

Analog Computers

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I. INTRODUCTION

Present electrical analog computers are based on techniques engendered by the wartime necessity to develop extremely rapid and accurate fire control computers. Mechanical differential analyzers had been developed prior to World War II, and electrical components had been used in relatively simple control systems and servos, but general electrical analog computers for solving complicated mathematical problems were not in use. The basic theory on the stability criteria of feedback circuits had been developed a few years previously by Nyquist and others.

The success of the M-9 gun director developed by Bell Telephone Laboratories strikingly demonstrated the superiority of electrical computing methods over the purely mechanical ones employed in previous gun directors. The use by the M-9 director of the high-precision "operational amplifier" set the pattern for the growth of analog computers