

POLLINATORS FOR A TRULY SMARTER PLANET: USING GANDHIAN TRADITIONS OF DIALOGICAL REASONING TO FRAME AND FOSTER RURAL DEVELOPMENT

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Introduction by Editor

The enduring fascination of Gandhiji lies in his multiplicity: there are as many "Mahatma Gandhis" as there are people who met him¹, opines one author, one may add today that there are as many Gandhis (sans the Mahatma in cases with other labels in cases) as one wants to interpret. The philosopher, Akeel Bilgrami states that "It's generally fool hardy to write about Gandhi, not only because you are never certain you've got him right, but because you are almost sure to have him wrong. ... The truth of his claims seem to him so instinctive and certain that mere arguments seem frivolous even to readers who disagree with them". How does one interpret a complex persona as Gandhi and someone whose works spans across disciplines (something that is evident even through the diversity of the articles in this very collection of articles)?

Bilgrami says this further - his thought itself was highly integrated, his ideas about very specific political strategies in specific contexts flowed (and in his mind necessarily flowed) from ideas that were very remote from politics. They flowed from the most abstract epistemological and methodological commitments. This quality of his thought sometimes gets lost because, on the one hand, the popular interest in him has been keen to find a man of great spirituality and uniqueness and, on the other, the social scientist's and historian's interest in him has sought out a nationalist leader with a strikingly effective method of non-violent political action²". In Gandhi's view, the distinguishing mark of human nature is precisely the power of transcend immediate self-interest for the sake of a greater good. Human nature carries within itself a seed of the divine. Gandhi's reply to the cynics is that when you see human nature as it really is, you can expect altruism, you can appeal to reason. The Indian tradition of dharma is one expression of this truth about human nature; it is a way of life fashioned from the age-old experience of the face-to-face village community³. The order and stability of the village, its oneness with the forces of nature... have as a first obligation the cherishing and nurturing of life. What we call morality began in the

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*mores, the life-conserving customs, of the village*⁴.

Dharampal, in his introduction to 'Civil Disobedience in Indian Tradition' profiles the two distinct aspects of the political interpretation of Gandhi's satyagraha as having been influenced by the western philosophies and the other thoughts that 'it was a natural growth and flowering of a practical philosophy implicit in his social milieu' and then forcefully argues that Gandhi's passive resistance was drawn from what others have termed as 'living force of dharma' that provided him the tools of civil disobedience. He cites from Gandhi's own prior experience thus, 'In a small principality, the villagers were offended by some command issued by the prince. The former immediately began vacating the village. The prince became nervous, apologised to his subjects and withdrew his command. Many such instances can be found in India'⁵. It is Gandhi's recognition of this living force of dharma which inspired his belief in the common people, in their power to discriminate between right and wrong, between truth and falsehood, in the circumstances of their own lives. It was the shared faith in dharma which brought him so close to Indian village people everywhere⁶. That is why many thinkers have opined that Gandhi tried to evolve a strong civil society, not a strong nation as in Europe⁷. That doesn't mean he was against changes or ridding of that which was troublesome in tradition. However, he encountered modernity, both in its advancement and in its limitations, deeply rooted in the psyche of the philosophical tradition he placed his entire argument on.

The economic ideology of modern industrialisation is also encountered from the deep-rooted sense of dharma or moralistic value, a view that has found a renewed recognition among two types of recent developments – those who are looking at the review of the modern industrial growth from the climate change and environmental point of view and those who are looking at the centralisation of all data and the fast emergence of the Artificial Intelligence (AI) driven world that is ever growing. In the current article, American Philosopher and teacher of Gandhian thought, Gray Cox, provides a sweeping view of the challenges of our times on both these issues and then deep dives into the philosophical roots of their thought process. His juxtaposing what he calls the dialogical process of Gandhi, as against the monological process of the Western thought process alludes to and renews the debate around the philosophical roots of the modern idea of 'development', particularly 'rural development', both in its content and in its methods.

Long before IBM gave it a name and made it into an advertising campaign, the vision of a “smarter planet⁸” haunted Western Civilisation – a planet where every production process, both natural and industrial, would be Instrumentally monitored, Interconnected through a global web, and intelligently managed by ‘Turing Machines⁹’ and other forms of algorithmic computers. Ever smarter, ever better, ever more for all in a process that would be “Inevitable” because it embodied a compelling vision of rationality. For rural development around the world how has this project fared – and how should it best be framed and furthered in the future?

Any serious assessment of this will require a careful review of the critiques, alternative visions, and diverse global traditions of innovation which have, in the last 150 years, matured into an incredibly rich, mature, cross-pollinating body of policy and practice. Gandhi’s innovative, systematic experiments in social change both exemplified and helped found many of those traditions, but we now have well over a century of community-based participatory research on such practices from all over the globe. What can we learn from them to create best practices for future work in rural development? What conception(s) of rationality do they advance? And how can all this learning be integrated into the exponential growth of knowledge/power provided by 21st century technologies?

Before wading into the depths of these big questions, an example and metaphor or two may offer a helpful way to capture some useful preliminary insights. Let me start with one that has been “bugging me” increasingly of late, the status of our insect resources.

Part I – Learning from the Little Ones

How valuable are our bugs and how well have they been doing? The short answer is that we do not know – but the little we can say with some confidence is profoundly disturbing.

This issue first started “bugging” me perhaps a decade ago when I realised that the fields of fireflies that lit up the warm summer evenings of my youth had seemed to have slipped into increasing oblivion. Where it was once a common past time for grandparents to chat amiably at sunset as they watched kids chase swarms of fireflies across lawns and trap them in jars, of late, it seemed that such flickering delights had largely disappeared.

Then, a year ago, in a workshop on ecology and the law, a colleague called my attention to something that had begun to command a more urgent attention: “the clean windshield” phenomenon¹⁰. Everyone he talked to over fifty years of age could remember riding in the summer with our parents down highways and having to regularly use some kind of washer on the vehicle because the windshield would become messy with the impacts of large numbers of bugs. But now, using this same primitive but simple collection device for surveys of insect populations, the results in our part of the world had become consistently different: rarely more than a bug or two at all, and nothing like the swarms that were normal a half a century ago.

In looking for more systematic scientific evidence what I discovered was that while insects have been a subject of fascinating research all over the world, very few studies had ever been done of

baseline quantities of bugs out there. But the ones that had, were startling. Natural historians practicing field biology in Germany had been using traps for decades to document the raw quantities of insects in a variety of sites. What they had found is that the trap yields had fallen dramatically. Reports from entomologists in tropical as well as other temperate sites have found comparable results¹¹. Why might this matter and what might it signify for our assessment of our efforts at rural as well as urban development around the world?

We do know that insects are essential to fertilisation for most food crops in particular and most sexed plants in general. Such plants are especially important because sex proved to be such an extraordinarily wonderful thing for them from the point of view of evolution. It enabled them to dramatically accelerate their rates of evolution and create rich varieties of species that fill a huge variety of ever-changing ecological niches. Before the advent of sexual reproduction, life carried on in generating the occasional mutation and passing it on. After the advent of sex, life got carried away creating a riot of innovation. Suddenly, where one parent simply created an offspring more or less like itself, with the exchange of sperm and egg DNA in the crazy gambling house of seed fertilisation, two parents could create as many genetically different offspring as possible within a given prime period. Each unique, each potentially gifted with a specific assortment of DNA that might give it an edge or function that would let it respond more successfully to its environment. In this sense, the development of sex was one of the all-time most important, world historical steps towards an innovative and “smarter” planet.

