

UNDERMINDED MACRODYNAMIC READING

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Underminded is a curious Joycean word round the meaning of which we will circle in the concluding section. But obviously my essay has something to do with the nature of macrodynamics, and we will gradually see how my effort fits in with the editor's general reflections on the various challenges that can be associated with the title of this new journal.

This essay is divided into three uneven sections. The Prologue gently introduces you to a particular problem, the problem of reading non-doctrinally. You might, at this stage, think of doctrinal reading as the sort of reading that a traveler does of the map of a strange country, quite different from reading the country. The second section of the article, the Dialogue, is the main challenge. I understand something, a seemingly rather insignificant thing, and I think it important that you reach towards that understanding, or something equivalent.¹ The Prologue gives some perspective on that importance, but as I mention at the end of that section, you might well benefit from a perusal of the third part, the Epilogue, before either tackling the second part or giving up reading this essay entirely. The Epilogue is an effort to point you towards a broader perspective on the challenge of Part Two, and an effort to open up the meaning of underminded. The pointing there is twofold, evident in the change of pace of footnoting which at that stage is like a set of suggested orchestrations under a melody. It would be best to stay with the melody at a first reading.

¹ See below, note 45.

1. Prologue

The first paragraph of the book *Insight* recalls Descartes' advice about attending to small problems. It goes on into four relatively readable chapters on mathematical and scientific insights. What I wish us to concern ourselves with here is the meaning of "readable." There is an obvious sense that we are all familiar with, illustrated perhaps by our first reading of that first page. There we read about Archimedes and have a sense of "something happening" that caused him to leap out of his bath. But what was that something? Did we pause to get his insight, make it precise, contextualise it, and then face the task of asking about that contextualised insight, seeking an insight into Archimedes' insight? Certainly I did not, on that first reading. What about the second or third reading?

The second or third reading of the problem, or indeed of the whole book, can, unfortunately, occur without a serious shift to the focus implied above. Then one can grow in a familiarity which breeds competence. One can arrive at a stage of speaking, lecturing, on canons of inquiry, be they the canons of chapter three or of chapter seventeen. But has there been a real ascent?

The apparently little problem of defining the circle doesn't help.² Leads are given in chapter one, of course, to other instances of insight: footnotes invite ventures into Hutchinson's illustrations and Fraenkel's treatment of countable and non-countable numbers. The mention of Hilbert and of the Clerk-Maxwell equations, of course, provide other leads, but these are uncomfortably complex zones. And it takes a heartily committed reader to read seriously the invitations of the last paragraph of the chapter about Riemann and Einstein and thus to put a toe on that "natural bridge over which we may advance from our examination of science to an examination of common sense."³ How many "readers" have implicitly scorned

² Unless, of course, you push the question in larger contexts such as the Calculus of Variation, where a definition of the circle emerges as containing a maximum area. Then, interestingly, you are into the zone of Husserl's doctorate of 1882 under Weierstrass, *Beitrage zur Theorie der Variationsrechnung*.

³ Bernard Lonergan, *Insight: A Study of Human Understanding*, 5th ed.

Loneragan's suggestion here: chapter five is not "a bridge too far";⁴ it is a bridge on another river. Isn't chapter five just a nuisance for a humanist, a preserve of philosophy of physics? So one may read on about common sense, and perhaps not even be disconcerted by Lonergan's concluding remark in chapter seven: the neural base of common sense is just as familiar as the spacetime base.

The book *Insight* is a doctrinal book: it can mistakenly be read as somehow a treatise on understanding, and that mistake has deep cultural grounds in the long tradition of encyclopedic writing that began with Plato's nephew. The doctrines it develops – in a moving-viewpoint style⁵ – can certainly be held to in the fashion of a believer. But a long tradition of "comprehensive presentation of the essential" may lead the believer into the illusion of comprehension of the essential. Then, instead of developing a molecular sense of doctrinal distance there emerges in the community of readership the "distaste of illusion of knowledge."⁶ It is a distaste, a disemboweling, that has to be slowly opposed by the struggle towards self-taste⁷ that may be associated with some of the great contemplative traditions.⁸

Frederick E. Crowe and Robert M. Doran, eds. *Collected Works of Bernard Lonergan* 3 (Toronto: University of Toronto Press, 1992), 163.

⁴ The reference is to McShane, "Features of Generalized Empirical Method and the Actual Context of Economics," in Matthew L. Lamb, ed. *Creativity and Method: Essays in Honor of Bernard Lonergan* (Milwaukee: Marquette University Press, 1981), 543-71.

⁵ I discuss this in "Elevating *Insight*: Space-Time as Paradigm Problem," to be published shortly.

⁶ I quote from notes of Lonergan that belong to his lectures on education. *Topics in Education*, Frederick E. Crowe and Robert M. Doran, eds. *Collected Works of Bernard Lonergan* 10 (Toronto: University of Toronto Press, 1993), 145. This entire page, on "Teaching Physics" is relevant. See also the index of *Philosophical and Theological Papers 1958-1964*, Robert C. Croken, Frederick E. Crowe and Robert M. Doran, eds. *Collected Works of Bernard Lonergan* 6 (Toronto: University of Toronto Press, 1996), under *haute vulgarization*, and note 11 below.

⁷ Lonergan recalls Gerard Manley Hopkins on the topic in "Religious Knowledge," *A Third Collection*, edited by Frederick E. Crowe (New York: Paulist Press, 1985), 129-45, at 132.

⁸ I am interested here, however, in the cultivation of a neglected kataphatic

One may think here of The Little Way of Theresa of Liseaux, a way that would lead one gracefully away from the struggle of methodology, but I presume that I am writing to some who are interested in Lonergan's way, his "little book, *Insight*."⁹ So I take a little problem of mathematics that is difficult yet that requires no advanced mathematics and I invite you to struggle along with me non-doctrinally in order to discover what non-doctrinal reading in mathematics and in methodology involves.¹⁰ This struggle might well lead you to opt out of this type of inquiry, to find your own way of being at home in the universe. The struggle is against the *haute vulgarization* that haunts our hearts and our academic circlings.¹¹

But all this, and its relation to the four types of bias, as well as to the axial emergence of grammatic and linguistic alienation, are larger topics. We are, if you like, back at the third paragraph of another version of *Insight*, the beginning of section 1, "our first illustrative instance of insight..."¹²

It is, however, an illustration of absence of insight, a question:

How many ways can n married couples be seated about a round table in such a way that there is always one man between two women and none of the men is ever sitting next to his own wife?

