A MEETING WITH GODFREY BOYLE

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The Royal Festival Hall members bar

Peter Harper and Godfrey Boyle discussing AT@40, the forthcoming anniversary conference, 17th March at the Architecture Association (AA) in London.

We didn’t really have an agenda. It was an occasion for chewing the fat in preparation for the conference. The focus is “AT” – Alternative Technology, but what is that? Did we ever know? Did it ever receive a crisp and operational definition?

We recalled that in January 1972, before we two had actually met, Andrew McKillop and I (Peter Harper) wanted to arrange a conference at the Bartlett School of Architecture, yet we had no title for it. Andy had previously published some work with Jonathan Holliman under the heading BLUP or “Biotechnic Land-Use Publications”, and in 1971 I had produced a report for Unesco called ‘Soft Technology: A Proposal for Alternatives Under Conditions of Crisis”. This had its own genesis, partly due to a residency I had at the University of Michigan in early 1971, and earlier roots in a conference called “Threats and Promises of Science” in 1970, and a discussion circle known informally as the New Science group.

Essentially we were talking of a de-industrialised vision of future societies, on the assumption that the high-tech trajectory was (as we would now say) unsustainable.

At an informal meeting at the AA, Andy and I tried many ideas, and suddenly the phrase ‘Alternative Technology’ popped up. This had antecedents, such as ‘Liberatory Technology’ (Bookchin); ‘Appropriate’ and ‘Intermediate’ technology (Schumacher); ‘New Alchemy’ (Todd and McLarney); ‘Biotechnics’ (McKillop and Holliman); and ‘Soft Technology’ (myself and Robin Clarke). There were also later manifestations such as ‘People’s Technology’ (myself and Björn Ericsson); ‘Radical Technology’ (Godfrey Boyle and myself); ‘Community Technology’, and ‘Ecotechnics’ (Godfrey Boyle). These concepts have content and considerable histories.

So the name Alternative Technology was originally a slogan for the occasion. It was not meant to be a defined term or the name of a movement. However it had a certain resonance, partly arising from the contemporary voltage of the word ‘alternative’, and partly for the hint that a clever way had been found to resolve a potential contradiction in terms. And perhaps the chance of ‘something for nothing’—often the trigger for an intellectual cult (compare, for example, Permaculture).

The conference was a success. Godfrey was there with the first edition of *Undercurrents*, conceived and produced entirely independently of McKillop and Harper. Thereafter the two streams of thought partially merged, although the term (usually abbreviated ‘AT’ in both speech and writing) escaped and became widely used. One heard it on buses, in TV programmes, in pamphlets; and its appearance in *The Ecologist* led to its subsequent attribution to the editor Teddy Goldsmith by the OED. Like many other phrases of the kind, it gathered to itself magical powers.

Its first big outing in print, however, was my extended bibliographic essay in Undercurrents No 3. You can see there the heady brew (read: confused mishmash) of technical and political ideas that some people found irresistible, and others, well, a confused mishmash.

Being of a theoretical bent, and with a nagging sense that a little semantic hygiene was overdue, I tried hard to come up with a snappy definition of AT, and I failed. I particularly tried to distinguish it from established terms such as Appropriate Technology, but the two were often used interchangeably. Close synonyms were also ‘Soft Technology’ and (later) ‘Radical Technology’.

 A DIGRESSION FROM OUR DISCUSSION

Perhaps since I have the floor for a moment, I can fill in a bit of the background. First I must confess that (at the time) I was somewhat mesmerised by the resonance of a term that appeared to draw on two contradictory mind-sets. And the way it got imbued with magical powers. That is to say, you could invoke the phrase to suggest that for any given socio-technical problem there was a new approach that would resolve it. And you could wow an impressionable audience. I remember one TV drama encountering some difficult technical issue – can’t remember what – and the Dr Who-like hero saying, don’t worry we can sort it, followed by querying grimaces from the other protagonists; a slight pause, and then with a knowing look he says simply, “Alternative Technology!”

So I was already behind the curve! But as soon as I could I started to try and analyse its possible meanings. ‘Alternative’ was meant to signify a break from heedless growth and consumerism without necessarily having to sign up to improbable metaphysics. Using the term meant you were resigning from the consensus norm that life was all about MORE, and ‘getting on’ and gaining status: and this was a definite statement of intent. In terms of a more recent conceptualisation, it was about asserting *intrinsic* rather than *extrinsic* values.

At the same time, most proponents of ‘alternative’ values were still hedonistic and ignorantly reliant on the effective functioning of the mainstream system – which is so good at its job you hardly even notice. In retrospect this was a fundamental mistake.

