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A DISCUSSION ON THE INITIATION AND GROWTH OF EXPLOSION IN SOLIDS

UNDER THE LEADERSHIP OF F. P. BOWDEN, F.R.S.

(*Discussion held 30 May 1957—Received 16 December 1957*)

[Plates 4 to 23]

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Introduction

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[Plate 4]

In this Discussion we are concerned with the mechanism by which an explosion can be initiated in a solid or liquid and can grow to a high-velocity detonation. It is convenient to divide the process into four stages:

- (1) initiation in some localized region;
- (2) the growth of the explosion;
- (3) a transition stage or low-velocity detonation which finally passes over to:
- (4) a high-velocity stable detonation.

Stage (4) has been dealt with at an earlier Discussion in this Society led by Sir William Penney (1950). Here we propose to concentrate our attention on (1), (2) and (3). We shall begin with the initiation process and then later in the Discussion go on to consider the growth to detonation.