The first elementary comment, or rather line of reflection, is on the meaning of "absence."

I would note immediately that the secondary comment, regarding a line or a haze of reflection, is central to our effort to shift from purely doctrinal reading. Such reading either merely

tradition, neglected in both West and East.

⁹ This is how Lonergan would occasionally refer to the work in lectures. See, inter alia, 'Exegesis and Dogma,' *Philosophical and Theological Papers 1958-1964*, 142-59, at 156.

¹⁰ It seems to me that Lonergan was replying to that attitude when he wrote the Epilogue to the *Verbum* articles. He describes there an attitude towards reading which complements my own discussion in this paper. *Verbum: Word and Idea in Aquinas*, Frederick E. Crowe and Robert M. Doran, eds. Collected Works of Bernard Lonergan 2 (Toronto: University of Toronto Press, 1997).

¹¹ I discuss the problem of *haute vulgarization* in physics in the article mentioned in note 5.

¹² *Insight*, 27.

confirms what we already hold or is accepted, in the manner of belief, as linguistically coherent: “the logarithm of one is zero.” On the first page of *Insight* Archimedes’ insight is mentioned and accepted, and it is accepted that an outburst of delight is a natural consequent. Lonergan at that stage remarks, “But the point I would make does not lie in this outburst of delight but in the antecedent desire and effort that it betrays.”¹³

Betray is, you may agree, an odd word here, with the secondary meaning here of *reveal*. I might claim that this essay is about *betrayal* in both the primary and the secondary sense. The long axial period is a period of increasing betrayal of integral curiosity: I am interested in the betrayal of that betrayal in you, to you.

The Epilogue will turn more around that topic of betrayal, but perhaps I could encourage your attempting the grim exercise of the second part by noting a few benefits which might be called *ordinary*. So, for instance, Lonergan talks of a shift in culture being associated with a new control of meaning, a newness associated with the emergence of the second and third stages of meaning. Would it not be good to have experienced something of such a new control of meaning, something you could appeal to in thinking and in speaking? And there are substructures of this new control without the experience and understanding of which one may tend to use words such as *system*, *systematic*, rather vaguely.

The struggle to which the little problem invites you brings you to a quite sharp experience of the problem of controlling meaning. You will find, very soon after getting into the problem, that it is difficult to *keep track*: you are not in control. You master a few sentences or a few steps, only to find that what you supposedly mastered *is not with you*: you are not at home with it, it is not at home in you. My own experience is that it takes days of contemplative poise to structure one’s imagination towards such control. Sufficient control is present, say, when you can present the problem and its solution relying only on the inner control: not then on notes or aids, devices to carry you through.

The solution to the problem involves systematic thinking,

¹³ *Ibid.*, 28.

but it goes beyond system and is in fact a control of non-systematic meaning. There is the experience of aggregating images, of aggregating insights, of reaching for more complex integrative images, of moving to a higher level of control by which the whole is held marvellously together neurodynamically, like Clara Schumann with a sonata at her neurotips. And by such a climb you find yourself, self-taste, in quite a different position, poise, as you read forward through *Insight's* print about images, clues, systems, procedures, non-systems, canons, primary and secondary components in an idea, etc.

Does this not encourage you to have a go at the problem with my help? I could well enlarge on the encouragement, especially for those who have never had the advantage of an invitation to the world, the horizon, of theory. One does not, of course, need the world of theory to lead a rich life or, in the case of art, to underpin significantly what I call the undermining, and in the case of commonsense philosophic interest, to ground the genesis of a complex naming of the problems of being human. Lonergan notes that “the Greek achievement was needed to expand the capacities of commonsense knowledge and language before Augustine, Descartes, Pascal, Newman could make their commonsense contributions to our self-knowledge.”¹⁴ But our present crises call for contributions that go beyond common sense. Our little exercise is a possibility of a serious glimpse of that going beyond.

I will not write further about the range of benefits that surround such an effort as is demanded by the next section, You already suspect, perhaps, that I am enthusiastic about its possibility as an education in humanity: to that I return in the Epilogue. But here, returning to Descartes and to the first page of *Insight*, it is not a bad little problem to begin your asking freshly the question, What is it to understand? At the end of a week with this problem – and I must be honest in admitting that it can take a week – you will be on the edge of a new world.

Of course, the dialogue to follow is non-dialogue. What would obviously be best is a teacher-student patient presence. But the invitation is to replace that with a dialogue with self that

¹⁴ *Method in Theology*, 261.

is sufficiently honest to critically assess whether understanding is accumulating properly, sentence by sentence, line by line, phrase by phrase.

2. Dialogue

Most recently I have been sloganizing the educational significance of generalised empirical method in the words “when teaching children geometry, one is teaching children children.” So, here, “tackling the problem” has the same twist.

But let us go at it head-on, where head-on, of course, nudges you towards the same twist. It is for you to keep the twist operative, against the present culture of language. A later culture will live in and linguistify self-investigation.¹⁵

My first suggestion is that it would be worthwhile to tackle the problem on your own. If you are not used to this type of thinking or problem, then you will probably start by envisaging the question for two couples, three couples, and so on. Try it, if you like. Of course you will notice all along that diagrams help, with conventions like w for women and m for men. You can work with a circular diagram, or you can use a simple line provided you have the convention that the end person sits next to the first person. But you will find that getting beyond five couples takes quite an amount of work.