For much of the late nineteenth and twentieth century, the version of Darwinism most widely accepted ‘emphasised competition’ as the key to evolution. But even Darwin himself noted that “fitness” for survival could be achieved by being more effective at collaborating with other species that are competitors. Symbiosis was a quite viable strategy for the demographic success of a species. And since the work of Lynn Margulis¹² and others we have come to appreciate increasingly how widespread and vital symbiosis is in ecosystems throughout the world, especially in the cross-kingdom interactions that enable communities of plants, animals, fungi and other life forms to capture sunlight and heat, transform them into complex chemicals, employ these in a wide array of functions, and recycle them in complex patterns of collaboration. But this was, of course, not so much news to many indigenous communities managing forests, fields and waterways for their food and fiber. In their native languages and traditional ecological/economic practices, many have nuanced and systematic insights into how creatures both little and large -- as well as rooted and roaming -- are as interdependent as the bee who buzzes to make its life source of honey from the flowers who are serviced in that same act by being fertilised for their evolving reproduction.

Viewed through the lens of a kind of primitive economic exchange – or the lens of a parent trying to teach a very simple lesson about “the birds and the bees” to their child – this process might look like a simple interchange of material substance, honey here for pollen there. But the reality is, we know, much more complex. In sex as in so much of the rest of life, timing and context play essential roles. The coordination of the physical development and

behaviour of flowering plants with their pollinating insects requires what are, in effect, complex systems of communication. The flower that opens too early or late to invite in the hatch of would be pollinators, is likely to suffer a sterile future. What counts as too early or too late is often determined by a very wide range of context conditions – the intensity and duration of warm nights, the saturation of water in the soil or air, busyness of microorganisms releasing nutrients from decomposing material in the soil, et cetera. The proliferations and performances of insects and plants are often coordinated in complex forms of communication that encode information about all these contextual conditions and serve to signal to each, when it is time for it to take the next step in the complex collaboration it is engaged in. In the quite varied and complex ecological communities which have sustained life around the planet, it is as though organisms co-evolved the development of myriads of types of secretaries, assistants, servants, messenger boys, clerks, time keepers and other workers to manage the complex affairs of their coordinated social systems.

Often traditional indigenous languages and practices provide very insightful descriptions for these processes. In so far as they seem to suggest, creatures talking to one another, those descriptions may, from the often reductionist point of view many materialist biologists, seem colorful and quaint, but unscientific. They would want to put scare quotes around the phrases that suggest that plants and animals are “talking to one another”. For that matter, they might also want to put scare quotes around some of the other terms I have used earlier, like “function” (which might be taken to imply intentions that are consciously created) or, even more, “intelligence” and “smarter” as when, above,

I suggested that sexual reproduction accelerated the creation of species varieties that could “solve problems” of resource access and use advance a “smarter planet”.

But such “scare quotes” should not scare us away from acknowledging a few basic facts about these life systems we are describing – facts that are now deeply and irrevocably embedded in our best biological and ecological descriptions of life on this planet. Every life form is, in its essence, a kind of thing that has developed a set of feedback, adaptive mechanisms that serve to maintain or advance the values of various variables that defines it – its temperature, salinity, body weight, size, number of off-spring, et cetera. Systems that lack “values” that are maintained by homeostatic processes and “preferred” in this sense, lack life.

Further, the process of evolution through which new life forms develop, is one in which new ways of achieving those values are developed. They involve solving problems (like overheating) or accessing resources (by digesting new kinds of foods) or performing other functions that are “smarter” or more “intelligent” in the sense that they do a better job of realising those values. In this sense, the story of evolution is the story of an incredible variety of learning processes – where, of course, most of this “learning” took the form of altering the “hard wiring” of the organism.

Finally, one further fact that is key: Life as we understand it, at least since Watson and Crick’s discovery of DNA¹³, is, in its very essence, a system of coding, information flow, and communication. This is true not only of the nucleic acids that encode genetic information and transmit it via RNA throughout the complex life of an individual organism. It is also

true of the proteins, hormones and other chemicals thus produced which inform and collaborate in the regulation of the metabolic activities of the organism. It is true also of the behaviours of those organisms as they use signals to detect and respond to complex features of their environment -- pushing their roots towards moist soil, tilting their leaves towards sunnier spaces, opening their flowers at opportune moments for fertilisation. With animals that have eyes, ears, taste, smell and other senses, the systems of signaling and communication get even more complex. And, of course, with humans and the introduction of verbal language, signaling takes off in a wholly new, revolutionary gallop into cultural patterns that allow for what Max Tegmark¹⁴ has called "Life 3.0"¹⁵. That is, of course, life forms which do not need to wait for a new cycle of genetic reproduction to reprogramme their behaviour. They can reprogramme themselves all the time by doing what you and I are doing right now -- trying, through dialogue, to arrive at new ways of improving our responses to the world.

One upshot of these more general reflections on the nature of life gives us a very important first step towards answering the first question I posed at the start of this paper, which was, in effect: As we look at the results of our technological innovations in the pursuit of a "smarter planet" from the point of view of rural development, how are they faring? On the positive side of the ledger we may put, of course, the more efficient and "smarter" ways we have learned, through monoculture, to increase caloric and/or protein production per input unit for as small series of pretty homogeneous crops. And there are other advances we might note, like the smarter ways to grind grains and heat them into more digestible foods which have provided

incredible savings in women's labor around the world. But on the negative side of the ledger, we need to list the still only vaguely understood and roughly measured losses -- and in many cases collapses -- of insect populations. These embody the loss of an extraordinary variety of forms of natural intelligence that has evolved in the development of complex forms of cross-kingdom interchanges that have created ecological communities. And the ecological capital -- the natural intelligence all these embody, is being destroyed at a pace that is no longer a mere gallop. It is approaching a pace beyond horse, beyond steam, beyond diesel and today has reached the pace of CrispRgene-editing patents¹⁶ and corporate decisions that transform food stuff land races that are deeply embedded in complex webs of life and community into nutrient production systems that use industrial abstraction to create mono-form, homogeneous manufacturing systems.

A second upshot of these reflections is that they invite us to explore crucial distinctions between types of intelligence. One contrast is between the "natural" intelligence of organisms embedded in natural ecological contexts in which they evolved and the "artificial" intelligence (AI) of machines which operate in controlled, industrial environments. Unlike the human intelligence we associate with a Tagore or Mother Teresa, neither of these are necessarily conscious in any ordinary sense of the term. Yet they are both forms of what we may, in the most general sense, call intelligence because they involve processes through which values get realised and problems get solved in better or worse ways. With the increasing use of neural networks, machine learning and other biomimicry¹⁷ methods, the processes of developing

the natural intelligence of insects in the wild and AI in machines in the lab have become increasingly similar. But there remain crucial differences. One key one is that the AI designed into machines is defined by a small number of values: minimize engine fuel consumption, maintain constant blood sugar levels within some specified range for diabetic on insulin, maximise yield of fiber per acre, maximise annual profit, win at GO¹⁸, maximize student scores on math exams, et cetera. In contrast, the forms of natural intelligence embodied individual organisms and ecological communities have evolved over millennia to secure or advance an extremely wide range of complex values simultaneously in balanced ways that allow for the survival, reproduction and resiliency of individuals, species and communities of organisms. The forms of natural intelligence embodied in communities of pollinators and flowering plants require each problem of survival and reproduction be solved in the context of all of the other problems the organisms face. Each value – sugar acquisition, pollen exchange, etc., needs to be realised in ways that take into account all the other values essential to the organism and do so in a way that balances each value against the others. Co-evolving organisms cannot afford to be monomaniacal in the values they pursue. In human contexts, we might describe this distinction by contrasting “smarter” vs. “wiser” ways of behaving.

Someone may be amazingly smart at some specific type of task like solving quadratic equations and yet lack common sense and wisdom to behave in balanced and appropriate ways -- “Too smart for his/her own good” we may say. Conversely, someone may be a responsible and reliable colleague who can be counted on to know what needs to be done on any given occasion and to do it – “S/he may not be

a rocket scientist”; we may say, “but s/he’s the steady one you want at the helm, the indispensable one you can count on in a pinch”. The natural intelligence of co-evolved organisms has undergone millennia of selection to be ever wiser, whereas the artificial intelligence of modern machine systems is being constantly designed and upgraded merely to be ever smarter.

