

Field Nocturne 16
Saving Grace in Biology Class

My wife, Sally, has a delightful picture hanging in her Church office. The little girl Grace is trapped at the bottom of a dry well: you get the picture?

After the flights of fantasy of the previous two essays - which you may have wisely skipped! - we descend now to seemingly elementary topics. We are, of course, still on the trail of the meaning of that paragraph on page 464[489] of *Insight*, and indeed on the trail of the meaning of a few lines from it: "there have to be invented appropriate symbolic images of the relevant chemical and physical processes; in these images there have to be grasped by insight the laws of the higher system." And the non-elementary character of our effort here rests in my claim that we need to be massively inventive in inventing images if we are to fail better here.

First, I should be plain in telling you what, I, we, are going to attempt. Recall that our interest is, was, in getting a satisfying answers to the question, "What is hearing?" We had pattered round with diagrams of the inner ear, and arrived at the identifying cilia, tiny bending hair within the ear. We meet such hairs later here, and what I wish to do is lift up that meeting to a meeting of, dare I say, minds? Or at least mindings. Oddly now I am remembering something from almost seventy years ago, from one of those Abbot and Costello movies, something that stuck with me. The fat chap, Costello, was addressing a fly on the wall, and my memory all these years later is of him saying "Little fly on the wall / ain't ya got no clothes at all / ain't ya got no shimmy shirt / ain't you got no purty skirt / poor fly, aint'ya cold?" Stuck with me? The neuropsychologists, as we shall find later, have a lot to say about this sticking, but what is an interest now is an obvious attitude. An interpersonal attitude, meshed with elemental curiosity. Was that neurosticking of mine functional demandingly when I

wrote the title “Sunflowers, speak to us of growing?”¹ sixty years later? Even without the apparent interpersonal mythology, the general question for fly or flower is, How do you do it?

That question is now linked with the question lurking in the title of this essay: how do you, we, save Grace in biology class? Near the end of *Economics for Everyone* I made the point, “changing the teaching of one subject in one grade could be a solid lifetime’s achievement.”² I think now of Grace in some grade, learning of the amoeba or of chlamydemona.³ But Grace may also be in second-year University biology, trapped metaphorically at the bottom of a dry well. And that is my realistic starting point, using a text that happens to be available to me in my local library. No doubt you can find the equivalent in your own locale, your own language. My text is *Essential Cell Biology. An Introduction to the Molecular Biology of the Cell*, Garland Publishing, New York and London, 1998, written by seven authors: no doubt there are later editions.⁴ We can make a decent start by quoting the authors’ purpose:

¹The title is that of Cantower 2, but the attitude there was a nudge to undertaking the entire Cantower series.

²P.McShane, *Economics for Everyone: Das Jus Kapital*, Axial Publication, 1998, p. 173, the end of note 29.

³Technically I am writing of **chlamydamonas**, monocellular plants. For pedagogical purposes, here as in chapter 1 of *Shaping of the Foundations*, p. xxx, I prefer to talk of a singular little creature by simply dropping the *s*. That chapter was the first of two papers presented at the Florida International Lonergan Conference of 1970 under the title “Image and Emergence: Towards an Adequate Weltanschauung”. That paper was on botany; the second paper, “Meta-music and Self-Meaning” was on musicology, and is now chapter 2 of *Shaping of the Foundations*. The two papers were originally published as *Plants and Pianos*, Milltown Institute, 1971. Oddly enough, the two papers correspond, respectively, to this and the following *Field Nocturne*, in which I tackle the question of the need functional collaboration in botany. I refer to the two essay below, respectively, as **SF1** and **SF2**.

⁴The authors are, in alphabetical order, Bruce Alberts, Dennis Bray, Alexander Johnson, Julian Lewis, Keith Roberts, Peter Walter. For convenience I refer to this book hereafter as **EssCelBio**.

“Our purpose in writing this book, then, is to provide a straightforward explanation of the workings of a living cell. By ‘workings,’ we mean principally the way in which the molecules of the cello - especially the proteins, the DNA, the RNA - cooperative to create a system that feeds, moves, responds to stimuli, grows, and divides - one, in short, that is alive. By ‘straightforward,’ we mean an account that can be easily understood by first- or second-year undergraduate with little background in biology.”⁵

This certainly does not look like entrapment at the bottom of a dry well.⁶ Indeed, it seems the sort of text that is needed in our effort to read inventing appropriate images in which the laws of the higher system may be grasped. We have a 630 page text to aid us in reading our paragraph. So I may say that instead of repeating myself I am spreading myself out, wisely, strategically. Here it is worth recalling my mistaken strategy in my first effort to talk of this world of the elementary living. It was an article entitled “*Insight and the Strategy of Biology*” which appeared in 1964.⁷ The article took up most of the winter of 1963-4, when I was supposedly studying for a final exam in theology and philosophy: I had promised Fr. Fred Crowe 7000 words on the subject.