If you have experience of such problems as this you will know – or by previous efforts you gradually discover – that this line of effort is not going to get you the general answer. What is needed is some way of linking the answer for n couples to the answer for lower numbers. I suppose if you worked it out painstakingly for $n = 1, 2, 3, 4, 5, \dots$, using all the computer help you can get, you might end up with a sequence of numbers and then ask is there some way of relating them. I don't encourage you to go this way: you would find that the numbers get discouragingly large all too swiftly. For ten couples the number of ways is close to half a million.

The key move is to grasp the problem as a search for a recurrence formula. Such a formula would look something like this:

¹⁵ *Ibid.*, 88.

$$A(n+1) = aA(n)+bA(n-1)+cA(n-2)+dA(n-3) \dots$$

where a, b, c, d etc. are just ordinary numbers, and $A(k)$ is the right answer for k couples.

Now I am not going to invite pauses over the “generalised empirical method” aspect of your effort here. It would lengthen this paper considerably, as I note in the Epilogue. But it seems worthwhile to have a single pause here to note that there is an array of casual insights involved in getting this far. So, for instance, “recurrence” raises curious questions, ranging from the lofty level of the nature of recurrence arguments (dare I mention transfinite induction?!)¹⁶ to the brute problem of how ‘A’ recurs in a different place on the page, but remains ‘the same.’

So let us get on with the puzzling.

We envisage a circle of chairs numbered from 1 to $2n$. Let us say that the wives are seated immediately on the odd-numbered chairs. How many ways can the wives be thus seated? I hope this question, and its answer, does not provide a stumbling block.

Any of the wives can be seated on the first chair, i.e., there are n ways of filling the first chair. That leaves $n-1$ wives, any one of which can sit on the next chair. Any one of the $n-2$ wives left can sit on the third chair. And so on. Are you with me? Can you figure out, comfortably, with perhaps a “release of tension,” even “uninhibited exultation” (certainly that should occur when you “have” – with a real assent that will be pointed up in the Epilogue – the final formula), that the answer is $n(n-1)(n-2)(n-3) \dots 3.2.1$, where a multiplication of all these numbers is meant? You may even know that the conventional symbolism for this product of numbers is $n!$, called “factorial n .” So, $4!$, factorial 4, is $4.3.2.1$, which is 24.

Now, you notice that we used the odd-numbered seats. We get a second seating arrangement if we move all the ladies to the right or left onto the even numbered seats. Then we can repeat

¹⁶ Bernard Lonergan, *Phenomenology and Logic*, Philip J. McShane, ed. Collected Works of Bernard Lonergan 18 (Toronto: University of Toronto Press, 2001), 57-58.

the question of number of ways of seating on the even-numbered chairs. Are you happy, exultant, that the total number of ways of seating the wives is $2.n!$?

Let us leave this aside and move now to the heart of the problem, which is finding out the number of ways we can seat the n men between any particular seating of ladies.

Symbolism is, of course, helpful, unavoidable. We assume a particular seating arrangement of the ladies designated by $F_1, F_2, F_3 \dots F_n$. Next we label their husbands in the obvious manner: $M_1, M_2, M_3 \dots M_n$. So the couples are $(F_1, M_1), (F_2, M_2)$, and so on. Finally let us call an arrangement in which there are n married couples an n -pair arrangement.

One final piece of required symbolism. We are going to be placing men that are not husbands alongside F_1, F_2 , etc. For this placement we conveniently use the letter X : so we have the unidentified men X_1, X_2, X_3 , etc.

We are ready to begin our search for a formula for $A(n+1)$, are we not?

You may like, at this stage, to tackle the problem on your own. By 'tackle' here I mean tackle in the normal sense. Only in a later culture, the post-axial culture of the third stage of meaning,¹⁷ will the patience and delight and self-taste of generalised empirical method be present, indeed in a third order of consciousness.¹⁸ At all events, tackling the problem alone means a great deal of stumbling, stumbling that cannot be included here, but that could certainly be part of, party of, a classroom presence. I recall presenting this puzzle to a group of academics to which I was giving a two-week course in generalised empirical method. I proposed the problem on a Friday as a topic for the following Monday. There were four mathematicians present: two from the Department of Mathematics volunteered to present the solution on the following

¹⁷ *Being at Home in the Transcendental Method* ch 1, 2nd half.

¹⁸ The notion of three orders of consciousness comes from a typescript of Lonergan identifiable as a 1965 version of chapter one of *Method in Theology*. It places generalised empirical method in a historical context. This typescript, along with Lonergan's 'discovery file' of the functional specialities, is available in Darlene O'Leary, *Lonergan's Practical View of History* (Halifax: Axial Press, 2001).

Monday, on which we had four hours available. After three hours of friendly and humorous messing, I had to take over to guide the group in the right direction. Here such messing is unfortunately not possible, but notice that you can at any stage break off from this text to see what way you would move at that stage.

Here I start with a straight-line $(n+1)$ arrangement:

$$F1X1F2X2 \dots FmFmF(m+1) \dots F(n+1)X(n+1)$$

Don't forget that the arrangement is actually circular: $X(n+1)$ is beside $F1$. And, of course, no man is next to his wife here. What next? We are looking for some connection between such an arrangement and arrangements of smaller groups. So isn't "pulling out a pair" a good idea? Which pair? Let's try $F(n+1)$ and her husband $M(n+1)$. We don't know where this guy is: so let's say he is Xa . With these two gone we now have $X(n+1)$ hanging at the end as well as a gap at Xa . So the next move "suggests itself" (you think?): put $X(n+1)$ in the gap. Now, what sort of arrangement is this?

$X(n+1)$ could be a husband to a lady on either side. Also, Xn could be the husband of $F1$. So, we certainly cannot say that we have an A_n arrangement. We need to think this out.

We do have an A_n arrangement if $X(n+1)$ is not either Ma or $M(a+1)$ AND Xn is not $M1$.

Next, suppose that either Xn is $M1$ or $X(n+1)$ is a "proximate husband." Then we have an arrangement in which one man is sitting next to his wife.

Thirdly, if both Xn is $M1$ and $X(n+1)$ is a "proximate husband" then we have two men beside their wives. Notice that here we do know which side of $F1$ her husband is on, but we don't know which side of his wife the other chap is on.

