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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held February 2, 1945.

Present: Profs. Einstein, Morse, von Neumann, Veblen, Weyl, and Alexander, Secretary.

1. The primary purpose of the meeting was to discuss the appointment of new members to the Mathematics Faculty. It was the opinion of the group that we should nominate one candidate for a chair in mathematical physics, and one for a chair in pure mathematics. Also, it was agreed that we should notify the other Schools that we were about to make nominations and should urge them to do the same.

2. Professors Einstein and Weyl were appointed as a subcommittee to draw up a report on possible candidates for a chair in mathematical physics. The names of Pauli, Rabi, Fermi, Oppenheimer, Dirac, Gamow, and Bethe were discussed. The group favored Pauli as the most desirable candidate.

3. As for an appointment in pure mathematics, the group felt that one candidate -- Siegel -- stood head and shoulders above all others. Professors Weyl and Alexander were appointed as a subcommittee to prepare a report on Siegel.

4. It was moved that the stipends of Gödel, Pauli, and Siegel be renewed for another year and that Siegel's stipend be raised to $4,000.

5. It was moved that Chern's stipend be renewed and raised to $1,800.

6. It was moved that the basic rate of stipends for visiting members and assistants be raised to $1,800 for unmarried men, and $2,100 for married.

7. The group discussed the question of securing a permanent position for Gödel similar to the one now held by Mayer. No final decision was reached.

8. It was moved that if it should be impossible to obtain a position on the faculty for Siegel in the immediate future, we should make every effort to hold him as a visiting member at an enlarged stipend.

James W. Alexander

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte, held March 5, 1945

Present: Dr. Aydelotte, Professors Einstein, Morse, von Neumann, Veblen, Weyl, and Alexander, Secretary

A general discussion was held about candidates for stipends. The situation in regard to the various candidates may be summarized as follows:

1. Professor Shiing-shen Chern. Chern has taken up the matter of his return to China with the Chinese Legation, which advises him to continue work in this country for the time being. [At our last meeting, February 2, 1945, we voted to offer Professor Chern a stipend of $1,800 for the year 1945-46.]

2. Professor Loo-Keng Hua. Negotiations between Professors Hua and Weyl have been dragging on for some time. According to the latest word received from Hua, the latter claims that he has not been able to make the necessary arrangements to come to this country. At the same time it is reported that Hua is still trying for an appointment in the United States through Professor Albert of Chicago.

It was voted to drop negotiations with Professor Hua, at least for the time being.

3. Professor Shih-Tsun Ma. Professor Ma is anxious to work with Professor Pauli who would, in turn, be glad if Ma were to come to the Institute as a visiting member.

It was voted to offer Professor Ma a stipend of $1,800 for the year 1945-46. Negotiations were left to Professor Weyl.

4. Dr. Jacques Dutka. Action postponed.

5. Dr. William Taussig Scott. Action postponed.

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6. Mme. Chang. Funds are available to invite Mme. Chang to spend a few months at the Institute.

It was voted to leave the matter in the hands of Dr. Aydelotte and Professor Weyl, with power to act.

7. Professor Tibor Radó. Professor Weyl suggested that it would be desirable to offer Professor Radó an additional stipend of $1,000, so that the latter could prolong his visit for another three months, and thus have the opportunity to finish his book. Dr. Aydelotte felt that if Professor Radó remained longer at the Institute the Ohio State University should be asked to bear part of the expenses. The matter was left to Professor Veblen to negotiate.

It is here recorded that informal action in June 1944 allotted $1,500 to Professor Radó for 1944-45, about 6 months ending March 7, 1945.

In answer to a question, Dr. Aydelotte stated that funds for assistants would be available in 1945-46, if use could actually be made of assistants.

As the head of two nominating sub-committees, Professor Weyl read prepared statements recommending the appointment of Professors Wolfgang Pauli and Carl Ludwig Siegel for chairs in the School of Mathematics, with Professor J. Robert Oppenheimer as an alternate for Professor Pauli. Dr. Aydelotte stated that he was strongly impressed with the recommendations and would give them most serious consideration.

James W. Alexander

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held April 7,1945.

Present: Professors Einstein, Morse, von Neumann, Veblen, Weyl, and Alexander, Secretary

1. Professor Weyl presented a revised draft of the report of the Nominating Committee dealing with new appointments to the Faculty of the School of Mathematics. It was voted that the report be formally presented to Dr. Aydelotte with an accompanying letter stating that the Faculty of the School had unanimously endorsed the conclusions of the report. It was also voted to file a copy of the report in the official minutes of the School. [Attached]

2. As a matter of general policy, Professors Morse and von Neumann urged that a chair in the School of Mathematics should be offered, in the near future, to a mathematician in the younger age group. They were of the opinion that, with the restoration of normal conditions after the war, a suitable candidate would in all probability emerge before many years. It was voted that Professors von Neumann and Alexander prepare a statement for presentation to the Policy Committee of the Faculty endorsing the appointment of a certain number of younger scientists and scholars to the Faculty.

3. It was voted to keep open the offer of a stipend of $1,800 to Dr. Helen Braun. [According to Dr. Aydelotte, special funds are available for this stipend.]

4. It was voted to offer a stipend of $1,800 to Dr. Ky Fan. Negotiations were left in the hands of Professor Morse.

Action on other applications for stipends was postponed.

James W. Alexander

Secretary

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REPORT CONCERNING NEW PERMANENT APPOINTMENTS IN THE SCHOOL OF MATHEMATICS

I. Theoretical Physics

The School of Mathematics is of the unanimous opinion that theoretical physics not only should continue to form a part of its scientific activities, but should even be reinforced. The entire history of physics since Galileo bears witness to the importance of the function of the theoretical physicist, from whom the basic theoretical ideas originate. A priori construction is in physics as essential as empirical facts. Of course the theorist must have contact with the discoveries and findings of experimental physics, but it is enough that laboratories exist in the civilization in which he lives; it is by no means necessary that he be associated with a laboratory at the place where he works. The war has made industry, government, and people in general, more acutely aware of the vital role of physical research. But in view of the forces which shape public opinion and action, it is not to be expected that pure theoretical physics on the advanced level which we wish to promote, will greatly benefit from this wave of popularity; on the contrary, in the interest of a sound balance, it will be more essential than ever for an institute of our character to emphasize the less popular theoretical side of science.

Adopting this general viewpoint, the School of Mathematics recommends appointment of one new professor of theoretical physics, and after surveying the leading men in the field here and abroad whom we might have a chance to win for the Institute, it proposes to offer the professorship to Dr. Wolfgang Pauli, with Dr. J. Robert Oppenheimer as a second candidate. Indeed, all available evidence seems to point to Pauli as the best possible choice. Quick action is

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desirable in his case since otherwise we may lose him forever.

Pauli is forty-four years old, married, of Austrian nationality. He took out first U.S.A. naturalization papers when he came here in 1940. Stages of his academic career: Assistant at the Universities of Göttingen and Copenhagen 1921-1923; Privatdozent at Hamburg 1923-1928; full Professor at the Technische Hochschule, Zürich, 1928-. During the year 1935-1936 he was Visiting Professor at our Institute, and he has been a member since 1940. But he still holds his professorship in Zürich.

Pauli's first papers were on general relativity and contained interesting contributions to Einstein's field theory of gravitation and its more speculative extensions. His article on relativity (250 pp.) in the Mathematical Encyclopedia is a mature and masterly work which shows the author in full command of both the mathematical and the physical aspects of the subject; and yet it was the work of a young man of 20. Pauli later returned to the theory of relativity on one or two occasions. But his main work, by which he should be judged as a creative theoretical physicist, is in quantum physics.

Here it is natural to distinguish the periods before and after the Heisenberg-Schrödinger break-through to a consistent quantum theory of the atom (1925). In the time before this dramatic event, one had to operate with Niels Bohr's models and a compromise that Bohr vaguely formulated as the principle of correspondence, and to find one's way through the maze of known spectroscopic facts, more by divination ("Schnauze" Pauli would say) than by theory. It is remarkable that in this period Pauli scored some of his greatest successes. The model of the ionized hydrogen molecule first computed by him may still be on exhibition in the Deutsche Museum in Munich if it is not destroyed by bombs. He made important contributions to the quantum theory of radiation and of the thermic equilibrium between radiation and electrons along lines suggested by

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Einstein's conception of the photon. He saw that the so-called hyperfine structure of spectral lines is probably to be ascribed to the structure of the nucleus rather than to the electronic shell of the atom,- a conjecture now definitely confirmed, but surprising at a time when the physicists' whole attention was concentrated on the shell. But above all, his investigations concerning the Zeeman effect gradually led him to the discovery of the exclusion principle, according to which no two electrons may be in the same quantum state. This was a very bold conception. The exclusion principle, strange and incomprehensible as it is from the standpoint of classical physics, is decisive for an understanding of the periodic system of chemical elements. It is a lasting achievement, which will hardly be affected by any future changes of our physical theories. Pauli applied this principle to the statistics of particles in a degenerate gas, thus explaining the paramagnetic properties of such gases. A paper on the paramagnetism of metals laid the foundation for the whole quantum-mechanical theory of electrons in metals. His article on quantum theory in the Handbuch der Physik (about 300 pp.) contains many results which at the time could only be conjectured, or made plausible by heuristic arguments, but which have later been confirmed by wave mechanics.

After Heisenberg's formulation of quantum mechanics in terms of matrices (but before Schrödinger developed the wave picture) Pauli showed that the new quantum mechanics explains the spectrum of the hydrogen atom. Evidence had accumulated that an angular momentum must be ascribed to the electron. The nature of this momentum, which was radically different from that of a spinning top and not to be accounted for by classical concepts, was first correctly described by Pauli. Probably this is his greatest accomplishment in the period subsequent to the Heisenberg-Schrödinger revolution. With Pauli's and Heisenberg's investigations on the quantization of the field equations, wave mechanics passed from

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the theory of a single particle to that of the interaction of an indefinite number of particles,- a step of fundamental importance, for which Dirac's quantum theory of radiation had paved the way.

The new wave mechanics had rendered Pauli's older article on quantum theory obsolete, but in 1933 he wrote for the same Handbuch his Allgemeine Principien der Wellenmechanik which, along with Dirac's book, is considered by the physicists as the most authentic account of wave mechanics.

The electronic spin was incorporated in Dirac's 4-component equations for the electron, which superseded Schrödinger's scalar wave equation. Nevertheless the latter retains a certain interest. Indeed, Pauli showed that after quantization it describes pairs of particles of opposite charge and without spin. The discovery of new elementary particles by the experimental physicists (cosmic radiation) gave new meaning to such possibilities. Pauli extended them so as to cover particles with arbitrary spin values. These studies naturally developed into investigations on the theory of the mesotron which have occupied him during the last years. The mesotron is now a generally accepted particle in nuclear physics, but since the whole subject is in a rather unsettled state, it is impossible to say at the present moment whether Pauli's clue is the right one. The same holds for a suggestion of his which he never published, the neutrino, a hypothetic particle having no charge and mass, but the electronic spin.

This brief account is far from complete. Pauli's work has been of great influence on the development of physics during the last twenty-odd years. "It is difficult to imagine" says Professor Rabi, "what the history of physics would have been without the influence of Pauli during this period." Not a small part of it has been by correspondence and discussion.

Pauli is distinguished among theoretical physicists by his highly developed organ for mathematics. As physicist he has a wide horizon, his judgment is penetrating, critical and objective. In particular, his accurate in-

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stinctive estimate of the relative weight of relevant experimental facts is an unfailing guide for him in his theoretic investigations. He has never been content with developing more or less foreseeable consequences of established theories, but almost every one of his papers contains a new idea, often of high originality. In view of the discontinuous leaps by which theoretical physics develops, the stream of his scientific production has been remarkably steady. The way in which he managed to obtain results of lasting value during the twilight of atomic physics before 1926 gives hope that he will be no less successful in its present difficult period of transition.

In his youth Pauli had the reputation of an enfant terrible among physicists. He is keenly interested in men, and watches them with open eyes. He used to show by witty remarks how he saw through people's pretences. But all his Mephistophelean garb could not hide his inherent good nature. As the years passed by he has become much more mellow,- a development welcomed by some, regretted by others of his many friends.

Pauli is deeply interested in younger research physicists and their training, and devotes much time, imagination and energy to discussions with them. He is accessible to them, he is generous with fruitful suggestions, collaborates with them, and surveys their work. He is less successful in the classroom, but this is no handicap for the position for which we want him, and for which he is eminently fitted. Although he was under no obligation to do so, he has during the last years advised and helped the temporary members of our School of Mathematics, and has also taken care of the research work of a number of younger theoretical physicists in the University.

J. Robert Oppenheimer is forty years old, married, of American nationality. The University of California had him as Assistant Professor 1929-

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1930, and Associate Professor 1930-1935; at the same time he was Associate Professor at the California Institute of Technology 1928-1937. Since 1935 and 1937 respectively, he has been full Professor at both institutions.

With remarkable success Oppenheimer has participated in the development of quantum mechanics and its methods by treating important special problems. Examples: Quantum theory of molecular spectra. Scattering of particles by the nuclear field. Polarization of radiation generated by the impact of electrons. Emission of radiation by free electrons passing through a nuclear field (generation of continuous X-ray spectra) and application of the inverse process to the absorption of radiation in the interior of stars. Cold emission from metals. Relativistic wave equation, with emphasis on the theoretical difficulties arising from the local fields of the particles. Pauli principle, and gas statistics (jointly with P. Ehrenfest; the statistics is found to depend on the parity of the number of bound electrons). Oppenheimer has his share in Dirac's bold interpretation of the absence of an electron in a given negative energy state as the presence of a new particle, the positron, in the corresponding positive energy level.

Since about 1930 the center of gravity of Oppenheimer's work has shifted to nuclear physics. He has studied the genetic relationship between the several elementary particles and radiation, for instance the perturbation of the process of radiation by generation of electron-positron pairs. Perhaps his most original ideas are contained in his papers on the decomposition of deuterons by impact, and on the multiplicative showers of particles which are such a surprising feature in cosmic radiation.

Everywhere, and in particular in this latter work, he shows considerable strength in pursuing a theory into its last consequences, those consequences which are decisive for the whole theoretical foundation. It is characteristic of Oppenheimer that so many of his papers are written in collaboration with other physicists.

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During the war he has done excellent administrative work under formidable political and objective difficulties, and without losing any part of his scientific insight and integrity.

Oppenheimer has been a very great influence in the United States in spreading the knowledge of quantum mechanics. He has an enormous capacity for influencing young people, and has founded the largest school of theoretical physics in this country. His interests are broad, he surrounds himself with a brilliant social circle, and his students are very enthusiastic about him. It may be that he is somewhat too dominant, and his students tend to be smaller editions of Oppenheimer.

In comparing Oppenheimer with Pauli, it is safe to say that Pauli's command of the mathematical apparatus was, is, and will probably always be far the greater. Regarding qualitative insight, O. since he reached his full stature, comes closer to P. In inspiring other physicists, they are on the same level, perhaps O. even a little above P. as far as their influence on experimentalists on the spot is concerned. But certainly O. has made no contributions to physics of such fundamental nature as Pauli's exclusion principle and analysis of the electronic spin. Physicists outside our own circle agree with this opinion, or express themselves even more strongly to the effect that Oppenheimer is one in a series of younger physicists of nearly equal rank -- the names of Gamow, Bethe, Wigner and Heitler are mentioned -- but that they are all several degrees lower than Pauli in originality, depth and lasting influence.

The following is another quotation from Professor Rabi:

> "In the particular situation in which the Institute finds itself, that is a place where people go for post-doctoral study and where established professors go for a sabbatical year, Pauli is more suitable because of his great powers of critical evaluation of a problem and his fundamental point of view.
>
> As a close neighbor of the Institute for Advanced Study I can say with the greatest sincerity that I would regard the appointment of

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Pauli to the chair of theoretical physics in the Institute as a tremendous help to myself and to the whole community of physicists in the metropolitan region. He would be a great integrating influence and by his presence and example greatly raise the intellectual level of theoretical physics in this community. Oppenheimer, although he would be a great addition to the community, is not sufficiently above the others to have the same effect. Pauli for many years has been the conscience and the criterion of truth for a large part of the community of theoretical physicists."

After this report had been drawn up, the following letter was received from Professor Dirac in Cambridge, England:

"In answer to your cable, I would say that Pauli has achieved results of a higher order of importance that Oppenheimer has. One has only to think of Pauli's exclusion principle, or Pauli's original theory of the spin of the electron. I believe these achievements almost won a Nobel Prize for Pauli. Pauli has continued to produce results which form foundation stones in the building up of general quantum theory, and he shows a power of criticism and of penetration to the essential features of problems which is surpassed by no-one.

Oppenheimer has done valuable work in the theory of scattering and in quantum electrodynamics. His powers are perhaps greater than is generally recognised, because his style of writing things up is obscure, so that his work is not read so much as that of rival researchers. Oppenheimer is a man of great ability with a keen physical insight, though not in the same class as Pauli.

Oppenheimer has been holding a position of great responsibility during the war, and this would make him specially well qualified to run a large school of research. But unless you attach very great importance to this qualification, I would say there is no doubt that Pauli has the stronger claims."

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II. Mathematics

Having recommended the appointment of a new professor of theoretical physics, the School of Mathematics feels that another appointment should be made in mathematics at the earliest possible moment. After discussing various candidates, we decided to propose at this juncture only one name, because it eclipses all others,- that of Carl L. Siegel. In Siegel's case as in Pauli's, it seems important to act without much delay because of the same risk of losing him forever.

Siegel is forty-eight years old, unmarried, of German nationality. He has the first U.S.A. naturalization papers. He was Lecturer at the University of Hamburg in 1920, Privatdozent in Göttingen in 1921, full Professor in Frankfort am Main 1922-1938, in Göttingen since 1938. He was Visiting Lecturer at our Institute and at Princeton University in 1935, and has been a member of our Institute since 1940.

Although he has a firm grip on all branches of mathematics, his main achievements belong to number theory and the application of transcendental analytic methods to arithmetical problems. Siegel prefers to carve the stone of hard concrete problems rather than to knead the soft clay of general abstractions. He is more classically minded than most of our present mathematicians. Not that he does not know how to handle our modern machinery of abstract concepts and methods. But when he has need of them he reinforces them by the steel of some specific ideas of his own invention, and uses them to solve some pre-existing concrete problem which had before been unapproachable. Thus when he, as the first, devised a general method for investigating a deeply hidden property of numbers, their transcendence, he used the zeros of the Bessel func-

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tions, numbers which play the same role for the harmonic oscillations of a circular membrane as π does for the string, as a test of power for the new method. His more recent beautiful work on discontinuous groups uses topology and abstract algebra, but again he combines the general theorems with more specific ideas in order to establish a detailed theory of the group of units in simple algebras (of which Dirichlet's classical theory of units in an algebraic field and Minkowski's theory of reduction for quadratic forms are two special aspects).

Leaving aside numerous isolated contributions to his own principal field of research as well as to celestial mechanics and related analytic problems, one can roughly arrange Siegel's achievements in four groups. The first group deals with diophantine approximations. He begins by generalizing Thue's famous work in that line from rational to algebraic approximations. Ten years later he reaps the reward of continuous efforts in this direction in a great paper that by an ingenious combination of ideas due to Thue, André Weil and Siegel himself, settles the question in its true generality. It is in the same paper that he develops his method for transcendency proofs mentioned above.

Another group is concerned with the analytic number theory of algebraic fields. The lattice structure of such fields is exploited in a very fruitful manner. Basic additive problems, in particular the representation of integers as sums of squares of integers, are attacked by a combination of Hilbert's arithmetic and Hardy-Littlewood's analytic methods. The crowning achievement in this line is his recent paper on the "Generalization of Waring's problem to algebraic number fields". One of Siegel's more subtle results concerning the class number of quadratic fields proved to be an essential prerequisite for Vinogradoff's work on additive prime number theory. One of Siegel's last papers begins by proving a conjecture of Gauss that had remained a challenge for more than a century.

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The third group, perhaps the most impressive body of his investigations, deals with the theory of definite and indefinite quadratic forms. Here he continues the great tradition of Gauss, Dirichlet, Hermite, and Minkowski. In three papers published between 1935 and 1937 in our Annals of Mathematics, he broke new ground in the analytic theory of quadratic forms. Recently he was able, by an entirely different approach, and particularly ingenious and elaborate estimates, to prove that (with certain restrictions) the density of representations of one form by another depends only on the genus of the latter; a truly provocative result, the reasons for which are far from being fully understood. In the field of indefinite forms, about which little was known before Siegel, he took up ideas of Hermite's and penetrated deep into the structure of their units.

The fourth line is pursued in his papers on modular functions, on fundamental domains for the modular group and other discontinuous subgroups of the symplectic group, and on automorphic functions of several variables. Here, as in the analytic theory of quadratic forms, his discoveries open a completely new field which we cannot yet survey adequately.

In rapid succession Siegel has during the last years produced one masterwork after the other. It is difficult to convey an impression of the imaginative power behind these achievements. There is no one in Siegel's generation and among the younger mathematicians who is of comparable strength, and he is now at the height of his productivity. The following quotations from Lefschetz and Courant confirm the opinion of the mathematicians in our own midst:

> "Siegel is, I think beyond any doubt the most gifted and original mathematician of his or lesser age anywhere. Suffice to say that in automorphic functions of several variables he has done work of exceptional originality. Indeed the only work of any consequence for possibly 50 years. He has put the subject on the map at last, a thing that no one believed possible until he began to work at it. If I am not mistaken, he has done work of at least as high caliber in number theory. In addition, as we well know, he is a letter perfect lecturer and an utterly clear writer."
>
> S. Lefschetz

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"There are two overwhelming and closely connected reasons why Siegel's remaining in this country seems of the highest importance from the point of view of our science. First, in my considered judgment Siegel is the strongest and most substantial mathematician whom I have met, the only one of his generation whose strength could be compared with that of the mathematical heroes of the preceding era. There is not the slightest hint of superficiality or dilettantism in any of his scientific activities. The fields in which he has been working most and which are, perhaps, of the most profound significance to mathematics, are relatively unknown to the younger mathematical generation. There is hardly anyone who could plant the seed of these ideas here except Siegel. If he could stay and inspire a group of young scientists, this might easily serve to counterbalance the dangerous tendency to abstraction prevalent in present day mathematics. A scientific development such as would probably be started by Siegel in this country would have little chance to develop elsewhere in the post-war world."

R.Courant

Other letters from E. T. Bell, Claude Chevalley, G. H. Hardy, H. Rademacher and J. F. Ritt strike, with some modulations, the same chord. Thus, after a brief analysis of Siegel's work, Professor Chevalley comes to this conclusion:

"The foregoing list, although far from including the whole of Siegel's work, may give an idea of his amazing versatility. In each field, he concentrated on the most difficult problems; in each, he obtained results of outstanding value, which place him on a level with a Hilbert or a Poincaré. Furthermore, Siegel's papers always distinguish themselves by the elegance of the methods and the perfection of the style. In contrast with those of many creators of new ideas, his proofs never leave one with the disagreeable impression of not being quite convinced; in contrast with many virtuosos of rigour, he never lets trivialities be published under his signature."

Professor Hardy writes as follows:

"I have always felt an intense admiration for Siegel's work, from the earliest years, just after the last war, when he first burst into fame, and when I met him for the first term in Jena. I suppose one can distinguish three periods: the first, of intense activity -- the 'Thue-Siegel' theorems, the additive theory of number-fields (to which I am delighted to see that he has now returned), and so on: the second, when he would not publish, but one heard from time to time of the remarkable things he was doing: and the latest, in which America has happily succeeded in bringing him out into full flower again. I don't remember any time when anybody questioned that he was the equal of any mathematician of his generation, and certainly I never doubted it myself. And in one way -- and that a very important one when you are thinking of a professorship for him -- I put him first of all. There may be others (Vinogradov, for example, to mention only a man whose work I know) who have done things as difficult and deep: I know no one whose work produces quite the same total impression of combined profundity, scholarship, and perfection of literary form. He ought surely to make a magnificent leader of a school."

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Hardy then goes on to review a few of Siegel's papers with which he is familiar, and concludes as follows:

> "Well, I don't know the circumstances, the alternatives, and so on. But if I were an elector to any professorship in the world, and Siegel were available, then I find it extremely difficult to imagine myself not voting in his favour."

Siegel's extraordinary mind is embodied in an extraordinary personality. His papers are works of literary art, composed in a most concise style. He reads his Homer or Thucydides in Greek, and is a painter of some talent. Capable of enormous physical endurance, he has wandered all over Europe,- in Spain, the Alps, the north of the Scandinavian peninsula, and Greece. Being a genius, he bears some of the stigmata of genius. He is of a retiring disposition and finds it difficult to enter upon and maintain open and natural communication with his fellowmen. It is not easy to win his confidence. But he is not difficult or uncooperative as a colleague, and to those he trusts he is a most loyal friend. He will not suggest a problem to a young mathematician unless the latter takes the initiative in approaching him. Only those who are willing to meet him more than halfway will be able to profit from his treasure of mathematical experience. Fortunately he likes to lecture, and always prepares his lectures with extreme care. He is an absolutely superior and inspiring teacher for advanced students, and if we help him in arranging courses, seminars, informal talks, so as to provide contacts with our younger members, he can exercise an enormous and very healthy influence.

In the letter quoted before, Courant, who knows Siegel most intimately, continues:

> "The second important reason for wanting Siegel to remain in this country is his scientific personality and scientific ethics. Siegel has no personal ambition whatsoever. He does not want money nor does he want recognition. His life is truly and fully devoted to the ser-

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vices of mathematics. Superficial problems that promise easy success have no appeal for him. He does not want to seem brilliant or throw sand into the eyes of admirers in order to win temporary praise. This attitude pervades his entire personality and makes him intolerant and contemptuous of people to whom science is just a vehicle for ambition or a means to position or social prestige. A scientist of Siegel's greatness, who is at the same time such a Puritan scientific personality, can set an inspiring example for the younger generation and act as a counterbalance to the materialism that is so dangerous for scientific development."

April 7, 1945.

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte, held April 28, 1945

Present: Dr. Aydelotte and Profs. Einstein, von Neumann, Veblen, Weyl, and Alexander, Secretary

1. The meeting was called by Dr. Aydelotte to discuss the implications of a proposal suggested by Professor von Neumann of the Institute and Professor Henry D. Smyth of the University. The proposal -- still in a very tentative stage -- was to offer Professor Enrico Fermi a chair in Theoretical Physics under the joint auspices of the Institute and University, with the understanding that his salary would be paid by the Institute and that laboratory facilities would be furnished him by the University. In particular, Dr. Aydelotte wanted to know whether the School of Mathematics might care to delay its nominations of Professors Pauli and Siegel while the question of inviting Professor Fermi was still under consideration. It was the unanimous opinion of the group that the nominations of Pauli and Siegel should be allowed to stand, and should be pushed to the fullest extent. On the other hand it was agreed that the Fermi proposal should also be thoroughly explored with a view to possible future action.

2. It was voted to recommend the admission of Professor Lifu Chiang as a member of the Institute for the academic year 1945-46. Professor Weyl undertook to communicate with Professor Chiang.

James W. Alexander
Secretary

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From the Shelby White and Leon Levy Archives Center, Institute for Advanced Study, Princeton, NJ, USA.

THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte June 2, 1945

Present: Dr. Aydelotte and Profs. Einstein, Morse, von Neumann, Veblen, Weyl and Alexander, Secretary

Meeting called to discuss to what extent the Institute should become involved in questions involving Experimental Physics.

Von Neumann: In all probability, Fermi and Oppenheimer will soon be leaving full-time war work. Doubtful whether they will return to former university posts. Oppenheimer reported not happy in Berkeley and considering offer from Harvard, and according to Rabi also offer from Columbia. Fermi is still attached to Columbia but very seriously considering offer from Chicago.

Aydelotte: Smyth thinks U.S. Government will continue to support experimental work generously. Should work be done in U.S. Government laboratories or at picked universities? Aydelotte and Smyth suggest Government laboratories, with scientists from universities working on leave of absence.

Einstein: Fears that emphasis on such projects will further ideas of "preventive" wars.

Morse: Doubts whether scientists will ever be able to run such projects.

Aydelotte: Points out that Government will probably insist on some "classification" for such projects.

How secret will they be?

Von Neumann: Government may subsidize some experimental and theoretical work in physics on a straight scientific basis. It might maintain regional laboratories, each serving a group of universities.

Veblen calls attention to expenses for engineering which will put much work beyond means of private universities, hence the necessity for regional laboratories. In view of these laboratories, the Institute could afford to go in for physics on a grander scale than previously contemplated. In future, private funds may be insufficient to provide for scientific research. Congress may vote large appropriations and leave detailed allocation of funds to universities in hands of scientific committee.

Von Neumann: In future, Government may play the role of the great foundations. May see the need of independent research in addition to strictly military projects.

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Einstein: Insists on importance of independence and emphasizes dangers of secret war work.

Von Neumann and Morse: If we had a man like Fermi on our faculty we would stand a better chance of getting a share of appropriations.

Morse: How far will Princeton University gamble on a joint project to get Fermi?

Von Neumann: Smyth says Physics Department approves offering laboratories and that approval of Dodds is expected.

Einstein: This means that the Institute would pay the salary and that the University would get the man. Precedent might develop into a common practice on part of University.

Veblen: Many University supporters might complain that the University was providing the equipment for the benefit of a man belonging essentially to the Institute.

Von Neumann: Impossible for Princeton to match the salary ceilings of Chicago, Columbia, etc. If we make arrangement with University we should impose condition that Fermi do research work only.

