Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

To: Jay W. Forrester

From: Scientific and Engineering Computations Group

SUBJECT: BIWEEKLY REPORT, OCTOBER 16, 1955

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 365 coded programs were run on the time allocated to the Scientific and Engineering Computations (S & EC) Group. These programs represent part of the work that has been done on 47 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	234.7
106 C.	MIT Seismic Project	111.9
122 N.	Coulomb Wave Functions	20.6
126 D.	Data Reduction	38.8
131	Special Problems (Staff Training, etc.)	77.4
141	S and EC Subroutine Study	12.3
155 N.	Synoptic Climatology	14.9
162 N.	Nuclear Scattering Phase-Shifts	8.8
177 C.	Low Aspect Ratio Flutter	30.4
179 C.	Transient Temperature of a Box-Type Beam	21.2
193 L.	E. V. Problem for Propagation of E. M. Waves	22.5
194 B,N.	Augmented Plane Wave Method (Sodium)	6.7
199 N.	Compressible Flow in a Tube	19.6
216 C.	Ultrasonic Delay Lines	25.9
219	Linear Programming	42.7
225 B, N.	Neutron-Deuteron Scattering	255.4
226 D.	Circulation of the Atmosphere	70.3
231 B,N.	Reactor Runaway Prevention	3.3
236 C.	Transient Response of Aircraft to Heating	5.6

241 B,N.	Transients in Distillation Columns	37.2
245 N.	Theory of Neutron Reactions	200.9
246 B,N.	Scattering From Oxygen	22.6
253 N.	APW as Applied to Face- and Body-Centered Iron	47.9
256 C.	WWI-1103 Translation Program	16.5
257 C.	Horizontal Stabilizer Analysis	28.0
259 L.	Ionosphere Computation	13.2
260 N.	Energy Levels of Diatomic Hydrides	145.2
261 C.	Fourier Synthesis for Crystal Structures	18.0
262 N.	Evaluation of Two-center Molecular Integrals	20.0
266 A.	Calculations for the MIT Reactor	9.8
270 B.	Critical Mass Calculations	87.6
272 L.	General Raydist Solution	27.6
274 N.	Multiple Scattering	48.0
277 C.	Horizontal Stabilizer Study	3.3
278 N.	Energy Levels of Diatomic Hydrides LiH	1.9
284 C.	Gulf Stream Motion Forecasting	14.7
285 N.	APW as Applied to Chromium Crystal	6.7
291 B.	Dynamic Buckling	24.4
297 B.	Diffusion Boundary Layer	34.5
300 L.	Tropospheric Propagation	3.3
304 A.	Relativistic Atomic Wave Functions	103.0
307 C.	Supersonic Nozzle Design	7.3
308 C.	Frequency Analysis of Aperiodic Functions	8.6
309 B,N.	Pure and Impure Potassium Chloride Crystal	41.7
310 C.	Rocket Trajectory Calculations	7.3
312 L.	Error Analysis	18.8
314 C.	Factoring High Order Polynomials	10.9

1.3 Computer Time Statistics

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

Programs		32 hrs.	34.5 min.
Magnetic Drum Test			11.8 min.
Magnetic Tape Test		1 hr.	0.8 min.
Scope Calibration			15.1 min.
PETR Test			23.4 min.
Test Storage Check			4.0 min.
Demonstrations (No. 131)		1 hr.	17.4 min.
Total Time Logged		35 hrs.	47.0 min.
Div. 6 Conversions, Inter-run Operations, etc.		11 hrs.	21.5 min.
Total Time Assigned		47 hrs.	38.5 min.
Usable Time, Percentage	99.3%		
Number of Programs	47		