The conquest of truth

Catt presents his views on why apparently liberal scientists combine in seeming to suppress the facts

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Einstein rejected the legacy of the early twentieth century, which I call "Modern Physics", with which his name tends to be associated. In the 1940s, he wrote*

> ". . . I am quite convinced that someone will eventually come up with a theory whose objects, connected by laws, are not probabilities but considered facts, as used to be taken for granted until quite recently."

> ". . . We all of us have some idea of what the basic axioms in physics will turn out to be. The quantum or the particle will surely not be amongst them; the field, in Faraday's and Maxwell's sense, could possibly be, but it is not certain."

> "Quantum Mechanics and Reality. In what follows I shall explain briefly and in an elementary way why I consider the methods of quantum mechanics fundamentally unsatisfactory."

While this rejection by Einstein is occasionally admitted,** the main thrust of today's scientific propaganda makes out that Einstein was a card-carrying member of the Modern Physics party.

In the July issue of *EWW*, page 683, I listed some of the characteristics of 'Modern Physics', describing it as a soft subject, lacking the brittleness of true science, which it has usurped. In his book The Structure of Scientific Revolutions, T. S. Kuhn opposes the softness of Modern Physics. On page 97, he writes,

> ". . . The successful new theory must somewhere permit predictions that are different from those derived from its predecessor . . . It is hard to see how new theories could arise without these destructive changes in beliefs about nature."

In stark contrast, 'Joules Watt' had this to say in *EWW*, July 1987, page 697, paraphrasing the same book,

> "Yet the developed theory of electromagnetism still holds sway. If there are some phenomena such a theory does not explain, then any new model must explain all that has gone before – plus the new aspects. At least that is the way Thomas Kuhn outlined the situation."

A clue to the attitude which could have led to these two extracts is given in the assertion by Professor Ziman on television, quoted in the July 1981 editorial, "the aim of science is to achieve consensus." His assertion that science is monolithic is supported by the fact that the medieval method of achieving consensus, or suppressing heresy, in religion, using anonymous censors, has been copied in today's science.

Let us investigate the consensus view of science. I feel that Kuhn is describing it in what follows.

> "If science is the constellation of facts, theories, and methods collected in current texts, then scientists are the men who, successfully or not, have striven to contribute one or another element to that particular constellation. Scientific development becomes the piecemeal process by which these items have been added, singly and in combination, to the ever growing stockpile that constitutes scientific technique and knowledge." – T. S. Kuhn, *op.cit.*, p.1.

A Great Scientist has successfully contributed one or more elements to the body of knowledge. Any aberrant, heretical offering merely indicates that he is not as great as he might have been. Something like 80% of his work takes its place within the consensus, and the remaining 20% we must forget in order to help the Forward March of Science. From the consensus point of view, this is not suppression. Also, it is encouraging to find that the central circle, the least common denominator, is so large. The consensus is obviously the centre of gravity of so many mildly divergent views. It then becomes a short step to rewrite the aberrant views of some of the more troublesome great scientists. In fact, if Kuhn is regarded as one of the 'greats', then any reading of his works which might indicate that he falls significantly outside the main consensus circle must be a misreading. If he were so different, then he would not be known.

Having dealt with the conquest of truth about scientists, we now turn to the conquest of truth about scientific experiments.

It seems that any book called Relativity for Tiny Tots, or The Ascent of Man, or such like, contains clear assertions about a number of pivotal experiments in the history of science, nearly all of those assertions falsifying the experimental results. This falsification of most of the key experiments extends all the way up to about first-degree physics-level textbooks. It is galling rather than pleasing to find that post-graduate books generally admit to such errors, but on page 500, not page 5. My position is that if there is any uncertainty as to the conclusion indicated by the results of one of the key experiments, then that should be reported in quite elementary texts, for instance those used by 17-year olds.

There are four so-called† "acid tests" of Relativity. All are disputed.

Hawking/Israel admit that light bending round the sun *contradicts* Einstein's prediction*. Brillouin says that the Mercury perihelion results, properly studied, contradict Einstein's prediction**. Polanyi and

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"Any physical law which contains a derivative (d/dt or d/dx) is wrong because it implies instantaneous knowledge of two things which are separated by distance or by time. This transgresses the principle 'No instantaneous action at a distance'.

$$\oint E ds = \frac{dq}{dt}$$

is one such faulty equation.