A third upshot of our reflections on the increasing loss and even collapse of insect communities around the globe, thus invites us to state it even more starkly: We are witnessing a global substitution of ever “smarter” monomaniacal mechanisms for the indispensable legacy of natural intelligence whose wisdom has been the steady hand at the helm of our own co-evolution with other organisms and whose wisdom in providing for resilience, has been the one we have always relied on in a pinch for eons. Another way to put the point is compare three “smart systems” for regulating inputs to an agricultural production system. The first system advances some value A (like yield of bushels per acre), but not as well as the second system. So the second system is smarter. But now compare a third system that can advance value A just as well as the second, but also advances some value B and does so in a better, more balanced way than either of the first two systems. We would say, naturally, that the third system is smarter than either of the first two. This gives us, by extension, a way to conceive of wisdom. It is simply the development of more truly “smart” systems that best advance and balance all the relevant values at stake. A truly “smarter planet” would be a “wiser Earth.”

In the rush to engineer and market the mechanisms of ever smarter (and more profitable)

economic processes, the scientists, technologists and policymakers of the West have, over the last few centuries, paid very little heed to the social and environmental costs of their efforts. Further, those costs have been most often viewed simply as redistributions of wealth which could be justified by the grand and long-term glory of the ambitious aim of their form of industrial development. Land, fisheries, labour and other forms of wealth were transformed by industry from quaint, traditional holdings into well-managed systems of empire growth. What if, in the process, they were transferred from the indigenous to the nouveaux riche or from the many to the few – in the long run the rising tide of new forms of wealth would enrich all at such a level as to make even the worst off, better off. In the scientific and industrial community, little credence was given to critics like Gandhi who argued that the accounting books for all this were being cooked in ways that profoundly undermined not only the utilitarian justification of the colonisation enterprise, but also its epistemological legitimation. Such critics argued, in effect, that the greater industrial wealth created through the “smarter” systems was often a mere handful of beads and blankets in comparison with the extraordinary productivity of the ecological communities being displaced, and the “wisdom” of the many forms of natural intelligence they embodied.

Part II – Gandhi and the Alternative Visions of a Wiser Earth

“While Western Civilisation is not an incurable disease, we should never forget that the British are currently afflicted by it.” – Gandhi, Hind Swaraj or Indian Home Rule

Imagine an anthropologist from Alpha

Centauri¹⁹ visiting Earth for the first time. She has only had a limited chance to read up on the planet – mostly works by Mohandas K. Gandhi, Paulo Freire²⁰, Martin Luther King, Jr., some Quakers like Elise Boulding²¹ and some Feminist peace theorists like Sara Ruddick²². When she arrives, in a quick scan of the basic planetary indices and the current news, she discovers that there are three existential problems humans face that prompt fundamental questions about their rationality as a species.

First, they are profoundly altering the climate of their planet and causing a sixth great ecological extinction. She immediately asks herself: What could they be thinking? Second, she notes they are amassing chemical, biological, nuclear and cyber weapons and using them in cycles of violence that threaten to escalate to mass Mutually Assured Destruction (MAD). Third, they are building ever “smarter” artificial intelligence systems that may soon surpass them in intellectual power and in the control of their planet’s life systems, but they are making almost no substantive effort to create safeguards that will insure these artificially intelligent systems will be friendly to human interests or wise in the ways they manage a sustainable Earth. Surveying such a scene, our imaginary anthropologist would no doubt exclaim some Alpha Centauri may want to ask of these humans: “What are you thinking?” What indeed!

But she might then note, following Gandhi, that the problem is not really so much a matter of “what” these humans are thinking as “how” they are thinking.

These humans that we have become are deeply and ever more afflicted with what Gandhi viewed as the “disease” of a so called “civilisation”,

dominated by Western modes of rationality. Central to Gandhi's proposal for a cure, considering our condition was a disciplined set of methods he developed for seeking and advocating moral truth in rational ways -- ways that could empower truth to govern our world. He called the set of methods he developed "truth force" or "satyagraha" ("clinging to truth"). Like the Quaker²³ process of communal discernment that was used to develop consensus models for social movements in the 1960s, satyagraha provided a set of ways of both discerning truth and bearing witness to it. It is best understood as a model of rational inquiry. With this, Gandhi gave formative impetus to the development of a whole range of traditions that may provide keys to addressing the existential crises that are being created by the dominant, current models of economic, political and technological reasoning. Gandhi's model of rational inquiry provides a useful starting point for trying to understand the essential features of those traditions, especially as they apply to issues faced in rural development. By way of short-hand, I will refer here to those traditions Gandhi helped initiate as ones of "dialogical" reasoning in contrast to the "monological" model of rationality at the centre of the Western Civilisation traditions of economic reasoning, *realpolitik* and instrumentalist technological rationality.

The claim that Gandhi helped initiate an alternative tradition of rationality -- something as systematic and significant as the Enlightenment conception of it, might at first seem odd. Gandhi is often thought of as an Indian "mahatma" or "great soul" associated more with mystics perfecting their religion than with philosophers perfecting their epistemological theories of logic. He used fasting and prayer to purify himself and his followers to

then engage in marches, rallies, protests and non-violent direct actions that we might associate more with methods of activism than with methods of reasoning. But as Joan Bondurant²⁴ and others have shown, there was a very detailed and systematic set of ideas and practices at work in what he called his "Experiments with Truth" and the central aim of all of them was to find ways to not only find out the truth about this world and how we should act in it, but to also find ways to reason with his opponents and persuade them, nonviolently, to agree.

Gandhi's practice of satyagraha was intended to be a form of collaborative rational inquiry for the discovery of objective moral truths and the effective witness to them in ways that persuade opponents of the truth and motivate them to abide by it. (Bondurant 1988) Key defining features of it included humility, nonviolence and the willingness to suffer as part of the process of witnessing to the truth as one could best perceive it. On Gandhi's view, the inquiry always starts from a position of possible ignorance. So, since we might be wrong, we should remain humble and not impose our views on others coercively. We should test our own understanding of -- and commitment to -- the truth by putting our own bodies and lives on the line. To the extent that we are witnessing to a genuine, objective moral truth, we should be able to demonstrate it to ourselves and to others who witness it in our actions. Gandhi's term, "satyagraha," which translates as "clinging to truth" or "truth force" refers to a practice which, at its core has this activity of nonviolent self-suffering which can bear witness to moral truth and "melt the heart" of the opponent.

Natural science as a tradition of reasoning includes a wide variety of mathematical and

experimental techniques as well as methods for developing hypotheses and institutionalising the public testing of them and sharing the results. The forms these take in astrophysics, field biology and clinical medicine vary sometimes, rather significantly. For Gandhi, satyagraha likewise included a wide variety of specific techniques which he tried and revised in what, in his autobiography, he called his "experiments with truth". As Joan Bondurant, noted these included, for example, petitioning, protesting, arbitration, public hearings, negotiation, self-examination, fasting, sit ins, boycotts, economic non-cooperation, parallel government. But these all were understood as parts of a process that seeks truth of a distinctive type and in a distinctive way. It involves a process of dealing with differences which can take many forms. These forms of it have already been experimented with and significantly developed since Gandhi's day. They include, for example: group problem solving, mediation, alternative dispute resolution, conflict resolution, conflict transformation, peacemaking, and non-violent direct action. While these differ in specific practices, part of what they share in common is that each is a practice in which multiple people are engaged in a creative, back and forth discussion, aimed at arriving at shared beliefs or decisions in which they agree as a matter of genuine, voluntary consent. A dialogical practice of reasoning is not a set of rules for moving straightforwardly from the input of premises and data to the output of conclusions. It is a set of strategies for transforming a situation of disagreement or non-agreement between people in to one of agreements on what it is best to believe or do.

