Princeton Historical Society, November 19, 1958.

The fundamental philosophy of the Institute for Advanced Study
was formulated by its first director, Abraham Flexner. To understand this
philosophy it is necessary to understand something of the history and
character of Flexner. Without being a creative scholar himself, Flexner
had an enormous respect for research and learning. The immediacy of knowledge
was to him no measure of its value. His experience in the process of
remodeling medical education had given him an insight into the burden of
organization and administration. He knew that administrative duties,
while necessary in their place, were incompatible with creative scholarship.
He foresaw a future in which universities would get bigger and bigger,
where science and scholarship would be dragged into the market place, and
made to serve a multiplicity of purposes, -- some of them sound, but almost
all of them destructive of that peace and freedom which are essential for
true reflection and discovery.

In long conversations with Mr. Bamberger and his sister, Mrs. Fuld,
around 1930, he presented these ideas with the persuasiveness of a man who
knew well what he was talking about. He brought the matter to a focus in
his proposal that an Institute for Advanced Study be founded. Mr. Bamberger
and Mrs. Fuld were persuaded but deliberate. They agreed with Dr. Flexner
that fundamental questions must be studied. What should be the subjects
which the Institute should first attack, what scholars should lead, what
conditions of study would be most effective for such an institute?

With Mrs. Flexner, Dr. Flexner was off to Europe, to Berlin,
Paris, Oxford and Cambridge. He talked with Hadamard in Paris, Gilbert
Murray and the physiologist Hill in England. In the course of time he

came to the conclusion that the Institute should begin with one subject and
he hit upon mathematics for three reasons. I quote:

"(1) Mathematics was fundamental;

"(2) It required the least investment in plant or books;

"(3) It had become obvious to me that I could obtain greater agreement
upon personnel in the field of mathematics than in any other subject."

Although Dr. Flexner does not record the following fact in his book
"I Remember," I knew by virtue of my position as Professor of Mathematics
in Harvard that Flexner discussed the question of establishing the Institute
in Cambridge with President Lowell. The exact details of the conversation
did not filter down to the Department of Mathematics, but enough did come
through for us to know that Flexner and Lowell were not of one mind.
Lowell was not ready to grant that autonomy which Flexner deemed essential.
The story was quite otherwise with Hibben, then President of Princeton. The
new Institute would be welcome to share Fine Hall with the Princeton
Department of Mathematics and with complete autonomy. With this decision
President Dodds, Hibben's successor, heartily agreed. Thus Fine Hall became
the first seat of the Institute for Advanced Study. As Professor Panofsky
will tell you, the classicists, historians and economists who were added to
the Faculty shortly after the first mathematicians occupied the white frame
building at the corner of Alexander Street and College Road. I must add a
note of nostalgia to all this. Those first years in Fine Hall were very
pleasant. There was a sense of leisure and peace about Fine Hall in those
days which it would be difficult to recapture in the atomic era.

The problem of selecting the first professors of mathematics was
slowly but surely solved. Einstein was first approached while lecturing in
California. As one would expect of Einstein, his enthusiasm was great and

grew steadily greater. He had little idea of the practical aspects of the
matter, but this was not necessary since Dr. Flexner and Mrs. Einstein
readily arranged for his future remuneration and security. The decision
of Hermann Weyl to come to the Institute was difficult. He had strong ties
in Europe. But the storm which Hitler was brewing was in the offing so
that Weyl came finally to cast his lot with the Institute. Philosopher and
historian of science, a molder of the mathematics in relativity and quantum
mechanics, he was a tower of strength for the Institute.