Introducing the word ‘Technology’ partially corrects irresponsible romanticism; it means that *things have got to work*; that you submit to the Rules of Nature and cannot simply live in a dream fantasy land. At the same time, the word Technology is a powerful talisman.

Well what *is* the difference between AT and any other sort of technology? Can you tell just by looking, or by applying a few rules?

The accepted model is like this:

SCIENCE → TECHNOLOGY → APPLICATIONS

It is assumed that only applications are subject to social choice, but the other elements are not: they have their own internal logic that cannot be impugned without arbitrary ideological interference. When you think a bit more about it you can see this is not entirely the case: we have to choose all the time what to study, what to develop into a working process and so on. And there are regulations controlling things to a certain extent, such as the vivisection or pollution laws. But on the whole there are no overarching rules that select or forbid certain lines of enquiry or technological realisation.

However*, in the ‘alternative’ conception there* ***were*** *rules*; or at least we thought we could find them. We could see that ‘regular technology’ could easily be misapplied (and was of course—that was the gripe that spurred all this fuss). What we were after were upstream rules for technology (and science too?) *that would ensure the process could not be misapplied*.

But of course it proved incredibly hard to find such rules. Personally I started with ‘Only use natural materials’; but this falls at the first ball bearing: no bikes then! ‘Small is beautiful’ was a promising rule of thumb, but it defies economies of scale and prompts the question ‘how small is small?’ ‘Keep it simple’: where? In making something, in maintaining it, in using it? If you try to follow such rules there is usually a colossal penalty in productivity relative to standard technology – could easily be two orders of magnitude. Then you become even more dependent on mainstream technology just to stay alive. We weren’t prepared for this!

If you are not too ambitious, you can have quite good restrictive rules. Schumacher’s principle of ‘intermediate technology’ had a clear operational definition in ‘can it be maintained by the local skills and supply-chains?’ It was meant as a manageable step up from pre-industrial poverty, possibly a stepping-stone to further steps. But for us it raised the fascinating question: if they are too poor and can step *up* to an intermediate level, are we too rich and should step *down* to a similar level? I had explored this idea in a report commissioned by Unesco in 1971. Had the rich world now gone too far? Possibly. But at the same time, much as many people hankered for it, there was no going back to running a modern society only on crafts and hand-tools, no matter how sophisticated and well-designed, although let’s come back to that later.

In spite of many conceptual difficulties we hung in there, largely using culturally pungent exemplars (see ‘An Alternative Alphabet’ published in the *Architecture Association Quarterly* in 1975), supplemented by elliptical one-line definitions such as ‘Pandora’s tool-box for new-Age odd-job men’ or ‘a handy way of throwing the apocalypse off the scent’.

Helpfully, Robin Clarke, who had been editor of the *Science Journal*, a short-lived British equivalent of the *Scientific American*, made a list of all the things we wanted from our alternative technology: 36 items! That was a clear challenge: could you find a set of rules for technology that would automatically deliver all these desiderata?

It always takes a while for these things to get thought about, and for the understanding to shake down into some stable conclusions. But gradually it became clear that the task was impossible. For a start the 36 items themselves were internally contradictory, but it was equally clear that technologies that deliver values *a,b,c*… cannot deliver values *x,y,z*… and so on, and you could invariably envisage mis-uses of various kinds. You cannot automate Goodness, and it was daft to imagine you could, but come on, we were all *soixante-huitards* and youthful romanticism dies hard.

But in the end reason won out, and I personally had to repudiate the all-singing-all-dancing conception of AT, and indeed wrote an obituary in *Undercurrents* (No 5, 1973). But I failed to kill it off. Its bogus magic powers were too great.

Meanwhile of course, people were making up their own understandings. Gerard Morgan Grenville adopted the term for his grand conception of a National Centre for the Development of Alternative Technology – that eventually became the CAT. Dave Elliott founded a more overtly political organisation called NATTA – the Network for Alternative Technology and Technology Assessment, the latter term referring to the need to evaluate new technology pretty thoroughly before letting it loose. Some hope! The Open University had a sub-departmental unit called the Alternative Technology Group, (ATG) of which Godfrey and Dave were members.

Then too, there was David Dickson’s book, *Alternative Technology and the Politics of Technical Change*. Probably this was the most widely known treatment of the term. Its distinctive final section dealt with the quasi-Marxist debates about the ‘objectivity’ of science and the control of technology, associated with the British Society for Responsibility in Science, of which David was then General Secretary. In subsequent years these were rarely revisited, but still deserve consideration.

Its last great statement, morphed for distinctiveness, into ‘radical technology’ was the compendium of that name that Godfrey and I edited in 1975. *Radical Technology* was clearly a product of its time, and in parts embarrassing to read now, but it had widespread influence and was translated into German and Japanese. One excellence of RT was its very broad conception, not just energy but horticulture, clothing, materials, and structures; not just hardware but software too, community organisation and history, ecofeminism, and even ‘VAT’ or *Very* Alternative Technology, an acceptance that the ‘paranormal’ should not be excluded.