In contrast to the monological model,

this tradition of rational inquiry has four principal characteristics worth elaborating in detail: 1.) a dialogical understanding of what the structure of reasoning process, 2.) an interpersonal conception of who does the reasoning -- as a community of engaged and embodied agents who are interacting in real world contexts, 3.) a picture of the objective truths sought in reasoning as conditioned by context and emergent over time, and 4.) an emergentist ontological understanding of the reality which rational thinkers are engaged with.

First then, what does it mean to say that the patterns of reasoning in this tradition are dialogical? It is important to note at the start that this does not mean that any of the patterns of inference employed in monological reasoning are excluded. But these enter into the reasoning with a different status and function. Dialogue may draw on a monological approach to use logico-mathematical patterns of reasoning to, for instance, calculate some of the costs of one option compared to another. However, dialogical practice involves a constant dialogue in which the meaning of words and sentences is continually reassessed and revised rather than being accepted as systemic definitions or axioms. For instance, a Gandhian working for economic justice for peasants in rural India may use basic price and cost of living data to begin to calculate what would be a fair or livable wage for a peasant. But she would also, from the start, be open to questioning all her fundamental terms: What does "fair" mean? What is "livable"? What counts as part of a peasant's "wages"? How do we define who is a "peasant" or "peasant family unit"? All these things are up for discussion and negotiation.

There are a host of structures for reasoning in dialogue that can be learned and practiced at increasingly sophisticated levels of competence. They include, for instance, patterns of asking questions, methods of discerning concerns, strategies for exploring options, and practices of negotiation. While they may draw on formal techniques of logic and programming, they differ, fundamentally. They are what we might call “approaches” rather than algorithms.

One way to clarify the character of such “approaches” draws on a basic distinction introduced in various forms by Bertrand Russell, Alan Turing and other philosophers who laid out the groundwork for the modern theory of mathematics, computation and Turing Machines. It is the distinction between talking IN a language about the world and stepping back in order to talk ABOUT that language and its relationship to the world. One way it is sometimes put is to say that there is a difference between the “use” of a word when you assume that others know what you mean by it and you are simply employing it versus the “mention” of a word, when you start to talk about the word itself, how it might best be defined, when it should be used, who has a right to use it, and so on. In this respect, the difference is like the contrast between these two situations: 1.) A minister, at the culminating moment of a wedding ceremony says “I now pronounce you husband and wife.” 2.) Later, the newlyweds get into a discussion and one asks the other: “Just what do you think being a ‘wife’ means?” In the first case the word “wife” is, as philosophers say, just being “used”; its meaning is taken to be axiomatic. In the second, it is being “mentioned” because its meaning and its relationship to the world the newlyweds are trying to create for themselves is up for grabs.

A second way philosophers have tried to get at the underlying point here is to talk about the contrast between an “object language” and a “meta-language”. When a mathematician or a computer scientist is designing a system, she sets up a set of definitions and axioms that lay out the key terms that will be used and the rules for operating with them. The assumption is that this will create a model that can be used to describe some kind of reality of interest. A series of different letters may, for instance, represent different objects in space or different players in a war game and a series of symbols may represent rules for moving them around or transforming them. Once the scientist creating this system of symbols for modelling the world has it set up, she can use it as an “object language”; speaking IN it to talk about the objects in the world in a clear and rigorous way. But if a fellow scientist has questions about the way the system is set up and wants to propose some new definitions or axioms – or change the reference of some letter to a different object or person in the world – then the two of them have to step back, take a breath, and start talking ABOUT this “object language” and the world it is supposed to model. In doing that, they step, as it were, into a different kind of language, what is referred to as a “meta-language” or “background language” in which they can negotiate, problem solve and, more generally, have dialogues about their model object language and the world.

This meta-level is, of course, the one at which all sorts of fascinating but elusive philosophical problems arise – for example, puzzles about how we can talk about the relationship between language in the world without already presupposing that relationship, or how we can talk about the origins or limits of the language without exceeding those

limits themselves. It is, for this reason, a level at which more spiritual and mystical ways of talking naturally arise in language and come to inform the ways in which we navigate the puzzles of conversation and collaboration in communities. Field workers trained in the more reductionist versions of scientific traditions may sometimes be puzzled, bemused, skeptical or dismissive of the more spiritual features of the language and practice of the peasant communities with which they work. But once we see those communities through the lens of dialogical reasoning, suddenly their story telling, prayers, ceremonies of greeting and honoring elders and other practices that invoke spiritual language look much more reasonable – and essential to the processes of reasoning wisely. At least to the extent that these practices serve to acknowledge, express, articulate, invoke or otherwise give voice to important relevant values that should be part of a wise deliberation of community concerns. (See Anderson on Ecological Wisdom).

One of the defining characteristics of Gandhian satyagraha and, more generally, dialogical forms of reasoning is that they are always already operating at the meta-language or background language level of discourse. They are talking about their language and the world, as well as talking in it and simply using its words. This is sometimes expressed by emphasising the importance of “deep listening” or being “genuinely open to the other” in dialogue. Another way it is put is to emphasise the importance of not unilaterally or “violently” imposing ways of framing issues or structuring processes of discussions. At this meta-language level, some version of Martin Buber’s distinction between “I-it” and “I-thou” relationships come in to play. Instead of simply sending messages to ‘an

Other’ as an object of manipulation, I have to enter into relationship with her or him as a “You”, someone being directly addressed and sharing in the “We” that is trying to find common meaning in the larger contexts in which we are mutually embedded. As Buber and others noted, this kind of relationship is, in a strict logical sense, not definable. As soon as you define it, you have begun to treat it as an “It” and you are no longer dealing with an “I-You” relationship.

What might be some further examples of Gandhian “approaches” in contrast to “algorithms” of monological reasoning and what might be the roles they might play in different practices of dialogical reasoning? For the many readers who have already encountered systematic writing about strategies for win/win negotiations, four will be familiar. The little classic on negotiation, *GETTING TO YES*, provides one useful sketch of these. One is the strategy of “multiplying your options.” This is especially fruitful in situations in which we seem to face a zero-sum game as, for instance, when two children are dividing an orange, or two nations are dividing up territory. The zero-sum assumption implies that the one can only win more if the other wins less – which is also known as losing. Other options that let each win by, for instance, “increasing the size of the pie”, will be welcome by both and help advance agreement.

A common strategy for finding such options involves a second basic approach: “Focus on interests.” The negotiators may each have positions to which they seem firmly committed: “I need to the whole orange.” “We insist on keeping all of the Sinai Peninsula.” But behind the positions of each negotiator are underlying interests and as they become clear, options for mutual agreement may emerge. For instance, if one child wants the orange

pulp to make juice and the other wants the rind to make a cake then they can transform their apparent conflict into a shared problem: How best to squeeze and peel it? If Egypt wants to assert its historic sovereignty in the Sinai while Israel wants simply to insure that it does not become a launching base for a war, then new possibilities open up. In point of fact, in the Camp David Peace Accords, what was agreed to was a kind of an internationally supervised and demilitarised zone which was returned to Egyptian domestic authority, but which prevented the positioning of invasive forces close to the Israeli border.

These two strategies of rational negotiation, "Multiply options" and "Focus on interests" are not precise algorithms. They do not define specific types of data input and provide specific operations to perform on them which then yield specific outputs. Instead, the strategies say, in effect, "when you seem to be in something like this general kind of situation of conflict, try to be creative in finding new ideas in these kinds of ways." They are not like rules for an operating system or an "object language." They are like counsels or general advice for programmers or scientists engaged in research and development.