Morse: The Government is inclined to let contracts to establish institutions that have organization and equipment, rather than to start entirely new undertakings. Fermi question should be considered from the general point of view, taking all possible eventualities into consideration (i.e. whether or not we get Government funds).

Veblen: Situation analogous to that when we set up Mathematics group at Institute, building on group already at University. At the University we now have a nucleus consisting of Wigner and Wheeler. By building around these men we might try to obtain leadership in this area.

Aydelotte: Are we on the verge of great new discoveries in physics, or is it merely a question of engineering applications?

Weyl: It is never possible to guarantee such a thing in advance, but further progress in atomic physics certainly requires great apparatus which is best obtained in the manner discussed.

Einstein: Agrees with Weyl that such a procedure will probably lead to important scientific progress. He considers it desirable. However, we must keep in mind not to spend our energy on engineering applications.

Veblen: Mount Wilson is a great engineering establishment, yet it serves the purposes of pure scientists such as Russell, etc.

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Aydelotte: We don't know what prospects are for the future. At present most Government projects seem to be of a purely engineering character.

Morse: Our first consideration should be to get good men, but good men are liable to gravitate to points where funds are available. On the other hand, it would be dangerous to engage on a program that would make us dependent on continuing Government support.

Veblen: There is a good chance Trustees would be interested in plan. They may even get too much interested, to the detriment of other things.

Von Neumann raises question of automatic computation machines. There may be opportunity for us to take on directing role.

Veblen: Fluid mechanics. There is a proposal to have a panel on this subject, no doubt with military support. Work has been done for Army in this field by Bleakney and Harvey at Princeton. Problems of mathematical interest are involved.

James W. Alexander
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte, held in Prof. Veblen's office at 11 a.m., June 16, 1945

Present: Dr. Aydelotte and Profs. Einstein, Morse, von Neumann, Veblen, and Weyl, Secretary pro tem.

1. Dr. Aydelotte reports that Professorships in the School of Mathematics have been offered to Professors Wolfgang Pauli and Carl L. Siegel. He described the circumstances which make it necessary for Pauli to return to Zürich before he can decide.

2. Weyl reports that Professor Lifu Chiang, Mrs. Cheng Shu Wang Chang, and Professor Shih-Tsun Ma have accepted our invitations for next year. Of these, only Ma receives a stipend from the Institute ($1800). Dr. Herbert Jehle withdrew his application for next year.

3. Professor Morse considers asking Mr. Richard F. Arens to serve as his assistant. If that arrangement fails, the School recommends Mr. Arens for appointment as a member for 1945-46, with a stipend of $2100.

4. It is further voted to turn down the applications of Jacques Dutka, William T. Scott, and Yung-Chow Wong. The case of John M. Blatt is left undecided.

5. The Director and such members of the faculty as will be available in Princeton during the summer are authorized to negotiate for the appointment of the following men if funds are available:

a) Dr. J. L. Kelley, now at Aberdeen Proving Ground. His minimum requirements are about $2400. Arrangements would have to be made with the University of Chicago (see letter L.M.Graves to Veblen, June 15, 1945).

b) Prof. Otto Neugebauer, Brown University. Weyl is asked to sound out Neugebauer as to whether there is a possibility of having him at the Institute next year, on leave of absence from Brown on the 50 per cent. salary basis.

c) Prof. Abraham Wald, Columbia University.

6. It is recorded that Professor Tibor Rado found it unnecessary to accept the Institute's invitation (Minutes, March 5, 1945, p. 89) to extend his stay 3 months, as Ohio State University made satisfactory arrangements.

Hermann Weyl
Secretary pro tem.

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte held July 2, 1945, at 11 a.m.

Present: Dr. Aydelotte and Professors Morse, von Neumann, and Weyl, Secretary pro tem.

1. Weyl reports on Hu. In view of the commitment implicit in Dr. Aydelotte's letter of May 17 to Hu's draft board, and Hu's application for transfer to England, it is voted to postpone any action until September. It is very likely that Hu's Chinese fellowship of $100 monthly will be continued. In case nothing else turns up for him he should be continued as a member of the Institute and the sum of $300 annually added to his Chinese fellowship.

2. Ky Fan has accepted our invitation.

3. Arens has accepted Morse's offer of an assistantship.

4. Veblen has talked to Kelley. It is extremely unlikely that he will be released for the coming year.

5. It was voted to reject Blatt.

6. Dr. Aydelotte reported on Kusaka, who will now enter the U.S.Army. It is hoped that after his naturalization his scientific abilities will be made use of by the armed forces: Morse and von Neumann will inform the proper authorities about him.

7. A renewed invitation from the Institute to Antonio Flores -- who returned to Spain early in 1937 after only a few months work at the Institute, fought against Franco, and is now living in Madrid eking out a meager existence by private tutoring -- has been suggested to Weyl by some Spanish friends of Don Antonio. Later placement in Mexico or South America does not appear too difficult. It is found, however, that an invitation at the present moment by the Institute is not feasible. Weyl is asked to try to resume contact with Flores.

8. Weyl reports on his conversation with Neugebauer. Neugebauer will not be free before the middle of October, and he would be loath to interrupt work with his collaborator ~~Saks(?)~~ Sachs who is financed by the Rockefeller Foundation. Weyl is asked to carry on negotiations with Neugebauer on the basis that Brown pays half of his salary while the Institute would offer $3500 to Neugebauer and $500 to Saks for the year 1945-6, with the understanding that they start work at the Institute about a month after the beginning of our academic year.

9. Wladimir Seidel, back as Associate Professor at Rochester from war research work in Canada, wrote to Morse that he would like to come to the Institute for a year. No offer is extended now, but Morse is asked to make further inquiries.

Hermann Weyl

Secretary pro tem.

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte held September 26, 1945, at 11 a.m.

Present: Dr. Aydelotte and Profs. Einstein, Morse, von Neumann, Weyl and Alexander, Secy.

1. Professor Veblen was appointed secretary of the School of Mathematics for the academic year 1945-46.

2. Professor Morse undertook to edit a biographical directory of Institute members.

3. It was voted that Drs. Salomon Bochner, Deane Montgomery, Albert W. Tucker, Valentine Bargmann, and Abraham J. Sachs be carried as members of the Institute for the year 1945-46.

4. Dr. Aydelotte reported that Professor Carl L. Siegel was still considering whether to accept the professorship offered him by the Institute, and that Professor Wolfgang Pauli felt himself under obligation to return to Zürich for a short stay before accepting a permanent position here. Dr. Aydelotte remarked that he might ask the Executive Committee to offer Professor Pauli a temporary professorship pending the departure of the latter for Zürich. [Professor Siegel's formal acceptance has since been received.]

5. Dr. Aydelotte reported having received a letter from Dr. Helene Braun through Professor Rado, accepting the invitation sent her by the Institute. However, difficulties were still being encountered about getting Miss Braun's transportation and admittance to the United States.

6. It was voted to recommend to the Faculty and Trustees that Professor J. Robert Oppenheimer be offered a chair in the School of Mathematics. Professors von Neumann and Einstein were appointed to draw up a biographical report on Professor Oppenheimer for presentation to the Faculty.

7. Professor Weyl reported that Professor Wladimir Seidel would be unable to accept membership at the Institute for the year 1945-46, but that he would welcome an invitation for the following year. The motion was passed to put aside $1000 from this year's budget, to be offered to Dr. Seidel at a later date, should the occasion arise.

8. Professor von Neumann reported that he had received an application for a stipend from Dr. Pesi Masani (writing from Harvard). It was voted not to offer Dr. Masani a stipend at the present time, and to make no commitments for the future.

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9. Professor Weyl reported that he had received an application for a stipend from Dr. Kurt Mahler (now in Manchester, England). It was voted that no action be taken pending inquiries as to the permanency of Dr. Mahler's position at the University of Manchester. Professor Weyl undertook to make inquiries from Professor Max Newman.

10. Professor Weyl further reported that he had received an application for a stipend from Dr. Henryk M. Schaerf, a Polish mathematician now at the Technische Hochschule in Zürich. [Dr. Schaerf wishes to come to the United States for political reasons, as he fears repatriation to Poland.] It was voted that Professor Weyl follow up the case for further details, and that no formal action be taken now. Dr. Aydelotte suggested that Dr. Schaerf's name be sent to the Quakers to be added to their list.

11. Professor Weyl recommended that the Institute Library make no attempt to keep up a complete collection of Academy Proceedings not primarily devoted to mathematics. It was voted to endorse the recommendation.

12. It was voted to send the usual annual announcements about stipends for publication in Science and in the AMS Bulletin.

James W. Alexander

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held ~~September~~ October 11, 1945, at 11 o'clock

Present: Profs. Alexander, Einstein, Morse, von Neumann, Siegel, Weyl, and Veblen, Secy.

After considerable discussion of individuals and of the general policy of trying to help in the reorientation of mathematicians and theoretical physicists who have been engaged in war work toward regular scientific work, it was agreed to make the following recommendations for stipends:

1. Professor Francis J. Murray of Columbia, $2500 or $3000 for the period from February 1946 to February 1947. Professor Murray has leave of absence from Columbia at half pay. His salary is $5000 a year + $1000 for summer teaching. He has collaborated with Professor von Neumann in the past and it would be helpful to von Neumann's work if this collaboration could be further facilitated. Professor von Neumann to follow up.

2. Capt. A. Everett Pitcher of the Ordnance Department, for one academic year beginning at his discharge from the Army, $1800. The stipend for a single man is recommended because though Pitcher is married his wife is working. Pitcher also understands that if he receives a stipend from the Government this will be deducted from his Institute stipend. Professor Morse to follow up.

3. Professor Leo Zippin, at the rate of $200 a month for the period subsequent to the end of his work at Aberdeen, up to his resumption of work at Queens College. Zippin is well known to our mathematical group as having done valuable work in the past. It is thought that this would be a very good investment for mathematics. Professor Veblen to follow up.

4. It is recorded that it was previously voted informally to admit Dr. Gordon N. Patterson for the second term of 1945-46.

5. A letter from Dr. Karl T. Compton to Veblen proposing that Dr. S. Watanabe be invited to the Institute was discussed at some length. Watanabe is a Japanese with a German wife, whom Compton had seen on his recent visit to Japan. The general opinion was that it would be better to resume relations with Japanese scientists in the person of a more distinguished scientist. A great deal of interest was expressed in Professor Kakutani, and it was agreed that steps will be taken to learn of his present whereabouts and condition.

6. Professor Weyl reported that a cable has been received from Professor Terradas stating that Antonio Flores is not inclined to leave Madrid.

Oswald Veblen

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held October 24, 1945, at 11 o'clock

Present: Dr. Aydelotte and Profs. Alexander, Morse, von Neumann, Pauli, Siegel, Weyl, and Veblen, Secretary

1. Dr. Aydelotte pointed out that while he is glad to make every effort to obtain the necessary funds for the latest three recommendations for stipends (namely those for Murray, Pitcher and Zippin), we have already exceeded the appropriation for stipends for the current year (see attached statement), and he needs to understand each case in detail. It came out in the discussion that the Murray appointment would cover half of the present academic year and half of the next one, so that it would require $1,250 for the present year. Professor Morse stated that $1,200 would be needed for Pitcher. Veblen explained that the intention was to offer Zippin an appointment at $200 a month for something like three months. The sum total is therefore approximately $3,000 for the present academic year. On this basis it was decided to go ahead with these three cases, Professors von Neumann, Morse and Veblen being delegated to follow up the cases of Murray, Pitcher and Zippin respectively.

2. Professor Weyl reported that Professor Lefschetz offers the Institute the use, beginning November 1, of the room heretofore occupied by Dean Eisenhart. This is the largest of the offices in Fine Hall and one of the best. There was a general expression of appreciation of this gesture on the part of the University Department of Mathematics. It was decided that this room would be put at the use of the professors of the Institute.

3. It is recorded that it has been voted informally to invite to the Institute for the present academic year Professors Pavel Sergeevich Alexandroff and Andrei Nikolaevich Kolmogoroff, with a stipend for each of $3,000. This took place during the summer vacation, after Professor Alexander's visit to Russia.

Oswald Veblen

Secretary

Records of the School of Mathematics / Faculty Minutes / Box 1 / 1945-1953
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October 23, 1945

IAS SCHOOL OF MATHEMATICS STIPENDS 1945-46

Pavel Sergeevich Alexandroff	$ 3,000	
Helene Braun	1,800	Special fund?
C. S. Wang Chang (Rackham Fellow of Univ.Mich.)	-----	
Shiing-Shen Chern	1,800	
Lifu Chiang (No stipend)	-----	
Ky Fan	1,800	
Kurt Gödel	4,000	
Edwin Hewitt (Guggenheim Fellow)	-----	
Ning Hu (Fellow of Natl.Tsing Hua Univ.) +	300	not paid
John L. Kelley (= ½ salary, Univ.Chicago)	1,700	
Andrei Nikolaevich Kolmogoroff	3,000	
Shih-Tsun Ma	1,800	
Otto E. Neugebauer (= ½ salary, Brown Univ.)	3,500	
Gordon N. Patterson, 2d TERM (No stipend)	-----	
Abraham J. Sachs	750	Stipend or salary?
Robert Schatten (NRC Fellow)	-----	
Wladimir Seidel	1,000	for 1946-7, but from 1945-6 budget
	$24,450	

Proposed:

Francis J. Murray (= ½ salary, Columbia Univ.) ~~$3000/yr~~	2,500	over 1945-6 and 1946-7
A. Everett Pitcher	~~1,800~~ 1,200	
Leo Zippin per month	200	? for 3(?) mos.
	~~$28,950~~	

(Bargmann, Bochner, Montgomery, Tucker, though listed as Members are legally Employees)

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held November 21, 1945, at 3:30 o'clock

Present: Dr. Aydelotte and Profs. Alexander, Morse, von Neumann, Pauli, Weyl and Veblen, Secretary

1. After discussion, which was in general favorable to the idea of cooperating with the University by giving half-time appointments to men doing half-time teaching in the University, it was voted to recommend a stipend of $1500 for such an arrangement in the case of Prof. Israel Halperin. It was understood that the details will be worked out by Professors Morse and von Neumann.

2. There was a discussion of the recommendations of Helsel, Reichelderfer and Youngs contained in a letter from Prof. Rado. It was agreed that Professor Veblen should write to Rado inviting him to have such men make formal applications when they are ready to make use of the opportunity.

3. It was voted to recommend that Mrs. Alice Ambrose Lazerowitz should be admitted to the Institute for the second term of this year.

4. There was some discussion of an application from Prof. Ivan Niven, and it was agreed to let this case lie over for consideration with the other applications for next year.

5. It was voted to recommend a stipend of $1800 for Abraham Pais subject to negotiation and final decision by Dr. Aydelotte,- for the year 1946-47.

6. Professor Weyl called attention to the following remark in a letter from Prof. A.A.Albert:

> "I have been toying myself with the idea of spending another year at the Institute. You will recall my earlier plans. The best time will probably be the year 1947-8 and I hope this can be arranged. I go on a new contract July 1, 1946 and arrangements for a leave of absence are much simpler under this contract. I presume that the time to make the proper arrangements is the autumn of 1946, but I hope you will talk to the other Institute professors and keep this in mind."

7. Professor Veblen was authorized to write to J.H.C.Whitehead and raise the question whether he would like to spend a year at the Institute with a stipend of $3000.

8. For the record, Professor Veblen reported the following letter which he had written to Professor A. Rosenblatt of Lima, Peru:

Records of the School of Mathematics / Faculty Minutes / Box 1 / 1945-1953
From the Shelby White and Leon Levy Archives Center, Institute for Advanced Study, Princeton, NJ, USA.

November 2, 1945

"Dear Professor Rosenblatt:

I was glad to have your letter of October 25 about your trip to the United States. My colleagues in the Institute for Advanced Study have authorized me to invite you to give a lecture on some subject to be chosen by yourself, perhaps after you arrive in Princeton, and to offer you an honorarium of $100.

If you should like to stay in Princeton for a longer time in order to make use of the library facilities and to get more intimately acquainted with mathematical colleagues, we should be glad to have you stay here as the guest of the Institute for a month, or as large a portion of a month as you can spare for this purpose. It would be desirable to let us know somewhat in advance of your arrival so that we can find quarters in the Nassau Club or some other suitable place."

[Prof. Rosenblatt's acceptance was received November 23.]

9. Professor Alexander brought up the question of stenographic help in the typing of lecture notes. It was unanimously agreed that there is a great deal too much work on hand now for Miss Blake to handle, and Dr. Aydelotte stated that he would authorize a full-time stenographer if one can be found. Professor von Neumann and Veblen stated that a part of their work could and probably would be charged to Governmental accounts. It is understood that the cost of preparing mimeographed notes of lectures under the auspices of the Institute is to be borne by the Institute.

10. Professor Weyl reported about the case of Kurt Mahler. Professor Weyl had received a letter from Prof. Newman assuring him that Mahler's position at Manchester is quite secure. The general sentiment was against taking any further action at this time.

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held December 13, 1945, after a full Faculty Meeting

Present: Dr. Aydelotte and Profs. Alexander, Einstein, Morse, Pauli, Siegel, Weyl and Veblen, Secretary

1. It was agreed to recommend that Dr. Feodor Theilheimer be admitted to membership for the second term of this academic year, with no question of stipend.

2. Professor Morse mentioned briefly the informal application which he had received from Prof. L. W. Cohen of the University of Kentucky. It was agreed that Morse would suggest that he submit a formal application but indicate that the probabilities of a stipend are rather small, especially because we must take into account the claims of younger men.

3. Professor Veblen reported for the record that, after consulting Professor Pauli and other members of the School of Mathematics as well as Professor Wheeler of the University Physics Department, he was authorized by the Director to write the following letter to Dr. Edward M. Corson:

> "As a result of your interviews with Professors Pauli and Wheeler, I am now able to say that the Institute will be glad to admit you as a member. We hope that you will be able to make the necessary financial arrangements with your company. With best wishes,"

This refers to the second term 1945-46.

4. For the record, Professor Veblen stated that the request of Professor Tucker of the University that Dr. J.H.C.Whitehead be invited to give one advanced course in the University with an additional grant from the University of $1,500 (making a total of $4,500 for the year 1946-47), has been approved by our Mathematics Faculty and Dr. Aydelotte. Professor Tucker will write Whitehead.

5. Also for the record, Professor Morse stated regarding Prof. Israel Halperin, that he and Professor Tucker have agreed to the offer of $1,500 each from the Institute and the University (total of $3,000) for the year 1946-47, the University requesting 6 hours teaching in the first term, and 3 hours in the second term. Professor Tucker will write Halperin.

Oswald Veblen

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held February 13, 1946, at 11 o'clock

Present: Profs. Einstein, Morse, von Neumann, Pauli, Siegel, Weyl, and Veblen, Secy.

1. Professor Morse presented the following statement of the financial status of the $30,000 appropriation for stipends for the current academic year:

Stipends paid, or now to be paid, 1945-46		
Chern	$ 900	
Ky Fan	1,800	
Gödel	4,000	
Kelley	1,700	
Ma	900	
Murray	1,250	
Neugebauer	3,500	
Pitcher	1,200	
Sachs	750	
Siegel to 10/1/45	1,000	
Zippin	520	
		$17,520

The following stipends were voted but have not been taken up and it now seems doubtful whether they will be used this year:

Alexandroff	$3,000	
Braun	1,800	
Kolmogoroff	3,000	
Seidel	1,000	
		8,800
		$26,320

It was Dr. Aydelotte's opinion that these would be carried forward for use in 1946-47, but this will require action by the Board of Trustees. In any case there seems to be a sufficient margin for such further appointments as are deemed advisable.

2. It was agreed to recommend a stipend for Dr. Pesi Masani of $150 a month for the period of his residence between now and September 1. Whatever negotiation is necessary in this case is left to Professor Morse.

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3. It was agreed to recommend a monthly stipend for Dr. Lee Lorch of $150 if unmarried or $200 if married, for the period of his residence between now and September 1, if an application is received. Whatever negotiation is necessary in this case is left to Professor von Neumann.

4. After some discussion of the case of Chako it was felt that the group was not sufficiently well informed to make a decision. The case was referred to Professor Weyl with power to make an arrangement similar to those described above if he finds the case to be sufficiently meritorious.

5. Professor Veblen reported that he had heard from J.H.C.Whitehead to the effect that it would probably not fit in well with his scientific and other arrangements to come to the Institute in 1946-47, but that he would welcome an invitation for 1947-48. Professor Veblen had replied after consulting some of the colleagues that it would be our intention to make him the same offer for 1947-48 as had been made for 1946-47, subject to the proviso that the Trustees have not yet appropriated funds for 1947-48. This action was unanimously confirmed. Professor Lefschetz has already written Whitehead in the same sense on behalf of the University.

6. Professor Veblen reported that he had learned from Professor Wigner that Professor P.A.M.Dirac has accepted an invitation to give a lecture at Princeton University in September 1946. He also recalled the previous arrangements with Dirac. It was voted to invite Dirac to be in residence at the Institute for the first term of the academic year 1946-47, with a stipend of $4000 from the Institute.

7. Professor Morse reported a suggestion from Eilenberg and Zygmund that it would be desirable to invite for the year 1946-47 one of the Polish mathematicians who are concerned in rebuilding scientific work in their country.

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After some discussion, chiefly of the question which one to select, it was agreed to invite Professor Karol Borsuk with a stipend of $3000 for the first term of 1946-47 and as much of the second term as he could afford to spend in Princeton. Professor Morse will write to Borsuk.

8. A letter from Professor Oscar Halecki of the Polish Institute of Arts and Sciences in America suggesting that the Institute should invite the philosopher Professor Jan Lukasiewicz has been referred to the School of Mathematics by the Director's Office. It was felt that such an act would have no important place in the program of the School of Mathematics.

9. Professor Veblen reported the receipt of a letter from Professor A. Rosenblatt, who had been invited [see Minutes Nov.21,1945, p.101-102] to give a lecture at the Institute about this time, stating that he has found it impossible to come to the United States.

10. Professor Weyl reported on a number of requests which have reached him for reprints and help in restoring European libraries. Professor Siegel agreed to collaborate with Professor Chevalley in dealing with such cases, especially insofar as they refer to the Princeton group of mathematicians.

11. The question of office space was discussed and it was agreed that the room connected with Dr. Gödel's office might be used for people working on the computing machine. Professor Pauli offered to make his room available while he is away. Reference was made to the need for more suitable rooms for Professors Siegel and Pauli, and Professor Morse called attention to a room on the fourth floor which he thought would make a desirable office.

12. Professor Veblen reported a letter from Professor Marshall H. Stone dated January 27, 1946, reading as follows:

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"The matter of Indian mathematics and mathematicians has been intermittently on my mind since last May, as you know. A letter recently received informs me that Dr. M. Raziuddin Siddiqi, Director, Research Institute, Osmania University, Lalaguda, Hyderabad (Deccan) expects to make a trip to the U.S. and England this spring on Government service. According to his present plans he will be in this country during May and June -- possibly for a week or two at the end of April, as well -- and then again for about three months in the autumn. When I talked with him in India, I promised to do everything in my power to make his trip interesting and successful. Johnny knew him in Leipzig, where Siddiqi took his Ph.D. (if I remember correctly), and can tell you something about him personally and scientifically. It is my impression that he is a pretty good mathematician and is probably the most effective politically among the group of active Indian mathematicians. I propose to arrange for him to give a lecture here, if he can come. Perhaps you will wish to do something similar, after making suitable inquiries."

It was voted to offer hospitality to Dr. Siddiqi for one or two weeks and to invite him to give a lecture with an honorarium of $100 in case he feels that he has a suitable subject. Professor Veblen will follow up.

13. The same letter from Stone contained also the following paragraph:

"Having in mind your expression of interest in younger Indian mathematicians, I intend to suggest to two of them that they make applications for stipends at the Institute in case they are prepared to come to the U.S. for a year. The two mathematicians I have in mind are K. Chandrasekharan (aet. 25) and Minakshisundaram (aet. ca. 30). From such inquiries as I have been able to make, I gather that these two are about the best to be found there. I met Chandrasekharan in Madras and was very favorably impressed by him in a general way. D.D.Kosambi thinks that Minakshisundaram is the better of the two."

It was unanimously agreed that such applications would be welcomed.

14. It is recorded that the following cable was received from Professor Pavel Sergeevich Alexandroff December 25, 1945, by Dr. Aydelotte:

"Professor Kolmogoroff and myself greatly appreciate your very kind invitation which reached us only a short time ago. We both hope to be able to come to Princeton next winter for a half year. Respectfully yours, Alexandroff"

15. It was reported that Miss Claire A. Cray has been engaged as secretary for Professor von Neumann in connection with the computing machine project; and Miss Mary E. Ray as an assistant secretary available for stenographic work and typing for the mathematical group.

Oswald Veblen
Secretary

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ADDENDUM TO MINUTES OF FEBRUARY 13, 1946

Professor Alexander, who was unable to attend the meeting on account of illness, sent the following note which, however, was overlooked:

> "If we are going to consider mathematicians from Central Europe we should keep Čech in mind, along with the Polish mathematicians."

This seems to me an excellent suggestion.

O.V.

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held March 5, 1946, at 11 o'clock

Present: Profs. Alexander, Einstein, Morse, von Neumann, Siegel, Weyl, and Veblen, Secy.

1. It was voted to admit Miss Barbara Maitland of the University of Manchester, England, to membership in the Institute for the year 1946-7. There is no question of a stipend. Professor Weyl will conduct the necessary correspondence.

2. It was voted to admit Dr. Ivan Nivin and to inform him that it is not possible to offer him a stipend. Professor Veblen will carry on the necessary correspondence.

3. It was voted to decline the applications of

Dr. Nicholas Chako ✓ :
Dr. Christopher Gregory ✓ : Professor Weyl to conduct the correspondence
Dr. Fumio Yagi ✓ :

Dr. Alvin C. Sugar ✓ :
Mr. Siegfried F. Singer ✓ : Professor von Neumann to conduct the correspondence

4. Professor Veblen reported that he is writing to Mr. George Wu of National University of Chekiang, advising at least a year's study with Professor Chern in Peiping before attempting to come to this country.

5. There was a short discussion of Dr. Ky Fan, the gist of which was that his stipend should be extended for another year if he desires it. Professor Morse will take care of this problem.

6. Professor von Neumann reported a letter from Professor Max H. A. Newman of the University of Manchester, England, who is actively concerned with the development of computing devices and would like to make a visit to Princeton in connection with this work. It was felt that such a visit would be desirable both from the point of view of von Neumann's Computing Machine Project and from the general point of view of the Institute. It was therefore agreed that an amount not to exceed $500 could be assigned from the stipend funds for this purpose. Professor von Neumann to write.

7. It was voted to award stipends to Edward W. Barankin, Gerald R. MacLane and Richard D. Schafer. It was agreed that Professor Morse will conduct the correspondence with Messrs. MacLane and Schafer, and Professor Weyl with Barankin. The possibility was envisaged that Barankin might be offered a position as Professor Weyl's assistant instead of as a temporary member.

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It was agreed that these stipends should be at the rate of $2100 for unmarried, and $2500 for married men.

8. There was a lengthy discussion of the Indian mathematicians who had applied and who were likely to apply for membership in the Institute. It was voted to offer stipends at the rate of $2100 to Messrs. K. Chandrasekharan and K. G. Ramanathan. Correspondence in these cases was left to Professor Morse.

9. Professor Veblen read a letter from Professor G. H. Hardy, dated February 21, 1946, to the effect that

> "J. C. Burkitt (formerly of this College, now lecturer and bursar of Peterhouse) came to see me yesterday.
>
> His college has given him leave of absence for 2 terms from Jan 1946, so he will be free from the end of Jan to the beginning of Oct. He would like to spend Feb-July in the U.S. if he can, and to take his wife with him -- he thinks he can make arrangements for his children here.
>
> His leave is on full pay; and I imagine that his salary is a pretty good one. But of course a visit for 2 people to the U.S. is a pretty severe strain on an English income. I said I would write to you to ask whether there is any chance, as things are now, of either the Institute or the Rockefeller people doing anything to help him."

Professor Veblen was requested to explore the possibility of getting an appropriation towards Dr. Burkitt's travel from outside sources. If this should not be possible, it was agreed that Burkitt should be awarded a stipend of $1000. Professor Veblen is to conduct the correspondence.

10. The following names were discussed as men who might suitably be invited at some future time, but no action was taken: Profs. Eduard Čech, Leon S. Pontrjagin, Shizuo Kakutani, and Andrej Mosztowski, and Mr. Friederich I. Mautner, and Dr. Herbert Federer. Professor Weyl was to study the case of Mautner with a view to action in the near future, and Professor Morse to get in touch with Federer.

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held March 21, 1946, at 11 o'clock

Present: Profs. Alexander, Einstein, Morse, von Neumann, Siegel, Weyl, and Veblen, Secy.

1. Professor Morse reported that the Executive Committee of the Trustees had agreed to a minimum scale of $2100 for single, and $2500 for married assistants.

2. Professor Weyl reported that Barankin, who would otherwise have been awarded a stipend, had accepted a position as his assistant.

3. Professor Morse was authorized to write to Professor Pauli to say that if he has a suitable candidate in theoretical physics he will have the support of this group in recommending such a candidate for a stipend at the usual rate. In this connection it was recalled that Professor Pauli also has the authority to appoint an assistant for himself.

4. A recommendation from Lefschetz via von Neumann to increase the Institute's portion of Mrs. Weber's salary for work on the Annals of Mathematics from $400 to $500 was adopted. This is additional to the Institute's annual subvention to the Annals of $2,750. Professor von Neumann to write Professor Lefschetz upon approval by the Standing Committee.

