

Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, December 27, 1954

to: Jay W. Forrester

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 329 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 33 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>WWI Time</u>
100	Comprehensive System of Service Routines	573.5 minutes
106 C.	MIT Seismic Project	67.5 minutes
108 C.	An Interpretive Program	48.5 minutes
120 D.	The Aerothermopressor	95.7 minutes
122 B.	Coulomb Wave Functions	47.7 minutes
123 C.	Earth Resistivity Interpretation	20.3 minutes
126 C.	Data Reduction	10.7 minutes
130 C.	Six-component Distillation	6.2 minutes
131	Special Problems (Staff Training, etc.)	8.9 minutes
141	S and EC Subroutine Study	12.2 minutes
144 C.	Self-consistent Molecular Orbital	124.5 minutes
155 D.	Synoptic Climatology	76.5 minutes

179 C.	Transient Temperature of a Box-Type Beam	6.5 minutes
183 D.	Blast Response of Aircraft	410.2 minutes
189 C.	Gustiness in the Free Atmosphere	11.3 minutes
194 B.	Augmented Plane Wave Method (Sodium)	58.4 minutes
199 C.	Compressible Flow in a Tube	110.1 minutes
201 C.	Study of the Ammonia Molecule	36.6 minutes
203 C.	Response of a Building Under Dynamic Loading	9.4 minutes
204 C.	Exchange Integrals Between Real Slater Orbitals	190.8 minutes
211 C.	Servo Response to a Cosine Pulse	85.8 minutes
212 C.	Dispersion Curves for Seismic Waves	53.1 minutes
213 D.	Industrial Process Control Studies	12.4 minutes
215 B.	Plant Surveys by Statistical Methods	11.4 minutes
218 C.	Stage B for Diatomic Molecules	5.0 minutes
219	Linear Programming	16.9 minutes
222 B.	Helicopter Rotor Stability	48.6 minutes
225 B.	Neutron-Deuteron Scattering	14.4 minutes
229 D.	Rotating Contact Seal	5.3 minutes
230 C.	Bridge Response to Blast Loads	12.0 minutes
231 C.	Reactor Runaway Prevention	35.5 minutes
232 B.	Energy Levels in a Spheroidal Potential	32.9 minutes
234 A.	Atomic Integrals	16.2 minutes

1.3 Computer Time Statistics

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

Programs	37 hours, 46.1 minutes
Magnetic Drum Test	17.8 minutes
Magnetic Tape Test	20.5 minutes
Scope Calibration	9.4 minutes
Demonstrations (#131)	<u>8.9 minutes</u>
Total Time Used	38 hours, 42.7 minutes
Total Time Assigned	40 hours, 2.7 minutes
Usable Time, Percentage	96.7%
Number of programs	329