One zone that genuinely baffled me was one that is at the centre of our present venture: I look at the little blob called the amoeba and think of it as **alive**. What is going on in me? I oscillated back and forth from Thomas on *vivens* to the physics and chemistry of the blob, of other supposed beasties, even of oil drops that seemed to ‘eat’ smaller morsels. I wrote, talking to myself, indeed I recall writing from page A to about page W over a period of more than a week, before **it** dawn on me satisfactorily. **It**: what

⁵Esscelbio, v.

⁶When I move into *Field Nocturne 17* you should note that precisely here is a fork in the effort of “Saving Grace in Biology Class”: I gloss over this for the moment.

⁷In *Spirit as Inquiry*, edited by F.E.Crowe, Herder and Herder, New York, 1964. The essay is now available on the website as chapter three of *Lonergan’s Challenge to the University and the Economy*.

was **it**? Perhaps I could say that **it** was the plausibility of non-reductionism, indeed I might add in the plausibility of the little blob being called luminously a **thing**.⁸ What did I do then? I wrote into the essay a line on the topic; later I destroyed the notes that led to the line.

A pause over this helps us along, in our little venture, in our struggle towards a new culture. That *Insight* is a doctrinal book is an old song of mine, but a general point is of consequence here. When one talks into a sophisticated culture correctly operative in any area, then compact and densely symbolic writing is the order of the day. Think, classically now, of Wiley's compact 100 page proof of Fermat's last theorem. If however, the sophisticated culture is fundamentally disoriented - it would be of interest to venture into the story of Lavoisier's challenge to Phlogiston theory - then one needs more twisted, lengthier, talk. And further, when one is teaching 'straight-forward' in that culture even more twisting is required. Little Grace is happy messing with little beasts; Grace in second-year university is...skeptical? Reductionist? But odds are certainly very high that she is truncated in Lonergan's sense: "The neglected subject does not know himself. The truncated subject not only does not know himself but also is unaware of his ignorance and so, in one way or another, concludes that what he does not know does not exist."⁹ How do you stand in this matter? But let us skim passed such larger issues and move along, acknowledging that spelling out our search for light on the amoeba is certain a better route to take than summarizing, compacting.

Off we go, then, imaging chemical processes that may aid our grasp of the goings-on of the amoeba.

My strategy here is to make the take-off point **that** sentence, the previous sentence. Making its to be the starting point guarantees that, whether I am long-winded or brief, I am not repeating myself. But that must emerge gradually, if only in a

⁸Chapter 2 of *A Brief History of Tongue* complements the treatment of *Insight* chapter 8.

⁹"The Subject", *A Second Collection*, 73.

skimpily descriptive mode.

Let us begin, then, lightly, with you and your imaging. How about a small closed curve, with wiggly lines in it? That imaging presupposes that you are sufficiently cultured to have some such imaging of the amoeba, and some broad informedness of its content of large molecules and even of their names. So: proteins, amino acids, DNA, RNA, whatever.

Recall now what we did when we began reading **Study** with our attention on human hearing. The first step meant cutting into the ear, getting at an anatomy. And we really did not go any further as yet, although we both may have, even at this stage, a reasonable commonsense informedness of functions of the bits like the cilia and the Does an analogy with the automobile or the watch help? The function of a battery in each case? The battery is a sub-unit, which could be called an organ, do you think? Even a little heart?! You may note in yourself a certain reluctance to take the analogy seriously: changing the battery, or a tire, in your car, is one thing: it does not seem the same to change the heart or the paw of your pet. The point is made by Lonergan. "If we appeal to the immemorial convictions of common sense or to the actual division of scientific departments, all the evidence favours the affirmation of different explanatory genera."¹⁰ Now I would have you extend that to your use of the notion of thing, a use in immemorial common sense. From the very first use of the word, the noun, amoeba, you were spontaneously with me in thinking of the amoeba as a thing. The abundance of nouns in this or your own language shows how generous this spontaneity is: we think of many "gatherings" as things: a house, an automobile, and - in German - spectacles. Is this or that gathering a thing? It depends on what the evidence favours

