

**WHAT IS
SCIENCE?**

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What is science? by Norman Campbell

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BY
NORMAN CAMPBELL
SC.D., F.INST.P.

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TO
THE MEMORY OF
FREDERICK WILLIAM MOORMAN
SOMETIME PRESIDENT OF
THE LEEDS AND DISTRICT BRANCH OF
THE WORKERS' EDUCATIONAL ASSOCIATION
TO WHOSE INSPIRATION
THIS BOOK OWES ITS ORIGIN

PREFACE

THIS little book is written with the hope of encouraging the study of science in the classes of the Workers' Educational Association. In spite of some splendid successes—notably the biology classes of Mr. Norman Walker in the Yorkshire district—science does not receive its full share of attention. Science is the characteristic product of modern thought in the realm of pure learning ; and yet there is a danger that the W. E. A., which stands for new ideas, will become the last stronghold of the reactionary doctrine that science and culture are antagonistic.

Accordingly, my object has been to explain what are the aims and objects of science and what kind of satisfaction can be derived from its study. I have tried to draw attention to those aspects of its more abstruse departments that may be expected to appeal to men and women of wide intellectual sympathies. The book does not pretend to be " popular " or to provide an easy hour's reading ; for all experience shows that mere difficulties of thought are no bar to success in adult education ; the enthusiasm of a leader is all that is necessary to sustain interest. No writer can hope to get into as close touch with his readers as a speaker with his audience, and unless leaders can be found to treat science in the spirit suggested, my efforts must necessarily fail. But perhaps my efforts will help some who would not otherwise have undertaken the task.

Since I have no object but to lead readers to the systematic study of some special branch of science, and

do not desire that they should confine their attention to the generalities with which this book is concerned, no references are given to more detailed works covering the same ground. But perhaps it should be remarked that the subjects discussed, though concerned with science, are not part of science; and that, accordingly, there is much more difference of opinion about some of them than there would be about subjects more strictly scientific. Since it is my object to arouse interest rather than to convey information, I have not hesitated sometimes to assert dogmatically what others, equally qualified to judge, would vehemently deny.

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WHAT IS SCIENCE?

CHAPTER I

THE TWO ASPECTS OF SCIENCE

THERE are two forms or aspects of science. First, science is a body of useful and practical knowledge and a method of obtaining it. It is science of this form which played so large a part in the destruction of war and, it is claimed, should play an equally large part in the beneficent restoration of peace. It can work for good or for evil. If practical science made possible gas warfare, it was also the means of countering its horrors. If it was largely responsible for the evils of the industrial revolution, it has already cured many of them by decreasing the expenditure of labour and time that are necessary for the satisfaction of our material needs. In its second form or aspect, science has nothing to do with practical life and cannot affect it, except in the most indirect manner, either for good or for ill. Science of this form is a pure intellectual study. It is akin to painting, sculpture, or literature rather than to the technical arts. Its aim is to satisfy the needs of the mind and not those of the body; it appeals to nothing but the disinterested curiosity of mankind.

The two forms, practical and pure science, are probably familiar to everyone; for the necessity for both of them is often pressed on the public attention. There is sometimes opposition between their devotees. Students of pure science denounce those who insist on its practical value as base-minded materialists, blind to all the higher issues of life; in their turn they are denounced as