A third productive strategy of "win/win" negotiations highlights these features even further. The counsel is: "Look for objective criteria." The idea is to provide a way of avoiding the problems that often result when conflicts are approached as a matter of what can be called "positional bargaining." If each side simply talks tough, asserts a fixed commitment to their own "position", and expects the other to make concessions then the process can be not only verbally unpleasant and protracted but, more importantly, it can lead to break downs in

the talks and resorts to options in which everyone loses – like when labour negotiations break down into strikes or divorce negotiations break down into law suits or, worse, violence. The strategy of looking for "objective criteria" suggests looking for empirical data, professional standards, scientific principles, legal precedents and other more widely accepted criteria. These are objective in the sense that they exist independently of the wills of any of the negotiators. They are things that can be jointly investigated and the results of the investigation will have a legitimacy for all the parties to the dispute and help advance an agreement.

A key point here is that such criteria are, themselves, a subject for negotiation. If a union and a company agree that empirical data about inflation is relevant to deciding on what should be the cost of living factor built in to a new contract, they may still need to negotiate what kinds of data are most relevant for deciding this. But they can, of course, turn again to looking for objective criteria for deciding it by asking what professional economists would use. Or what government indices are normally applied in such cases. Or what might be relevant factors about their local economy and the especially high rates of housing inflation in the San Francisco Bay area. In other words, the counsel of looking for such criteria has a kind of reflexive or "meta" function. You can use it in figuring out how best to use it. This is characteristic of approaches.

A fourth basic strategy in win/win negotiations concerns the ways in which relationships with people are dealt with. One way it is sometimes put is to "Separate the people from the problem." Perhaps a clearer way to put the point is to say that we should make a distinction

between the ways in which we negotiate the details of a particular outcome vs. the ways we negotiate relationships with people. When a divorcing couple argues about who gets a car, they may be simply arguing about a material object worth \$12,500 – or they may be arguing about a symbol of their relationship and the emotions, power dynamics, self-images and other things central to their identities. The second kind of issue may be less tangible than the first, but even more important. The key point is that it calls for a different kind of approach to negotiation one in which people look for ways to clarify and enhance their relationships with others. It involves listening extremely attentively to emotions and seeking expressive actions that can provide support, affirmation, apology, acceptance and other articulations of identity and connection that seem authentic. It may involve a written letter of apology, a public statement of condolence, or a donation of time or money to some cause important to the other person's heart.

As we move beyond the “win/win” tradition to other practices of dialogical reasoning, we find many that strongly emphasise strategies for working on relationships in this sense. And they typically include strategies that help prepare the persons engaged in rational negotiation to better listen in depth to the emotions and concerns of others. In secular traditions like Ziegler and Boulding's approach to “Imaging a World without Weapons”, this may involve practices of meditation and inward imaging aimed at cultivating the ability for “deep listening”. In spiritual traditions, the methods of stepping away from everyday preoccupations through ceremony, calming the self through chanting, freeing the self from impulsive thinking through meditation, focusing

and strengthening good intentions through prayer or physical purification through fasting, Indigenous communities around the world have a wealth of traditions that provide alternative models for dialogical reasoning which include, for instance, complex exchanges through family and kinship networks, tribal councils, community meetings and a wide array of ways for drawing on perspectives of women, elders and fellow creatures.

Methods of physical, emotional and spiritual preparation for dialogue do not provide algorithms that mechanically generate rational inferences. But they do provide approaches that can empower and strengthen people's abilities to listen to others as well as themselves and respond creatively and constructively in dialogue. In the ancient world, methods like these were widely viewed as an essential aspect of the life of a fully rational person. Ironically, it is only with the advent of the Enlightenment that the less enlightened view came to dominate – the view that feeling and reason are quite separate and that a genius may practice rocket science without practicing the wisdom of the “sound mind/sound body” tradition going back to the Greeks.

In developing a practice of physical discipline and spiritual preparation for his “satyagrahi's”, Gandhi drew on Hindu methods of prayer and fasting, reflective reading from sacred texts, and a variety of other methods. The image of him, half naked, fasting and meditating at a spinning wheel is so iconic that the place of such methods in the larger system of his method of dialogical reasoning is often misunderstood. The practice of clinging to truth was not, for him, simply a matter of fasting until others conceded to his view. Satyagraha was understood

as a systematic set of steps or approaches towards finding an agreement that could be grounded in nonviolence. Gandhi's account of his "Satyagraha in South Africa" in the book of that title, provides a detailed example of this. He incorporated methods of investigative committees to try to study what the issues, concerns and facts of the situation were. He drew on the British traditions of public petitions and journalistic correspondence through letters to the editor to create open public discussions of the issues that could foster transparent research and decision-making. He drew on traditions of civil disobedience and non-cooperation to provide ways of bearing witness to the truths discerned and press opponents to consider them seriously and change their minds and hearts. And he began to develop methods of building parallel institutions with schools and communities that would provide the model for the efforts he would later undertake to free India from British rule in what he called "Hind Swaraj". Each of these elements of his overall practice provided paradigms for the subsequent development of rich and diverse forms of dialogical reasoning. And the efforts to develop them have been enormously enriched by people drawing on other indigenous traditions of communal discernment, consensus building, protest and nonviolent direct action.

For practitioners of rural development, perhaps one of the most important of these traditions is the set of "participatory research" and "popular education" methods that were developed in Latin America under the joint influences of the Theology of Liberation movement that Gustavo Gutierrez and others initiated in the late 1960's and early 70's and the Pedagogy of the Oppressed movement that Paulo Freire and others originated at about the same time. Both aimed at epistemological

revolutions that could transform and empower rural communities of peasants suffering from the marginalisation of centuries of colonisation. The key common features of both movements were, first, that they would work with peasants in small groups where a culture of open dialogue could be developed. Second, they would start with basic texts for those dialogues that came from the culture and context of the peasants. In the small "comunidades de base" of the Theology of Liberation movement, the typical texts were passages from the Bible like "Do unto others as you would have them do unto you." In the adult literacy campaigns Freire innovated with, the texts would often be photographs of a well, road, assembly meeting or other feature of the community, peasants were living in. The core of the method both traditions introduced variations on a three-step process in which peasants would be asked, as a group, to: 1.) "ver" (make observations of the text and its significance) 2.) "juzgar" (make interpretive judgments and analysis) and 3.) "actuar" (draw collective conclusions of what to do and how to live and put them in to practice). From the point of view of the marginalised peasants, what was revolutionary about the epistemological practices introduced in these practices was that suddenly they were being asked to consider how they saw their world, how they would name it, and how they, collectively, might decide to act in it. No longer was the priest or teacher telling them what to think, treating them as passive individual objects for the banking of deposits of information. Instead, they were being invited to be active subjects, agents in their shared history.

For instance, in the first step ("ver"), in response to "Do unto others as you would have them do unto you," Jorge might say something like

"Well, I suppose it means perhaps if I have a horse and my neighbor needs a horse I should loan him my horse." Or in response to a photo of the town well, Guillermo might say "It's a lousy well. The water makes people sick and sometimes they have to go all the way to the clinic 8 miles away to get cured." Perhaps later in the week, Guillermo would go to Jorge whose wife is sick and needs to get to the clinic by horse but has no horse. On the other hand Jorge has a horse and "remember what you were saying the other day?" Perhaps after finding his horse loaned out so often, he has trouble getting his farm work done, at a follow up meeting of the group, Jorge might raise this as a problem. In thinking on Jorge's case, or perhaps looking at a photograph of the road out of town, the group might reflect on their shared problems of transportation. And instead of viewing them as individual problems (Do I own a horse or not?) they might begin to look at them as shared problems – we have no decent road, we have no public bus system, we have no closer clinic. Why? In the process of the second step ("juzgar"), critical analysis might lead them to the conclusion that it is a result of the corrupt misallocation of monies intended for roads or the result of lack of collective initiative in simply banding together to clear rocks and fill potholes with a community workday. Such judgments then might lead to the third step ("actuar") in which they might write a letter to a Bishop or state governor to demand an end to the corruption or the implementation of a series community work days to volunteer rebuilding the road as a passage for the kind of informal sector car/taxis that are often a bridge to systematic public transport in rural areas.