Are we making progress?! The best move now seems to be to label the three groups of arrangements that we get by "stepping down" from $A(n+1)$.

We have no trouble with the first case: it covers what we agreed to call A_n , where A_n is the number of seating possibilities of n couples.

Think next of the case where one man is next to his wife and the man is Xn , on a definite side of his wife: let us call this a B_n

arrangement, where again B_n is the number of such cases.

Our “thirdly” above gives us another arrangement which we can identify by C_n , the number of arrangements in which a man sits on a definite side of his wife and another man somewhere is also beside his wife, but not on a definite side. O.K.?

Have we covered all the “fall-out” from our elimination of the $n+1$ couple? What about the second set, when X_n is not F_1 , but $X(n+1)$ is a “proximate husband”? Is this a new arrangement or is it another instance coming under B_n ?

$X(n+1)$ is either the husband of F_a or of $F(a+1)$. So we have in either case a husband on a definite side of his wife. That seems to give us another version of B_n . O.K.?¹⁹

Now you should find yourself in agreement with me when I suggest that it is time to review, regroup our aggregate of insights into the aggregate situation. What do we have?

The removal of the $(n+1)$ couple from each of the collection represented by $A(n+1)$ – don’t forget that $A(n+1)$ is a number we are looking for – leaves us with three sub-collections that are parts of the collections A_n , B_n and C_n . Are you with me?

The next move is a strategic twist, a reversing of the previous procedure. We form an $A(n+1)$ arrangement by adding $F(n+1)$ $M(n+1)$ before F_1 in the three types we have specified, A_n , B_n , C_n . Be clear on what we are looking for here: we want to find all the $A(n+1)$ arrangements that we can cook up this way. Is that equivalent to all the possible $A(n+1)$ arrangements? You need to think this through. Any $A(n+1)$ arrangement breaks up into the three types: so if we cover all possible add-ups of the three types we get the full number $A(n+1)$. O.K.?

The next step will require from you, I suspect, some pauses

¹⁹ [Editor’s note: I believe that some expansion may be needed here. In a C_n , one man (M_1) is on a definite side of his wife (even though ‘definite’ does not mean ‘known’): the process works equally whether he is on the left or on the right. However, the additional out-of-place man is in an indefinite position not because he isn’t next to his wife (by definition of a C_n he has to be either to the left or to the right), but because it is unknown where he is in relation to the M_1 . The second man is $(k\pm 1)$ away from M_1 , where k is the distance from M_1 to the second man’s wife. Thus a C_n must factor for both $(k+1)$ and $(k-1)$ arrangements. Any arrangement which has one man out of place is a B_n arrangement, regardless of whether the misplaced man is to the left or to the right. (Ian Brodie)]

of patience. Our next moves are neither obvious nor easy. Perhaps some sub-divisions are in order.

(i) *Going up from An:*

After the insertion we have $F1X1F2X2 \dots FnXnF(n+1)M(n+1)$.

We now have to exchange $M(n+1)$ with some other man to get an $A(n+1)$. We cannot exchange him with either Xn or $M1$. O.K.? (This takes a little mental juggling.) So there are just $(n-2)An$ of the $A(n+1)$ type from this addition.

(ii) *Going up from Cn:*

(I leave Bn till last so as not to discourage you!)

We have the Cn arrangement $M1F1X2F2X3F3 \dots XnFn$ where one of $X2 \dots Xn$ is next to his wife. After the addition – watch the strategy! – we have:

$$M1F(n+1)M(n+1)F1X1F2 \dots XnFn.$$

We have separated $M1$ from his wife; then we switch $M(n+1)$ with the X -man who is next to his wife, who is obviously not $M1$. So we have an $A(n+1)$ arrangement. O.K.?

So we have a relatively simple result. Every Cn type gives an $A(n+1)$ type.

(iii) *Going up from Bn:*

This is a little messier, but let us find this out by plunging in. A certain man is on a certain side of his wife. Suppose it is the first man, thus:

$$\dots F1M1F2X2 \dots$$

If we insert $F(n+1)M(n+1)$ “at the end,” that is, after $FnXn$, we have to attempt “the expected” swap to get $M1$ away from his wife. The “expected” swap would go from

$$F1M1F2X2 \dots FnXnF(n+1)M(n+1)$$

to

$$F1M(n+1)F2X2 \dots FnXnF(n+1)M1$$

Do you see the problem here? We don't end up with an A arrangement because? (The gap here indicates the usual procedure of puzzling, messing with images, etc.... or are you tempted to skip on to my answer, like most of my undergraduate students?!) Because M1 is beside F1.

So we must take a closer look at the different line-ups of the B-arrangements. Let us list them in an orderly fashion, thus:

F1M1F2X2	...	FnXn
F1NUF2	...	FnXn
F1X1F2M2	...	FnXn
F1X1F2MsF3	...	FnXn
...
...
...	...	MnFnXn
...	...	X(n-1)FnMn
...	...	X(n-1)FnM1

Now we try the “insert at the end and swap” strategy. We have already seen that it doesn't work for the first form of B. But it works for the second. O.K.? And the third, and the fourth... Indeed all the way down to the second last. In the second last we have a problem similar to the first. Swap M(n+1) with Mn in it and what do we get? FnM(n+1)F(n+1)Mn, which is not an A arrangement, but a B arrangement.

What about the last of the list? It now ends with FnM1F(n+1)M(n+1). Do you notice the oddity here? The insertion blocks off M1 from F1, so we are free to swap M(n+1) with any of M2, M3, M4 ... M(n-2), M(n-1), Mn. O.K.? So we have n-1 ways of making a swap in this case.

So, how many ways are there to get an A arrangement from a B arrangement? We need to count them up.

First of all, count the number in the list: not too difficult if you notice that for each woman there are the two ways of man: man to the left and man to the right. So? 2n ways. But the first and the second last – number 2n-1 – don't work. So, not counting the n-1 from the last we have 2n-3 ways. Add in the last and we have (2n-3) + (n-1), that is, (3n-3) A(n+1)

arrangements from the B_n arrangements. And, to your relief, we do have a type of recurrence formula for $A(n+1)$. We simply add together the results of our three efforts to get

$$A(n+1) = (n-2)A_n + (3n-1)B_n + C_n \quad [1]$$

But we are looking for a recurrence formula that relates A-arrangements. We are, alas, not there yet. We need relations between the Bs, Cs and As that will help us to replace B_n and C_n in formula [1] with As.

