core-forming metals that had equilibrated, segregated and collected at the bottom of the magma ocean as a layer, may have traversed later through the solidified and possibly sheared core–mantle boundary zone by percolation? Such a process would satisfy both concepts of core growth. Or, did the core evolve through different routes at different times? Only future experimental studies can answer these enigmas and unify many of the existing postulates.

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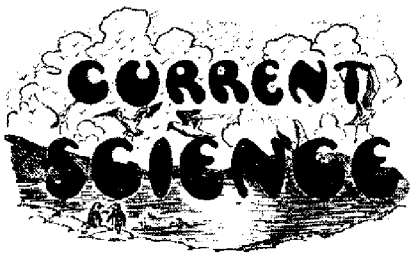

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History of Science as related to civilization*

Although the current century has witnessed a greatly increasing occupational absorption of men trained in various branches of science, their fraction of those engaged in all employments taken together must remain very small. It is therefore reasonable to ask, is it profitable for the State to provide an expensive form of school-training framed as if all those who receive it were embryo professional scientists? There can be no question that every individual who is privileged to vote should have some knowledge of the fundamental relation of science to the State, but cannot this be conveyed without giving him at the outset a training he might expect to receive if destined to embark on a scientific career?

*Sri Krishnarajendra Silver Jubilee Lecture by Sir Martin Forster, F.R.S.

The basic idea underlying the new movement is that a more generally useful approach to scientific method and scientific ways of thought is the historical one. Every intelligent mind finds attraction in biography, because when faithfully presented this offers the encouraging picture of shortcomings besides virtues, and thus makes us feel more at home even with outstanding personalities. An honest biography levels while it stimulates, and if with these effects the true bearing of science on civilization be conjoined, this form of instruction can be made most fruitful. It fortunately happens that the history of science, more readily than general history, lends itself to this treatment because its duration, or at least the period of most flourishing development, extends over little more than a century. Consequently its basic facts are more surely ascertainable, many being within the recollection of living people. If this advantage were applicable to general history, much of the rubbish unseasonably uttered about the superiority of the 'good old times' would be self-condemned, and much of the discontent prevailing now, as it has prevailed throughout the history of the world, being avoidable, might be avoided.

In designing a course on the history of science appropriate for students who will not for the most part become specialists in science it will be desirable to select the biographies of men whose discoveries may be definitely correlated with improvement in our ways of living and our outlook on life. If examined from this standpoint the whole subject will yield some surprises. Let us take an example that was very much in all our minds two years ago, being the centenary of Michael Faraday's discovery of electro-magnetic induction on 29th August 1831. It has been claimed that 'no other experiment in physical science has been more fruitful in benefit for mankind'. All scientific men will agree that the claim is defensible, but the biography of Faraday may be less impressive in a course of science-history for the normal student than it is for the professed scientist. Because although his experiments were fundamental, an equally fundamental experiment in the same field had been made by the Danish philosopher Oersted in 1820, he having in that year discovered that a magnitude needle is deflected by a voltaic current; while several other contemporaries of Faraday, notably Arago, Ampère and Humphry Davy were fruitfully engaged in similar studies. In fact, Sir Ambrose Fleming has recorded that 'nothing is more remarkable in the history of discovery than the manner in which Ampère seized upon the right clue which enabled him to disentangle the complicated phenomena of electrodynamics and to deduce them all as a consequence of one simple fundamental law, which occupies in electrodynamics the position of the Newtonian law of gravitation in physical astronomy'.