In Latin America, a wealth of variations on these dialogical practices grew out of experiments with new technologies (e. g. with flip charts, photography, and role plays) as well as drawing on traditional practices communities had for engaging in dialogical reasoning. Such traditions could include, for instance, ways food or the chewing of coca leaf were used to create amiable and constructive social settings for local governance or ways that social structures of "compadrazgo" (shared god-parenting) or tribe or church membership might offer social capital and shared procedures for fostering dialogue. These practices provide one important example among many from around the world where colonised and marginalised people are using nonviolent methods of dialogical rationality to both restore and enhance their social and ecological communities.

Such traditions do not always insist rigorously on nonviolence in the way that Gandhi himself did. In fact, some priests in the Theology of Liberation movement and practitioners of "Popular Education" took up arms in various guerilla struggles in Latin America. However, a rich, Gandhian like notion of love was at the core of the vision of Guitierrez and Freire – a notion of love not as a raw emotion received passively but as, instead, an activity, something we can do and improve our skills at by learning how to with others with respect, listening, caring initiatives, the sharing of burdens, creative problem-solving, risk-taking, holding them as well as ourselves accountable, in other words, creating a sustainable life together, making the road as we walk it. Further, these core values of nonviolence proved to be emergent elements of the methodologies developed as well as the ideologies from which they

sprang. A group of marginalised peasants practicing dialogue weekly in a base community or adult literacy group tend to learn to prize and promote non-violent ways to deal with conflicts of all kinds. There is a further reason they tend to apply non-violent Gandhian like methods to deal with conflicts with outsiders as well. It is, precisely because they are marginalised. They typically lack access to the coercive power of the apparatus of the nation State. Their abilities to successfully use violence are typically restricted. Beyond these ideological, methodological and power/status reasons for converging towards nonviolent methods of social change, there is a fourth reason that these groups in Latin America – and others all around the world – have increasingly turned to them: They work. In fact, the most systematic empirical studies show that they are, on average at least twice as often successful as violent methods in achieving social change and they are even more effective in securing results that are democratic and representative of the interests of the communities pursuing change. (See Chenoweth and Stephan, etc.)

If we are interested in avoiding the loss of natural intelligence and wisdom in communities around the world, nonviolent methods of dialogical reasoning in the Gandhian tradition provide a well-proven, powerful set of methods for engaging in rural development. They permit us to avoid the naïve and romanticised vision of indigenous traditions as always sound and always superior and yet draw on whatever is, in fact, sound and superior in them in the process of organically cultivating, through dialogue, increasingly richer and more adequate ways to manage our communities.

So there is much to be learned through these traditions as we work to create best practices for future work in rural development. The conception(s) of rationality which they advance are rich, varied – and, it must be emphasised and inclusive. As dialogical practices, they allow any reasonable insight coming out of a monological practice to enter into the conversation. A young tribal member who returns from agronomy school may have all modern scientific reasons for suggesting her community to eat more protein, include more high-yield plants in their fields, or practice different sanitation methods. The revolutionary epistemological shift marked by the methods of Gandhi and other practitioners of dialogical traditions of reasoning is these “smarter” methods must always be considered in relation to the many values at work in their ecological landscape and social context. This revolutionary epistemological shift resists the monological imposition of things like the forced eating of beef and the clearing of vast tracts for monoculture if they are imposed through colonising methods and violence that refuses to listen to the many nuanced and important reasons why various traditional practices may represent values that also should be secured or advanced.

This point opens up the issues raised by the final question posed at the start of this paper: How can all the learning through these dialogical traditions be integrated into the exponential growth of knowledge/power provided by 21st century technologies? In particular, how can the digital-speed rush towards a “smarter planet” be integrated into the larger frame of a balanced and sound pursuit of a “wiser earth”?

In important respects, this is an epistemological challenge. How can we incorporate the constant churn of path-breaking developments in artificial intelligence and all its applications within the well-worn paths of the resilient legacy natural intelligence on which our origins and core features of our social and ecological communities depend? In other respects, the issues are very much economic and political – questions of power. Dialogical reasoning always remains subject to distortion and its participants must be ever on guard against the danger that the preferential weighting of one or a few values – or people holding them – may distort the outcome of the conversation towards irrational and un-wise conclusions that do not take all of the relevant values into account in a balanced way. Many a rural community has had its deliberations distorted horribly by the sudden amplification of one or a few voices through their acquisition of dollars via remittances or guns through the intervention of State (or would-be state) agents. As Foucault and others have argued, the questions of epistemology and power are strongly interconnected. But this need not condemn us to a post-modern relativism of some skeptical and negative kind. Instead, like Habermas and others have proposed, we can seek ways to secure power for all the relevant values and voices and promote open, liberating, balanced dialogue that increases the shared wisdom of the community. Gandhian approaches to dialogical reasoning use methods of direct action and other forms of satyagraha for precisely this reason. But to foster and secure the abilities of communities to “cling to truth” by exercising “truth force” in these ways, systematic social change is required.

Gandhi’s proposals for such systemic change in his time can provide useful starting

points for thinking through the kinds of systemic change called for in ours. In his setting, in early 20th century India, from his point of view, the central challenges arose from the political and economic institutions imposed violently on India by the British empire. The task was to achieve Indian home or self rule, “swa-raj”, but to do it in a way that would result in a nonviolent form of governance whose power would be grounded not in guns but in satyagraha. His strategy of swaraj was to develop a system of alternative practices and parallel institutions to replace each and every one of those involved in the administration of the colonial system – alternative schools, forms of legal mediation, community self defense, agriculture, manufacturing of life’s necessities like cloth and salt, etc. The strategy was to make the colonial system irrelevant and impotent by substituting nonviolent institutions defended with nonviolent methods. His vision was that eventually, the British would be forced to leave not at the point of a gun, but at the point of seeing they had already lost control and had nothing to gain by staying. The reality of the story is complex, but arguably something like this in fact happened. And things something like it began to happen all over the world proving, as the statistical analyses of Chenoweth and Stephan have shown, that the Gandhian strategy can in fact work and does in fact work, on average, much more effectively than the more violent alternatives.

What would such a “swaraj” strategy look like in our time? How would it frame our approaches to rural development? Across the world, rural communities live in the context of a global economic market structured by a global system of governance, both of which are empowered and continually transformed by a global advance

in research and development in technology. The system is dominated by monological forms of reasoning that impose “economic rationality” through corporations, “realpolitik” through nation-states, and “instrumentalist rationality” through the structures defining and guiding the creation of knowledge/power through technology. The conflicts and divisions within this economic, political, technological system can blind us to the underlying unity of its monological character. At one level, when we look at the globe, it appears that there are many different governments vying for power. But at a broader and more systematic remove, we can see that there is, in fact, just one system of world governance which is dominating us all by grounding collective decisions in one form of power – violence. In Gandhi’s day, there were lots of divisions within the British Raj – personal power struggles between ambitious individuals, departmental conflicts between bureaucratic groups, and struggles between government and corporate powers with differing goals. But all were united in imposing that system of conflicts – their system of conflicts – and the rules of its struggle – the rules grounded in the rule of military power. Likewise, today, the United Nations Security Council and correlated institutions that provide forums for struggles between nation states and multinational corporations are a framework of global governance that makes realpolitik into the rules of the game.

In something like the way Gandhi sought “Hind Swaraj” in liberating India from the British, our challenge today is to advance an Earth Swaraj that will liberate this planet from the national security state system of global governance and the monological economic rationality imposed by its associated corporate entities. While this task

is daunting, we are fortunate to have so many revolutionary actors who have already, for some time, been daring to undertake it – and have in fact made a great deal of good progress.