5. Professor von Neumann reported a suggestion from Professor Lefschetz that the Institute pay half of the salary of Professor Harald Cramér who is in any case being invited by the University for the next academic year. It was agreed to do this in case Alexandroff or Kolmogoroff cannot come, and in case the Trustees of the Institute agree to this use of the funds set aside for Alexandroff and Kolmogoroff. Professor von Neumann will conduct these negotiations.

6. It was voted to give a stipend of $450 to Professor Nelson Dunford of Yale at the rate of $200 a month beginning April 15, 1946.

Professor von Neumann reported a conversation with Professor Dunford about a possible leave of absence which the latter might take from Yale. The consensus of opinion was that a stipend from the Institute in 1946-47 is not likely, but that there is no prejudice with respect to 1947-48.

Professor von Neumann will notify Dunford.

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7. It was voted to award a stipend of $500 to Mr. Eckmann for a three months stay in Princeton,- presumably February, March and April, 1947. Professor Weyl will correspond with Eckmann.

8. After a discussion of the future work of the Institute in theoretical physics it was agreed that in case Borsuk or Chandrasekharan and Ramanathan should decline the stipends which have been offered, thus releasing sufficient funds, Professor R. P. Feynman of Cornell University should be placed at the head of the list of alternates for the year 1946-47.

9. For the record it was reported that Professor Wladimir Seidel will be unable to accept the stipend which was offered him; also that Herbert Federer, who had been discussed as a possibility for the year 1946-47, will be not available because of having accepted a position as Assistant Professor at Brown.

10. The following are the remaining candidates for stipend for the year 1946-47 in case funds should become available:

R. P. Feynman (see above)
Shizuo Kakutani
Pesi Masani
F. I. Mautner
S. Minakshisundaram
S. S. Pillai
Åke Pleijel
Julian Schwinger

11. Commitments against the 1946-47 appropriation for stipends now stand at $24,750 plus Professor Pauli's possible candidate and Masani, leaving possibly less than $2,750 for allocation.

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held March 28, 1946, at 11 o'clock

Present: Profs. Alexander, Einstein, Morse, von Neumann, Siegel, Weyl, and Veblen, Secy.

1. Professor Weyl reported on the problem of making a subject index for the library. It was the consensus of opinion that it would be a proper use of library funds to engage Professor Brauer to come to the Institute for at least a portion of the academic year in order to work on this problem. Professor Weyl in the course of the discussion pointed out that it might be desirable to have a number of the assistants devote part of their time to the project under Brauer's guidance.

2. Professor Weyl reported on the steps which had been taken, chiefly by Miss Blake, in order to secure adequate secretarial help. He suggested that it would be desirable to have a small committee to exercise general oversight over the secretarial problem. A committee was appointed consisting of Professors Morse (Chairman) and Veblen.

3. Professor Morse pointed out that there is an unexpended surplus of about $3,000 in this year's Stipend Fund, and it was the consensus of opinion that some of this might well be used for mathematicians who wish to come to the Institute this spring or summer for the purpose of reorientation of mathematical work interfered with by the war. The stipends recently voted for Dunford (March 21) and Masani (February 13) come from the 1945-46 stipend appropriation.

4. It was voted to recommend to the Standing Committee that a stipend of $150 a month might be offered to Dr. Paul R. Halmos for ~~the remainder of the present fiscal year~~ a maximum of 4 mos. Professor von Neumann is to conduct the negotiations.

5. Professor von Neumann reported on a letter from Mr. Louis Rougier saying that two French theoretical physicists, Jean-Louis Destouches of Institut Henri Poincaré, and Jean Mariani of the Collège de France, would be interested in coming to the Institute. It was requested that Professor von Neumann should obtain further information.

6. Professor Veblen reported a negative response from Warren Weaver to the suggestion that the Rockefeller Foundation might finance Dr. Burkill's visit to this country.

Oswald Veblen

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held May 14, 1946, at 10 o'clock

Present: Dr. Aydelotte and Profs. Einstein, Morse, von Neumann, Siegel, Weyl, and Veblen, Secretary

1. There was a short discussion of a number of stipends allocated from the 1945-46 appropriation for work during the summer of 1946. The stipends of this sort are:

Nelson Dunford	$ 450
Paul R. Halmos	600
Pesi Masani	300
W.R.Transue	600

Another case a little different from those above is that of Shih-Tsun Ma. Although he was appointed a year ago at $1,800 for 1945-46, transportation difficulties prevented his reaching Princeton in time to begin before the middle of the academic year. His stipend should be payable from 1945-46 funds.

2. For the sake of the record, the following stipends are still chargeable against the 1945-46 appropriation:

P.S.Alexandroff (alternate, Cramér?)	$3,000
H.Braun	1,800
A.Kolmogoroff (alternate, Cramér?)	3,000

3. The following stipends have been allocated and accepted for 1946-47:

Karol Borsuk (1st term +)	$3,000	
J.C.Burkill (2d term?)	1,000	
K.Chandrasekharan	2,100	
P.A.M.Dirac (1st term)	4,000	
B.Eckmann (Feb.-Apr.)	500	
Ky Fan	2,100	
I.Halperin (+ $1,500 from P.Univ.)	1,500	
G.R.MacLane	2,100	
F.J.Murray (1st term)	1,250	
M.H.A.Newman (official assent still to come)	500	
Abraham Pais	1,800	$2,100?
K.G.Ramanathan	2,100	
R.D.Schafer	2,500	
J.H.C.Whitehead (1st term) + $1,500 from P.Univ.	1,500	
	$25,950	

To this total should be added $2,500 allocated for a candidate to be nominated by Professor Pauli. Thus the total amount allocated from 1946-47 funds is $28,450. Question overlooked at the meeting: Should not the stipend for Pais be increased to $2,100 to conform with the normal rate?

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4. The question was raised whether it would be possible to increase the appropriation for stipends for 1946-47 by $5,000. Dr. Aydelotte promised to take this under advisement.

5. Professor von Neumann explained the proposal for a Naval contract to further research in dynamic meteorology for the purpose of putting this subject on a better theoretical foundation, in view of the probability that high-speed computing devices will make it possible to attack problems which have been heretofore inaccessible. The project involves bringing to the Institute a small number of theoretical meteorologists who will work under the guidance of Professor von Neumann. Office space for this work would be provided by enlarging the proposed computing laboratory. The discussion considered the effect of such activities upon the progress of mathematics and upon the general atmosphere of the Institute. The personal views expressed ranged from that of Professor Siegel who, in principle, prefers to compute a logorithm which might enter into his work rather than look it up in a table, through that of Professor Morse who considers this project inevitable but far from optimum, to that of Professor Veblen who simple-mindedly welcomes the advances of science regardless of the direction in which they seem to be carrying us. In spite of this variety of personal points of view, it was agreed that the Institute should go forward with the project as proposed.

6. It is recorded that Åke Pleijel, listed in Minutes of March 21, 1946 (p. 111) as a candidate for further consideration, has written that he would prefer to come for the year 1947-48.

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Interim actions by SCHOOL OF MATHEMATICS subsequent to meeting of May 14, 1946

1. Shizuo Kakutani. As agreed by the group, and after Dr. Aydelotte had arranged to provide funds for Kakutani outside the regular Mathematics stipend budget, Professor von Neumann sent through Army channels an invitation to Kakutani dated June 6, 1946, to "spend a year" at the Institute, stipend unspecified, which Dr. Aydelotte says Kakutani would understand to mean the same as before, $1,500.

2. Irving Kaplansky. It was voted to admit Kaplansky as a member September 1 - December 31, 1946.

3. Pesi Masani. It was voted to continue Masani as a member with a stipend of $850 from the Institute, while at the same time he will hold an instructorship at the University with a salary of $1,250,- total $2,100.

4. On information from Dr. Aydelotte to Professors Veblen and Weyl that an additional $5,000 was available for the Mathematics stipend fund, the following stipends were approved, offered, and accepted:

Friederich I. Mautner ----	$2,100	
S. Minakshisundaram ------	2,500	$4,600
To Pesi Masani (as above) ----------		850
Previous grants from 1946-7 Stipend fund (May 14,1946, Minutes) --		25,950
Held for allocation by Professor Pauli ----------		2,500
		$33,900

Oswald Veblen

Secretary

September 3, 1946

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held October 8, 1946, at 11 o'clock

Present: Dr. Aydelotte and Profs. Alexander, Einstein, Morse, von Neumann, Weyl and Veblen, Secretary

1. Professor Weyl told of a letter which he has had from André Weil who is now at São Paulo, Brazil. André Weil reports that Dieudonné is now at São Paulo, and he strongly recommended Delsarte for a year at the Institute. (The story is abroad that the Institute had offered Dieudonné, Delsarte and Pisot stipends and then been unable to give them because of lack of funds. The correct story -- namely that we agreed to receive these men as members with the understanding that the French Government was providing stipends -- is doubtless less interesting.)

2. It was agreed with Dr. Aydelotte that the stipends for Drs. Ma and Pais should be increased to $2100 per year in accordance with the action of the Board of Trustees. In the case of Ma this applies to the first term of the year 1946-47. [Copy sent Miss Miller]

3. Dr. Richard A. Leibler's application for a stipend was discussed, but it was felt that sufficient information as to his accomplishments is not available. It was agreed that in any discussion with him or with other candidates in a similar situation the candidate should be asked to supply copies of his published or written work.

4. A number of possible European and Oriental candidates were discussed, and it was agreed that these and other analogous candidates should be decided for or against in time to begin negotiations with successful candidates before the end of the calendar year. Among those mentioned were

Wei-Liang Chow
G.L.Destouches
Katětov (recommended by Čech)
J. Mariani
S.S.Pillai
Charles Pisot
Åke V.C.Pleijel

During the past summer Professor Siegel offered Pisot his assistantship. Pisot replied however that although he would like very much to take advantage of this opportunity, he had recently accepted a chair at Bordeaux and would be obliged to attend to his new duties at least for this year.

5. After some discussion it was agreed to admit as a member of the Institute Mr. Peng-Wang Sun who came here as an assistant to Professor Hua. It was pointed out that Mr. Sun is in the same situation as a Guggenheim or National Research Council fellow, being here with financial support from the Chinese Government. Membership later declined.

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6. The application of Curtis M. Fulton was declined and Professor Veblen instructed to inform him of this action.

7. It was recalled that Professor Morris J. Gottlieb had been notified last May that it was not possible at that time to give him a stipend, but that it was worth while to apply since a vacancy might develop later. Professor Veblen was instructed to write him that there is now the possibility of a stipend of $1250 for the second term which covers the period from February to May, and ask him whether he would be in a position to take advantage of it. He would probably find it advisable to leave his family behind.

8. An application from Professor Walter Prenowitz was left to Professors Morse and Veblen with power to act. It was suggested that in his case a stipend of $100 a month would be sufficient to enable him to work in Princeton, leaving his family in New York.

9. There was a short discussion of possibilities for an appointment in the field of Theoretical physics, centering mostly about the possibility of an appointment shared by the University, perhaps on the basis that the appointee would be a professor in the University for one term, and a permanent member of the Institute for the other term, of each academic year. It was agreed to go into this question more thoroughly at a meeting to be held at 11 o'clock on Monday, October 14.

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held October 14, 1946, at 11 o'clock

Present: Dr. Aydelotte and Profs. Alexander, Einstein, Morse, von Neumann, Weyl and Veblen, Secretary

1. Dr. Aydelotte brought up for discussion a letter from W.L.Ayres, Associate Secretary of the American Mathematical Society, notifying us that in accordance with the rules the dues of the Institute as an institutional member of the American Mathematical Society should be increased from $200 to $775. A copy of this letter is appended to these minutes. Dr. Aydelotte thought that this method of financing mathematical publications is unsound in principle. He thought that the great Foundations or the American Philosophical Society ought to make this sort of contribution. It was pointed out by others that efforts to obtain funds from these sources have been repeatedly tried in the past, but it has been found that the only feasible way to support the mathematical journals is to appeal to the individuals and institutions who understand the need. It was accordingly recommended by the School to the Director that the request should be met.

2. Professor von Neumann reported that the Annals of Mathematics are faced with a crisis due to the fact that the cost of printing has gone up while the number of acceptable manuscripts has increased. Publication is now about $1\frac{1}{2}$ years in arrears. It was agreed to propose an increase of $500 in the subvention from the Institute on condition that Princeton University should make an equal increase in its subvention.

3. Professor von Neumann reported that Professor Francis J. Murray is proposing to do some work of a type which could be charged against the Computing Machine Project. It was agreed that there was no objection to shifting his stipend to this account, thereby releasing additional funds to the regular stipend fund. ~~(Copy sent Miss Widder)~~

4. Professor von Neumann reported that Miss Cray is to be on leave of absence for two or three weeks beginning October 15, in order to get married, and after some discussion it was agreed that during her absence Miss Ray should occupy her desk and handle some of the incidental work which goes with Miss Cray's position. It was understood that this was not to be sufficiently heavy to prevent Miss Ray continuing the typing of the more important manuscripts.

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5. It was voted to recommend that Professor Ma's stipend be extended for another term. (This is for Dr. Aydelotte's action.)

6. It was stated that Professor Loo-Keng Hua has not yet been formally notified of his admission as a member of the Institute. Such admission was authorized. (This is for Dr. Aydelotte's attention.)

7. Professor Morse reported that the Mathematics Department of Princeton University purchases a number of publications of the Princeton University Press to use as exchanges, and suggested to Professor Weyl as Chairman of the Library Committee that we might make a similar arrangement. This suggestion was left to Professor Weyl.

8. Professor Veblen reported that he had suggested to Professor Walter Prenowitz that it is possible to give him a stipend of $100 a month for the period ending February 1. Miss Miller has agreed to let him have one of the cots on the top floor. (October 15: Prenowitz has decided that under the present difficult circumstances he had better stay in New York.)

9. Dr. Aydelotte then brought up the principal business of the meeting, which was to discuss the possibility of making a new appointment in theoretical physics. The gist of the discussion was that it is generally considered that the two leading men among the young theoretical physicists of this country are Richard Feynman and Julian Schwinger. Feynman was invited some months ago to spend the present academic year at the Institute, but was unable to accept because he has just taken on a position as an Assistant or Associate Professor at Cornell University and felt that he must devote himself to his new duties. Schwinger is an Associate Professor at Harvard and is now entertaining a call to a full professorship at Columbia. He gave a course of lectures in Princeton University during the summer which were described by Professor Smyth as brilliant. The difficulties of estimating the qualities of the younger theoretical physicists at the present time were rather fully aired, but the consensus of opinion was that Schwinger is probably the stronger candidate. Several members (at least four) of the group would favor offering Schwinger a professorship in the Institute without further ado. After considering various courses of action Dr. Aydelotte volunteered to invite Professor Schwinger to spend a couple of days in Princeton as his guest, which would afford an opportunity for discussions which might give a sounder basis for a decision.

Dr. Aydelotte raised the question of bringing distinguished theoretical physicists from other parts of the world to Princeton for periodic terms of service,- for example one term every two years. As suitable for such invitations

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the names of Niels Bohr, P.A.M.Dirac, Wolfgang Pauli, H.A.Kramers, were suggested. To these the names of I.I.Rabi and Erwin Schrödinger might be added. Professor Veblen recalled that Dr. Flexner had entered into such an arrangement with Professor Dirac some years ago, but that this had lapsed during the war.

Dr. Aydelotte reminded the group that the name of J.R.Oppenheimer had been approved both by the School of Mathematics and the Faculty as a whole, so that it would be perfectly proper for him to bring it up at this week's meeting of the Board of Trustees. Sentiment was that it would be better first of all to settle the question about the appointment of a younger man. Oppenheimer is still regarded as a first-rate candidate, although there is some doubt about the effect of the political activities into which he has felt it his duty to allow himself to be drawn.

It was also felt that the appointment of a younger man is more important than a rotating arrangement with a visiting group of distinguished theoretical physicists. Dr. Aydelotte pointed out that the two things are not by any means mutually exclusive, but it was felt that we need at least one more man in this field in order to make a series of visitors very useful.

10. Note by the Secretary: In the course of the discussion summarized in the paragraph above, Professor von Neumann reported informally about the conference which he and I had with Professor Harry Smyth about the possibility of a joint offer to one of the young theoretical physicists on the part of the University and the Institute. The conditions in brief were that a man might be a professor in the University for one term and a permanent member of the Institute for the other term. Smyth made it clear that it would be hard for the University to go above an $8000 appointment. This would mean $4000 from the University and $4000 from the Institute. It seems to me that it would be perfectly in order to enter into an arrangement of this sort with Feynman without delay and without prejudice to the negotiations with Schwinger, who seems beyond the reach of the sort of offer which the University would be able to make. O.V.

11. In the course of the discussion of part-time arrangements with other universities, Professor Morse suggested that Professor Kenneth S. Cole, who is now at the Nuclear Institute of the University of Chicago, might well be the subject of a part-time arrangement with Professor Harvey of the Biology Department of Princeton University. Professor Morse remarked that he had had Rabi and Cole simultaneously as pupils at Cornell and that they then seemed to be of quite comparable capacity. There was general agreement that Professor Morse's suggestion was probably a sound one and should be studied further.

Oswald Veblen
Secretary

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C O P Y

AMERICAN MATHEMATICAL SOCIETY

W.L.Ayres
Associate Secretary

19 July 1946

Purdue University
Lafayette,Indiana

Professor O. Veblen
Institute for Advanced Study
Princeton, New Jersey

Dear Professor Veblen:

I am writing to you concerning the dues of the Institute for Advanced Study as an institutional member of the American Mathematical Society. As you remember, during the year 1934 the American Mathematical Society established institutional memberships with the understanding that the amount of the dues requested would be in proportion to the amount of publication of the staff of the institution in the various journals controlled by or affiliated with the Society. The method of determining the dues is as follows: The average space used annually for a six year period by the staff of each institution in the Transactions of the American Mathematical Society, the Bulletin of the American Mathematical Society, the American Journal of Mathematics, and the Annals of Mathematics is computed. Using these averages and $2.75 a page as a basis of estimate, the dues are set in multiples of $25. This form of membership was inaugurated with the understanding that each six years a revised schedule of dues would be made on the basis of the data for the preceding six years. This plan has received general acceptance and there are now more than ninety colleges and universities cooperating.

The Society has now completed its second six year period of institutional membership operating under this plan. During the period 1940-45 the dues of the Institute for Advanced Study were $200 a year. I know you will be glad to know that during 1940-45 the average number of pages published annually from the Institute was 283.83. This increased productivity of the members of the Institute necessitates the Society's requesting the Institute for Advanced Study to raise its annual dues to $775. Would you be willing to take this matter up with your administration and obtain its consent to increase the annual dues by $575? The first payment of the dues on the new basis will become effective on January 1, 1947. Under the new dues, the Institute for Advanced Study would have the privilege of receiving the Transactions and the Bulletin and nominating 38 members to the Society.

Enclosed is a recent list of the institutional members of the American Mathematical Society.

If I can be of any help to you in this matter, please let me know.

Sincerely yours,

(Signed) W. L. AYRES

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held November 29, 1946

Present: Dr. Aydelotte and Profs. Alexander, von Neumann, Weyl and Veblen, Secy. [Prof. Morse absent on a short trip to France.]

1. Dr. Aydelotte reported that he had been authorized at a recent meeting of the Executive Committee of the Board of Trustees to enter into an arrangement with the University by which Richard Feynman would be appointed a permanent member of the Institute and an Associate Professor in the University, at a salary of $7,000. It would be understood that he would be for one term at the Institute and for another term in the University, or might serve a full year at the Institute and a full year at the University in alternate years. Dr. Aydelotte expects to take no formal action until he has been formally approached by the University authorities with this proposal.

2. Professor von Neumann reported on a conversation which he had had with Professor and Mrs. P.A.M.Dirac. It was the unanimous opinion of the mathematical group that Dirac would be an excellent choice for a permanent professorship in the Institute. Since it is not clear what Dirac's own attitude would be, and since he had intimated to von Neumann that he would be interested in a temporary appointment, it was recommended to the Director that he invite Dirac to become a Visiting Professor for one year.

3. The question of making Wolfgang Pauli a permanent member was discussed, but it was thought that this sort of arrangement might be misunderstood outside and would not increase the chances of Pauli's returning to the Institute.

4. It was stated for the record that after informal consultation of this group Professor Morse was authorized to discuss in France with Jean Delsarte an invitation to the Institute for the second term of this year.

5. It was stated for the record that after informal consultation of this group Professor Banesh Hoffmann of Queens College should be offered a stipend of $1500 for the second term of the present academic year. The Director undertook to write to Hoffmann. [Copy sent Dr. Aydelotte.]

6. It was voted to admit Dr. Sven Hilding of Traneberg, Sweden, to membership without stipend. Dr. Aydelotte will notify Hilding.

7. It was voted to offer Dr. Abraham Pais a stipend of $2500 for the year 1947-48. Dr. Aydelotte will notify Dr. Pais.

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8. It was voted to recommend a stipend of $2500 to Dr. Abe Gelbart for 1947-48. The correspondence will be continued by Professor Weyl and the Director.

9. It was voted to recommend stipends for the academic year 1947-48 for

Dr. Atle Selberg ----------	$3,000	
Dr. Åke Vilhelm Carl Pleijel -	3,000	Prof. Weyl to conduct the correspondence
Dr. Miroslav Katětov ---------	2,100	The Director will consult with Prof. Hlavatý about this case
Dr. Jean Mariani ----------	2,100	Prof. v.Neumann and the Director will attend to this correspondence

10. There was some discussion of the cases of Paul Turán, and Dr. Erling Foelner in Copenhagen. It is understood that Turán will be in Copenhagen for a portion of this year. Professor Veblen will correspond with Harald Bohr about the possibility of Turán continuing his work at Princeton in 1947-48, and also about Foelner.

11. Professor Charles Pisot was considered to be a strong candidate, but it was decided to wait until further information is available, perhaps from Professors Siegel and Morse.

12. It is hereby recorded that membership in the School of Mathematics (without stipend) has been declined by Dr. R. Finkelstein and Mr. Peng-Wang Sun.

13. The total of the stipends recommended at this session is $15,200.

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte held February 13, 1947

Present: Dr. Aydelotte and Profs. Einstein, Morse, vonNeumann, Weyl and Veblen, Secy.

1. It was recalled that there are deferred commitments to Alexandroff, Kolmogoroff, Kakutani and Braun which will be dealt with by the Director according to circumstances. p.125

2. Professor von Neumann gave an account of the present status of Professor Israel Halperin. At present Halperin is on leave from Queens University (Kingston, Ontario) for the purpose of doing research here in Princeton. Being in this status he receives no salary from Queens, and because he cannot leave Ontario he gets nothing in Princeton. It is impossible to predict when his trial will take place, because the testimony of a Mr. Lunan is regarded by the Government as essential and Lunan refuses to testify until his own case, which is now being appealed, has been settled. It was voted to recommend a stipend of $2000 for Halperin in the expectation that this can be supplemented by other funds from Princeton University or elsewhere. If no such supplement is forthcoming the appointment could be regarded as one for a single term. The correspondence with Halperin was assigned to Professor von Neumann.

3. It was voted to recommend a stipend of $2,500 for Professor Loo-Keng Hua for the year 1947-48. The hope was expressed that some sort of a stipend could be found for Hua for the present second term of 1946-47. The Director will look after this matter.

4. A stipend of $2,100 was recommended for Mr. Aadne Ore. The Director will conduct this correspondence.

5. It was recommended that the Institute enter into a cooperative arrangement with McGill University by which Professor Edward Rosenthall will receive a stipend partly from his university and partly from the Institute, the Institute's contribution being not more than $2,000. The Director will handle this correspondence.

6. A stipend of $2,100 was voted for Owen G. Owens, the correspondence to be conducted by the Director.

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7. Together with previous actions, the votes taken above imply the following commitments:

Abe Gelbart ----------	$ 2,500	(Accepted)
Israel Halperin --------	2,000	
Loo-Keng Hua ----------	2,500	
Miroslav Katětov -------	2,100	(Accepted)
Jean Mariani ----------	2,100	(Accepted)
Aadne Ore ----------	2,100	-Declined - Jewett Fellow
Owen G. Owens ----------	2,100	
Abraham Pais ----------	2,500	
Åke Vilhelm Carl Pleijel	3,000	(Accepted)
Edward Rosenthall, not over	2,000	
Atle Selberg ----------	3,000	
	$25,900	

8. After a lengthy discussion a number of names were eliminated from the list of candidates. Among those eliminated were a number of candidates who are highly recommended and show definite promise, but it seems extremely improbable that any funds would be available for them. The following names were kept on the list of candidates with the expectation that another meeting will be held soon to make a further selection:

Harish Chandra, Ph.D. June 1947 Cambridge Univ., student of Dirac
Francois Chatelet, D.Sc. 1945 Univ. Paris
Kai-Lai Chung, Ph.D. 1947? Princeton (B.A., M.A. Tsing Hua Univ.)
Hubert Delange, D.Sc. 1940
Raouf Doss, Ph.D. 1944 Univ. Cairo (Lecturer, Farouk I Univ., Alexandria)
Erling Følner, Ph.D. 1944 Copenhagen
Walter H. Gottschalk, Ph.D. 1944 Univ. Va. (Instr. U. of P.)
Samuel Karlin, Ph.D. June 1947 Princeton
Nicolaas Kuiper, Ph.D. 1947? Leiden
Paolo Nesbeda, Dr. Pisa (under Tonelli)
Leslie G. Peck, Ph.D. June 1947 New York Univ.; Instr. N.Y.U., on leave
Irving Reiner, Ph.D. June 1947 Cornell
Pierre Samuel, Ph.D. June 1947 Princeton
Richard D. Schafer, Ph.D. 1942 Chicago
Paul Turán
Daniel Zelinsky, Ph.D. 1946 Chicago; Instr. Chicago
[The name of Edwin H. Spanier would have been included in the list above, except that Veblen reported that he has been appointed a Jewett Fellow.]

9. It was requested that Professor von Neumann should, without committing the Institute in any way, study the case of Andrej Mostowski with a view to giving him a year at the Institute at some time in the near future. It was pointed out that his work would be of great interest to Gödel.

10. Professor von Neumann reported that Professor Frédéric Riesz is to be in this country at some time in the near future and suggested that he ought to

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be invited to visit the Institute. Nothing was done at this meeting, because of the press of other business.

11. Professor Morse reported about a proposal that the Institute should accept a contract from the Navy for a study of

> the broad problem of the description and classification of critical points of functions (such as points of equilibrium), and of critical points of functionals including integrals (such as natural orbits) and the determination of relations among them

by Professor Everett Pitcher under Professor Morse's direction. This is an individual contract but the Navy is developing a systematic program which will involve contracts like this which are intended to develop pure science without respect to specific military applications. General approval of this contract was expressed.

12. For the record, a copy of Professor Morse's report of January 9, 1947, on French and Italian Mathematicians is appended.

13. It is recorded that the following stipends have been voted and accepted from 1946-47 funds:

Prof. Jean Delsarte ----------	$2,500 for spring term
Prof. Václav Hlavatý ----------	300 Nov.11-Dec.19, 1946
Prof. Hendrik A. Kramers ----------	5,000 for spring term
Leslie G. Peck ----------	750 " " "

that Professor T. R. Bachiller is invited to give a lecture with an honorarium of $100 during a visit to Princeton from about April 1 to July 1, 1947; and that Professor Alfred Rosenblatt accepted for the month of February 1947 the invitation of November 2, 1945 (Minutes, p. 102), to visit the Institute as a guest, and to give a lecture with an honorarium of $100.

Oswald Veblen

Secretary

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January 9, 1947

MEMORANDUM CONCERNING FRENCH AND ITALIAN MATHEMATICIANS
to be appended to the Minutes of the School of Mathematics

The three young French mathematicians who were spoken of most favorably by the professors of mathematics in Paris (December 1946) were

Francois Chatelet, son of the professor at the University
Charles Pisot, and
Schwartz, of Nancy I believe

I consulted about ten eminent mathematicians concerning these young men. I found no one who agreed that Pisot was the most promising young French mathematician. He was put rather on a par with the other two. His political history during the war was questioned with varying degrees of censure. From what I heard I would say that Chatelet was a more likely candidate for our help. He works in algebra and number theory, and I have a copy of his thesis if my second suitcase arrives. Schwartz is regarded as a man of great ability, concerning whom Delsarte should be able to give us much information when he arrives the middle of this month he hopes.

Other young men who were mentioned with varying degrees of emphasis are

Jacques Dufresnoy, 31 years of age, of Bordeaux, who for the moment is at Istanbul
Hubert Delange, 33 years of age, of Clermont-Ferrand
Mariani whom we have invited is not very highly regarded by Cartan, Chazy, or Darmois, who should know him best. They admit that he is worthy, but think that he does not excel in comparison with the others. I had a long talk with Destouches who impressed me as second-rate, and this impression was confirmed by some of the professors in Paris who said that he is fuzzy in his thinking -- attempting to be much broader than he can be deep.

I had two long conversations with an interesting young Italian mathematician, Paolo Nesbeda, 25 years old, a pupil of Tonelli. He is a Doctor from the University of Pisa 1943, writing his thesis on the integrals of Fourier. He is a "lincencié" of the University of Pisa 1944. He is interested in almost-periodic functions and in the calculus of variations. He gave me the names of the following young Italian mathematicians, of whom the first three are in his opinion in the order of merit:

Faedo, Doctor, Rome, now at Pisa
Cinquini, Doctor, Pavia; field, differential equations and calculus of variations; 40 years of age
Cesari, Doctor, Bologne; theory of functions real and complex, variational theory

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Dolcher, Trieste; set theory and topology
Giuliano, Pisa; variational theory
Baiada, Pisa

The address of Nesbeda until June 30, 1947, will be Cité Universitaire, Pav. du Gapon, 9, Bd. Jourdan, Paris (XIV). His address at Trieste is Via D. Rossetti 89.

