Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT   21 JUNE 1957

To: Frank M. Verzuh

From: Scientific and Engineering Computation Group

1.   MATHEMATICS, CODING AND APPLICATIONS

   1.1   Introduction

         During the past two weeks 501 coded programs
were run on the time allocated to the Scientific and Engi-
neering (S and EC) Group. These programs represent part of
the work that has been done on 35 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	83.9
126 D.	Data Reduction	110.5
193 L.	E.V. Problem for Propagation of E.M. Waves	173.8
194 B,N.	Augmented Plane Wave Method (Sodium)	40.7
203 D,N.	Response of a Building Under Dynamic Loading	541.6
204 N.	Exchange Integrals Between Real Slater Orbitals	325.1
245 N.	Theory of Neutron Reactions	651.7
253 N.	APW as Applied to Face- and Body-Centered Iron	778.8
256 C.	WWI-1103 Translation Program	86.5
257 C.	Horizontal Stabilizer Analysis	269.8
260 N.	Energy Levels of Diatomic Hydrides	125.8
262 N.	Evaluation of Two-center Molecular Integrals	295.5
273 N.	Cosmic Ray Air Shower	309.2
274 N.	Multiple Scattering	11.8
278 N.	Energy Levels of Diatomic Hydrides LiH	206.1
285 N.	APW as Applied to Chromium Crystal	598.5
288 N.	Atomic Wave Functions	713.4
290 N.	Polarizability Effects in Atoms and Molecules	65.3

300 L.	Tropospheric Propagation	23.4
310 C.	Rocket Trajectory Calculations	90.9
317 C.	Stability Derivative from Flight Test Data	152.7
327 L.	Prediction Analysis	122.9
341 C.	Statistical and Dynamic Methods in Forecasting	46.2
360 B.	Dynamic Response of Shear Walls	14.1
361 B,N.	Growth of Fatigue Cracks	33.7
387 C.	Determination of Velocity Potential	3.3
388 D.	Temperature Distribution Aircraft Generators	35.1
389 D.	Supersonic Flow of Air in a Tube	45.4
394 C.	Automatic Programming for Machine Tools	130.7
395 L.	Phase Error Calculation	268.1
400 C.	Temperature and Stress Response	14.9
407 C.	Diffusion Boundary Layer	115.9
408 C.	Frequency Spectrum of Magnesium	105.9
411 B,N.	Seven Cavity Klystron	59.4
412 N.	Energy Bands for K	287.2

1.3 Computer Time Statistics

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

S and EC Programs	105 hrs.	49.6 min.
Lincoln Programs	9 hrs.	48.2 min.
Magnetic Tape Test		45.9 min.
Scope Calibration		14.5 min.
PETR Test		26.0 min.
Test Storage Check		11.4 min.
Demonstrations (No. 131)		00.0 min.
Total Time Logged	117 hrs.	15.6 min.
Div. 6 Conversions, Inter-run Operations, etc.	7 hrs.	16.6 min.
Total Time Assigned	142 hrs.	28.2 min.
Usable Time, Percentage	86.71%	
Number of Programs	501	