DEPARTMENT OF GENETICS                    May 24, 1963                        DAvenport 1-1200
                                                                               Ext. 5052

MEMORANDUM

To:      Dr. Robert Sears
         Dean, Humanities and Sciences

         Dr. Robert Alway
         Dean, School of Medicine

From:    Joshua Lederberg
         Professor of Genetics

Subject:        Appointment of Dr. Marvin L. Minsky


I am pleased to reinforce Professor Forsythe's proposal for the appoint-
ment of Dr. Marvin L. Minsky as Professor of Computer Sciences jointly
in the Division of Computer Science and the Department of Genetics.

The evaluation of Dr. Minsky's academic qualifications in the field of
his own specialization is properly the responsibility of the Computer
Science Division, and I can only add my own concurrence in giving them
a very high appraisal.  This is based on some very limited previous
contact with Dr. Minsky over a period of some years, by my following of
some of the work he has been doing in artificial intelligence through
publications, and especially by the reinforcement of my previous opinions
through two rather intensive sessions of personal discussion within the
past several weeks.  My impressions as to his remarkable intellectual
capabilities are further reinforced by the opinions I have had of him
from Professor McCarthy, and from the views of my colleagues in the
Medical School who have met him and have been acquainted with him.  I
think there is very little question that Dr. Minsky is an outstanding
contributor in the field of artificial intelligence, whatever controversy
there may be concerning the actual present stature of this field of in-
vestigation.  As several of Dr. Minsky's referees have indicated, if
there is anyone who is likely to accomplish a significant advance in
artificial intelligence, it is likely to be Dr. Minsky.

To these special qualifications for advanced research in the role of
computers, Dr. Minsky adds an unusual breadth of general scientific
scholarship, including biology, and a deep interest in forwarding the
constructive use of these technological tools for the purposes of medicine.

I was especially gratified at the critical judgment that Dr. Minsky was
able to display in discussing a wide variety of scientific research
questions of particular interest in the Genetics Department.  Furthermore,
his interest in the development of artificial intelligence has not only
a general application to the construction of effective experiments in the
exobiology program, but he also has a distinct personal interest in helping
the pursuit of this application.

In sum, it seems to me that the appointment of Dr. Minsky on this joint
basis between the Medical School and the Computation Science Division
affords a unique opportunity to further several objectives of great im-
portance to Stanford University, to the Medical School, and to scholarship
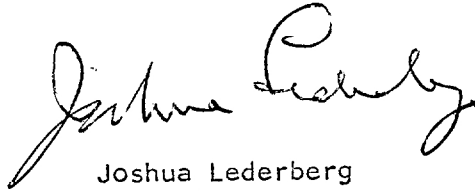generally:

1.  A concentration of talent at Stanford University that can help make
    it a national center in the field of artificial intelligence and non-
    numerical computation.

2.  The establishment of an effective liaison between the Medical School
    and the Computation Science Division in support of technological
    developments of unquestioned importance for medicine.  Dr. Minsky
    would fulfill this role not only through his own operations in the
    two departments, but in a consultative function with other staff in
    the School of Medicine.  He should also have a modest but definite
    teaching role in the instruction of students and staff in the Medical
    School in the potentialities of computer applications.

3.  Within the Department of Genetics Dr. Minsky would further the exobiology
    and instrumentation programs through his own work on artificial intel-
    ligence and through the support of our broad efforts at the re-vitalizing
    of analytical instruments through the use of computers.  In addition it
    is important to point out the analogy between the process of biological
    evolution through spontaneous mutation and natural selection and the
    perfection of adaptive programs through a similar route.  There is in
    fact an ultimate expectation that a common basic theory of adaptive
    processes may help to furnish the necessary ideology which is still
    sadly lacking in the construction of a general biological theory, at
    the same time that it answers the needs for the rapid controlled evo-
    lution of artificial intelligence.

4.  The relevance of these investigations to the understanding of natural
    intelligence is an obvious one and is well understood by the many
    members of the Neurobiology Group who have been consulted concerning
    this appointment and likewise give it their enthusiastic support.

It is recognized that Dr. Minsky's assignment as Professor of Computer
Science in the Department of Genetics is a somewhat arbitrary one, although
entirely appropriate to match existing opportunities, facilities, and needs.

To the extent that Dr. Minsky's performance matches our expectations,
the question should naturally arise as to a more distinctive assignment
of mathematical and computational functions within the School of Medicine,
but this question can safely be left for further deliberation in the light
of events and can hardly be excused as a basis for failing to seize the
present opportunity.

Joshua Lederberg
Executive Head
Department of Genetics

P.S.   To help illustrate the very vital role that advanced computation
is likely to play in the affairs of our department and of medical research
in general, I am appending the enclosed document "The Instrumentation
Crisis in Biology".