I will endeavor to find out something more about these men by reference to the mathematical literature. I strongly favor offering something to Chatelet; and after making a suitable investigation of inviting one of the Italians over here. In a sense the Italian field is probably the ripest of all because they lost heavily during the war. With Tonelli dead and Severi more or less out of the running for good reasons, the Italians will be open to such leads as we can give them. The French, particularly Borel, are making every effort to resume intimate scientific relations with the Italians.

MM:GB

MARSTON MORSE

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr.Aydelotte held March 6, 1947

Present: Dr.Aydelotte and Profs.Einstein,Morse,vonNeumann,Weyl and Veblen,Secy.

1. Professor P.A.M.Dirac is to be at the Institute for the whole of the academic year 1947-48. The Director was requested to correspond with Dirac and with Mr. Harish Chandra with a view to appointing Harish Chandra as Dirac's assistant for that academic year.

2. It was voted to recommend to the Faculty and Trustees that Dr. Abraham Pais should be made a permanent member, and a salary of $6,000 a year was suggested as appropriate.

3. With regard to other arrangements in theoretical physics it was noted that Mr. Aadne Ore had withdrawn his application for a stipend because he has been appointed a Jewett Fellow for the year 1947-48.

Professor von Neumann stated that if no other arrangement for financial support for Miss Bruria Kaufman were possible he would recommend her for a post as his assistant.

4. Professor Weyl stated that if it were not possible to give a stipend to Mr. Leslie G. Peck, and if the latter could not be appointed as Professor Siegel's assistant, and if Dr. Barankin accepts another academic post for next year, he would recommend Mr. Peck for the post of his assistant.

Professor Veblen stated that he had a similar intention with regard to Mr. Nicolaas Kuiper in case Ambrose should receive a Guggenheim Fellowship.

Professor Morse explained that he would be glad to have the funds for his assistant used for Dr. Paolo Nesbeda. The Director pointed out that visa arrangements for a foreigner are simpler if he comes as an assistant rather than as a member. Professor Morse therefore agreed that Dr. Nesbeda should be appointed as his assistant.

5. It was voted to authorize Professor Veblen to negotiate with Professor Lefschetz and others with regard to a stipend not to exceed $3,000 for Professor Alonzo Church for the academic year 1947-48. It was understood that Professor Church is receiving leave of absence from Princeton University at half pay, to enable him to work on a book on mathematical logic. In the course of discussion it turned out that there may be a possibility of getting financial help for Church's project from the new Naval committee for the support of pure mathematics. Professor Veblen stated that he will look into this possibility before committing us to a stipend for Professor Church.

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6. It was voted to recommend a stipend of $2,500 each for Messrs. Subharamiah Minakshisundaram, Komaravolu Chandrasekharan, Erling Følner and Hubert Delange, and $2,100 for Irving Reiner. It was agreed that Dr. Francois Chatelet should be regarded as an alternate for Dr. Delange, and Professor Morse stated his intention of recommending to Dr. Chatelet that he should keep his application in for the year 1948-49.

It was understood that the Director will notify Minakshisundaram, Chandrasekharan and Reiner without further preliminary; that Professor Weyl will communicate in a preliminary way with Følner; and Professor Morse with Delange.

7. Taking account of the above actions, the commitments against the stipend fund of $40,000 which has been appropriated for the School of Mathematics for the year 1947-48 are as follows:

Komaravolu Chandrasekharan -----	$ 2,500	Acc.
Alonzo Church, not to exceed ---	3,000	no
Hubert Delange (or Francois Chatelet) ----------	2,500	Acc
Erling Følner ----------	2,500	Acc.
Abe Gelbart ----------	2,500 (Accepted)	
Israel Halperin ----------	2,000	Acc.
Loo-Keng Hua ----------	2,500	Acc.
Miroslav Katětov ----------	2,100 (Accepted)	
Jean Mariani ----------	2,100 (Accepted)	
Subharamiah Minakshisundaram ---	2,500	Acc.
Owen G. Owens ----------	2,100	Acc.
Åke Vilhelm Carl Pleijel -------	3,000 (Accepted)	
Irving Reiner ----------	2,100	Acc.
Edward Rosenthall ----------	2,000	
Atle Selberg ----------	3,000	Acc.
	$36,400	

8. It is recorded that Assistant Professor Herbert Jehle of the University of Pennsylvania has been appointed a member (without stipend) for the year 1947-48. (He will not be able to come to Princeton from Philadelphia for more than one or two days a week.)

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Aydelotte held in the Faculty Dining Room May 5, 1947

Present: Dr. Aydelotte, Dr. J. Robert Oppenheimer, and Profs. Morse, von Neumann, Weyl, and Veblen, Secretary

1. On the recommendation of Dr. Oppenheimer, it was voted to admit Louis Finkelstein and Leslie L. Foldy, both of the University of California, and S. T. Epstein of the Massachusetts Institute of Technology, to membership in the Institute for the academic year 1947-48 without stipend.

2. It was voted to admit S. Wouthuysen of Holland and Harold Lewis, with stipends of $2,100 each. The address for both is LeConte Hall, University of California.

3. The School of Mathematics recommends very strongly an invitation to Professor Niels Bohr to spend a part of the next academic year at the Institute as Visiting Professor.

4. It is recorded that the Faculty of the Institute approved a 5-year membership for Dr. Abraham Pais.

5. It is recorded that the School of Mathematics have recommended, confirming Professor Dirac's suggestion, a stipend of $1250 for the first term of 1947-48 for Professor T. S. Chang, now at Cambridge, England.

6. The Trustees of the Institute at their annual meeting approved an item in the budget of $15,000 for stipends in Theoretical Physics. The commitments against this fund are now the following:

Dr. Abraham Pais -----	$ 6,000
Prof.T.S.Chang -------	1,250
S.Wouthuysen ---------	2,100
Harold Lewis ---------	2,100
	$11,450

7. Harish-Chandra has been appointed assistant to Professor Dirac for the year 1947-48 at a salary of $2100.

8. There was a lengthy discussion of the cases of Morris J. Gottlieb and L. C. Young, as a result of which the Director was requested to consider ways and means of providing for both men for at least part of next year.

[Subsequently it has been arranged to award a stipend of $1,500 to Morris J. Gottlieb with the understanding that this will be supplemented by part-time teaching at Princeton University which will bring in approximately $1,800.]

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9. The present commitments against the appropriation of $40,000 for stipends in Mathematics (including Gottlieb stipend above) are as follows:

Prof. Warren Ambrose (summer 1947)	$ 400 ? Left before Aug. 14
Mr. Komaravolu Chandrasekharan	2,500
Prof. Dr. Marie Charpentier (1st term)	450
Prof. Hubert Delange	2,500 ~ 1/4
Prof. Beno Eckmann (summer 1947)	600
Dr. Erling Følner	2,500
Prof. Abe Gelbart	2,500
Prof. Morris J.Gottlieb(+$1800 Princeton Univ.)	1,500
Prof. Israel Halperin (+ ? Princeton Univ.)	2,000
Prof. Loo-Keng Hua (2 actions, $2500 + $500)	3,000 3,000
Dr. Miroslav Katětov	2,100 ?
Dr. Jean Mariani	2,100
Prof. Arthur N. Milgram (summer 1947)	400
Dr. Subharamiah Minakshisundaram	2,500
Dr. Owen G. Owens	2,100 Resigned
Prof. Åke V.C.Pleijel	3,000
Mr. Irving Reiner	2,100
Prof. Edward Rosenthall (+ McGill $1,500)	1,500
Dr. Richard D. Schafer	2,500
Dr. Atle Selberg	3,000
	$39,250 + $400 To Arens 1500 in Hoffmann

The addition of items of $450 for Mlle. Charpentier, $1,500 for Morris J. Gottlieb, $500 for Loo-Keng Hua, $2,500 for Richard D. Schafer, and of $400 each for Professors Warren Ambrose and Arthur N. Milgram, and $600 for Professor Beno Eckmann, was made by circularizing the School of Mathematics and reporting the results to Dr. Aydelotte.

10. The following additional persons have been admitted to membership without stipend:

Warren Ambrose - Guggenheim Fellowship (in addition to IAS summer stipend 1947)
K.K.Chen (funds from United China Relief)
Wei-Liang Chow (independent)
Robert Debever (Fellowship of Belgian-American Educational Foundation)
Mary P.Dolciani (Sigma Delta Epsilon post-doctoral Fellowship)
S.T.Epstein
Louis Finkelstein
Leslie Foldy
Paul R. Halmos (Guggenheim Fellowship)
Sven Hilding (Fellowship from Univ.of Stockholm + research grant from Wallenberg Foundation)
Tong Hing (NRC Fellowship)
Herbert Jehle (Asst.Prof.,U.of Penn. - here weekends)
Samuel Kaplan (G.I.Bill of Rights)
Richard A.Leibler (G.I.Bill of Rights + Princeton Univ. teaching)
Herman Rubin (NRC Fellowship)
Alfred Schild (Jewett Fellowship)
Edwin H. Spanier (Jewett Fellowship)
Abraham H. Taub (Guggenheim Fellowship)
Daniel Zelinsky (NRC Fellowship)

(Continued)

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Members without stipend continued:

Associated with Prof. Morse:
Walter H. Gottschalk Kenneth Pitcher

Associated with Prof. von Neumann:
William F. Eberlein
Donald S. Miller Resigned

11. The following assistants have been appointed:

Harish-Chandra (Prof. Dirac)
Bruria Kaufman (Prof. von Neumann)
Nicolaas H. Kuiper (Prof. Veblen)
Paolo Nesbeda (Prof. Morse)
Leslie G. Peck (Prof. Siegel)
Ernst G. Straus (Prof. Einstein)

Oswald Veblen
Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Drs. Aydelotte and Oppenheimer held September 23, 1947

Present: Drs. Aydelotte and Oppenheimer, and Profs. Alexander, Einstein, von Neumann, Siegel, Veblen, Weyl, and Morse, Secretary

1. Professor Morse was asked to serve as Faculty Secretary of the School of Mathematics for the next two years.

2. Dr. Oppenheimer reported that he had written Professor Niels Bohr offering him, after consultation with Mr. Maass and Mr. Leidesdorff, a salary of $8000 for the second semester of 1947-8. No answer has as yet been received.

3. Memberships in the Institute without stipend have been offered by Dr. Oppenheimer to Drs. Egil A. Hylleraas and Nicolas G. van Kampen, physicists, for the present year.

4. Dr. Oppenheimer's recommendations for an invitation to Professors Hideki Yukawa and Wolfgang Pauli for the year 1948-9, were approved by the School of Mathematics.

It is understood that the salaries for the above-named physicists are to be outside of the Stipend Fund, and to be determined by the Director and the Trustees. Dr. Oppenheimer recommended the following policy with regard to salaries of visiting professors: When these visitors could appropriately be considered for permanent appointments in the Institute as professors, the basis for determining their salaries should be essentially the same as that used for determining the salaries of the faculty.

5. The following recommendations by Dr. Oppenheimer were approved, and will be followed through by him:

Dr. James W. Follin, Jr., a physicist, now half-time instructor in Princeton University with a salary of $1500, will be offered $1000 from the Institute for the present year.

Dr. Louis Finkelstein, physicist, will be offered a stipend of $2100 for this year, or less, depending upon his other sources of support.

Robert E. Marshak, Professor of Physics at the University of Rochester, will be offered a stipend of $1000 for the spring semester of this year, with the understanding that this sum will be raised by Dr. Oppenheimer from other sources if possible.

~~It was indicated by Dr. Oppenheimer that~~

~~Dr. Fritz W. London, an eminent physicist, would be very welcome if he found it possible to come here.~~

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6. It was reported that Professor L.J.Mordell of Cambridge, England, has been invited to give a lecture on Thursday, September 25, on "A chapter in the theory of numbers". Professor von Neumann will make the necessary arrangements. It is understood that Professor and Mrs. Mordell's room and board at the Institute will be paid for by the Institute.[Copies to Misses Miller and Trinterud]

7. Professor Morse reported that Professor Maurice Fréchet of Paris will lecture in Princeton on Tuesday, October 21, at 5 o'clock. Professor Morse will make any arrangements which may be necessary. It is understood that Fréchet will be the guest of the Institute from Sunday afternoon (October 19) until Wednesday (October 22), under an arrangement similar to that for Mordell. [Copies sent Misses Miller and Trinterud.]

8. The following mathematicians were granted membership in the Institute without stipend: Dr. Alfons M.F.Borgers (Fine Hall), Dr. Carl-Erik Fröberg (Institute Computer Building), Dr. Szu-Hoa Min (arrived September 23 from England; address, Institute), Dr. Luis A. Santaló (Guggenheim Fellow), and Dr. Christine S. Williams. The Director will send official notifications.

9. It was voted to refuse admission to Chao-Tsuan Hu because of his lack of a Doctor's degree. Professor Morse will notify Hu.

10. It was voted that Dr. Edward M. Corson should be admitted to the Institute provided he fulfills certain conditions including half-time residence in the Institute. Professor Veblen will undertake to determine Corson's intentions and to notify him whether or not he is admitted according as the conditions are or are not fulfilled.

11. It was voted to offer Prof. S. Chowla a stipend of $1500 for the second term of this year, with the informal understanding by the School of Mathematics that this appointment would be renewed at $1500 for the fall term of 1948-9. It was agreed that Dr. Oppenheimer will cable Prof. Chowla, and that Professor Morse will write Prof. Chowla by air mail at once.

12. It was voted to offer a stipend not to exceed $1500 for the present year to Dr. Cengiz Uluçay. It was understood that he has an income of $50 a month. Professor Morse was authorized to conduct the negotiations offering Dr. Uluçay whatever part of $1500 is necessary to bring his total income up to $2100.

13. It was voted that the stipend of Prof. Helene Braun should be raised to $2400 and should be drawn from the regular stipend fund. Dr. Aydelotte agreed to search the auditor's records to see whether it is possible to charge this stipend against funds previously allocated.

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14. The cases of Prof. Wei-Liang Chow and Mr. Herbert J. Ryser will be further considered if additional funds for this year should appear to be available.

15. It was agreed that it would be desirable to ask the Trustees at the October meeting for a preliminary grant for stipends for the year 1948-9, in order that the School of Mathematics could make its appointments of visitors from distant countries as soon as possible. In particular it was desired to make as early as possible definite appointments of Profs. Kazimierz Kuratowski and Andrzej Mostowski for the year 1948-9.

16. It is recorded that since the last preceding meeting (May 5, 1947):

The following drafts on the stipend fund have been approved by vote of the Mathematics Faculty:

Richard F. Arens (summer 1947) -----	$400
Maurice Fréchet (lecture) ----------	100
Banesh Hoffmann (1st term 1947-8) --	1500
L.J.Mordell (lecture) ----------	100
Laurence C. Young (1-2 mos. in 2d term) ----------	1000
	$3100

Prof. Tsai-Han Kiang, Dr. Hwa-Chung Lee and Dr. Shien-Siu Shu have been admitted without stipend.

Prof. Loo-Keng Hua's stipend from the Institute was decreased to $2000, with permission to teach at Princeton University at an additional $2000.

In view of Prof. Warren Ambrose's departure at midsummer to teach at M.I.T., he drew only $200 of the summer stipend awarded him.

17. Lists showing the present status of the 1947-8 Stipend Funds following actions of September 23, and of members admitted without stipend for 1947-8, are appended.

Marston Morse

Secretary.

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October 15, 1947

IAS SCHOOL OF MATHEMATICS STIPENDS ALLOCATED FOR 1947-8

Mathematics Appropriation		$40,000
Stipends allocated:		
Prof. Warren Ambrose (summer 1947)	$ 200*	
Dr. Richard F. Arens (summer 1947)	400	
Prof. Hel Braun	2,400§	
Dr. Komaravolu Chandrasekharan	2,500	
Prof. Marie Charpentier (1st term)	450	
Prof. S. Chowla (2d term)	1,500	
Prof. Hubert Delange (1st term)	1,875**	
Prof. Beno Eckmann (summer 1947)	600	
Dr. Erling Følner	2,500	
Prof. Maurice Fréchet (Lecture)	100	
Prof. Abe Gelbart	2,500	
Prof. Morris J. Gottlieb (+ $1800 from P.Univ.)	1,500	
Prof. Banesh Hoffmann (1st term)	1,500	
Prof. Loo-Keng Hua (+ $2000 from P.Univ.)	2,000***	
Dr. Jean Mariani	2,100	
Prof. Arthur N. Milgram (summer 1947)	400	
Dr. Subharamiah Minakshisundaram	2,500	
Prof. L. J. Mordell (Lecture)	100	
Prof. Jakob Nielsen (Visit and lecture(s))	300	
Prof. Åke V.C.Pleijel	3,000	
Dr. Irving Reiner	2,100	
Prof. Edward Rosenthall (+ McGill $1500)	1,500	
Dr. Richard D. Schafer	2,500	
Dr. Atle Selberg	3,000	
Dr. Cengiz Uluçay	1,500	
Prof. L. C. Young (1-2 mos.)	1,000	40,025
Sure overdraft	$ 25	
Stipends offered and accepted; Visa difficulties (see attached letter copies):		
Prof. Israel Halperin (+ ? P.Univ.)	2,000	
Dr. Miroslav Katětov	2,100	
Possible overdraft	$4,125	

§[Stipends for Profs. Alexandroff, Braun ($1800), and Kolmogoroff, when accepted, come from other funds -- see Minutes May 14/46 (p.113) and Feb.13/47 (p.123)]

Theoretical Physics Appropriation		$15,000
Stipends allocated:		
Prof. Tsung Sui Chang (1st term)	$1,250 Transferred to Math.	
Dr. Robert J. Finkelstein	2,100	
Dr. James W. Follin, Jr.	2,100	
Mr. Harold W. Lewis	2,100	
Prof. Robert E. Marshak (2d term)	1,000****	
Dr. Abraham Pais	6,000	
Dr. Siegfried A. Wouthuysen	2,100	16,650
Possible overdraft	$1,650	

* Left at midsummer. ** Reduced from $2500 for yr. See FA to D June 10/47.
*** Revised. See FA to Hua June 5/47. **** Marshak stipend from other source if possible.

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October 15, 1947

IAS SCHOOL OF MATHEMATICS MEMBERS ADMITTED WITHOUT STIPEND 1947-8

Prof. Salomon Bochner (O.N.R. Contract and Prof., Princeton Univ.)

Dr. Alfons M.F.Borgers (Fellow at P.Univ. and IAS of Belgian-American Educational Foundation)

Prof. Kien-Kwong Chen (Research Fellow of Academia Sinica)

Prof. Wei-Liang Chow

Dr. Edward M. Corson (assistance by Union Carbide and Carbon Co. for ½-time residence)

Robert Debever (CRB Advanced Fellow) - 2d term

Dr. Mary P. Dolciani (Sigma Delta Epsilon post-doctoral Fellow)

Dr. William F. Eberlein (O.N.R. Fellow)

Dr. Saul T. Epstein

Mr. Leslie L. Foldy (NRC Predoctoral Fellow)

Prof. Carl-Erik Fröberg (Stipend of Roy.Swedish Acad.of Eng.Sciences)

Prof. Walter H. Gottschalk (O.N.R. Fellow)

Prof. Paul R. Halmos (Guggenheim Fellow)

Dr. Sven H. Hilding (Wallenberg Fdn.Fellow and Amer.Scand.Fn.Hon.Fellow) - 1st term

Dr. Tong Hing (NRC Fellow)

Prof. Egil A. Hylleraas

Prof. Herbert Jehle (Penn.Univ.Prof.)

~~Dr. Nicolas G. van Kampen~~ Did not come

Dr. Samuel Kaplan (G.I.Bill of Rights)

Dr. Richard A. Leibler (Part-time on Electronic Computer)

Dr. Pesi Masani

Dr. Szu-Hoa Min (Scholar of Sino-British Educ.and Cultural Endowment Fund)

Mr. George D. Mostow (3/4-time Instr. at P.Univ.)

Prof. Everett Pitcher (O.N.R.Fellow part-time; Lehigh Prof.)

Dr. Herman Rubin (NRC Fellow)

Dr. Luis A. Santaló (Guggenheim Fellow)

Prof. Alfred Schild (Jewett Fellow)

Dr. Irving E. Segal (Guggenheim Fellow until Jan./48)

Dr. Shien-Siu Shu (funds from Chinese Govt.)

Dr. Edwin H. Spanier (Jewett Fellow)

Prof. Abraham H. Taub (Guggenheim Fellow)

Prof. William R. Transue (O.N.R. Fellow) -- summer 1947

Dr. Christine S. Williams (O.N.R. Fellow "at Univ. of Ill.")

Dr. Daniel Zelinsky (NRC Fellow)

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C O P Y

QUEEN'S UNIVERSITY
KINGSTON, ONTARIO

September 24, 1947

Dear Professor von Neumann,

Thank you very much for your letter. I am sorry that the delay with the visa goes on but I trust that it will finally come out all right and that if the delay is unavoidable, at least it will then be over. I can well imagine how much I owe to the trouble to which you have gone and I want to thank you, Prof. Veblen, Prof. Lefschetz, and Prof. Tucker for all you have done. I appreciate your very kind help more than I can say.

My present position is not good and I may be out of a job for a year. Queen's gave me formal leave for 1947-48 and the Principal has just told me that there is no possibility of my teaching here this year. And there seems to be little prospect of my having academic employment elsewhere in Canada.

Last year when I was also on leave, Queen's generously put my name back on the salary-roll in April. But according to the Principal there is some feeling against my remaining on the staff on the part of some of the Trustees. He thinks that their reaction to my visa delay will be unfavorable, just as, presumably, the opposite impression would have resulted from my having a year with the Institute for Advanced Study. The people here seem to be strongly influenced by "how others do".

I hardly know what to try to plan for until the visa and other difficulties are cleared away, but I would of course be happy to visit Princeton whenever I could.

With best regards and my most grateful thanks,

Yours sincerely,

(Signed) ISRAEL HALPERIN

To: Professor J. v. Neumann,
The Institute for Advanced Study,
Princeton, New Jersey, U.S.A.

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C O P Y

Praha II, U Karlova 3,
Czechoslovakia
September 26, 1947

Dear Doctor Aydelotte:

Referring to your letter of December 16, 1946 in which I was offered membership in the Institute for the Academic year 1947-1948 I am sorry to have to inform you that there will be a delay in my coming to Princeton and there is little hope that I should be able to come there at all.

The reason of the delay is that having recently obtained Czechoslovak citizenship I have to settle matters concerning conscription etc. before getting the passport. I suppose however that I shall be able to get it in October at the latest.

A more serious obstacle is that being a member of the Communist Party of Czechoslovakia I am not likely to obtain the visa to enter the United States. I have already written about this matter to Professor Veblen. Last year Professor Čech was refused the visa for the same reason and it can be hardly supposed that the attitude of the American authorities will be more favorable now than it was a year ago.

At any events I shall inform you about further developments as soon as possible.

Yours sincerely,

(Signed) MIROSLAV KATĚTOV

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics with Dr. Oppenheimer held October 21, 1947

Present: Dr. Oppenheimer and Profs. Alexander, Einstein, von Neumann, Siegel, Veblen, Weyl, and Morse, Secretary

1. Professor Morse's report on visas was to the effect that in order to lecture in this country and receive a stipend, it is necessary that the visitor obtain written approval on these matters by the Consul at the place where the visa is obtained.

2. It was voted to offer stipends of $3000 each to Professors

Kazimierz Kuratowski of Warsaw
Kurt Reidemeister of Marburg-Lahn
Herbert Seifert of Heidelberg

starting in the fall of 1948, with the understanding that these men would remain in Princeton at least through the first term, and that they would be welcome to stay for as much of the remainder of the year as seems possible to them. Morse was requested to invite Princeton University to supplement the stipend of one or more of these men by an amount sufficient to permit him to remain in Princeton throughout the year, with the understanding that the recipient of this additional grant might give a course in the University.

3. It was voted to offer stipends of $3000 to cover the year 1948-9 to

Prof. Andrzej Mostowski of Warsaw
Dr. Edmund Hlawka of Vienna

4. In the opinion of the mathematics group the appointment of Otton Martin Nikodym to Kenyon College would be suitable.

5. Professor von Neumann remarked that the case of Steinhaus of Poland for the future is comparable to that of Kuratowski, and Professor Morse indicated the common mathematical interests which he has with Professor Edward Marczewski of Cracow.

6. The cases of Behrend of Australia and Raouf Doss of Egypt were discussed without action.

7. Dr. Oppenheimer will take care of W.F.H.M.Mommaerts's application.

8. It was voted to recommend that Turán of Hungary receive a stipend up to $2000 for the spring term of this year subject to the limitations of the budget, to be determined by Professor Veblen in consultation with the Director.

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9. It was agreed also that Professor Harald Bohr should be invited for the second term of this year with a similar small grant, again subject to budget limitations to be negotiated with the Director by Professor Veblen.

Professor Veblen will conduct the correspondence in the cases of both Drs. H. Bohr and Turán if the invitations are possible.

10. The possibility was discussed of having a 5-year fund in Mathematics which could be used as a source of stipends for invitations to men whose acceptance is problematical, so that in the case of a declination the funds might be used in a subsequent year. Dr. Oppenheimer indicated that he would take this matter up with the Trustees. The case of Professor Hel Braun is of this character, and remains outstanding. The money which was reserved for Professors Alexandroff and Kolmogoroff has never been used by the School of Mathematics. The question arises whether these reserve funds might be the source of money to take care of the cases of Harald Bohr and Turán.

11. Dr. Oppenheimer described the arrangements for mimeographing notes and photostating lectures in mathematics and physics, with the Princeton Press as administrative agency.

12. It was agreed that the application for admission of F.W.Cagle would be answered by Professor Morse recommending that Cagle seek assistance in his research at some other institution, but leaving open the possibility for him to come here if for reasons not disclosed it seemed that we could be of real assistance.

13. Professor von Neumann brought up a question concerning the Annals of Mathematics and the suggestion of Lefschetz that Artin and Steenrod be appointed additional editors. It was the sense of the group that it would be better to add at least one new analyst as editor, and in case a recommendation was sought from us, that Bochner might be named.*

14. Professor Alexander requested permission to change his status to a member at half-salary, continuing this arrangement up to normal retirement age. Dr. Oppenheimer responded essentially as follows: The Institute recognizes the need and the possibility of variability in the choice of activities of members of the faculty, and there is in fact nothing in Alexander's contract that requires a formal attendance at meetings or the performance of administrative duties. Dr. Oppenheimer stated that he would be very reluctant to believe that a professor could not follow his own separate path without the burden of

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administrative details. On the other hand, he hoped that the School of Mathematics would back him up in doing just what Professor Alexander wished, even if he desired to resign his professorship. The mathematicians indicated that they approved of Dr. Oppenheimer's attitude in this matter.

Dr. Oppenheimer wished some doors left open for the future, suggesting the possibility of a leave of absence for Alexander. He stated that the question of a new appointment of a professor of mathematics should be separate from that of Alexander's change of status.

15. It was agreed that a new appointment in mathematics, if made, would be of a man considerably younger than anybody now a full professor of mathematics in the Institute. A meeting to discuss this matter will be held on November 3, at 10:30.

Marston Morse
Secretary

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* Appendix to Minutes of October 21, 1947:

Professor von Neumann has amplified the conclusions of the mathematicians with regard to the Board of Editors of the Annals of Mathematics (paragraph 13) as follows:

> It was the sense of the meeting that we should nominate an additional Institute editor in any case, and that we would like Siegel to accept this. Von Neumann understood that he was instructed to tell Lefschetz that we felt one or more analysts should be added; but that we wished Siegel could be persuaded and that we also felt Bochner should be put on the Board if that is possible.

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held November 3, 1947

Present: Profs. Alexander, Einstein, von Neumann, Oppenheimer, Siegel, Veblen and Morse, Secretary

1. The principal object of the meeting was to discuss the appointment of a mathematician on half time. It was agreed to recommend that Professor Deane Montgomery be offered an appointment as permanent member of the Institute to serve half time, with compensation that might range from $8,000 in case he decides to give up his university duties, to compensation of $5000 to $6000 in case he spends half his time at another institution. It was agreed that Montgomery should be left entirely free to determine the conditions under which he would wish to work at the Institute. Dr. Oppenheimer will present the situation to Montgomery, as will various members of the School of Mathematics.

2. It was voted to recommend raising the salary of Dr. Kurt Gödel to $9,000, without change of status.

3. It was agreed to recommend that Professor S. Chowla be informed of his appointment for the first term of 1948-9, in continuation of his previous appointment for the second term of 1947-8, with a stipend of $1500 for each term. Morse will write Chowla. [Done]

4. Professor Siegel agreed to serve as an editor of the Annals of Mathematics. Von Neumann suggested that several persons talk over with Lefschetz the Annals of Mathematics situation. Morse agreed to participate in the discussion.

Marston Morse

Secretary

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December 9, 1947

The Annals of Mathematics Studies came into being some years ago without any formal organization. The editorial work has been handled chiefly by Professor Tucker, and the Studies has published a considerable number of important books in planographed form. During the last couple of years however things have bogged down, and it now seems desirable to have a more formal setup. The present proposal is that the organization be made parallel with that being arranged for a similar series of publications in Physics under the editorial management of Professors Oppenheimer and Smyth.

At a meeting of the Mathematics Department of Princeton University last week this scheme was endorsed by nominating Professor Emil Artin as their representative on the new Editorial Board.

The undersigned propose hereby that we take the corresponding action by nominating Professor Marston Morse as our representative on the Editorial Board. If this is agreed to, this memorandum will be incorporated, for the sake of the record, as part of the Minutes of the School of Mathematics.

