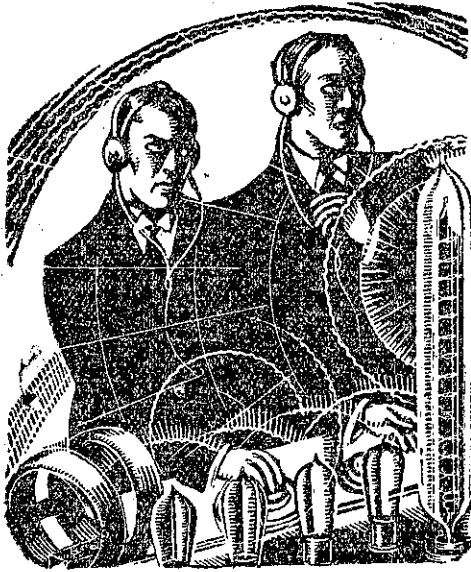


—This thing called—

SCIENCE



A critical examination of
the applications of Science
in Modern Civilisation

by

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[F.R.S.]

MODERN civilisation is the outcome of modern science. These things hardly need pointing out to be very obvious. Where would the modern picnic be with-

out the thermos flask? "Oh," you might say, "what about the billy? We could boil the billy instead."

Could you boil the billy without the match to light the fire? Would you like to go back to the flint and steel—and that is not so very many years out of date—but it is science that has put it out of date. Where would farmers be without the motor-car? Some of you might think you could get on all right with the old horse and cart. Perhaps it might be done, but it wouldn't be comfortable without the springs, and if it was possible to get on without springs, I don't see quite how you would manage without the wheels for, after all, the wheel is a most revolutionary invention of science, though it is a very old one.

Science comes into all our modern life except, perhaps, one thing—the making of politicians, for some of them seem to be the antithesis of science. The sciences are one thing, or perhaps I should say they are many things—many departments of specialised knowledge. Science, on the other hand, may perhaps be thought of as the principle underlying these branches of knowledge, the application of which to them have led to such wonderful progress, and it is rather this method which I had in my mind in an indistinct sort of fashion when I chose the title upon which to speak.

IN this sense of the word science, it is applicable to all branches of life—to anything, that is to say, which can therefore and thereby be improved. In this respect it can even be applied to politicians, for obviously they can be improved.

It is also unfortunately applicable to the means of destruction, for they, too, as means of destruction can be improved.

Science and the scientific method are merely the application of the brains which Nature has endowed every one of us to the every-day things of life. There are very few processes, however seemingly perfect they may be, which cannot in some way or other be made more perfect. I mean, of course, a process invented by man for, while we can control and in that way perhaps get better results out of the process of Nature, those processes and methods are the ways of God, and while they can be controlled in their

basic sense they cannot be altered.

The seed growing in the soil by growing conforms to a law of Nature, but the vigour with which it grows in under man's control, in as much as he can by the use of fertilisers or of weed-killers either assist or retard its growth, and he can do this either more or less efficiently. There is no absolutely perfect fertiliser just as we all know there is no absolutely perfect weed-killer, though perhaps if we went only by the labels on the tins such a conclusion would not at first be apparent.

EVERY process can be improved, every breed of cattle can be improved, every machine can be made to do its work more efficiently and therefore at less cost, and it is by science and by the application of scientific methods that these improvements are brought about.

It must not be thought that science is only applicable to the sciences. The sciences are where the methods find their fullest application, but the methods of science are applicable in all departments of life.

They are not the exclusive property and stock-in-trade of dry-as-dust uninteresting Johnnies like myself—they are and should be the general methods of the community.

And what are these methods of science? They are simply those of commonsense, aided by the tools of various sorts which commonsense has provided. These tools are of various sorts in each department of progress, and moreover none of the tools themselves are perfect.

Some of them may be mentioned. To the physicist—of course, I put him in the place of dignity, either first or last—there are various tools. X-ray plant, liquid air, optical apparatus, and a whole assortment of things, but there is not one of them that we know all about. To the chemist there are various reagents, and some things like spectrometers, which the physicists have taught him the use of. To the bookkeeper there are typewriters, calculating machines, card catalogues, various forms of letter and circular multipliers. To the farmer there are his ploughs and his traction engines, and his fertilisers. Does every farmer know all that can be known about them? And to the executioner there is the hangman's rope and the electric chair, and I am sure the executioner himself and every one of us, too, will admit we don't know all about them.

Thus in every walk of life, in every calling, and in every trade there are things worth studying, and finding out and improving, and it is by scientific methods that these improvements are made. The scientific method is one of experiment and trial, and the discarding after a thorough testing of processes which (*Continued overleaf*)

The Author

Dr. C. Coleridge Farr is one of the best known scientists in New Zealand. He has had a distinguished career, and now has the rarely bestowed honour of being a fellow of the Royal Society. Dr. Farr, who is a professor of physics at Canterbury College, has made a speciality of electrical work, and has to his credit several publications on this and kindred subjects. He it was who was responsible for the establishment of the New Zealand Government's magnetic observatory at Christchurch, and for the magnetic survey of the country upon which he was engaged between the years of 1898 and 1904.

He is a Doctor of Science and a Fellow of the N.Z. Institute.