Digital Computer Laboratory
Massachusetts Institute of Technology
Cambridge 39, Massachusetts

SUBJECT: BIWEEKLY REPORT, OCTOBER 31, 1955

To: Jay W. Forrester

From: Scientific and Engineering Computations Group

1. MATHEMATICS, CODING AND APPLICATIONS

1.1 Introduction

During the past two weeks 480 coded programs were run on the time allocated to the Scientific and Engineering (S&EC) Group. These programs represent part of the work that has been done on 48 of the problems that have been accepted by the S&EC Group.

1.2 Programs and Computer Operation

Problem No.	Title	Minutes
100	Comprehensive System of Service Routines	234.3
106 C.	MIT Seismic Project	51.4
120 B,N.	The Aerothermopressor	5.1
126 D.	Data Reduction	338.5
131	Special Problems (Staff Training, etc.)	86.6
141	S&EC Subroutine Study	10.2
155 N.	Synoptic Climatology	.9
162 N.	Nuclear Scattering Phase-Shifts	39.7
177 C.	Low Aspect Ratio Flutter	97.2
193 L.	E.V. Problem for Propagation of E.M.Waves	52.3
194 B,N.	Augmented Plane Wave Method (Sodium)	25.6
203 D,N.	Response of a Building Under Dynamic Loading	32.4
216 C.	Ultrasonic Delay Lines	15.0
219	Linear Programming	67.4
225 B,N.	Neutron-Deuteron Scattering	75.8
226 D.	Circulation of the Atmosphere	17.2
231 B,N.	Reactor Runaway Prevention	26.2
236 C.	Transient Response of Aircraft to Heating	56.4

241	B,N.	Transients in Distillation Columns	169.2
245	N.	Theory of Neutron Reactions	576.3
246	B,N.	Scattering From Oxygen	60.7
253	N.	APW as Applied to Face- and Body-Centered Iron	67.1
257	C.	Horizontal Stabilizer Analysis	45.3
260	N.	Energy Levels of Diatomic Hydrides	33.5
261	C.	Fourier Synthesis for Crystal Structures	80.8
262	N.	Evaluation of Two-center Molecular Integrals	19.2
270	B.	Critical Mass Calculations	112.8
272	L.	General Raydist Solution	20.0
274	N.	Multiple Scattering	71.0
275	B.	Buckling of Shallow Elastic Shells	66.0
278	N.	Energy Levels of Diatomic Hydrides LiH	4.3
284	C.	Gulf Stream Motion Forecasting	26.0
285	N.	APW as Applied to Chromium Crystal	64.6
288	N.	Atomic Wave Functions	18.3
293	C.	Rolling Bearings	4.9
304	C.	Relativistic Atomic Wave Functions	75.2
308	C.	Frequency Analysis of Aperiodic Functions	15.6
309	B,N.	Pure and Impure Potassium Chloride Crystal	48.4
310	C.	Rocket Trajectory Calculations	7.1
312	L.	Error Analysis	137.9
314	C.	Factoring High Order Polynomials	8.6
317	C.	Stability Derivatives from Flight Test Data	9.0
318	C.	3 Dimensional Aerodynamic Lead Pursuit Study	8.9
319	B,N.	Scattering from a Spheroidal Potential	56.7
321	B,N.	E.V. and E.F. for a Spheroidal Square Well	64.7
323	N.	Analysis of Cloud Chamber Photographs	6.0
325	B.	Diffusion Equation	3.6
326	C.	Production for Transportation Problem	10.2

1.3 Computer Time Statistics

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

Programs	50 hours, 37.5 minutes
Magnetic Drum Test	28.0 minutes
Magnetic Tape Test	1 hour , 11.6 minutes
Scope Calibration	19.0 minutes
PETR Test	33.6 minutes
Test Storage Check	8.5 minutes
Demonstrations (#131)	1 hour , 26.6 minutes
Total Time Logged	54 hours, 44.8 minutes
Div. 6 Conversions, Inter-run Operations, etc.	14 hours, 32.4 minutes
Total Time Assigned	70 hours, 1.2 minutes
Usable Time, Percentage	98%
Number of Programs	480

2. LIBRARY ACCESSIONS LIST

DCL-101	Iterative Solution of Linear Systems Having Sparse Matrices	M.D.McIlroy
DCL-105	Tic Tac Toe Playing Demonstration Routine	A.Zabludowsky

Copies of the Above are available from M. Thorndike in the S&EC Group Library, Barta Building 111.