James W. Alexander
John von Neumann
Carl L. Siegel
Oswald Veblen
Hermann Weyl
Albert Einstein
J. Robert Oppenheimer

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held February 4, 1948

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary

1. At Dr. Oppenheimer's request the School of Mathematics approved the granting of $1,000 from the Sivian Memorial Fund as a stipend for Dr. Saul T. Epstein, for the second term of this year. Dr. Oppenheimer will notify Epstein.

2. It was voted that the following mathematicians should be admitted as members of the Institute without stipend:

For 2d term 1947-8:

Prof. Otto Szasz of Institute of Numerical Analysis,
U.S. National Bureau of Standards
Professor von Neumann will notify Szasz

For year 1948-9:
Prof. Warren Ambrose (Guggenheim Fellow)
Dr. Paul Olum (now Jewett Fellow, expecting fellowship 1948-9)
Mr. Leopold A. Pars (Lecturer, Jesus College, Cambridge)

The Director will send formal notifications.

3. Dr. Oppenheimer suggested that a Committee on Physics of the School of Mathematics be appointed. Professors Einstein and von Neumann were appointed to act with Dr. Oppenheimer. It was understood that this Committee will act on matters within its jurisdiction with the same authority as the School of Mathematics.

4. It was voted to offer Professor Henri Cartan, now lecturing at Harvard, an honorarium of $100 for a lecture on mathematics to be given in Princeton this spring. Professor Morse will write Cartan.

5. In addition to the stipends already granted for 1948-9:

Prof. Sarvadaman Chowla (1st term only)	$ 1,500	
Dr. Edmund Hlawka	3,000 Declined	
Prof. Kazimierz Kuratowski (1st term only)	3,000	
Prof. Andrzej Mostowski	3,000	
Prof. Kurt Reidemeister (+ $3000 from Princeton Univ.)	3,000	
Prof. Herbert Seifert (1st term only)	3,000	$16,500

it was voted to offer the following stipends for that year:

Prof. Lamberto Cesari, for that part of the 1st term which precedes his visit to Ohio State Univ. in December (Prof. Morse will write)	1,000	
Prof. Wei-Liang Chow	3,000 Resigned	
Prof. Åke V.C. Pleijel (1st term)	2,000	
Dr. Atle Selberg	3,500 Resigned	9,500
		$26,000

Dr. Oppenheimer stated that it was his belief that the above grants could be regarded as assured and he will send official notifications.

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Brought forward from paragraph 5 ---------- $26,000

6. Subject to further action by the Trustees appropriating funds for School of Mathematics stipends, it was voted to recommend the grant of the following stipends for the year 1948-9 unless otherwise noted:

Mr. Roy B. Leipnik	$ 2,500 3 yrs	
Dr. Irving Reiner	2,500 Declined	
Mr. Herbert J. Ryser	2,500	
Prof. William T. Puckett, to supplement 2/3 of his salary which he will receive from the Univ. of California on leave of absence	1,500	
Dr. Kurt Mahler (2d term), negotiations to be continued by Prof. Weyl	2,000	
Mr. K.G.Ramanathan	3,000	14,000
		$40,000

7. It was voted to recommend that the Institute should make a commitment of $3,000 to Dr. Hel Braun for the year 1949-50.

8. The School of Mathematics listed the following mathematicians to be considered in case further funds are available:

Dr. Harish-Chandra $2,500
Dr. Laurent Schwartz
Dr. Azyeh Dvoretzky
Prof. Mahlon M. Day
Dr. Paul T. Bateman

9. Professor Weyl indicated that he would probably ask Dr. Komaravolu Chandrasekharan to be his assistant for the year 1948-9, providing Chandrasekharan does not accept an offer from Bhabha to join the staff of the Tata Institute in Bombay. Professor Veblen has appointed Dr. Nicolaas Kuiper as his assistant for 1948-9. Professor Morse has appointed Professor Morris J. Gottlieb on his Navy Research program.for a period of 3 months.

10. It is recorded that Dr. Walter Habicht of Zürich, and Dr. John Todd and his wife Dr. Olga Taussky Todd connected with the Computer Project, have been admitted as members of the Institute for the 2d term 1947-8.

11. It was agreed that another meeting of the School of Mathematics should be held as soon as convenient following the meeting of the Executive Committee of the Institute Trustees at which the final stipend appropriation for mathematics will presumably be determined.

Marston Morse

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held February 16, 1948

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl and Morse, Secretary

1. Dr. Oppenheimer reported that the Trustees had approved the appointment of Prof. Deane Montgomery on a permanent basis and that Montgomery had accepted.

2. Dr. Oppenheimer stated that the Trustees had appropriated $40,000 for Mathematics Stipends, and $15,000 for Physics Stipends. The possibility of other funds being available for research by American citizens in Mathematics and Physics was indicated.

3. Professor Siegel approved the application of Paul T. Bateman for an O.N.R. contract, with the Institute as the contracting institution and Siegel the scientific officer. In accordance with the usual procedure the contract, if approved by the O.N.R. Committee, will be submitted to the Director's office.

4. Professor von Neumann stated that he would like to continue Miss Bruria Kaufman as his assistant for 1948-9 unless other financial provision can be made for her.

5. Professor Weyl stated that he had arranged to have Dr. Komaravolu Chandrasekharan as his assistant for 1948-9, at a salary of $3500.

6. It was voted to invite Professor Arnaud Denjoy to give a lecture at the Institute this spring with an honorarium of $100, with the understanding that room and board would be provided for him during his visit.

7. It was voted to offer membership in the Institute for 1948-9 to Profs. David G. Bourgin and Orin J. Farrell.

Prof. William R. Transue was admitted as a member during his present short stay.

The Director will notify all three.

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8. It was voted to add Novak to the preferred list of candidates for 1948-9 stipends.

9. The following stipends were voted:

Mr. Roy B. Leipnik	$ 2,500
Dr. Kurt Mahler (2d term)	2,000*
Prof. William T. Puckett, to supplement his 2/3 salary on leave from Univ.Calif.	1,500
Mr. K. G. Ramanathan	3,000
Dr. Irving Reiner	2,500
Mr. Herbert J. Ryser	2,500
	$14,000

* In the case of Mahler it is understood that Professor Weyl will write him tentatively before the final offer is made. Professor Morse will write informal letters to the remaining mathematicians on this list. The formal invitations will be sent by the Director.

10. The hour of 11:30 on Monday, February 23, was suggested as the time for the next meeting of the School of Mathematics. The committee advising the Navy on O.N.R. contracts meets in Washington Friday of this week, February 20. Among other cases the mathematicians Day and Bateman, on our preferred list, will be considered.

Marston Morse

Secretary

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics held February 23, 1948

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary

1. The following mathematicians who had applied for stipends from the Institute have now been offered contracts with the Office of Naval Research:

Paul T. Bateman
David G. Bourgin
? Jane S. Cronin
Mahlon M. Day
Yael N. (Mrs. Clifford H.) Dowker
George D. Mostow
Daniel Zelinsky

The contract for Bourgin will presumably go through in case arrangements can be made by the Office of Naval Research with the University of Illinois on a 50-50 basis.

2. Prof. A. H. Taub has been appointed Research Professor of Applied Mathematics at the University of Illinois.

3. A letter from Professor Kurt Reidemeister indicates that the U.S. military authorities state informally that it appears to be in the interest of the United States that he be permitted to come to America.

4. The following priority list was drawn up for use in case further money for stipends becomes available:

1. Prof. Shizuo Kakutani --- $ 3,000
2. Prof. Azyeh Dvoretzky --- 3,000
3. Prof. Josef Novak ------- 3,000
4. Dr. Erling Følner ------- 3,500
5. Prof. Carl B. Allendoerfer ½ salary
6. Dr. Harish-Chandra ------ 2,500
7. Dr. Edwin J. Akutowicz -- 2,500
8. Prof. Alfred L. Putnam -- 1,000

In the case of Allendoerfer it is understood that Professor Veblen will write to the Office of Naval Research telling of the interest of Professor Mayer in having Allendoerfer here to write a book with him, and of the approval by the School of Mathematics of this project.

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The application of Putnam was exceptional in character inasmuch as Putnam is not primarily interested in research, but rather in more effective teaching of modern mathematics. The grant of $1,000 if made is to be conditioned on an adequate grant from the University of Chicago.

A letter from Kakutani indicates that Harvard has abandoned its attempt to make arrangements for Kakutani to come to this country because of the difficulties met, and that Kakutani has up to the present time found it impossible to obtain permission to leave Japan for America.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Record of an informal discussion among the Professors of Mathematics, April 12, 1948.
Present: Profs. Einstein, von Neumann, Siegel, Veblen, Weyl, and Morse, Secretary

1. It was reported that

Dr. Edmund Hlawka has resigned his appointment (stipend $3000)
Dr. Irving Reiner has resigned his appointment (stipend $2500)
Dr. Atle Selberg will probably decline his appointment if he can complete his arrangements for going to Syracuse University (IAS stipend $3500)
Dr. Erling Følner has withdrawn his application

2. In view of the above resignations it was voted to recommend a stipend of $3,000 for Prof. Azyeh Dvoretzky.

3. It was voted to revise the priority list as set up in the minutes of February 23, 1948, by placing Prof. Martin Eichler before Prof. Josef Novak, and to place Prof. Åke V.C.Pleijel immediately after Eichler, with the understanding that in the Pleijel case a grant of $1000 (additional to the $2000 voted in minutes of February 4, 1948) will be made if the money becomes available.

The new priority list now stands as follows:

1. Prof. Shizuo Kakutani ---------- $ 3,000
2. Prof. Martin Eichler
3. Prof. Åke V.C.Pleijel (additional grant) 1,000
4. Prof. Josef Novak ---------- 3,000
5. Dr. Harish-Chandra ---------- 2,500
6. Dr. Edwin J. Akutowicz ---------- 2,500
7. Prof. Alfred L. Putnam ---------- 1,000

4. The following names have been added to recipients of Office of Naval Research contracts for work at the Institute:

Prof. Carl B. Allendoerfer
Dr. Seymour Sherman
Dr. Edward Silverman

Dr. Daniel Zelinsky will work at the Institute under renewed National Research Council Fellowship, instead of ONR contract. Mrs. Yael N. Dowker has resigned her ONR contract.

5. In regard to Dr. George D. Mostow's ONR contract for work at Harvard and the Institute, Dr. Oppenheimer has sent me under date of April 9, the following letter:

"Insofar as Dr. Mostow plans to spend the greater part of his time here, I think it appropriate that he be appointed a member.

We are, however, very short of housing space and we cannot now make a commitment about the apartment Dr. Mostow occupies."

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6. Since the meeting of February 23, 1948, the following actions have been voted:

Re Prof. Kurt Reidemeister: To conform with the requirements of the American Military Government in Germany, the Institute by Dr. Oppenheimer's letter of December 24, 1947, to Col. Ray J. Laux will assume responsibility for Prof. Reidemeister's visit to Princeton for the whole year 1948-49; and as Prof. S. Lefschetz wrote Prof. Weyl on December 19, 1947, Princeton University will contribute $3000 toward his expenses for the year.

Prof. Lamberto Cesari of Bologna University has been offered a stipend of $1000. for September, October and November 1948.

Prof. George Uhlenbeck has been invited to the Institute for 1948-49 as Visiting Professor, in Physics.

Prof. Pierce W. Ketchum has been admitted to membership in the Institute in March for the remainder of this academic year.

Prof. Abe Gelbart's membership in the Institute has been extended until September 1948; and it has been voted to recommend to the Director that

Prof. Abraham H. Taub's membership be extended, at the expense of the University of Illinois, until February 1, 1949.

It has been voted to recommend the admission of

Prof. Alfred L. Putnam as a member for the year 1948-49, this being without prejudice to later grant of a stipend if funds should become available.

7. The name of the Egyptian mathematician, Dr. Raouf Doss, was brought up again and will be considered at the next meeting.

8. It was understood that Professor Siegel would correspond with Prof. Eichler about the possibility of his coming to the Institute for the next year.

9. The following physicists have been admitted:

Dr. Kenneth M. Case	$ 3,000
Mr. F.J.Dyson	
Dr. Daniel B. Feer	3,000
Dr. Robert Karplus (Jewett Fellow)	
M. Norman Kroll (NRC Fellow) Physicist?	
Prof. Max von Laue (3 weeks)	1,000
Dr. Joaquin M. Luttinger (Jewett Fellow)	
Dr. Cecile Morette	3,500
Prof. Wolfgang Pauli (Visiting Prof.)	
Dr. Sheila C. Power	3,500
Dr. F. Rohrlich	3,000
Dr. Richard N. Thomas (Jewett Fellow)	
Prof. George Uhlenbeck (Visiting Prof.)	
Dr. Kenneth M. Watson	3,000
Prof. Hideki Yukawa (Visiting Prof.)	
	$20,000

with general agreement (OV)

10. It was Professor Veblen's suggestion that Professor Morse take responsibility as to recommendations for the School of Mathematics during the summer, understanding that he would consult such other members of the School as could be reached.

Marston Morse,

Secretary

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INSTITUTE FOR ADVANCED STUDY

MEMORANDUM

At Dr. Oppenheimer's invitation Professors von Neumann, Weyl and Morse met with him on Friday, May 21, 1948, to discuss certain matters that affect the School of Mathematics:

1. At Dr. Oppenheimer's suggestion it was agreed that Professor Börge C. Jessen could be extended an invitation to be a member of the Institute for the fall term of 1949-50 with a stipend of $2000. Dr. Oppenheimer will write to Professor Jessen.

2. It was agreed that the grant of $1000 to Professor Max von Laue would be put in some other category than the Mathematics Stipend Fund.

3. Professor Oppenheimer suggested the possibility of granting Professor Otto Neugebauer a fund of the order of $1500 a year, outside the Mathematics Stipend Fund, in order that he might feel free to visit the Institute for Advanced Study for a few weeks each year whenever it seemed to be in his interest.

It is here made matter of record:

a. Word has been received that Professor Loo-Keng Hua has obtained the desired visa. The cases of Professor Wei-Liang Chow and Dr. Atle Selberg remain as yet undetermined.

b. The stipend of $2500 for Mr. Roy B. Leipnik was named in error in Minutes of February 16, 1948 (p. 143), since Mr. Leipnik is married (and has a child). The Director has accordingly been requested to notify Mr. Leipnik of increase of his stipend to $3000. [Done.]

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c. Since the meeting of April 12 it was voted by the School of Mathematics to increase the stipend of Professor Åke V. C. Pleijel from $2000 to $3000. to enable him to continue at the Institute through the first term of 1948-49.

d. It has been recommended by the faculty of the School of Mathematics that Dr. Harish-Chandra be offered the $1000 remaining in the Mathematics Stipend Fund as an aid for next year, with the understanding that this amount will be raised to the regular stipend of $2500 if and when the money becomes available.

[Dr. Oppenheimer has sent notifications of c and d above.]

e. Professor Siegel has agreed to contribute $3500 of the salary budget for his assistant for 1948-49 as stipend for Professor Martin Eichler.

f. Since April 12 the following physicists have been admitted to membership in the School of Mathematics:

For 1948-49:
David Feldman (A.E.C. fellowship)
Joseph P. Leport (A.E.C. fellowship)
Prof. Jan Weyssenhoff (Internatl.Union of Physics) - fall term

For 1949-50:
Herbert S. Green (IAS stipend $3,500)
Felix Villars (IAS stipend $3,500)

Marston Morse

Secretary

June 2, 1948

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THE INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the professors of the School of Mathematics, held October 25, 1948, at 3:30 p.m.

Present: Profs. Einstein, Oppenheimer, Siegel, Veblen, Weyl, and von Neumann (Secretary pro tem.), and part of the time Montgomery

1. Professor Morse was reelected Faculty Secretary of the School of Mathematics. In his absence Professor John von Neumann was asked to draw up the minutes.

2. Professor Siegel suggested a preliminary discussion of a proposal to add Professor Atle Selberg (now of Syracuse University, originally from Oslo, Norway) in some permanent capacity to the membership of the Faculty of the Institute. It was realized by the entire group that no decision on formulating this proposal and submitting it to the Faculty could be made before the return of Professor Morse from Europe. The preliminary discussion of everybody's views on the subject was, however, felt to be called for.

Professor Siegel gave a detailed account of Selberg's work and his assessment of his future promise. Selberg is 31 years old, and has already three major mathematical achievements to his credit. The opinion of those present was unanimous regarding the desirability of attracting Selberg to the Institute. Dr. Montgomery was also consulted on this subject, and concurred in essence. It was decided to have some more conversations on this subject, but the sense of the group appeared to be very clearly favorable.

The question was also considered as to whether Selberg should be appointed a permanent member, with a tax-free stipend of about $9,000, in a status like that of ~~Dr. Gödel or~~ Dr. Montgomery, or as a Faculty member with a taxable salary of $15,000. Professor Veblen tentatively suggested the latter, Dr. Oppenheimer equally tentatively the former. There appeared to be no very strong preference either way, although the second view seemed to be somewhat more prevalent. It was decided to keep this question also open until the entire matter is taken up again.

It was also the sense of the meeting that the entire matter should be brought to a decision in the next one or two months, since Selberg is likely to receive an invitation to a professorship in Oslo in the course of the next year.

3. The invitation to be extended to Professor Otto Neugebauer, of Brown University, was rediscussed. In this respect an informal decision had been reached last year to invite Professor Neugebauer for short periods, to be repeated with reasonable frequency. It was now decided to recommend making this arrangement in the following form: The invitation should be extended as soon as possible for the first term of 1949-50, with the suggestion to discuss with Professor Neugebauer at that time how his visits can be made more frequent and regular in the future. It was also agreed that this arrangement should be

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reported to the School of Humanistic Studies in the sense that while Neugebauer's salary should be chargeable to the School of Mathematics budget, it nevertheless seemed very desirable to have his work under the joint auspices of both Schools, to the extent to which the School of Humanistics considered it practical. It was also decided that some form should be found to consult with Professor Neugebauer in matters of such stipendiaries as will come to the Institute in order to work in his field. Adequate stipend funds should be reserved for this purpose from the School of Mathematics budget, and if feasible, from other budgets (Humanistics? Director's fund?). It was recommended that the stipend for Professor Neugebauer should be $5,000 for one term in 1949-50. Dr. Oppenheimer will discuss this matter with the other schools.

4. It was voted to admit Dr. Alfons M.F.Borgers (Belgian, of the Princeton University Graduate School) to membership in the School of Mathematics for a second year, 1948-9. Dr. Oppenheimer requested to notify Dr. Borgers at Graduate College.

5. It is recorded that since the meeting of May 21, 1948, the following stipends have been resigned:

Atle Selberg	$3,500
Wei-Liang Chow	3,000
Åke V.C.Pleijel (Summer stipend)	1,000
	$7,500

The following stipends have been awarded:

Shizuo Kakutani	$3,000
Sarvadaman Chowla (2d term 1948-9)	2,000
Harish-Chandra (additional - total now $2,500)	1,500
Alfred L. Putnam	1,000
	$7,500

John von Neumann
Secretary pro tem.

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held December 3, 1948

Present: Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl and Morse, Secy.; and by invitation Deane Montgomery

1. On behalf of Physics Dr. Oppenheimer reported:

a) That there are three physicists from abroad to whom we have commitments for 1949-50:

Herbert S. Green --- $3,500
B.R.A.Nijboer ------ 4,000
Felix Villars ------ 3,500

b) Oscar Klein has been invited orally for the first semester, with $5,000 stipend.

c) Dr. Oppenheimer will present to the general Faculty the proposal that Freeman J. Dyson be asked to spend 3 semesters here during the next 5 years, at a stipend of $3,000 a semester. The Mathematics Faculty concurred.

2. The sum appropriated for Mathematics Stipends for the next year 1949-50 is at present $20,000.

3. It is recorded that for 1949-50 (and in case b subsequent years)

a) Prof. Otto Neugebauer has been appointed for the second term, with a stipend of $5,000, with the possibility of this stipend coming from other sources. (Correspondence by Dr. Oppenheimer.)

b) Prof. Shiing-Shen Chern has been invited to come here with a stipend of $4,000 a year for the next 3 years. (Correspondence by Dr. Oppenheimer.)

c) It is here recalled that Prof. Børge C. Jessen was invited last May to spend the fall term at the Institute with a stipend of $2,000, but has not yet sent a definite acceptance.

4. The following appointments were voted, conditioned on the proposed arrangements being accepted by the mathematicians involved:

Prof. Georges de Rham of Lausanne, for 1 term ---	$3,000	(Correspondence by Morse)
Laurent Schwartz of Nancy, for 1 term ----------	2,500	(" " v.Neumann)
Prof. Kunihiko Kodaira of Tokyo Univ., for the year ----------	4,000	(" " Weyl)
Raouf Doss of Farouk Univ.,Alexandria, for the year ----------	3,500	(" " Morse)
Prof. Josef Novák of Brno Fac.of Science, for the year ----------	3,500	(" " Veblen)
	$16,500	
Possible commitments under paragraph 3 above ---	11,000	
	$27,500	

5. The question of reappointments for men now at the Institute was discussed. It was agreed that the following men should be consulted as to their

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plans for next year, in order that reappointments might be considered for them if they so desire:

Prof. Sarvadaman Chowla (Siegel to consult)
Dr. Aryeh Dvoretzky (Morse to consult)
Dr. Harish-Chandra (Morse to consult)
Dr. Bruria Kaufman (Mrs.Z.S.Harris) (v.Neumann to consult)
Dr. Nicolaas H. Kuiper (Veblen to consult)
Mr. Roy B. Leipnik (Morse to consult)
Prof. Shizuo Kakutani (Weyl to consult)
Prof. William T. Puckett (Montgomery to consult, though he suggested that Puckett would probably want to return to his Univ.)
Mr. Kollagunta G. Ramanathan (Morse to consult)
Dr. Herbert J. Ryser (Montgomery to consult)

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held February 23, 1949

Present: Profs. von Neumann, Oppenheimer, Siegel, Veblen, and Morse, Secy.; and by invitation Prof. Deane Montgomery

1. There was a discussion of the conditions to be placed on stipends granted to members who come here for an amount of time which cannot be definitely ascertained in advance. It was agreed that it would be appropriate in the case of any individual to fix a maximum stipend payment for a specified period of time; with the understanding that if the member remains at the Institute only for a shorter period the total payment would be proportional to the time spent.

2. It is reported that the following have accepted previous appointments for 1949-50:

Prof. Børge C. Jessen, fall term	$ 2,000
Prof. Kunihiko Kodaira	4,000
Prof. Otto Neugebauer, spring term	5,000
Prof. Josef Novak	3,500
Prof. Georges de Rham, spring term	3,000
Dr. Laurent Schwartz, fall term	2,500*
	$20,000

*3. As conditioned by 1 above, it was voted to increase the stipend of Laurent Schwartz to $2,750 for three months in the fall of 1949. Prof. von Neumann to write.

4. Additional grants of stipends for 1949-50 were voted as follows:

Prof. Sarvadaman Chowla, 1st half of academic year	$ 2,000	
For entire year		
Dr. Aryeh Dvoretzky	4,000	
Prof. Shizuo Kakutani	3,000	
Mr. Roy B. Leipnik	4,000	
Mr. Kollagunta G. Ramanathan	3,000	
Prof. Lipman Bers	3,250	(Prof. Morse will write)
Dr. Martin Eichler	3,500?	(Same as last year's offer - Prof. Siegel will write)
	$22,750	

(The stipend to be offered Bers is an amount equal to half his salary at the University of Syracuse; the other half will be paid by Syracuse University.)

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These cases are all ready for formal letters from the Director. In the cases of Chowla (who, it is now reported, intends to remain in the United States for several years) and of Kakutani (if he intends to remain in this country) it is understood that membership in the Institute should not stand in the way of accepting academic positions. It is understood that Professor Siegel will explain this to Chowla, and Professor Weyl to Kakutani.

5. The following mathematicians were granted admission to the Institute as members:

Dr. William Hester (spring term 1949)
Prof. William Karush
Prof. D. D. Kosambi (April [and part of May?]) - Treated as visitor 9/13
Dr. Heinz Rutishauser (perhaps Apr.1-June 15)
Dr. Ernst Specker (1949-50)

It is understood that the Director will now notify each of these mathematicians of their appointments.

Professor Veblen was authorized to write to

Prof. T.G.Room of the University of Sydney, Australia,

but now in this country, that he will be admitted to the Institute as a member during his brief stay here this spring.

It was voted to pay the living expenses of Prof. Kosambi during his visit here this spring.

6. The following younger mathematicians were put on a preferred list to be considered for stipends as soon as the awards of the National Research Council Fellowships are made:

Edwin E. Moise
John D. Newburgh
Harry E. Rauch
Murray Rosenblatt
Max A. Woodbury

Of the more mature mathematicians, it was agreed that

Lars Gårding
Sze-tsen Hu

should be given special consideration at the next meeting.

7. The case of Felix Bernstein was discussed at the suggestion of Einstein, Rademacher and Morse.

8. Professor von Neumann brought up general questions concerning the Annals of Mathematics. To help solve the difficulties Professor Montgomery is willing to resign his editorship of the A.M.S. Bulletin to become an editor of

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the Annals of Mathematics, and Professor Siegel is willing to assist in editorial problems of the Annals. The importance of Montgomery's having a scientific assistant, a part of whose time would be spent on editorial problems of the Annals, was discussed and given general approval. The hope was expressed that the contribution of the Institute's staff to editorial problems of the Annals may be such that 50 per cent. of the papers submitted to the Annals may be automatically referred to the staff of the Institute.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held March 23, 1949

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary; and by invitation Prof. Deane Montgomery

1. Professor von Neumann presented the case of Dr. Carl G. A. Rossby, outstanding meteorologist, who would like to be on the permanent staff of the Institute. He was formerly at the University of Chicago, and is at the present time in Sweden. He will return to this country after several months. It was agreed that his merits are such that his case should be further studied. Professor von Neumann will make some of his papers available to the professors of the School of Mathematics through Miss Blake.

2. Professor Morse presented the proposal, emanating from Herbert S. Bailey, Jr., of the Princeton University Press, that the Press take over the business and manufacturing responsibilities of the Annals of Mathematics Studies. It was agreed that the proposal has its merits, and that a suitable contract should be submitted to the University and the Institute for Advanced Study.

3. It was reported that Dr. Martin Eichler has declined his stipend. It was agreed however that Professor Siegel could offer him an appointment for the year 1951-52.

It was also reported that Professor Shizuo Kakutani has been offered an Assistant Professorship at Yale, but does not wish to resign his Institute stipend for next year until the offer has been formally approved by the Board of Trustees of Yale.

Professor Shiing Shen Chern is going to the University of Chicago to discuss with the Vice President of the University an appointment as Professor.

4. Professor Morse reported that John D. Newburgh, Murray Rosenblatt and Max A. Woodbury have been recommended for contracts with the Office of Naval Research, and Paul T. Bateman is recommended for a renewal.

It is understood that Dr. Edwin E. Moise will receive a National Research Council Fellowship.

5. Prof. Seymour Sherman was not recommended for reappointment with the Office of Naval Research. Professor Weyl will talk with Sherman and offer him membership for next year with stipend from Weyl's assistant's appropriation.

6. The following new stipends were voted:

Dr. Lars Gårding ----- $3,500
Dr. Sze-tsen Hu ------ 3,500
Dr. Harry E. Rauch --- 3,000

Professor Morse will write these men informally. The Director's Office will send

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formal notices of appointment.

7. It was voted to admit the following as members without stipend for 1949-50:

Dr. Harish-Chandra (Jewett Fellow)
Dr. James A. Jenkins (Jewett Fellow)
Prof. Yue K. Wong

The Director's Office will send formal notifications.

It is recorded that Dr. Shih Hsun Chang has been admitted as member without stipend for the spring term 1948-49.

8. It is agreed that all applicants for stipends for next year who have not received appointments should be notified of this fact, with the exception of those receiving National Research Council fellowships or Office of Naval Research appointments and the following reserved list:

Dr. Felix A. Behrend
Mr. Henry D. Block
Dr. Raoul Bott
Dr. Yael N. (Mrs. Clifford H.) Dowker
Mr. John R. Myhill
Prof. Hidegoro Nakano (see below)
Prof. Henry M. Schaerf
Mr. Joseph L. Ullman

It is understood that Professor von Neumann may write to Nakano that his application might be favorably acted upon another year.

List for declinations, to be written by Professor Morse except as noted otherwise:

Min Teh Cheng
Mrs. Verena Haefeli
Chuan-Chih Hsiung
V. S. Krishnan
Robert Schatten (Prof. v.Neumann to write)
S. M. Shah
K. Venkatachaliengar
Dennis P. Vythoulkas

9. It was agreed that Prof. Edward Marczewski is possibly the next in order to receive a grant going to a Polish mathematician.

10. It was agreed that Dr. S. S. Pillai might very well be the next mathematician from India to receive a stipend from the Institute.

11. Professor Veblen was authorized to write Prof. Hassler Whitney that he will be welcome if he comes here next year during his sabbatical leave; and as soon as we know of his definite plans to come, arrangements will be made to provide him with office space and reserve a room for him if he so desires.

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12. The question of aiding people who wish to come here for the purpose of the 1950 International Congress was discussed. Various names were presented. It was agreed that the subject should be given systematic study at the proper time.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held May 19, 1949

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary

1. It was reported that Princeton University is contemplating making an additional subsidy of $1500 to the Annals of Mathematics for next year. In such a case it was agreed that the Institute for Advanced Study would make a similar supplementary grant for that year, from the Publication Fund.

