book and articles on the book and the topics with which it deal. Or, finally, a sense of the relative futility of response to Gould from 'a Lonergan perspective' can be had immediately here, in so far as I give a representative piece of what might have been a lengthy consideration of the three facets of Darwinism that Gould considers.

I speak of relative futility only: one must allow for providence, for luck. This section, indeed, is about changing luck, scheming recurrences. Some Lonergan student might get a line on a thesis from my few sections of suggestions, yielding a published work that would give a lift to the reading of both *Insight* and *Method*. But I am interested in the larger lift, beyond Lonerganesque writings about Derrida and Darwin, Gadamer and Gould, Kung and Kuhn, whomever. The problem of Lonergan is, as Hugo Meynell puts it, "how to make his work, and its immensely important implications for our culture, available for the general intellectual community (as opposed to a small and embattled segment of the learned Catholic ghetto)."⁴¹ In that context, what good are the reflections of sections 2-5 above? What good⁴² is the reflection to follow?

A problem that gets substantial attention from Gould is the difference of opinion represented by the two labels, *formalism* and *functionalism*. The centre of Part One of Gould's book, "The History of Darwinian Logic and Debate" focuses on the topic in two lengthy chapters, "Internalism and Laws of Form: Pre-Darwinian Alternatives to

⁴¹Hugo Meynell, "The Plight and the Prospect of Lonergan Studies: A Personal View", p.1: to be published in *Journal of Macrodynamical Analysis*, (Website Journal), 2004.

⁴²The problem of the fuller heuristic of the meaning of "good" will occupy us in section 1 of ***Cantower XVIII***.

Functionalism”⁴³ and “The Fruitful Facets of Galton’s Polyhedron: Channels and Saltations in Post-Darwinian Formalism”.⁴⁴ The density and complexity of his presentation is well illustrated by a single quotation from chapter 5:

“I have presented this extended treatment of de Vries for a reason embedded in the plan of this chapter, and crucial to the logic of this book. I argue that ‘internalism’ poses two separate challenges to pure Darwinian functionalism: saltation change arising from internal forces of mutability, and inherent directionality of variation (corresponding to facet-flipping and channeling on Galton’s polyhedron). Most internalists (‘structuralists,’ ‘formalists,’ ‘laws of form’ theorists in other terminologies) expressed in the popularity of ‘constraints’ as a subject in modern evolutionary literature - see Chapter 10 and 11). This style of internalism represents the primary theme of Goethe, of Geoffrey, of Owen, and of the ortho-geneticists. Fewer internalists emphasize the saltation theme - and those who do, like Bateson,, tend to support channeling as well as facet-flipping (for the two themes fuse well into a coherent anti-Darwinian philosophy, as Bateson recognized and articulated).”⁴⁵

At the beginning of the previous chapter Gould describes “Darwin’s Fateful Decision”.

“Darwin follows the tradition of dichotomy in a passage that he earmarked for special impact as the concluding paragraph of his crucial chapter 6, ‘Difficulties of Theory’. I regard this passage as among the most important and portentous in the entire *Origins*, for these words embody Darwin’s ultimate decision to construct a functionalist theory based on adaptation as primary, and to relegate the effects of constraint (a subject that also commanded his considerable interest - see Section IV of

⁴³Chapter 4, running through pp. 251-341.

⁴⁴Chapter 5, running on through to p. 466.

⁴⁵Gould, 445-6.

this chapter) to a periphery of low frequency and subsidiary importance. Yet this passage, which should be emblazoned into the consciousness of all evolutionary biologists, has rarely been acknowledged or quoted”.⁴⁶

Thirty pages later Gould “reasserts the importance of both poles in this dichotomy” by recalling the Reverend James McCosh and “his fine book, published in 1869 in collaboration with George Dickie: *Typical Forms and The Special Ends in Creation*. The Greek inscription on the title page - *typos kai telos* (type and purpose) epitomize the argument.”⁴⁷

How does one enter this discussion, if one wishes to enter it at all? I suspect that you are pretty clear about my suggestion, the message of this entire **Cantower** project. “A rolling stone gathers *nomos*”: roll Gould’s work into the Hodic Vortex and expect that a few spin-cycles will scrape off the moss, probe out the *nomos*.⁴⁸ Only such a cycling will ground a genuine **Revision** of the City of Evolutionary Studies that would be analogous to a distant **Revision** of the island of Manhattan.