Nevertheless the semantic pull of the word ‘technology’ in its everyday sense tended to restrict the use of AT to hardware, and more specifically *energy*. On a visit to the Open University’s ATG in the 80s I browsed in its excellent library, a room full of books. Eventually I found the agriculture section, which consisted of just one book. That said it all!

Despite the existence of ATG, and the University of Warwick’s course on Engineering Design and Appropriate Technology, there was little university interest in AT, and the elevated worlds of science studies and technology theory ignored it entirely.

It is probably fair to say that after about ten years the term was fading away overall, but kept alive by the existence and growth of CAT. CAT rarely attempted to crisp the term up, and allowed its own motley collection of buildings, gadgets, pamphlets, courses and staff to embody the spirit of AT and leave people to draw their own conclusions. So for better or worse AT was widely understood to mean simple, improvisatory, heedless of appearance, modest in scale, experimental, low-cost, user-friendly, not particularly efficient, and using readily-available materials, natural or scavenged. It was essentially the technology of a refugee camp or a post-holocaust community.

It is intriguing to compare the rise of Permaculture, with a similar ethos and programme, but emerging from the land-use side of things rather than energy and engineering – with enduring influence on the balance of concerns, its adherents and its ‘clientele’. Permaculture has gone through similar attempts to define itself and create a body of rules and practice, and in the process has essentially captured a slice of AT. In most perceptions, if it’s lo-tech farming it’s permaculture; if it’s low-tech engineering it’s AT. And they attract different kinds of people. A conference at CAT will have older people, geeks, sticklers for detail; at permaculture conferences it’s younger people, colourful, that prefer stories to numbers. But there’s a cheerful overlap.

Back to our discussion at the Festival Hall!

We asked ourselves a number of questions:

* What new ‘game-changing’ principles or practices have emerged since the 70s?
* What shibboleths have we junked, either joyfully, automatically, or with reluctance?
* What new concepts and terms have emerged with similar intent?
* Is there scope for a reformulation that captures some of the spirit of the original?

GAME CHANGERS

Obviously both science and technology have continued to explode, and in some ways we *are* in a different world. We probably didn’t think ICT would be quite so powerful and ubiquitous, although artificial intelligence has been slower than many thought, and space flight has revealed its limitations. Biggest thing in science? Chaos/complexity theory? Molecular genetics? Behavioural economics? Brain scanning? Neuroscience? Applied quantum theory?

But environmentally it is much the same world, thanks to the really big new kid on the block, climate change. This gives us Old Lags the same apocalyptic feeling now as the 70s – in contrast to the 90s when we had a bit of a break. The general sense of an unsustainable Ponzi scheme originally captured by the *Limits to Growth*, has now deepened and is elaborately monitored. It is as true as ever that *you can’t get a quart out of pint pot*. Intriguingly, the two principal weaknesses of the *Limits to Growth* – the respective aggregations of ‘resources’ and ‘pollution’ – are now found to map rather closely onto Peak Oil and greenhouse gas emissions, and this has given it a fresh credibility.

Collapse scenarios, long absent, are now back in town, and widely discussed.

So there is the same ambiguity about whether we are here *to prevent the worst* (if everybody takes heed and Does It) or here *to prepare for the worst* (if things carry on as they are).

So NO, the game is essentially the same.

SHIBBOLETHS

Actually quite a few have gone.

* Small is not always beautiful, and we have come to welcome the big wind farms, and tend to favour tidal barrages, the Grid, and indeed *international* supergrids.
* No more self-sufficiency: it’s a globalised world, and ‘comparative advantage’ plus intense specialisation counts for quite a lot.
* High-tech? OK, we’ll come quietly: even the low-tech usually depends on some high somewhere in the system.
* “Technical fixes”? We used to deride these as missing the chance for fundamental changes of behaviour or organisation, and providing cover for unsustainable Business As Usual. But most of what we now back amounts to a series of technical fixes; and the problems are grave enough that we now tend to feel, let’s get them sorted and deal with other issues later. So: not so much ‘lifestyle’ or ‘community’ emphasis these days, although they still figure.
* Connected with this, many ‘political’ concerns we had about empowerment, alienation, participation, economic justice, are much weaker. Is it just that we got older?

NEW CONCEPTS AND TERMS?