2. The question of appointment of Professor Carl G. A. Rossby was discussed. It was agreed that it would be desirable to offer him an appointment as a member for a period of two years if suitable financial arrangements can be made. Dr. Oppenheimer suggested offering him a stipend of $9,000 a year, together with coverage of professional expenses in connection with meteorology. Professor von Neumann was authorized to determine the reaction of Professor Rossby to such an offer. If these conditions do not appear adequate to Professor Rossby and Professor Rossby is still interested, the problem will be reconsidered.

3. Since the meeting of March 23:

a. Dr. Sze-tsen Hu has notified us of his acceptance of a position at Tulane University for the year 1949-50, with the understanding that the Institute stipend of $3500 previously offered him will be available to him for the year 1950-51.

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b. Dr. Hu's temporary resignation releases $3,500 for 1949-50, which it was voted to grant as a stipend to Raoul Bott.

c. From the professors' assistants' fund:

Prof. von Neumann has again appointed Dr. Bruria Kaufman (Mrs. Z.S.Harris) with a tax-free stipend of ------- $2,500

Prof. Weyl has appointed Prof. Seymour Sherman with a tax-free stipend of ---------- 4,000

Profs. Siegel and Veblen have appointed Prof. Kurt Reidemeister with a tax-free stipend of ---------- 7,000

Prof. Morse has invited Prof. Emilio Bajada of Pisa to act as his assistant with a salary of ---------- 4,000

d. The following mathematicians have been admitted to membership for 1949-50 without Institute stipend:

Felice Davidson (Mrs. Paul T.) Bateman - independent
Dr. Paul T. Bateman (ONR contract extension expected)
Dr. Olof Hanner (Scholarship from Swedish Royal Academy of Science)
Prof. Edward J. McShane (with Electronic Computer Project)
Dr. John D. Newburgh (ONR contract)
Dr. Gordon K. Overholtzer (G.I. Bill of Rights)
Mr. Claude A. Rogers (Commonwealth Fellow)
Dr. Max A. Woodbury (ONR contract)

4. Attached is the list of prospective members of the School of Mathematics for 1949-50 as it stands at present.

Marston Morse

Secretary

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1949-50 SCHOOL OF MATHEMATICS TEMPORARY MEMBERS
AS OF MAY 19, 1949

Mathematics Stipendees:

Prof. Lipman Bers	$ 3,250
Mr. Raoul Bott	3,500
Prof. Sarvadaman Chowla (fall term)	2,000
Dr. Raouf Doss	3,500
Dr. Aryeh Dvoretzky	4,000
Dr. Lars Gårding	3,500
Prof. Børge C. Jessen (fall term)	2,000
Prof. Kunihiko Kodaira	4,000
Mr. Roy B. Leipnik	4,000
Prof. Otto Neugebauer (spring term)	5,000
Prof. Josef Novak	3,500
Mr. Kollagunta G. Ramanathan	3,000
Dr. Harry E. Rauch	3,000
Prof. Georges de Rham (spring term)	3,000
Dr. Laurent Schwartz (fall term)	2,750
	$50,000

From Professors' Assistants' Fund (taxfree stipends):

Dr. Bruria Kaufman (Mrs.Z.S.Harris)- appointed by Prof. von Neumann	$ 2,500
Prof. Kurt Reidemeister - appointed by Profs. Siegel and Veblen	7,000
Prof. Seymour Sherman - appointed by Prof. Weyl	4,000

Physics Stipendees:

Dr. Herbert S. Green	$ 3,500
Dr. Leon C.P. van Hove	4,000
Mr. Robert Jastrow	3,000
Prof. Oscar Klein	5,000
Dr. Conrad Longmire	4,000
Mr. Maurice Neuman	3,000
Dr. B.R.A.Nijboer	4,000
Prof. Wolfgang Pauli (1 term)	7,500
Dr. George Rayski	4,000
Dr. T.H.R.Skyrme	3,500
Dr. Sin-itiro Tomonaga	6,000
Dr. Felix Villars	3,500
Mr. Arthur S. Wightman	3,000
Dr. Chen Ning Yang	3,000
	$49,500

Salaried Assistant invited:

Prof. Emilio Bajada (invited by Prof.Morse)	$ 4,000

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Members without IAS stipends (Mathematics and Physics):

Felice D. (Mrs. Paul T.) Bateman (M) - independent
Paul T. Bateman (M) - ONR
John F. Carlson (P), fall term - independent
Herbert Goldstein (P) - independent
Olof Hanner (M) - Scholarship from Swedish Royal Acad. Sciences
Harish-Chandra (M) - Jewett Fellow Probably to Harvard (6/7/49)
James A. Jenkins (M) - Jewett Fellow at IAS and Princeton U.
E. S. Kennedy (M), spring term - Rockefeller Found. Fellow to work with O.Neugebauer
Joaquin M. Luttinger (P) - Jewett Fellow
Edward J. McShane (M) - with Electronic Computer Project
Albert Messiah (P) - independent
Edwin E. Moise (M) - NRC Fellow
John D. Newburgh (M) - ONR
Gordon K. Overholtzer (M) - G.I. Bill of Rights
Claude A. Rogers (M) - Commonwealth Fellow
Ernst Specker (M) - a Swiss stipend
Tor B. Staver (P) - independent
Yue K. Wong (M) - independent
Max A. Woodbury (M) - ONR

Admitted as member if NRC, AEC or Jewett Fellowship is obtained:
William Karush (M) Cancel

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held October 7, 1949

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl and Morse, Secretary

1. It was reported that Dr. Carl G. A. Rossby is coming to the Institute the second semester of this academic year.

2. It was agreed that Professor Jean Leray, who is one of the invited speakers for the International Congress in 1950, shall be offered a stipend of $1000 to cover his expenses as a member of the Institute for a period of a month or six weeks after the Congress. Professor Morse will write in a preliminary way.

3. It was agreed that Professor Hendrik A. Kramers would be welcome to the Institute at the time of his forthcoming visit to America.

4. It was voted to offer Professor Friedrich W. Levi of the Tata Institute an honorarium up to $150 for a lecture or lectures to be given at the Institute during the month of the International Congress of 1950. Professor von Neumann is to write Professor Bethe of this.

5. A committee on the award of the Einstein Prize was appointed consisting of Professors Einstein, von Neumann, Oppenheimer and Weyl. It was understood that the Committee would report its recommendations to the School of Mathematics.

6. Professor von Neumann was authorized to write to Professor Prager that the Institute would welcome Dr. Cahit Arf at the Institute in case he should come to America.

7. Professor Morse announced his intention of asking Dr. Yu Why Chen to be his assistant or a member for the present academic year. A stipend of $4,000 was thought suitable.

8. It is recorded that the stipend of $3,500 offered Dr. Sze-Tsen Hu for the year 1949-50, was postponed to the year 1950-51 and has now been accepted for that year by Dr. Hu.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held November 28, 1949

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary; and by invitation Drs. Montgomery, Pais and Selberg

1. Dr. Oppenheimer stated that he would seek a special Visitors' Fund of $5,000 for the year 1950-51, available for mathematicians coming to the Institute for short visits in connection with the International Congress of Mathematicians.

2. Drs. Oppenheimer and von Neumann reported on their conversations with Dr. Albert Szent-Györgyi. It appears that he is receiving a salary of $10,000 a year in his present Government position. He would like to make the Institute the headquarters for his future work. It was agreed, if the money is available, that he should be invited to come to the Institute for a period of not more than four months, from February through May of 1950, with a stipend of $1,000 a month, with the expectation that he would be able to write up some of his previous work for publication and could fruitfully exchange ideas with various mathematicians and physicists. It would be made clear to him that the Institute could make no commitment for the future beyond the term of this appointment. [Done]

3. Professor von Neumann reported that admission to the Institute had been offered to Cahit Arf, and accepted.

4. Dr. Oppenheimer reported that the $4,000 stipend of Dr. Dyson is not included in the Mathematics budget.

5. The negotiations between the American Mathematical Society and the Departments of State and Justice are at such a stage that it seems undesirable, at least for the present, to offer any formal invitation to Professor Laurent Schwartz. It is expected that he will be able to come to the International Congress for a limited period of one or two weeks.

6. Fred Supnik has been offered admission to the School of Mathematics if he receives a National Research Council fellowship.

7. Professor von Neumann was asked to find out whether Professor Friedrich W. Levi had received the offer of an honorarium of $150 for lectures, and to make it if advisable.

8. Institutional membership in the American Mathematical Society. Dr. Oppenheimer approved the proposed new arrangement between the A.M.S. and its institutional members. In the case of the Institute, this means that the

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Institute will be assessed a sum of $1,275 a year beginning January 1, 1950. By the new arrangement however, $800 will be paid by the Society to the Annals of Mathematics. The latter amount represents that fraction of $1,275 which is defined by the quotient of the average number of pages published annually by members of the Institute in the Annals, by the total number of pages published by members of the Institute in the American Journal of Mathematics, the Annals, and the Bulletin and Transactions of the A.M.S. (Formerly the Institute paid the Society $775 per year, and there was no return from the Society to the Annals.)

9. Taking account of the fact that Professor Lipman Bers ordinarily receives a salary of $7,000 a year from the University of Syracuse but can expect to receive no help from that university if he absents himself for 1950-51, it was tentatively voted to offer Dr. Bers $4,000 for the year 1950-51. It is hoped that Dr. Bers could supplement this stipend by amounts received for work during the summer terms. Morse will consult Bers.

10. It was voted to offer H. Behnke a stipend of $1,000 for the purpose of spending at the Institute one month of the academic year 1950-51. This offer was planned to supplement an offer of $800 for several lectures to be given at Harvard in the fall of 1950. Morse will write informally, and the Director formally.

11. The School of Mathematics did not approve the grant of a stipend to Mr. Francois Teissier du Cros, though they would not wish to discourage his applying another year for such a grant. Professor Weyl will write.

12. It was voted to offer to Dr. Martin Eichler a stipend of $3,500 for the year 1950-51. It was understood that Eichler had made tentative arrangements to work under a contract with the Navy. Professor Siegel is to write Dr. Eichler to see if the arrangement with the Institute can take precedence. [Done]

13. It was voted to offer a stipend of $4,000 to Professor Kenkichi Iwasawa for the year 1950-51. Morse will write informally, and the Director formally.

14. The matter of assistants for the permanent members who are not Institute professors was discussed. Dr. Oppenheimer stated the principle that these permanent members could have such assistants in any year in which they

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needed them and in which notification was given in due season. (There is a distinction here from the arrangements which are made for the professors, in that an allowance is automatically made in the budget for assistants for the professors.)

15. Professor Morse will inquire of the present holders of Institute stipends in Mathematics who have been here one year or less, as to their desires for continuation of their stipends for the year 1950-51.

16. Wednesday, December 7, 10:30 a.m., was set for the next meeting of the School of Mathematics faculty.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held December 7, 1949

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary; and by invitation Drs. Gödel, Montgomery and Pais

1. It was voted to admit the following without stipends for the spring term 1950:

Asst. Prof. Cheng-jung Hsu of Taiwan University, Formosa. Morse will write Chern.
Kenneth S. Miller (184 Truman Avenue, Yonkers, N.Y.) The Director will notify.

2. It was voted to renew for 1950-51 the following appointments, with the stipends stated:

Dr. Raoul Bott --------- $3,500
Prof. Kunihiko Kodaira - 4,000
Dr. Harry E. Rauch ----- 3,000

The case of Mr. Kollagunta G. Ramanathan was left in Professor Weyl's hands for further investigation. Professor Weyl suggested the possibility that he might take Ramanathan as his assistant [which he has since arranged]; and there is the question of Ramanathan's obtaining a Doctor's degree from Princeton University.

3. The following new stipends for 1950-51 were voted:

Dr. Werner Fenchel, University Mathematical Institute, Copenhagen:
for the Institute's fall term 1950 ---------- $2,000
[Dr. Fenchel will be at the University of California for the coming term of 1949-50 with a salary of $5,000.] The Director will notify.

Prof. George A. Miller, at the rate of $3,500 a year, on the understanding that Dr. Oppenheimer will write and explore the situation ---------- ?

Dr. S. S. Pillai, Calcutta University ---------- 4,000
Morse will write informally and the Director formally.

Prof. Beniamino Segre, Istituto Matematico, University of Bologna,
Fall term 1950 ---------- 2,500
Morse will write informally and the Director formally.

Prof. Fabio Conforto (Via Livorna 20, Rome, Italy), Fall term 1950 --- 2,500
Siegel will write informally and the Director formally.

4. Stipend was declined for Prof. J. Sutherland Frame, but he will be admitted as a member if he so wishes. Morse will write.

5. It was voted to decline the following applications for stipend:

Dr. Chuan-Chih Hsiung (North Hall, University of Wisconsin). Morse will write.
Prof. Tsurusaburo Takasu (Tohoku Univ., Sendai, Japan). Morse will write Price.
Prof. Donald L. Thomsen, Jr. (Haverford Col.) Morse will write.
Dr. T. Venkatarayudu (Andhra Univ., Waltair, S.India). [Prof. Weyl has written.]
Prof. Hidegorô Nakano (Tokyo Univ.) has written informally to von Neumann concerning a grant from the Institute. Von Neumann will answer this

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letter negatively.

Morse is declining for the Annals of Mathematics Studies to publish Nakano's book on "Modern Spectral Theory."

6. It was voted to place the following candidates on a deferred list:

Dr. I. S. Gál
Dr. Olli Erkki Lehto
Prof. Ralph S. Phillips
Jacques Léon Tits - Weyl will confer further with Artin concerning his merits
Stanley S. Walters
Dr. Hsien-Chung Wang

7. It was voted to appoint Professors Morse and Weyl a committee to offer lectureships at the Institute for Advanced Study to distinguished mathematicians visiting this country in connection with the International Congress, honorariums for the lectures to be of the order of $100-200, and the total available not more than $2,500.

8.

Budget for Mathematics Stipends 1950-51 ---------- $50,000

1950-51 Mathematics Stipends offered to date:

Prof. H. Behnke	$ 1,000
Prof. Lipman Bers	4,000?
Dr. Raoul Bott	3,500
Prof. Fabio Conforto (fall term)	2,500
Dr. Martin Eichler	3,500
Dr. Werner Fenchel (fall term)	2,000
Dr. Sze-Tsen Hu	3,500
Prof. Kenkichi Iwasawa	4,000
Prof. Kunihiko Kodaira	4,000
Prof. Jean Leray (4-6 weeks, Sep.,Oct.)	1,000
Prof. George A. Miller	?
Prof. Otto Neugebauer (1 term - outside funds? $5,000)	
Dr. S. S. Pillai	4,000
Dr. Harry E. Rauch	3,000
Prof. Beniamino Segre (fall term)	2,500
	$38,500+

Special Visitors' Fund for 1950-51 proposed by the Director ---------- $ 5,000

Honorarium offered Prof. Friedrich W. Levi	$ 150
Reserved for honorariums, not more than	2,500
	$ 2,650

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held February 8, 1950

Present: Profs. Einstein, von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary; and by invitation Dr. Montgomery

1. The request from Professor Weyl for financial support to Dr. Edward S. Kennedy, assistant to Prof. Otto E. Neugebauer, will be referred to the School of Historical Studies. A grant of $500 is suggested.

2. Dr. Oppenheimer reported on the problem of enlarged library facilities. As a solution he suggested the increasing use for library purposes of rooms on the second floor of Fuld Hall, anticipating that the whole of this floor will eventually be used for the library. He also suggested the possibility of placing a balcony around the main library room, the alternative being not to use the shelves out of reach. The Library Committee has suggested a new library building, but the plan presented by Dr. Oppenheimer seems to have equal merit and the additional advantages of elasticity and of minimum expense. It is understood that office space would be provided by building one or two new office buildings to the south of Fuld Hall.

3. Dr. Oppenheimer discussed the problem of long-term appointments in Physics, reporting the conclusions of the Committee on Physics. On the basis of this report the School of Mathematics endorses the proposal to appoint Profs. Richard P. Feynman and Julian Schwinger as Professors of Physics, provided they seem ready to accept such position, and subject of course to faculty and trustee approval. The School of Mathematics also endorsed the proposal to give Dr. Chen Ning Yang and Dr. George Placzek appointments as Members for a term of five years with stipends of $5,500 and $9,000 respectively.

4. Professor Morse observed that it now seemed time to recommend the appointment of Dr. Kurt Gödel as full Professor of Mathematics, and there was no dissent from this viewpoint. However, after the meeting several of the professors reported that they did not consider that any formal action had been taken at the meeting.

5. It was reported that Prof. Marshall H. Stone is interested in coming to the Institute for a period of six weeks in the fall of 1950 for the purpose of collaboration with Professor Earle. It was agreed that Stone would be welcome if he decides to come. [Since the meeting, Dr. Oppenheimer has written Stone in this sense.]

6. It was agreed that the request of Prof. Friedrich W. Levi for financial aid in excess of the $150 honorarium already granted could best be met by seeking additional lectureships for Navy and other institutions. [Prof. von Neumann has written to Prof. Bethe.]

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7. In order that the stipend of Prof. Otto E. Neugebauer may be removed as an obligation of the stipend fund of the School of Mathematics, it was voted to recommend that Prof. Neugebauer be given a five-year appointment with stipend of $5,000 a semester for one semester each year. This recommendation will be presented to the faculty.

8. It was voted to offer Prof. Ralph S. Phillips and Dr. Olli E. Lehto each a stipend of $3,500 for the academic year 1950-51. [Morse and the Director have written.]

9. The case of Dr. John D. Newburgh was doubtful in the following sense: he has an ONR contract which, in accordance with past experience, may be renewed if his merits in comparison with other applicants are sufficient. It was agreed that in the absence of any principle which bars him from a renewed appointment with the ONR no appointment from the School of Mathematics would be regarded as necessary. Professor Morse has written Mina Rees (apparently on leave of absence) and will write Joachim Weyl of the Office of Naval Research to inquire if the above principle as to renewal still stands.

10. Of the candidates for stipend now in the United States, it was agreed to put in the first preferred list:

Dr. John D. Newburgh
Dr. Calvin R. Putnam
Mr. Isadore M. Singer App. withdrawn

and in a second reserved list:

Mr. Alex Heller
Mr. Henry Helson
Dr. Hugh L. Turrittin
Mr. Stanley S. Walters
Dr. Hsien-Chung Wang [added to this list by Morse]
Dr. Albert Wilansky

11. Professor Morse was authorized to explore the possibilities with the Division of Educational Exchange in the Department of State for obtaining a grant-in-aid under the Smith-Mundt Act for Jacques L. Tits for the year 1950-51 to enable him to spend the year at the Institute.

12. The remaining applications for stipend will be reconsidered on the basis of subsequent information.

13. It was voted to admit Dr. John B. Kelly without stipend, and the Director is requested to send him an invitation.

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It is recorded that the following have been offered membership without stipend:

Prof. Cahit Arf (Turkish fellowship?)
Prof. J. Sutherland Frame
Dr. John B. Kelly (as above)
Mr. Naoki Kimura (short visit financed by "Japanese Government")
Dr. Ilse L. Novak (Jewett fellow - admitted subsequent to Feb.8)

Admission contingent on receipt of National Research Council fellowship:

Mr. Alex Heller
Mr. A. J. Hoffman
Mr. Richard V. Kadison
Mr. Isadore M. Singer (also IAS stipend applicant) App. withdrawn
Mr. Fred Supnick

14. Professor Veblen's assistant for next year will be Prof. Kentaro Yano, Professor of Mathematics at Tokyo University; and Professor Deane Montgomery's assistant will be Dr. Edwin Moise. Each will have a salary of $4,000.

15. Professor Morse recommended that the reserve for honorariums from the special Visitors' Fund be reduced from $2,500 to $2,000. Stipends previously granted to Drs. Fenchel and Leray were transferred to the special Visitors' Fund. It was reported that Prof. Lipman Bers had accepted the $4,000 stipend offered, and that Dr. Oppenheimer had arranged for a stipend of $1,000 to Prof. George A. Miller.

Budget for Mathematics Stipends 1950-51		$50,000
1950-51 Mathematics Stipends offered to date:		
Prof. H. Behnke (1 month - Oct.Nov.?)	$ 1,000	
Prof. Lipman Bers	4,000	
Dr. Raoul Bott	3,500	
Prof. Fabio Conforto (fall term)	2,500	
Dr. Martin Eichler	3,500	
Dr. Sze-Tsen Hu	3,500	
Prof. Kenkichi Iwasawa	4,000	
Prof. Kunihiko Kodaira	4,000	
Dr. Olli E. Lehto	3,500	
Prof. George A. Miller	1,000	
Prof. Ralph S. Phillips	3,500	
Dr. S. S. Pillai	4,000	
Dr. Harry E. Rauch	3,000	
Prof. Beniamino Segre (fall term)	2,500	43,500
BALANCE AVAILABLE		$ 6,500

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Special Visitors' Fund 1950-51			$5,000
Dr. Werner Fenchel (fall term)		$2,000	
Prof. Jean Leray (4-6 weeks, Sep.,Oct.)		1,000	
Reserved for honorariums		2,000	5,000
Honorariums:			
Prof. Friedrich W. Levi	$ 150		
BALANCE AVAILABLE	1,850	2,000	

Marston Morse

Secretary

Approved by Professors Veblen and Weyl

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held February 14, 1950

Present: Profs. Einstein, von Neumann, Siegel, Veblen, Weyl, and Morse, Secy.

1. There was unanimous agreement that Gödel's work is first class.

2. Veblen, Einstein and von Neumann were no longer convinced that earlier arguments against making Gödel a full Professor are now sufficient. It was pointed out that Dr. Aydelotte took the point of view that Gödel is not the type of person to be appointed full professor.

3. Weyl and Siegel believe that the position of Permanent Member is perhaps the most suitable for Gödel.

4. Under the circumstances Morse is satisfied with neither solution.

5. It was agreed that it is not wise to press for a decision at the moment.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held April 5, 1950

Present: Profs. von Neumann, Oppenheimer, Siegel, Veblen, Weyl, and Morse, Secretary; and by invitation Profs. Montgomery and Selberg

1. It was voted to offer stipends of $3,250 each to Dr. Calvin R. Putnam and Dr. István S. Gál. [Prof. Morse will write to Putnam, and Prof. Selberg to Gál.]

If it turns out that there is a balance remaining from the 1949-50 Stipend Fund, an appropriate small grant could be made to Richard F. Arens for the summer months of 1950.

2. Declinations are to be sent to the other candidates, with the exception of Jacques L. Tits concerning whom negotiations are in progress; and with the understanding that in the cases of Henry Helson, Eugene V. Schenkman and Albert Wilansky, a situation might arise in the future in which funds would be available for them. [Prof. Morse will write to Helson, Schenkman and Wilansky.]

3. It was voted to admit Profs. L. J. Mordell [to whom Prof. Siegel will write] and Luigi Fantappiè as members without stipend, to be provided with suitable office space.

4. The necessary correspondence in addition to that noted above will be conducted as follows:

Professor Veblen: Prof. John L. Kelley

Professor Weyl: Drs. Gert H. Müller and John R. Myhill

Professor Montgomery: Dr. Hsien-Chung Wang

Professor Morse: Mr. John W. Carr III, Miss Joanne Elliott, Dr. Henry Hiż, Dr. John Beckwith Kelly, Dr. Jacob Korevaar, Dr. Reinhard L. Korgen, Dr. Richard M. Martin, Prof. Myles McConnon, Dr. Ward C. Sangren, Prof. Hugh L. Turrittin, Dr. Stanley S. Walters.

5. It was reported that Professor Morse had used his assistant's fund for a stipend for Prof. Emilio Bajada, and that Professor Siegel had appointed Dr. Theodor Schneider his assistant, both for the year 1950-51.

6. It was reported that since the last meeting

Mr. Bent Fuglede has been offered Institute membership without stipend for six months beginning in August 1950; and that

Dr. William S. Gustin has been offered Institute membership conditional on his receiving an O.N.R. fellowship.

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7. The fund allocated to the committee of Professors Weyl and Morse (Minutes, December 7, 1949, ¶7, and February 8, 1950, ¶15) for small grants to visiting mathematicians, shall be referred to as the Visitors' Fund for Small Grants, and shall be budgeted as $2000, instead of the original $2500, to correspond to the state of the total Mathematics budget. Allocations from this fund to date are:

Visitors' Fund for Small Grants		$2,000
To Prof. Friedrich W. Levi	$150	
Dr. Komaravolu Chandrasekharan	200	
Prof. Giovanni Sansone	100	
Prof. J.H.C.Whitehead	100	550
Balance available		$1,450

[Copy to be sent to Miss Trinterud]

8. It was agreed that the secretaries are not to mimeograph notes for members other than Permanent Members and Faculty, without the explicit approval of a Professor of Mathematics; and that in any case this approval is to be understood as subject to the condition that the secretary shall give preference at all times to the work — either mathematical or in correspondence — of the Professors and Permanent Members. [Copy to be sent to Mrs. Leary and the secretaries concerned.]

9. Dr. Oppenheimer has obtained the approval by the members of the School of Mathematics of the following: to invite Professor Wolfgang Pauli to be a member of the Institute for five years, without definite financial commitment, but with the understanding that his needs will be taken care of in the light of the budgetary situation then existing.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held September 26, 1950

Present: Professors von Neumann, Oppenheimer, Siegel, and Morse; and by invitation Professors Montgomery and Selberg

1. With regard to the request of Dr. Samuel Bourne, that he be permitted to retain his membership for the year, Dr. Oppenheimer suggested that Bourne be written that he would be welcome at any time at the Institute and that the Institute would be able to pay his traveling expenses to Princeton for two or three such trips during the year, but the Institute preferred not to grant membership unless he was in residence a greater part of the time. [Professor Morse has written Dr. Bourne.]

2. The case of Dr. Felix Browder was reviewed and the decision was reached that his case is not strong enough to warrant granting him a membership with stipend. [Professor von Neumann will write.]

3. Membership was voted to Mr. Thomas V. Davies.

4. The cases of Dr. Dorothy L. Bernstein, Dr. Chuan-Chih Hsiung and Dr. K. Venkatachaliengar were reviewed. The decision was reached that Drs. Bernstein and Venkatachaliengar were not of the caliber to warrant the granting of aid. Dr. Hsiung will be written by Morse to the effect that the membership of the School of Mathematics thinks he would profit most by entering some graduate school where the subjects in which he is interested most are covered in systematic lectures. [Professor Morse has written.]

5. It was voted that the offer made to Dr. Jacques L. Tits would be renewed this year in the same form as last year. Professor Morse was authorized to so inform Tits, and to suggest that he make his application at once with the Cultural Attaché at Brussels for aid under the Fulbright and Smith-Mundt Acts. [Professor Morse has written.]

6. Professor Montgomery agreed to write to Professor K. Yosida of Nagoya University in Japan, to see if he might be free to spend a term at the Institute. [Professor Montgomery has written.]

7. It was agreed that Dr. C. Y. Rossby will be welcome here as a visitor the second term and might receive a stipend of $1000 a month. Dr. Oppenheimer will see whether this money can be obtained from sources other than the fund for stipends for mathematics. [Dr. Oppenheimer will write.]

8. Professor Selberg brought up the case of Dr. Ernst Selmer, a Norwegian mathematician, who is interested in the Computer Project and who

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would like to spend a half year here as a member. Such an application would be favorably received if and when made.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held October 11, 1950
Present: Professors Oppenheimer, Siegel, von Neumann, and Morse.

1. It was voted to recommend that Doctors Montgomery, Pais, and Selberg be made Professors in the School of Mathematics. This recommendation carries with it the recommendation that there be established two grades of Professor in the Institute for Advanced Study without formal distinction in title but with an actual distinction corresponding to seniority, and with two levels of salaries of which the lower was tentatively put at $12,000. The above new appointments were recommended at the lower level.

2. The Director discussed the figure at which the maximum salary might reasonably be set.

3. The possible appointment of Jean Leray as Professor of Mathematics at the maximum salary level was discussed. Morse and von Neumann were strongly in favor. In accordance with Professor Leray's wishes an arrangement would have to be made with the Administration of the Collège de France whereby Professor Leray would be assigned a "mission" at the Institute for Advanced Study for two or three years. Professor Siegel had some doubts as to the maximal character of such an appointment, and it was agreed to wait until Professor Weyl returned before taking any action.

4. Irving Segal was suggested by von Neumann and Morse as possibly the best appointment which could be made as a permanent member at the level of $8,000. Veblen has indicated decided approval, but the impression which Oppenheimer had gained of Segal was not highly favorable. No action was taken.

5. It was agreed that Siegel and Morse should report on Selberg and Montgomery respectively to the faculty.

6. Professor von Neumann raised the question of making Goldstine and Bigelow permanent members of the Institute for Advanced Study it being understood that this implied a possible financial commitment in the future. No immediate demand on the budget of the Institute is anticipated however, since their salaries are at the present time otherwise provided. It was agreed to consider this matter further.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held November 9, 1950

Present: Professors Oppenheimer, Siegel, Weyl, von Neumann, and Morse; and by invitation Professors Montgomery and Selberg

1. It was voted to offer Professor Jean Leray a membership at the Institute for Advanced Study for three years (or two years, if he prefers) with a stipend approximating that of Professor. Professors Morse and von Neumann will draw up a preliminary letter to the administrator who is Leray's superior in the Collège de France exploring the situation. An account will also be presented by Morse and von Neumann to the Faculty at its meeting next Tuesday.

2. It was voted to make J. H. Bigelow and H. H. Goldstine Permanent Members of the Institute with appropriate Teachers' Insurance and Annuity arrangements and with stipends of not more than $9000 and at least $1000 more than they were receiving a year ago. It is the expectation, for the present at least, that their services at the Computer Project will be paid for out of funds taken from government grants. Professors Oppenheimer and von Neumann will determine the precise amount of the above stipends within the above limits.

