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Scientific Method in International Affairs.

THERE is a widespread tendency to hold science, and possibly chemistry in particular, responsible for many of the worst evils of modern warfare, which is perhaps the more dangerous to society because it is apt to discredit the voice of science. When a distinguished chemist like Dr. H. Levingstein points out that attempts at chemical disarmament or the abolition of chemical warfare, except as part of a general disarmament plan, are largely futile and may be highly dangerous because of the close relationship between chemical warfare and the ordinary operations of chemical industry, he is straightway charged in some quarters with a fatalistic war mentality.

When the charge against science is examined a little more closely, its gravamen will be found to reside in part in the prejudices of those whose deep-rooted habits and instincts have been disturbed by the impact of scientific discovery. Not only have the character and potentialities of warfare been transformed by scientific discoveries and their industrial development, but also scientific methods of transport and of sanitation have enormously enlarged its scale and scope. The ramifications of modern warfare extend so deeply into the fabric of industrial life that all distinction between combatant and non-combatant has largely disappeared.

It is essentially applied science that has made warfare a matter no longer of armies and navies but of whole populations, and this and the failure of defensive measures to keep anything like pace with the development of offensive weapons have forced on civilisation the realisation that we must learn alternative methods of settling our international disputes or face the probability of the destruction of civilisation. The supreme lesson of the War is that war between the highly civilised nations has been industrialised, and by its all-embracing needs has ceased to be a directable instrument of policy.

When the control and direction of war are no longer in the hands of statesmen, its renunciation as an instrument of national policy becomes inevitable. Fundamentally, it is true that just as the growth of modern science changed human relationships and, finally, by mastering the forces of Nature, made slavery an anachronism, so it has now changed the relations and policies of nations and challenges society to find a substitute for war. Beneath this challenge there lies man's imperative need of retaining or securing intelligent control

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over social forces if he is to continue to be master of his fate, and of finding new methods now that the danger and inadequacy of the old are revealed.

While, however, most thoughtful men have welcomed the renunciation of war as an instrument of national policy, only the foolish or fanatical imagined that international disputes or causes of war would forthwith disappear. The problem of peace is, in truth, exceedingly complex. Not all the world is civilised, nor all that claims to be, and in the uncivilised condition of the world, war has formerly been an instrument against criminal aggression as much as it has been such an instrument itself. There is need for the development of a science of peace: not merely the elaboration of alternative methods of settling international disputes, but also the scientific study and impartial examination of all the complex factors, economic, social, political and racial, involved in controversial problems which are sources of international friction and possible *casus belli*, if the Pact of Paris is to be transformed from a pious hope or gesture into an abiding and dominant factor in international relations. It is primarily from science that society must learn scientific principles and methods of unravelling such problems and reducing them to their elements, and the responsibility for constructive thought and statesmanship is one from which scientific workers cannot escape.

A striking example of the efficacy of such scientific methods when applied to international affairs is to be found in the Pacific. The impartial research carried out during the last five years by the Institute of Pacific Relations on such delicate matters, involving embittered national feelings, as the South Manchurian railway, the exclusion of Japanese immigrants from California, extra-territoriality in China, have transformed the menacing problem of the Pacific into one that promises to yield to treatment that is essentially scientific. Research into questions like food and population in their bearing on emigration and immigration, for example, has done much to facilitate the settlement of acute problems on the basis of facts and not of prejudice with its evitable friction. So successful, indeed, has been this method that when the volumes recording the preparatory work of the Kyoto Conference of the Institute were presented at Geneva last year, the Secretary-General of the League of Nations expressed the hope that this method of dealing with dangerous issues might soon be applied to Europe.

As a direct outcome of this work of the Institute

of Pacific Relations, Prof. J. T. Shotwell, its research director, worked out during the same Assembly a scheme for a European institute of research constituted on similar lines. This institute is intended to apply the spirit and technique of scientific inquiry to the economic and social problems incidental or inimical to a civilisation of peace. It will be non-political, and its aims are to study the social, economic, and cultural problems common to various nations, more particularly the problems arising from invention and discovery; to extend international co-operation in this field; to co-ordinate the results of research and, in the light of the facts thus found, in concert to investigate the underlying causes of international difficulties. Its functions will be solely those of research and publication of the facts as ascertained.

Although the importance of this proposal was recognised by the delegates of several nations, it has yet to receive official recognition and discussion. The scheme must commend itself to all scientific thinkers as a sane alternative to our present method of handling controversial questions and allowing them to be inflamed by partisan propaganda. It is a method by which science can assist society through the dangerous interval between the renunciation of war, as too dangerous an instrument, and the firm establishment of other methods of dealing with international disputes.

Already the technique and efficiency of conference are being steadily perfected. The proposed institute offers a fair prospect of eliminating political propaganda and reaching agreed settlements as a result of scientific inquiry. It opens fields of constructive activity before the Institute of Intellectual Co-operation and before such national institutions as the W. H. Page School of Historical Research and the Royal Institute of International Affairs in Great Britain. However unjustly science has been blamed for the misuse of scientific discoveries, scientific men have not always been fully mindful of their responsibility as citizens. No opportunity like the present has, however, yet confronted them of promoting the scientific study of international relations and ensuring the use of science for constructive purposes. Wisely used and directed, the projected institute of research may demonstrate that the humanising effect of scientific thought on *res publica* is no less profound than its application in industry. That quest for truth which inspires every scientific investigator supplies also the driving force for this experiment: *Magna est veritas et praevalabit!*