I pause over this point in order to locate us better in our human ways. On that same page of *Insight* from which I quoted just now, Lonergan talks of the "unique probability" of his view. And I may well twist a phrase of his on that page to my

¹⁰*Insight*, 441[467].

advantage and yours. "The greater one's familiarity with human intelligence and its properties, the clearer it becomes"¹¹ : this is a principle of clarity and of certainly whether the topic is a dog or a god. Are you absolutely clear and certain about your favorite teddy bear being a thing or not being a thing: the question simply is not human.

Back to our amoeba, which - we are fairly certain - is a thing. How is it a thing? "The greater one's familiarity with human intelligence and its properties, the clearer it becomes." And so we find ourselves at the heart of our difficulty, where, as we succeed , "One can only marvel at Aristotle's subtlety."¹² But we have to get beyond admiration to understanding, each to some level of competence. We have to? Do you have to? Do you wish to, granted it takes time and patience? And, more importantly, are you capable of the journey? Have you been brain-scrubbed?

We are back with Grace in the dry well, and perhaps personally at the bottom of a dry well, not at all well humanly. We are back with the brutal fact of truncated consciousness, and the fact is all the more brutal when the consciousness belongs to a school that follows Aristotle, that holds dearly to something like hylemorphism. Of hylemorphism it is uniquely true that "the greater one's familiarity with human intelligence and its properties, the clearer it becomes". And that familiarity is not the same as being familiar with the book *Insight*.

You may need companionship here, although academic companionship is not usually enough or suitable. The companionship I offer you here is, not just mine, but Grace, and the community that would save Grace at age 10 or twenty. In all these companionship I am appealing, yes, "to the immemorial convictions of common sense" but, alas, I am also appealing against the memorialized convictions of axial common nonsense. That common nonsense is symbolized for me in the long life of

¹¹*Insight*, 441[466].

¹²Lonergan, *The Triune God: Systematics*, 581.

popularization of Fontenelle, but it is now the air we breath. What is it to be familiar with human intelligence and its properties? To be thus familiar, I would claim, is the property of a later stage of meaning than ours. How then are we to proceed here?

I could, perhaps, reach out to teachers of grade 11 or 12 biology, and appeal to the Childout Principle? But is it not better to stay with the two of us struggling here, in our dry well, or at the top of the well yet still not well in saving Grace? Nor do I think of you as teaching or learning biology, but of you and I as choosing to read or write or live, perhaps after all in “the native bewilderment of the existential subject,”¹³ with questions that “tend to be shouldered out of the busy day.”¹⁴

So, you and I find ourselves in the middle of a paragraph of *Insight* in this later century of cultural decay. Or we may find ourselves. In that finding there is need for an existential realism, a remote personal achievement.

Have you, indeed, time for this, or do you wish to make time? A matter, of course, of taking a position, however, loosely, on page 250 of *Method in Theology*. Now, or later, you need to pause with me, as I pause these weeks, over the simple image of the wiggly closed curve with inner wiggly lines. And you need to pause to absorb the likely fact that you are not seriously in the middle of that paragraph. The paragraph, after all, is about advanced method in botany. Even advanced botanists are not in this ball park: but to that we return later.

Neither “a first step” nor “a second step”, then, is my present concern here, nor is it likely yours. Back to our simple image. Have you drawn it? Have you looked at it with sufficient informedness to shift it psychically into three dimensions: like a little egg, but wiggly and active? Next, notice the problem that I wish us to attend to: it is not the problem of reductionism, or vitalism, or whatever. It is the problem that, most likely, you have: that, yes, you spontaneously think of the little blob, representing the

¹³*Insight*, 385[410].

¹⁴*Insight*, 625[648].

amoeba, as living. Indeed, is not this a spontaneity that is present in the statement of the purpose of **EssCellBio**? You are interested - sufficiently so to give it a week or a month or a year? - in the workings, where “by ‘workings’ we mean principally the way in which the molecules of the cell - especially the proteins, the DNA, and the RNA - cooperate to create a system that feeds, moves, responds to stimuli, grows, divides - one, in short, that is alive.”¹⁵ It takes more than a little self-attention to detect that, somehow, we have upsidedown the real situation.