3. It was voted that Dr. Rama Dhar Misra be admitted to membership for the residue of this academic year. Dr. Oppenheimer's office will notify him.

4. It was voted to offer Dr. K. Yosida a stipend starting in January, 1951, of $500 a month for a maximum of four months. Morse will notify him, and Dr. Oppenheimer will write formally.

5. It was voted to offer to Professor W. T. Martin, Head of the Department at Massachusetts Institute of Technology, a stipend of $4000 to supplement the half of his salary which he will receive from M. I. T. during his leave of absence next year. Morse will notify him, and Dr. Oppenheimer will write formally.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held December 8, 1950

Present: Professors Oppenheimer, Weyl, von Neumann and Morse; and by invitation Professor Montgomery

1. It was voted to offer Dr. Jacques L. Tits a grant-in-aid of $2500 for next year. An attempt will be made to ascertain the policy of the State Department regarding granting aid to a mathematician under the Smith-Mundt Act. It seems likely that Tits will be able to obtain a Fulbright grant for transportation once the Belgian Foundation has knowledge of our unconditional offer. [Professor Morse has written informally; the Director will write formally.]

2. It was voted to grant Professor Heinrich Behnke a stipend of $250 to cover his expenses here until December 24, 1950. [Professor Morse has written.]

3. Grants of $600 and $500 respectively were made to Mr. Bent Fuglede and Dr. Vittorio Dalla Volta for the remainder of this year. [Professor Morse has written.]

4. It was voted to keep the offer to Dr. Kôsaku Yosida for a grant for the remainder of this year open until such time as he decides whether to leave for Japan or not. [Dr. Oppenheimer has written in reply to Yosida's letter.]

5. Renewals:

It was voted to offer to renew the grant-in-aid to Dr. István S. Gál for $3250 for next year. Dr. Gál will be encouraged to obtain an extension to his visa. [Professor Morse has written informally.]

It was voted to renew Dr. Leo R. Sario's grant-in-aid for $4000 for next year. [Professor Morse has written informally; the Director has written formally.]

6. It was voted to postpone consideration of a grant for Dr. Wen-tsün Wu. A grant for the remainder of this year seemed impracticable. Professor Weyl will write suggesting that the School of Mathematics would consider an application from him for next year if he should wish to make one. [Professor Weyl has written.]

7. Professor Weyl was asked to write to Professor Tadasi Nakayama that we would be glad to receive an application from him for a grant-in-aid for next year. Professor Weyl is to inquire as to what family Professor Nakayama has. [Professor Weyl has written.]

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8. It was voted to offer a membership to Dr. Victor L. Klee conditioned on his receiving a National Research Fellowship. His application for a grant-in-aid from the Institute will be considered with the other applications later. [Professor Morse has written.]

9. Professor Weyl reported on the mathematical work of Professor Arne K. A. Beurling, pointing out that he had done interesting work in at least three fields; generalized prime number theory, spectral theory, and theory of functions of a single complex variable. Professor Montgomery reported again on the achievements of Irving Segal. It was proposed that we invite Professor Beurling for one year for a salary about the same as the one which is considered for Professor Leray, and that in the meantime we study the work both of Beurling and Segal so that a year from now we shall be better able to make a decision on a permanent appointment. This proposal met with general favor. Dr. Oppenheimer requested that the question be left open until some of the appointment and budget problems now pending are settled. It is anticipated that another meeting of the School of Mathematics in about a month can make final recommendations in this respect.

10. It was announced that since the last meeting of the School of Mathematics the following grants had been voted for next year, 1951-52:

Dr. Beno Eckmann for a maximum of five months at $750 per month, a total commitment of $3750.

Professor W. T. Martin for one year at $4000.

Dr. Olaf Schmidt on the recommendation of Professor Otto Neugebauer for the second term at $2500 which is to be divided evenly between the two Schools amounting to a commitment of $1250.

11. Total funds committed for next year, 1951-52:

Dr. Beno Eckmann	$3750
Professor W. T. Martin [Accepted].	4000
Dr. Olaf Schmidt [Accepted].	1250
Dr. Jacques L. Tits [Accepted]	2500
Dr. István S. Gál [Visa extension pending]	3250
Dr. Leo R. Sario [Accepted].	4000
Total . .	$18750

Marston Morse

Secretary

When it was discovered after this meeting that Mr. Fuglede's membership was for the Fall Term only, it was ascertained from the School of Mathematics that they approved an extension of his membership for the Spring Term. [Dr. Oppenheimer has written.]

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held January 24, 1951

Present: Professors Oppenheimer, Weyl, von Neumann, and Morse; and by invitation Professors Montgomery and Selberg

1. Professor Selberg reported on Professor Arne Beurling. It was agreed that it is desirable to ask Beurling to come to the Institute as visiting professor for the academic year 1951-52 for the whole year if possible, or the second half year if it is not possible for the first half year. If it is not possible for him to come either term it is desirable to ask him if he could come the following year. His salary would be substantially that of a full professor. Professor Selberg is to write him informally sounding out his reaction to proposals of this sort. [Professor Selberg has written.]

2. Total funds committed for next year, 1951-52:

Dr. Beno Eckmann [Accepted for three months]. . .	$2250
Dr. István S. Gál [Visa extension pending]. . . .	3250
Professor W. T. Martin [Accepted]	4000
Dr. Leo R. Sario [Accepted]	4000
Dr. Olaf Schmidt [Accepted]	1250
Dr. Jacques L. Tits [Accepted].	2500
Total	$17250

3. Taking into account the $3145.85 available in the Stipend Fund this year [$625 being added with the removal of that amount committed to Professor Rossby] and the $25,000 voted to be made available for 1951-52, the following grants were voted totaling $5104.15 over the present appropriation:

Prof. John W. Green, University of California, Los Angeles . . . $2000
Full year 1951-52
Morse has written informally and the Director formally

Dr. Sze-tsen Hu, Institute for Advanced Study. 3500
Full year 1951-52
Morse has notified informally and the Director has written formally

Prof. Mark Kac, Cornell University 3000
Full year 1951-52
von Neumann has written informally and the Director formally

Prof. Tadasi Nakayama, Nagoya University and University of Ill.. 3500
Full year 1951-52
Weyl has written informally and the Director formally

Prof. Murray H. Protter, Syracuse University 4000
Full year 1951-52
Morse has written informally and the Director formally

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4. It was voted to grant membership to the following as requested:

Prof. Alfred W. Jones, Rensselaer Polytechnic Institute, spring term, 1950-51
Dr. George A. Austin, University of Michigan, full year, 1951-52
Dr. Arrigo Finzi, via Arno 21, Rome, Italy, several months, 1951-52
Prof. Mohsen Hachtroudi, Harvard University, fall term, 1951-52

The Director wrote formally sending the letter to Dr. Finzi in duplicate.

5. From the additional funds likely to be made available by the Board of Trustees the following reservations were made, to be decided definitely after the funds are voted:

Professor John L. Kelley. $4000
Nominee of Professor Jean Leray 4000

Morse has written informally to Kelley and is to write informally to Leray.

6. It was agreed that the following men are likely candidates for grants insofar as money is available:

Dr. Robert S. Finn $3500
Dr. Henry B. Helson. 3000
Prof. Edwin Hewitt 3500
Prof. Yukiyosi Kawada. 4000
Dr. John McCarthy. 3000
Dr. John R. Myhill 3500

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held February 27, 1951

Present: Professors Oppenheimer, Weyl, von Neumann and Morse; and by invitation Professors Montgomery and Selberg

1. It was agreed that Professor Selberg should write an exploratory letter to Professor Arne Beurling suggesting that the School of Mathematics would be delighted to have him become a member of the Institute for Advanced Study for the year 1952-53 with a grant of $12,000, understanding that this would have to be confirmed by the Board of Trustees of the Institute at its next meeting. [Done.]

2. It was also agreed that Professor von Neumann should write Irving Segal, Associate Professor of Mathematics at the University of Chicago, expressing our desire that he should be a member of the Institute for Advanced Study for the year 1951-52. If Segal should obtain a Guggenheim Fellowship, the Institute would be ready to make a grant to Segal such that his net income from the Guggenheim Fund and the Institute for Advanced Study for the academic year would not be less than he would normally receive at the University of Chicago. If no Guggenheim Fellowship is received the Institute would make a corresponding increase in its grant. [Done.]

3. Subject to the allotment of money to the School of Mathematics for grants-in-aid the School of Mathematics recommends the following: Professor Kenkichi Iwasawa be made a member for the year 1951-52 with a grant of $4000 and that insofar as funds are available the following mathematicians be made grants in the following order:

Mr. Robert S. Finn	$3500
Dr. Henry B. Helson.	3000
Dr. Richard V. Kadison	3500
Mr. John McCarthy.	3000

In any case, it is proposed to wait until the Office of Naval Research Fellowships and the National Research Council Fellowships are determined and until the Director has more definitive knowledge of the budget.

4. It is here recorded that since the January meeting, by vote of the Faculty of the School of Mathematics, Dr. Aldo Andreotti was given membership with a grant of $1500 for the Spring Term, 1950-51. The amount of this grant was transferred from the assistant's fund allotted to Professor Siegel to the stipend budget of the School of Mathematics.

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Budget - 1951-52

Funds available from 1950-51	$3145.85	
Funds appropriated for 1951-52	25000.00	$28,145.85
Funds committed for 1951-52		
Dr. Beno Eckmann [Accepted]	$2250.00	
M. Fourès [Accepted].	3000.00	
Mme. Fourès [Accepted].	3000.00	
Dr. István S. Gál [Visa extension pending]. . .	3250.00	
Professor John W. Green [Accepted].	2000.00	
Dr. Sze-tsen Hu [Accepted].	3500.00	
Professor Mark Kac [Accepted]	3000.00	
Professor John L. Kelley. [Declined].	4000.00	
Professor W. T. Martin [Accepted]	4000.00	
Professor Tadasi Nakayama [Accepted].	3500.00	
Professor Murray H. Protter [Accepted].	4000.00	
Dr. Leo R. Sario [Accepted]	4000.00	
Dr. Olaf Schmidt [Accepted]	1250.00	
Dr. Jacques L. Tits [Accepted].	2500.00	43,250.00
Commitments conditional on the budget		
Professor Kenkichi Iwasawa.	$4000.00	
Proposals approved by the School of Mathematics conditional on the budget		
Mr. Robert S. Finn.	$3500.00	
Dr. Henry B. Helson	3000.00	
Dr. Richard V. Kadison.	3500.00	
Mr. John McCarthy	3000.00	

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held April 10, 1951

Present: Professors Oppenheimer, Weyl, von Neumann and Morse; and by invitation Professors Montgomery and Selberg

1. Professor Weyl submitted a memorandum to be enclosed in these minutes about the Mathematics Library of the Institute. It was agreed that Professor Selberg should represent mathematics on the Library Committee in the absence of Professor Weyl.

2. Professor Selberg reported that he had not heard further from Professor Beurling.

3. It was unanimously agreed that the School of Mathematics desires to offer Professor Hassler Whitney of Harvard University a professorship at the Institute for Advanced Study at the highest salary. A meeting of the Faculty will be arranged for Monday the 16th of April when the account will be given by Professor Montgomery of Whitney. The Director proposes to acquaint the Trustees at their meeting on May 4th of the desire of the School of Mathematics to appoint Whitney as full professor leaving the formal decision of the matter until next fall inasmuch as it would seem unlikely that an appointment could be made and accepted this spring.

4. Professor von Neumann reported on the subsidies granted the Annals of Mathematics by the University and the Institute. It was agreed that the Institute, together with the University, should continue its annual subsidy of $4250. Only $3000 of this is now budgeted. The full $4250 will be entered in the budget if possible, otherwise the $1250 will be taken from the Publication Fund.

5. Professor von Neumann reported as a member of the Liaison Committee with the University that various groups would be interested in receiving earlier reports on the appointments of the Institute for next year. It was agreed that the appointments in mathematics should be sent to the Department of Mathematics and those in physics to the Department of Physics, etc. [Done.]

6. It was voted to offer $3000 to Professor Irving Segal for the academic year 1951-52 to supplement his Guggenheim Fellowship. Professor von Neumann will write informally. [Done.]

7. It was voted to offer Professor Max Shiffman a grant of $2500 to supplement the grant which he receives from the Guggenheim

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Foundation. Morse will write informally; the Director formally. [Done.]

8. The appointments already agreed upon for next year exhaust the Grants-in-Aid for Mathematics. If, however, by virtue of resignations or other reasons funds become available it was agreed that Dr. Alex Heller and Dr. Henry B. Helson should be offered grants in the order written.

9. The Director should send formal notice of appointment as Member in the School of Mathematics to Professor Kenkichi Iwasawa for the year 1951-52 with a grant of $4000. [Done.]

10. Dr. N. C. Ankeny's application for membership with an Office of Naval Research Fellowship was voted for the year 1951-52. The Director will notify. [Done.]

11. The following mathematicians will be notified by Professor Morse of the inability of the Institute to grant their requests for aid for the academic year 1951-52:

Aissen, M. I.	Hirzebruch, F. E.
Antosiewicz, H. A.	Hunt, B.
Bade, W. G.	Keown, E. R.
Bambah, R. P.	Koehler, F.
Birnbaum, Z. W.	Lister, W. G.
Chen, K. T.	Martin, R. M.
Cheo, L. P.	McCarthy, J.
Curtis, M. L.	Misra, R. D.
Dugundji, J.	Myhill, J. R.
El-Fandy, M. G. E.	Rosen, J. B.
Fáry, I.	Roth, K. H.
Goldman, O.	Sanders, J.
Gôto, M.	Sasaki, S.
Heerema, N.	Szebehely, V. G.
Helson, H. B.	Wang, H. C.
Herstein, I. N.	Wendel, J. G.
Wermer, J.	

Professor Weyl will notify Professor Y. Kawada and Dr. W. T. Wu of the inability of the Institute to grant their requests for aid for the academic year 1951-52. [Done.]

12. It is here recorded that Dr. Bruria Kaufman has been appointed Assistant to Professor Einstein for the months of April through June 1951, and from July 1, 1951 through June 30, 1952.

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Budget - 1951-52

Funds available from 1950-51	$ 3103.27	
Funds appropriated for 1951-52	50000.00	$53,103.27
Funds committed for 1951-52		
Dr. Beno Eckmann [Accepted].	$ 2250.00	
M. Fourès [Accepted]	3000.00	
Mme. Fourès [Accepted]	3000.00	
Dr. István S. Gál [Visa extension pending] . . .	3250.00	
Professor John W. Green [Accepted]	2000.00	
Dr. Sze-tsen Hu [Accepted]	3500.00	
Professor Kenkichi Iwasawa [Accepted].	4000.00	
Professor Mark Kac [Accepted].	3000.00	
Professor W. T. Martin [Accepted].	4000.00	
Professor Tadasi Nakayama [Accepted]	3500.00	
Professor Murray H. Protter [Accepted]	4000.00	
Dr. Leo R. Sario [Accepted].	4000.00	
Professor Irving Segal [Accepted].	3000.00	
Dr. Olaf Schmidt [Accepted].	1250.00	
Professor Max Shiffman	2500.00	
Dr. Jacques L. Tits [Accepted]	2500.00	48,750.00
Balance.		$ 4,353.27

Marston Morse

Secretary

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THE INSTITUTE FOR ADVANCED STUDY
PRINCETON, NEW JERSEY

SCHOOL OF MATHEMATICS

April 5, 1951

Memorandum Regarding Mathematics Library

When the School of Mathematics of the Institute moved from Fine Hall, with its excellent mathematics library, to distant Fuld Hall it was felt by all mathematicians concerned that now the Institute was bound to build up a mathematical library of its own. After careful consideration the principles determining scope of the library, regulations for its use, arrangement and cataloguing of books and periodicals were laid down in an informal memorandum of which I repeat here some of the main points.

The library is planned as a reference library which is easily and equally accessible to all members of the School. A reader has two legitimate but conflicting desires: to find his book in the library at any moment he wants it, and to take it with him for his own exclusive use as long as he likes. Just because books from the mathematics library in Fine Hall may be taken home we decided that we would give preference to the first requirement and that the books of our library should, as a rule, stay in the building. A pass key to all offices would enable the librarian to get hold of books wanted.

Since the most frequent procedure by which our members find the printed information they want is by means of references, we decided upon alphabetical arrangement of the books as the only one enabling the users to locate books of known title without ambiguity and without having to consult a catalogue. By the same principle the full titles are used in the alphabetical arrangement and no liberties are taken with the order of their words (except that the surname of the author comes first). No arrangement according to "subjects" is possible that is much better than a completely haphazard one, as can be proved by many examples. Seldom a book deals with one subject only, but how can it be in two to ten places at the same time unless one buys as many copies? Moreover classifications have a tendency to become obsolete. For all these reasons I still think today, as we all thought when the library was started, that we ought to stick to the alphabetical arrangement. It is by far the soundest and most objective. If a change is ever considered one should not underrate the price in confusion and labor one would have to pay for it.

The following were recognized as "international languages:" English, French, German, Italian, Spanish, and Latin. As a rule we would buy only books and periodicals which are either printed in, or which include translations of major parts into, one of these six languages. After the war Russian was added, but we have been content to buy only the most important books in Russian and to subscribe only to the most important Russian journals.

For the exchange of journals we depend on close cooperation with the Mathematics Department of Princeton University since we have all our exchange material in common with them.

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About the purchasing policy there exists a memorandum drawn up on December 12, 1945, which is here copied in full:

> "Right from the beginning when the plans for Fuld Hall were drawn up, the School of Mathematics emphasized that without adequate library facilities for mathematics in Fuld Hall the termination of our symbiosis with the Mathematics Department of the University in Fine Hall would seriously impair the working conditions for mathematicians. We considered it essential to have a working library for mathematics and theoretical physics that is fairly complete, at least from 1900 on. We would continue to rely on the library in Fine Hall as the source of older literature less frequently consulted. We estimated the initial outlay for our library at $40,000, and thought that an annual allowance of $5,000 for books and periodicals would be sufficient to keep it up to date and supplement less urgent basic equipment that was not purchased at the outset.
>
> "In the subsequent building up of the library we have often found it necessary in our purchases of runs of important periodicals to go back of the year 1900. But on the whole we have carried out the policy laid down at the beginning, and our estimates proved fairly correct. With the present rise in prices, an annual allowance of $5,000 may become inadequate; but a definite appraisal will have to wait until conditions become a little more stable.
>
> "In connection with the request of the Library Committee, the School has reconsidered its purchasing plan and has come to the conclusion that our needs are still the same, and that no modification of our program is indicated, with one minor exception however. In view of the destruction of libraries and stocks in Europe, it seems no longer justified to purchase for our library runs of Proceedings of Academies of minor importance, especially if they contain but a small percentage of material of interest to mathematicians and physicists."

During the first years many younger mathematicians who used the library felt that the alphabetical arrangement made a subject catalogue almost indispensable. It is clear that only a mathematician or a group of mathematicians can compile such a catalogue, which must be based on a careful analysis of the contents of each individual book. Thus Professor Alfred Brauer, who built up the mathematics library during these years with great circumspection and efficiency, started work on a subject catalogue, not without being fully aware of the arbitrariness involved in the division of the whole of mathematics into numerous subfields and the corresponding classification of books. The catalogue as it is now approaching completion does not include physics. This limitation, together with the fact that demand for a subject catalogue seems to have become less urgent in the course of time and the unlikeliness that the younger mathematicians of our staff will be willing to continue Brauer's work, has led to the decision that, at least for the time being, the catalogue will be closed with the end of the year 1950, and will be typed on loose leaves with the several items in each subfield roughly arranged in chronological order. The labor and experience required for putting each item on a separate card do not seem justified at this stage. Before he began his work on the subject catalogue Brauer outlined the program in a memorandum of which an abbreviated version is attached.

With its extension the organization of the Institute Library has changed considerably since 1940. But fortunately no attempt has been made to impose a

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uniform pattern on the libraries of the different schools. They are different in character and should remain so. I wish to express the hope that also in the future the mathematics library will be so operated as to insure its greatest usefulness to mathematical research and to the men who are engaged in it.

Hermann Weyl

Hermann Weyl

HWcdu
Enclosure

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Program of a Subject Catalogue for the Mathematics Library

The subject catalogue has no other aim but to help the mathematicians and physicists in using the library. Thus, one must not expect that every book of the library is found in the subject catalogue. For instance, the customary section "Collected Works" is omitted since no user of this library will ever go over a list of "Collected Works" undecided whether he wants a volume of Huygens, Cayley, or Klein. For similar reasons neither the Actualitées Scientifiques nor the dissertations will be listed; they are bound papers rather than books.

On the other hand certain items will be entered into the catalogue as books although they appeared in periodicals. Example: Hilbert's "Zahlbericht." The first part of Hasse's later "Bericht" appeared as a paper, the second as a book; it would be foolish to treat both parts in a different manner.

For the purpose of classification the whole of mathematics had to be divided into subfields (such as "Algebraic numbers," "Integral equations,") in a way that was determined on the one side by the organization of mathematics itself with its diverse though interrelated subjects, on the other side by the need to make the sets of books falling under the various headings neither too big nor too small. The latter viewpoint came fully into play only in the actual process of cataloguing the library. Of course the division of mathematics into parts as well as the classification of books according to these parts are highly arbitrary; and it is almost certain that changes will become desirable, even necessary, in the course of time. (For instance, "Integral equations," is a rubric which would not have existed before 1900.)

Most of the books, of course, will fall under several headings. A book with the title "Group Theory and Quantum Mechanics" will obviously have to be listed under both headings "Group theory" and "Quantum mechanics." But the title seldom tells the whole story. Only by careful analysis of its contents can a book be assigned its right places in the catalogue. Of course, not every book in which the theory of determinants is used will be found under "Theory of Determinants." This will be so only if at least some chapter of this theory is treated in the book systematically. The books in a given subfield are ordered chronologically, at least up to the time when the first draft of the part of the catalogue covering that subfield was completed. The year which appears on the title page of the library copy is considered as decisive, also in the case of an unchanged reprint of an earlier edition.

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held October 9, 1951.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg and von Neumann.

1. The School of Mathematics recommends that Dr. Jule G. Charney be made a member of the Institute for Advanced Study for a term of five years starting immediately at an annual salary of $9000. It is understood that Charney's salary will come either from money obtained under government contracts with the Electronic Computer Project or from the gift received by the Institute for Advanced Study from the International Business Machines Corporation.

2. The School of Mathematics recommends that Professor A. K. A. Beurling be invited to become a member of the Institute for Advanced Study for the academic year 1952-53 with a grant-in-aid of $12,000. Professor Selberg will write Professor Beurling informally after the October 25th meeting of the Board of Trustees, provided the Board of Trustees approves this invitation. Selberg may suggest that Beurling come as a Visiting Professor in Mathematics for the purpose of continuing his researches. He will ask Beurling to give us a definite answer before December 1, 1951.

3. It was voted to offer Dr. Friedrich Hirzebruch a grant-in-aid of $3,500 for the academic year 1952-53. It was agreed that Morse will write to him at once informally and that the Director's Office will send a formal invitation. [Accepted.]

4. The School of Mathematics approved taking $300 from the Visitors' Fund of the School of Mathematics to partly finance the Conference on Riemann Surfaces sponsored jointly by the Institute and Princeton University. It is understood that the University will make a like contribution. This conference is to occur in December.

5. The School of Mathematics recommends that arrangements be made by Professors Oppenheimer and von Neumann with Dr. Chaim L. Pekeris in accordance with his desire to spend some months at the Institute during the academic year 1952-53. It is understood that his grant will be covered by funds coming from the Electronic Computer Project.

6. It was agreed that the School of Mathematics should seriously consider offering Dr. Eckford Cohen a grant-in-aid for this year in case his contract with the Office of Air Research does not come through.

7. The question as to a possible future permanent appointment at the Institute of Irving Segal was discussed. The importance of careful

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consideration of his potential value to the Institute was emphasized. It was decided that further attention would be given to this later in the year.

8. The following action, taken since the last meeting of the School of Mathematics Faculty on April 10, 1951, is hereby reported:

Professor Tadasi Nakayama declined his invitation to membership with grant-in-aid of $3500 to return to his home in Japan.

Professor Hassler Whitney has accepted a professorship in the School of Mathematics to begin July 1, 1952.

Professor E. F. Beckenbach, of the University of California at Los Angeles, was granted membership for the fall term 1951-52.

Professor E. H. Spanier, of the University of Chicago, was invited to membership for the fall term 1951-52 with a grant-in-aid of $1200.

Dr. Hsien-Chung Wang has been appointed Assistant to Professor Montgomery with a salary of $3000 for the academic year 1951-52.

Professor Emilio Baiada, member during the academic year 1950-51, was granted an additional $300 for the month of June 1951.

Professor Beno Eckmann accepted membership for four months, making the total committed to him $3000.

Revised Budget - 1951-52

Funds available from 1950-51	$ 3103.27	
Funds appropriated for 1951-52	50000.00	$53,103.27
Funds committed for 1951-52		
Dr. Beno Eckmann [Accepted].	3000.00	
M. Fourès [Accepted]	3000.00	
Mme. Fourès [Accepted]	3000.00	
Dr. István S. Gál [Accepted]	3250.00	
Professor John W. Green [Accepted]	2000.00	
Dr. Sze-tsen Hu [Accepted]	3500.00	
Professor Kenkichi Iwasawa [Accepted].	4000.00	
Professor Mark Kac [Accepted].	3000.00	
Professor W. T. Martin [Accepted].	4000.00	
Professor Murray H. Protter [Accepted]	4000.00	
Dr. Leo R. Sario [Accepted].	4000.00	
Professor Irving Segal [Accepted].	3000.00	
Dr. Olaf Schmidt [Accepted].	1250.00	
Professor Max Shiffman [Accepted].	2500.00	
Professor E. H. Spanier [Accepted]	1200.00	
Dr. Jacques L. Tits [Accepted]	2500.00	47,200.00
Balance.		$ 5,903.27

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held November 23, 1951.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg and von Neumann.

1. The letter from Professor Arne Beurling to Professor Selberg, dated November 10, 1951, was discussed. This letter was written before Beurling had received the formal offer of a membership at the Institute for Advanced Study for 1952-53. It was agreed that Selberg should write Beurling that the School of Mathematics was in favor of offering Beurling a five-year membership on the same terms as the one-year membership already offered, and that the Director would seek Faculty and Trustee approval. It was also suggested by Dr. Oppenheimer that Selberg could write to Beurling that after Beurling was here one could consider the possibility of a more permanent arrangement satisfactory both to the Institute and to Beurling. The present offer carries a grant-in-aid of $12,000 per year.

2. It was agreed that Dr. Armand Borel, Swiss mathematician, be offered a membership at the Institute for Advanced Study for 1952-53 with a grant of $3500. Dr. Borel is married. At present he is Acting Professor of Algebra at the University of Geneva. Morse will write informally; the Director formally. [Done.]

3. The following action, taken since the last meeting of the School of Mathematics Faculty, is hereby reported:

Dr. Sze-tsen Hu's grant-in-aid was increased for the present academic year by $300 after the birth of his son. This revises the remaining Balance of the 1951-52 Budget for the School of Mathematics to a total of $5,603.27.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held January 25, 1952.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg and von Neumann.

1. It was voted to renew for 1952-53 the grants-in-aid to Drs. Léonce Fourès and Yvonne Fourès of $3,000 each, and the grant-in-aid of $4,000 to Dr. Murray H. Protter. [Dr. Oppenheimer will write formally.]

2. It is understood that Dr. Jacques Tits wishes to return to Belgium next year.

3. The application of Dr. Robert S. Finn, for a grant to remain here during 1952-53, was viewed with approval. A grant of $3,750 would be appropriate since they are expecting a child, and such an amount will be held in reserve, since he is applying for an Office of Naval Research contract.

4. It was voted to offer Professor Herbert E. Robbins a grant of $4,000 for 1952-53. Dr. Oppenheimer will write him of this and express the hope that he receives a Guggenheim Fellowship in addition.

5. Dr. Oppenheimer will write Professor Rudolf Carnap telling him that we want him to spend the academic year 1952-53 at the Institute, and we will collaborate with him in the attempt to raise the necessary $8,000.

6. The following grants were voted for 1952-53:

Dr. Avraham S. Amitsur.	$4,000
Dr. István Fáry	3,500
Professor Yukiyosi Kawada	4,000

[Professor Morse will write informally; the Director formally.]

6. It was the sense of the meeting that it would be desirable to have Dr. Ram Prakash Bambah here for the academic year 1952-53 either with an ordinary grant or as assistant to Professor Selberg. Professor Selberg will write an exploratory letter to Bambah.

7. Professor Veblen will be asked whether he would like to have Professor Shigeo Sasaki as his assistant for the year 1952-53. This would meet with general approval.

8. The application of Dr. Rama Dhar Misra should be placed in the list of applications for grants in physics.

9. The following additional mathematicians seem to have

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exceptional merit, and are placed on our waiting list:

India:	Dr. Gopinath Kallianpur
Japan:	Professor Morikuni Gotô
Young Americans:	Dr. Allen Devinatz
	Dr. I. Hirschman
	Dr. Alfred Horn
	Professor Harry Pollard
	Dr. Walter Rudin
	Dr. James Sanders
	Professor Albert L. Whiteman
Older Americans:	Professor Hans Samelson
	Professor Robert Schatten

10. Membership to those of the above Americans who need membership in the Institute for Advanced Study for 1952-53 in order to complete applications for government aid was granted under the condition that they receive such government aid.

11. It was voted to grant membership to Professor Saunders MacLane for the remainder of this academic year, 1951-52. [The Director will write formally.]

