ment of mechanical locomotion, the key to the problem of transportation. Efficient transport would have enabled the Romans to extend their rule over the whole inhabited world. The Teutonic menace to civilization would have been forever curbed and the world of to-day would have been Latin in speech and institutions. As it was, the Romans, being practical men, little inclined to waste time in aimless investigation of the structure of the universe, accepted things as they found them, and for five centuries Roman civilization leaned upon the ever-weakening shoulders of Greek science.

The same lesson and substantially the same alternatives lie before us to-day, and the question that confronts us is whether we are prepared to read that lesson aright, or whether we are going to be content to build Western democracy upon foundations "made in Germany".

The advance of scientific investigation during the period of the war has not been more rapid than it would have been under the normal conditions of peace, and in all probability has been very greatly retarded. Many centres of energetic research have been overrun by armies or congested with sick and wounded and overwhelmed with the problem of their care. Hundreds of investigators have been wrenched from their proper tasks to the performance of duties trivial in themselves, but of vital and immediate urgency in this crisis. Others have already fallen in the defence of principles far more dear to them than knowlegde. The advance of science has thus been unquestionably retarded. What has indeed been accelerated, and in very patent measure, has been the application of knowledge, long since garnered and imperfectly utilized, to the service of the nations in arms.

Take, for example, the development of aviation. Most of us are indeed aware that mechanical flight had been achieved before the war, but few are acquainted with the true history of its origin, or of the trivial part played by war, or the anticipation of war, in the development of its fundamental principles. The problem of mechanical flight appears to have been for the first time competently and scientifically approached by Leonardo da Vinci, who, besides being one of the greatest painters, one of the greatest sculptors, one of the greatest architects and one of the greatest anatomists of his epoch, was one of the greatest engineers which his century produced. It was he who first pointed out the importance of the angle of the wing or plane in determining the direction of motion. Practical application of the theoretical principles which he discovered was of course impossible at that time for lack of mechanical motive-power. The next and final fundamental step in the solution of the problem was taken by Langley, late secretary of the Smithsonian Institute, who was the first to discover the dependence of the buoyancy of the air upon the *speed* with which the planes move through it. The fundamental laws having been elucidated, and adequate motive-power rendered available by the development of the automobile industry, the aeroplane was not merely a logical but a necessary outcome. As a matter of fact, the first aeroplane was built by Langley in 1903 and successfully flown by Curtiss in 1914. Meanwhile Blériot and the Wright brothers had built and flown aeroplanes constructed in accordance with the fundamental principles laid down by Langley.

The modern battle plane differs in a thousand details from Langley's aeroplane, but it is still after all but an elaborate adaptation of the fundamental type which was evolved by laboratory investigation and not in response to any immediate need. The successive problems which have arisen in the construction of the modern planes have been very largely, although, of course, not entirely, problems of craftsmanship rather than problems of science.