On the American scene, Oswald Veblen was at once ready for the
ideal new adventure. Together with Flexner he did more than anyone else
to determine the conditions under which the Institute should start. He
confirmed the view of others with whom Flexner talked that Alexander and
von Neumann should be invited to be Professors. He included me in his
list and sought my consent two years before I was ready to give it in 1935.
It is of interest that three of the Professors now at the Institute for
Advanced Study were formerly Professors at Harvard University. I believe
the reasons why we were willing to leave Harvard, and at the same time
regretted it, were held in common. In my own case, I was Chairman of the
Board of Tutors of Mathematics, was slated to be Chairman of the Department,
and was immersed in the very heart of my research. I valued all of these
activities, but knew that it would be impossible to carry them all out
simultaneously. I made my decision to come to the Institute and have not
been sorry for it.

You have read during the last week of the award of the third
Fermi Prize to Eugene Wigner of Princeton University. My colleague, John
von Neumann came to this country around 1930, Eugene Wigner came around 1932.
I was with Wigner on the boat that brought him to the United States. The

story of how these two great mathematicians made their genius felt, and
in the course of twenty-five years rose to the point of receiving the
ultimate Fermi award from Congress, is without parallel in our history.

The pure mathematicians who have been added to the Faculty of
the Institute since the early days are as follows:

Carl Ludwig Siegel, eminent German mathematician, came to the
Institute as a Member in 1940 and was a Professor from 1945 to 1951. The
influence of his writings and of his teaching has been very great. He
was one of the first of the German scholars to return to Germany after the
war. There is a possibility that he may return to the Institute during the
year of 1959-60.

Six other pure mathematicians have been added to the Faculty
since 1950. Each of them deserves a special account. I shall mention
just two, Kurt Gödel and Hassler Whitney. Gödel came to the Institute in
1946 and became Professor in 1953. He is counted by many as the greatest
logician since Aristotle. Certainly his methods in logic are studied wherever
logic is studied. He was Einstein's closest companion in Einstein's last
years.

I shall also mention Hassler Whitney who was at one time my
colleague in Harvard. I have the greatest admiration for his geometric
insight. He has introduced many new concepts into mathematics. Withal he
is most human. You may see him playing the viola in the Princeton Symphony.
If you have the habit of climbing the highest mountains in the alps, you
might very well meet him at the summit of a peak on any summer's day.

In the field of physics, as distinguished from mathematics,
three Professors and four Members of the Institute have received Nobel Prizes.
As you doubtless remember, Einstein received the Nobel Prize in 1922 before

he ever came to the Institute.

Wolfgang Pauli was born in Vienna. He was a Visiting Professor
at the Institute at various times between 1935 and 1946. He received the
Nobel Prize in 1945. Einstein regarded Pauli at one time as his successor
at the Institute. Like Niels Bohr, Pauli has been a frequent visitor at
the Institute, and has always brought words of wisdom.

Isidor Rabi was a Member of the Institute for Advanced Study in
1939. I have a particular interest in him because I taught him the
mathematics of relativity in 1921 in Cornell University. He received the
Nobel Prize in 1944.

Hideki Yukawa was a Member of the Institute for Advanced Study
in 1948-49 and received the Nobel Prize the same year. An equally dis-
tinguished Japanese mathematician, Professor Kodaira, is shared by Princeton
University and the Institute. Like Yukawa, Kodaira has received the
highest honors from the Emperor of Japan.

May I interpolate the following remark? The last count which I
have made of the number of foreign nations represented at the Institute for
Advanced Study gave the number fifteen.

Paul Dirac came to the Institute in 1934 as a Visiting Professor.
He is a Member here again at this time and has visited the Institute several
times between 1934 and 1948. He received the Nobel award in 1933, the
only Member of the Institute for Advanced Study to receive the Nobel Prize
before he was a Member. John D. Rockefeller is remembered for his
distributions of dimes. Dirac is remembered for his distribution. Period.
I will let this mathematical enigma pass.

Chen Ning Yang is the young Chinese physicist whose name together with that of his colleague T. D. Lee has been associated with parity, or rather with the rejection of the axiom of parity. Lee was a Member of the Institute for Advanced Study first in 1951-53 and again a Member in 1957-58. Yang is our youngest Professor of Physics. His clarity of thought, insight and fidelity to experimental knowledge are regarded as truly exceptional by his colleagues.

