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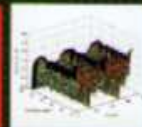
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development



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Special Report 2
RF and microwave
design

HAT THE ADERS SAY

The reality in science today is massively divorced from its image.

I think that, through nobody's fault, a structure has developed which will prevent any major scientific advance in the future. To modify the last sentence, even if nobody was ill-motivated, the blocking structure would still have developed. The problem is not caused, but only exacerbated by, miscreants.

Dr Ivor Grattan-Guinness pointed out to me many decades ago that the introduction of compulsory universal education was a major factor in what later developed. This occurred in Europe in 1800 and in England in 1870. The result was that a major new social group, which I call professional knowledge brokers, developed. The economic, prestige and other base of a professional knowledge broker is the body of knowledge that he administers – teaches, “researches into”, publishes on, examines on, and so on.

“Researches into” is the pivotal factor among those factors cited above. For a century, it was thought that research could be pursued by professional knowledge brokers, and that it was compatible with, and encouraged by, the other activities in the above list.

To quote Wikipedia: “Newton himself had been rather more modest of his own achievements, famously writing in a letter to Robert Hooke in February 1676: ‘If I have seen further it is by standing on the shoulders of giants.’”

Here we see Newton downplaying his achievements and re-classifying them as what T S Kuhn calls “Norman Science”, not what they really were – “Revolutionary Science”. This is because a “Paradigm Shift”, such as Newton’s work, far from “standing on the shoulders of

giants”, cuts down the past giants and destroys their work. When the theory of oxidation took over for burning, all of the pre-existing phlogiston theory was destroyed, and disappeared. Today, such a change would mean that lecture notes and text books would have to be destroyed. As Kuhn says: “normal science” advances by accretion, whereas “revolutionary science” advances by way of destruction. Even back then, Newton knew that his “revolutionary science” would meet with opposition. Today, an attempted paradigm shift threatens to destroy a professional knowledge broker’s lecture notes, text books, prestige, salary, promotion and pension.

Onto this stage comes the “lateral arabesque”; the supposed situation where academia controlling a discipline – electromagnetic theory for example – maps



onto the real subject, is unstable. If at any moment the professors administering a discipline happen to be weak in one branch of it, they will tend to not examine their students in it, and so will tend to select out those up and coming students who have that sub-discipline as their strength. Positive feedback down the generations of students will further the retreat from that particular sub-discipline. (Sir James Jeans and Einstein could be said to be telling us that academia have selected out budding scientists who showed a grasp of the physics, rather than the maths, of their subject.) Similarly, the whole of academia will move deeper and deeper into any misconception or aberration, and there is no corrective force. In my view, ‘The Lateral Arabesque’ makes it possible for an academic subject’s content to end up with no overlap at all onto the real subject from whence that branch of academia sprang.”

This was published in 1985. I did not then realise, but realise now, that professors and

students today have more or less fully replaced real electromagnetic theory by a collage of dubious, complex mathematics.

When discussing “The Scientific Referee System”, MacRoberts and MacRoberts say that those who defend the established theory do not understand the new theory. However, my recent research shows that they also have a very poor grasp of the theory they are defending against paradigm shift.

The eruption of digital electronics onto the scene in electromagnetic theory was rapid and brutal. Academia were horrified at the crude use of amplifiers in digital electronics, replacing the elegant class A with a crude Class D, which however rapidly ousted Marconi-style radio electronics in the marketplace, and today represents 95% of all electronics. Academia successfully blocked the intrusion of any insights gained in digital electronics, and continues to do so today, more than half a century later. Today – worldwide – academics have a very poor grasp of Heaviside’s Morse pulse, now reappearing as the logic signal, or a *pulse* in a USB cable in the computer in your bedroom.

Groups on the periphery of science include Philosophy of Science, Sociology of Science, History of Science, Politics of Knowledge, Research into Censorship, general media and scientific media.

For science to survive, it would be necessary for these groups to discipline science, and to look into possible misconduct by professional science. However, the problem is probably that they also are professional, and rely on fringe funding and reputation from mainstream (decadent) science. The role they play in practice is to validate the behaviour of mainstream (decadent) science.

In pursuit of reputation (and funding) will probably reflects the behaviour of these groups – Philosophy of Science, Sociology of Science, History of Science, Politics of Knowledge, Research into Censorship, general media and scientific media. Their writings and behaviour all tend to validate and support a decadent mainstream, again for reasons of pursuit of prestige.

WHAT THE READERS SAY

THE DECLINE OF SCIENCE

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Ivor Catt
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