Since I know where we are going, a good deal of messing on your part is excluded. We start with a $B(n+1)$ arrangement with $M(n+1)$ on the right of $F(n+1)$:

$$F_1 X_1 F_2 X_2 \dots F_n X_n F(n+1) M(n+1).$$

Either $X_n = M_1$ (group 1, say) or he is not (group 2). Now take out $F(n+1)M(n+1)$. Group 1 gives us? All the B_n arrangements in which M_1 is on the left of his wife. O.K.? What does group 2 give us? No man is next to his wife, so we have all the A_n arrangements. So we have, rather quickly and neatly, another equation:

$$B(n+1) = B_n + A_n \quad [2]$$

Let us next try for the Cs, starting with the following $C(n+1)$ lay-out:²⁰

$$M_1 F_1 X_1 F_2 X_2 F_3 \dots F_n X_n F(n+1).$$

Since it is a C arrangement, we must assume that one of the men X_1, X_2, \dots, X_n is beside his wife. We are going to drop $M_1 F_1$ and again, we get two groups according as X_1 is (group 1) or is not (group 2) equal to $M(n+1)$. What do we get from the first group? We get all C_n of the C-arrangements with $M(n+1)$ seated on the right of his wife.

²⁰ To make the presentation easier, we will shift to a sequence beginning with the men.

The first group is not as easy to handle: it should remind you of the problem we had with B_n . X_1 is not the husband of $F(n+1)$, but the husband is somewhere in the circle. Perhaps seated on the left of $F(n+1)$? Seating him there would give us a definite sub-group of this group 1, and this sub-group of course (?) is a B-arrangement with B_n members. But it is only one of the sub-groups of group 2. Recall our juggling with B_n in section (iii) above. A first sub-group has M_2 on the right of F_2 , the next M_2 on the right, the third has M_3 on the left of F_3 , the fourth has M_3 on the right of F_3 , etc. etc. up to the $(2n-1)$ subgroup, with $M(n+1)$ seated on the left of $F(n+1)$. Yes, we get $(2n-1) B_n$ arrangements. So we gather the numbers and find we have a third formula:

$$C(n+1) = C_n + (2n-1)B_n \quad [3]$$

We have now three formulae, which we might as well line up together:

$$\begin{aligned} A(n+1) &= (n-2)A_n + (3n-1)B_n + C_n & [1] \\ B(n+1) &= B_n + A_n & [2] \\ C(n+1) &= C_n + (2n-1)B_n & [3] \end{aligned}$$

The question now is, are these three formulae enough to get us on to the required recurrence formula for $A(n+1)$? One cannot tell beforehand. One simply has to mess around. But I can give you relief immediately by telling you that, yes, the three formulae are enough. You notice that the three give sets of equations, like $B_n = B(n-1) + A(n-1)$, so you have much more than three equations. I could certainly steer you through the mess, but would it not be better to find your own way forward? I should warn you, of course, that the way is not obvious; but eventually you could arrive at the following recurrence formula for $A(n+1)$:

$$(n-1)A(n+1) = (n-1)(n+1)A_n + (n+1)A(n-1) + 4(-1)^n.$$

You can see that you can get the value of any A_n if you have the value of the two previous ones. Try it for A_5 , which is not

too difficult to check directly. From $A_3=1$ and $A_4=2$, the formula gives $A_5=13$. Don't forget, though, that the number of ways is given by $2(n!)A_n$.

3. Epilogue²¹

If you have in fact found your way forward to the recurrence formula, then you are indeed a hero, and that in the full sense of all the mythologies.²² Even getting to the halfway house where I

²¹ In the following note I speak of the yearning for adult growth, symbolized in our time by Proust (see the concluding paragraph and two final notes). Maslow's famous and grim remark intimates the problem "less than 1% of adults grow." As I struggled with this strange Epilogue I thought of others, such as the Epilogue to Lonergan's *Verbum* articles that speaks of slow growth (223): "five years work for anyone who disagrees with me" is a remark attributed to Lonergan. My own struggle against shrinkage goes back to my teen years with Chopin, who is still quite beyond me. Still, that aesthetic is a key part of the undermining of forty years reaching into the world of *theoria*. It seems valuable to add to the symbolic of Proust some of my own mappings of the climb. I do so by naming four key books of mine, some of which I refer to below. I have made these available on the Axial Press Website (free of charge: but of course all contributions are gratefully received!). The books are: *Wealth of Self* (1974); *The Shaping of the Foundations* (1976); *Lonergan's Challenge to the University and the Economy* (1980); *Process: Introducing Themselves to Young (Christian) Minders* (1990). The summary titles are WS, SF, LCUE, PIT. The Website is <http://home.istar.ca/~axial/>.

²² Shortly (note 28) I will refer to *Transformations of Myth through Time* (New York: Harper and Row, 1990), late lectures of Joseph Campbell, who obviously lends a context: but not the context of the drive for understanding that should be the reach of science, if it were not so badly mauled by "science." At the end of my introductory comments I mentioned that footnotes in this final section would add larger contextualizations. What I have in mind is the call, which may be yours, a yearning that barely survives "The monster that has stood forth in our time." The yearning is for the human human life that involves adult growth. It is under attack by glittering culture and glib philosophy. It was my thematic concern even before I wrote of the need for philotherapy in the first of two papers written for the Florida Lonergan Conference of 1970 (chapter 1 of SF). In the years since I have followed my Proustian bent, but with a focus always on what I call *theoretic displacement* (conversion in Lonergan's usage). There are adult growth patterns associated with all the differentiations of consciousness: there is the adulthood of George Eliot and George Sand, of Beethoven and Cézanne. However, the adult growth that is vital in this new

left off would be an immense achievement.²³ And there should be a deep satisfaction even in a serious effort, for you have got some glimpse and sense – satisfied molecules! – of what it means to quietly strive for a control of meaning that, perhaps, was unfamiliar to you previously. It could have been familiar to you had you had a good teacher of Euclidean geometry. Then each theorem would have been a joy of control, the conclusion coming as a YES to the integral grasp of the IF of the Euclidean slices of proof.²⁴ But we were aiming here at the intimation of a larger joy, a pointing to an undermining of the form of inference that you are, crippled in our axial times.²⁵