Michael S. Gibson

Please note, in amelioration of Gibson's assertion, that he is writing about physical laws – *prescriptive* statements. Also, he is writing about fundamental laws in physics. In contrast, should a mountain get steeper higher up in a certain way, it is perfectly valid to make the *descriptive* statement

$$dh/dx = kh$$

should that happen to be true for that particular mountain. Also, this could even be a *prescriptive* statement should it be a necessary result of the wind or ice shaping the mountain. However, in such a situation, we are not dealing with a relativistic universe; in the case of erosion, we are within a universe of discourse where we can conceive of "instantaneous" action at a distance. Gibson refers to the deeper level of physics, with fundamentals, where there is no instantaneous action at a distance.

* The Born-Einstein Letters by Max Born, pub. Macmillan 1971, further discussed in Electromagnetic Theory Vol 2, by I. Catt, C.A.M. Publishing 1980, p307. Also see I. Catt, *EWW*, July 1987, page 683.

**P. E. Hodgson, Fontana Dictionary of Modern Thinkers, ed. A. Bullock and R. B. Woodings, Fontana, 1983, p208. However, if we read Hodgson on page 604 we see the ambivalence and confusion in the admission.

†I myself find Relativity flawed at other levels anyway.

one, discard the feedback circuit. This is because most equipment is *not* unduly fussy about the actual voltage, within fairly generous limits. However, if you use an output filter, the feedback circuit becomes necessary because of the far higher effective output impedance of the inverter.

The main clock is the ubiquitous 555, which is run at a frequency higher than the desired output frequency in order to achieve stability with economical components. A flip-flop provides two outputs which are used to gate the drive alternately to the two output power transistors. At the zero-crossing points a monostable is triggered which resets the input ramp circuit and ensures a dead period between the conduction cycles of the two power transistors. This is essential to prevent both sides being on at once due to the long storage times of high current transistors.

ALARM CIRCUIT

When the supply to the charger fails, its 12V rail fails to zero, triggering bistable 2 in Fig.5. This enables the two oscillators, which together give an interrupted tone to the piezo-electric sounder. This can be reset to silence the sounder.

When the battery voltage falls to 1.9V per cell, comparator IC $_{1a}$ triggers bistable 1, to give a continuous tone, and you have about 10 seconds in which to close down. After this time, the inverter is automatically turned off. Reset is inhibited during the "battery low" condition.

This design is very rugged and relatively simple: the output power circuit is extremely reliable if well laid out. C-mos i.cs are used throughout because of their vastly superior properties in this type of circuit. That is to say, the power consumption is very low, supply voltage is uncritical, the noise margin is very good and they are not too fast (which helps greatly to reduce problems of interference to the electronics). The lack of any significant heat generation also helps reliability.

However, when powering up the circuit, check it out slowly and thoroughly before connecting the supply to the transformer. When you do this, start at a low voltage with a current limited supply and check that all is well before connecting the full 24 volts. The inverter can deliver 600 watts, and fault currents can be high. The cost of 10 power transistors destroyed with a single blow is not inconsiderable.

Charles Frizell was born and educated in Rhodesia. He came to the UK in 1965, where he worked at Racal on coils and transformers, subsequently returning to Rhodesia to work on radio telemetry for the Kariba hydro-electric project. Since then he has been chiefly concerned with high-power electronics in Zimbabwe and South Africa and is now with Brown-Boveri in Harare, Zimbabwe.

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others say that the Michelson-Morley experiment does not produce a null result***. In any case Einstein did not develop relativity as a result of the Michelson-Morley experiment****. The formula $e=mc^2$ pre-dates relativity. Relativity pre-dates Einstein. And so on.

We are helped in trying to understand why apparently liberal, progressive scientists should combine to create such a reactionary, unstable juggernaut if we read about the term "Whig History" in the dictionary of the History of Science, 1981, page 83.

