Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, JUNE 13, 1955,

To: Jay W. Forrester

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 599 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 59 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	200.3
120 B,N.	The Aerothermopressor	113.8
126 D.	Data Reduction	168.4
131	Special Problems (Staff Training,etc.)	51.4
132 D.	N. C. Milling Machine	15.2
141	S and EC Subroutine Study	32.4
144 N.	Self-consistent Molecular Orbital	15.4
155 N.	Synoptic Climatology	60.7
172 B,N.	Overlap Integrals	205.6
193 L.	E.V. Problem for Propagation of E.M. Waves	6.3
194 B,N.	Augmented Plane Wave Method (Sodium)	109.2
195 C.	Intestinal Motility	60.5

199 N.	Compressible Flow in a Tube	6.1
203 D,N.	Response of a Building Under Dynamic Loading	19.3
204 N.	Exchange Integrals Between Real Slater Orbitals	9.1
212 B,N.	Dispersion Curves for Seismic Waves	110.1
218 N.	Stage B for Diatomic Molecules	17.1
219	Linear Programming	8.3
224 N.	Vertical Velocity Fields	65.1
225 B,N.	Neutron-Deuteron Scattering	26.7
226 D.	Circulation of the Atmosphere	28.1
234 N.	Atomic Integrals	12.5
235 B,N.	Eigenvalues for a Spheroidal Square Well	166.2
236 C.	Transient Response of Aircraft to Heating	37.1
238 B,N.	Self-consistent Calculation of Nuclear Density	82.3
239 C.	Guidance and Control	10.2
241 B,N.	Transients in Distillation Columns	48.3
242 N.	Counting Structures of Relations	18.8
245 N.	Theory of Neutron Reactions	656.6
246 B,N.	Scattering From Oxygen	10.9
248 B.	Propane Vibrations	1.9
250 C.	Translation Program for the NCMM	17.6
253 N.	APW as Applied to Face- and Body-Centered Iron	22.7
256 C.	WWI -1103 Translation Program	58.1
257 C.	Horizontal Stabilizer Analysis	7.8
258 C.	Dynamic Analysis of an Aircraft Interceptor	45.4
259 L.	Ionosphere Computation	45.0
260 N.	Energy Levels of Diatomic Hydrides	142.7
261 C.	Fourier Synthesis for Crystal Structures	95.7

263 C.	Aircraft Pullup Flight Path	38.7
264 C.	Optimization of Alternator Control System	30.8
265 L.	Electron Diffusion in an Electromagnetic Field	13.1
266 A.	Calculations for the MIT Reactor	93.4
269 C.	Analysis of Shear Wall Testing Machine	40.2
270 B.	Critical Mass Calculations	60.7
271 B.	Beam Splitting Technique	21.6
272 L.	General Raydist Solution	38.2
277 C.	Horizontal Stabilizer Study	6.5
278 N.	Energy Levels of Diatomic Hydrides LiH	4.6
279 D.	Queuing	2.0
282 B.	Helicopter Blade Flapping Instability	59.1
285 N.	APW as Applied to Chromium Crystal	7.1
288 N	Atomic Wave Functions	44.7
292 A.	Course 6.535,1955 Practice	16.2
293 C.	Rolling Bearings	48.0
295 C.	Electron Collision Frequency	16.1
296 C.	System Analysis	48.8
297 C.	Diffusion Boundary Layer	24.8
298 C.	Dipole Moments	1.4

1.3 Computer Time Statistics

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

Programs	56 hours, 13.5 minutes
Magnetic Drum Test	56.2 minutes
Magnetic Tape Test	52.3 minutes
Scope Calibration	10.0 minutes
PETR Test	12.2 minutes
Test Storage Check	3.2 minutes
Demonstrations (No.131)	51.4 minutes
Total Time Logged	59 hours, 18.8 minutes
Div. 6 Conversions, Inter-run Operations, etc.	11 hours, 7.8 minutes
Total Time Assigned	79 hours, 48.6 minutes
Usable Time, Percentage	88.26
Number of Programs	599