No doubt, I puzzle you by talking this way. Self-attend then please, patiently, as I do even now, after decades of puzzling about, (about)³, the matter, matter. What is apparent and obvious is that you and I and the amoeba are alive. We know what *alive* means or do we?

Later we will inside-out the problem, but for the present an upsidedowning, upside-owning of it, is enough oddness. Matter takes the strange and wonderous shape that we call aliveness, alive. *Taking shape*: that is a peculiar and puzzling phrase: a snatching out of thin chance, a bold fold in. How could big molecules do such, make such a move? But here we are big molecules moving with and within a certain shape. What is that shape, that shaping-up? We call the shaping up different names for its different moves: “feeds, moves, responds....” Now let us get back down, a down -sizing and down-sighing, to the crowd of molecules. Are you with me here? A useful imaging is to, so to speak, take the skin off your image, leaving only the wriggly inner lines. After all, the skin, the outside closed curve, is just a matter - a mutter - of your imagination. All “that is there” is a mess of aggregated molecular activities. But, not a mess, not just an aggregate like a heap of bones or stones. What, then? Yes, then: What!

What what? What might I, you, mean by either **what** there? What do you mean by *what* normally? Best perhaps find that **out - or in -**, find yourself, by finding the sort of what that you don't mean: “Hi, what's new?”, you say, but your heart isn't in it: you

¹⁵**EssCellBio**, v.

are in a hurry to get past an intruder in your busy day. It is more likely to come from the heart when **you** are the crisis centre. What am I going to do? - when you are not, with those words, just wringing your hands, or ringing the changes on old mouthings - can be a molecular reach in you for a desperately-needed answer,¹⁶ a solution that comes - perhaps suddenly, unexpectedly, but not without minding - to calm troubled water-molecules. The minding, of course, may be someone else's minding: your shrink helps you out, first by helping you to get a what for the mess you reluctantly acknowledge. Just as the mess may be "linked with a refusal to understand, so its cure is an insight, a 'lightening flash of illumination'."¹⁷ But it is not a cure until the fat molecules sing. "The neurotic turns to the analyst or counselor"¹⁸ but the concrete solution is a blocked molecular shuffle, a "therapy blocked by misconceptions of what one spontaneously is."¹⁹ And one spontaneously is what.

Now, unless you are very strange, that last paragraph is mildly or wildly disconcerting. We have seemingly shifted from a happy musing about the amoeba to odd questions about what, what's what, and to questions of therapy.²⁰ But were not the happy musings a topic? And is that not a matter, a mutter, of what's what? And are there not blocks to face, whether you are clear about the mutter - through "familiarity with human intelligence and its properties"²¹ - or whether you are at the bottom of the dry well with Grace? Let us pause, then, both of us, and first, in *Field Nocturnes 17*, see

¹⁶Old English: *and-*, against + *swerian*, to swear.

¹⁷*Insight*, 201[224].

¹⁸*Method in Theology*, 34.

¹⁹*Ibid.*, in the footnote to the previously-quoted text.

²⁰In the conclusion of chapter one, a Florida Conference Essay of 1970, I began noting the need for what I called philotherapy. Only in recent years have I noted the molecular presence of a cultural superego.

²¹*Insight*, 441[466].

how we might help to get you - presuming you are there²² - out of the dry well. In *Field Nocturnes 18* I shall be realistic about the effectiveness of such help and focus attention on the broader effective way out of the dry well. And - recalling our musings, in *Field Nocturnes 15*, about contexts - that focused attention can twist up and round the amoeba, the little flower *Chlamydomona*, the little fly on the wall: where are they all, what are they all, all in all?²³

²²If you are happily out of the dry well, then you have the opportunity of comparing notes on strategies of rescue, and if you are even into the topic of *Field Nocturne 18* you will be able to shift the comparison into the *Comparison of Method in Theology* page 250, and so we would roll forward to a larger view and operation of rescue.

²³So I would point you to the excellence, the absolute value - despite perhaps the appearance of “utter uselessness” - of these “noble and heroic deeds” of our little puzzlings, pausing Proust-wise over amoeba or flower or fly. “Flower in the crannied wall, / I pluck you out of the crannies, / I hold you here, root and all, in my hand, / Little flower - but if I could understand / What you are, root and all, and all in all, / I should know what God and man is”. The references here are to *For A New Political Economy*, 31, where I also cite this six-line poem of Tennyson referred to by Lonergan in the text there.