How can I, in conclusion, enlarge the intimation? I can, perhaps, presume that you are one who was somehow attracted to reading Lonergan. This short article can then be seen as a matter

millennium is the growth in second stage meaning that would shift the probabilities of moving to the third stage. My decision to *orchestrate* the melody of this final section is meshed with the hope that some of my readers are mad enough to take a stand of serious understanding and the slow visionary adulthood that it can make breed, breath.

²³ The mention of *halfway house* will recall for readers of *Insight* the identification, in the Introduction, of Idealism as a halfway house (*Insight*, 22). I obviously did not enter, in this short essay, into the remoteness of what I call the *Extreme Realism* of Thomas. My conversations with macrodynamic readers of *Insight* leave me with the conviction that the book can be read without any crisis of organic solitude, of startling strangeness. Reaching into the world of theory can mediate the crisis.

²⁴ My implicit reference to Lonergan's first printed publication, "The Form of Inference," reprinted in *Collection*, 2nd ed. Frederick E. Crowe and Robert M. Doran, eds. *Collected Works of Bernard Lonergan* 4 (Toronto: University of Toronto Press, 1988), 3-16, is important. That article could well be your next Ken-exercise or, if the present one was not to your talent and taste, a first step to re-reading *Insight*'s first paragraph. It is a very tough read, self-read, introducing you to your dumb *thymos* (Indo-European *dhumos* leading to both *thymos* and *dumb!*), your feeble form of enthymemic inference. But the better achievement would be to put the two exercises together in a small self-discovery of what-asking and is-saying.

²⁵ Identifying axial period hoimization in oneself is a decade-long task to which this essay hopes to contribute. I give a perspective on the millennia-long axial period at the end of the first chapter of *A Brief History of Tongue: From Big Bang to Coloured Wholes* (Halifax: Axial Press, 1998).

of taking the measure of the attraction and the reading.²⁶ It may, indeed, be a liberation: the type of reading represented by section 2 is not your calling.²⁷ Then I would surmise that your calling is neither foundational nor hodic. But there is still the wider call to undermined reading. And what, finally, could I possibly mean by undermined reading?

I had best digress: to the drive of Zen, to the yearnings of Poets. Or perhaps Chief Seattle's undermined reading of land and life would provide a gentler nudge. In 1855 he puzzled over the President's desire "to buy our land. But how can you buy or sell the sky, the land? The idea is strange to us. If we do not own the presence of the air and the sparkle of the water, how can you buy them? The shining water that moves in the streams and rivers is not just water but the blood of our ancestors. If we sell our land to you you must remember that it is sacred."²⁸ Chief Seattle's reading of space and time was marrow-meshed: the minding was molecular. Present was the undermind of millennia. "The idea is strange to us."²⁹

How can we begin to re-sonata with the melody of the undermind? How can we turn again towards "attaining the

²⁶ "Taking the measure" may bring to your mind either Plato or St. Ignatius. Both are apt. The issue is self-searching discernment, the hope is that it might blossom out in culture to the full reality of methodology, the topic of which is the discernment of discernments of discernments. This triplicity is a sublation of Lonergan's suggestion, in unpublished notes towards the first chapter of *Method in Theology*, of three orders of consciousness: a first order is spontaneous method, a second order is thematization of method; the third order is method-ology proper, which would study methods as zo-ology studies animals. *Hodics* is the full field of taking the measure, its task nicely captured in the slogan, A Rolling Stone Gathers *Nomos*. See below, note 36.

²⁷ This can be a wonderful personal enlightenment, a liberation from pretense and stress. I discuss one aspect of it in the Epilogue of both *A Brief History of Tongue* and *Economics for Everyone: Das Jus Kapital* (Halifax: Axial Press, 1998).

²⁸ Quoted in Joseph Campbell, op. cit., 28.

²⁹ By *us* here I dare to mean also contemporary anthropologists. One can become enormously sophisticated in studying the so-called primitive without benefiting from meeting that primitive, without *meeting* that primitive.

marrow?”³⁰ I might scandalously suggest, as Dogen did regarding Buddhism, a turning away from the dialectics of Lonergan: “You must cease to concern yourself with the dialectics of Buddhism and instead learn how to look into your own mind in seclusion.”³¹ But such mind-searching is already undermined, scotomatous, schizothymic. Certainly there is *The Redress of Poetry*, but is poetry not also afflicted?³² Still, any poet in a storm, any pop-group that might betray the underminer.³³

But our simple exercise is paradigmatic of a core way to the underminer. For the core of mind is the empty-longing form of forms. “Under glowlamps a sloth of the underworld, reluctant, shy of brightness.... The soul is in a manner all that is: the soul is the form of forms. Tranquility, sudden, candescent,”³⁴ a capacity,

³⁰ I refer here to the work of the Zen Master Dogen, written about 1240, *Raihai Tokuzui (Attaining the Marrow through Worship)*, a significant document for feminist studies in Zen Buddhism.

³¹ Quoted in Roshi Philip Kapleau, *The Three Pillars of Zen* (New York: Anchor Doubleday, 1989), 308-9. One might muse over the manner in which different *seclusions* ferment metaphysics. See below, notes 39, 41, 49, 51.

³² My reference here is to Seamus Heaney’s book, *The Redress of Poetry* (New York: Farrar, Strauss and Giroux, 1995). I deal with the larger problem in *The Redress of Poise* (Halifax: Axial Press, 2001).

