

CONTRIBUTION
OF
MATHEMATICAL CONCEPTS TO MANAGEMENT

3 September 1963

LT. COLONEL KNIGHT: The atmosphere of the advancing technology and management science is mathematics. Our speaker today has had considerable experience in using mathematics in military operations, research problems and other operations research problems. As you know from his biography, he is the Director of the Operations Research, Incorporated Scientific Support Group, the Army Institute of Advanced Studies, Carlisle Barracks.

Gentlemen, I present to you, Mr. Robert R. Hare, Jr.

MR. HARE: Thank you, Colonel Knight.

The problem of designing or modifying a complex system in response to technological and economic change has become increasingly difficult in today's business and military operations. Associated with this problem is the need to understand the inter-relationships among system elements in order to predict the future behavior of the system and facilitate its control by top management.

It has become apparent in recent years that test operating experience alone is no longer an adequate means for attaining this understanding, especially where it is necessary to project the effect of new conditions on a system. Such experience usually represents only a small sample of the possible ways in which the system might be operated. In certain instances measurements and analysis of past operations alone may reveal simple cause and effect relationships from which predictions can be made regarding the consequences of alternative modes of operation. For most modern systems, however, such predictions cannot be made until after a great of additional information has been collected.