Still, there is the task of Founders who may have a serious if unpopular view of tower-building in the city of meaning. Then one may try to draw another’s attention to confusions and disorientations regarding form, function and constraints. One may point to the possibility of another clearly distinguishing between final causality and finality, and indeed between final causality and efficient causality. One might try to lead that other to a glimpse of a precise metaphysics of **constrains** that would cut through present muddles. One might thus lift forward reflections on causes, things, recurrence-schemes and hierarchies to ground a personal and spontaneous storehouse

⁴⁶Gould, 251.

⁴⁷Gould, 280.

⁴⁸I recall the title of section 4.3 of *A Brief History of Tongue*: “*Mos* and *Nomos*”, which contrasts accepted convention and normative measure.

of metaphysical equivalence that would rescue the Evolutionary City of Meaning from old metaphors, imagined realities, descriptions trapped in conventional oversights and fashionable confusions. Do my footnotes point adequately? By no means: after all, they only 'draw attention' to Lonergan's summary pointings of fifty years ago. What is needed is the emergence of sporting oddbods sensitive to the Spandrels in present culture, open to the sighting of exaptations. Then fifty years hence the statistics of serious recurrence-schemes of "scientific moments" will Bell-curve forward a normal science quite beyond Gould and a paradigmatic context quite beyond beyond Kuhn. Kuhn's efforts will occupy us in the next *Cantower*, but some few concluding comments on Gould are in order. Perhaps it is best to let Gould himself contextualize those comments with his summative reflections on the dichotomy used here as an illustration of the massive insufficiency of contemporary discourse on form and function.

"The past holds sufficient interest and capacity for illumination all be itself, and no justification in terms of present enlightenment need ever be given. Still, as a practicing scientist, I do favor the use of history as a current guide - while I struggle not to wrench the meaning and motivation of arguments from the primary matrix of their own time. I don't know how else to proceed when tides of history overwhelm a worthy subject for little reason beyond vagaries of fashion and contingency. Scientists too often become convinced that inexorable logic or irrefutable data have closed a subject forever. Even worse, given our propensity for historical ignorance, we often collectively forget that an alternative ever existed at all. In such cases, I know no better tactic for reopening an important subject than the record of history - the proof that brilliant scientists (so worthy of our admiration that we cannot belittle their concerns) devoted their concentrated attention to an issue that never achieved true settlement, but only veered towards transient 'resolution' by sociological complexities of shifting preferences, rather than logic of proof of exigence of data. I believe that structuralists

and formalist approaches to anatomy fell out of favor for such invalid reasons of fashion, and that the full range of this dichotomy must now be reestablished. And I unabashedly call upon the great formalists of history to state their case; while I ask modern evolutionists to make the proper translation to modern terms”.

If you have been struggling with me through these **Cantowers** you will read this paragraph phrase by phrase as the writing of a man culturally closed from the necessary enterprise. His amateur philosophy “belittles the concerns” of serious founders in history, comfortable as he is in the “sociological complexities of shifting preferences” that poise the preferences in a closed common sense. We are way beyond needing a fashionable rehash, a proper but narrow translation, of the dichotomy. One might say that we need an evolutionary catastrophe to eliminate a dinosaur complacency, inefficiency, ugliness: but all we have is history’s micro-evolutionary fermenting towards a Hodic Way.

15.7 “The Grandeur of This View of Life”⁴⁹

So I arrive at the paradox of the title of this section: for I write not of grandeur but of micro-evolutionary modesty. What Gould unwittingly reaches for all too grandly, all too obscurely, is a filling out of a heuristic of emergent probability, the humble tolerant **form** of history. But that humble tolerant form of history is humble in its own regard, a Proustwise reaching into itself that, far from being a rehash, is a startlingly strange fresh-tasting form-revealing. The reaching is to be a patient sloping round the Dark Tower of the beings of meaning. Emergent probability is “the successive realization in accord with successive schedules of probability of a conditioned series of schemes of recurrence,”⁵⁰ things, ecosystems of beings and

⁴⁹The concluding words of Gould’s Table of Contents.

