Editorial

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Observation and measurement are two important ingredients of science. In the past, scientists made observations primarily using their senses. The development of instruments such as the telescope enhanced the sensitivity of our vision several fold, enabling us to observe worlds beyond our own, creating a scientific revolution. The year 2009 was celebrated as the International Year of Astronomy to commemorate the use of a telescope by Galileo, leading to the discovery of Jupiter's moons four hundred years ago. A scientific revolution of no less significance was ushered in by the discovery of the microbial world with the use of a microscope by a rather obscure Dutch trader by name Antony van Leeuwenhoek. Though he was not the first one to make a microscope, Leeuwenhoek was the first one curious enough to use one to study the composition of almost everything around him. His discovery of a whole new world at the microscopic level earned Leeuwenhoek a fellowship at the prestigious Royal Society, despite his lack of a formal scientific training. *Resonance* honours this pioneer with an article that describes his life and achievements.

Just as they have enhanced our senses, instruments have also helped considerably in making fine measurements that are essential for the validation of many a scientific theory. The classic example is the Michelson–Morley interferometer, which was employed to detect the mysterious and hypothetical all-pervading ether, supposedly needed for the transmission of electromagnetic waves. The negative result of the Michelson–Morley experiment provided the major support for Einstein's assumption that the velocity of light is constant, leading to the proposal of the Special Theory of Relativity. Today, most experimental sciences require heavy investments in terms of equipment such as large particle accelerators, gene arrays, atomic force microscopes or NMR machines. With the advent of sophisticated instruments, there is a real danger of science becoming subservient to the equipment, if the question being asked is tailored to what can be studied by the availability of specific instruments. Though technology can be seductive, elegant science can still be done even with the aid of simple and home-made equipment, exemplified by the work of Leeuwenhoek. The lack of expensive instruments can hardly be a reason for not doing good science.