At the request of several persons who attended the ENIAC press conference, February 1, 1946, the following statement concerning the ENIAC demonstration has been prepared by Dr. Arthur Burks, who conducted the demonstration.

DEMONSTRATION OF ENIAC
February 1, 1946

The operation of addition was demonstrated first. The operator, with a push of a button, made the number 97367 appear in an accumulator, where it could be read by means of the lights. By pushing another button he caused the number to be added to itself 5000 times. In one second the answer, 486,835,000 appeared in the accumulator next to the one showing 97367.

You may wonder why such a simple operation as addition was demonstrated. The answer to that is that the numerical solution of even the most complicated partial differential equation can be obtained by means of sequences of the simple operations of addition, subtraction, multiplication, and division. The important fact about the ENIAC is the speed with which it does these operations. It is 1000 times as fast as any other general purpose digital computer. To make clear how much difference this makes, the ENIAC was slowed down to one one-thousandth of its normal speed and told to perform the 5000 additions. The fastest general purpose digital computer in existence before the ENIAC was completed takes 16 2/3 minutes to do what the ENIAC can finish in one second.

The high speed multiplier was demonstrated next. The number 13975 was put into the two accumulators to the left of the high speed multiplier. When the operator pushed a button these two numbers were multiplied together and the answer, 195,300,625 appeared in an accumulator to the right of the high speed multiplier. With another push of the button the operator caused 13975 to be multiplied by 13975
five hundred times and the products to be added together. The answer —
97,650,312,500 — appeared after 1 second.

The ENIAC next produced a table of the squares and cubes of the numbers
from 1 to 100. Each square was generated from the previous number \( x \) and its
square \( x^2 \) by means of the formula,

\[(x + 1)^2 = x^2 + 2x + 1,\]

and each cube was generated from the previous number \( x \), its square \( x^2 \), and its
cube \( x^3 \) by means of the formula

\[(x + 1)^3 = x^3 + 3x^2 + 3x + 1\]

When the square and cube of each number was computed the ENIAC stopped and the
answer was punched on a card. In this manner 100 cards were punched, each con-
taining a number, its square, and its cube. (See enclosed sample.) (These
cards were later put through a machine which printed the table of squares and
cubes on paper — see enclosed sample.)

This problem required one minute, but during most of this time the
ENIAC was lying idle while the answers were being punched on cards. To show how
fast the ENIAC computed the squares and cubes from 1 to 100 the problem was re-
peated without taking the time required for punching. The problem was finished
in 1/10 second — so fast, in fact, that some who blinked didn’t see it.

The ENIAC next produced a table of cosines and sines. It did this by
solving the difference equations

\[\Delta (\sin x) = -A \sin x + B \cos x\]
\[\Delta (\cos x) = -A \cos x - B \sin x\]

where \( A \) and \( B \) depend upon the intervals of the argument and are given by

\[A = 1 - \cos \Delta x\]
\[B = \sin \Delta x\]
In the problem solved the sines and cosines were calculated in intervals of 1/10 mil, so that $A = 0$ to nine significant figures and $B = .00098175$.

The sines and cosines for one hundred different angles were computed, punched on cards, and later printed in tabular form. (See enclosed sample)

The operations and problems demonstrated up to this point were very simple and did not use much of the equipment on the ENIAC. The ENIAC was constructed for the purpose of solving much more complicated problems. The last problem demonstrated was of this character. It is a problem of great importance to the Ordnance Department, but since it is classified as secret not very much can be said about it. It involves the solution of partial differential equations. In solving it the ENIAC did in 15 seconds what a mathematician would require several weeks to do.