³³ I already referred to the dual meaning of *betray*. Here I use the word in an overlay of meanings: the cry of popular music is ambivalent. My use of the word *betray* brings to mind another context, that of my book, LCUE. The Website copy has the added interest of having Lonergan’s markings and corrections – I used the archival copy. Lonergan has markings on page 67 that relate to the present topic. I was commenting on a text by Walter Benjamin and noted regarding expression, “The achievement has been expressed, and the expression is the possibility of the betrayal of the achievement. I recall Beckett’s comment on Joyce’s *Work in Progress*: ‘Here is direct expression – pages and pages of it. And if you don’t understand it, Ladies and Gentlemen, it is because you are too decadent to receive it ... etc.’” Lonergan doubly marked my initial sentence, and then he marked the entire ten lines that I quoted from Beckett. See also his double markings on page 81, directly on the topic of macrodynamic reading.

³⁴ James Joyce, *Ulysses*, London, 1958, 23. A more recent corrected text reads: “Under glowlamps, impaled, with faintly beating feelers: and in my mind’s darkness a sloth of the underworld, reluctant, shy of brightness, ...The soul is in a manner all that is: the soul is the form of forms.

need, calling, called, in vertical finality, for incandescence.”³⁵ That capacity and core is cabinned and confined in our axial times by techniques of surfing talk, and the rescue is a hodic task of millennial proportions.³⁶ But the rescue of the *moi-intime* can find an inscape in a humdrum exercise that is not a koan but a conundrum, revealing molecular form: “what am I?” asks Arjuna,³⁷ and you and I; yes, I am what, molli-patient what, Molly-patient what.³⁸ What different seating arrangements are possible? The serious asking reveals feebleness but yet molecular fitness: it arranges one’s mental seating in a *zazen* that is not Zen but Ken discomfort.³⁹ And the feebleness is further revealed in

Tranquility sudden, vast, candescent” (London: Penguin Books, 1986), 21.

³⁵ The main reference is to the diagram on p. 48 of *Method in Theology*. I take the opportunity to note that the first two lines of the diagram represent the operating good of order. Genuine personal relations, in the third line, represent the dark reach beyond that order. It is the *greeting of solitudes* that Rilke writes about. Or I recall Lonergan saying to me once, talking of Dante’s Beatrice, “...that’s what life’s about. Saying Hello!” Am I greeting the nerves of your solitude, saying hello to your molecular minding?

³⁶ I use the word *hodic* as a substitute for the awkward phrase *functional specialist*. *Hodic* relates to the Indo-European root of *method*, but it also has a happy connection with the first line of the song *Finnegan’s Wake*, “And to rise in the world he carried a hod.” A hod is an instrument that facilitates building.

³⁷ A question of Arjuna to Krishna in the *Bhagavad-Gita*. I discuss this, and also Molly’s yearnings, in chapter two of PIT.

³⁸ The obvious reference here is to Molly Bloom. I cannot resist, however, adding a passage from a very funny book about Joyce, secretly alive, by Flan O’Brien, *The Dalkey Archives* (London: Macgibbon and Kee, 1964). It may well give you a satorialised feel for the axial struggle for redemption from the cycling and bicycling of the present academy: “– if you hit a rock hard enough and often enough with an iron hammer, some mollycules of the rock will go into the hammer and contrariwise likewise. – That is a well-known fact, Mick agreed. – The gross and net result of it is that people who spend most of their natural lives riding iron bicycles over the rocky roadsteads of the parish get their personalities mixed up with the personalities of their bicycles as a result of the interchange of the mollycules of each of them, and you would be surprised at the number of people in country parts who are nearly half people and half bicycles (88).”

³⁹ *Zazen* is a seating and mental posture in Zen. The key difference is the mental posture or poise of Ken contemplation. The focus there is *What becomes my cosmic organism*, not as a mantra but as a molecular yield. Note the ambiguity: the poise can vary in the contemplation from question

solitary talk, perhaps to a mirror. “I think I told you. Solve it! Remounting a liftle towards the ouragan of spaces. Just how grand in cardinal rounders is this preeminent giant, sir Arber? Your bard’s highview, avis on valley! I would like to hear you burble to us in strice conclave, purpurando, and without too much italiote interfairance, what you know in peto about our sovereign beingstalk.”⁴⁰

But would you like to hear hear tilly your own honest burble of what you know in peto about beingstalk?⁴¹

The young Lonergan wrote of the form of inference; the old Lonergan identified incandescently the form he was in as foundational reality and burbled it briefly in a couple of pages,⁴² with no interference from the Italian that he acknowledged at the end of *Insight*. He had become a categorial character that is an evolutionary sport in our axial times, an echo of Athenian strangers.⁴³ Our own honest burble of what we know in peto, of

to conviction, from kataphatic to anaphatic. But the question of this short paper is for you to gently greet: does the What of *theoria* become you? See the reference at the end of note 51 below.

⁴⁰ James Joyce, *Finnegans Wake*, 504.

⁴¹ Metaphysics involves speaking out your “native bewilderment ... even insanity” (*Insight*, 410), perhaps best done “in the solitude of loneliness” (*ibid.*, 648). Gradually, the hodic spiral will generate speakers of more adequate foundations, but our present performance is very distant from present needs. The forward specialities of Lonergan are empty promises.

⁴² The few pages have as center pages 287-88 of *Method in Theology*. I recall my excitement in finding them in late 1971, when I was struggling with the indexing of the book, for I was expecting them. Lonergan had puzzled with me in the mid-sixties about *Insight* and *Method*: “What can I do? I can’t put all of *Insight* into a first chapter of *Method*.” His strategy pleased me then, but now I am not so sure. See my alternate strategy in chapter three of *Pastkeynes Pastmodern Economics: A Fresh Pragmatism* (Halifax: Axial Press, 2001).

