

Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT; BIWEEKLY REPORT, MARCH 4, 1956
To: Jay W. Forrester
From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 628 coded programs were run on the time allocated to the Scientific and Engineering (S and EC) Group. These programs represent part of the work that has been done on 64 of the problems that have been accepted by the S and EC Group.

1.2 Programs and Computer Operation

<u>Problem No.</u>	<u>Title</u>	<u>Minutes</u>
100	Comprehensive System of Service Routines	63.5
106 C.	MIT Seismic Project	110.2
122 N.	Coulomb Wave Functions	41.9
126 D.	Data Reduction	105.4
131	Special Problems (Staff Training, etc.)	33.2
141	S and EC Subroutine Study	72.4
172 B,N.	Energy Bands in Graphite	71.7
179 C.	Transient Temperature of a Box-Type Beam	28.0
193 L.	E.V. Problem for Propagation of E.M. Waves	29.5
194 B,N.	Augmented Plane Wave Method (Sodium)	83.2
204 N.	Exchange Integrals Between Real Slater Orbitals	2.2
216 C.	Ultrasonic Delay Lines	48.8
219	Linear Programming	35.3
226 D.	Circulation of the Atmosphere	4.0
231 B,N.	Reactor Runaway Prevention	28.9
236 C.	Transient Response of Aircraft to Heating	5.2
240 A.	Electrons and Photons in Cascade	1.7
241 B,N.	Transients in Distillation Columns	44.0
245 N.	Theory of Neutron Reactions	203.3

333 A.	Combustion Problem	39.4
336 C.	Pattern Identification	32.9
337 N.	Nonlinear 2nd Order Diff. Eqs.	61.4
338 C.	Optimization of Ram-Air Cooling Systems	31.8
340 B,N.	Polaron, Feynman Theory, Self Energy and Mass	40.6
341 C.	Statistical and Dynamic Methods in Forecasting	80.8
343 C.	Weather Prediction	30.7
345 B.	Matrix Multiplication	12.4
349		288.1
351		9.8
352		27.9
353		14.0

1.3 Computer Time Statistics

The following indicates the distribution of WWI time allocated to the S&EC Group.

Programs	65 hours	31.5 minutes
Magnetic Drum Test		0
Magnetic Tape Test	1 hour	24.8 minutes
Scope Calibration		12.5 minutes
PETR Test		22.3 minutes
Test Storage Check		11.9 minutes
Demonstrations (No. 131)		<u>33.2 minutes</u>
Total Time Logged	68 hours	16.2 minutes
Div. 6 Conversions, Inter-run Operations, etc.	20 hours	37.3 minutes
Total Time Assigned	97 hours	14.5 minutes
Usable Time, Percentage	91.41%	
Number of Programs	628	