Terms like ‘environmental technology’ and ‘sustainable technology’ are bandied about without any intrinsic meaning, but Clean Production, Clean (or ‘Cleaner’) Technology do have more precise meanings and a generous body of theory and practice. ‘Zero Energy’ and ‘Zero Waste’ represent aspirations rather than achievable goals, but are well institutionalised. Increasingly ‘Low-Carbon’ or ‘Low Emissions’ are emerging as measurable standards for technical systems.

A nod is required to ‘Permaculture’, arguably the largest single influence on the ‘Transition Movement’. Even vaguer than AT, its imputed ‘magical powers’ have been commensurately greater, and it has been even more reluctant to test its own claims and move on. The work of one of its founders, David Holmgren, stands out as exceptional, but is not what is commonly understood as ‘Permaculture’.

REFORMULATIONS

Given that Climate Change is widely accepted as the defining contemporary problem, urgent, and in effect a proxy for many other serious problems, there is a widespread move to classify technical systems in terms of their life-cycle emissions. In other words, we seek *Low-Carbon Technologies*. This has the advantage of being measurable and allows you to get on with stuff. Note however that many entirely mainstream technical systems such as nuclear power and ‘clean coal’ also claim to be ‘low-carbon’. If they are, on what basis could they be rejected?

At the same time we note that some low-carbon technologies are also low-tech: they depend largely on local abundant materials, do not rely on global supply-chains, and can be operated quite well on a local basis with local skills and markets.

Now here’s a genuinely new idea: stop looking for a universal panacea and accept there’s a role for both high and low-tech depending on circumstances. The mainstream has tended to use high-tech for everything because it’s been cheap, easily available, and matches the institutional arrangements and skill-sets. But it does tend to be high-energy and high-carbon, and we cannot guarantee its appropriateness in the coming decades.

Godfrey and I tried to draw up a 2x2 matrix of these factors (see below).

|  |  |  |
| --- | --- | --- |
|  |  | CARBON |
|  |  | LOW | HIGH |
| TECHNICAL LEVEL | LOW | **Local skills**Bicycles, local foods, earth/hemp (etc) construction, preventive medicine, long-lived craft items, home cooking, composting | **Trad and bad**Coal fires, intensive livestock,Conversion of pasture to forest, charcoal making, living in large houses, paddy rice |
| HIGH | **Clean tech** Clean production, renewable energy, product service systems, much ICT, rapid transit, hybrid and electric vehicles, heat pumps | **Worst of all worlds**, tar sands, fracking, SUVs coal-fired power stations, excessive crop fertilisation, aviation |

Admittedly it’s a bit difficult to say exactly what’s ‘high’ and ‘low’ tech because things are usually mixed up these days. But it might be mixtures we are after. Let’s give an example. Most modern buildings are constructed of high-performance, high-carbon materials such as steel, cement, aluminium, brick, plastic, fibreglass. There might well be some low-carbon elements such as timber, cork, wood-wool, but these will usually amount to a few per cent of the weight. Recently at CAT we have been creating buildings where the bulk of materials are low-carbon, principally earth, timber and hemp-lime composites. These have lower ‘performance’ in some directions, thus necessitating more material and greater skill and cost. Yet the carbon results are very good, pointing to a clear way forward using existing techniques and materials. Note that the low-tech materials are never 100%. There is always a strong element of what might be called ‘industrial vitamins’ that make the thing work, and allow it to perform like a modern building.

Essentially, a renewed conception of AT could be to treat it as the default approach where you design your system round a core of low-carbon, low-tech, elements, and introduce others judiciously as enabling ‘vitamins’, from any of the cells.

We could see this might work for buildings. It does not work well for energy supply, where central generation and distribution is likely to be overwhelming. It could work for food and diets (“meat ‘n ten veg”); for transport and holidays; for health services and medicine; and for some classes of consumer goods.

The overall balance might look like the chart below. The yellow bit would be ‘AT’; it does not claim the whole space, but complements the truly high-tech sector.

Low-tech sequestration

Non-commercial sector, mostly low-tech with industrial vitamins

Commercialised low-tech with industrial vitamins

‘Clean’ high-tech, mostly energy and intermediate goods, plus ICT

Essential high-carbon technologies

High-tech sequestration

Low-tech sequestration

Non-commercial low-tech informal economy with industrial vitamins

One final idea: Since we are still in a strange state where we don’t know whether to devote more resources to preventing climate change, or adapting to it, could we ask whether there is a kind of hybrid solution? That addresses both problems: that 1) if widely adopted would maximise the chances of avoiding ‘dangerous climate change’ (as they call it); but that 2) maximises your resilience in the event of failure. This could apply to the pattern we have sketched, with an emphasis on decarbonisation and lower-tech patterns of supply.

That’s about as far as we got, but it was a fine session!

PS Interesting to note the similarity of this with Hazel Henderson’s layer-cake model, that I have just stumbled across:

