Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, May 30, 1955.

To: Jay W. Forrester

From: Scientific and Engineering Computation Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 586 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 65 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	171.1
106 C.	MIT Seismic Project	23.5
120 B,N.	The Aerothermopressor	188.2
123 B,N.	Earth Resistivity Interpretation	6.8
126 D.	Data Reduction	120.5
131	Special Problems (Staff Training,etc.)	14.2
132 D.	N. C. Milling Machine	19.4
147	S and EC Subroutine Study	5.4
144 N.	Self-consistent Molecular Orbital	3.3
155 N.	Synoptic Climatology	54.5
172 B,N.	Overlap Integrals	107.3
193 L.	E.V. Problem for Propagation of E.M. Waves	27.6
194 B,N.	Augmented Plane Wave Method (Sodium)	3.1

195 C.	Intestinal Motility	96.4
199 N.	Compressible Flow in a Tube	4.9
203 D,N.	Response of a Building Under Dynamic Loading	36.4
204 N.	Exchange Integrals Between Real Slater Orbitals	2.9
272 B,N.	Dispersion Curves for Seismic Waves	95.1
215 B.	Plant Surveys by Statistical Methods	3.0
217 N.	Atomic Wave Function and Energies	14.5
224 N.	Vertical Velocity Fields	27.8
225 B,N.	Neutron-Deuteron Scattering	33.4
226 D.	Circulation of the Atmosphere	23.5
228 N.	Evaluation of Difference Diffusion Equation	44.5
235 B,N.	Eigenvalues for a Spheroidal Square Well	50.6
236 C.	Transient Response of Aircraft to Heating	37.8
238 B,N.	Self-consistent Calculation of Nuclear Density	115.8
239 C.	Guidance and Control	9.0
241 B,N.	Transients in Distillation Columns	66.5
242 N.	Counting Structures of Relations	19.6
244 C.	Data Reduction for X-1 Fire Control	76.5
245 N.	Theory of Neutron Reactions	26.2
246 B,N.	Scattering From Oxygen	17.0
250 C.	Translation Program for the NCMM	15.5
252 N.	Analysis of Two Story Steel Frame Building	55.0
253 N.	APW as Applied to Face- and Body-Centered Iron	4.3
256 C.	WWI -1103 Translation Program	86.4
257 C.	Horizontal Stabilizer Analysis	39.8
258 C.	Dynamic Analysis of an Aircraft Interceptor	96.5
259 L.	Ionosphere Computation	48.6
260 N.	Energy Levels of Diatomic Hydrides	22.0

261 C.	Fourier Synthesis for Crystal Structures	73.0
263 C.	Aircraft Pullup Flight Path	1.6
264 C.	Optimization of Alternator Control System	24.6
265 L.	Electron Diffusion in an Electromagnetic Field	121.4
266 A.	Calculations for the MIT Reactor	151.7
267 B.	NCMM Turbine Blade	16.8
270 B.	Critical Mass Calculations	5.7
271 B.	Beam Splitting Technique	35.8
272 L.	General Raydist Solution	2.3
275 B.	Buckling of Shallow Elastic Shells	174.7
276 B,N	Martensitic Transformation in Stainless Steel	7.2
277 C.	Horizontal Stabilizer Study	41.5
278 N.	Energy Levels of Diatomic Hydrides LiH	56.5
282 B.	Helicopter Blade Flapping Instability	148.5
283 B.	Information Handling in Task Groups	27.7
284 C.	Gulf Stream Motion Forecasting	54.5
286 B.	Responses of the Human Pilot	176.5
288 N	Atomic Wave Functions	28.2
289 C.	High-speed Laminar Boundary Layer Heat Transfer	34.4
290 N.	Polarizability Effects in Atoms and Molecules	11.5
297 B.	Dynamic Buckling	3.1
292 A.	Course 6.535,1955 Practice	696.9
293 C.	Rolling Bearings	48.5
294 C.	Wind Tunnel Data Reduction	23.2

1.3 Computer Time Statistics

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

Programs	64 hrs.	25.6 min.
Magnetic Drum Test		58.6 min.
Magnetic Tape Test		73.5 min.
Scope Calibration		20.9 min.
PETR Test		23.2 min.
Test Storage Check		5.4 min.
Demonstrations (No.131)		14.2 min.
Total Time Logged	67 hrs.	41.4 min.
Div. 6 Conversions, Inter-run Operations, etc.	17 hrs.	33.3 min.
Total Time Assigned	85 hrs.	14.7 min.
Usable Time, Percentage	98.6o/o	