One notable example is in the area of work on climate change. The annual Conferences of the Parties or (“COPS”) provide an arena – or, rather, two arenas – in which to compare the two systems of global governance currently vying for power in our world. The first is the national security state system coordinated through the UN which has been trying since 1992 to develop some kind of meaningful treaty to address the rapidly growing threats of climate change. Its deliberations are usually the primary focus of global reporting on the events and while the spin given is often hyped to give us hope, the consistent reality is that after decades of work there is no effective treaty in place that offers any real promise of mitigating or ameliorating the climate changes that are rushing upon us. The structural reasons for this failure are founded in the nature of the governance system trying to produce the treaties. It is composed of entities whose power as national security States is defined by the territory and resources they hold, and the powers of their police to secure their administration and their military to secure their borders through the use of violence. When a leader of a national security State pilots her or his country through the world, it is always by looking through the indicators on the dashboard provided by the system of realpolitik. They see indicators of growth and loss of resources within their territory. All the world consists of either their territory, or someone else’s. Looked at in this way, the world has no commons that are shared, only territories that are controlled. In that sense, leaders in those positions cannot see the sky of the earth,

they can only see airspace of competing nations.

However, at these annual COP meetings there are always the parallel gatherings of representatives of indigenous communities, NGOs, women's movements, youth, municipal and regional governments, social entrepreneurs, green business companies and a host of other members of civil society. They come not only to try to put pressure on the national security states in their fitful efforts at treaty-making, but also, and more importantly, to coordinate independent activities of their own. They share knowledge, wisdom, social change strategies and substantive resources. And their efforts have cumulatively, begun to have extraordinary impacts. They have used independent initiatives and nonviolent methods of sanctioning to develop transformative programmes all over the world. Towns and cities have dramatically altered the way they are planning their infrastructure development, regional governments have imposed their own carbon taxes and regulations, diverse forms of locally appropriate technology for alternative energy have proliferated, technologies and markets for such solar and wind power have been dramatically scaled up, a great deal is actually being done. And it is being done by a set of institutions that are parallel to the national security State system – by institutions that are grounded in nonviolent power and practices that are establishing an alternative world order. The convergence of these many different initiatives have created a “blessed unrest” that has us well on the way towards an Earth Swaraj.

The reasons for the success of these initiatives in working on climate change are, in part, a mirror reflection of the reasons for the failure of national security States. The indigenous

communities, cities, regional governments, youth groups and others in this blessed unrest have all learned from direct experience that many of their most pressing problems – including those associated with the mitigation and amelioration of climate change – arise from ways in which they each exist in the context of a larger commons of resources that are shared with their neighbors and others. They know that they are interconnected and interdependent. When they look at the floods and droughts and other threats they face from climate change, they look up to where they come from and they see the sky. They do not see nation State territorial lines and national airspace. They see one Earth and one sky, shared by neighbours who must learn together how to manage their shared commons in nonviolent ways or suffer the violent impacts of its unmanaged changes.

Climate change is not the only issue that has precipitated and fostered dialogical approaches to work on commons. Peoples working on pollution, species loss, political extremism, terrorism, infectious diseases, water, education and a host of other issues have found common ground on this common planet and moved to such work in a wide variety of ways. In these processes, peoples are creating a rich variety of institutions that operate independently of the coercive powers of the State and which instead rely on nonviolent dialogical collaboration create parallel institutions for an Earth Swaraj. One type of such work, the effort to develop new models for the economic corporation, is of special note for two reasons.

The first reason is rather obvious. Modern corporations dominate the global economic system and do so in what are often profoundly destructive

ways. Their organisational forms and internal cultures vary significantly by country of origin, but the paradigmatic and most problematic form arose in Europe and then the United States with the limited liability corporation. With a 1919 Supreme Court decision in the US, such corporations were actually prohibited from seeking to benefit the public and care for social costs for altruistic reasons. The result was the creation of profit-driven organisations like Union Carbide and Exxon, and disasters like Bhopal and the long delay of acknowledgement and response to climate change.

One way to understand what is problematic with these kinds of corporations is to note, first, that they are, in essence, not what they advertise themselves as. They present themselves as buzzing machinery, fruitful farmlands, productive factories, and smiling friendly people. But all of the machinery, land, buildings, and people come and go and yet the corporation remains. And what remains is, in its essence, a legal charter, a set of instructions for behaviour aimed at the pursuit of profit. This set of instructions is, in effect, a set of algorithms. In this sense, a corporation is, in fact, a kind of artificial intelligence. It is a kind of software that gets implemented by a changing array of people, machines and resources that are orchestrated according to its rules in order to maximise profits.

The modern limited liability for profit corporation is, of course, a kind of artificial intelligence of a morally defective kind. It has no algorithmic functions for promoting the general welfare or securing the common good. And it has no algorithms that can process ethical information or even perceive the moral witness of someone who, in a Gandhian manner, for instance, is suffering to

bear witness to moral truth. Further, it has little or no stake in the welfare of any particular ecological community in which it operates. If it is working in a landscape where the land becomes poisoned or a community where the social infrastructure falls apart, it can pick up its capital and move on. As an essentially non-altruistic, disembodied, non-accountable agency, it can move like a virus from site to site with no concern for the illness and destruction left in its wake.

Efforts to tame or transform corporations have taken many forms around the world – including, for example, cooperatives in Spain and Ejidos in Mexico. One can, for example, require voting membership on the board of the corporation to be shared by local government or community members – or even representatives of Pachamama or a river in New Zealand. Or one can also prohibit absentee ownership of resources and require owners of capital at work in a community to be people who live in that community and suffer the consequences of their corporate actions. Or one can reduce or eliminate the limits on legal or ethical liability that managers and owners enjoy. All of these kinds of steps change the charters, they revise the rules of the software, and they alter the algorithms that determine the behaviour of these entities of artificial intelligence we refer to as corporations. To the extent that such experiments have proven successful, they would seem to share two features in common.

First, they incorporate morality into the algorithms of the organisation by conjoining key oversight and liability in the hands of human beings who are part of the decision process. When the owners and managers who oversee the calculations

of corporate profit cannot themselves escape the effects of corporate malfeasance, they alter the decisions made. In this way, with their own bodies and cares and passions, they place corporeal bodies on the line that “incorporate” morality in the AI that defines the essence of the corporation.

Second, successful reforms of corporate structures have given them, as entities, a kind of embodiment that ties them, as organisations to landscapes and societies and gives them a stake in the long run welfare of those communities. In this way, they provide for the “embodiment” of morality in the sense that there is an essential connection to ecological context. There is an Ejido on the coast of Mexico which has won multiple forms national and international recognition for its work in restoring wetlands and conserving the coast line, otherwise threatened by industrial activity and tourism. This commons managed by the San Crisanto community, are, under the laws of the Ejido system in Mexico, owned collectively by members who are from the community. They have adopted a form of corporate ownership that allows transfer of land amongst Ejiditarios, but not beyond them. This means, likewise, when the Ejido makes decisions, its leaders and voting members are all held accountable for the consequences of their actions – not just legally, but morally and spiritually by those they have to live out their lives with. Their longstanding commitments to invest in the social and ecological capital of their community arise from these structural features of their corporation which “incorporates” morality in the algorithms of their organisation and “embodies” that because they are part of the organisation, the land held in commons cannot be abandoned because they are legally unable to sell them.

Communal land owning practices like these, all around the world, provide examples of ways in which we can and should develop structures which are alternatives to the modern for profit limited liability corporation. And, perhaps even more importantly, they provide models for ways in which we can tame the growing threat of Artificial Intelligences which threaten to run out of control. What was once a mere fantasy in movies like the Matrix and the Terminator has become increasingly a plausible and relatively immediate threat of global technological growth. The corporations and military establishments that are rushing to create ever “smarter” pieces of the planet and ever “smarter” weapons systems to control them have only just in the last several years begun to even consider the challenges we will face when Artificial Intelligences, they are creating, not only surpass human intelligence in playing chess or Jeopardy or Go but surpass humans in playing corporate management and global realpolitik. There is a desperate need to find ways to incorporate morality and embody ethics in AI and, arguably, many of the most promising models we have for doing this are provided by the communal land holding structures that people engaged in rural development around the world have experimented with and evolved over the years. A future that is safe from the threat of a technological “Singularity” is likely to be one that is dominated by institutions and structures that grow out of the Gandhian and other traditions of dialogical reasoning we have been discussing here.