> ". . . . Although favouring progressive movements in the past, the thought of Whig historians was essentially conservative. They saw their own beliefs, practices and institutions as the goals for all previous beliefs, practices and institutions. The historian's task was reconstructing the progressive march of history focusing on those past developments which anticipated the present."
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> "The 'Whig' interpretation of history has had a powerful influence within the history of science. . . . . Some historians of science have, therefore, seen the present state of scientific knowledge as an absolute against which earlier (and we would say later) attempts to understand Nature could be evaluated.,"

Like the Whig historian, today's Establishment Scientist, although apparently progressive, is in fact conservative.

MAXWELL, EINSTEIN AND THE AETHER

The conventional story is as follows.

Maxwell followed in the wake of a physical, non-mathematical Faraday, who thought in terms of tubes of flux in space. Faraday had a space in which resided electric flux and magnetic flux. His space had physical reality and physical properties, these properties making it able to accommodate his fluxes.

Maxwell set out to make Faraday's ideas more rigorous and scientific (a) by firming up the physical model for space, or the aether, and (b) by placing a mathematical structure over them.

He constructed a mechanical model for the aether, with large rotating wheels and small idler wheels, on the lines of a gear box run riot in complexity. Using this model, he constructed his Equations of Electromagnetism.

However, the reported[1] failure of the Michelson-Morley experiment and the birth of Relativity led to the removal of the physical model upon which Maxwell constructed his equations

> ". . . . one is almost exactly the antithesis of the other: the primary function of the ether was to provide a fixed frame of reference – . . . . the theory of relativity merely implies the negation of this preliminary assumption, so that the two are exactly antithetical."[2]
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> "Now although Maxwell's Equations have survived to the present day, the discovery of the electron and the development of relativity theory have removed the physical props upon whch they were built."[3]

All of this flows along swimmingly until we assemble the next disastrous pair of observations.

In 1949 Einstein wrote[4];

> "The special theory of relativity owes its origin to Maxwell's Equations of the electromagnetic field."

Here we reach the point where Einstein says that the foundation of relativity is Maxwell's equations excluding, of course, its now defunct physical origin, the aether; that is, space with physical properties.

Now add my own discovery that Maxwell's equations are devoid of any information *except* that on the physical properties of space.

> "The only purpose served by Maxwell's equations is as a package to deliver the constant Z_0 to the theorist and to the practitioner."[5]

Here we have closed the loop in the argument, and the whole crazy structure underlying 'modern physics' collapses.

To sum up. Einstein says that relativity, which he believes to have been based on the disappearance of a space with physical properties, is based on Maxwell's equations, which are now found to contain *only* information about the physical attributes of that disappearing space.[5]

By analogy, it would be possible to proclaim a new theory of mechanics which lacked the concept of mass, but which contained both velocity (v) and moment (mv) within it, and which preferably included lots of fancy maths involving momentum and velocity. Then, unknown to any one among the awed observers, the new theory could be made to function, produce results, and correlate with reality. The necessary parameter m, like the rabbit in the hat, could go about its business, staying all the time firmly hidden inside the hat, the hat being in our case the term momentum and a fog of mathematics.

Can we not chase this obscurantist 'modern physics' out of our universities, and start to prepare for a 21st century of real scientific progress?

References

1. For the exact nuances here, read Polanyi M., Personal Knowledge, R.K.P., 1958, pp9-13. Catt, I., Electromagnetic Theory Vol. 1, C.A.M. Publishing, 1979, p108
2. Jeans, J., The Mysterious Universe, C.U.P., 1931 P.85
3. Cullwick, E.G., Electromagnetism and Relativity, Longmans, 1959, p.ix. See also Whittaker, E.T., A History of the Theories of Aether and Electricity, Nelson, 1951, p255.
4. Ed. Schilpp, P.A., Albert Einstein, Philosopher-Scientist, Library of Living Philosopher, 1949,p62.
5. Catt, I., The Hidden Message in Maxwell's Equations, *EWW*, Nov'85

*See I. Catt, Electromagnetic Theory republished C.A.M. Publishing 1986, p.III.
**See I. Catt, *op.cit.,p116*
***M. Polanyi, Personal Knowledge, pub. RKP 1958, p.12.
****M. Polanyi, *op. cit.*, P.10.