Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, NOVEMBER 25, 1956

To: Frank M. Verzuh

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 398 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 43 of the problems that have been accepted by the S and EC Group.

1.2 Programs and Computer Operation

Problem No.	Title	Minutes
100	Comprehensive System of Service Routines	51.4
106 C.	MIT Seismic Project	6.9
120 B,N.	The Aerothermopressor	43.2
126 D.	Data Reduction	175.6
131	Special Problems (Staff Training, etc.)	66.7
141	S and EC Subroutine Study	16.5
193 L.	E.V. Problem for Propagation of E.M. Waves	112.3
203 D,N.	Response of a Building Under Dynamic Loading	190.3
219	Linear Programming	38.0
226 D.	Circulation of the Atmosphere	243.9
231 B,N.	Reactor Runaway Prevention	5.1
245 N.	Theory of Neutron Reactions	61.6
253 N.	APW as Applied to Face- and Body-Centered Iron	64.4
256 C.	WWI-1103 Translation Program	11.6
257 C.	Horizontal Stabilizer Analysis	100.4
260 N.	Energy Levels of Diatomic Hydrides	18.4
261 C.	Fourier Synthesis for Crystal Structures	137.1
264 C.	Optimization of Alternator Control System	5.9
273 N.	Cosmic Ray Air Shower	572.0
274 N.	Multiple Scattering	32.9
278 N.	Energy Levels of Diatomic Hydrides LiH	500.1
288 N.	Atomic Wave Functions	274.7
300 L.	Tropospheric Propagation	320.2
310 C.	Rocket Trajectory Calculations	118.4
312 L.	Error Analysis	10.2

317 C.	Stability Derivatives from Flight Test Data	22.3
327 L.	Prediction Analysis	152.7
329 N.	First Approximation Solution on Ore Body	6.8
337 N.	Nonlinear 2nd Order Diff. Eqs.	51.2
341 C.	Statistical and Dynamic Methods in Forecasting	38.6
343 C.	Weather Prediction	107.2
350 D.	Computation of Variances and Covariances	60.8
361 B,N.	Growth of Fatigue Cracks	4.9
364 C.	Blast Response of Rotor Blades	29.1
372 B.	Design of Spherical Shell Segments	26.2
377 L.	Coverage Analysis	22.1
382 B.	Calculation of Prime Numbers	21.6
385 B.	Feed Plate Location	18.4
386 C.	Free Convection	14.0
387 C.	Determination of Velocity Potential	13.0
388 D.	Temperature Distribution in Aircraft Generators	46.4
391 L.	Magnetic Relaxation in Thin Films	18.3
394 C.	Automatic Programming for Numerically Controlled Machine Tools	18.1

1.3 Computer Time Statistics

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

S and EC Programs	52 hrs.	52.7 min.
Lincoln Programs	10 hrs.	35.8 min.
Magnetic Tape Test		51.0 min.
Scope Calibration		14.2 min.
PETR Test		17.2 min.
Test Storage Check		7.6 min.
Demonstrations (No. 131)	1 hr.	6.7 min.
Total Time Logged	66 hrs.	5.2 min.
Div. 6 Conversions, Inter-run Operations, etc.	6 hrs.	13.3 min.
Total Time Assigned	72 hrs.	20.8 min.
Usable Time, Percentage	99.35%	
Number of Programs	398	