Of course, it is, in many ways misleading dichotomy to speak of “rural development” as opposed, say, to something we might call “urban development” or for that matter, “suburban sprawl” – just as it is misleading to speak of the “developed

first world” and the “developing third world”. In the end, ecosystems are no respecters of fences and communities are always already connected to their neighbours in a larger commons and community sharing it. In many rural towns in Mexico, half the population lives in some barrio in Mexico City or some city in the US like Los Angeles. The families moving back and forth between these different sites may, from one point of view, be viewed as participants in two arenas of development with two different models. But from another point of view, they may be seen as different settings for a single community, engaged in a single process of development. Whether that process allows them to empower themselves, secure resources, make autonomous deliberations in dialogue as a community are the kinds of things that determine whether they are part of the larger movement towards an Earth Swaraj that, as part of its pursuit of a truly smarter, wiser world seeks to conserve the natural intelligence of communities.

That kind of work offers the hope of securing, restoring and enhancing the natural intelligence, wisdom and social and ecological capital of communities all around the globe. The path to this is often very hard and requires much collaboration. What is becoming clear is that the kind of collaboration required is of a certain kind.

It is not the collaboration of obedient extension agents following the monological directives of central planners, engaged in creating a “Green Revolution”. It is, instead, the collaboration of communities engaged in dialogical reasoning that seeks balanced pursuit of all the relevant values at stake. It is the collaboration of people who are carefully cross-fertilising new and transformative smart technologies with well established, traditional systems of natural intelligence and community wisdom. It is the collaboration of pollinators who are inspired by the traditions of Gandhi, Freire and others who practice the kind of nonviolent exchange that can advance our collective legacies of wealth of all kinds. In the long run, we are all little people who die and are ultimately forgotten. But in the meanwhile, we, each and every one us, have the opportunity to listen and learn and enter in to the sweet exchange of honey and pollen, information and action, that create a blooming, buzzing, beauty of life secured by the commons that we develop and defend as communities.

We have now the chance in the 21st century to make all the Earth a place where truth is clung to and love-force rules. While it runs away from us at a gathering clip, we must jump fast and grab this chance with both hands.

NOTES

1. Hallam Tennyson in his Preface to the book, *Gandhi – His Gift of the Fight* by J. Patel and M. Sykes, Other India Press, 1987
2. *Gandhi The Philosopher*, by Akeel Bilgrami, EPW, Vol. 38, Issue No. 39, 27 Sep, 2003
3. *Gandhi – His Gift of the Fight*, by J. Patel and M. Sykes, Other India Press, 1987 p. 197
4. *The City in History*, Lewis Mumford, as quoted in 3 above.
5. Cited from *Hind Swaraj*, by Dharampal in 'Civil Disobedience in the Indian Tradition', Other India Press, 2000
6. *Gandhi – His Gift of the Fight*, by J. Patel and M. Sykes, Other India Press, 1987 p. 198
7. Pg. 15, *Indian Culture in the End of the Century View* – lecture by late U.R. Ananthamoorthy
8. Amidst the global recession and economic slowdown in 2008, the IT major IBM initiated a global dialogue for a “smarter planet” as a strategic agenda for progress and growth - <https://www.ibm.com/smarterplanet/us/en/>
9. Turing machines, first described by Alan Turing in Turing 1936–7, are simple abstract computational devices intended to help investigate the extent and limitations of what can be computed. Turing's 'automatic machines,' as he termed them in 1936, were specifically devised for the computing of real numbers. They were first named 'Turing machines' by Alonzo Church in a review of Turing's paper (Church 1937). Today, they are considered to be one of the foundational models of computability and (theoretical) computer science. Source: Stanford Encyclopedia of Philosophy.
10. Based on a German research that found that in a span of 27 years or less than a quarter of a century, they find that the flying insects population had come down by 77%. Observed anecdotally as the “Clean Windshield phenomena”, the same has been observed in other places as well as the highway drivers observe the loss of the flying insects that squish in their windshields come down <https://www.mnn.com/earth-matters/animals/blogs/flying-insect-populations-Germany-declined-75-percent-30-years>
11. Several reports in 2018 have indicated that there is a 40% decline in the insect population <https://www.nationalgeographic.com/animals/2019/02/why-insect-populations-are-plummeting-and-why-it-matters/> and <https://www.scientificamerican.com/article/as-insect-populations-decline-scientists-are-trying-to-understand-why/>

12. Lynn Margulis(1938 - 2011) was an American evolutionary theorist and biologist, science author, educator, and popularizer, and was the primary modern proponent for the significance of symbiosis in evolution.
13. It is popularly believed that the American biologist, James Watson and English physician Francis Crick discovered the DNA double helix in the 1950s.
14. Max Erik Tegmark is a Swedish-American physicist and cosmologist. He is a professor at the Massachusetts Institute of Technology and the scientific director of the Foundational Questions Institute.
15. Life 3.0: Being Human in the Age of Artificial Intelligence is a book by Swedish-American cosmologist Max Tegmark from MIT. Life 3.0 discusses Artificial Intelligence and its impact on the future of life on Earth and beyond.
16. <https://synbiobeta.com/with-the-recent-patent-news-who-owns-crispr-now/> CRISPR is a gene-editing technology that is supposed to revolutionize the scientific and medical research, though it is caught up in several patent issues. More details in the link.
17. Biomimicry is the creation of machines and solutions that are mimicking natural processes and systems
18. Go is an abstract strategy board game for two players, in which the aim is to surround more territory than the opponent. The game was invented in China more than 2,500 years ago and is believed to be the oldest board game continuously played to the present day.
19. Alpha Centauri is the closest star system and closest planetary system to the Solar System at 4.37 light-years from the Sun.
20. Paulo Freire (1921-1997) was a Brazilian educator and philosopher who was a leading advocate of critical pedagogy. He is best known for his influential work, *Pedagogy of the Oppressed*, which is generally considered one of the foundational texts of the critical pedagogy movement.
21. Elise M. Boulding (1920-2010) was a Norwegian-born American Quaker sociologist, and author credited as a major contributor to creating the academic discipline of Peace and Conflict Studies. Her holistic, multidimensional approach to peace research sets her apart as an important scholar and activist in multiple fields.
22. Sara Ruddick (1935-2011) was a feminist philosopher and the author of *Maternal Thinking: Toward a Politics of Peace*.
23. Quakers, also called Friends, are a historically Christian group of religious movements formally known as the Religious Society of Friends, Society of Friends or Friends Church. The

Quaker movement through its several representatives had a continued dialogue with Gandhi through his life and many Quakers have been his close associates including Marjory Sykes and Horace Alexander.

24. Joan Valerie Bondurant (1918-2006) was an American political scientist and former spy for the Office of Strategic Services during World War II. She is best known as the author of *Conquest of Violence*, a book on Gandhian political philosophy.

Endnote: For more on Gandhi's notions of swaraj, satyagraha, and truth see Bondurant 1988 and Gandhi 2013; for subsequent traditions of conflict resolution and nonviolence see Bartoli 2011, Boulding 1990, Chew 2001, Chenoweth 2013, Cox 1986, Cox 2014, Fisher 1996, Hawken 2007, Lederach 2008, Ramsbotham 2016, Rediehs 2015, and Sharp 2007; for more on Freire's methods, see Gutierrez 2001, Freire 2000 and Freire 2018; for more on concepts of intelligence and life see Cox 2015, Margulis 2000 and Tegmark 2018. For very helpful comments on a draft of this paper I would like to thank Suzanne Morse.

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