12. Budget - 1952-53

Funds available from 1951-52	$5603.00	
Funds expected to be appropriated 1952-53.	50000.00	$55603.00
Funds committed for 1952-53.		
Dr. Avraham S. Amitsur [Acc.]	$4000.00	
Dr. Armand Borel [accepted].	3500.00	
Professor Rudolf Carnap [accepted]	4000.00	
Dr. István Fáry [Acc.]	3500.00	
[Dr. Robert S. Finn, reserved.	3750.00]	
Dr. Léonce Fourès [accepted]	3000.00	
Dr. Yvonne Fourès [accepted]	3000.00	
Dr. Friedrich Hirzebruch [accepted].	3500.00	
Professor Yukiyosi Kawada [Acc.]	4000.00	
Dr. Murray H. Protter [accepted]	4000.00	
Professor Herbert E. Robbins [accepted].	4000.00	40250.00
Balance		$15353.00

13. It is hereby reported that Dr. James Dugundji has been invited to continue as Assistant to Professor Morse, and Dr. Hsien-Chung Wang as Assistant to Professor Montgomery for the academic year 1952-53.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held February 18, 1952.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg and von Neumann.

1. The Director outlined his plans and intentions with regard to appointments in physics; and specifically requested approval of the appointment of Dr. Chen Ning Yang and Dr. George Placzek as Permanent Members, indicating his reasons for these steps and sketching the financial arrangements which he proposed to make.

Approval of the appointments was voted.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held March 24, 1952.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg, and von Neumann.

1. The Director moved the following vote:

(a) That the School of Mathematics recommends, as one step, among others, to strengthen the permanent staff in theoretical physics, that George Placzek and Chen Ning Yang, now holding five-year memberships, be made Permanent Members of the School of Mathematics;

(b) That they each receive $10,000 a year; and, with their concurrence, a joint five per cent-five per cent contribution to a retirement policy;

(c) That, in the case of Yang, there be no commitment at the present time as to whether he will or will not at a later date be offered a Professorship at the Institute; that this issue be determined by the progress of his own work, by the general situation in physics at the Institute, and by the relative merits of competing available candidates for such a Professorship; but that the appointment as Permanent Member has taken into account a substantial probability that, in the light of these conditions, he will in fact be offered a Faculty appointment at a later date;

(d) That, in the case of Placzek, it is not at this time anticipated that he will be offered a Professorship at the Institute; that this will not occur unless circumstances now unanticipated supervene; and that the Director communicate the sense of this appointment to Placzek at the time that he is notified of its official confirmation.

The motion was seconded and carried without dissent, Montgomery abstaining on the question of Placzek.

2. The Director moved that the School of Mathematics recommend an extension of Professor Arne Beurling's appointment for a period of up to five years, but in no event longer than the period for which Beurling could obtain leave of absence from the University of Uppsala. Professor Beurling should receive $12,000 a year for the period of his appointment

The motion was seconded and carried without dissent.

3. Dr. Oppenheimer approved the raising of grants to members of the Institute to $3200 for an unmarried member, $3700 for a married member without children, with a supplementary grant of $250 for each child up to two children. These increases are not to apply to grants already made and accepted.

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4. It was voted to grant membership to each of the following mathematicians in case they receive and accept the grants for which they have applied:

Dr. Robert L. Blair (NSF)
Dr. Eckford Cohen (ONR)
Dr. Morton L. Curtis (ONR)
Dr. Allen Devinatz (NSF)
Dr. Robert S. Finn (ONR)
Dr. Donald J. Lewis (NSF)
Dr. Arthur E. Livingston (NSF)
Professor Harry Pollard (ONR)
Professor Albert L. Whiteman (ONR)

5. The following action was taken for the academic year, 1952-1953:

A grant of $3200 will be reserved for Dr. Allen Devinatz in case his National Science Foundation application is not successful. [Morse will write informally.]

A grant of $3950 will be reserved for Dr. Isidor Hirschman subject to the condition that he not receive a Guggenheim Fellowship. [Morse will write informally.]

A grant of $3300 will be reserved for Professor Hans Samelson in case he does not receive a contract with the Office of Ordnance Research. It is understood that Montgomery will write to Samelson to this effect, expressing the hope that Samelson will get the desired Office of Ordnance Research contract.

$4000 was reserved for Professor Rudolf Carnap in case he fails to obtain additional funds from other sources.

It was voted to offer Dr. Gopinath Kallianpur a grant of $3200. [Morse will write informally; the Director formally.]

It was voted to offer Dr. Serge Lang a grant of $3200. [von Neumann will write informally; the Director formally.]

It was voted to offer Dr. James Sanders a grant of $3200. [Morse will write informally; the Director formally.]

6. Professor Shigeo Sasaki was named as the first alternate to receive a grant of $4000 if, by virtue of the reservations made above, there ultimately appears to be enough money left in the budget to cover the $4000 grant for Sasaki and still leave a balance of several thousand dollars. [The Director has made this offer, and it has been accepted.]

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7. Professor Selberg desires to convert his assistantship to a membership for Dr. Ram Prakash Bambah with a minimum grant of $3500. [The Director will write formally.]

8. Professor von Neumann desires to convert his assistantship to a membership for Professor Robert Schatten with a minimum grant of $3200. [von Neumann will write informally; the Director formally.]

9. It was voted that the Director should offer Professor George Temple a membership at the Institute for Advanced Study for 1953-54 with a grant of $4000, suggesting that Temple apply for a Fulbright Grant to cover his travel expenses.

10. The application of Mr. Bruce Gilchrist for membership at the Institute was declined. It was agreed, however, that von Neumann should write him that he would be cordially received at the Electronic Computer Project if he desired to associate himself with this group.

11. The total number of non-permanent members for 1952-53, including probable members by virtue of grants from outside sources, is somewhat less than the total number of thirty-three for the present year, at the time of this meeting.

12. Dr. Norman Wolfsohn has been invited to come as assistant to Professor Hassler Whitney for 1952-53 with a grant of $3000.

13. The Revised Budget, 1952-1953, shown below, takes into account, for the first time, an increase to Professor Mark Kac' grant for 1951-52 of $50, the unexpended $1400 of the grant made to Professor Max Shiffman, and the increased grant to Professor Beno Eckmann of $3750. This adjusts the balance carried forward from the current academic year's budget to $6203.

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Revised Budget - 1952-1953

Funds available from 1951-52	$ 6203.00	
Funds expected to be appropriated for 1952-53.	60000.00	$66,203.00
Funds committed for 1952-53. . . .		
Dr. Avraham S. Amitsur	4000.00	
Dr. Armand Borel	3500.00	
Professor Rudolf Carnap.	4000.00	
[Professor Rudolf Carnap, reserved.	4000.00]	
[Dr. Allen Devinatz, reserved	3200.00]	
Dr. István Fáry.	3500.00	
Dr. Léonce Fourès.	3000.00	
Dr. Yvonne Fourès.	3000.00	
[Dr. Isidor Hirschman, reserved	3950.00]	
Dr. Friedrich Hirzebruch	3500.00	
Dr. Gopinath Kallianpur.	3200.00	
Professor Yukiyosi Kawada.	4000.00	
Dr. Serge Lang	3200.00	
Dr. Murray H. Protter.	4000.00	
Professor Herbert E. Robbins	4000.00	
[Professor Hans Samelson, reserved.	3300.00]	
Dr. James Sanders.	3200.00	
Professor Shigeo Sasaki.	4000.00	64,550.00
Balance		$ 1,653.00

Assistants' Fund - Taxable salary

Dr. James Dugundji [Morse]	$ 3500.00
Mr. R. L. Ingraham [Veblen].	3500.00
Dr. H. C. Wang [Montgomery].	3000.00
Dr. Norman Wolfsohn [Whitney].	3000.00

Transferred from Assistants' Fund to Grants-in-Aid

Dr. R. P. Bambah [Selberg]	3500.00
Professor Robert Schatten [von Neumann].	3200.00

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held May 7, 1952.

Present: Professors Montgomery, Morse, Oppenheimer, Selberg, and von Neumann.

1. The School of Mathematics voted against a grant-in-aid to Professor Theodore S. Motzkin and to discourage him and Professor Harold A. Freeman.

2. It was voted to give a grant of $3500 to Dr. San Dao Liao for the academic year 1952-1953.

3. A grant-in-aid was voted for Professor Morikuni Gotô for the academic year 1952-1953 in the amount of $4000.

4. Since the last meeting Professor Einstein has requested the Director's Office to reappoint Dr. Bruria Kaufman as his assistant for the period July 1, 1952, to June 30, 1952, with a salary of $3200. This has been done.

Marston Morse

Secretary

Cont. to 198(a)

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INSTITUTE FOR ADVANCED STUDY

This note in the minutes of the School of Mathematics is for the purpose of reporting that on June 30, 1952, Dr. Hidehiko Yamabe was appointed to the assistantship for Professor Montgomery with a salary of $3500 for the academic year 1952-1953. This was done at the time Dr. Hsien-Chung Wang resigned as assistant to Professor Montgomery to accept a position in Alabama.

On September 2, 1952, Professor T. Vijayaraghavan was invited to spend a two-months' visit at the Institute with a grant of $750 being offered to him from the School of Mathematics grant-in-aid fund.

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held October 6, 1952.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg, von Neumann and Whitney.

1. Dr. Oppenheimer will endeavor to budget $3700 for each professor listed in the Assistants Fund Budget for the academic year 1953-1954.

2. It was voted to grant increases of $250 each to Drs. Friedrich E. P. Hirzebruch (from the Grants-in-Aid Budget), Hidehiko Yamabe and Richard L. Ingraham (from the Assistants Fund) because of additional dependents. [The Director's Office will notify.]

3. Dr. Selberg discussed the impressions which Professor Siegel and he had obtained of the work of Leslie G. Peck in number theory. These impressions were so unfavorable that it was agreed that it would not be appropriate to make Peck a member. [Dr. Oppenheimer will write Peck.]

4. It was agreed that Professor Hans Rademacher would be offered a membership for the second term of this year and that Morse will write Rademacher to ascertain his financial situation during this second half year. [A grant of $800 was later voted.]

5. It was agreed that Professor Wladimir Seidel would be offered the privileges of the Institute including the use of the Library, and the right to attend seminars. The Institute would then offer him membership if the full implications of this, including office space, could be carried through. [Morse will write.]

6. It was voted to offer Claus Müller $500 for a month at the Institute in the second term of this year. Selberg will write Professor Weyl and Dr. Müller to make appropriate arrangements. The Director's Office will write Müller when these arrangements have been made.

7. The application of Dr. Paul Dedecker was brought before the School. Recommendations have been received from Janet and de Rham, and Leray will be asked to write to Lepage for his opinion concerning Dr. Dedecker.

8. The balance remaining in the Grants-in-Aid Budget after this meeting, allowing for the expenditure of $500 and $800 to Müller and Rademacher, respectively, is $6,303.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

This note in the minutes of the School of Mathematics is for the purpose of reporting that on October 27, 1952, with the unanimous vote of the School Faculty, Professor Harold S. Ruse was offered membership for the remainder of the first term of the academic year 1952-1953, and a grant-in-aid of $1200.

On October 31, 1952, Professor F. Waismann was invited to membership for the spring term of the academic year 1952-1953, and was offered a grant-in-aid of $1500, with the unanimous vote of the Faculty.

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held November 10, 1952.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg, von Neumann and Whitney.

1. It was unanimously voted to recommend the appointment of Kurt Gödel and Freeman J. Dyson as Professors in the School of Mathematics at the junior salary level, and Hans Bethe as Professor in the School of Mathematics at the senior salary level. It is understood that these recommendations will go before the Full Faculty and their implementation will depend upon the action of the Trustees and negotiations now being carried on.

2. It was unanimously voted to offer P. A. M. Dirac membership for the academic year 1953-1954. The financial arrangements will be made between Dr. Oppenheimer and the Board of Trustees with the amount of $15,000 being proposed.

Marston Morse
Secretary

Cont. to 200 (a).

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INSTITUTE FOR ADVANCED STUDY

This note in the minutes of the School of Mathematics is for the purpose of reporting that on November 24, 1952, with the unanimous vote of the School Faculty, Dr. Lars Gårding was offered membership for the second term of the academic year 1952-1953, and a grant-in-aid of $3000. Of the grant-in-aid, $1500 will be charged against the budget for the School of Mathematics and $1500 against the budget for Physics.

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held February 3, 1953.

Present: Professors Montgomery, Morse, Pais, Selberg, von Neumann and Whitney.

1. The recommendations voted at this meeting are subject to confirmation by Dr. Oppenheimer.

2. It was voted to recommend renewals for the following mathematicians for the academic year 1953-54:

Amitsur, A. S.	$4,000	
Borel, Armand	3,750	
Gotô, Morikuni	4,000	
Kawada, Yukiyosi	4,000	
Lang, Serge	3,200	[Declined later.]
Liao, S. D.	3,500	
Sasaki, Shigeo	4,000	

The amounts recommended are the same as for last year with the exception of Dr. Borel whose grant-in-aid has been increased to $3,750 to correspond with that of Dr. Hirzebruch. [Director will notify.]

3. Grants-in-aid were recommended for the following mathematicians:

Arens, R. F.	$2,500
Browder, F. E.	3,700
Calderón, A. P.	3,950
Fine, N. J.	3,950
Strebel, Kurt	3,750

Of these mathematicians, Calderón and Strebel should be notified of this vote, if confirmed, at once. The recommendations as to Arens, Browder and Fine, who are applying for funds from other sources, are that the corresponding funds be reserved until such time, around April 1, as it is known whether or not they will receive grants from other sources. It is recommended that these mathematicians <u>be not notified</u> of any appointment <u>at this time</u>.

4. It was voted to make a grant of $2,000 to Dr. <u>Gert Sabidussi</u>. This grant of $2,000 is toward his subsistence while in Princeton and is conditional upon his raising at least $1,000 more for this purpose from other sources, and additional funds for his travelling expenses. [Informal letters will be written to Calderón, Strebel and Sabidussi as soon as the

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Director approves. The Director will write formal letters to these mathematicians if he confirms our recommendations.]

5. It was voted to recommend a membership for the remainder of the year, 1952-53, for Nils Aall Barricelli.

6. Professor von Neumann read a letter from Professor Ledger Wood, of Princeton University, regarding a joint discussion of problems in philosophy involving Professor Waismann. It was voted to leave this matter with Professor von Neumann with power to arrange the conference at a convenient time, and with notification of the members of the School as to the time.

Marston Morse
Secretary

7. Subsequent to this meeting Professor Orhan H. Alisbah of the University of Ankara was voted membership in the School of Mathematics for the remainder of the current academic year and for the fall term of 1953-54.

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held March 25, 1953.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg, von Neumann and Whitney.

1. It was agreed that the case of Allan D. Martin might wait until such time as he has proven his mathematical abilities somewhat more completely. [Morse will write.]

2. It was voted to offer Professor Walter Leighton a membership in the School of Mathematics for next year, 1953-54. [The Director will write.]

3. It was voted to grant Dr. Gert Sabidussi $500 more, making a total grant of $2,500. [The Director will write.]

4. It was voted to tell Dr. Frank H. Brownell that his application had not been favorably acted upon. [Professor Morse will write.]

5. The application of Dr. James Sanders will be reviewed by the members of the School Faculty with the expectation that application will be made to the Office of Ordnance Research.

6. It was felt that the School should give every consideration to Dr. Clarence F. Stephens. Morse has written for further information concerning him. If the information turns out to be reasonably favorable it is the expectation that he will be granted a membership.

7. It was agreed that Professor Montgomery would take up with Dr. Eugene Schenkman the question as to whether he would like to have the Institute make an application in his behalf for a contract with the Office of Ordnance Research in case he should not get a postdoctoral fellowship from the National Science Foundation.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held April 8, 1953.

Present: Professors Montgomery, Morse, Oppenheimer, Pais, Selberg, and von Neumann.

1. Membership was voted for the following:

Professor Henry M. Schaerf, Washington University, on a Faculty Fellowship;

Professor Walter Prenowitz, Brooklyn College, Ford Foundation grant;

Professor Clarence F. Stephens, Morgan State College, Ford Foundation grant;

Professor Paul Civin, University of Oregon, half salary from Oregon;

Mr. John C. Shepherdson, University of Bristol, England;

Professor Lowell J. Paige, U.C.L.A., will work at Computer, probably on ONR funds;

Dr. Nathan J. Fine, University of Pennsylvania, National Science Foundation grant;

Mr. Bertram Kostant, University of Chicago, National Science Foundation grant;

Dr. David Rittenberg, College of Physicians and Surgeons.

[Dr. Oppenheimer will notify these men of their membership in the Institute for next year, 1953-54.]

2. A grant of $3750 was voted to Dr. Allen Devinatz. [Dr. Oppenheimer will notify.]

3. It was agreed that Shepherdson, Civin, and Mr. Frederick Bagemihl (University of Rochester) might receive grants with the order of priority as written, in case funds become available. In his letters to Shepherdson and Civin, Dr. Oppenheimer may give such indication of this as he finds appropriate.

4. A supplementary grant of $500 was voted for Dr. Armand Borel making his grant for next year $4250. [Dr. Oppenheimer will notify.]

5. It was voted not to grant membership to Frank H. Brownell because of his emphasis upon housing. [Morse will write.]

6. It was voted to ask Professor Kosaku Yosida to give two or more lectures at the Institute with an honorarium of $200. [Montgomery will write.]

7. It was voted to recommend a five-year extension of Dr. Res Jost's membership at $10,000 a year.

8. Unless word is received to the contrary Professor Morse understands that declinations can now be sent to all persons who have not been granted membership or conditional membership, who have not received

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grants from the Institute or from foundations for study at the Institute, or who are not on our priority list, or for whom contracts are being negotiated.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics, held May 21, 1953.

Present: Professors Montgomery, Morse, Oppenheimer, Selberg, von Neumann, and Whitney

1. It was voted to reserve $4600 as a grant for Professor Rademacher for the first term of next year in case the contract in his behalf with the Office of Ordnance Research does not come through.

2. The recommendation of Dr. Gödel that the fund available for his assistant be converted to a grant for Professor Carnap was approved. Dr. Oppenheimer will confirm this recommendation of Dr. Gödel with Dr. Gödel and notify Professor Carnap of the grant. Membership for Professor Carnap for next year was voted.

3. It was voted to make Mr. Frederick Bagemihl a grant of $3200 for next year. The Director will notify Mr. Bagemihl.

4. Professor Paul Civin was placed after Professor Rademacher as one for whom a grant would be reserved insofar as money becomes available. Professor Morse will write Civin telling him that in case the contract with the Office of Ordnance Research does not materialize there will be available a grant to him of at least $1500 and possibly more, depending upon various factors which are unknown at the present time.

5. It was voted to grant membership for next year to Dr. F. H. Brownell (Ford Foundation grant), Professor William G. Madow (Ford Foundation grant), and to Professor Herbert Robbins. The Director will send formal notices of membership to these mathematicians. In the case of Robbins it was understood that the Institute housing which has been available to him this year would not be available next year and that the membership is for one year only.

6. The recommendations of Professor von Neumann with regard to Dr. Benoit Mandelbrot were approved. Professor von Neumann will write to Warren Weaver in a preliminary way and to Mandelbrot for further information. Upon receipt of the appropriate information the Director will make application to the Rockefeller Foundation.

7. The status of the Assistants' Fund for the Professors of Mathematics is as follows:

R. Deheuvels	(Morse)	$4200
R. L. Ingraham	(Veblen)	3750

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N. Wolfsohn	(Whitney)	$3200
H. Yamabe	(Montgomery)	3750

Funds for the following were converted to grants-in-aid:

H. Anzai	(von Neumann)	3500
R. P. Bambah	(Selberg)	3500
R. Carnap	(Gödel)	4000

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of an informal meeting of the School of Mathematics, held August 25, 1953.

Present: Professors Montgomery, Morse, and Oppenheimer.

1. It was agreed that Dr. Oppenheimer would talk with Miss Trinterud concerning Mr. Goodall, indicating the difficulty in solving the problem concerned.

2. Consideration of the case of Kuo-Tsai Chen was postponed except that it was agreed that it might be desirable to talk informally with the Science Advisers of the State Department regarding Chen. [Dr. Oppenheimer has done.]

3. Professor Hans Rademacher has indicated a desire to spend the Spring Term of 1953-54 at the Institute. Professor Kline has not yet shown willingness to grant leave of absence to Rademacher. The Office of Ordnance Research desires to transform the contract involving Rademacher into a contract which would cover the Second Term of 1953-54. Under these circumstances it was agreed that it was not necessary to continue a reservation of a stipend for Rademacher for this Second Term; but rather to indicate to Kline and Rademacher that the Institute would be glad to make a contract with the Office of Ordnance Research involving Rademacher for the Spring Term, 1953-54. Morse was authorized to write Kline and Rademacher to this effect, asking them to give their decision as soon as possible in order that the Office of Ordnance Research might act.

4. It was agreed that $1500 be made available to Michael Fekete for the Fall Term and that von Neumann be asked to communicate with him to this effect.

5. Membership of Victor L. Shapiro was approved.

6. Membership for Edoardo Storchi was approved providing Charney agrees that this is desirable.

7. It was agreed to offer the Dutch mathematician L. E. J. Brouwer $500 in order that he might stay somewhat longer with us in the Fall.

Marston Morse

Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics held September 30, 1953.

Present: Professors Dyson, Gödel, Montgomery, Morse, Oppenheimer, Selberg, von Neumann and Whitney.

1. It was voted to offer Kôsaku Yosida $2000 for the First Term, 1954-55. [Morse will write informally and the Director formally.]

2. With regard to Professor Arne Beurling it was agreed that Morse and Selberg would write up an account of his scientific qualifications and, separately, an account of his general qualifications for the School of Mathematics and ultimately, if the School agrees, for the Faculty.

3. Professor Montgomery is authorized to write Hsien-Chung Wang that he will be granted membership for 1954-55 if he obtains funds enabling him to come to the Institute. [Professor Montgomery has written Wang as follows: "Professor Leon Cohen called me up recently and asked whether the Institute had any preference about a grant for your stay here being made to the Institute or to Alabama. I am replying to him that you would be very welcome here under either arrangement and I enclose a copy of my letter to him. If he says he would like the application to be sent in from here I will prepare an application from the material you sent and have it sent in. On the other hand if he writes to you that he would like to have the application sent in from Alabama I hope that you will make arrangements to do that. Either way I hope very much that everything will work out favorably."]

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics held October 30, 1953.

Present: Professors Dyson, Gödel, Montgomery, Morse, Oppenheimer, Selberg, von Neumann and Whitney.

1. It was voted to extend the membership of Orhan H. Alisbah for the Spring Term, 1953-54, with the understanding that this does not mean that he will be able to retain his present house on Maxwell Lane. [Morse will write.]

2. It was voted to seek arrangements satisfactory to Charles B. Morrey, Jr., for the academic year, 1954-55, of the following nature. If arrangements satisfactory to Morrey can be made he would be supported by a contract with the Office of Scientific Research with a salary of $4000 paid under this contract (being approximately 1/3 of his present salary) plus a travel grant of $500 to $1000 plus the usual overhead. If such an arrangement is not possible because of his commitment to other government agencies, the Institute will grant him 1/3 of his salary from its own funds. [Morse will write.]

3. It was voted to offer Nils Aall Barricelli $1800 for the Spring Term, 1953-54, as requested by von Neumann. [von Neumann will write informally and Morse formally, representing the Committee acting for the Director.]

4. It was voted to grant Paul Civin $1000 for the remainder of the year in addition to the $1500 already granted him. [Morse will write.]

5. In the case of Kiyosi Itô the proposal will be made to the University that the Institute grant him $2000 for one term and that the University grant him $2000 for the other term of the next academic year, 1954-55. It is important that the grant be by terms to avoid confusion on its taxability. He would perform no service in return for the grant from the Institute, whereas the situation would presumably be different in the case of the University. [Morse will write Professor Feller.]

6. It was voted to offer Paul Malliavin a grant of $3500 for the academic year, 1954-55. [Morse will write.]

7. The desire of Friederich I. Mautner to spend the following year, 1954-55, at the Institute was noted. Professor Montgomery was authorized to make arrangements, if possible, with Mautner and the National Science Foundation to the end that Mautner might come here next year under a contract between the Institute or Johns Hopkins University and the National Science Foundation. To take care of the possibility that such an arrangement might

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fail or Mautner should fail to get a Guggenheim Fellowship, it was agreed to reserve $4000 as a grant for him.

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics held November 18, 1953.

Present: Professors Dyson, Gödel, Montgomery, Morse, Selberg, von Neumann, and Whitney.

1. It was voted to reserve $4000 for Professor S. S. Chern in case he receives no other grants from sources outside the University of Chicago for 1954-55. It is understood that part of this would be available for him if these grants turn out to be insufficient. An application for a grant in his behalf will be made to the National Science Foundation. [Professor Montgomery will write Chern.]

2. It was voted to reserve $4000 for Professor A. S. Besicovitch with the understanding that an application would be made to the Office of Scientific Research for funds for him in case he wishes to spend a term during 1954-55 at the Institute. [Morse will carry on the negotiations.]

3. It was voted to grant membership to J. G. Hocking for the year 1954-55 on the condition that he receives a National Research Council fellowship. [Morse will write.]

4. It was voted to reserve $4000 for Friederich I. Mautner for 1954-55 and meanwhile to apply to the Office of Ordnance Research for a contract in his behalf. [Professor Montgomery will follow this up.]

5. In the case of Eugene Schenkman it was suggested that the Air Research and Development Command be asked to extend his present contract to October 1, 1954. If such an extension is made, his need for the following year could probably be covered by the Institute. It was also agreed that an application for a grant should be made to the National Science Foundation for Schenkman for 1954-55. [Montgomery will negotiate.]

6. Membership to Edoardo Storchi has been voted previously and the Fulbright office has been notified by telegraph. A formal letter will now be sent inviting him to the Institute for the Spring Term, 1953-54.

7. It was voted to reserve $2125 for Georges Reeb in case the University is able to make an equal amount available. It is understood that the Institute grant would be for one term of 1954-55 and the University grant for the other term. [Whitney will seek the formal University approval of such an arrangement.]

8. It was voted to offer Professor Marcel Riesz $200 from the Visitors' Fund for two lectures to be given at the Institute during this academic year on dates to suit his convenience. It is hoped that the

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University can make a similar grant. The negotiations are left to Selberg with the understanding that he will seek a list of topics for Riesz' lectures from which two selections can be made.

9. It was agreed that it would be desirable for Professor Gustave Choquet to spend a term here sometime in the future provided money is available. Professor Morse will report back the probable state of the budget for next year considering the grants already voted and the likely renewals.

In accordance with our understanding the actions voted in this meeting will become final when approved by Professor Kantorowicz. [Done, November 19, 1953.]

Marston Morse
Secretary

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INSTITUTE FOR ADVANCED STUDY

Minutes of a meeting of the School of Mathematics held December 11, 1953.

Present: Professors Dyson, Gödel, Montgomery, Morse, Selberg, von Neumann, and Whitney.

1. It was voted to make a grant of $4000 to Professor Tadasi Nakayama for the academic year 1954-55. [Morse will write informally.]

2. It was voted to make a grant of $3750 to Dr. Peter Roquette of Munich, recommended by Professor Weyl, with an additional reservation of $250 in case he does not receive Fulbright aid for transportation. [Selberg will notify informally.]

3. It was voted to accept the proposed contract from the Office of Scientific Research on behalf of Dr. Allan D. Martin of Washington University. [Morse will write to Walter Leighton.]

4. Edgar Reich, who has applied for a National Research Council fellowship, will be granted membership provided he obtains such a fellowship. [Morse will write to the National Research Council agreeing to act as his Scientific Advisor.]

5. It was voted to ask Professor Gustave Choquet whether he would like to spend a term here during the year 1955-56 with a grant of $4000. Any other proposal coming from Choquet will be referred back to the School of Mathematics.

Marston Morse
Secretary

6. For additional information of the Faculty the following are commitments, at this time, for the academic year 1954-55:

K. Itô, Term II	$2,000
P. Malliavin	3,500
T. Nakayama	4,000
G. Reeb, Term II	2,125
P. Roquette	3,750
[" " reservation	250]
K. Yosida, Term I	2,000
[A. S. Besicovitch, Trinity College, reservation	4,000]
[S. S. Chern, University of Chicago, reservation	4,000]
[F. Mautner, Johns Hopkins University, reservation	4,000]
[C. B. Morrey, Jr., Univ. of Calif., Berkeley, res.	4,000]

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Applications from present members with 1953-54 grants:

F. Bagemihl	$3,200
G. Sabidussi	2,500 (plus?)
K. Strebel	3,750
V. L. Shapiro	Rutgers Univ. grant
C. F. Stephens	Ford Foundation Fellow

Pending applications for contracts with government agencies:

National Science Foundation

S. S. Chern

Office of Ordnance Research

C. Goffman

F. Mautner

E. V. Schenkman

Office of Scientific Research

A. D. Martin

C. B. Morrey, Jr.

7. Since the meeting on December 11, 1953, the following actions were taken:

a. The School of Mathematics voted to give Professor Gustave Choquet $150 for his expenses in connection with his visit and lecture at the Institute. This is to be taken from the School's Visitors' Fund.

b. We are also giving Dr. Hans J. Bremermann his travelling expenses from Harvard for his trip to lecture at the Institute. This amounts to $15 and is to be taken from the School's Visitors' Fund.

c. It was agreed that we would share equally with the University the expenses of visitors speaking at the University-Institute Mathematics Club.

8. It is hereby reported that Professor Choquet is very much interested in coming here for a term during the year 1955-56 at a grant-in-aid of $4,000, and will come if he can make arrangements with the Sorbonne.

Marston Morse

Secretary