⁵⁰*Insight*, 126[148].

beings-of-meaning. Nor is there any point in expanding here on what is so summarily expressed in the thin density of Lonergan's prose. The slope will slide it slowly into the sciences and the streets.

Perhaps now the method of my oddness in this becomes apparent to you? The confrontation of sections 2, 3, 4 and 5 were strategic: on the one hand, they are an exercise in futility, a non-dialogue with present ungrounded broad discussion of evolution theory such as we illustrated in the conclusion of the previous section; on the other hand, they may well have stimulated you and others to have second thoughts about your previous reading of *Insight*, especially of the relevant sections of chapter 15. As I pointed out already, these **Cantowers** of 2003 are an effort to "elevate *Insight*"⁵¹ to a doubly discontinuously-new level of reading. There is the discontinuity that I have battled for since I first wrote of "The Contemporary Thomism of Bernard Lonergan", But now there is the fresh discontinuity that is drive of these **Cantowers**, caught summarily in the second meaning that I give to the title of chapter 15 of *Insight*.

What are "The Elements of Metaphysics" relevant to this millennium's reach for progress? They are the 8 elements that constitute an embryonic recurrence-scheme of humble ontogenetic and phylogenetic self-searching, a self-searching committed to going forward in fresh luminosity. What, then, of "The Elements of Metaphysics" that were the original topic of that chapter? Eventually the humble embarrassing re-cycling will generate a creative minority that live and love in their intussusception, and there will appear, and operate in a new beauty, founders in Manhattan and founders in micro-evolution's theory and practice.

The task of elevating chapter 15 of *Insight* is, of course, massively beyond a single thinker much less a single essay. It is forty five years since I first read it, a first Proust-taste backed by graduate work in mathematical physics. I have read it

⁵¹A relevant context is my "Elevating *Insight*. Space-Time as Paradigm Problem", *Method: Journal of Lonergan Studies* **19** (2001), 203-229.

continually since in an increasingly refined mood of that shocking page 464[489]: “[self-]study of the organism begins....”, always begins. .What did the 49 year-old Lonergan mean by that page when he wrote it fifty years ago? He meant, of course, the other pages of *Insight*, up and beyond his shift from phylogeny to ontogeny to phylogeny again, “the historical aspect of development,”⁵² and “a single coherent view”⁵³ of the strange pseudo-organism that embraces tastily⁵⁴ finite molecularity.

15.8 “Spandrels and the Centrality of Exaptation in Macroevolution”⁵⁵

So I cannot help encouraging your reaching beyond the content of this 15th chapter with this 15th **Cantower** Epilogue that asks you to attend, however slimly, to the core spandrel-groaning of the universe, a real molecular reaching for an ultimate re-molecularization of all minders that emerge and are temporarily detached.⁵⁶

But there are, of course, more proximate “flexible circles of ranges of schemes of recurrence” of spandrels cloaked and clouded and crowded by contemporary stupidity and malice. They await discovery, uncover, recovery, in the cycling of the new hodic elements of meaning.

But there must be sporting breaks from the most evident cloaking: Bouvart and

⁵²*Insight*, 742[763].

⁵³*Ibid.*

⁵⁴You might recall here the poem that brackets **Cantower II**.

⁵⁵Part of the title of chapter 11 of Gould.

⁵⁶A scriptural context is Paul, *Epistle to the Romans*, chapter 8. See the reflections on that chapter in McShane, *The Redress of Poise*, chapter 2, “Ecological Justice”. The issue, however, is that of an adequate eschatology, the topic of the **Cantowers** of 2010-11.

Pecuchet stand against Proust's poise of self-taste.⁵⁷ The generic emergent spandrel of leisure is recurrence-schemed out of recognition by graffiti, least dangerous when they are vulgarly trivial, massively disorienting when they are have the trappings of learning. So the trapped deepest exigence of the human organism, a heart hollow, longs hiddenly, and perhaps neurotically, for Exaptation.

⁵⁷I am recalling here one of my favorite comments of Ezra Pound, that Flaubert in that little book, *Bouvard et Pecuchet*, anticipated the busy madness of the twentieth century before it began (Forrest Read (ed) *Pound/Joyce, The Letters of Ezra Pound to James Joyce*, Faber and Faber, 1967, 194-5).