⁴³ *Character* is a crisis word. The context here is supplied by Eric Voegelin’s third volume of *Order and History* (Baton Rouge: Louisiana State University Press, 1957). Recall also the beginning of Aristotle’s *Magna Moralia*, “The treatment of character then is, as it seems, a branch and starting point of statecraft.” Add *Method in Theology*’s two shortest sections, 3.6 and 14.1, “...the reality of the one that means ... character (356).” The West Dublin Lonergan Conferences of 2000 and 2001 dealt with the challenge of *Cultivating Categorial Characters*. Identifying Lonergan as an evolutionary sport helps towards appreciating that we are

what we can comprehend self-identify and outspoke as foundations, is desperately needed if we are to face the long repentant climb out of the axial cycle of linguistic decline. Such honest burbling can open us to the humble collaborative effort that is the hodic way.⁴⁴ It is towards such honesty that the silly puzzle at the centre of this essay points. It seems to me, then, that it is not enough to vaguely acknowledge one's nescience, to bow to our mysteriousness. The bruising of an unattractive foothill climb can genuinely begin to undermine the reading of the peak.⁴⁵

All along here you may well have been catching and courting familiar references, linking comfortably my words and phrases to familiars like *neural demand functions*, *vertical finality*, *harmonious development of subjectivity*. But such comfort could deflect the pointing and the poking that is towards and into the molecules of your minding that have been trained out of cosmic patience. There is the canny uncanny cramped craving of your organic self for a rhythm that is not axial.⁴⁶

quite remote from his foundational perspective. Foundations as the ground of direct speech towards the future leans minimally on belief, without then too much Lonergian interfairance. Rather it must echo Aquinas' astonishing refrain, *Respondeo dicendum quod*.

⁴⁴ The search for axioms of progress reaches from Aristotle to Husserl. The hodic way is a sublation of the modesty of Schumpeter, *History of Economic Analysis* (Oxford: Oxford University Press, 1954), 4: "Scientific analysis is not simply a logically consistent process that starts with some primitive notions and then adds to the stock in a straight line fashion. ... Rather it is an incessant struggle with creations of our own and our predecessors' minds."

⁴⁵ Redemptive bruising has many forms, but the bruising that is the focus here is the bruising of our naiveté about the difficulty and slowness of serious understanding. If my little exercise is not to your taste, try another zone. There is, for instance, "the power of hydrogen," **pH**. Do you understand this pH business? Do you understand how it is that you can hold back a large ship with a rope and a bollard? And heavens, dare I ask, Do you understand Pythagoras' theorem? But the centrally important bruising for Lonergan disciples is his call for democratic economics, which is a call to theory.

⁴⁶ A key text for me since the late 1950s has been "Study of the organism begins ..." (*Insight*, 489). I would suggest, in your effort at honest being-stalk, the slow discomfiting reading of that page. We are nowhere

Certainly I can invite you to latch onto and into the thematic of the molecularity of vertical finality as Lonergan does in “Mission and Spirit” or in his desperate call back to art’s heart in our times.⁴⁷ But the latching I wish to occur here, in your vital response – resentment, disdain, revulsion, unease, frustration, surrender, musing, zazen, detaildogging, digestive-easing – to the circle problem, is the latching of a dream-disturbance of neural preparations. I would call forth, epiphanically, a turbulence of the biased fork-tongued talk of our axial grouping.⁴⁸

More plainly, I would like to disturb your foundational claims, your burble of what you know in peto about being-stalk. Our foundational speaking to the future is – if we are deeply and impossibly honest – pathetic and pretentious. What is offered here is one personal possibility of a fresh beginning, like the stressful beginnings of Zen education, but my aim is towards Ken Mystery rather than Zen Mastery.⁴⁹ Your nerves and

near such foundations. Next, read it with a change: “Self-study of the organism ... The page then gives doctrinally the life quest of the foundational character. I would note that, in the hodic spiral, the personal data is enlarged by the remembrance that is dialectics. So, like Dogen (1200-53) and Aquinas (1225-74), our craving moves in a pattern cramped by our different timebeing in the axial period. See below, note 49.

⁴⁷ See Bernard Lonergan, “Mission and Spirit,” *A Third Collection*, 23-34; *Topics in Education*, chapter nine, deals with art.

⁴⁸ The context is the specific form of general bias that is identifiable as schizothymic linguistic over-reach.

⁴⁹ *Rather than* is, of course, inaccurate. There is the massive task of dialectics of the next generations. But the inaccuracy fits in here with the emphasis on kataphatic *rather than* anaphatic contemplation. On a personal note, the aim mentioned emerges for me in these early days of my seventieth year as a struggle towards 2003 with a book-title, *Towards Ken Mystery*, or perhaps *Lack in the Beingstalk*. Among other things it involves a struggle with Aquinas’ reachings on the meaning of *willingness* which point beyond present Lonerganesque (i) neglect of the transcendental ‘Be Adventurous’ (see the diagram in Appendix A of *Phenomenology and Logic*, or its modification in chapter five of *Pastkeynes Pastmodern Economics*): the context is the *Ia IIae* sublated in the direction noted above, note 46, (ii) confusions about willing, feeling, value, (iii) failure to take seriously a primary charity towards the embodied self (see *Ia IIae*, q.25, aa.4,5; q.26, a. 4). The Zen tradition shows a deeper concern for the embodied reach for Buddhahood, for the earthbody’s transformation (*II Cor* 5:4).

molecules are more nature-patient than our haste-laced axial passover cover-story. Within them there is the promise of adult growth and elderhood, a membering and remembrance of things passed over,⁵⁰ a remembering of the future.⁵¹

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⁵⁰ The reference, of course, is to Proust, to the contrast especially in that final section of *Remembrance of Things Past*, between old people that were just “faded sixteen year olds” and the searcher “as it were, on giant stilts.”

⁵¹ “Remembering the Future” is the title of the chapter dealing with J. M. Synge in Declan Kiberd, *Inventing Ireland: The Literature of the Modern Nation* (Cambridge: Harvard University Press, 1997). If the precious footnote points to a symbolization of the hodings of the past, this reference can become a magnificent symbol of the reach towards the future. The chapter deals with the problem of decolonization (see the index of the book, under *colonialism*, for fuller pointers). I would see two key challenges here: the decolonization of language and the decolonization of hearts. Those challenges are brought into a helpful personal focus in chapter 4 of *A Brief History of Tongue*.