I have referred to these Nobel Laureates, not because I attach undue importance to Nobel Prizes, but because to you as historians there is something objective and impersonal in such a Nobel award. These awards give evidence over and above my own subjective bias in favor of my colleagues.

The prizes open to mathematicians are not taken too seriously by mathematicians so that I need not burden you with the list of their numerous awards. What is perhaps more significant is that the influence of the School of Mathematics is felt throughout the world in an extraordinary way. Last summer an International Congress of Mathematicians was held in Edinburgh and was attended by 1,600 mathematicians from all over the world including Russia and its satellites. There were sixty invited addresses. Of these sixty approximately half were given by members or former members of the Institute for Advanced Study.

My account of the Institute would be inadequate if I did not mention the presence in our midst of psychologists. For reasons which may seem strange, psychologists are accredited to the School of Mathematics. To me their presence has, on several occasions, become very real. The French psychologist Piaget tells us of the psychology of learning and especially of the learning of the young. In this field I have much clinical evidence with my seven children. And anyone who loves adventure must find the psychologist Kohler of interest. The philosopher Whitehead said that he could learn even from his students. Kohler learns even from his animals, and learns how they learn. But Whitehead and Kohler had extraordinary powers of perception.

I have left to the last the problem of telling you what the mathematicians do at the Institute for Advanced Study because this is the hardest task. I can say in a negative sense that we have no required lectures or courses, no deans, no tuition, and no football teams except the impromptu ones that come to life on a good fall day on the green in back of the Institute. The intellectual life at the Institute is something like a Quaker Meeting. You speak when the spirit moves you. There are

seminars of all sorts; seminars to hear what the Members are doing in their
own research, and seminars to read together the more significant memoirs
on present day mathematics.

A Member, no matter how young, can give a seminar, provided he can
find a group of mathematicians who think it profitable and interesting to
listen to him. The art of collaboration is highly developed at the Institute.
In my years at the Institute I have written twenty papers in collaboration
with at least six Member mathematicians. One paper out of every ten I have
written in collaboration.

There exists a deep underground of mathematical conjectures and
rumors. Such conjectures are proved or disproved or elaborated into major
theorems over night. Other problems defy the years.

With all this individuality, this freedom and independence, the
main tree of mathematics takes visible and definite form. The great
conceptions of Hilbert and Poincaré, and the rest of modern mathematics,
are shaped and evolved from day to day. There is infinitely much to be
done but mathematicians are not lost in this infinitude.

A word may be appropriate as to the successors of Flexner.
Dr. Aydelotte became Director in 1939 and Dr. Oppenheimer in 1947.
Dr. Aydelotte was destined to be our war-time Director. With his generous
consent and that of the Trustees, many of us were permitted to serve the
country in those ways in which we were best adapted to serve. Dr. Aydelotte
called on the Faculty for advice more than did Dr. Flexner, and the Faculty
responded in a way which I believe added to the structural soundness of the
Institute. Those of us who knew him best respected him and loved him.

Dr. Oppenheimer became Director in 1947. How much the Institute
has changed since he became Director is shown by the fact that all of the

Professors of Mathematics and Physics now on the Faculty except myself have become Professors at the Institute under his Directorship. He is one of the very few Directors of research institutions in this country who is himself both a Director and a great research scientist. We are grateful for his imaginative leadership which has extended far beyond the domains of mathematics and physics, and which has provided for us and for many others a satisfying cultural home. In mathematics we have been permitted to share and are glad to share with Dr. Oppenheimer the responsibility for what the Institute has become in mathematics. It has been a labor of love.

My account to you of this world of mathematicians has been inadequate. To truly understand it you must be immersed in it. Yet I think I can rely on your sympathetic understanding to complete the picture which I have attempted to paint. The universe of mathematics is a part of a larger universe whose meaning you historians have the responsibility to interpret. I hope you will find the proper place in this larger world for mathematics.

Marston Morse